

**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 plug-in-/soldering terminal 2.8 mm:  
 Diallylphthalate (DAP), Polyamide (PA66), Polysulfone, heatresistant and self-extinguishing  
 Soldering terminal: PA 6.6 Ultramide

**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 mm<sup>2</sup>  
 Snap-action switching element with axial plug-in terminals, which can also be used as soldering terminals: Plug-in terminal 2.8 x 0.5 mm

Soldering terminal:

Max. wire diameter 1 wire of 1.5 mm<sup>2</sup>  
 Max. wire cross-section of stranded cable 2 x 0.75 mm<sup>2</sup> or 1 x 1.0 mm<sup>2</sup>

**Tightening torque**

for fixing nut max. 50 Ncm

**Actuating force**

2 N ... 5.5 N, depending on the number of switching elements

**Actuating travel**

3 mm

**Rebound time**

≤ 5 ms

**Mechanical lifetime**

Momentary action 2 million cycles of operation  
 Maintained action 1 million 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

**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**

Front as per:  
 IP 40  
 IP 67 with spray cover

**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 0–2000 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

**Actuator with snap-action switching element**

**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  $\mu\text{A}/\mu\text{V}$  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  $\leq 0.8\text{ mm}$

Max. wire cross-section of stranded cable  $1 \times 0.75\text{ mm}^2$

Plug-in terminal:  $2.0 \times 0.5\text{ mm}$

**Tightening torque**

for fixing nut max. 50 Ncm

**Actuating force**

3 N ... 3.5 N

**Actuating travel**

3 mm

**Rebound time**

Typ.  $< 100\ \mu\text{s}$

**Mechanical lifetime**

Momentary action 5 million cycles of operation

Maintained action 1 million cycles of operation

**Electrical characteristics****Standards**

EN 61058

**Contact resistance**

Starting value (initial)  $\leq 50\text{ m}\Omega$

**Switch rating**

$10\ \mu\text{A}$ ,  $100\ \mu\text{V}$  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

**Protection class**

II

**Environmental conditions****Storage temperature**

$-40\text{ }^\circ\text{C}$  ...  $+85\text{ }^\circ\text{C}$

**Service temperature**

$-25\text{ }^\circ\text{C}$  ...  $+55\text{ }^\circ\text{C}$

For indicators and illuminated pushbuttons mounted as a block, make sure the heat can escape freely.

**Protection degree**

Front as per:

IP 40

IP 67 with spray cover

**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 0–2000 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

**Buzzer 31-810.005****Buzzer system**

Electronic non-contacting buzzer with IC oscillator

**Material**

**Alarm buzzer case**  
Polyetherimide

**Front bezel**  
Polyamide

**Mechanical characteristics**

**Terminals**  
Soldering terminal

**Tightening torque**  
for fixing nut max. 50Ncm

**Electrical characteristics**

**Frequency (tone)**  
Approx. 2.8kHz

**Interval frequency**  
approx. 3Hz

**Sound pressure**

88 dB (A)  $\pm 8$  dB at a distance of 0.1 m  
Volume variable with a 1 M $\Omega$  potentiometer or corresponding fixed resistor

**Operation Voltage/Current**

Typ. 10 VAC ... 55 VAC, 25 mA  
Typ. 10 VDC ... 75 VDC, 15 mA

**Environmental conditions****Storage temperature**

-40 °C ... +85 °C

**Service temperature**

-25 °C ... +55 °C

**Protection degree**

IP 40

**Approvals****Approbations**

Germanischer Lloyd

**Declaration of conformity**

CE

**Buzzer 31-801.002****Buzzer system**

Electronic non-contacting buzzer with IC oscillator

**Material**

**Alarm buzzer case**  
Polyetherimide

**Front bezel**  
Polyamide

**Mechanical characteristics**

**Terminals**  
Plug-in terminal 2.8 x 0.5 mm

**Tightening torque**  
for fixing nut max. 50Ncm

**Electrical characteristics**

**Frequency (tone)**  
ca. 2.0 kHz

**Interval frequency**

2 Hz

**Sound pressure**

88 db (A)  $\pm 8$  dB at a distance of 0.1 m

**Operation Voltage/Current**

10 VDC ... 26 VDC,  $\leq 20$  mA

**Environmental conditions****Storage temperature**

-40 °C ... +85 °C

**Service temperature**

-25 °C ... +55 °C

**Protection degree**

IP 40

**Approvals****Approbations**

Germanischer Lloyd

**Declaration of conformity**

CE



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