16mm 22.5mm 21x21mm 21x27mm IP65 5A 250VAC











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.

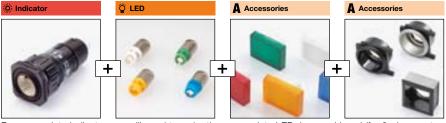
Product Profile

The Series 61 is a high quality, modular switch range that includes pushbuttons, indicators, selector switches, keylock switches and Emergency-stops. Available in raised or flush mount.

Self cleaning snap-action and slow-make switching elements available.

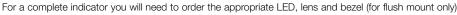
Technical data see page 103

- IP65 Protection
- Switch Rating, 5A, 250 VAC
- Raised Mounting into 16 mm cut out
- Flush Mounting into 22.5 mm, 21 x 21 mm and 21 x 27 mm cut out
- Illumination using midget-grooved T13/4 lamps or single chip LED's
- All standard lenses are transparent with translucent diffuser available in different colours
- For keylock switches 135 different keys are available



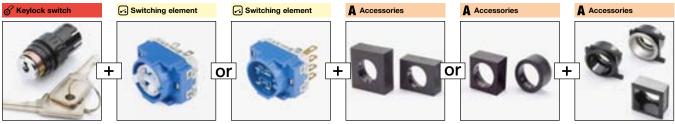
Ordering Guide

Choice of front bezel determines front shape

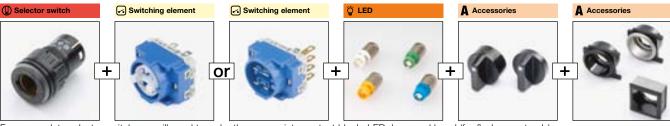




For a complete illuminated pushbutton you will need to order the appropriate contact block, LED, lens and bezel (for flush mount only)



For a complete keylock switch you will need to order the appropriate LED, lens and bezel (for flush mount only)



For a complete selector switch you will need to order the appropriate contact block, LED, lever and bezel (for flush mount only)

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.







iii li	ndicator					uminated	d pushbutto	n
	2	3 4			1	2	3	4
	r bodies, raised, round angular, black plastic,		Indicator b	oody for flush mount, black plastic, mounting		are and rectar	nctuator, raised, ngular, black plastic	,
Image	Part No.	Size		Part No.	Image	Part No.	Function	Size
1	61-0050.02	24 x 24 mm		61-0000.02	1	61-1150.0	Momentary	24 x 24 mm
2	61-0030.02	18 x 24 mm			1	61-1250.0	Maintained	24 x 24 mm
3	61-0020.02	18 x 18 mm			2	61-1130.0	Momentary	18 x 24 mm
4	61-0010.02	18 mm Ø			2	61-1230.0	Maintained	18x24mm
					3	61-1120.0	Momentary	18x18mm
					3	61-1220.0	Maintained	18x18mm
					4	61-1110.0	Momentary	18 mm Ø
					4	61-1210.0	Maintained	18 mm Ø

For complete switch also order 🙄 🗛

For complete switch also order $\, \ddot{\mathbb{Q}} \,$ $\, \mathbf{A} \,$

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○ Illuminated pushbutton	Emergency-stop switch	⊚ீ Keylock switch
Illuminated flush mount pushbutton actuator, round, black plastic, 22.5 mm mounting	Emergency-stop, twist release and key release, 27 mm diameter for 16 mm mounting, foolproof to EN 60947-5-5 and DIN EN ISO 13850	Keylock switch, actuator, 2 position for raised and flush mount CA CA A A A Mom. 42° Maint. 90°
Part No. Function	Part No. Product reference	Graphic Part No. Function Key rem.
61-1100.0 Momentary	61-3440.4/1 Twist release	1 61-2101.0/D Momentary A
61-1200.0 Maintained	61-5441.4/K Key release	2 61-2201.0/D Maintained A
		2 61-2203.0/D Maintained C
		2 61-2205.0/D Maintained C + A
		For flush mount order front bezel and front bezel set

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For complete switch also order lacktriangle

For complete switch also order lacktriangle

16mm 22.5mm 21x21mm 21x27mm IP65 250 VAC 5A











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.



