| INDICATOR | PUSHBUTTON | KEYLOCK | SELECTOR |

Choose one component from each of the coloured sections to assemble a complete switch.
For other options or further information please contact your local sales office.

Product Profile

The Series 51 is a high quality switch range that includes pushbuttons, indicators, selector switches and keylock switches.

It is possible to choose up to 4NO/4NC snap-action switching elements per switch.

Low level switching elements are also available.

Technical data see page 80

- IP65 Protection
- Switch Rating, 5A, 250VAC
- Raised Mounting into 16 mm cut out
- Ilumination using midget-grooved T1¾ lamps or single chip LED's
- All standard lenses are transparent with translucent diffuser available in different colours
- For keylock switches 2 key systems and 145 different keys are available

☼ Indicator

1   2   3

Indicator bodies, raised in round, square and rectangular, black plastic, 16 mm mounting, solder terminals

Image	Part No.	Size
1	51-040.005	18 x 24 mm
2	51-050.005	18 x 18 mm
3	51-030.005	18 mm ∅

For complete switch also order ☼ **A**

◎ Illuminated pushbutton

Illuminated pushbutton, snap-action, raised, rectangular, black plastic, 16 mm mountin

Part No.	Moment/Maint	Contact type	Size
51-121.0252	Momentary	1NO/1NC	18 x 24 mm
51-122.0252	Momentary	2NO/2NC	18 x 24 mm
51-261.0252	Maintained	1NO/1NC	18 x 24 mm
51-262.0252	Maintained	2NO/2NC	18 x 24 mm

For complete switch also order ☼ **A**

◎ Illuminated pushbutton

Illuminated pushbutton, snap-action, raised, square, black plastic, 16 mm mounting

Part No.	Function	Contact type	Size
51-151.0252	Momentary	1NO/1NC	18 x 18 mm
51-152.0252	Momentary	2NO/2NC	18 x 18 mm
51-281.0252	Maintained	1NO/1NC	18 x 18 mm
51-282.0252	Maintained	2NO/2NC	18 x 18 mm

For complete switch also order ☼ **A**

Illuminated pushbutton, snap-action, raised, round, black plastic, 16 mm mounting

Part No.	Function	Contact type	Size
51-131.0252	Momentary	1NO/1NC	18 mm ∅
51-132.0252	Momentary	2NO/2NC	18 mm ∅
51-271.0252	Maintained	1NO/1NC	18 mm ∅
51-272.0252	Maintained	2NO/2NC	18 mm ∅

For complete switch also order ☼ **A**

⚷ Keylock switch

Keylock switch, 2 position, raised, snap-action, round, black plastic, 18 mm ∅

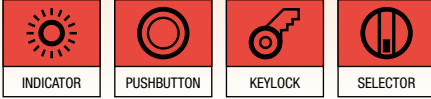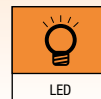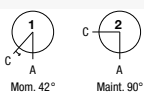| Graphic	Part No.	Function	Contact	Key rem.
2	51-135.025D2	Maint.	1NO/1NC	A + C
2	51-136.025D2	Maint.	2NO/2NC	A + C
2	51-235.025D2	Maint.	1NO/1NC	A
2	51-335.025D2	Maint.	1NO/1NC	C
1	51-141.025D2	Mom.	1NO/1NC	A

Choose one component from each of the coloured sections to assemble a complete switch.
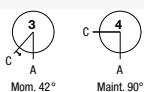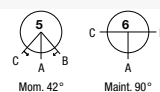For other options or further information please contact your local sales office.

LED	ACCESSORIES
	A

Keylock switch

Keylock switch, 2 position, raised, snap-action, square, black plastic, 18 x 18 mm

Mom. 42°   Maint. 90°

Graphic	Part No.	Function	Contact	Key rem.
1	51-145.025D2	Moment.	1NO/1NC	A
1	51-146.025D2	Moment.	2NO/2NC	A
2	51-155.025D2	Maint.	1NO/1NC	A + C
2	51-255.025D2	Maint.	1NO/1NC	A
2	51-355.025D2	Maint.	1NO/1NC	C

Keylock switch, 2 position, raised, snap-action, rectangular, black plastic, 18 x 24 mm

