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 mm²
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 mm²
Max. wire cross-section of stranded cable 2 x 0.75 mm² or 1 x 1.0 mm²

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 µA/µV 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 à 0.8 mm
Max. wire cross-section of stranded cable 1x 0.75 mm²

Plug-in terminal: 2.0 x 0.5 mm

Tightening torque
for fixing nut max. 50 Ncm

Actuating force
3 N … 3.5 N

Actuating travel
3 mm

Rebound time
Typ. < 100 µs

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) ≤ 50 mΩ

Switch rating
10 µA, 100 µV 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 °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

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. 50 Ncm

Electrical characteristics

Frequency (tone)
Approx. 2.8 kHz

Interval frequency
approx. 3 Hz

Sound pressure
88 dB (A) ±8 dB at a distance of 0.1 m
Volume variable with a 1 MΩ 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. 50 Ncm

Electrical characteristics

Frequency (tone)
ca. 2.0 kHz

Interval frequency
2 Hz

Sound pressure
88 db (A) ±8 dB at a distance of 0.1 m

Operation Voltage/Current
10 VDC … 26 VDC, ≤ 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