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Contact block



Contact block for pushbuttons and 2 position keylock and selector switches, snap-action, solder/plug-in terminal



Emergency-stop contact block, slow make, screw terminal or solder/plug-in terminal



Contact block, 3 position keylock and selector switch, snapaction, solder/plug-in terminal

Part No.	Contact type	Contact material	Image	Part No.	Contact type	Contact material	Part No.	Contact type	Contact material
61-8410.12	1NO	Silver	1	61-8755.11	2NC	Silver	61-8520.12	2N0	Silver
61-8410.22	1NO	Gold	2	61-8755.17	2NC	Silver	61-8520.22	2N0	Gold
61-8420.12	2N0	Silver	1	61-8775.11	1NO/1NC	Silver			
61-8420.22	2N0	Gold	2	61-8775.17	1NO/1NC	Silver			
61-8470.12	1NO/1NC	Silver							
61-8470.22	1NO/1NC	Gold							

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



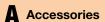


LED, T1¾ MG, single chip, 12 Volt and 28 Volt. Also available in 6 Volt, 24 Volt and 48 Volt

Lens, plastic for raised, rectangular indicator and pushbutton actuators

Lens, plastic for raised, square indicator and pushbutton actuators

Colour	Part No.	Voltage	Colour	Part No.	for switch	Colour	Part No.	for switch
Red	10-2J09.1062	12VAC/DC, 7/14mA	Red	61-9331.2	18x24mm	Red	61-9351.2	24 x 24 mm
O Yellow	10-2J09.1064	12VAC/DC, 7/14mA	Yellow	61-9331.4	18x24mm	O Yellow	61-9351.4	24 x 24 mm
Green	10-2J09.1065	12VAC/DC, 7/14mA	Green	61-9331.5	18x24mm	Green	61-9351.5	24 x 24 mm
Blue	10-2J09.1066	12VAC/DC, 7/14mA	Blue	61-9331.6	18x24mm	Blue	61-9351.6	24 x 24 mm
O White	10-2J09.1069	12VAC/DC, 7/14mA	O Clear	61-9331.7	18x24mm	○ Clear	61-9351.7	24 x 24 mm
Red	10-2J13.1062	28VAC/DC, 7/14mA						
O Yellow	10-2J13.1064	28VAC/DC, 7/14mA						
Green	10-2J13.1065	28VAC/DC, 7/14mA						
Blue	10-2J13.1066	28VAC/DC, 7/14mA						
O White	10-2J13.1069	28VAC/DC, 7/14mA						









Lens, plastic for raised, square indicator and pushbutton actuators

Lens, plastic for raised, round indicator and pushbutton actuators

Lens, plastic for flush mount, rectangular indicator and pushbutton actuators

Colour	Part No.	for switch	Colour	Part No.	for switch	Colour	Part No.	for switch
Red	61-9321.2	18 x 18 mm	Red	61-9311.2	18 mm Ø	Red	61-9681.2	24 x 30 mm
O Yellow	61-9321.4	18 x 18 mm	O Yellow	61-9311.4	18 mm Ø	O Yellow	61-9681.4	24 x 30 mm
Green	61-9321.5	18 x 18 mm	Green	61-9311.5	18 mm Ø	Green	61-9681.5	24 x 30 mm
Blue	61-9321.6	18 x 18 mm	Blue	61-9311.6	18 mm Ø	Blue	61-9681.6	24 x 30 mm
O Clear	61-9321.7	18 x 18 mm	O Clear	61-9311.7	18 mm Ø	O Clear	61-9681.7	24 x 30 mm

16mm 22.5mm 21x21mm 21x27mm IP65 5A 250VAC









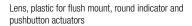


Choose one component from each of the coloured sections to assemble a complete switch.

For other options or further information please contact your local sales office.