Mom. 42°   Maint. 90°

Graphic	Part No.	Function	Contact	Key rem.
4	51-195.025D2	Maint.	1NO/1NC	A + C
4	51-196.025D2	Maint.	2NO/2NC	A + C
4	51-295.025D2	Maint.	1NO/1NC	A
4	51-296.025D2	Maint.	2NO/2NC	A
4	51-395.025D2	Maint.	1NO/1NC	C
4	51-396.025D2	Maint.	2NO/2NC	C
3	51-495.025D2	Moment.	1NO/1NC	A
3	51-496.025D2	Moment.	2NO/2NC	A

Keylock switch, 3 position, raised, snap-action, rectangular, black plastic, 18 x 24 mm

Mom. 42°   Maint. 90°

Graphic	Part No.	Function	Contact type	Key rem.
6	51-361.022D	Maint.	2x 1NO/1NC	A
6	51-362.022D	Maint.	2x 2NO/2NC	C + A + B
5	51-364.022D	Moment.	2x 1NO/1NC	A

Selector switch

Selector switch, 2 position, raised, snap-action, round, black plastic, 18 mm ∅
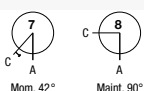
Mom. 42°   Maint. 90°
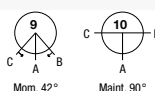
Graphic	Part No.	Function	Contact type
7	52-131.0252	Momentary	1NO/1NC
7	52-132.0252	Momentary	2NO/2NC
8	52-271.0252	Maintained	1NO/1NC
8	52-272.0252	Maintained	2NO/2NC

Selector switch, 3 position, raised, snap-action, round, black plastic, 18 mm ∅

Mom. 42°   Maint. 90°

Graphic	Part No.	Function	Contact type
10	52-571.022A	Maintained	2x 1NO/1NC
9	52-572.022A	Momentary	2x 1NO/1NC

LED


LED, T1¾ MG, single chip, 12 Volt and 28 Volt.
(Also available in 6 Volt, 24 Volt and 48 Volt)

Colour	Part No.	Contact type
● Red	10-2J09.1062	12 VAC/DC, 15 mA
● Yellow	10-2J09.1064	12 VAC/DC, 15 mA
● Green	10-2J09.1065	12 VAC/DC, 15 mA
● Blue	10-2J09.1066	12 VAC/DC, 15 mA
○ White	10-2J09.1069	12 VAC/DC, 15 mA
● Red	10-2J13.1062	28 VAC/DC, 7/14 mA
● Yellow	10-2J13.1064	28 VAC/DC, 7/14 mA
● Green	10-2J13.1065	28 VAC/DC, 7/14 mA
● Blue	10-2J13.1066	28 VAC/DC, 7/14 mA
○ White	10-2J13.1069	28 VAC/DC, 7/14 mA

For complete switch also order 💡 **A**

For complete switch also order 💡 **A**
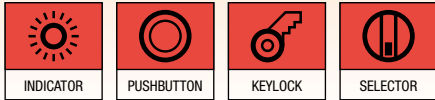
eao ■

INDICATOR	PUSHBUTTON	KEYLOCK	SELECTOR

Choose one component from each of the coloured sections to assemble a complete switch.
For other options or further information please contact your local sales office.

A Accessories

Lens, opaque for rectangular pushbutton actuators, not for illumination

Colour	Part No.	Size
● Black	51-901.0	18 x 24 mm

Lens, front transparent/rear translucent for rectangular indicator and pushbutton actuators

Colour	Part No.	Size
● Red	51-903.2	18 x 24 mm
● Yellow	51-903.4	18 x 24 mm
● Green	51-903.5	18 x 24 mm
● Blue	51-903.6	18 x 24 mm
○ Clear	51-903.7	18 x 24 mm

Lens, opaque for square pushbutton actuators, not for illumination

Colour	Part No.	Size
● Black	51-951.0	18 x 18 mm

A Accessories

Lens, front transparent/rear translucent for square indicator and pushbutton actuators

Colour	Part No.	Size
● Red	51-953.2	18 x 18 mm
● Yellow	51-953.4	18 x 18 mm
● Green	51-953.5	18 x 18 mm
● Blue	51-953.6	18 x 18 mm
○ Clear	51-953.7	18 x 18 mm

Lens, opaque for round pushbutton actuators, not for illumination

Colour	Part No.	Size
● Black	51-931.0	18 mm ∅

Lens, front transparent/rear translucent for round indicator and pushbutton actuators

Colour	Part No.	Size
● Red	51-933.2	18 mm ∅
● Yellow	51-933.4	18 mm ∅
● Green	51-933.5	18 mm ∅
● Blue	51-933.6	18 mm ∅
○ Clear	51-933.7	18 mm ∅

Choose one component from each of the coloured sections to assemble a complete switch.
For other options or further information please contact your local sales office.

