

Series

14

*Attractive, compact and reliable.*

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# Series 14

*Attractive, compact and reliable.*

**EAO, the expert partner for Human Machine Interfaces (HMIs), offers with its attractive Series 14 a wide range of compact and reliable actuators and indicators for sophisticated applications.**

Series 14 has an impressively timeless design, with indicators, buzzers, illuminated pushbuttons, mushroom-head pushbuttons, keylock switches and selector switches for flush or raised mounting. 22.3 mm or 30.5 mm versions are available for mounting in accordance with industrial standards.

In addition to its high degree of protection (IP67), EAO's Series 14 also provides excellent tactile feedback and reliable switching – even in low-voltage and low current applications. These two characteristics are distinctly beneficial when programming at main operator panels or setting up a machine.

Combined with a compact construction, a service life of up to 2 million cycles of operation, high-grade materials and consistent illumination, these actuators and indicators are ideal for sophisticated applications. 22.3 mm and 30.5 mm versions are also designed for mounting in accordance with industrial standards, even with low back panel depths.

With a range of connection options including plug-in, solder and a PCB mount adaptor the Series 14 can be easily integrated into assembly processes of machine manufacturers.

There are two switching element types for the Series 14 to cover both sensitive electronic signal level switching and general industrial switching. The low level, 2.0 mm solder/plug-in and PCB mount version offers a light tactile feedback and a switch rating from 10  $\mu$ A/100  $\mu$ V up to 100 mA/42 VAC/DC. The snap action solder or 2.8 mm plug-in version has a strong, precise tactile action and switches from 12V/20 mA up to 250 VAC and 5 A (gold-plated silver alloy). The switching elements are also defined by their long service life, extremely low bounce time and stable contact resistance.

EAO offers a variety of innovative, intuitive and reliable products and services for the machinery industry.

#### Typical applications

- Industrial machinery and process automation
- Panel building
- Lifting and moving
- Transportation
- Construction machinery and special vehicles

#### Functions of the Series

- Indicator
- Buzzer
- Illuminated pushbutton
- Mushroom-head pushbutton
- Keylock switch
- Selector switch

#### Switching system

Self-cleaning, double-break snap-action system with side soldering terminals. It is possible to stack up to four switching elements per switch (max. 4 NC and 4 NO contacts).

#### Materials

- Lens
  - Aluminium, plastic polyamide 12, stainless steel
- Front ring
  - Aluminium, plastic polyamide 12, stainless steel
- Contact material
  - Silver or gold-plated silver contacts
- Actuator case material
  - Polyamide
- Switch case, snap-action switching element
  - Solder/plug-in terminal
    - Diallyl phthalate DAP, polyamide 66, polysulfone, heat-resistant and self-extinguishing
  - Soldering terminal
    - PA 6.6 Ultramid
- Low-level switch housing
  - Polysulfone, heat-resistant and self-extinguishing

#### Mechanical characteristics

- Soldering terminal
  - max. wire diameter: 2 wires, 1 mm<sup>2</sup> each
  - max. stranded cable wire cross-section:
    - 2 cables, 0.75 mm<sup>2</sup> each
- Plug-in terminal/universal terminal
  - 2.8 x 0.5 mm / 2.0 x 0.5 mm

## Advantages.

- Attractive 22.3 mm or 30.5 mm design (flush)
- Up to 4 NO and 4 NC contacts
- Low back panel depth
- High IP67 protection
- Low-level switching possible

### **Mechanical life**

- Snap-action switching element
  - Momentary action:  
2 million cycles of operation
  - Maintained action:  
1 million cycles of operation
- Low-level switching element
  - Momentary action:  
5 million cycles of operation
  - Maintained action:  
1 million cycles of operation

### **Ambient conditions**

- Temperature
  - Storage temperature:  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$
  - Operating temperature:  $-25^{\circ}\text{C}$  to  $+55^{\circ}\text{C}$
- Resistance to shock (semi-sinusoidal)
  - max.  $150\text{ m/s}^2$ , pulse width 11 ms, 3-axis, in accordance with EN IEC 60068-2-27
- Resistance to vibration (sinusoidal)
  - max.  $100\text{ m/s}^2$  from 10 Hz to 500 Hz, in accordance with EN IEC 60068-2-6