A Accessories







Lens, plastic for flush mount, square indicator and pushbutton actuators



Lever for selector switch, raised and flush mount, coloured lever bar options available as indicated

Colour	Part No.	Colour	Part No.	for switch	Colour	Part No., Raised	Part No., Flush mount
Red	61-9642.2	Red	61-9671.2	24x24mm	Red	52-928.20	61-9028.20
O Yellow	61-9642.4	O Yellow	61-9671.4	24x24mm	Yellow	52-928.40	61-9028.40
Green	61-9642.5	Green	61-9671.5	24x24mm	Green	52-928.50	61-9028.50
Blue	61-9642.6	Blue	61-9671.6	24x24mm	Blue	52-928.60	61-9028.60
O Clear	61-9642.7	O Clear	61-9671.7	24x24mm	O White	52-928.9	61-9028.9
					Black	52-928.0	61-9028.0

A Accessories



Keylock switch front bezel, raised black plastic



Keylock switch front bezel, flush mount or raised, black plastic



Front bezel set for flush mount indicator, illuminated pushbutton and square and rectangular keylock switch

Image	Part No.	for switch	Image	Part No.	for switch	Image	Part No.	Material	Size
1	61-9250.0	24x24mm	1	61-9230.0	24x30mm	1	61-9933.10	Plastic black	25 mm Ø
2	61-9230.0	18x24mm	2	61-9220.0	24x24mm	2	61-9933.0	Aluminium nat.	25 mm Ø
3	61-9220.0	18x18mm	3	61-9210.0	25 mm Ø	3	61-9931.0	Plastic black	24 x 30 mm
4	61-9210.0	18 mm Ø				4	61-9930.0	Plastic black	24x24mm

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.

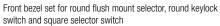






A Accessories







Flap guard, raised and flush mount



Blanking plate

Image	Part No.	Material	Size	Image	Part No.	Size	Mounting	Image	Part No.	Size	Mounting hole
1	61-9932.10	Plastic black	$25\mathrm{mm}arnothing$	1	61-9922.0	24x30mm	Flush	1	61-9450.0	24 x 24 mm	16 mm ∅
2	61-9936.0	Plastic black	24 x 24 mm	2	61-9921.0	24 x 24 mm	Flush	2	61-9452.0	24 x 30 mm	21 x 27 mm
3	61-9932.0	Aluminium nat.	25 mm Ø	3	61-9924.0	25 mm Ø	Flush	3	61-9451.0	24 x 24 mm	21 x 21 mm
				4	61-9920.0	24x24mm	Raised	4	51-947.0	18x24mm	16 mm Ø
				5	51-925	18x24mm	Raised	5	51-948.0	18x18mm	16 mm ∅
				6	51-920	18x18mm	Raised	6	51-949.0	18 mm Ø	16 mm ∅
									61-9453.0	25 mm Ø	22.5 mm Ø

A Accessories



Flat receptacle for plug-in terminal size 2.8 x 0.5 mm and insulation socket



Emergency-stop protective shroud, yellow painted aluminium with 16 mm mounting hole



Emergency-stop label, 43 mm diameter, English, German, French and no markings

Image	Part No.	Part No.	Part N	lo.	Markings
1	31-929	61-9965	61-99	970.0	no markings
2	31-946		61-99	970.2	EMERGENCY STOP
			61-99	970.1	NOT AUS
			61-99	970.3	ARRET D'URGENCE
			61-99	970.6	NOT-HALT

16mm 22.5mm 21x21mm 21x27mm IP65 5A 250VAC









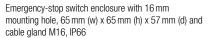


 ${\bf Choose \ one \ component \ from \ each \ of \ the \ coloured \ sections \ to \ assemble \ a \ complete \ switch.}$

For other options or further information please contact your local sales office.

