

Series

61

Comprehensive, intuitive and versatile.

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EAO, the expert partner for Human Machine Interfaces (HMI), offers the modular and recognised Series 61, a versatile and modular switch range for complex industrial applications.

Its modular and flexible design enables swift integration into any control system. Fitted with IP65 protection, this intuitive series is ideal for complex industrial applications. The Series 61 is also approved for international use and is recognised worldwide.

Whether for applications with high temperature variations or mechanically demanding environments – the versatile Series 61 is always the first choice. With its modular construction and full selection of functions, you will find the right solution for any industrial application.

The modern design fits diverse applications and reflects the high quality of the series. The Series 61 also satisfies all functional requirements, for square, rectangular, round, flush or raised construction – it works seamlessly with practically any conceivable HMI function with 16 mm or 22.5 mm mounting cut-outs.

Make use of optionally engraved, hot-stamped or film labelling and enhance the already considerable visual appeal of the Series 61 even further.

Depending on the requirements, you can choose from screw, plug-in and solder terminals or connect to a circuit board using a PCB adaptor. Choose from a snap-action, or slow make switching element.

Certified under CE, UL, CSA, ENEC, GOST, VDE and RoHS among others, the tried-and-tested Series 61 is licensed and recognised for international use. Thanks to IP65 front protection, the buttons also work absolutely reliably even in challenging environments.

Typical applications

- Machinery
- Measurement and control engineering
- Process engineering (air conditioning systems and heating technology)
- Public transportation
- Laboratory instruments

Functions of Series 61

- Pushbutton
- Illuminated pushbutton
- Indicator
- Selector switch
- Keylock switch
- Emergency stop switch
- Stop switch
- Buzzer
- Mushroom-head pushbutton
- Potentiometer

Material

- Lens
 - Raised mounted polymethyl-methacrylate (PMMA), in accordance with UL 94 HB
 - Flush-mounted polycarbonate (PC), in accordance with UL 94 V0, or anodised aluminium
- Front bezel
 - Polyetherimide (PEI), in accordance with UL 94 V0, or anodised aluminium
- Front ring
 - Anodised aluminium
- Contact material
 - Silver or gold-plated silver contacts
- Switching element
 - Frianyl (PA 6) in accordance with UL 94 V0
- Actuator housing
 - Polyetherimide (PEI), in accordance with UL 94 V0, self-extinguishing

Mechanical characteristics

- Mechanical life
 - in accordance with DIN IEC 60512-5-6 and EN IEC 60947-5-1
 - Pushbutton with maintained action: 1 million cycles of operation
 - Pushbutton with pulse function: 2 million cycles of operation
 - Keylock switches: 50 000 cycles of operation
 - Selector switches: 100 000 cycles of operation
 - Emergency stop switches: 6 050 cycles of operation

Advantages.

- Wide, modular series
- Modern design
- Range of switching elements and ease of mounting
- Custom marking possible
- Internationally recognised and approved series

Ambient conditions

- Temperature
 - Storage temperature -40°C to $+85^{\circ}\text{C}$
 - Operating temperature -25°C to $+55^{\circ}\text{C}$
- Resistance to shock (semi-sinusoidal)
 - max. 100m/s^2 , pulse width 11 ms, 3-axis, in accordance with EN IEC 60068-2-27
- Resistance to vibration (sinusoidal)
 - max. 100m/s^2 from 10Hz to 500Hz, in accordance with EN IEC 60068-2-6
- Environmental resistance
 - Hot and damp, cyclical 96 hours, $+25^{\circ}\text{C}/97\%$, $+55^{\circ}\text{C}/93\%$ relative humidity, in accordance with EN IEC 60068-2-30
 - Hot and damp, constant 56 days, $+40^{\circ}\text{C}/93\%$ relative humidity, in accordance with EN IEC 60068-2-78
 - Sudden temperature change, 100 cycles, -40°C to $+80^{\circ}\text{C}$, in accordance with EN IEC 60068-2-14

Degree of protection

- IP65 front protection, in accordance EN IEC 60529
- IP40 rear protection

Standards and directives

- Approvals
 - CB (IEC 61058)
 - CB (IEC 60947)
 - CSA
 - ENEC (EN 61058)
 - CCA-NTR (EN 60947)
 - CCC CENELEC (IEC 60947-5-1)
 - Germanischer Lloyd
 - EAC
 - UL
 - SEV
 - NFF
- Declaration of Conformity
 - CE

Function	Series					
	14	45	61	71	82	84
Pushbutton	■	■	■	■	■	■
Illuminated pushbutton	■	■	■	■	■	■
Indicator	■	■	■	■	■	■
Selector switch	■	■	■	■		
Illuminated selector switch		■	■	■		
Keylock switch	■	■	■	■		
Emergency stop switch		■	■			■
Stop switch		■	■			
Buzzer	■		■			
Mushroom-head pushbutton	■	■	■	■		■
Potentiometer		■	■			

Highlights.