LED
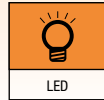
A ACCESSORIES

A Accessories

Lever for selector switch, coloured lever bar
options available as indicated

1   2

Flap guard, raised in square and rectangular

1   2   3

Blanking plate

Colour	Part No.
● Black	52-928.0
● Red	52-928.20
● Yellow	52-928.40
● Green	52-928.50
● Blue	52-928.60

Image	Part No.	Size
1	51-925	18 x 24 mm
2	51-920	18 x 18 mm

Image	Part No.	Size
1	51-947.0	18 x 24 mm
2	51-948.0	18 x 18 mm
3	51-949.0	18 mm ∅

A Accessories

1   2   3

Mounting tool, lens and LED remover

Image	Part No.	Product description
1	01-907	Mounting tool
2	02-905	Lens remover
3	61-9740.0	LED remover

eao ■

Actuator with snap-action switching element

Switching system

Self-cleaning, double-break, snap action switching system (with contact gap 2×0.5 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 1×1 mm²

Snap-action switching element with axial soldering terminals, which can also be used as plug-in terminals 2.8×0.5 mm:
Max. wire diameter 2 wires of 1 mm
Max. wire cross-section of stranded cable 2 of 0.75 mm² or 1×1.0 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
≤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
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
IP65 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-/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
≤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
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
IP65 keylock switch
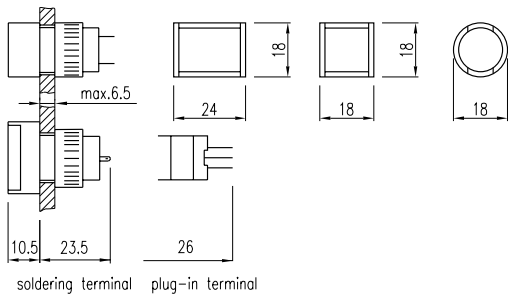IP40 selector switch

Approvals

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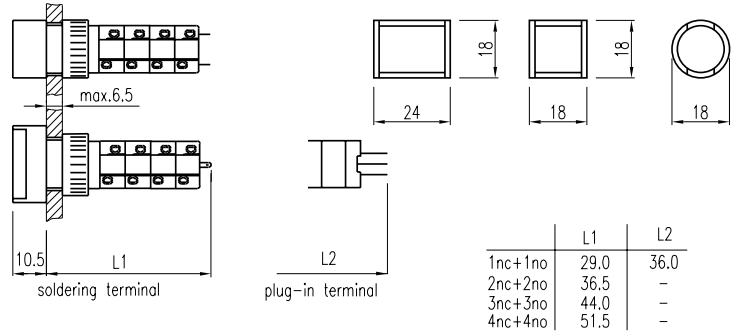Germanischer Lloyd
UL