### **Environmental resistance**

- Humid heat, constant in accordance with EN IEC 60068-2-78
- Humid heat, cyclic in accordance with EN IEC 60068-2-30

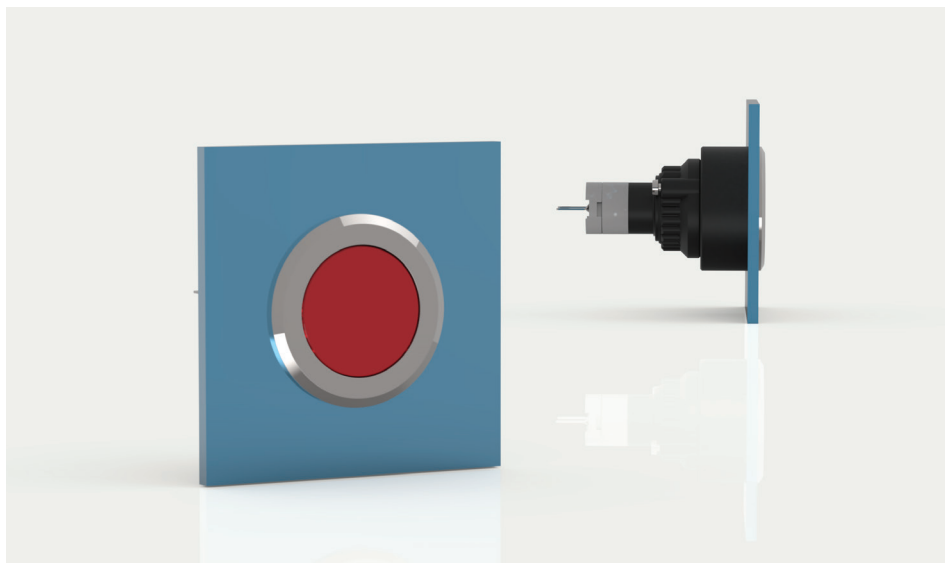
### **Degrees of protection (front)**

In accordance with EN IEC 60529

- Indicator: IP67
- Buzzer: IP65
- Illuminated pushbutton: IP67
- Mushroom-head pushbutton: IP67
- Selector switch: IP67
- Keylock switch: IP65

### **Standards and directives**

- CB (IEC 61058)
- CSA
- CQC
- ENEC (EN 61058)
- DNV
- UL
- EMC



## Highlights from Series 14.



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### Indicator

EAO indicators are universal in nature and are deployed for applications worldwide that depend on reliable visual feedback. Typical areas of use are mechanical engineering, control system engineering, public and private passenger transportation, heavy-duty and special-purpose vehicles, and building installations.

High-grade materials such as aluminium or stainless steel, combined with visually appealing plastic lenses and illumination with a broad range of colours increase the quality of the machine.

- Large selection of lenses in different forms
- Flush design
- Wide range of colours for lenses and illumination
- Wide range of symbols and markings (also customised)
- Full-face, uniform and glare-free illumination
- Reliable LED illumination with a long service life
- Low energy consumption