Illuminated pushbutton

Series 61

EAO is the leading pioneer in the field of illuminated pushbuttons. Its universal switch actuators and indicators have been in use under challenging conditions all over the world since 1947. They are to be found everywhere in switching applications that depend on reliable and positive feedback.

The modular and modern design satisfies functional requirements of all kinds, and enables easy integration of all functions of the Series 61 into any type of control system.

- Optional plastic or metal lens
- Flush or raised construction
- Compact design for 16mm and 22.5mm mounting cut-outs
- Illumination, optionally with symbol
- Customised labelling possible
- Range of switching elements and ease of mounting
- Switching elements and ease of mounting
- Internationally recognised and approved Series
- IP65 protection



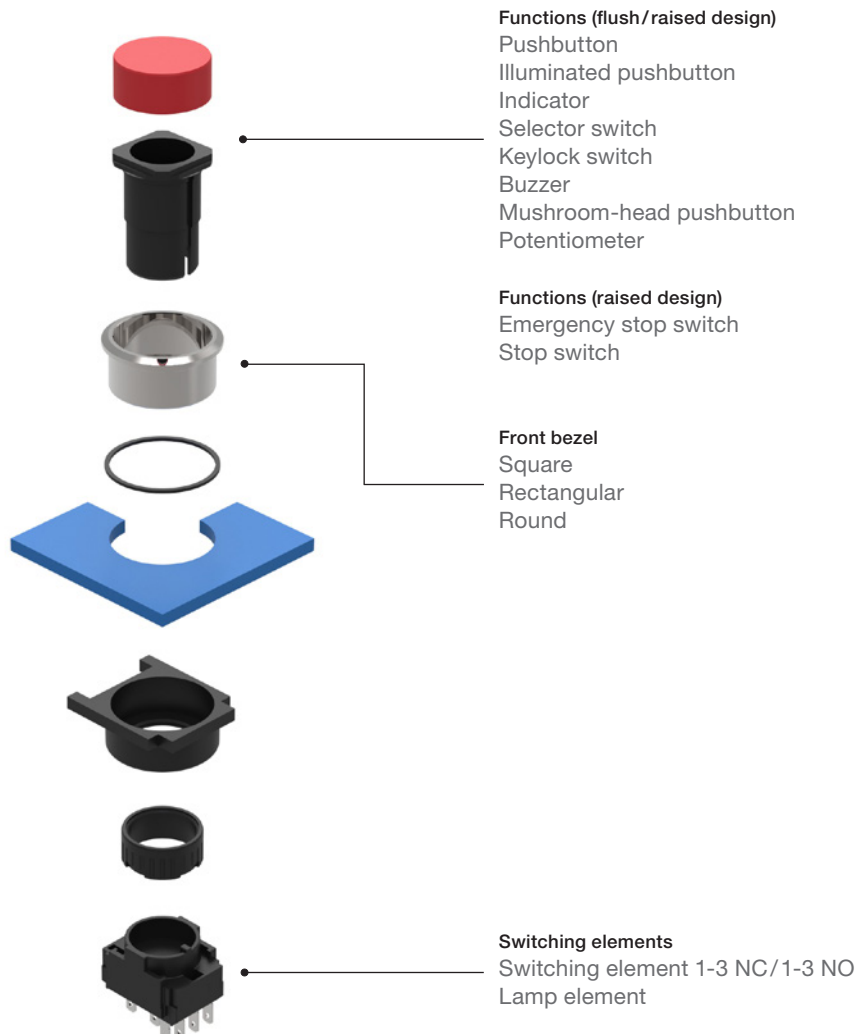
Emergency stop switch

Series 61

Series 61 emergency stop switches with forced-opening contacts (compliant with DIN EN ISO 13850 and EN 60204-1) are primarily used to enhance personal safety. They are also employed worldwide in preventing damage when machinery, equipment and control systems break down. Emergency stop switches are always fool proof.

- Switching reliability and fool proof, even in harsh environments
- Range of switching elements and ease of mounting
- Modern design
- IP65 protection
- Internationally recognised and approved Series

Product structure of Series 61.



Switching systems.

Snap-action switching systems

A self-cleaning, double-break snap-action switching system with a contact opening distance of 2 x 0.5 mm (switch with small contact opening distance as per EN IEC 61058-1).

