EAO – Your Expert Partner for
**Human Machine Interfaces**

# EAO Product Information

Series 51

eao

Description ..... 3

Product Assembly ..... 4

Devices raised mounting ..... 7

Devices flush mounting ..... 13

Accessories ..... 21

Technical Data ..... 33

Typical Applications ..... 36

Application guidelines ..... 37

Marking ..... 38

Drawings ..... 40

Index ..... 58

## Product Information

**General notes**
The illuminated pushbuttons of series 51 with hoseproof front (IP 65) can be supplied with snap-action or low-level switching elements. The equipment (switches) for raised mounting are protected against accidental operation by the extended sides of the bezel. Flush mounting equipment excells with best available ergonomy and low down hight. To supplement the range of illuminated pushbuttons, we can offer a hoseproof safety keylock switch with various lock numbers.

**Mounting**
All switch actuators are mounted from the front by pushing them through the mounting hole in the front panel. They are then fixed from the back with a fixing nut and the mounting tool Typ-Nr. 01-907. Max. tightening torque 50 Ncm.
For switching elements we offer plug-in bases, which when soldered to a PCB enable a plug-in connection to the button. The rectangular actuators for raised are provided with an anti-twisting device.

**Lenses**
The flat or concave lenses are available in various colours, as well as translucent or transparent. Round lenses for flush mounting equipment are available in aluminium also.
Because of production related reasons, the colours of anodized aluminium parts can vary slightly.

**Marking**
For further information about engraving, hot stamping and film inserts see part Marking.

**Illumination**
The T1 $^{3}/_{4}$ Midget Groove incandescent (filament) lamp (6 ... 48 V) ensures perfect illumination of the lenses, which are supplied in various colours.
T1 $^{3}/_{4}$ Midget Groove Single-LED (6, 12, 24, 28, 48 V) are also available in blue, green, red, white or yellow.
Luminosity and wave length scattering caused by technologie used in the LED manufacturing processes may lead to visual differences in our products.
For supply voltages above 48 V, it is necessary to use a voltage reduction element (external series resistor or transformer).

**Position indication**
The status of a maintained action switch can be determinded by the position of the lens.

**Keylock switch**
Standard lock (Index D). Standard lock number is 311. If the lock number is not specified, we will supply standard number 311.
An additional 134 special locks (Index X) are available on request.
Master keys for lock numbers 311 ... 445 may be ordered by quoting Typ-Nr. 31-989.300. Two keys are supplied with each keylock switch.
Spare keys (Index D) for standard locks may be ordered by quoting Typ-Nr. 31-989.xxx (please state the lock number).

**Specimen order**

Indicator :

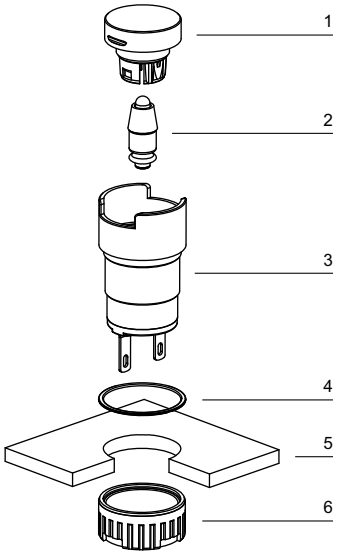
| | |
|---|---|
| - Indicator actuator, 18 x 24 mm, soldering terminal | 31-040.005 |

Essential accessories :

| | |
|---|---|
| - Lens plastic blue, transparent, flush, 18 x 24 mm | 31-903.6 |
| - Single-LED, T1 $^{3}/_{4}$ MG, 24 VAC/DC, blau | 10-2J12.1066 |

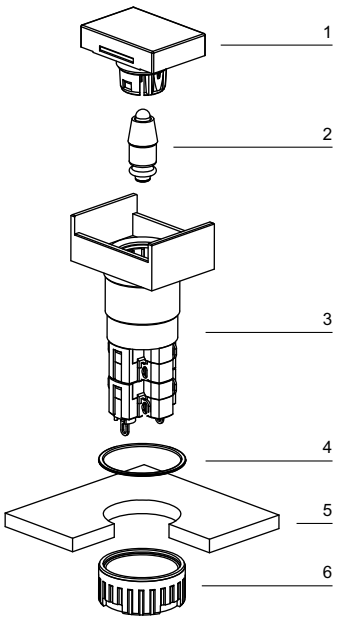
*We reserve the right to modify technical data*
*All dimensions in mm*

## Indicator round, raised mounting



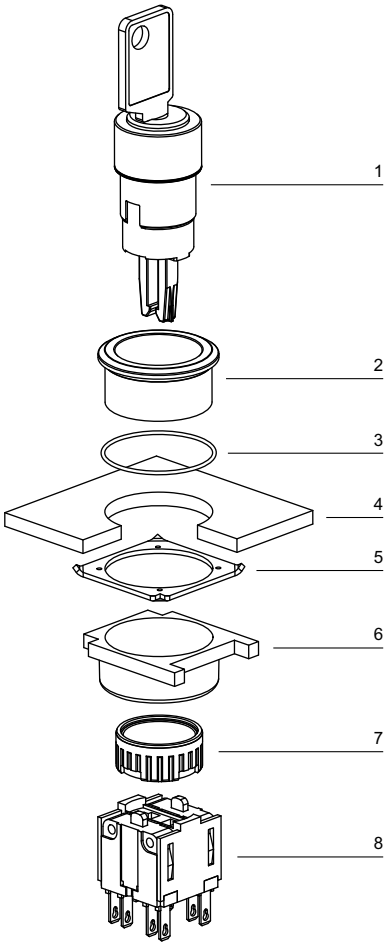

1 Lens
2 LED
3 Indicator housing
4 Sealing
5 Front plate
6 Fixing nut

## Illuminated pushbutton, raised mounting



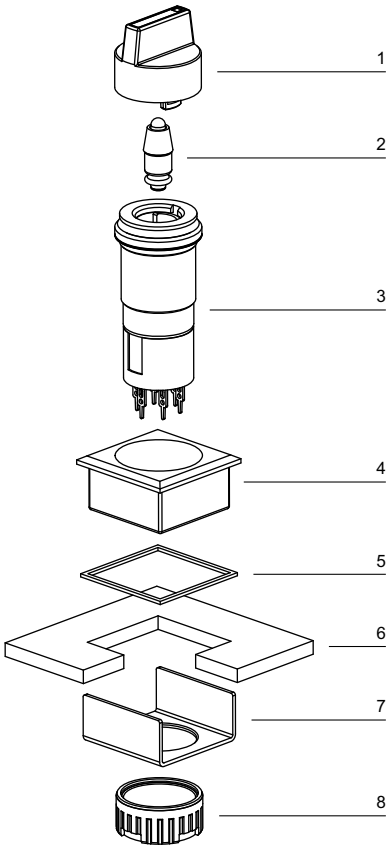

1 Lens
2 LED
3 Switch housing
4 Sealing
5 Front plate
6 Fixing nut

## Keylock switch round, flush mounting




1 Actuator housing
2 Front bezel
3 Sealing
4 Front plate
5 Anti-twist ring
6 Thrust piece
7 Fixing nut
8 Switching element

## Selector switch square, flush mounting




1 Actuator housing
2 LED
3 Actuator housing
4 Front bezel
5 Sealing
6 Front plate
7 Fixing bracket
8 Fixing nut

## Indicator actuator

**Essential Accessories:**

- Lens plastic, raised mounting page 21
- Single-LED page 30

| | Front protection | Diode (1N 4007) | Terminals | ⧠ 18 x 18 mm Typ-Nr. | ⧠ 18 x 24 mm Typ-Nr. | Ø 18 mm Typ-Nr. | Component layout | Mounting dimensions | Technical drawing | Circuit drawing | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Indicator actuator** | IP 65 | 1 D | UT | **51-703.006** | **51-701.006** | **51-741.006** | 4 | 1 | 12 | 78 | 0.006 |
| | | 2 D | UT | **51-704.006** | **51-702.006** | **51-742.006** | 4 | 1 | 12 | 79 | 0.006 |
| | | - | S | **51-050.005** | **51-040.005** | **51-030.005** | | 1 | 12 | 1 | 0.004 |
| | | | S1 | **51-050.002** | **51-040.002** | **51-030.002** | | 1 | 12 | 1 | 0.004 |
| | | | UT | **51-051.006** | **51-041.006** | **51-031.006** | 4 | 1 | 12 | 1 | 0.005 |

Indicators fit also in mounting hole no. 2
Diode (1N 4007): D = Diode, - = without
Terminals: UT = Universal terminal, S = Soldering terminal, S1 = Soldering terminal (also pluggable 2.8 x 0.5 mm)
Component layout from page 40, Mounting dimensions from page 41, Technical drawing from page 42, Circuit drawing from page 47

## Illuminated pushbutton actuator

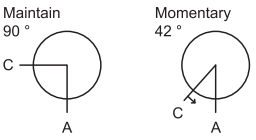
**Essential Accessories:**

Lens plastic, raised mounting page 21
Single-LED page 30

| | Front protection | Switching system | Contacts | Diode (1N 4007) | Switching action | Terminals | ⍞ 18 x 18 mm Typ-Nr. | ⍞ 18 x 24 mm Typ-Nr. | Ø 18 mm Typ-Nr. | Component layout | Mounting dimensions | Technical drawing | Circuit drawing | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Illuminated pushbutton actuator** | IP 65 | LL | 1 NC | - | MA | UT | **51-486.036** | **51-466.036** | **51-476.036** | 4 | 1 | 13 | 11 | 0.007 |
| | | | | | M | UT | **51-456.036** | **51-426.036** | **51-436.036** | 4 | 1 | 13 | 57 | 0.007 |
| | | | 1 NC + 1 NO | - | MA | UT | **51-483.036** | **51-463.036** | **51-473.036** | 4 | 1 | 13 | 14 | 0.007 |
| | | | | | M | UT | **51-453.036** | **51-423.036** | **51-433.036** | 4 | 1 | 13 | 60 | 0.007 |
| | | | 1 NO | - | MA | UT | **51-485.036** | **51-465.036** | **51-475.036** | 4 | 1 | 13 | 13 | 0.007 |
| | | | | | M | UT | **51-455.036** | **51-425.036** | **51-435.036** | 4 | 1 | 13 | 59 | 0.007 |
| | | | 2 NC | - | MA | UT | **51-482.036** | **51-462.036** | **51-472.036** | 4 | 1 | 13 | 12 | 0.007 |
| | | | | | M | UT | **51-452.036** | **51-422.036** | **51-432.036** | 4 | 1 | 13 | 58 | 0.007 |
| | | | 2 NO | - | MA | UT | **51-481.036** | **51-461.036** | **51-471.036** | 4 | 1 | 13 | 15 | 0.007 |
| | | | | | M | UT | **51-451.036** | **51-421.036** | **51-431.036** | 4 | 1 | 13 | 61 | 0.007 |
| | | SA | 1 NC + 1 NO | 1 D | MA | H | **51-717.0292** | **51-713.0292** | **51-747.0292** | | 1 | 13 | 8 | 0.008 |
| | | | | | M | H | **51-709.0292** | **51-705.0292** | **51-743.0292** | | 1 | 13 | 54 | 0.008 |
| | | | | 2 D | MA | H | **51-718.0292** | **51-714.0292** | **51-748.0292** | | 1 | 13 | 9 | 0.008 |
| | | | | | M | H | **51-710.0292** | **51-706.0292** | **51-744.0292** | | 1 | 13 | 55 | 0.008 |
| | | | | - | MA | S | **51-281.0252** | **51-261.0252** | **51-271.0252** | | 1 | 13 | 10 | 0.006 |
| | | | | | | S1 | **51-281.022** | **51-261.022** | **51-271.022** | | 1 | 13 | 7 | 0.006 |
| | | | | | M | S | **51-151.0252** | **51-121.0252** | **51-131.0252** | | 1 | 13 | 56 | 0.006 |
| | | | | | | S1 | **51-151.022** | **51-121.022** | **51-131.022** | | 1 | 13 | 53 | 0.006 |
| | | | 2 NC + 2 NO | 1 D | MA | H | **51-719.0292** | **51-715.0292** | **51-749.0292** | | 1 | 13 | 4 | 0.010 |
| | | | | | M | H | **51-711.0292** | **51-707.0292** | **51-745.0292** | | 1 | 13 | 50 | 0.010 |
| | | | | 2 D | MA | H | **51-720.0292** | **51-716.0292** | **51-750.0292** | | 1 | 13 | 5 | 0.010 |
| | | | | | M | H | **51-712.0292** | **51-708.0292** | **51-746.0292** | | 1 | 13 | 51 | 0.010 |
| | | | | - | MA | S | **51-282.0252** | **51-262.0252** | **51-272.0252** | | 1 | 13 | 6 | 0.008 |
| | | | | | M | S | **51-152.0252** | **51-122.0252** | **51-132.0252** | | 1 | 13 | 52 | 0.008 |
| | | | 3 NC + 3 NO | - | MA | S | **51-283.0252** | **51-263.0252** | **51-273.0252** | | 1 | 13 | 3 | 0.010 |
| | | | | | M | S | **51-153.0252** | **51-123.0252** | **51-133.0252** | | 1 | 13 | 49 | 0.010 |
| | | | 4 NC + 4 NO | - | MA | S | **51-284.0252** | **51-264.0252** | **51-274.0252** | | 1 | 13 | 2 | 0.012 |
| | | | | | M | S | **51-154.0252** | **51-124.0252** | **51-134.0252** | | 1 | 13 | 48 | 0.012 |

Illuminated pushbutton fit also in mounting hole no. 2
Switching system: LL = Low level switching element, SA = Snap-action switching element
Contacts: NC = Normally closed, NO = Normally open
Diode (1N 4007): - = without, D = Diode
Switching action: MA = Maintained action, M = Momentary action
Terminals: UT = Universal terminal, H = Combined terminal: Solder-/ Universal (at contact/ at diode), S = Soldering terminal, S1 = Soldering terminal (also pluggable 2.8 x 0.5 mm)
Component layout from page 40, Mounting dimensions from page 41, Technical drawing from page 42, Circuit drawing from page 47

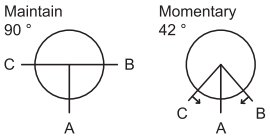
## Keylock switch 2 positions




| | Front protection | Switching system | Contacts | Switching action | Terminals | Key remove | ⌷ 18 x 18 mm Typ-Nr. | ⌷ 18 x 24 mm Typ-Nr. | Ø 18 mm Typ-Nr. | Component layout | Mounting dimensions | Technical drawing | Circuit drawing | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Keylock switch 2 positions**<br>Position A : Basic position<br>Position C : Maintained action<br>Standard lock 311<br>Front : Plastic black | IP 65 | LL | 1 NC + 1 NO | MA | UT | A | **51-445.036D** | **51-405.036D** | **51-415.036D** | 4 | 2 | 14 | 76 | 0.017 |
| | | | | | | C | **51-448.036D** | **51-408.036D** | **51-418.036D** | 4 | 2 | 14 | 76 | 0.017 |
| | | | | | | C + A | **51-442.036D** | **51-402.036D** | **51-412.036D** | 4 | 2 | 14 | 76 | 0.017 |
| | | | 2 NO | MA | UT | A | **51-444.036D** | **51-404.036D** | **51-414.036D** | 4 | 2 | 14 | 77 | 0.017 |
| | | | | | | C | **51-447.036D** | **51-407.036D** | **51-417.036D** | 4 | 2 | 14 | 77 | 0.017 |
| | | | | | | C + A | **51-441.036D** | **51-401.036D** | **51-411.036D** | 4 | 2 | 14 | 77 | 0.017 |
| | | SA | 1 NC + 1 NO | MA | S | A | **51-255.025D2** | **51-295.025D2** | **51-235.025D2** | | 2 | 14 | 72 | 0.016 |
| | | | | | | C | **51-355.025D2** | **51-395.025D2** | **51-335.025D2** | | 2 | 14 | 72 | 0.016 |
| | | | | | | C + A | **51-155.025D2** | **51-195.025D2** | **51-135.025D2** | | 2 | 14 | 72 | 0.016 |
| | | | | | S1 | A | **51-255.022D** | **51-295.022D** | **51-235.022D** | | 2 | 14 | 72 | 0.016 |
| | | | | | | C | **51-355.022D** | **51-395.022D** | **51-335.022D** | | 2 | 14 | 72 | 0.016 |
| | | | | | | C + A | **51-155.022D** | **51-195.022D** | **51-135.022D** | | 2 | 14 | 72 | 0.016 |
| | | | 2 NC + 2 NO | MA | S | A | **51-256.025D2** | **51-296.025D2** | **51-236.025D2** | | 2 | 14 | 73 | 0.016 |
| | | | | | | C | **51-356.025D2** | **51-396.025D2** | **51-336.025D2** | | 2 | 14 | 73 | 0.016 |
| | | | | | | C + A | **51-156.025D2** | **51-196.025D2** | **51-136.025D2** | | 2 | 14 | 73 | 0.016 |
| | | | 3 NC + 3 NO | MA | S | A | **51-257.025D2** | **51-297.025D2** | **51-237.025D2** | | 2 | 14 | 74 | 0.016 |
| | | | | | | C | **51-357.025D2** | **51-397.025D2** | **51-337.025D2** | | 2 | 14 | 74 | 0.016 |
| | | | | | | C + A | **51-157.025D2** | **51-197.025D2** | **51-137.025D2** | | 2 | 14 | 74 | 0.016 |
| | | | 4 NC + 4 NO | MA | S | A | **51-258.025D2** | **51-298.025D2** | **51-238.025D2** | | 2 | 14 | 75 | 0.016 |
| | | | | | | C | **51-358.025D2** | **51-398.025D2** | **51-338.025D2** | | 2 | 14 | 75 | 0.016 |
| | | | | | | C + A | **51-158.025D2** | **51-198.025D2** | **51-138.025D2** | | 2 | 14 | 75 | 0.016 |
| Position A : Basic position<br>Position C : Momentary action<br>Standard lock 311<br>Front : Plastic black | IP 65 | LL | 1 NC + 1 NO | M | UT | A | **51-458.036D** | **51-428.036D** | **51-438.036D** | 4 | 2 | 14 | 70 | 0.017 |
| | | | 2 NO | M | UT | A | **51-457.036D** | **51-427.036D** | **51-437.036D** | 4 | 2 | 14 | 71 | 0.017 |
| | | SA | 1 NC + 1 NO | M | S | A | **51-145.025D2** | **51-495.025D2** | **51-141.025D2** | | 2 | 14 | 66 | 0.016 |
| | | | | | S1 | A | **51-145.022D** | **51-495.022D** | **51-141.022D** | | 2 | 14 | 66 | 0.016 |
| | | | 2 NC + 2 NO | M | S | A | **51-146.025D2** | **51-496.025D2** | **51-142.025D2** | | 2 | 14 | 67 | 0.016 |
| | | | 3 NC + 3 NO | M | S | A | **51-147.025D2** | **51-497.025D2** | **51-143.025D2** | | 2 | 14 | 68 | 0.016 |
| | | | 4 NC + 4 NO | M | S | A | **51-148.025D2** | **51-498.025D2** | **51-144.025D2** | | 2 | 14 | 69 | 0.016 |

Other lock numbers on request
Switching system: LL = Low level switching element, SA = Snap-action switching element
Contacts: NC = Normally closed, NO = Normally open
Switching action: MA = Maintained action, M = Momentary action
Terminals: UT = Universal terminal, S = Soldering terminal, S1 = Soldering terminal (also pluggable 2.8 x 0.5 mm)
Component layout from page 40, Mounting dimensions from page 41, Technical drawing from page 42, Circuit drawing from page 47

## Keylock switch 3 positions




| | Front protection | Switching system | Contacts | Switching action | Terminals | Key remove | ⍞ 18 x 18 mm Typ-Nr. | ⍞ 18 x 24 mm Typ-Nr. | Ø 18 mm Typ-Nr. | Mounting dimensions | Technical drawing | Circuit drawing | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Keylock switch 3 positions** | IP 65 | SA | 2 NC + 2 NO | MA-0-MA | S1 | A | **51-381.022D** | **51-361.022D** | **51-371.022D** | 2 | 1 | 65 | 0.025 |
| Position C : Maintained action | | | | | | C + B | **51-383.022D** | **51-363.022D** | **51-373.022D** | 2 | 1 | 65 | 0.025 |
| Position A : Basic position | | | | | | C+A+B | **51-382.022D** | **51-362.022D** | **51-372.022D** | 2 | 1 | 65 | 0.025 |
| Position B : Maintained action | | | | | | | | | | | | | |
| Standard lock 311 | | | | | | | | | | | | | |
| Position C : Maintained action | IP 65 | SA | 2 NC + 2 NO | MA-0-M | S1 | A | **51-385.022D** | **51-365.022D** | **51-375.022D** | 2 | 1 | 64 | 0.025 |
| Position A : Basic position | | | | | | C + A | **51-386.022D** | **51-366.022D** | **51-376.022D** | 2 | 1 | 64 | 0.025 |
| Position B : Momentary action | | | | | | | | | | | | | |
| Standard lock 311 | | | | | | | | | | | | | |
| Position C : Momentary action | IP 65 | SA | 2 NC + 2 NO | M-0-M | S1 | A | **51-384.022D** | **51-364.022D** | **51-374.022D** | 2 | 1 | 63 | 0.025 |
| Position A : Basic position | | | | | | | | | | | | | |
| Position B : Momentary action | | | | | | | | | | | | | |
| Standard lock 311 | | | | | | | | | | | | | |
| Position C: Momentary action | IP 65 | SA | 2 NC + 2 NO | M-0-MA | S1 | A | **51-387.022D** | **51-367.022D** | **51-377.022D** | 2 | 1 | 62 | 0.025 |
| Position A : Basic position | | | | | | A + B | **51-388.022D** | **51-368.022D** | **51-378.022D** | 2 | 1 | 62 | 0.025 |
| Position B : Maintained action | | | | | | | | | | | | | |
| standard lock 311 | | | | | | | | | | | | | |