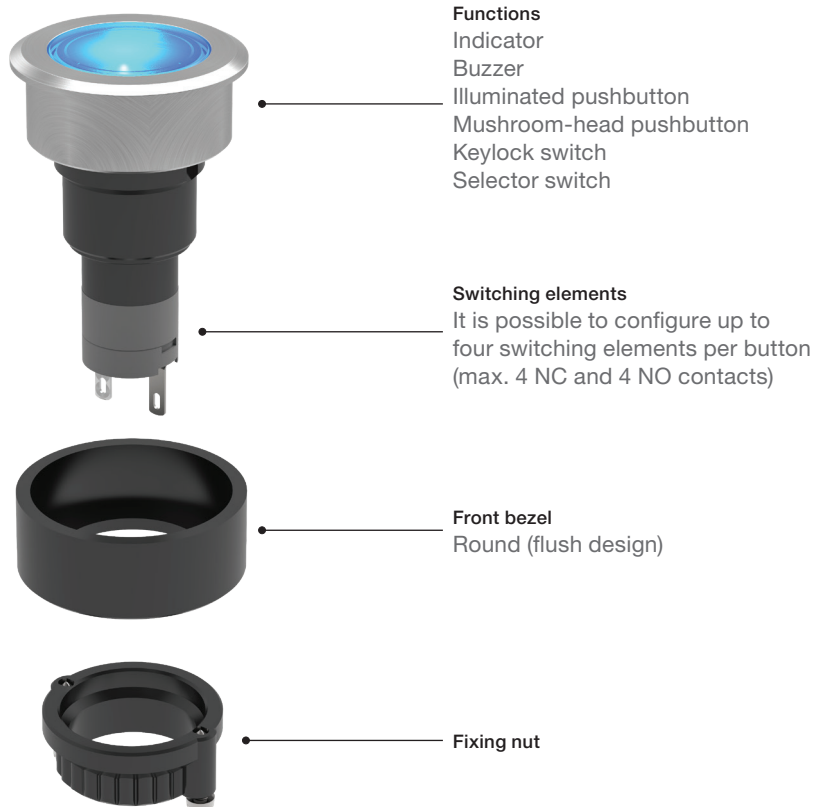
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### Keylock switches

Keylock switches are used worldwide to prevent accidental and unauthorised operations. They also enable access control systems to be implemented for user groups.

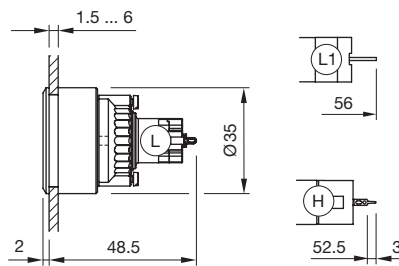
- Large selection of lock systems
- Raised design
- Different switching angles
- Two possible switch positions
- Very long service life of mechanical and electrical components
- Variety of combinations of momentary and maintained positions
- Solder, plug-in and PCB connections

## *Product structure of Series 14.*

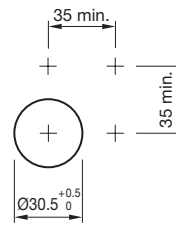


# Dimensions and mounting cut-outs.

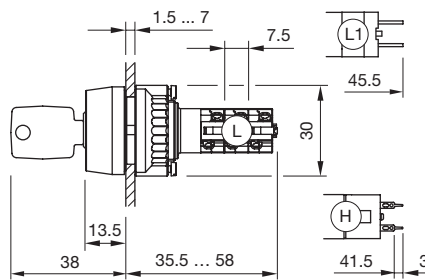
**Dimensions flush design**  
Indicator



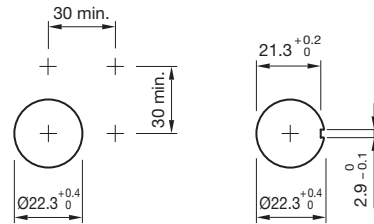
**Mounting cut-outs flush design**



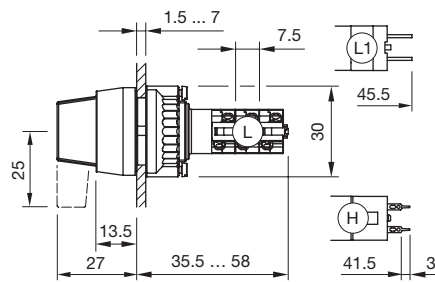
**Dimensions raised design**  
Keylock switch



**Mounting cut-outs raised design**



**Selector switch**



Please refer to the product catalogue for additional specifications.

# Visit our website.

## EAO.COM

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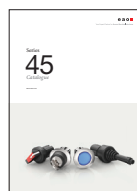
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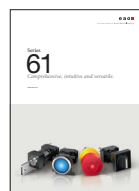
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