A Accessories







Lens remover for flush mount, mounting tool, lens remover for raised, contact block remover and LED remover



Legend plate, adhesive, natural anodised aluminium finish for flush mount round pushbuttons, 25 mm mounting hole

Image	Part No.	Thread	Image	Part No.	Product description	Image	Part No.	Size	Colour
1	61-9480.5		1	61-9730.0	Lens remover for flush mount	1	61-9980.0	50 x 30 mm ∅	Black
2	61-9481.6	M16	2	01-907	Mounting tool	2	704.968.0		Aluminium
			3	02-905	Lens remover for raised	3	704.968.1		Black
			4	61-9711.0	Contact block remover				
			5	61-9740.0	LED remover				

A Accessories



Lens plastic transparent; illuminated ring; for raised and flush mounting, round indicators and illuminated pushbuttons



Lens aluminium; convex raised; for raised and flush mounting, round indicators and illuminated pushbuttons



Lens with spot illumination; aluminium; for raised and flush mounting, round indicators and illuminated pushbuttons

Colour	Part No.	Comment	Colour	Part No.	Colour	Part No.
Red	61-9643-201		Red	61-9842.2	Red	61-9841.2A
Orange	61-9643-301		O Yellow	61-9842.4	O Yellow	61-9841.4A
O Yellow	61-9643-401		Green	61-9842.5	Green	61-9841.5A
Green	61-9643-501		Blue	61-9842.6	Blue	61-9841.6A
Blue	61-9643-601		O Aluminium	61-9842.8	O Aluminium	61-9841.8A
O Clear	61-9643-701		Black	61-9842.0	Black	61-9841.0A

Technical Data Series 61

Actuator with snap-action switching element

Switching system

Self-cleaning, double-break snap-action switching system with contact opening width 2x0.5 mm (switch with small contact opening width as per EN IEC 61058-1).

The switching elements are optionally equipped with the following switching functions:

One to three normally open (NO) or normally closed (NC), or any combination of NO and NC plus connections for T1 3/4 LED or lamp. The number of switching elements cannot exceed three.

The switching elements provided for the 3-position switch actuators are equipped with max. 2NC or 2NO or any combination. The number of switching elements cannot exceed two.

Material

Lens

Raised mounting Polymethylmethacrylat (PMMA), as per UL 94 HB, flush mounting Polycarbonat (PC), as per UL 94 V0, or Aluminium anodized

Front bezel

Polyetherimid (PEI), as per UL 94 V0, or Aluminium anodized

Front ring

Aluminium anodized

Material of contact

Silver or silver with gold plating

Switching element

Diallylphthalate (DAP), as per UL 94 V0 and Polyamide (PA 66), as per UL 94 V0

Actuator housing

Polyetherimide (PEI), as per UL 94 V0, self-extinguishing

Mechanical characteristics

Terminals

- Solder	rigid	flexible	superflexible
1 wire	0.5 1.5 mm ²	0.5 0.75 mm ²	0.5 mm ²
2 wires	0.75 mm ²	0.5 mm ²	

Actuating torque

Selector-/Keylock switch 2.5 ... 10 Ncm

Actuating force

Pushbutton 2.7 ... 3.6 N

Actuating travel

Pushbutton 3mm

Selector-/ keylock switch 2 positions 3 positions Momentary action approx. 42° approx. 2x42° Maintained action approx. 90° approx. 2x90°

Rebound time

The rebound times apply to normal manual activation

Contact making 3 ms Contact breaking 5_{ms}

Mechanical lifetime

as per DIN IEC 60512-5-6 and EN IEC 60947-5-1

Pushbutton maintained action 1 million cycles of operation Pushbutton momentary action 2 million cycles of operation Keylock switch 50 000 cycles of operation Selector switch 100 000 cycles of operation

Electrical characteristics

Standards

The devices comply with: EN IEC 61058-1 and EN IEC 60947-5-1

Rated Operational Voltage Ue

250 VAC/DC as per EN IEC 60947-1

Rated Insulation Voltage Ui

320 VAC, as per EN IEC 60947-5-1

Rated Impulse Withstand Voltage Uimp

4 kV, as per EN IEC 60947-5-1

Contact resistance

New state with silver contact ≤100 mΩ as per DIN IEC 60512-2-4, measured at 100 mA, 10 V New state with gold plated contact \leq 50 m Ω as per DIN IEC 60512-2-3, measured at 20 mV, 10 mA

Electrical life

EN IEC 60947-5-1

Electrostatic discharge

Keylock switch 11kV

Conventional free air thermal current Ith

5 A, as per EN IEC 60947-5-1

the maximum current in continuous operation and at ambient temperature must not exceed the quoted maximum values.