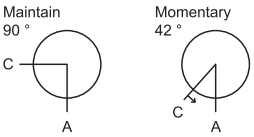
Other lock numbers on request
Switching system: SA = Snap-action switching element
Contacts: NC = Normally closed, NO = Normally open
Switching action: MA = Maintained action, M = Momentary action
Terminals: S1 = Soldering terminal (also pluggable 2.8 x 0.5 mm)
Mounting dimensions from page 41, Technical drawing from page 42, Circuit drawing from page 47

## Selector switch 2 positions

illuminative

**Essential Accessories:**

Lever, raised mounting page 24
Single-LED page 30




| | Front protection | Switching system | Contacts | Diode (1N 4007) | Switching action | Terminals | Ø 18 mm Typ-Nr. | Component layout | Mounting dimensions | Technical drawing | Circuit drawing | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Selector switch 2 positions**<br>Position A : Basic position<br>Position C : Maintained action | IP 65 | LL | 1 NC | - | MA | UT | **52-476.036** | 4 | 2 | 19 | 43 | 0.007 |
| | | | 1 NC + 1 NO | - | MA | UT | **52-473.036** | 4 | 2 | 19 | 46 | 0.007 |
| | | | 1 NO | - | MA | UT | **52-475.036** | 4 | 2 | 19 | 45 | 0.007 |
| | | | 2 NC | - | MA | UT | **52-472.036** | 4 | 2 | 19 | 44 | 0.007 |
| | | | 2 NO | - | MA | UT | **52-471.036** | 4 | 2 | 19 | 47 | 0.007 |
| | | SA | 1 NC + 1 NO | 1 D | MA | H | **52-747.0292** | | 2 | 19 | 40 | 0.008 |
| | | | | 2 D | MA | H | **52-748.0292** | | 2 | 19 | 41 | 0.008 |
| | | | | - | MA | S | **52-271.0252** | | 2 | 19 | 42 | 0.006 |
| | | | | | | S1 | **52-271.022** | | 2 | 19 | 39 | 0.006 |
| | | | 2 NC + 2 NO | 1 D | MA | H | **52-749.0292** | | 2 | 19 | 36 | 0.010 |
| | | | | 2 D | MA | H | **52-750.0292** | | 2 | 19 | 37 | 0.010 |
| | | | | - | MA | S | **52-272.0252** | | 2 | 19 | 38 | 0.006 |
| | | | 3 NC + 3 NO | - | MA | S | **52-273.0252** | | 2 | 19 | 35 | 0.006 |
| | | | 4 NC + 4 NO | - | MA | S | **52-274.0252** | | 2 | 19 | 34 | 0.006 |
| Position A : Basic position<br>Position C : Momentary action | IP 65 | LL | 1 NC | - | M | UT | **52-436.036** | 4 | 2 | 19 | 29 | 0.007 |
| | | | 1 NC + 1 NO | - | M | UT | **52-433.036** | 4 | 2 | 19 | 32 | 0.007 |
| | | | 1 NO | - | M | UT | **52-435.036** | 4 | 2 | 19 | 31 | 0.007 |
| | | | 2 NC | - | M | UT | **52-432.036** | 4 | 2 | 19 | 30 | 0.007 |
| | | | 2 NO | - | M | UT | **52-431.036** | 4 | 2 | 19 | 33 | 0.007 |
| | | SA | 1 NC + 1 NO | 1 D | M | H | **52-743.0292** | | 2 | 19 | 26 | 0.008 |
| | | | | 2 D | M | H | **52-744.0292** | | 2 | 19 | 27 | 0.008 |
| | | | | - | M | S | **52-131.0252** | | 2 | 19 | 28 | 0.006 |
| | | | | | | S1 | **52-131.022** | | 2 | 19 | 25 | 0.006 |
| | | | 2 NC + 2 NO | 1 D | M | H | **52-745.0292** | | 2 | 19 | 22 | 0.010 |
| | | | | 2 D | M | H | **52-746.0292** | | 2 | 19 | 23 | 0.010 |
| | | | | - | M | S | **52-132.0252** | | 2 | 19 | 24 | 0.006 |
| | | | 3 NC + 3 NO | - | M | S | **52-133.0252** | | 2 | 19 | 21 | 0.006 |
| | | | 4 NC + 4 NO | - | M | S | **52-134.0252** | | 2 | 19 | 20 | 0.006 |

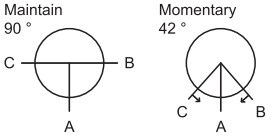
Switching system: LL = Low level switching element, SA = Snap-action switching element
Contacts: NC = Normally closed, NO = Normally open
Diode (1N 4007): - = without, D = Diode
Switching action: MA = Maintained action, M = Momentary action
Terminals: UT = Universal terminal, H = Combined terminal: Solder-/ Universal (at contact/ at diode), S = Soldering terminal, S1 = Soldering terminal (also pluggable 2.8 x 0.5 mm)
Component layout from page 40, Mounting dimensions from page 41, Technical drawing from page 42, Circuit drawing from page 47

## Selector switch 3 positions

illuminative

**Essential Accessories:**

Lever, raised mounting page 24
Single-LED page 30




| | Front protection | Switching system | Contacts | Switching action | Terminals | Ø 18 mm Typ-Nr. | Mounting dimensions | Technical drawing | Circuit drawing | kg |
|---|---|---|---|---|---|---|---|---|---|---|
| **Selector switch 3 positions** | IP 40 | SA | 2 NC + 2 NO | MA-0-MA | S1 | **52-571.022A** | 2 | 6 | 19 | 0.015 |
| Position C : Maintained action<br>Position A : Basic position<br>Position B : Maintained action | | | | M-0-MA | S1 | **52-574.022A** | 2 | 6 | 17 | 0.015 |
| Position C : Momentary action | IP 40 | SA | 2 NC + 2 NO | MA-0-M | S1 | **52-573.022A** | 2 | 6 | 18 | 0.015 |
| Position A : Basic position<br>Position B : Momentary action | | | | M-0-M | S1 | **52-572.022A** | 2 | 6 | 16 | 0.015 |

Switching system: SA = Snap-action switching element
Contacts: NC = Normally closed, NO = Normally open
Switching action: MA = Maintained action, M = Momentary action
Terminals: S1 = Soldering terminal (also pluggable 2.8 x 0.5 mm)
Mounting dimensions from page 41, Technical drawing from page 42, Circuit drawing from page 47

## Indicator actuator, flush mounting

Actuators usable for front dimensions: ⍈ 24 x 24 mm | ⍈ 24 x 30 mm | 25 mm dia.

**Essential Accessories:**

- Front bezel set for Indicators and Illuminated pushbutton, flush mounting page 25
- Lens plastic, flush mounting page 21
- Single-LED page 30

| | Front protection | Terminals | Typ-Nr. | Component layout | Mounting dimensions | Technical drawing | Circuit drawing | kg |
|---|---|---|---|---|---|---|---|---|
| **Indicator actuator, flush mounting** | IP 65 | S | **51-050.005F** | | 3 | 15 | 1 | 0.004 |
| | | S1 | **51-050.002F** | | 3 | 15 | 1 | 0.004 |
| | | UT | **51-051.006F** | 4 | 3 | 15 | 1 | 0.005 |

Terminals: S = Soldering terminal, S1 = Soldering terminal (also pluggable 2.8 x 0.5 mm), UT = Universal terminal
Component layout from page 40, Mounting dimensions from page 41, Technical drawing from page 42, Circuit drawing from page 47

## Illuminated pushbutton actuator, flush mounting

Actuators usable for front dimensions: ⍁ 24 x 24 mm | ⍁ 24 x 30 mm | 25 mm dia.

**Essential Accessories:**

- Front bezel set for Indicators and Illuminated pushbutton, flush mounting page 25
- Lens plastic, flush mounting page 21
- Single-LED page 30

| | Front protection | Switching system | Contacts | Switching action | Terminals | Typ-Nr. | Component layout | Mounting dimensions | Technical drawing | Circuit drawing | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Illuminated pushbutton actuator, flush mounting** | IP 65 | LL | 1 NC | MA | UT | **51-486.036F** | 4 | 3 | 16 | 11 | 0.006 |
| | | | | M | UT | **51-456.036F** | 4 | 3 | 16 | 57 | 0.006 |
| | | | 1 NC + 1 NO | MA | UT | **51-483.036F** | 4 | 3 | 16 | 14 | 0.006 |
| | | | | M | UT | **51-453.036F** | 4 | 3 | 16 | 60 | 0.006 |
| | | | 1 NO | MA | UT | **51-485.036F** | 4 | 3 | 16 | 13 | 0.006 |
| | | | | M | UT | **51-455.036F** | 4 | 3 | 16 | 59 | 0.006 |
| | | | 2 NC | MA | UT | **51-482.036F** | 4 | 3 | 16 | 12 | 0.006 |
| | | | | M | UT | **51-452.036F** | 4 | 3 | 16 | 58 | 0.006 |
| | | | 2 NO | MA | UT | **51-481.036F** | 4 | 3 | 16 | 15 | 0.006 |
| | | | | M | UT | **51-451.036F** | 4 | 3 | 16 | 61 | 0.006 |
| | | SA | 1 NC + 1 NO | MA | S | **51-281.0252F** | | 3 | 16 | 10 | 0.005 |
| | | | | | S1 | **51-281.022F** | | 3 | 16 | 7 | 0.007 |
| | | | | M | S | **51-151.0252F** | | 3 | 16 | 56 | 0.005 |
| | | | | | S1 | **51-151.022F** | | 3 | 16 | 53 | 0.007 |
| | | | 2 NC + 2 NO | MA | S | **51-282.0252F** | | 3 | 16 | 6 | 0.008 |
| | | | | M | S | **51-152.0252F** | | 3 | 16 | 52 | 0.008 |
| | | | 3 NC + 3 NO | MA | S | **51-283.0252F** | | 3 | 16 | 3 | 0.010 |
| | | | | M | S | **51-153.0252F** | | 3 | 16 | 49 | 0.010 |
| | | | 4 NC + 4 NO | MA | S | **51-284.0252F** | | 3 | 16 | 2 | 0.012 |
| | | | | M | S | **51-154.0252F** | | 3 | 16 | 48 | 0.012 |

Switching system: LL = Low level switching element, SA = Snap-action switching element
Contacts: NC = Normally closed, NO = Normally open
Switching action: MA = Maintained action, M = Momentary action
Terminals: UT = Universal terminal, S = Soldering terminal, S1 = Soldering terminal (also pluggable 2.8 x 0.5 mm)
Component layout from page 40, Mounting dimensions from page 41, Technical drawing from page 42, Circuit drawing from page 47

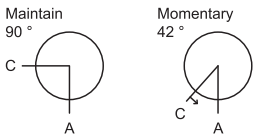
## Keylock switch actuator 2 positions, flush mounting

**Essential Accessories:**

Front bezel set for Keylock switch, flush mounting page 26

| Maintain 90 ° C A / Momentary 42 ° C A | Front protection | Switching system | Contacts | Switching action | Terminals | Key remove | □ 24 x 24 mm Typ-Nr. | □ 24 x 30 mm Typ-Nr. | Ø 25 mm Typ-Nr. | Component layout | Mounting dimensions | Technical drawing | Circuit drawing | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Keylock switch actuator 2 positions, flush mounting**<br>Position A : Basic position<br>Position C : Maintained action<br>Standard lock 311<br>Front : Plastic black | IP 65 | LL | 1 NC + 1 NO | MA | UT | A | **51-445.036DF** | | | 4 | 3 | 17 | 76 | 0.027 |
| | | | | | | C | **51-448.036DF** | | | 4 | 3 | 17 | 76 | 0.027 |
| | | | | | | C + A | **51-442.036DF** | | | 4 | 3 | 17 | 76 | 0.027 |
| | | | 2 NO | MA | UT | A | **51-444.036DF** | | | 4 | 3 | 17 | 77 | 0.027 |
| | | | | | | C | **51-447.036DF** | | | 4 | 3 | 17 | 77 | 0.027 |
| | | | | | | C + A | **51-441.036DF** | | | 4 | 3 | 17 | 77 | 0.027 |
| | | SA | 1 NC + 1 NO | MA | S | A | **51-255.025D2F** | | | | 3 | 17 | 72 | 0.027 |
| | | | | | | C | **51-355.025D2F** | | | | 3 | 17 | 72 | 0.027 |
| | | | | | | C + A | **51-155.025D2F** | | | | 3 | 17 | 72 | 0.027 |
| | | | | | S1 | A | **51-255.022DF** | | | | 3 | 17 | 72 | 0.027 |
| | | | | | | C | **51-355.022DF** | | | | 3 | 17 | 72 | 0.027 |
| | | | | | | C + A | **51-155.022DF** | | | | 3 | 17 | 72 | 0.027 |
| | | | 2 NC + 2 NO | MA | S | A | **51-256.025D2F** | | | | 3 | 17 | 73 | 0.027 |
| | | | | | | C | **51-356.025D2F** | | | | 3 | 17 | 73 | 0.027 |
| | | | | | | C + A | **51-156.025D2F** | | | | 3 | 17 | 73 | 0.027 |
| | | | 3 NC + 3 NO | MA | S | A | **51-257.025D2F** | | | | 3 | 17 | 74 | 0.027 |
| | | | | | | C | **51-357.025D2F** | | | | 3 | 17 | 74 | 0.027 |
| | | | | | | C + A | **51-157.025D2F** | | | | 3 | 17 | 74 | 0.027 |
| | | | 4 NC + 4 NO | MA | S | A | **51-258.025D2F** | | | | 3 | 17 | 75 | 0.027 |
| | | | | | | C | **51-358.025D2F** | | | | 3 | 17 | 75 | 0.027 |
| | | | | | | C + A | **51-158.025D2F** | | | | 3 | 17 | 75 | 0.027 |
| Position A : Basic position<br>Position C : Momentary action<br>Standard lock 311<br>Front : Plastic black | IP 65 | LL | 1 NC + 1 NO | M | UT | A | **51-458.036DF** | | | 4 | 3 | 17 | 70 | 0.027 |
| | | | 2 NO | M | UT | A | **51-457.036DF** | | | 4 | 3 | 17 | 71 | 0.027 |
| | | SA | 1 NC + 1 NO | M | S | A | **51-145.025D2F** | | | | 3 | 17 | 66 | 0.027 |
| | | | | | S1 | A | **51-145.022DF** | | | | 3 | 17 | 66 | 0.027 |
| | | | 2 NC + 2 NO | M | S | A | **51-146.025D2F** | | | | 3 | 17 | 67 | 0.027 |
| | | | 3 NC + 3 NO | M | S | A | **51-147.025D2F** | | | | 3 | 17 | 68 | 0.027 |
| | | | 4 NC + 4 NO | M | S | A | **51-148.025D2F** | | | | 3 | 17 | 69 | 0.027 |

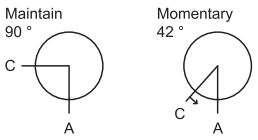
Continuation see next page




| Front protection | Switching system | Contacts | Switching action | Terminals | Key remove | ⌑ 24 x 24 mm Typ-Nr. | ⌑ 24 x 30 mm Typ-Nr. | Ø 25 mm Typ-Nr. | Component layout | Mounting dimensions | Technical drawing | Circuit drawing | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Position A : Basic position<br>Position C : Maintained action<br>Standard lock 311<br>Front : Plastic black | IP 65 | LL | 1 NC + 1 NO | MA | UT | A | | **51-405.036DF** | | 4 | 3 | 17 | 76 | 0.029 |
| | | | | | | C | | **51-408.036DF** | | 4 | 3 | 17 | 76 | 0.029 |
| | | | | | | C + A | | **51-402.036DF** | | 4 | 3 | 17 | 76 | 0.029 |
| | | | 2 NO | MA | UT | A | | **51-404.036DF** | | 4 | 3 | 17 | 77 | 0.029 |
| | | | | | | C | | **51-407.036DF** | | 4 | 3 | 17 | 77 | 0.029 |
| | | | | | | C + A | | **51-401.036DF** | | 4 | 3 | 17 | 77 | 0.029 |
| | | SA | 1 NC + 1 NO | MA | S | A | | **51-295.025D2F** | | | 3 | 17 | 72 | 0.029 |
| | | | | | | C | | **51-395.025D2F** | | | 3 | 17 | 72 | 0.029 |
| | | | | | | C + A | | **51-195.025D2F** | | | 3 | 17 | 72 | 0.029 |
| | | | | | S1 | A | | **51-295.022DF** | | | 3 | 17 | 72 | 0.029 |
| | | | | | | C | | **51-395.022DF** | | | 3 | 17 | 72 | 0.029 |
| | | | | | | C + A | | **51-195.022DF** | | | 3 | 17 | 72 | 0.029 |
| | | | 2 NC + 2 NO | MA | S | A | | **51-296.025D2F** | | | 3 | 17 | 73 | 0.029 |
| | | | | | | C | | **51-396.025D2F** | | | 3 | 17 | 73 | 0.029 |
| | | | | | | C + A | | **51-196.025D2F** | | | 3 | 17 | 73 | 0.029 |
| | | | 3 NC + 3 NO | MA | S | A | | **51-297.025D2F** | | | 3 | 17 | 74 | 0.029 |
| | | | | | | C | | **51-397.025D2F** | | | 3 | 17 | 74 | 0.029 |
| | | | | | | C + A | | **51-197.025D2F** | | | 3 | 17 | 74 | 0.029 |
| | | | 4 NC + 4 NO | MA | S | A | | **51-298.025D2F** | | | 3 | 17 | 75 | 0.029 |
| | | | | | | C | | **51-398.025D2F** | | | 3 | 17 | 75 | 0.029 |
| | | | | | | C + A | | **51-198.025D2F** | | | 3 | 17 | 75 | 0.029 |
| Position A : Basic position<br>Position C : Momentary action<br>Standard lock 311<br>Front : Plastic black | IP 65 | LL | 1 NC + 1 NO | M | UT | A | | **51-428.036DF** | | 4 | 3 | 17 | 70 | 0.029 |
| | | | 2 NO | M | UT | A | | **51-427.036DF** | | 4 | 3 | 17 | 71 | 0.029 |
| | | SA | 1 NC + 1 NO | M | S | A | | **51-495.025D2F** | | | 3 | 17 | 66 | 0.029 |
| | | | | | S1 | A | | **51-495.022DF** | | | 3 | 17 | 66 | 0.029 |
| | | | 2 NC + 2 NO | M | S | A | | **51-496.025D2F** | | | 3 | 17 | 67 | 0.029 |
| | | | 3 NC + 3 NO | M | S | A | | **51-497.025D2F** | | | 3 | 17 | 68 | 0.029 |
| | | | 4 NC + 4 NO | M | S | A | | **51-498.025D2F** | | | 3 | 17 | 69 | 0.029 |
| Position A : Basic position<br>Position C : Maintained action<br>Standard lock 311<br>Front : Plastic black | IP 65 | LL | 1 NC + 1 NO | MA | UT | A | | | **51-415.036DF** | 4 | 3 | 17 | 76 | 0.026 |
| | | | | | | C | | | **51-418.036DF** | 4 | 3 | 17 | 76 | 0.026 |
| | | | | | | C + A | | | **51-412.036DF** | 4 | 3 | 17 | 76 | 0.026 |
| | | | 2 NO | MA | UT | A | | | **51-414.036DF** | 4 | 3 | 17 | 77 | 0.026 |
| | | | | | | C | | | **51-417.036DF** | 4 | 3 | 17 | 77 | 0.026 |
| | | | | | | C + A | | | **51-411.036DF** | 4 | 3 | 17 | 77 | 0.026 |
| | | SA | 1 NC + 1 NO | MA | S | A | | | **51-235.025D2F** | | 3 | 17 | 72 | 0.026 |
| | | | | | | C | | | **51-335.025D2F** | | 3 | 17 | 72 | 0.026 |
| | | | | | | C + A | | | **51-135.025D2F** | | 3 | 17 | 72 | 0.026 |
| | | | | | S1 | A | | | **51-235.022DF** | | 3 | 17 | 72 | 0.026 |
| | | | | | | C | | | **51-335.022DF** | | 3 | 17 | 72 | 0.026 |
| | | | | | | C + A | | | **51-135.022DF** | | 3 | 17 | 72 | 0.026 |
| | | | 2 NC + 2 NO | MA | S | A | | | **51-236.025D2F** | | 3 | 17 | 73 | 0.026 |
| | | | | | | C | | | **51-336.025D2F** | | 3 | 17 | 73 | 0.026 |
| | | | | | | C + A | | | **51-136.025D2F** | | 3 | 17 | 73 | 0.026 |
| | | | 3 NC + 3 NO | MA | S | A | | | **51-237.025D2F** | | 3 | 17 | 74 | 0.026 |
| | | | | | | C | | | **51-337.025D2F** | | 3 | 17 | 74 | 0.026 |
| | | | | | | C + A | | | **51-137.025D2F** | | 3 | 17 | 74 | 0.026 |
| | | | 4 NC + 4 NO | MA | S | A | | | **51-238.025D2F** | | 3 | 17 | 75 | 0.026 |
| | | | | | | C | | | **51-338.025D2F** | | 3 | 17 | 75 | 0.026 |
| | | | | | | C + A | | | **51-138.025D2F** | | 3 | 17 | 75 | 0.026 |