Declaration of conformity
CE

e a o ■

51 Indicator
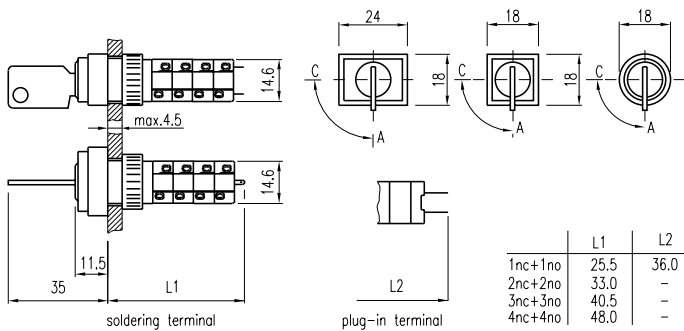
Raised, Round, Square, Rectangular

max.6.5
24 18 18 18
10.5 23.5 26
soldering terminal   plug-in terminal

51 Pushbutton

Raised, Round, Square, Rectangular

max.6.5
24 18 18 18
10.5 L1 L2
soldering terminal   plug-in terminal

	L1	L2
1nc+1no	29.0	36.0
2nc+2no	36.5	–
3nc+3no	44.0	–
4nc+4no	51.5	–

51 Keylock switch

Raised, 2-Position, Round, Square, Rectangular

24 18 18
14.6
max.4.5
14.6
11.5
35 L1 L2
soldering terminal   plug-in terminal

	L1	L2
1nc+1no	25.5	36.0
2nc+2no	33.0	–
3nc+3no	40.5	–
4nc+4no	48.0	–

51 Keylock switch

Raised, 3-Position, Round, Square, Rectangular

24 18 18
max.4.5
11.5
35 42

52 Selector switch

Raised, 2-Position, Round

18
14.6
max.9
14.6 14.7
6
14 L1 L2
soldering terminal   plug-in terminal

	L1	L2
1nc+1no	33.0	43.5
2nc+2no	40.5	–
3nc+3no	48.0	–
4nc+4no	55.5	–

52 Selector switch

Raised, 3-Position, Round

18 24
max.7.5
24
6
14 42
soldering-/plug-in terminal
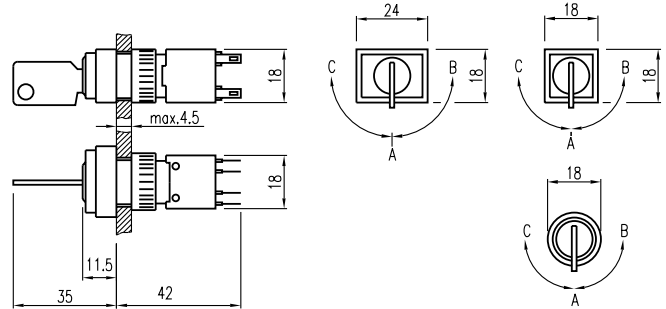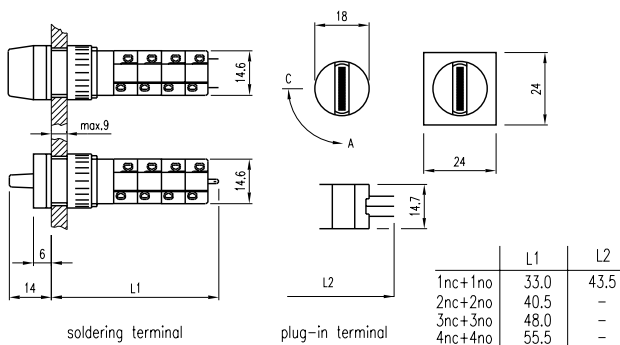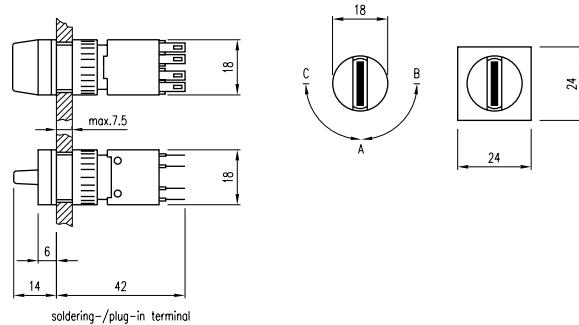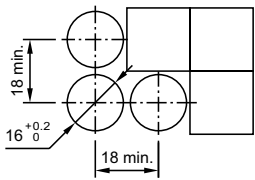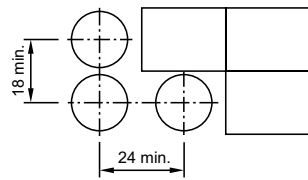
51 Cut-outs

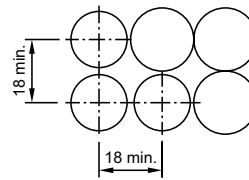Indicator, Pushbutton, Round, Square, Rectangular
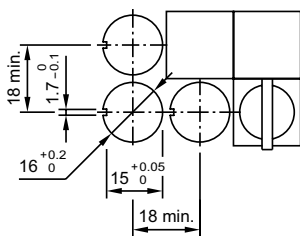
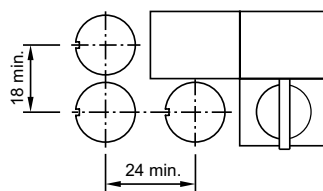| 18 x 18 mm	18 x 24 mm	Ø 18 mm

51 Cut-outs

Keylock 2-Position Round, Keylock 2-Position Square,
Keylock 2-Position Rectangular, 2 & 3-Position Selector Round

18 x 18 mm	18 x 24 mm	Ø 18 mm

eao ■