Switch rating

Switch rating AC with silver contact or silver contact with gold plating, service category AC-15, as per EN IEC 60947-5-1

Voltage 125 VAC 250 VAC Current 2.5A 2 A

Switch rating DC for silver contact or silver contact with gold plating, service category DC-13, as per EN IEC 60947-5-1

250 VDC Voltage Current 0.15A

Recommended minimum operational data

Material of contact Silver Silver with gold plating

Voltage 20 VAC/DC 5 VAC/DC Current 100 mA 10mA

Electric strength

2500 VAC, 50 Hz, 1 min., as per DIN IEC 60512-2-11

between all terminals and earth

Overvoltage category

III, as per EN IEC 60947-5-1

Protection class

Class II, as per EN IEC 61058-1

Degree of pollution

3, as per EN IEC 60947-1

Series 61 Technical Data

Environmental conditions

Storage temperature

-40°C ... +85°C

Operating temperature

-25°C ... +55°C

Protection degree

as per EN IEC 60529

Frontside IP65 | rear side IP40

Shock resistance

(semi-sinusoidal)

max. 100 m/s², pulse width 11 ms, 3-axis, as per

EN IEC 60068-2-27

Vibration resistance

(sinusoidal)

max. 100 m/s² at 10 Hz ... 500 Hz, as per EN IEC 60068-2-6

Climate resistance

Damp heat, cyclic

96 hours, +25 °C / 97%, +55 °C / 93% relative humidity, as per EN IEC 60068-2-30

Damp heat, state

56 days, +40 $^{\circ}\text{C}$ / 93% relative humidity, as per EN IEC 60068-2-78

Rapid change of temperature

100 cycles, -40 °C ... +80 °C, as per EN IEC 60068-2-14

Approvals

Approbations

CB (IEC 60947)

CB (IEC 61058)

CSA

ENEC (EN 61058)

Germanischer Lloyd

GOST

UL VDE

Declaration of conformity

CE

Actuator with slow-make switching element

Switching system

Double-break slow-make system, contact opening width $2x1.5\,\text{mm}$, with 2x2 contact points per switching element.

NC-contact elements in the slow-make elements fulfill requirements of switches with forced opening as per EN IEC 60947-5-1 2.17

The slow-make elements are optionally obtainable with the following

The slow-make elements are optionally obtainable with the following switching functions: 1 NO or 2 NO, 1 NC or 2 NC, 1 NO + 1 NC.

Material

Lens

Raised mounting Polymethylmethacrylat (PMMA), as per UL 94 HB, flush mounting Polycarbonat (PC), as per UL 94 V0, or Aluminium anodized

Front bezel

Polyetherimid (PEI), as per UL 94 V0, or Aluminium anodized

Front ring

Aluminium anodized

Material of contact

Silver or gold (specified for operation for low level switching)

Switching element

Diallylphthalate (DAP), as per UL 94 V0 and Polyamide (PA 66), as per UL 94 V0

Actuator housing

Polyetherimide (PEI), as per UL 94 V0, self-extinguishing

Mechanical characteristics

Terminals

- Solder	rigid	flexible	superflexible	
1 wire	0.5 1.5 mm ²	0.5 0.75 mm ²	0.5 mm ²	
2 wires	0.75 mm ²	0.5 mm ²		
- Screw				
1 wire	0.5 1.5 mm ²	0.5 0.75 mm ²	0.5 mm ²	
2 wires	0.75 mm ²	0.5 mm ²	0.5 mm ²	
Actuating torque				

Actuating torque

Selector-/ Keylock switch 4 ... 16 Ncm

Actuating force

Pushbutton 3.5 ... 11 N Emergency-stop switch max. 65 N

Actuating travel

Pushbutton 3 mm Emergency-stop switch 10 mm

Selector-/ keylock switch 2 positions 3 positions

Momentary action approx. 42° approx. 2x42°

Maintained action approx. 90° approx. 2x90°

Rebound time

2 ms, contact making and contact breaking the rebound times apply to normal manual activation