Continuation see next page

Continued from previous page



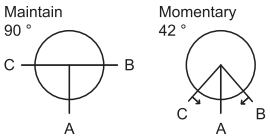

| Front protection | Switching system | Contacts | Switching action | Terminals | Key remove | ⧠ 24 x 24 mm Typ-Nr. | ⧠ 24 x 30 mm Typ-Nr. | Ø 25 mm Typ-Nr. | Component layout | Mounting dimensions | Technical drawing | Circuit drawing | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Position A : Basic position<br>Position C : Momentary action<br>Standard lock 311<br>Front : Plastic black | IP 65 | LL | 1 NC + 1 NO | M | UT | A | | | **51-438.036DF** | 4 | 3 | 17 | 70 | 0.026 |
| | | | 2 NO | M | UT | A | | | **51-437.036DF** | 4 | 3 | 17 | 71 | 0.026 |
| | | SA | 1 NC + 1 NO | M | S | A | | | **51-141.025D2F** | | 3 | 17 | 66 | 0.026 |
| | | | | | S1 | A | | | **51-141.022DF** | | 3 | 17 | 66 | 0.026 |
| | | | 2 NC + 2 NO | M | S | A | | | **51-142.025D2F** | | 3 | 17 | 67 | 0.026 |
| | | | 3 NC + 3 NO | M | S | A | | | **51-143.025D2F** | | 3 | 17 | 68 | 0.026 |
| | | | 4 NC + 4 NO | M | S | A | | | **51-144.025D2F** | | 3 | 17 | 69 | 0.026 |

Other lock numbers on request
Switching system: LL = Low level switching element, SA = Snap-action switching element
Contacts: NC = Normally closed, NO = Normally open
Switching action: MA = Maintained action, M = Momentary action
Terminals: UT = Universal terminal, S = Soldering terminal, S1 = Soldering terminal (also pluggable 2.8 x 0.5 mm)
Component layout from page 40, Mounting dimensions from page 41, Technical drawing from page 42, Circuit drawing from page 47

## Keylock switch actuator 3 positions, flush mounting

**Essential Accessories:**

Front bezel set for Keylock switch, flush mounting page 26

|  | Front protection | Switching system | Contacts | Switching action | Terminals | Key remove | ⍁ 24 x 24 mm Typ-Nr. | ⍁ 24 x 30 mm Typ-Nr. | Ø 25 mm Typ-Nr. | Mounting dimensions | Technical drawing | Circuit drawing | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Keylock switch actuator 3 positions, flush mounting**<br>Position C : Maintained action<br>Position A : Basic position<br>Position B : Maintained action<br>Standard lock 311 | IP 65 | SA | 2 NC + 2 NO | MA-0-MA | S1 | A | **51-381.022DF** | **51-361.022DF** | **51-371.022DF** | 3 | 4 | 65 | 0.027 |
| | | | | | | C + B | **51-383.022DF** | **51-363.022DF** | **51-373.022DF** | 3 | 4 | 65 | 0.027 |
| | | | | | | C+A+B | **51-382.022DF** | **51-362.022DF** | **51-372.022DF** | 3 | 4 | 65 | 0.027 |
| Position C : Maintained action<br>Position A : Basic position<br>Position B : Momentary action<br>Standard lock 311 | IP 65 | SA | 2 NC + 2 NO | MA-0-M | S1 | A | **51-385.022DF** | **51-365.022DF** | **51-375.022DF** | 3 | 4 | 64 | 0.027 |
| | | | | | | C + A | **51-386.022DF** | **51-366.022DF** | **51-376.022DF** | 3 | 4 | 64 | 0.027 |
| Position C : Momentary action<br>Position A : Basic position<br>Position B : Maintained action<br>Standard lock 311 | IP 65 | SA | 2 NC + 2 NO | M-0-MA | S1 | A | **51-387.022DF** | **51-367.022DF** | **51-377.022DF** | 3 | 4 | 62 | 0.027 |
| | | | | | | A + B | **51-388.022DF** | **51-368.022DF** | **51-378.022DF** | 3 | 4 | 62 | 0.027 |
| Position C : Momentary action<br>Position A : Basic position<br>Position B : Momentary action<br>Standard lock 311 | IP 65 | SA | 2 NC + 2 NO | M-0-M | S1 | A | **51-384.022DF** | **51-364.022DF** | **51-374.022DF** | 3 | 4 | 63 | 0.027 |

Other lock numbers on request
Switching system: SA = Snap-action switching element
Contacts: NC = Normally closed, NO = Normally open
Switching action: MA = Maintained action, M = Momentary action
Terminals: S1 = Soldering terminal (also pluggable 2.8 x 0.5 mm)
Mounting dimensions from page 41, Technical drawing from page 42, Circuit drawing from page 47

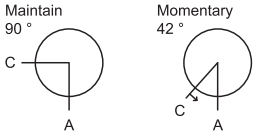
## Selector switch actuator 2 positions, flush mounting

illuminative

Actuators usable for front dimensions: ⍞ 24 x 24 mm | 25 mm dia.

**Essential Accessories:**

- Front bezel set for Selector switch, flush mounting page 26
- Lever, flush mounting page 24
- Single-LED page 30




| | Front protection | Switching system | Contacts | Switching action | Terminals | Typ-Nr. | Component layout | Mounting dimensions | Technical drawing | Circuit drawing | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Selector switch actuator 2 positions, flush mounting**<br>Position A : Basic position<br>Position C : Maintained action | IP 65 | LL | 1 NC | MA | UT | **52-476.036** | 4 | 3 | 18 | 43 | 0.007 |
| | | | 1 NC + 1 NO | MA | UT | **52-473.036** | 4 | 3 | 18 | 46 | 0.007 |
| | | | 1 NO | MA | UT | **52-475.036** | 4 | 3 | 18 | 45 | 0.007 |
| | | | 2 NC | MA | UT | **52-472.036** | 4 | 3 | 18 | 44 | 0.007 |
| | | | 2 NO | MA | UT | **52-471.036** | 4 | 3 | 18 | 47 | 0.007 |
| | | SA | 1 NC + 1 NO | MA | S | **52-271.0252** | | 3 | 18 | 42 | 0.006 |
| | | | | | S1 | **52-271.022** | | 3 | 18 | 39 | 0.006 |
| | | | 2 NC + 2 NO | MA | S | **52-272.0252** | | 3 | 18 | 38 | 0.006 |
| | | | 3 NC + 3 NO | MA | S | **52-273.0252** | | 3 | 18 | 35 | 0.006 |
| | | | 4 NC + 4 NO | MA | S | **52-274.0252** | | 3 | 18 | 34 | 0.006 |
| Position A : Basic position<br>Position C : Momentary action | IP 65 | LL | 1 NC | M | UT | **52-436.036** | 4 | 3 | 18 | 29 | 0.007 |
| | | | 1 NC + 1 NO | M | UT | **52-433.036** | 4 | 3 | 18 | 32 | 0.007 |
| | | | 1 NO | M | UT | **52-435.036** | 4 | 3 | 18 | 31 | 0.007 |
| | | | 2 NC | M | UT | **52-432.036** | 4 | 3 | 18 | 30 | 0.007 |
| | | | 2 NO | M | UT | **52-431.036** | 4 | 3 | 18 | 33 | 0.007 |
| | | SA | 1 NC + 1 NO | M | S | **52-131.0252** | | 3 | 18 | 28 | 0.006 |
| | | | | | S1 | **52-131.022** | | 3 | 18 | 25 | 0.006 |
| | | | 2 NC + 2 NO | M | S | **52-132.0252** | | 3 | 18 | 24 | 0.006 |
| | | | 3 NC + 3 NO | M | S | **52-133.0252** | | 3 | 18 | 21 | 0.006 |
| | | | 4 NC + 4 NO | M | S | **52-134.0252** | | 3 | 18 | 20 | 0.006 |

Switching system: LL = Low level switching element, SA = Snap-action switching element
Contacts: NC = Normally closed, NO = Normally open
Switching action: MA = Maintained action, M = Momentary action
Terminals: UT = Universal terminal, S = Soldering terminal, S1 = Soldering terminal (also pluggable 2.8 x 0.5 mm)
Component layout from page 40, Mounting dimensions from page 41, Technical drawing from page 42, Circuit drawing from page 47

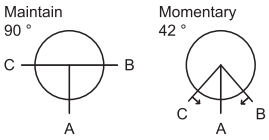
## Selector switch actuator 3 positions, flush mounting

illuminative

Actuators usable for front dimensions: ⍁ 24 x 24 mm | 25 mm dia.

**Essential Accessories:**

- Front bezel set for Selector switch, flush mounting page 26
- Lever, raised mounting page 24
- Single-LED page 30




| | Front protection | Switching system | Contacts | Switching action | Terminals | Typ-Nr. | Mounting dimensions | Technical drawing | Circuit drawing | kg |
|---|---|---|---|---|---|---|---|---|---|---|
| **Selector switch actuator 3 positions, flush mounting** | IP 40 | SA | 2 NC + 2 NO | MA-0-MA | S1 | **52-571.022A** | 3 | 5 | 19 | 0.015 |
| Position C : Maintained action<br>Position A : Basic position<br>Position B : Maintained action | | | | M-0-MA | S1 | **52-574.022A** | 3 | 5 | 17 | 0.015 |
| Position C : Momentary action | IP 40 | SA | 2 NC + 2 NO | MA-0-M | S1 | **52-573.022A** | 3 | 5 | 18 | 0.015 |
| Position A : Basic position<br>Position B : Momentary action | | | | M-0-M | S1 | **52-572.022A** | 3 | 5 | 16 | 0.015 |

Switching system: SA = Snap-action switching element
Contacts: NC = Normally closed, NO = Normally open
Switching action: MA = Maintained action, M = Momentary action
Terminals: S1 = Soldering terminal (also pluggable 2.8 x 0.5 mm)
Mounting dimensions from page 41, Technical drawing from page 42, Circuit drawing from page 47

## Front

### Lens plastic, raised mounting

| | Lens | ⍞ 18 x 18 mm Typ-Nr. | ⍈ 18 x 24 mm Typ-Nr. | Ø 18 mm Typ-Nr. | kg |
|---|---|---|---|---|---|
| **Lens plastic, raised mounting** concave, illuminative | blue transparent | **51-954.6** | **51-904.6** | | 0.001 |
| | colourless transparent | **51-954.7** | **51-904.7** | | 0.001 |
| | green transparent | **51-954.5** | **51-904.5** | | 0.001 |
| | orange transparent | **51-954.3** | **51-904.3** | | 0.001 |
| | red transparent | **51-954.2** | **51-904.2** | | 0.001 |
| | yellow transparent | **51-954.4** | **51-904.4** | | 0.001 |
| flush, illuminative | blue transparent | **51-953.6** | **51-903.6** | **51-933.6** | 0.001 |
| | colourless transparent | **51-953.7** | **51-903.7** | **51-933.7** | 0.001 |
| | green transparent | **51-953.5** | **51-903.5** | **51-933.5** | 0.001 |
| | orange transparent | **51-953.3** | **51-903.3** | **51-933.3** | 0.001 |
| | red transparent | **51-953.2** | **51-903.2** | **51-933.2** | 0.001 |
| | smoked transparent | **51-953.1** | **51-903.1** | **51-933.1** | 0.001 |
| | yellow transparent | **51-953.4** | **51-903.4** | **51-933.4** | 0.001 |
| flush, illuminative (not recommended for film insert) | blue translucent | **51-951.6** | **51-901.6** | **51-931.6** | 0.001 |
| | colourless transparent | **51-955.7** | **51-905.7** | **51-935.7** | 0.001 |
| | green translucent | **51-951.5** | **51-901.5** | **51-931.5** | 0.001 |
| | green transparent | **51-955.5** | **51-905.5** | **51-935.5** | 0.001 |
| | orange translucent | **51-951.3** | **51-901.3** | **51-931.3** | 0.001 |
| | red translucent | **51-951.2** | **51-901.2** | **51-931.2** | 0.001 |
| | red transparent | **51-955.2** | **51-905.2** | **51-935.2** | 0.001 |
| | white translucent | **51-951.9** | **51-901.9** | **51-931.9** | 0.001 |
| | yellow translucent | **51-951.4** | **51-901.4** | **51-931.4** | 0.001 |
| | yellow transparent | **51-955.4** | **51-905.4** | **51-935.4** | 0.001 |
| flush, non-illuminative | black opaque | **51-951.0** | **51-901.0** | **51-931.0** | 0.001 |
| | grey opaque | **51-951.8** | **51-901.8** | **51-931.8** | 0.001 |
| concave, illuminative (not recommended for film insert) | colourless transparent | | **51-906.7** | | 0.001 |
| | green transparent | | **51-906.5** | | 0.001 |
| | red transparent | | **51-906.2** | | 0.001 |
| | yellow transparent | | **51-906.4** | | 0.001 |

### Lens plastic, flush mounting

mat

| | Lens | ⍞ 24 x 24 mm Typ-Nr. | ⍈ 24 x 30 mm Typ-Nr. | Ø 25 mm Typ-Nr. | kg |
|---|---|---|---|---|---|
| **Lens plastic, flush mounting** illuminative | blue transparent flush | **61-9671.6** | **61-9681.6** | **61-9642.6** | 0.002 |
| | colourless transparent flush | **61-9671.7** | **61-9681.7** | **61-9642.7** | 0.002 |
| | green transparent flush | **61-9671.5** | **61-9681.5** | **61-9642.5** | 0.002 |
| | orange transparent flush | **61-9671.3** | **61-9681.3** | **61-9642.3** | 0.002 |
| | red transparent flush | **61-9671.2** | **61-9681.2** | **61-9642.2** | 0.002 |
| | smoked transparent flush | **61-9671.1** | **61-9681.1** | **61-9642.1** | 0.002 |
| | yellow transparent flush | **61-9671.4** | **61-9681.4** | **61-9642.4** | 0.002 |
| non-illuminative | black opaque flush | **61-9771.0** | **61-9781.0** | | 0.002 |
| | grey opaque flush | **61-9771.8** | **61-9781.8** | | 0.002 |
| | white translucent flush | **61-9771.9** | **61-9781.9** | | 0.002 |

## Lens plastic with symbol, flush mounting

| | Symbol | Lens | Ø 25 mm Typ-Nr. | kg |
|---|---|---|---|---|
| **Lens plastic with symbol, flush mounting** flush - level, illuminative | ON/OFF | blue transparent | **61-9643.602** | 0.002 |
| | | colourless transparent | **61-9643.702** | 0.002 |
| | | green transparent | **61-9643.502** | 0.002 |
| | | red transparent | **61-9643.202** | 0.002 |
| | Ring | blue transparent | **61-9643.601** | 0.002 |
| | | colourless transparent | **61-9643.701** | 0.002 |
| | | green transparent | **61-9643.501** | 0.002 |
| | | orange transparent | **61-9643.301** | 0.002 |
| | | red transparent | **61-9643.201** | 0.002 |
| | | yellow transparent | **61-9643.401** | 0.002 |
| | Stand by | blue transparent | **61-9643.603** | 0.002 |
| | | colourless transparent | **61-9643.703** | 0.002 |
| | | green transparent | **61-9643.503** | 0.002 |
| | | red transparent | **61-9643.203** | 0.002 |

The silvery coat is being applied on the lens (screen print) with an additional protective lacquer.

## Marking plate for lens round plastic, flush mounting

can be hot stamped

| | Marking plate | Typ-Nr. | kg |
|---|---|---|---|
| **Marking plate for lens round plastic, flush mounting** only applicable with Lens round Typ-Nr. 61-9642.X | Plastic colourless transparent | **61-9707.7** | 0.001 |

## Lens metal with spot, flush mounting

mat

| | Lens | Ø 25 mm Typ-Nr. | kg |
|---|---|---|---|
| **Lens metal with spot, flush mounting** | Aluminium black flush | **61-9841.0A** | 0.002 |
| | Aluminium blue flush | **61-9841.6A** | 0.002 |
| | Aluminium gold flush | **61-9841.4A** | 0.002 |
| | Aluminium natural flush | **61-9841.8A** | 0.002 |
| | Aluminium olive-green flush | **61-9841.5A** | 0.002 |
| | Aluminium red flush | **61-9841.2A** | 0.002 |

## Lens metal, flush mounting

mat

| | Lens | Ø 25 mm Typ-Nr. | kg |
|---|---|---|---|
| **Lens metal, flush mounting** convex | Aluminium black | **61-9842.0** | 0.003 |
| | Aluminium blue | **61-9842.6** | 0.003 |
| | Aluminium gold | **61-9842.4** | 0.003 |
| | Aluminium natural | **61-9842.8** | 0.003 |
| | Aluminium olive-green | **61-9842.5** | 0.003 |
| | Aluminium red | **61-9842.2** | 0.003 |
| flush | Aluminium black | **61-9841.0** | 0.002 |
| | Aluminium blue | **61-9841.6** | 0.002 |
| | Aluminium gold | **61-9841.4** | 0.002 |
| | Aluminium natural | **61-9841.8** | 0.002 |
| | Aluminium olive-green | **61-9841.5** | 0.002 |
| | Aluminium red | **61-9841.2** | 0.002 |

## Mushroom-head cap, flush mounting

| | Mushroom had cap | Ø 32 mm Typ-Nr. | kg |
|---|---|---|---|
| **Mushroom-head cap, flush mounting** | Plastic black opaque | **61-9593.0** | 0.004 |
| | Plastic green opaque | **61-9593.5** | 0.004 |
| | Plastic red opaque | **61-9593.2** | 0.004 |
| | Plastic yellow opaque | **61-9593.4** | 0.004 |

## Front bezel square for selector switch, raised mounting

| | Front bezel | Typ-Nr. | kg |
|---|---|---|---|
| **Front bezel square for selector switch, raised mounting** 24 x 24 mm | Plastic black | **52-950.0** | 0.001 |
| 26 x 26 mm | Plastic black | **52-952.0** | 0.001 |

## Lever, raised mounting

with bar and marking dot

| | Lever | Bar colour | Typ-Nr. | kg |
|---|---|---|---|---|
| **Lever, raised mounting** illuminative | Plastic black | blue | **52-928.60** | 0.001 |
| | | green | **52-928.50** | 0.001 |
| | | orange | **52-928.30** | 0.001 |
| | | red | **52-928.20** | 0.001 |
| | | yellow | **52-928.40** | 0.001 |
| | Plastic grey | blue | **52-929.60** | 0.001 |
| | | green | **52-929.50** | 0.001 |
| | | orange | **52-929.30** | 0.001 |
| | | red | **52-929.20** | 0.001 |
| | | yellow | **52-929.40** | 0.001 |
| non-illuminative | Plastic black | black | **52-928.0** | 0.001 |
| | Plastic grey | grey | **52-929.8** | 0.001 |
| | | white | **52-929.9** | 0.001 |

## Lever, flush mounting

with bar and marking dot

| | Lever | Bar colour | Typ-Nr. | kg |
|---|---|---|---|---|
| **Lever, flush mounting** illuminative | Plastic black | blue | **61-9028.60** | 0.001 |
| | | green | **61-9028.50** | 0.001 |
| | | orange | **61-9028.30** | 0.001 |
| | | red | **61-9028.20** | 0.001 |
| | | yellow | **61-9028.40** | 0.001 |
| | Plastic grey | blue | **61-9029.60** | 0.001 |
| | | green | **61-9029.50** | 0.001 |
| | | orange | **61-9029.30** | 0.001 |
| | | red | **61-9029.20** | 0.001 |
| | | yellow | **61-9029.40** | 0.001 |
| non-illuminative | Plastic black | black | **61-9028.0** | 0.001 |
| | | white | **61-9028.9** | 0.001 |
| | Plastic grey | grey | **61-9029.8** | 0.001 |
| | | white | **61-9029.9** | 0.001 |