The switching elements are optionally available with the following switching functions: one to three normally-open (NO) or normally-closed (NC) contacts, or any combination of NO/NC contacts with connectors for illumination. The number of switching implements cannot exceed three. The specially installed switching elements for the three actuator switch sleeves have a maximum of 2 NC or 2 NO, or a combination thereof. The number of switching implements cannot exceed two.

Slow-make switching system

Double-break slow-make switching system, contact opening distance 2 x 1.5 mm, with 2 x 2 contact points per switching implement. Normally-closed switching implements in the slow-make switching elements meet the requirements of switches with positive opening action as per EN IEC 60947-5-12:17.

The slow-make switching elements are optionally available with the following switching functions: 1 NO or 2 NO, 1 NC or 2 NC, 1 NO + 1 NC. A normally-open or normally-closed contact is fitted with connectors for illumination.

Switching capacity

Snap-action switching systems	Silver contacts		Gold-plated silver contacts	
	Voltage	Current	Voltage	Current
Maximum	125 VAC	2.5 A	125 VAC	2.5 A
	250 VAC	2 A	250 VAC	2 A
	250 VDC	0.15 A	250 VDC	0.15 A
Minimum	20 VAC/DC	100 mA	5 VAC/DC	10 mA

Slow-make switching systems	Silver contacts		Gold-plated silver contacts	
	Voltage	Current	Voltage	Current
Maximum	125 VAC	3 A	50 VAC	0.5 A
	250 VAC	2 A	50 VDC	0.1 A
	250 VDC	0.2 A	–	–
Minimum	20 VAC/DC	100 mA	10 VAC/DC	2 mA

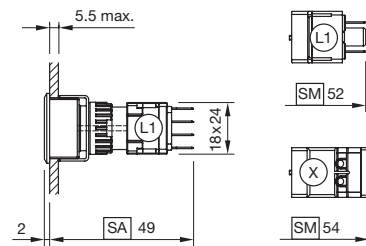
Switch rating AC, service category AC-15, as per EN IEC 60947-5-1

Switch rating DC, service category DC-13, as per EN IEC 60947-5-1

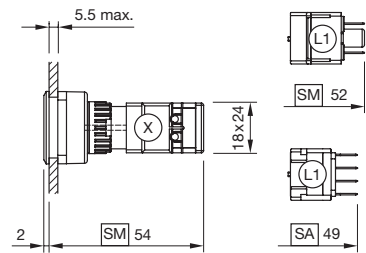
Dimensions and mounting cut-outs.

Dimensions

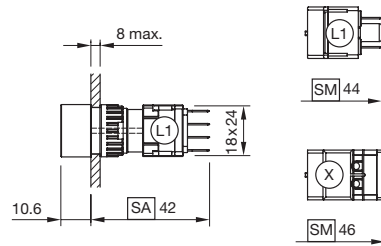
Flush design (square/rectangular)



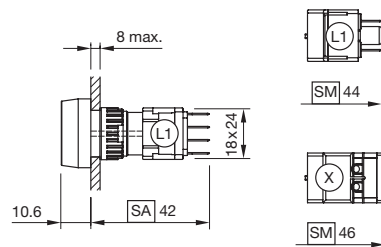
Flush design (round)



Raised design (square/rectangular)

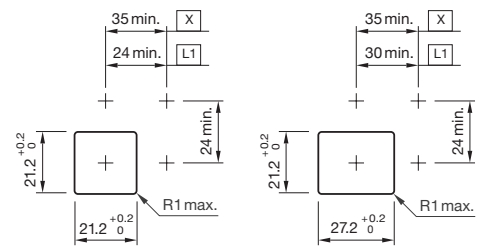


Raised design (round)

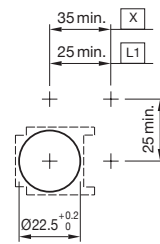


Mounting cut-outs

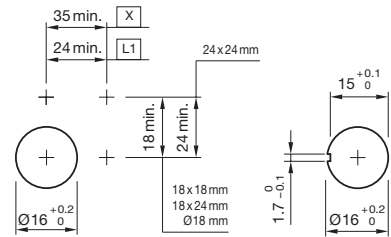
Flush design (square/rectangular)



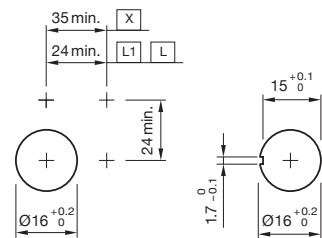
Flush design (round)



Raised design (square/rectangular)



Raised design (round)



Please find additional specifications in the product catalogue.

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