Mechanical lifetime

as per DIN IEC 60512-5-6 and EN IEC 60947-5-1

Disable attack and batches of a street	4	
Pushbutton maintained action	1 million	cycles of operation
Pushbutton momentary action	2 million	cycles of operation
Emergency-stop pushbutton	6 050	cycles of operation
Keylock switch	50 000	cycles of operation
Selector switch	100 000	cycles of operation

Technical Data Series 61

Electrical characteristics

Standards

The devices comply with: EN IEC 61058-1 and EN IEC 60947-5-1, EN IEC 60947-5-5 (Emergency-stop)

Electrical life

 \geq 50 000 cycles of operation at 250 VAC, 5A, cos ϕ 0.95, as per EN IEC 60947-5-1

Switching Element of Emergency-stop 6050 cycles of operation, as per EN IEC 60947-5-5

Electrostatic discharge

Keylock switch 11 kV

Electric strength

4000 VAC, 50 Hz, 1 min., as per DIN IEC 60512-2

between all terminals and earth

Overvoltage category

III, as per EN IEC 60947-5-1

Protection class

Class II, as per EN IEC 61058-1

Degree of pollution

3, as per EN IEC 60947-1

Electrical characteristics for silver contacts

Rated Operational Voltage Ue

250 VAC/DC as per EN IEC 60947-1

Rated Insulation Voltage Ui

320 VAC, as per EN IEC 60947-5-1

Rated Impulse Withstand Voltage Uimp

4 kV, as per EN IEC 60947-5-1

Contact resistance

New state \leq 50 m Ω , as per DIN IEC 60512-2-4, measured at 100 mA, 10 V

Conventional free air thermal current Ith

5A, as per EN IEC 60947-5-1

the maximum current in continuous operation and at ambient temperature must not exceed the quoted maximum values.

Switch rating

Switch rating AC with silver contact and srew terminal, service category AC-15, as per EN IEC 60947-5-1

Voltage 125 VAC 250 VAC
Current 3A 2A

Switch rating with silver contact and screw terminal, service category

DC-13, as per EN IEC 60947-5-1

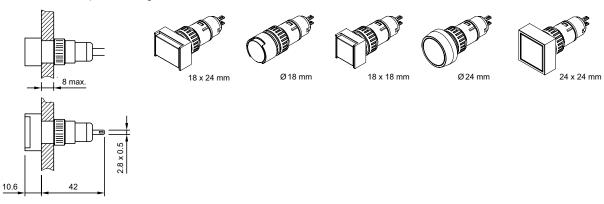
Voltage 250 VDC Current 0.2 A

Recommended minimum operational data

20 VAC/DC, 100 mA

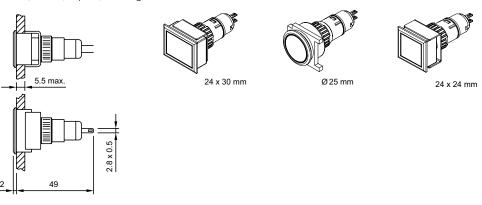
61 Indicator

Raised, Round, Square, Rectangular



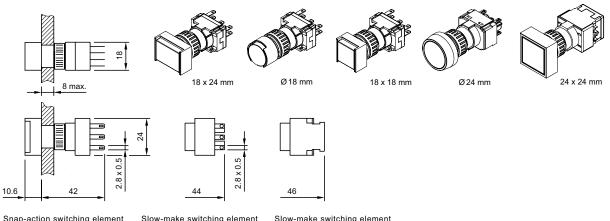
61 Indicator

Flush, Round, Square, Rectangular



61 Illuminated Pushbutton

Raised, Round, Square, Rectangular

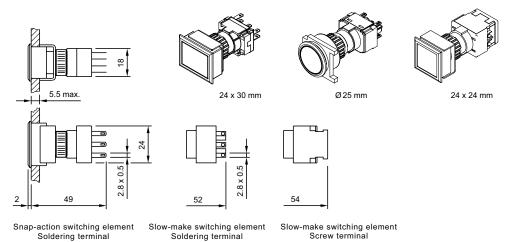


Snap-action switching element Soldering terminal

Slow-make switching element Soldering terminal Slow-make switching element Screw terminal