## Legend frame

for devices 25 mm dia., flush mounting

| | Typ-Nr. | Technical drawing | kg |
|---|---|---|---|
| **Legend frame** 30 x 50 mm, adhesive, Aluminium black | **61-9980.0** | 10 | 0.001 |

Technical drawing from page 42

## Legend plate insert

for Legend frame 61-9980.0

| | Typ-Nr. | kg |
|---|---|---|
| **Legend plate insert**<br>14.5 x 23.5 mm, adhesive, Aluminium black | **704.968.1** | 0.001 |
| 14.5 x 23.5 mm, adhesive, Aluminium natural | **704.968.0** | 0.001 |

## Front bezel set for Indicators and Illuminated pushbutton, flush mounting

| | Front bezel | ⍁ 24 x 24 mm Typ-Nr. | ⍁ 24 x 30 mm Typ-Nr. | Ø 25 mm Typ-Nr. | Mounting dimensions | kg |
|---|---|---|---|---|---|---|
| **Front bezel set for Indicators and Illuminated pushbutton, flush mounting** | Plastic black | **61-9930.0** | **61-9931.0** | **61-9933.10** | 3 | 0.008 |
| | Plastic silver | **61-9930.4** | **61-9931.4** | | 3 | 0.008 |
| | Aluminium black | | | **61-9933.1** | 3 | 0.006 |
| | Aluminium blue | | | **61-9933.6** | 3 | 0.006 |
| | Aluminium gold | | | **61-9933.4** | 3 | 0.006 |
| | Aluminium natural | | | **61-9933.0** | 3 | 0.006 |
| | Aluminium olive-green | | | **61-9933.5** | 3 | 0.006 |
| | Aluminium red | | | **61-9933.2** | 3 | 0.006 |

Mounting dimensions from page 41

## Front bezel set for Mushroom-head pushbutton, flush mounting

| | Front bezel | Ø 40 mm Typ-Nr. | Ø 25 mm Typ-Nr. | Mounting dimensions | kg |
|---|---|---|---|---|---|
| **Front bezel set for Mushroom-head pushbutton, flush mounting** | Aluminium natural | **61-9934.8** | | 4 | 0.013 |
| | Aluminium black | | **61-9933.1** | 4 | 0.006 |
| | Aluminium blue | | **61-9933.6** | 4 | 0.006 |
| | Aluminium gold | | **61-9933.4** | 4 | 0.006 |
| | Aluminium natural | | **61-9933.0** | 4 | 0.006 |
| | Aluminium olive-green | | **61-9933.5** | 4 | 0.006 |
| | Aluminium red | | **61-9933.2** | 4 | 0.006 |
| | Plastic black | | **61-9933.10** | 4 | 0.008 |

Mounting dimensions from page 41

## Front bezel set for Keylock switch, flush mounting

| | Front bezel | ⧠ 24 x 24 mm Typ-Nr. | ⧈ 24 x 30 mm Typ-Nr. | Ø 25 mm Typ-Nr. | Mounting dimensions | kg |
|---|---|---|---|---|---|---|
| **Front bezel set for Keylock switch, flush mounting** | Plastic black | **61-9930.0** | **61-9931.0** | **61-9932.10** | 3 | 0.008 |
| | Plastic silver | **61-9930.4** | **61-9931.4** | | 3 | 0.008 |
| | Aluminium black | | | **61-9932.1** | 3 | 0.006 |
| | Aluminium blue | | | **61-9932.6** | 3 | 0.006 |
| | Aluminium gold | | | **61-9932.4** | 3 | 0.006 |
| | Aluminium natural | | | **61-9932.0** | 3 | 0.006 |
| | Aluminium olive-green | | | **61-9932.5** | 3 | 0.006 |
| | Aluminium red | | | **61-9932.2** | 3 | 0.006 |

With the round front bezel sets Ø25 mm the anti-twist ring is part of the sales-package.
Mounting dimensions from page 41

## Front bezel set for Selector switch, flush mounting

| | Front bezel | ⧠ 24 x 24 mm Typ-Nr. | Ø 25 mm Typ-Nr. | Mounting dimensions | kg |
|---|---|---|---|---|---|
| **Front bezel set for Selector switch, flush mounting** | Plastic black | **61-9936.0** | | 3 | 0.007 |
| | Aluminium black | | **61-9932.1** | 3 | 0.006 |
| | Aluminium blue | | **61-9932.6** | 3 | 0.006 |
| | Aluminium gold | | **61-9932.4** | 3 | 0.006 |
| | Aluminium natural | | **61-9932.0** | 3 | 0.006 |
| | Aluminium olive-green | | **61-9932.5** | 3 | 0.006 |
| | Aluminium red | | **61-9932.2** | 3 | 0.006 |
| | Plastic black | | **61-9932.10** | 3 | 0.008 |

With the round front bezel sets Ø25 mm the anti-twist ring is part of the sales-package.
Mounting dimensions from page 41

## Front protective cap

for flush - level lenses only for protection IP 68



| | Front protective cap | Typ-Nr. | kg |
|---|---|---|---|
| **Front protective cap** for front bezel set 24 x 30 mm, flush mounting | Silicone natural transparent | **61-9927.2** | 0.001 |
| for front bezel set 25 mm dia., flush mounting | Silicone natural transparent | **84-9103.7** | 0.001 |

ATTENTION
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 !

## Protective cover, raised mounting

| | ⧠ 18 x 18 mm Typ-Nr. | ⧈ 18 x 24 mm Typ-Nr. | Technical drawing | kg |
|---|---|---|---|---|
| **Protective cover, raised mounting** hinged, transparent, with means for sealing | **51-920** | | 2 | 0.002 |
| | | **51-925** | 3 | 0.002 |

Technical drawing from page 42

## Protective cover, flush mounting

| | ⧠ 24 x 24 mm Typ-Nr. | ⧈ 24 x 30 mm Typ-Nr. | Ø 25 mm Typ-Nr. | Mounting dimensions | Technical drawing | kg |
|---|---|---|---|---|---|---|
| **Protective cover, flush mounting** hinged, transparent, with means for sealing | **61-9921.0** | | | 3 | 7 | 0.006 |
| | | **61-9922.0** | | 3 | 8 | 0.006 |
| slide by side, with means not for sealing | | | **61-9924.0** | 3 | 9 | 0.006 |

Mounting dimensions from page 41, Technical drawing from page 42

## Blind plug, raised mounting

| | Blind plug | ⧠ 18 x 18 mm Typ-Nr. | ⧈ 18 x 24 mm Typ-Nr. | Ø 18 mm Typ-Nr. | Mounting dimensions | kg |
|---|---|---|---|---|---|---|
| **Blind plug, raised mounting** | Plastic black | **51-948.0** | **51-947.0** | **51-949.0** | 1 | 0.003 |

Blind plugs fit also in mounting holes no. 2
Mounting dimensions from page 41

## Blind plug, flush mounting

| | Blind plug | ⧠ 24 x 24 mm Typ-Nr. | ⧈ 24 x 30 mm Typ-Nr. | Ø 25 mm Typ-Nr. | Mounting dimensions | Technical drawing | kg |
|---|---|---|---|---|---|---|---|
| **Blind plug, flush mounting** | Plastic black | **61-9451.0** | **61-9452.0** | | 3 | | 0.006 |
| | | | | **61-9453.0** | 3 | 11 | 0.006 |

Mounting dimensions from page 41, Technical drawing from page 42

## Master key

| | Typ-Nr. | kg |
|---|---|---|
| **Master key**<br>Lock numbers 311 ... 445 (DOM) | **31-989.300** | 0.006 |

## Spare key

| | Typ-Nr. | kg |
|---|---|---|
| **Spare key**<br>Key lock switch, standard lock 311 (DOM) | **31-989.311** | 0.006 |

Other lock numbers on request

## EMC Key protection cap

| | Typ-Nr. | kg |
|---|---|---|
| **EMC Key protection cap**<br>Plastic black, for lock type DOM | **31-985.0** | 0.005 |

# Backside

## PCB plug-in base

| | Terminals | Typ-Nr. | Component layout | kg |
|---|---|---|---|---|
| **PCB plug-in base**<br>16.4 mm dia. x 9.8 mm for Low level switching element, Pins axial | P | **31-940** | 2 | 0.002 |
| 17.8 x 12.9 mm x 9.8 mm for Snap-action switching element 2.8 mm, Pins axial | P | **31-942** | 3 | 0.002 |
| 17.9 x 17.9 x 8.4 mm for Low level switching element, Pins bent at right-angle | P | **31-941** | 1 | 0.004 |

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.
Terminals: P = PCB terminal
Component layout from page 40

## Multi-plug housing

| | Typ-Nr. | kg |
|---|---|---|
| **Multi-plug housing**<br>for Switching block | **51-943.0** | 0.005 |

## Flat receptacle

| | Typ-Nr. | kg |
|---|---|---|
| **Flat receptacle**<br>2.0 x 0.5 mm for Universal terminal | **31-945** | 0.001 |
| 2.8 x 0.5 mm for Multi-plug housing | **51-943.1** | 0.001 |
| 2.8 x 0.5 mm for Plug-in terminal | **31-946** | 0.001 |

## Insulation sleeve

| | Typ-Nr. | kg |
|---|---|---|
| **Insulation sleeve**<br>Cover Plug-in terminals for snap-action switching element 2.8 mm | **01-928** | 0.001 |
| for Flat receptacle 31-945 | **31-928** | 0.001 |
| for Flat receptacle 31-946 | **31-929** | 0.001 |

## Terminal cover

| | Typ-Nr. | kg |
|---|---|---|
| **Terminal cover** | **01-929** | 0.010 |

# Illumination

## Filament lamp

| | Socket | Operating voltage/-current | Typ-Nr. | kg |
|---|---|---|---|---|
| **Filament lamp** | T1 $^{3}/_{4}$ MG | 12 VAC/DC, 75 mA | **10-1309.1309** | 0.001 |
| | | 14 VAC/DC, 80 mA | **10-1310.1319** | 0.001 |
| | | 18 VAC/DC, 40 mA | **10-1311.1249** | 0.001 |
| | | 24 VAC/DC, 35 mA | **10-1312.1229** | 0.001 |
| | | 28 VAC/DC, 30 mA | **10-1313.1209** | 0.001 |
| | | 28 VAC/DC, 40 mA | **10-1313.1249** | 0.001 |
| | | 36 VAC/DC, 20 mA | **10-1316.1179** | 0.001 |
| | | 36 VAC/DC, 30 mA | **10-1316.1209** | 0.001 |
| | | 48 VAC/DC, 20 mA | **10-1319.1179** | 0.001 |
| | | 48 VAC/DC, 25 mA | **10-1319.1199** | 0.001 |
| | | 6 VAC/DC, 120 mA | **10-1306.1349** | 0.001 |
| | | 6.3 VAC/DC, 200 mA | **10-1307.1369** | 0.001 |

## Single-LED

| | Socket | Light colour | Operating voltage/-current | Typ-Nr. | kg |
|---|---|---|---|---|---|
| **Single-LED** | T1 $^3/_4$ MG | blue | 12 VAC/DC, 7/14 mA | **10-2J09.1066** | 0.002 |
| | | | 24 VAC/DC, 7/14 mA | **10-2J12.1066** | 0.002 |
| | | | 28 VAC/DC, 7/14 mA | **10-2J13.1066** | 0.002 |
| | | | 48 VAC/DC, 4/8 mA | **10-2J19.1046** | 0.002 |
| | | | 6 VDC, 15 mA | **10-2J06.3146** | 0.002 |
| | | green | 12 VAC/DC, 4/7 mA | **10-2J09.1065** | 0.002 |
| | | | 24 VAC/DC, 4/7 mA | **10-2J12.1065** | 0.002 |
| | | | 28 VAC/DC, 4/7 mA | **10-2J13.1065** | 0.002 |
| | | | 48 VAC/DC, 2/4 mA | **10-2J19.1045** | 0.002 |
| | | | 6 VDC, 7 mA | **10-2J06.3145** | 0.002 |
| | | red | 12 VAC/DC, 7/14 mA | **10-2J09.1062** | 0.002 |
| | | | 24 VAC/DC, 7/14 mA | **10-2J12.1062** | 0.002 |
| | | | 28 VAC/DC, 7/14 mA | **10-2J13.1062** | 0.002 |
| | | | 48 VAC/DC, 4/8 mA | **10-2J19.1042** | 0.002 |
| | | | 6 VDC, 15 mA | **10-2J06.3142** | 0.002 |
| | | white diffuse | 12 VAC/DC, 7/14 mA | **10-2J09.1069** | 0.002 |
| | | | 24 VAC/DC, 7/14 mA | **10-2J12.1069** | 0.002 |
| | | | 28 VAC/DC, 7/14 mA | **10-2J13.1069** | 0.002 |
| | | | 48 VAC/DC, 4/8 mA | **10-2J19.1049** | 0.002 |
| | | | 6 VDC, 15 mA | **10-2J06.3149** | 0.002 |
| | | yellow | 12 VAC/DC, 7/14 mA | **10-2J09.1064** | 0.002 |
| | | | 24 VAC/DC, 7/14 mA | **10-2J12.1064** | 0.002 |
| | | | 28 VAC/DC, 7/14 mA | **10-2J13.1064** | 0.002 |
| | | | 48 VAC/DC, 4/8 mA | **10-2J19.1044** | 0.002 |
| | | | 6 VDC, 15 mA | **10-2J06.3144** | 0.002 |

Note:
AC operation through halve-wave rectifier possible, slight flickering can occure.

## Series resistor

for lamp voltage reduction

| | Operating voltage | Typ-Nr. | kg |
|---|---|---|---|
| **Series resistor**<br>10 kΩ, for filament lamp 48 VAC, 25 mA | 230/240 V | **02-904.7** | 0.003 |
| 2.7 kΩ, for filament lamp 48 VAC, 25 mA | 110 V | **02-904.0** | 0.003 |
| 3.3 kΩ, for filament lamp 48 VAC, 25 mA | 125 V | **02-904.1** | 0.003 |
| 4.7 kΩ, for filament lamp 48 VAC, 25 mA | 145 V | **02-904.3** | 0.003 |

Please keep to the country specific security rules.

## Terminal plate empty

for fitting with series resistors

| | Typ-Nr. | kg |
|---|---|---|
| **Terminal plate empty**<br>10 spaces 125 x 60 x 15 mm | **02-912.2** | 0.045 |
| 15 spaces 187.5 x 60 x 15 mm | **02-912.3** | 0.090 |
| 20 spaces 250 x 60 x 15 mm | **02-912.4** | 0.095 |
| 5 spaces 62.5 x 60 x 15 mm | **02-912.1** | 0.025 |

## Assembling

### Fixing nut

| | Typ-Nr. | kg |
|---|---|---|
| **Fixing nut**<br>Metal, specifically for keylock switches | **31-991** | 0.005 |

### Anti-twist ring

for Key lock- and Selector switch

| | Typ-Nr. | kg |
|---|---|---|
| **Anti-twist ring** | **51-910** | 0.001 |

### Lens remover

| | Typ-Nr. | kg |
|---|---|---|
| **Lens remover**<br>for flush mounting | **61-9730.0** | 0.011 |
| for raised mounting | **02-905** | 0.011 |

### Lamp remover

| | Typ-Nr. | kg |
|---|---|---|
| **Lamp remover** | **61-9740.0** | 0.003 |

CAUTION
A switching process might be released when replacing the lamp/LED !

### Mounting tool

| | Typ-Nr. | kg |
|---|---|---|
| **Mounting tool** | **01-907** | 0.020 |

### Dismantling tool

| | Typ-Nr. | kg |
|---|---|---|
| **Dismantling tool**<br>for dismantling of Lens, Lens holder and Switching element block | **51-938** | 0.027 |

## Flat receptacle remover

| | Typ-Nr. | kg |
|---|---|---|
| **Flat receptacle remover**<br>for removing the Flat receptacle of the Multi-plug in housing | **51-943.9** | 0.001 |

## 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 or 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 stachable, 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 mm²

Snap-action switching element with axial soldering terminals, which can also be used as plug-in terminals 2.8 x 0.5 mm:
Max. wire diameter 2 wires of 1 mm
Max. wire cross-section of stranded cable 2 of 0.75 mm² or 1 x 1.0 mm²

**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:
1x ca. 42° deflection momentary action
1x ca. 90° deflection maintained action

**Rebound time**
≤5ms

**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 1.5 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

## 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 or 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 mm²

**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
2x ca. 42° deflection momentary action
2x ca. 90° deflection maintained action

**Rebound time**
≤5ms

**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 (cosϕ 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
ENEC (EN 61058)
Germanischer Lloyd
UL

**Declaration of conformity**
CE

## 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

**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:
1x ca. 42° deflection momentary action
1x 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.

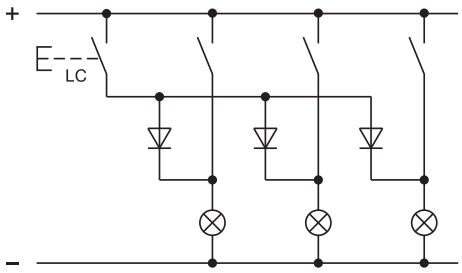
**Protection degree**
IP 65 front side, as per IEC 60529

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

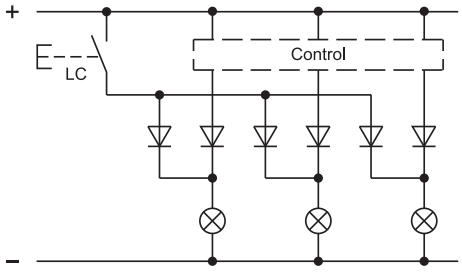
## Diode element

When indicators and illuminated pushbuttons equipped with diodes, the user is able to perform a lamp check or wire an alarm circuit simply with a considerable saving of space.

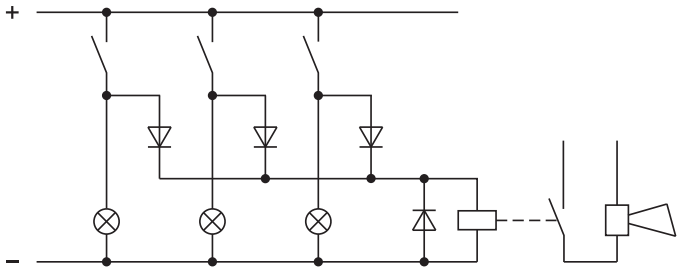
Lamp check



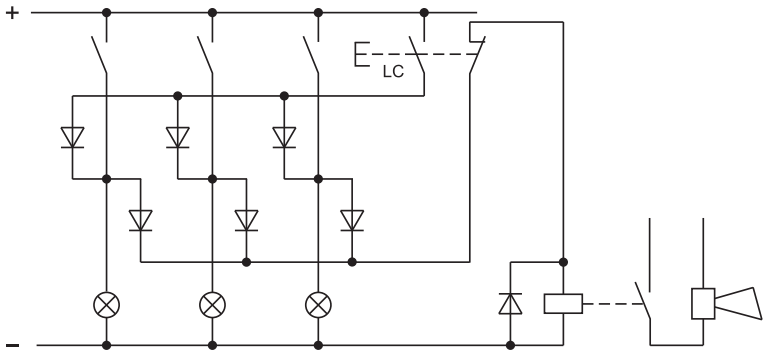

Lamp check with blocking diodes



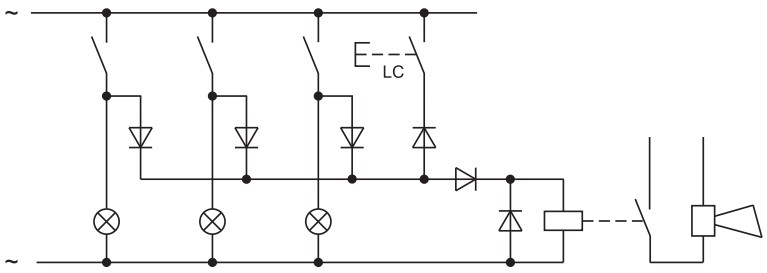

Alarm circuit from fault annunciation system




Lamp check and alarm circuit




Lamp check and alarm circuit with only one diode and AC voltage




LC = Lamp Check

## Suppressor circuits

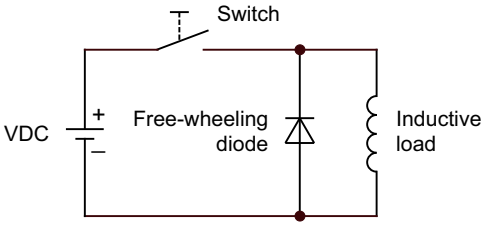
When switching inductive loads such as relays, DC motors, and DC solenoids, it is always important to absorb surges (e.g. with a diode) to protect the contacts. When these inductive loads are switched off, a counter emf can severely damage switch contacts and greatly shorten lifetime.

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.

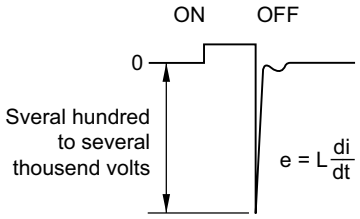
The free-wheeling diode should be chosen so that the reverse breakdown voltage is greater than the voltage driving the inductive load. The DC blocking voltage (VR) of the free-wheeling diode can be found in the datasheet of a diode. The forward current should be equal or greater than the maximum current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



## General notes

**1. Engraving**
In addition to the most commonly used world languages, in DIN 1451-3 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.

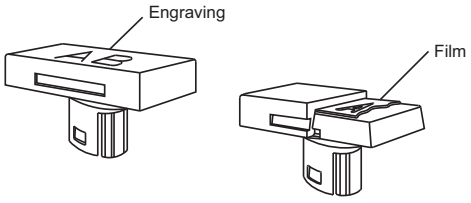
**2. Hot stamping**
For larger series it is worth considering markings by means of hot stamping We will pleased to advise you.
For letters and figures, typefaces with 2.5 mm, 3 mm and 4 mm are available.

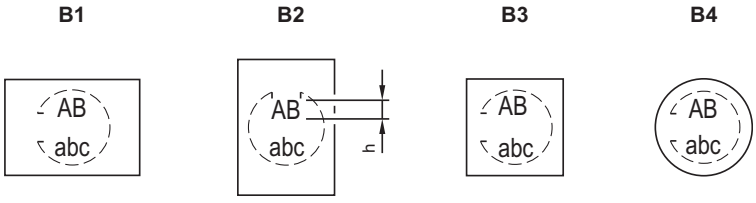
**3. Film inserts**
Instead of using engraving the lenses can be fitted with transparent film inserts, as an alternative. For this purpose, though, it is advisible to use transparent lenses.
In the case of use of a smoke-black lens the fitted film becomes readable only if the lamp is on.
The film thickness is 0.2 mm.
**Important :** Consider pushbutton 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 (target value) capital letters per line | Number of (target value) small letters per line | Image |
|---|---|---|---|---|---|---|
| 18 dia. (15.8 dia.) | 12.8 dia. | 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 |
| 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 |

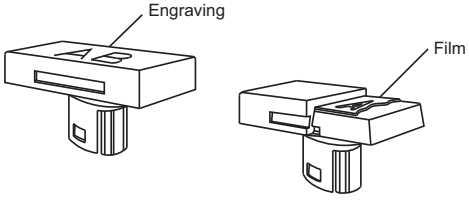


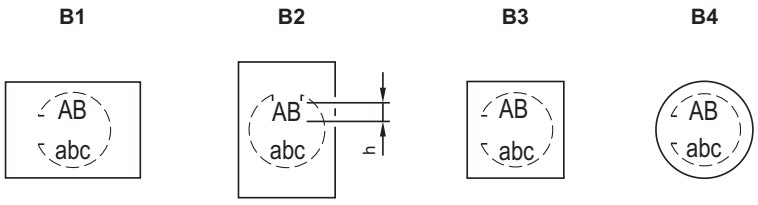



## Lenses for indicators and illuminated pushbuttons, flush mounting

All dimensions in mm

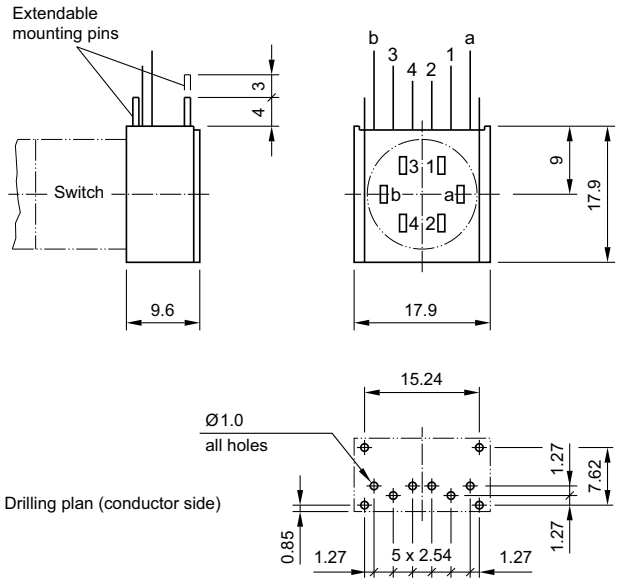
| Front size (Lens) | Film insert max. size | Height of letters h | Number of lines | Number of (target value) capital letters per line | Number of (target value) small letters per line | Image |
|---|---|---|---|---|---|---|
| 24 x 24 (18 x 18) | 15.1 x 15.1 | 2 | 4 | 8 - 9 | 9 | B3 |
| | | 3 | 3 | 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 |
| 25 dia. (19.7 dia.) | 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 |



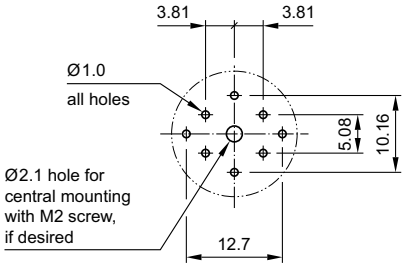



## Component layout

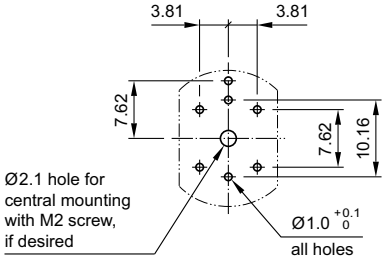
**1 PCB plug-in base** page 28



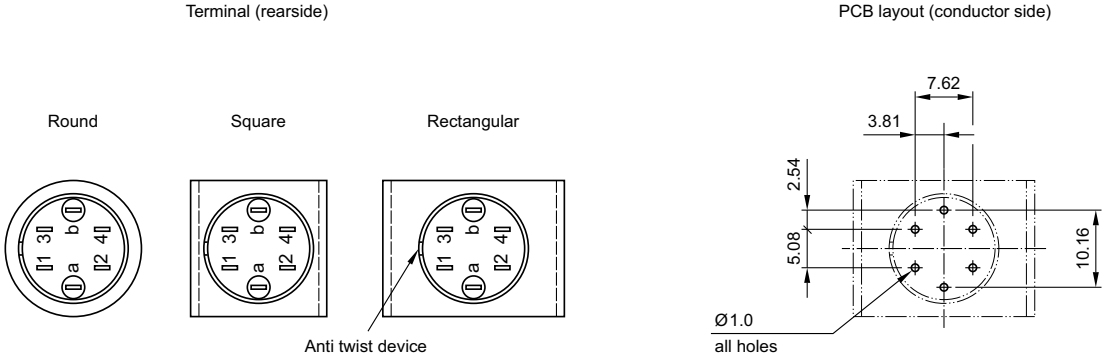

**2 PCB plug-in base** page 28




**3 PCB plug-in base** page 28



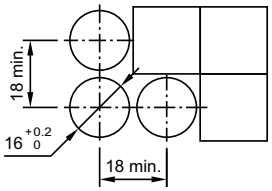

**4 Indicator actuator** page 7 **| Illuminated pushbutton actuator** page 8 **| Keylock switch 2 positions** page 9 **| Selector switch 2 positions** page 11 **| Indicator actuator, flush mounting** page 13 **| Illuminated pushbutton actuator, flush mounting** page 14 **| Keylock switch actuator 2 positions, flush mounting** page 15 **| Selector switch actuator 2 positions, flush mounting** page 19



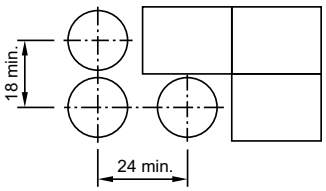
## Mounting dimensions

**1 Indicator actuator** page 7 **| Illuminated pushbutton actuator** page 8 **| Blind plug, raised mounting** page 27

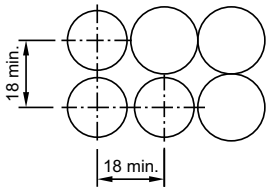
18 x 18 mm




18 x 24 mm

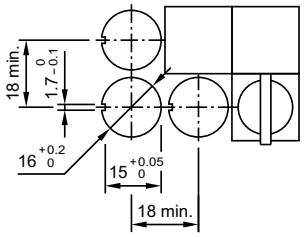



Ø18 mm

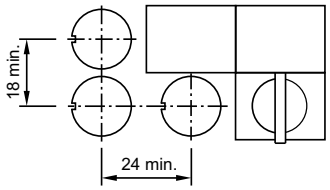



**2 Keylock switch 2 positions** page 9 **| Keylock switch 3 positions** page 10 **| Selector switch 2 positions** page 11 **| Selector switch 3 positions** page 12

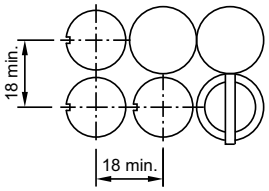
18 x 18 mm




18 x 24 mm

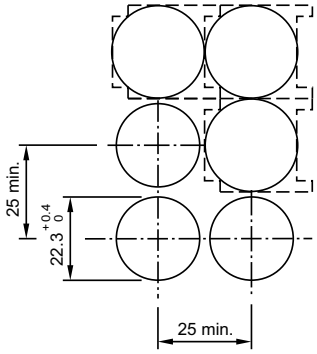



Ø18 mm

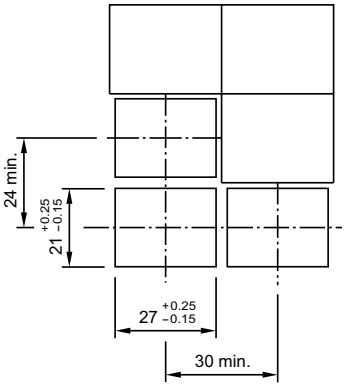



**3 Indicator actuator, flush mounting** page 13 **| Illuminated pushbutton actuator, flush mounting** page 14 **| Keylock switch actuator 2 positions, flush mounting** page 15 **| Keylock switch actuator 3 positions, flush mounting** page 18 **| Selector switch actuator 2 positions, flush mounting** page 19 **| Selector switch actuator 3 positions, flush mounting** page 20 **| Front bezel set for Indicators and Illuminated pushbutton, flush mounting** page 25 **| Front bezel set for Keylock switch, flush mounting** page 26 **| Front bezel set for Selector switch, flush mounting** page 26 **| Protective cover, flush mounting** page 27 **| Blind plug, flush mounting** page 27

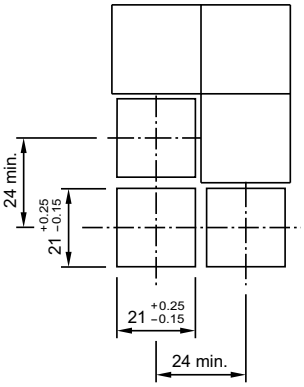
Ø25 mm




24 x 30 mm

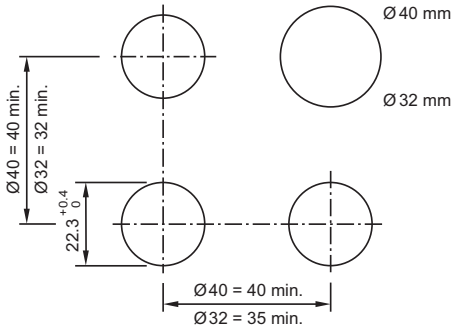



24 x 24 mm



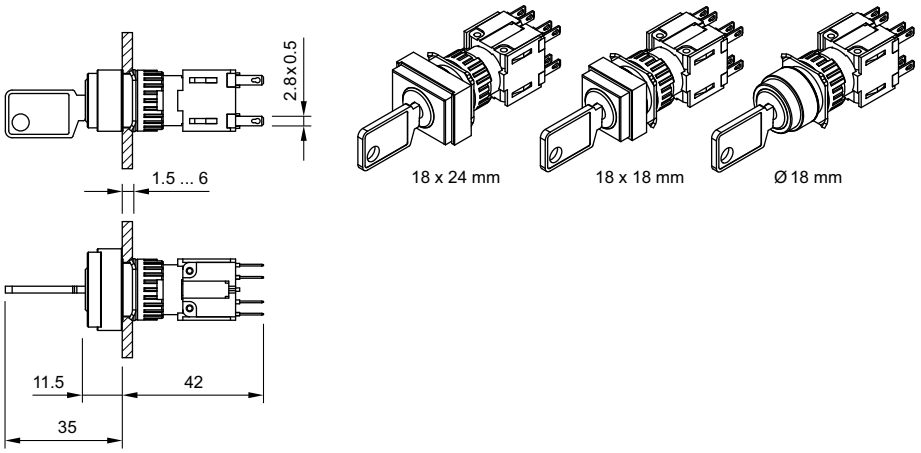

- Hole spacing min. 26 mm / min. 26 mm by using of the round front protective cap 84-9103.7
- Hole spacing min. 31 mm / min. 25 mm by using of the rectangular front protectice cap 61-9927.2

**4 Front bezel set for Mushroom-head pushbutton, flush mounting** page 25

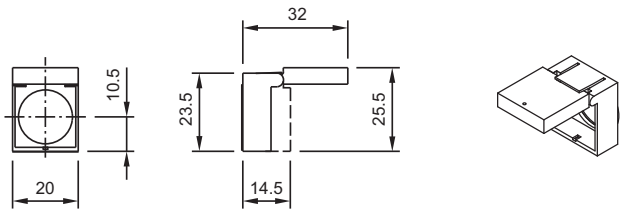



## Technical drawing

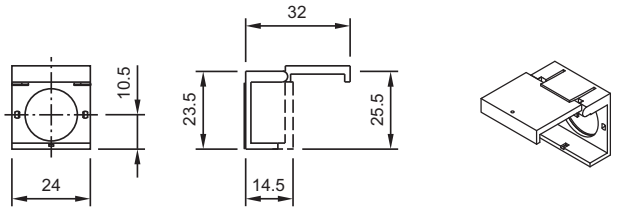
**1 Keylock switch 3 positions** page 10



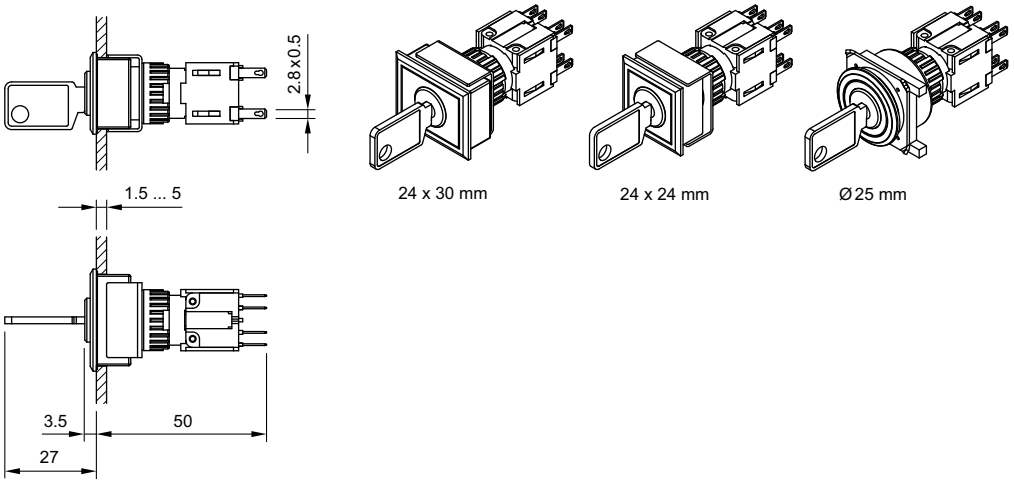

**2 Protective cover, raised mounting** page 27



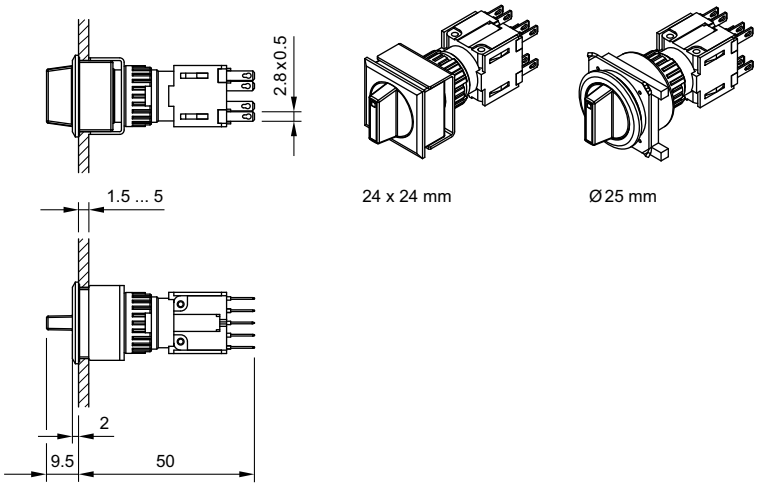

**3 Protective cover, raised mounting** page 27



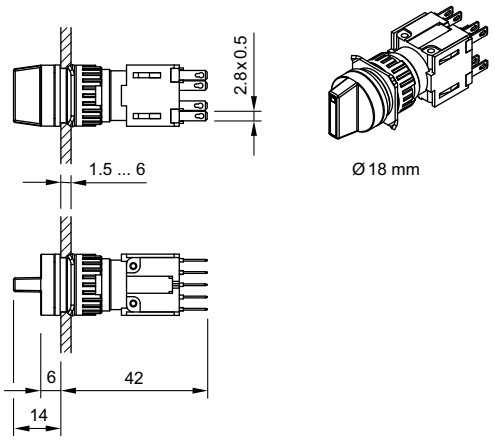
**4 Keylock switch actuator 3 positions, flush mounting** page 18



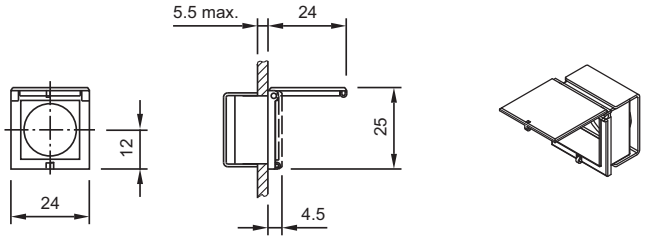

**5 Selector switch actuator 3 positions, flush mounting** page 20



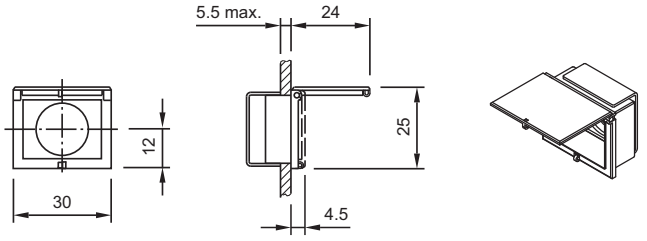

**6 Selector switch 3 positions** page 12



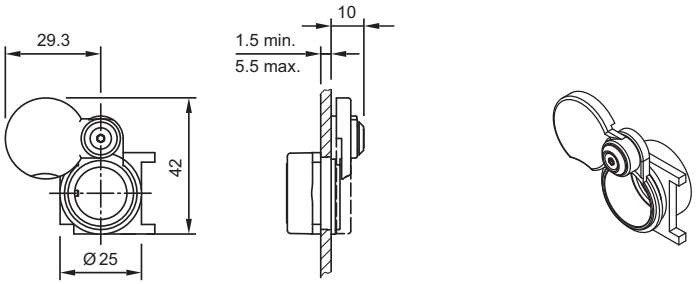
**7 Protective cover, flush mounting** page 27