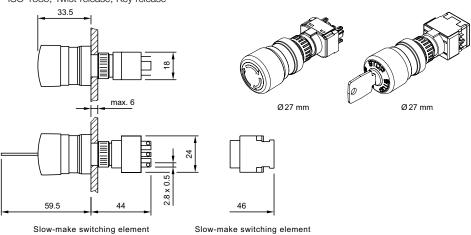
61 Illuminated Pushbutton

Flush, Round, Square, Rectangular



61 Emergency-stop switch

ISO 1385, Twist release, Key release

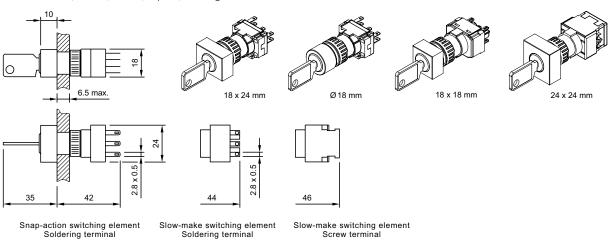


Soldering terminal

Screw terminal

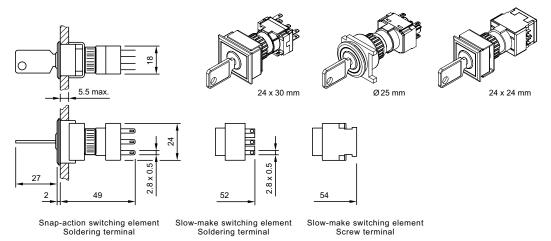
61 Keylock switch

2 & 3-Position, Raised, Round, Square, Rectangular



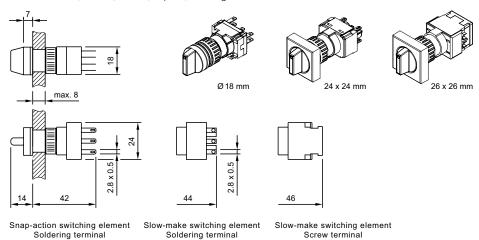
61 Keylock switch

2 & 3-Position, Flush, Round, Square, Rectangular



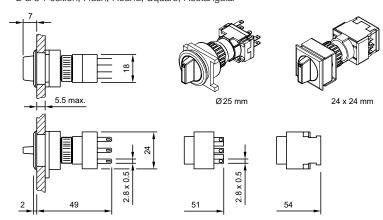
61 Selector switch

2 & 3-Position, Raised, Round, Square, Rectangular



61 Keylock switch

2 & 3-Position, Flush, Round, Square, Rectangular



Snap-action switching element Soldering terminal

Slow-make switching element Soldering terminal

Slow-make switching element Screw terminal

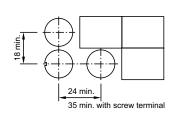
61 Cut-outs

16 0 16

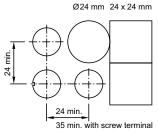
Raised Indicators, Pushbuttons, Keylocks and Selectors

Ø18 mm 18 x 18 mm

35 min. with screw terminal



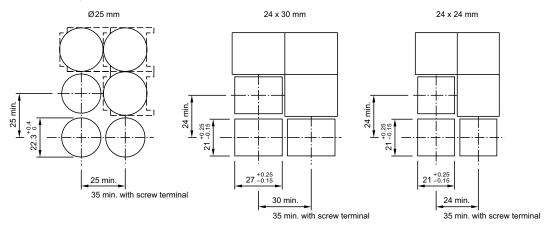
18 x 24 mm



61 Cut-outs

Indicator Flush, Pushbutton Flush

24 min.



61 Cut-outs, Emergency-Stop

ISO 13850, Twist release, Key release