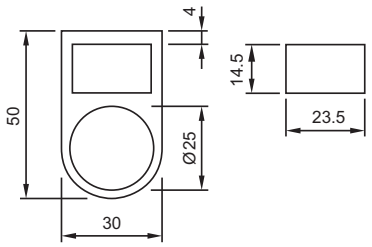

**8 Protective cover, flush mounting** page 27



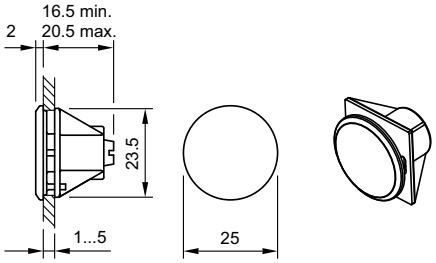

**9 Protective cover, flush mounting** page 27



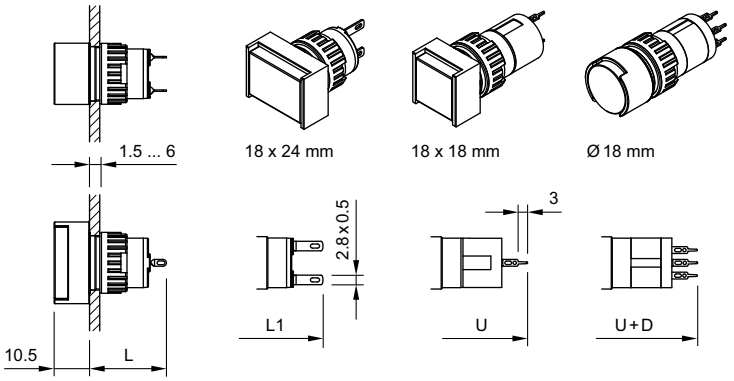

**10 Legend frame** page 24




**11 Blind plug, flush mounting** page 27

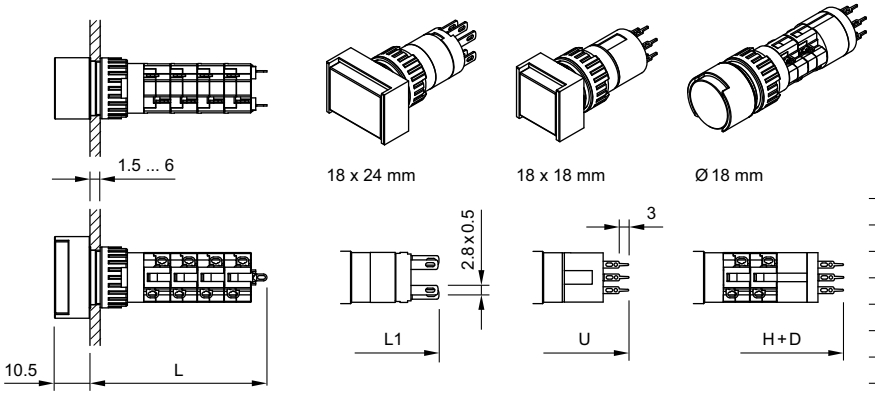


**12 Indicator actuator** page 7



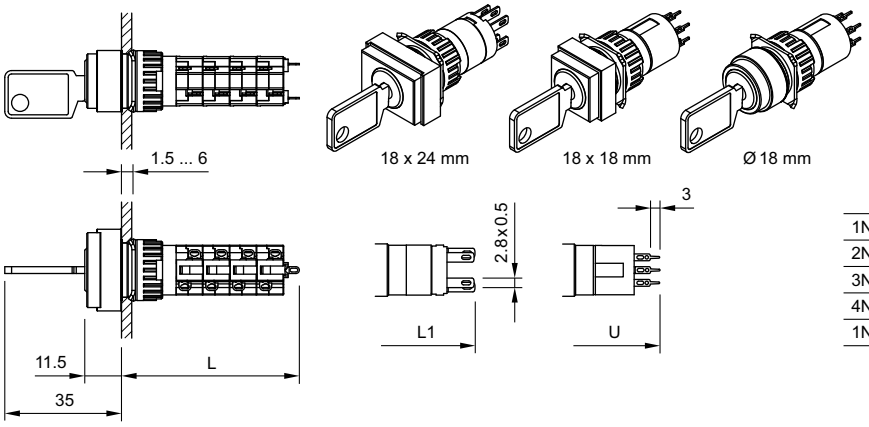

| Soldering terminal | Soldering terminal (also plugable) | Universal terminal | Universal terminal + diodes |
|---|---|---|---|
| L | L1 | U | U+D |
| 23 | 26 | 35 | - |
| 1D, 2D | | | 35 |

**13 Illuminated pushbutton actuator** page 8



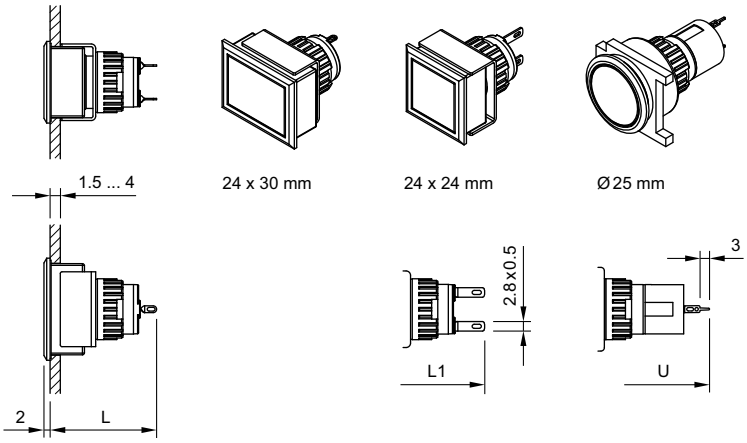

| | Soldering terminal L | Soldering terminal (also pluggable) L1 | Universal terminal U | Combined terminal + diodes H+D |
|---|---|---|---|---|
| 1NC+1NO | 28 | 36 | - | - |
| 2NC+2NO | 35.5 | - | - | - |
| 3NC+3NO | 43 | - | - | - |
| 4NC+4NO | 50.5 | - | - | - |
| 1NC+1NO+D | - | - | - | 43.5 |
| 2NO+2NC+D | - | - | - | 51 |
| 1NC, 1NO, 1NC+1NO, 2NC, 2NO | | | 35 | - |

**14 Keylock switch 2 positions** page 9



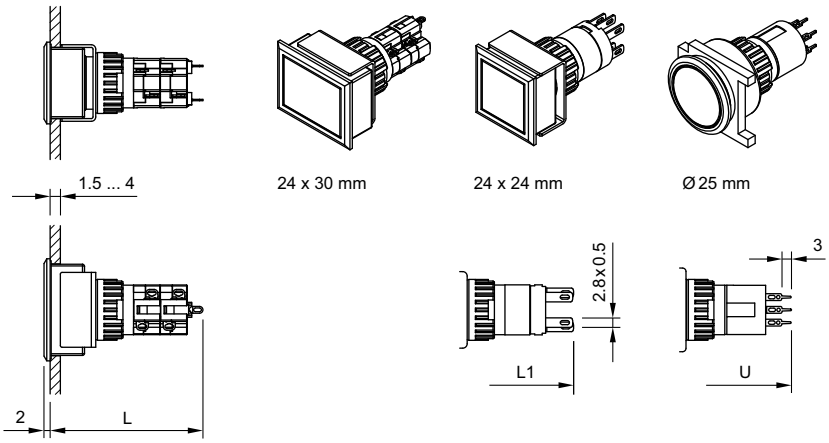

| | Soldering terminal L | Soldering terminal (also pluggable) L1 | Universal terminal U |
|---|---|---|---|
| 1NC+1NO | 26.5 | 36 | - |
| 2NC+2NO | 34 | - | - |
| 3NC+3NO | 41.5 | - | - |
| 4NC+4NO | 49 | - | - |
| 1NC, 1NO, 1NC+1NO, 2NC, 2NO | | | 35.5 |

**15 Indicator actuator, flush mounting** page 13




| Soldering terminal | Soldering terminal (also pluggable) | Universal terminal |
|---|---|---|
| L | L1 | U |
| 31 | 34 | 44 |

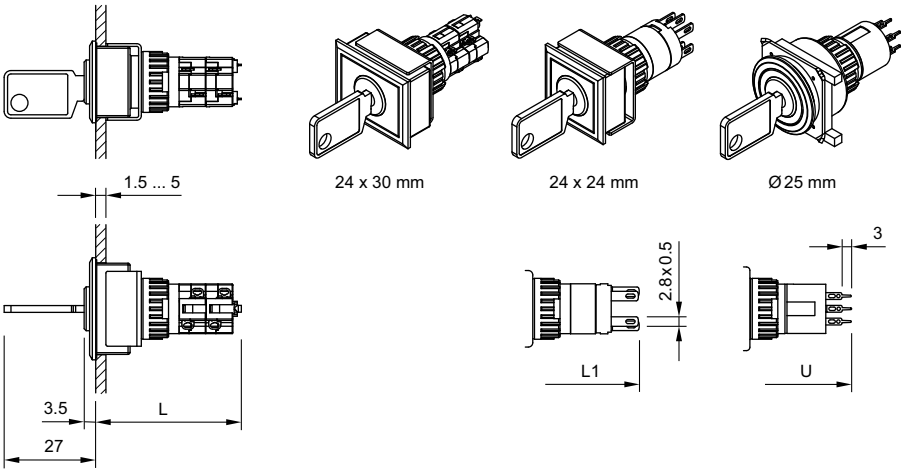
**16 Illuminated pushbutton actuator, flush mounting** page 14




| | L | L1 | U |
|---|---|---|---|
| 1NC+1NO | 36.5 | 44 | - |
| 2NC+2NO | 44 | - | - |
| 3NC+3NO | 51.5 | - | - |
| 4NC+4NO | 59 | - | - |
| 1NC, 1NO, 1NC+1NO, 2NC, 2NO | | | 44 |

Soldering terminal | Soldering terminal (also pluggable) | Universal termnal

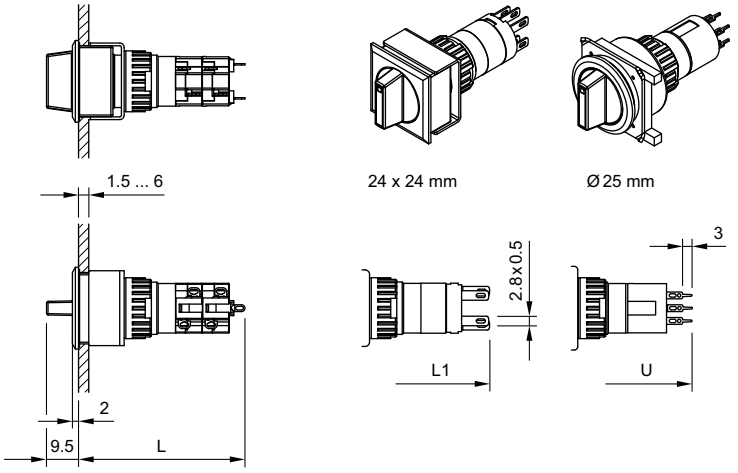
**17 Keylock switch actuator 2 positions, flush mounting** page 15




| | L | L1 | U |
|---|---|---|---|
| 1NC+1NO | 35 | 44.5 | - |
| 2NC+2NO | 42.5 | - | - |
| 3NC+3NO | 50 | - | - |
| 4NC+4NO | 57.5 | - | - |
| 1NC, 1NO, 1NC+1NO, 2NC, 2NO | | | 44.5 |

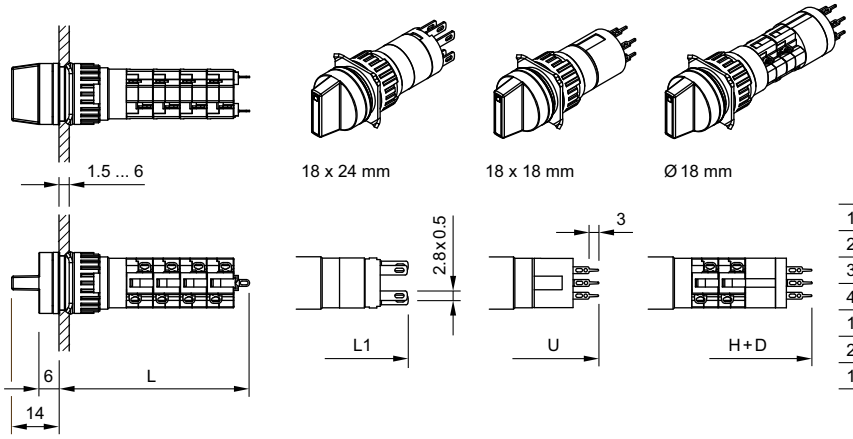
Soldering terminal | Soldering terminal (also pluggable) | Universal terminal

**18 Selector switch actuator 2 positions, flush mounting** page 19




| | L | L1 | U |
|---|---|---|---|
| | Soldering terminal | Soldering terminal (also pluggable) | Universal terminal |
| 1NC+1NO | 41 | 48 | - |
| 2NC+2NO | 48.5 | - | - |
| 3NC+3NO | 56 | - | - |
| 4NC+4NO | 63.5 | - | - |
| 1NC, 1NO, 1NC+1NO, 2NC, 2NO | | | 48 |

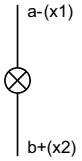
**19 Selector switch 2 positions** page 11



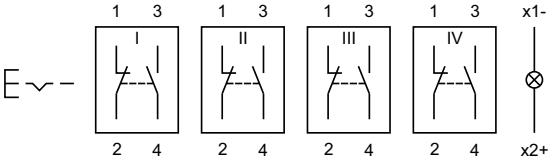

| | L | L1 | U | H+D |
|---|---|---|---|---|
| | Soldering terminal | Soldering terminal (also pluggable) | Universal terminal | Combined terminal + diodes |
| 1NC+1NO | 32 | 36 | - | - |
| 2NC+2NO | 39.5 | - | - | - |
| 3NC+3NO | 47 | - | - | - |
| 4NC+4NO | 54.5 | - | - | - |
| 1NC+1NO+D | - | - | - | 43.5 |
| 2NC+2NO+D | - | - | - | 51 |
| 1NC, 1NO, 1NC+1NO, 2NC, 2NO | | | 39 | - |

## Circuit drawing

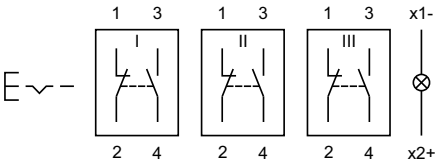
**1 Indicator actuator** page 7 **| Indicator actuator, flush mounting** page 13



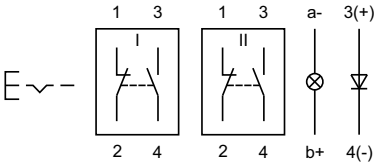

**2 Illuminated pushbutton actuator** page 8 **| Illuminated pushbutton actuator, flush mounting** page 14



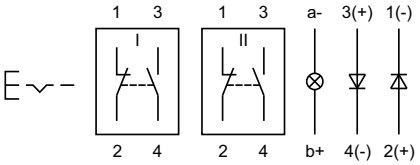

**3 Illuminated pushbutton actuator** page 8 **| Illuminated pushbutton actuator, flush mounting** page 14



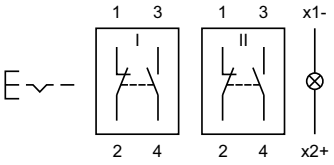
**4 Illuminated pushbutton actuator** page 8



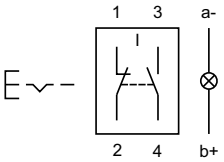

**5 Illuminated pushbutton actuator** page 8



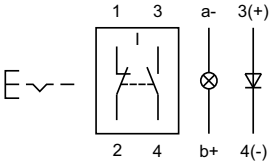

**6 Illuminated pushbutton actuator** page 8 **| Illuminated pushbutton actuator, flush mounting** page 14



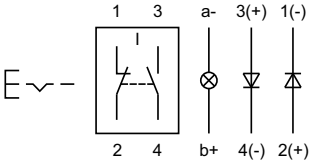

**7 Illuminated pushbutton actuator** page 8 **| Illuminated pushbutton actuator, flush mounting** page 14



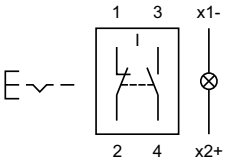

**8 Illuminated pushbutton actuator** page 8



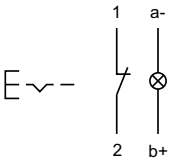

**9 Illuminated pushbutton actuator** page 8



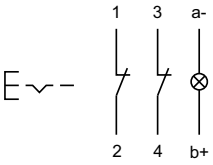

**10 Illuminated pushbutton actuator** page 8 **| Illuminated pushbutton actuator, flush mounting** page 14



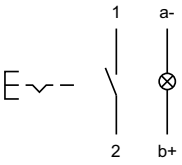

**11 Illuminated pushbutton actuator** page 8 **| Illuminated pushbutton actuator, flush mounting** page 14



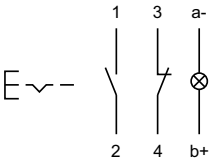
**12 Illuminated pushbutton actuator** page 8 **| Illuminated pushbutton actuator, flush mounting** page 14



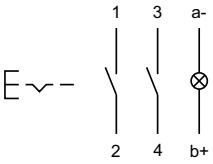

**13 Illuminated pushbutton actuator** page 8 **| Illuminated pushbutton actuator, flush mounting** page 14



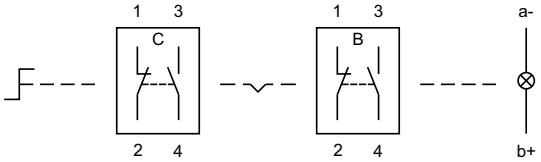

**14 Illuminated pushbutton actuator** page 8 **| Illuminated pushbutton actuator, flush mounting** page 14



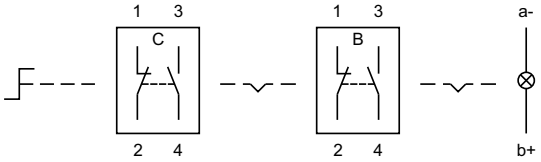

**15 Illuminated pushbutton actuator** page 8 **| Illuminated pushbutton actuator, flush mounting** page 14



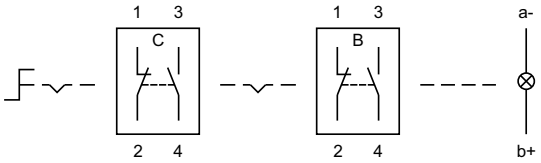

**16 Selector switch 3 positions** page 12 **| Selector switch actuator 3 positions, flush mounting** page 20



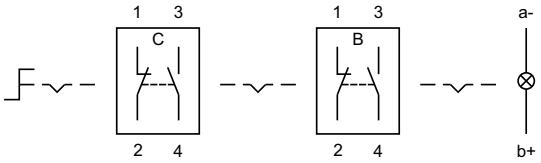

**17 Selector switch 3 positions** page 12 **| Selector switch actuator 3 positions, flush mounting** page 20



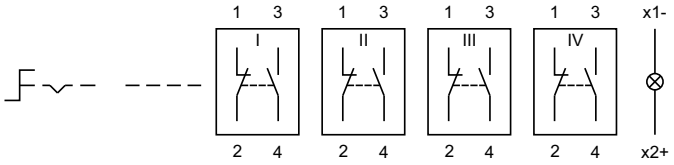

**18 Selector switch 3 positions** page 12 **| Selector switch actuator 3 positions, flush mounting** page 20



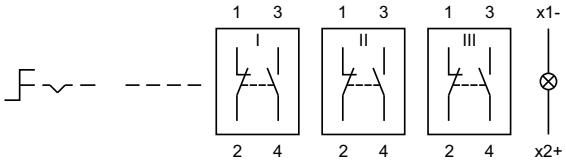

**19 Selector switch 3 positions** page 12 **| Selector switch actuator 3 positions, flush mounting** page 20



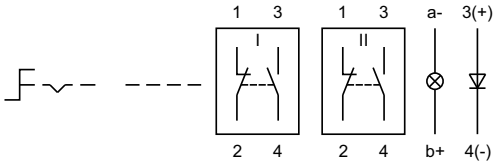
**20 Selector switch 2 positions** page 11 **| Selector switch actuator 2 positions, flush mounting** page 19



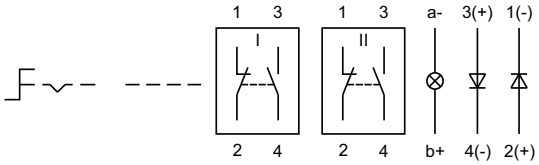

**21 Selector switch 2 positions** page 11 **| Selector switch actuator 2 positions, flush mounting** page 19



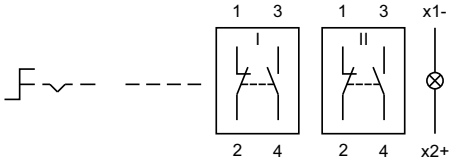

**22 Selector switch 2 positions** page 11



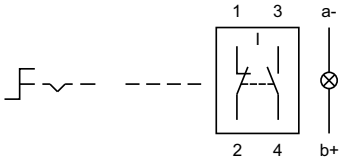

**23 Selector switch 2 positions** page 11



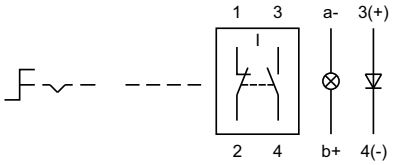

**24 Selector switch 2 positions** page 11 **| Selector switch actuator 2 positions, flush mounting** page 19



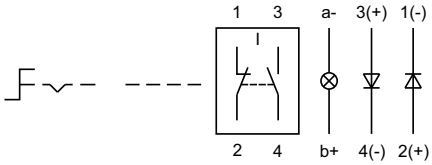

**25 Selector switch 2 positions** page 11 **| Selector switch actuator 2 positions, flush mounting** page 19



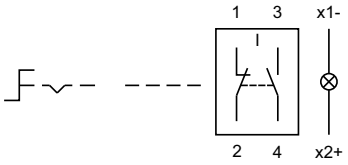

**26 Selector switch 2 positions** page 11



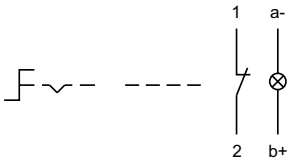

**27 Selector switch 2 positions** page 11



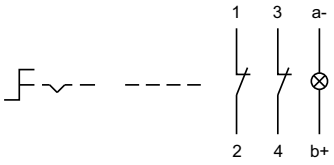
**28 Selector switch 2 positions** page 11 **| Selector switch actuator 2 positions, flush mounting** page 19



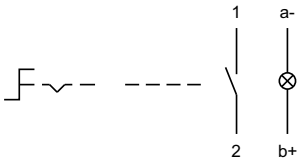

**29 Selector switch 2 positions** page 11 **| Selector switch actuator 2 positions, flush mounting** page 19



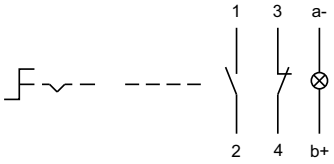

**30 Selector switch 2 positions** page 11 **| Selector switch actuator 2 positions, flush mounting** page 19



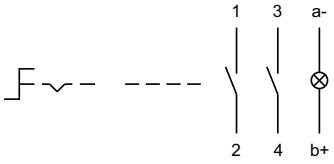

**31 Selector switch 2 positions** page 11 **| Selector switch actuator 2 positions, flush mounting** page 19



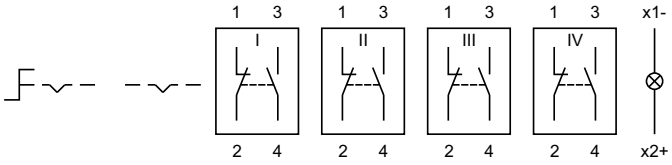

**32 Selector switch 2 positions** page 11 **| Selector switch actuator 2 positions, flush mounting** page 19



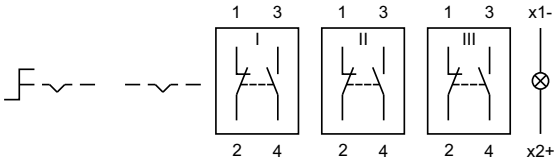

**33 Selector switch 2 positions** page 11 **| Selector switch actuator 2 positions, flush mounting** page 19



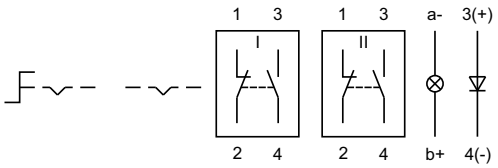

**34 Selector switch 2 positions** page 11 **| Selector switch actuator 2 positions, flush mounting** page 19



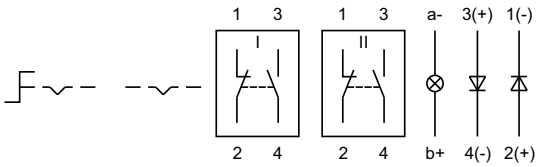

**35 Selector switch 2 positions** page 11 **| Selector switch actuator 2 positions, flush mounting** page 19



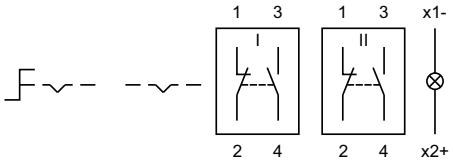
**36 Selector switch 2 positions** page 11



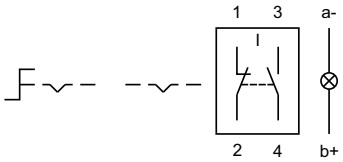

**37 Selector switch 2 positions** page 11



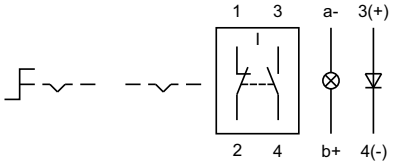

**38 Selector switch 2 positions** page 11 **| Selector switch actuator 2 positions, flush mounting** page 19



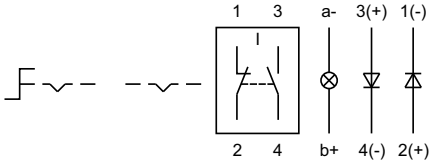

**39 Selector switch 2 positions** page 11 **| Selector switch actuator 2 positions, flush mounting** page 19



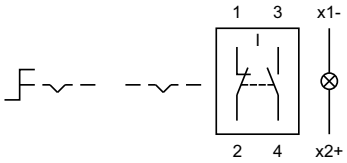

**40 Selector switch 2 positions** page 11



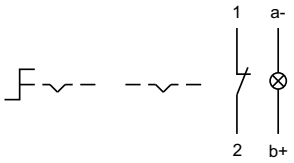

**41 Selector switch 2 positions** page 11



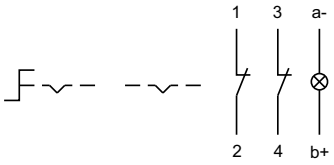

**42 Selector switch 2 positions** page 11 **| Selector switch actuator 2 positions, flush mounting** page 19



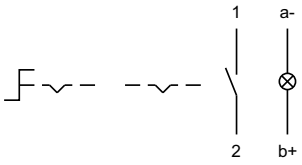

**43 Selector switch 2 positions** page 11 **| Selector switch actuator 2 positions, flush mounting** page 19



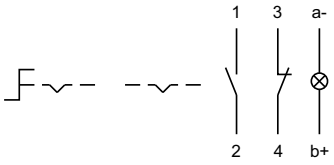
**44 Selector switch 2 positions** page 11 **| Selector switch actuator 2 positions, flush mounting** page 19



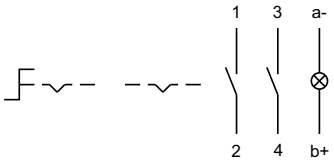

**45 Selector switch 2 positions** page 11 **| Selector switch actuator 2 positions, flush mounting** page 19



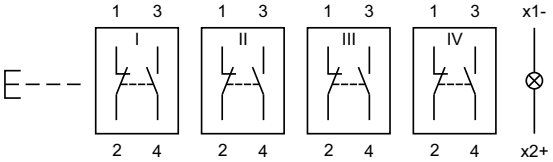

**46 Selector switch 2 positions** page 11 **| Selector switch actuator 2 positions, flush mounting** page 19



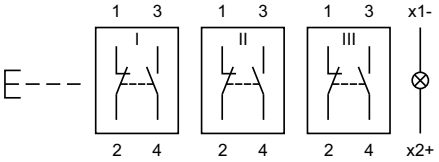

**47 Selector switch 2 positions** page 11 **| Selector switch actuator 2 positions, flush mounting** page 19



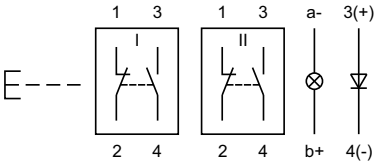

**48 Illuminated pushbutton actuator** page 8 **| Illuminated pushbutton actuator, flush mounting** page 14



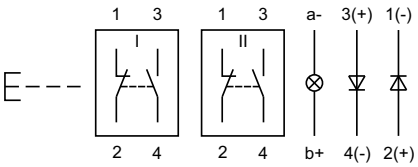

**49 Illuminated pushbutton actuator** page 8 **| Illuminated pushbutton actuator, flush mounting** page 14



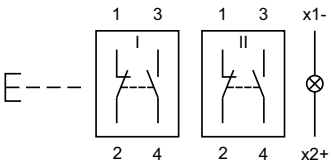

**50 Illuminated pushbutton actuator** page 8



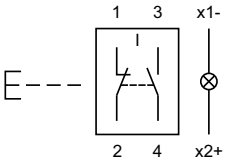

**51 Illuminated pushbutton actuator** page 8



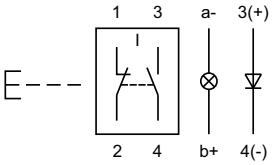
**52 Illuminated pushbutton actuator** page 8 **| Illuminated pushbutton actuator, flush mounting** page 14



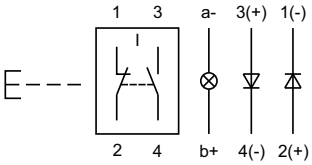

**53 Illuminated pushbutton actuator** page 8 **| Illuminated pushbutton actuator, flush mounting** page 14



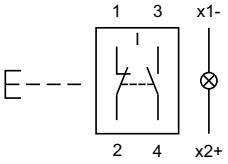

**54 Illuminated pushbutton actuator** page 8



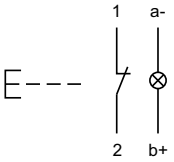

**55 Illuminated pushbutton actuator** page 8



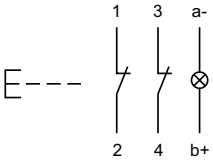

**56 Illuminated pushbutton actuator** page 8 **| Illuminated pushbutton actuator, flush mounting** page 14



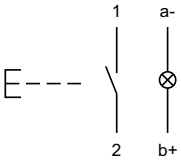

**57 Illuminated pushbutton actuator** page 8 **| Illuminated pushbutton actuator, flush mounting** page 14



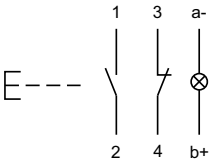

**58 Illuminated pushbutton actuator** page 8 **| Illuminated pushbutton actuator, flush mounting** page 14



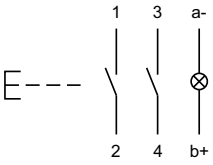

**59 Illuminated pushbutton actuator** page 8 **| Illuminated pushbutton actuator, flush mounting** page 14



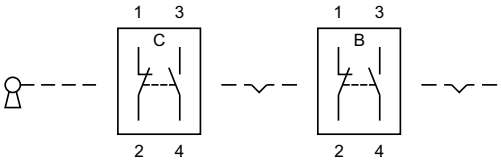
**60 Illuminated pushbutton actuator** page 8 **| Illuminated pushbutton actuator, flush mounting** page 14



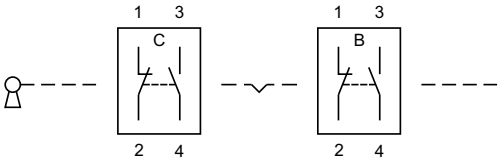

**61 Illuminated pushbutton actuator** page 8 **| Illuminated pushbutton actuator, flush mounting** page 14



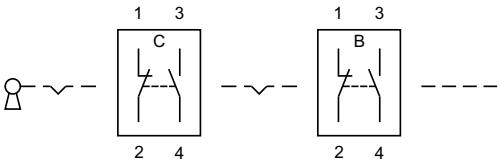

**62 Keylock switch 3 positions** page 10 **| Keylock switch actuator 3 positions, flush mounting** page 18



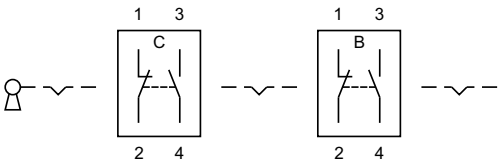

**63 Keylock switch 3 positions** page 10 **| Keylock switch actuator 3 positions, flush mounting** page 18



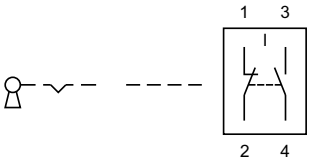

**64 Keylock switch 3 positions** page 10 **| Keylock switch actuator 3 positions, flush mounting** page 18



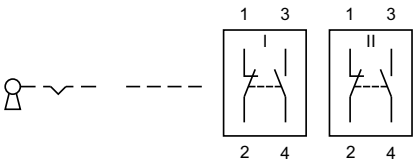

**65 Keylock switch 3 positions** page 10 **| Keylock switch actuator 3 positions, flush mounting** page 18



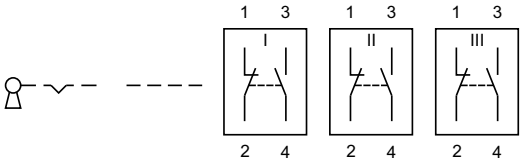

**66 Keylock switch 2 positions** page 9 **| Keylock switch actuator 2 positions, flush mounting** page 15



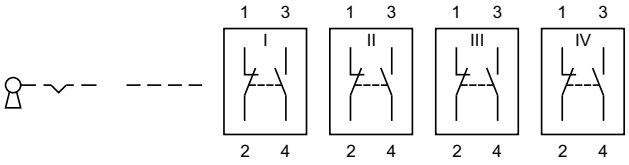

**67 Keylock switch 2 positions** page 9 **| Keylock switch actuator 2 positions, flush mounting** page 15



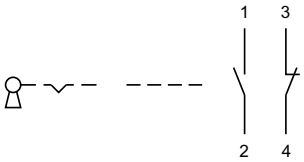
**68 Keylock switch 2 positions** page 9 **| Keylock switch actuator 2 positions, flush mounting** page 15



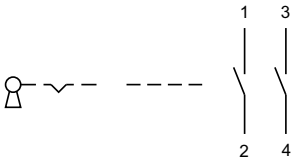

**69 Keylock switch 2 positions** page 9 **| Keylock switch actuator 2 positions, flush mounting** page 15



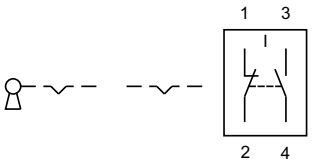

**70 Keylock switch 2 positions** page 9 **| Keylock switch actuator 2 positions, flush mounting** page 15



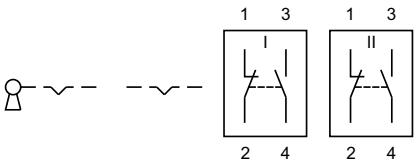

**71 Keylock switch 2 positions** page 9 **| Keylock switch actuator 2 positions, flush mounting** page 15



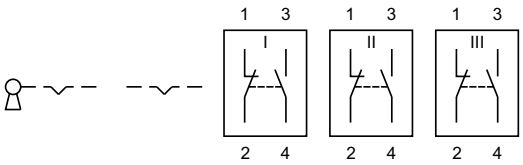

**72 Keylock switch 2 positions** page 9 **| Keylock switch actuator 2 positions, flush mounting** page 15



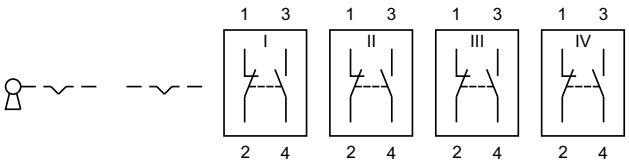

**73 Keylock switch 2 positions** page 9 **| Keylock switch actuator 2 positions, flush mounting** page 15



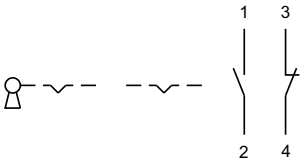

**74 Keylock switch 2 positions** page 9 **| Keylock switch actuator 2 positions, flush mounting** page 15



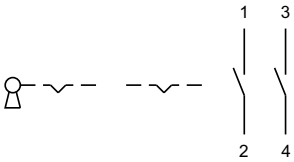

**75 Keylock switch 2 positions** page 9 **| Keylock switch actuator 2 positions, flush mounting** page 15



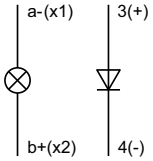
**76 Keylock switch 2 positions** page 9 **| Keylock switch actuator 2 positions, flush mounting** page 15



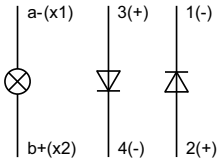

**77 Keylock switch 2 positions** page 9 **| Keylock switch actuator 2 positions, flush mounting** page 15




**78 Indicator actuator** page 7




**79 Indicator actuator** page 7



# Index from Typ-Nr.


| Typ-Nr. | Page |
|---|---|
| 01-907 | 31 |
| 01-928 | 29 |
| 01-929 | 29 |
| 02-904.0 | 30 |
| 02-904.1 | 30 |
| 02-904.3 | 30 |
| 02-904.7 | 30 |
| 02-905 | 31 |
| 02-912.1 | 30 |
| 02-912.2 | 30 |
| 02-912.3 | 30 |
| 02-912.4 | 30 |
| 10-1306.1349 | 29 |
| 10-1307.1369 | 29 |
| 10-1309.1309 | 29 |
| 10-1310.1319 | 29 |
| 10-1311.1249 | 29 |
| 10-1312.1229 | 29 |
| 10-1313.1209 | 29 |
| 10-1313.1249 | 29 |
| 10-1316.1179 | 29 |
| 10-1316.1209 | 29 |
| 10-1319.1179 | 29 |
| 10-1319.1199 | 29 |
| 10-2J06.3142 | 30 |
| 10-2J06.3144 | 30 |
| 10-2J06.3145 | 30 |
| 10-2J06.3146 | 30 |
| 10-2J06.3149 | 30 |
| 10-2J09.1062 | 30 |
| 10-2J09.1064 | 30 |
| 10-2J09.1065 | 30 |
| 10-2J09.1066 | 30 |
| 10-2J09.1069 | 30 |
| 10-2J12.1062 | 30 |
| 10-2J12.1064 | 30 |
| 10-2J12.1065 | 30 |
| 10-2J12.1066 | 30 |
| 10-2J12.1069 | 30 |
| 10-2J13.1062 | 30 |
| 10-2J13.1064 | 30 |
| 10-2J13.1065 | 30 |
| 10-2J13.1066 | 30 |
| 10-2J13.1069 | 30 |
| 10-2J19.1042 | 30 |
| 10-2J19.1044 | 30 |
| 10-2J19.1045 | 30 |
| 10-2J19.1046 | 30 |
| 10-2J19.1049 | 30 |
| 31-928 | 29 |
| 31-929 | 29 |
| 31-940 | 28 |
| 31-941 | 28 |
| 31-942 | 28 |
| 31-945 | 29 |
| 31-946 | 29 |
| 31-985.0 | 28 |
| 31-989.300 | 28 |
| 31-989.311 | 28 |
| 31-991 | 31 |
| 51-030.002 | 7 |
| 51-030.005 | 7 |
| 51-031.006 | 7 |
| 51-040.002 | 7 |
| 51-040.005 | 7 |
| 51-041.006 | 7 |
| 51-050.002 | 7 |
| 51-050.002F | 13 |
| 51-050.005 | 7 |
| 51-050.005F | 13 |
| 51-051.006 | 7 |
| 51-051.006F | 13 |
| 51-121.022 | 8 |
| 51-121.0252 | 8 |
| 51-122.0252 | 8 |
| 51-123.0252 | 8 |
| 51-124.0252 | 8 |
| 51-131.022 | 8 |
| 51-131.0252 | 8 |
| 51-132.0252 | 8 |
| 51-133.0252 | 8 |
| 51-134.0252 | 8 |
| 51-135.022D | 9 |
| 51-135.022DF | 16 |
| 51-135.025D2 | 9 |
| 51-135.025D2F | 16 |
| 51-136.025D2 | 9 |
| 51-136.025D2F | 16 |
| 51-137.025D2 | 9 |
| 51-137.025D2F | 16 |
| 51-138.025D2 | 9 |
| 51-138.025D2F | 16 |
| 51-141.022D | 9 |
| 51-141.022DF | 17 |
| 51-141.025D2 | 9 |
| 51-141.025D2F | 17 |
| 51-142.025D2 | 9 |
| 51-142.025D2F | 17 |
| 51-143.025D2 | 9 |
| 51-143.025D2F | 17 |
| 51-144.025D2 | 9 |
| 51-144.025D2F | 17 |
| 51-145.022D | 9 |
| 51-145.022DF | 15 |
| 51-145.025D2 | 9 |
| 51-145.025D2F | 15 |
| 51-146.025D2 | 9 |
| 51-146.025D2F | 15 |
| 51-147.025D2 | 9 |
| 51-147.025D2F | 15 |
| 51-148.025D2 | 9 |
| 51-148.025D2F | 15 |
| 51-151.022 | 8 |
| 51-151.022F | 14 |
| 51-151.0252 | 8 |
| 51-151.0252F | 14 |
| 51-152.0252 | 8 |
| 51-152.0252F | 14 |
| 51-153.0252 | 8 |
| 51-153.0252F | 14 |
| 51-154.0252 | 8 |
| 51-154.0252F | 14 |
| 51-155.022D | 9 |
| 51-155.022DF | 15 |
| 51-155.025D2 | 9 |
| 51-155.025D2F | 15 |
| 51-156.025D2 | 9 |
| 51-156.025D2F | 15 |
| 51-157.025D2 | 9 |
| 51-157.025D2F | 15 |
| 51-158.025D2 | 9 |
| 51-158.025D2F | 15 |
| 51-195.022D | 9 |
| 51-195.022DF | 16 |
| 51-195.025D2 | 9 |
| 51-195.025D2F | 16 |
| 51-196.025D2 | 9 |
| 51-196.025D2F | 16 |
| 51-197.025D2 | 9 |
| 51-197.025D2F | 16 |
| 51-198.025D2 | 9 |
| 51-198.025D2F | 16 |
| 51-235.022D | 9 |
| 51-235.022DF | 16 |
| 51-235.025D2 | 9 |
| 51-235.025D2F | 16 |
| 51-236.025D2 | 9 |
| 51-236.025D2F | 16 |
| 51-237.025D2 | 9 |
| 51-237.025D2F | 16 |
| 51-238.025D2 | 9 |
| 51-238.025D2F | 16 |
| 51-255.022D | 9 |
| 51-255.022DF | 15 |
| 51-255.025D2 | 9 |
| 51-255.025D2F | 15 |
| 51-256.025D2 | 9 |
| 51-256.025D2F | 15 |
| 51-257.025D2 | 9 |
| 51-257.025D2F | 15 |
| 51-258.025D2 | 9 |
| 51-258.025D2F | 15 |
| 51-261.022 | 8 |
| 51-261.0252 | 8 |
| 51-262.0252 | 8 |
| 51-263.0252 | 8 |
| 51-264.0252 | 8 |
| 51-271.022 | 8 |
| 51-271.0252 | 8 |
| 51-272.0252 | 8 |
| 51-273.0252 | 8 |
| 51-274.0252 | 8 |
| 51-281.022 | 8 |
| 51-281.022F | 14 |
| 51-281.0252 | 8 |
| 51-281.0252F | 14 |
| 51-282.0252 | 8 |
| 51-282.0252F | 14 |
| 51-283.0252 | 8 |
| 51-283.0252F | 14 |
| 51-284.0252 | 8 |
| 51-284.0252F | 14 |
| 51-295.022D | 9 |
| 51-295.022DF | 16 |
| 51-295.025D2 | 9 |
| 51-295.025D2F | 16 |
| 51-296.025D2 | 9 |
| 51-296.025D2F | 16 |
| 51-297.025D2 | 9 |

# Index from Typ-Nr.


| Typ-Nr. | Page |
|---|---|
| 51-297.025D2F | 16 |
| 51-298.025D2 | 9 |
| 51-298.025D2F | 16 |
| 51-335.022D | 9 |
| 51-335.022DF | 16 |
| 51-335.025D2 | 9 |
| 51-335.025D2F | 16 |
| 51-336.025D2 | 9 |
| 51-336.025D2F | 16 |
| 51-337.025D2 | 9 |
| 51-337.025D2F | 16 |
| 51-338.025D2 | 9 |
| 51-338.025D2F | 16 |
| 51-355.022D | 9 |
| 51-355.022DF | 15 |
| 51-355.025D2 | 9 |
| 51-355.025D2F | 15 |
| 51-356.025D2 | 9 |
| 51-356.025D2F | 15 |
| 51-357.025D2 | 9 |
| 51-357.025D2F | 15 |
| 51-358.025D2 | 9 |
| 51-358.025D2F | 15 |
| 51-361.022D | 10 |
| 51-361.022DF | 18 |
| 51-362.022D | 10 |
| 51-362.022DF | 18 |
| 51-363.022D | 10 |
| 51-363.022DF | 18 |
| 51-364.022D | 10 |
| 51-364.022DF | 18 |
| 51-365.022D | 10 |
| 51-365.022DF | 18 |
| 51-366.022D | 10 |
| 51-366.022DF | 18 |
| 51-367.022D | 10 |
| 51-367.022DF | 18 |
| 51-368.022D | 10 |
| 51-368.022DF | 18 |
| 51-371.022D | 10 |
| 51-371.022DF | 18 |
| 51-372.022D | 10 |
| 51-372.022DF | 18 |
| 51-373.022D | 10 |
| 51-373.022DF | 18 |
| 51-374.022D | 10 |
| 51-374.022DF | 18 |
| 51-375.022D | 10 |
| 51-375.022DF | 18 |
| 51-376.022D | 10 |
| 51-376.022DF | 18 |
| 51-377.022D | 10 |
| 51-377.022DF | 18 |
| 51-378.022D | 10 |
| 51-378.022DF | 18 |
| 51-381.022D | 10 |
| 51-381.022DF | 18 |
| 51-382.022D | 10 |
| 51-382.022DF | 18 |
| 51-383.022D | 10 |
| 51-383.022DF | 18 |
| 51-384.022D | 10 |
| 51-384.022DF | 18 |
| 51-385.022D | 10 |
| 51-385.022DF | 18 |
| 51-386.022D | 10 |
| 51-386.022DF | 18 |
| 51-387.022D | 10 |
| 51-387.022DF | 18 |
| 51-388.022D | 10 |
| 51-388.022DF | 18 |
| 51-395.022D | 9 |
| 51-395.022DF | 16 |
| 51-395.025D2 | 9 |
| 51-395.025D2F | 16 |
| 51-396.025D2 | 9 |
| 51-396.025D2F | 16 |
| 51-397.025D2 | 9 |
| 51-397.025D2F | 16 |
| 51-398.025D2 | 9 |
| 51-398.025D2F | 16 |
| 51-401.036D | 9 |
| 51-401.036DF | 16 |
| 51-402.036D | 9 |
| 51-402.036DF | 16 |
| 51-404.036D | 9 |
| 51-404.036DF | 16 |
| 51-405.036D | 9 |
| 51-405.036DF | 16 |
| 51-407.036D | 9 |
| 51-407.036DF | 16 |
| 51-408.036D | 9 |
| 51-408.036DF | 16 |
| 51-411.036D | 9 |
| 51-411.036DF | 16 |
| 51-412.036D | 9 |
| 51-412.036DF | 16 |
| 51-414.036D | 9 |
| 51-414.036DF | 16 |
| 51-415.036D | 9 |
| 51-415.036DF | 16 |
| 51-417.036D | 9 |
| 51-417.036DF | 16 |
| 51-418.036D | 9 |
| 51-418.036DF | 16 |
| 51-421.036 | 8 |
| 51-422.036 | 8 |
| 51-423.036 | 8 |
| 51-425.036 | 8 |
| 51-426.036 | 8 |
| 51-427.036D | 9 |
| 51-427.036DF | 16 |
| 51-428.036D | 9 |
| 51-428.036DF | 16 |
| 51-431.036 | 8 |
| 51-432.036 | 8 |
| 51-433.036 | 8 |
| 51-435.036 | 8 |
| 51-436.036 | 8 |
| 51-437.036D | 9 |
| 51-437.036DF | 17 |
| 51-438.036D | 9 |
| 51-438.036DF | 17 |
| 51-441.036D | 9 |
| 51-441.036DF | 15 |
| 51-442.036D | 9 |
| 51-442.036DF | 15 |
| 51-444.036D | 9 |
| 51-444.036DF | 15 |
| 51-445.036D | 9 |
| 51-445.036DF | 15 |
| 51-447.036D | 9 |
| 51-447.036DF | 15 |
| 51-448.036D | 9 |
| 51-448.036DF | 15 |
| 51-451.036 | 8 |
| 51-451.036F | 14 |
| 51-452.036 | 8 |
| 51-452.036F | 14 |
| 51-453.036 | 8 |
| 51-453.036F | 14 |
| 51-455.036 | 8 |
| 51-455.036F | 14 |
| 51-456.036 | 8 |
| 51-456.036F | 14 |
| 51-457.036D | 9 |
| 51-457.036DF | 15 |
| 51-458.036D | 9 |
| 51-458.036DF | 15 |
| 51-461.036 | 8 |
| 51-462.036 | 8 |
| 51-463.036 | 8 |
| 51-465.036 | 8 |
| 51-466.036 | 8 |
| 51-471.036 | 8 |
| 51-472.036 | 8 |
| 51-473.036 | 8 |
| 51-475.036 | 8 |
| 51-476.036 | 8 |
| 51-481.036 | 8 |
| 51-481.036F | 14 |
| 51-482.036 | 8 |
| 51-482.036F | 14 |
| 51-483.036 | 8 |
| 51-483.036F | 14 |
| 51-485.036 | 8 |
| 51-485.036F | 14 |
| 51-486.036 | 8 |
| 51-486.036F | 14 |
| 51-495.022D | 9 |
| 51-495.022DF | 16 |
| 51-495.025D2 | 9 |
| 51-495.025D2F | 16 |
| 51-496.025D2 | 9 |
| 51-496.025D2F | 16 |
| 51-497.025D2 | 9 |
| 51-497.025D2F | 16 |
| 51-498.025D2 | 9 |
| 51-498.025D2F | 16 |
| 51-701.006 | 7 |
| 51-702.006 | 7 |
| 51-703.006 | 7 |
| 51-704.006 | 7 |
| 51-705.0292 | 8 |
| 51-706.0292 | 8 |
| 51-707.0292 | 8 |
| 51-708.0292 | 8 |
| 51-709.0292 | 8 |
| 51-710.0292 | 8 |

# Index from Typ-Nr.


| Typ-Nr. | Page |
|---|---|
| 51-711.0292 | 8 |
| 51-712.0292 | 8 |
| 51-713.0292 | 8 |
| 51-714.0292 | 8 |
| 51-715.0292 | 8 |
| 51-716.0292 | 8 |
| 51-717.0292 | 8 |
| 51-718.0292 | 8 |
| 51-719.0292 | 8 |
| 51-720.0292 | 8 |
| 51-741.006 | 7 |
| 51-742.006 | 7 |
| 51-743.0292 | 8 |
| 51-744.0292 | 8 |
| 51-745.0292 | 8 |
| 51-746.0292 | 8 |
| 51-747.0292 | 8 |
| 51-748.0292 | 8 |
| 51-749.0292 | 8 |
| 51-750.0292 | 8 |
| 51-901.0 | 21 |
| 51-901.2 | 21 |
| 51-901.3 | 21 |
| 51-901.4 | 21 |
| 51-901.5 | 21 |
| 51-901.6 | 21 |
| 51-901.8 | 21 |
| 51-901.9 | 21 |
| 51-903.1 | 21 |
| 51-903.2 | 21 |
| 51-903.3 | 21 |
| 51-903.4 | 21 |
| 51-903.5 | 21 |
| 51-903.6 | 21 |
| 51-903.7 | 21 |
| 51-904.2 | 21 |
| 51-904.3 | 21 |
| 51-904.4 | 21 |
| 51-904.5 | 21 |
| 51-904.6 | 21 |
| 51-904.7 | 21 |
| 51-905.2 | 21 |
| 51-905.4 | 21 |
| 51-905.5 | 21 |
| 51-905.7 | 21 |
| 51-906.2 | 21 |
| 51-906.4 | 21 |
| 51-906.5 | 21 |
| 51-906.7 | 21 |
| 51-910 | 31 |
| 51-920 | 27 |
| 51-925 | 27 |
| 51-931.0 | 21 |
| 51-931.2 | 21 |
| 51-931.3 | 21 |
| 51-931.4 | 21 |
| 51-931.5 | 21 |
| 51-931.6 | 21 |
| 51-931.8 | 21 |
| 51-931.9 | 21 |
| 51-933.1 | 21 |
| 51-933.2 | 21 |
| 51-933.3 | 21 |
| 51-933.4 | 21 |
| 51-933.5 | 21 |
| 51-933.6 | 21 |
| 51-933.7 | 21 |
| 51-935.2 | 21 |
| 51-935.4 | 21 |
| 51-935.5 | 21 |
| 51-935.7 | 21 |
| 51-938 | 31 |
| 51-943.0 | 28 |
| 51-943.1 | 29 |
| 51-943.9 | 32 |
| 51-947.0 | 27 |
| 51-948.0 | 27 |
| 51-949.0 | 27 |
| 51-951.0 | 21 |
| 51-951.2 | 21 |
| 51-951.3 | 21 |
| 51-951.4 | 21 |
| 51-951.5 | 21 |
| 51-951.6 | 21 |
| 51-951.8 | 21 |
| 51-951.9 | 21 |
| 51-953.1 | 21 |
| 51-953.2 | 21 |
| 51-953.3 | 21 |
| 51-953.4 | 21 |
| 51-953.5 | 21 |
| 51-953.6 | 21 |
| 51-953.7 | 21 |
| 51-954.2 | 21 |
| 51-954.3 | 21 |
| 51-954.4 | 21 |
| 51-954.5 | 21 |
| 51-954.6 | 21 |
| 51-954.7 | 21 |
| 51-955.2 | 21 |
| 51-955.4 | 21 |
| 51-955.5 | 21 |
| 51-955.7 | 21 |
| 52-131.022 | 11 |
| 52-131.022 | 19 |
| 52-131.0252 | 11 |
| 52-131.0252 | 19 |
| 52-132.0252 | 11 |
| 52-132.0252 | 19 |
| 52-133.0252 | 11 |
| 52-133.0252 | 19 |
| 52-134.0252 | 11 |
| 52-134.0252 | 19 |
| 52-271.022 | 11 |
| 52-271.022 | 19 |
| 52-271.0252 | 11 |
| 52-271.0252 | 19 |
| 52-272.0252 | 11 |
| 52-272.0252 | 19 |
| 52-273.0252 | 11 |
| 52-273.0252 | 19 |
| 52-274.0252 | 11 |
| 52-274.0252 | 19 |
| 52-431.036 | 11 |
| 52-431.036 | 19 |
| 52-432.036 | 11 |
| 52-432.036 | 19 |
| 52-433.036 | 11 |
| 52-433.036 | 19 |
| 52-435.036 | 11 |
| 52-435.036 | 19 |
| 52-436.036 | 11 |
| 52-436.036 | 19 |
| 52-471.036 | 11 |
| 52-471.036 | 19 |
| 52-472.036 | 11 |
| 52-472.036 | 19 |
| 52-473.036 | 11 |
| 52-473.036 | 19 |
| 52-475.036 | 11 |
| 52-475.036 | 19 |
| 52-476.036 | 11 |
| 52-476.036 | 19 |
| 52-571.022A | 12 |
| 52-571.022A | 20 |
| 52-572.022A | 12 |
| 52-572.022A | 20 |
| 52-573.022A | 12 |
| 52-573.022A | 20 |
| 52-574.022A | 12 |
| 52-574.022A | 20 |
| 52-743.0292 | 11 |
| 52-744.0292 | 11 |
| 52-745.0292 | 11 |
| 52-746.0292 | 11 |
| 52-747.0292 | 11 |
| 52-748.0292 | 11 |
| 52-749.0292 | 11 |
| 52-750.0292 | 11 |
| 52-928.0 | 24 |
| 52-928.20 | 24 |
| 52-928.30 | 24 |
| 52-928.40 | 24 |
| 52-928.50 | 24 |
| 52-928.60 | 24 |
| 52-929.20 | 24 |
| 52-929.30 | 24 |
| 52-929.40 | 24 |
| 52-929.50 | 24 |
| 52-929.60 | 24 |
| 52-929.8 | 24 |
| 52-929.9 | 24 |
| 52-950.0 | 23 |
| 52-952.0 | 23 |
| 61-9028.0 | 24 |
| 61-9028.20 | 24 |
| 61-9028.30 | 24 |
| 61-9028.40 | 24 |
| 61-9028.50 | 24 |
| 61-9028.60 | 24 |
| 61-9028.9 | 24 |
| 61-9029.20 | 24 |
| 61-9029.30 | 24 |
| 61-9029.40 | 24 |
| 61-9029.50 | 24 |
| 61-9029.60 | 24 |
| 61-9029.8 | 24 |
| 61-9029.9 | 24 |
| 61-9451.0 | 27 |

# Index from Typ-Nr.


| Typ-Nr. | Page |
|---|---|
| 61-9452.0 | 27 |
| 61-9453.0 | 27 |
| 61-9593.0 | 23 |
| 61-9593.2 | 23 |
| 61-9593.4 | 23 |
| 61-9593.5 | 23 |
| 61-9642.1 | 21 |
| 61-9642.2 | 21 |
| 61-9642.3 | 21 |
| 61-9642.4 | 21 |
| 61-9642.5 | 21 |
| 61-9642.6 | 21 |
| 61-9642.7 | 21 |
| 61-9643.201 | 22 |
| 61-9643.202 | 22 |
| 61-9643.203 | 22 |
| 61-9643.301 | 22 |
| 61-9643.401 | 22 |
| 61-9643.501 | 22 |
| 61-9643.502 | 22 |
| 61-9643.503 | 22 |
| 61-9643.601 | 22 |
| 61-9643.602 | 22 |
| 61-9643.603 | 22 |
| 61-9643.701 | 22 |
| 61-9643.702 | 22 |
| 61-9643.703 | 22 |
| 61-9671.1 | 21 |
| 61-9671.2 | 21 |
| 61-9671.3 | 21 |
| 61-9671.4 | 21 |
| 61-9671.5 | 21 |
| 61-9671.6 | 21 |
| 61-9671.7 | 21 |
| 61-9681.1 | 21 |
| 61-9681.2 | 21 |
| 61-9681.3 | 21 |
| 61-9681.4 | 21 |
| 61-9681.5 | 21 |
| 61-9681.6 | 21 |
| 61-9681.7 | 21 |
| 61-9707.7 | 22 |
| 61-9730.0 | 31 |
| 61-9740.0 | 31 |
| 61-9771.0 | 21 |
| 61-9771.8 | 21 |
| 61-9771.9 | 21 |
| 61-9781.0 | 21 |
| 61-9781.8 | 21 |
| 61-9781.9 | 21 |
| 61-9841.0 | 23 |
| 61-9841.0A | 22 |
| 61-9841.2 | 23 |
| 61-9841.2A | 22 |
| 61-9841.4 | 23 |
| 61-9841.4A | 22 |
| 61-9841.5 | 23 |
| 61-9841.5A | 22 |
| 61-9841.6 | 23 |
| 61-9841.6A | 22 |
| 61-9841.8 | 23 |
| 61-9841.8A | 22 |
| 61-9842.0 | 23 |
| 61-9842.2 | 23 |
| 61-9842.4 | 23 |
| 61-9842.5 | 23 |
| 61-9842.6 | 23 |
| 61-9842.8 | 23 |
| 61-9921.0 | 27 |
| 61-9922.0 | 27 |
| 61-9924.0 | 27 |
| 61-9927.2 | 26 |
| 61-9930.0 | 25 |
| 61-9930.0 | 26 |
| 61-9930.4 | 25 |
| 61-9930.4 | 26 |
| 61-9931.0 | 25 |
| 61-9931.0 | 26 |
| 61-9931.4 | 25 |
| 61-9931.4 | 26 |
| 61-9932.0 | 26 |
| 61-9932.0 | 26 |
| 61-9932.1 | 26 |
| 61-9932.1 | 26 |
| 61-9932.10 | 26 |
| 61-9932.10 | 26 |
| 61-9932.2 | 26 |
| 61-9932.2 | 26 |
| 61-9932.4 | 26 |
| 61-9932.4 | 26 |
| 61-9932.5 | 26 |
| 61-9932.5 | 26 |
| 61-9932.6 | 26 |
| 61-9932.6 | 26 |
| 61-9933.0 | 25 |
| 61-9933.0 | 25 |
| 61-9933.1 | 25 |
| 61-9933.1 | 25 |
| 61-9933.10 | 25 |
| 61-9933.10 | 25 |
| 61-9933.2 | 25 |
| 61-9933.2 | 25 |
| 61-9933.4 | 25 |
| 61-9933.4 | 25 |
| 61-9933.5 | 25 |
| 61-9933.5 | 25 |
| 61-9933.6 | 25 |
| 61-9933.6 | 25 |
| 61-9934.8 | 25 |
| 61-9936.0 | 26 |
| 61-9980.0 | 24 |
| 704.968.0 | 25 |
| 704.968.1 | 25 |
| 84-9103.7 | 26 |

**EAO AG**
Tannwaldstrasse 88
4601 Olten, Switzerland

**E-mail** info@eao.com
**Website** www.eao.com

**Austria**
Phone +49 201 85 87 0
Fax +49 201 85 87 210
E-mail sales.ede@eao.com

**Belgium**
Phone +32 3 777 82 36
Fax +32 3 777 84 19
E-mail sales.ebl@eao.com

**China**
Phone +852 27 86 91 41
Fax +852 27 86 95 61
E-mail sales.ehk@eao.com

**France**
Phone +33 1 64 43 37 37
Fax +33 1 64 43 37 49
E-mail sales.ese@eao.com

**Germany**
Phone +49 201 85 87 0
Fax +49 201 85 87 210
E-mail sales.ede@eao.com

**Italy**
Phone +39 035 481 0189
Fax +39 035 481 3786
E-mail sales.eit@eao.com

**Japan**
Phone +81 3 5444 5411
Fax +81 3 5444 0345
E-mail sales.esj@eao.com

**Netherlands**
Phone +31 78 653 17 00
Fax +31 78 653 17 99
E-mail sales.enl@eao.com

**Sweden**
Phone +46 8 683 86 60
Fax +46 8 724 29 12
E-mail sales.esw@eao.com

**Switzerland**
Phone +41 62 388 95 00
Fax +41 62 388 95 55
E-mail sales.ech@eao.com

**United Kingdom**
Phone +44 1444 236 000
Fax +44 1444 236 641
E-mail sales.euk@eao.com

**USA**
Phone +1 203 877 4577
Fax +1 203 877 3694
E-mail sales.eus@eao.com

**Other Countries**
Phone +41 62 286 92 10
Fax +41 62 296 21 62
E-mail info@eao.com

EAO reserves the right to alter specifications without further notice

eao

# OCEAN CHIPS
## Океан Электроники
## Поставка электронных компонентов

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «**JONHON**», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «**FORSTAR**».

AVIC JONHON

**«JONHON»** (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

**«FORSTAR»** (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).

FORSTAR®

Телефон: 8 (812) 309-75-97 (многоканальный)
Факс: 8 (812) 320-03-32
Электронная почта: ocean@oceanchips.ru
Web: http://oceanchips.ru/
Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А