Indicator actuator

Material

Actuator element
Plastic

Front ring
Plastic or metal

Actuator housing
Plastic or metal

Mechanical characteristics

Vibration resistance
according to IEC 60068-2-6
2 … 500 Hz: 5 g

Shock resistance
according to IEC 60068-2-27
Sinusoidal half-wave 50 g /11 ms

Environmental conditions

Operating temperature
–25 °C … +70 °C

Storage temperature
–40 °C … +80 °C

Protection degree
IP66, IP67, IP69K

Environmental category
during operation according to IEC 60721:
3K6, 3C3, 3S2, 3M6

Pushbutton actuator

Material

Actuator element
Plastic

Front ring
Plastic or metal

Actuator housing
Plastic or metal

Mechanical characteristics

Operating frequency
Lens flat/level with front bezel:
- Momentary max. 3 600/h
- Maintain max. 1 800/h

Lens flat/raised above front ring:
- Momentary max. 3 600/h
- Maintain max. 1 800/h

Lens flat/lower than front ring:
- Momentary max. 3 600/h

Lens flat/lower than front ring, with castellation:
- Momentary max. 3 600/h

Mechanical lifetime
Lens flat/level with front bezel:
- Momentary 10 000 000 switching cycles
- Maintain 500 000 switching cycles

Lens flat/raised above front ring:
- Momentary 10 000 000 switching cycles
- Maintain 500 000 switching cycles

Lens flat/lower than front ring:
- Momentary 10 000 000 switching cycles

Lens flat/lower than front ring, with castellation:
- Momentary 10 000 000 switching cycles

Vibration resistance
according to IEC 60068-2-6
20 … 500 Hz: 5 g

Shock resistance
according to IEC 60068-2-27
Sinusoidal half-wave 50 g /11 ms

Environmental conditions

Operating temperature
–25 °C … +70 °C

Storage temperature
–40 °C … +80 °C

Protection degree
IP66, IP67, IP69K

Environmental category
during operation according to IEC 60721:
3K6, 3C3, 3S2, 3M6

Double pushbutton actuator, Double pushbutton actuator illuminated

Material

Actuator element
Plastic

Front ring
Plastic or metal

Actuator housing
Plastic or metal

Mechanical characteristics

Operating frequency
max. 3 600/h

Mechanical lifetime
2 000 000 switching cycles

Vibration resistance
according to IEC 60068-2-6
10 … 500 Hz: 5 g

Shock resistance
according to IEC 60068-2-27
Sinusoidal half-wave 50 g /11 ms

Environmental conditions

Operating temperature
–25 °C … +70 °C

Storage temperature
–40 °C … +80 °C

Protection degree
IP66, IP67, IP69K

Environmental category
during operation according to IEC 60721:
3K6, 3C3, 3S2, 3M6, 2B2

Illuminated pushbuton actuator

Material

Actuator element
Plastic

Front ring
Plastic or metal

Actuator housing
Plastic or metal

Mechanical characteristics

Operating frequency
Lens flat/level with front bezel:
- Momentary max. 3 600/h
- Maintain max. 1 800/h
Lens flat/raised above front ring:
- Momentary max. 3 600/h
Lens flat/lower than front ring, with castellation:
- Momentary max. 3 600/h

Mechanical lifetime
Lens flat/level with front bezel:
- Momentary 3 000 000 switching cycles
- Maintain 500 000 switching cycles
Lens flat/raised above front ring:
- Momentary 3 000 000 switching cycles
Lens flat/lower than front ring, with castellation:
- Momentary 3 000 000 switching cycles

Vibration resistance
according to IEC 60068-2-6
20 … 500 Hz: 5 g

Shock resistance
according to IEC 60068-2-27
Sinusoidal half-wave 50 g /11 ms

Environmental conditions

Operating temperature
–25 °C … +70 °C

Storage temperature
–40 °C … +80 °C

Protection degree
IP66, IP67, IP69K

Environmental category
during operation according to IEC 60721:
3K6, 3C3, 3S2, 3M6

Emergency stop switch actuator

Material

Actuator element
Plastic red

Actuator housing
Plastic or metal

Mechanical characteristics

Type of unlocking device
Twist to release, pull release or key to release

Operating frequency
max. 600/h

Mechanical lifetime
300 000 switching cycles

Vibration resistance
according to IEC 60068-2-6
2 … 500 Hz: 5 g

Shock resistance
according to IEC 60068-2-27
Sinusoidal half-wave 50 g /11 ms

Environmental conditions

Operating temperature
–25 °C … +70 °C

Storage temperature
–40 °C … +80 °C

Protection degree
IP66, IP67, IP69K

Environmental category
during operation according to IEC 60721:
3K6, 3C3, 3S2, 3M6

Stop switch actuator

Material

Actuator element
Plastic red

Actuator housing
Plastic or metal

Mechanical characteristics

Type of unlocking device
Twist to release

Operating frequency
max. 600/h

Mechanical lifetime
300 000 switching cycles

Vibration resistance
according to IEC 60068-2-6
2 … 500 Hz: 5 g

Shock resistance
according to IEC 60068-2-27
Sinusoidal half-wave 50 g /11 ms

Environmental conditions

Operating temperature
–25 °C … +70 °C

Storage temperature
–40 °C … +80 °C

Protection degree
IP66, IP67, IP69K

Environmental category
during operation according to IEC 60721:
3K6, 3C3, 3S2, 3M6

Mushroom-head pushbuton actuator

Material

Actuator element
Plastic

Actuator housing
Plastic or metal

Mechanical characteristics

Type of unlocking device
Pull release

Operating frequency
- Momentary max. 3 600/h
- Maintain max. 1 800/h

Mechanical lifetime
- Momentary 10 000 000 switching cycles
- Maintain 500 000 switching cycles

Vibration resistance
according to IEC 60068-2-6
20 … 500 Hz: 5 g

Shock resistance
according to IEC 60068-2-27
Sinusoidal half-wave 50 g /11 ms

Environmental conditions

Operating temperature
–25 °C … +70 °C

Storage temperature
–40 °C … +80 °C

Protection degree
IP66, IP67, IP69K

Environmental category
during operation according to IEC 60721:
3K6, 3C3, 3S2, 3M6

Keylock switch actuator

Material

Actuator element
Metal

Front ring
Plastic or metal

Actuator housing
Plastic or metal

Mechanical characteristics

Operating frequency
max. 1800/h

Mechanical lifetime
1 000 000 switching cycles

Vibration resistance
according to IEC 60068-2-6
10 … 500 Hz: 5 g

Shock resistance
according to IEC 60068-2-27
Sinusoidal half-wave 50 g /11 ms

Environmental conditions

Operating temperature
–25 °C … +70 °C

Storage temperature
–40 °C … +80 °C

Protection degree
IP66, IP67, IP69K

Environmental category
during operation according to IEC 60721:
3K6, 3C3, 3S2, 3M6

ID-Key switch

Material

Actuator element
Plastic

Front ring
Plastic or metal

Actuator housing
Plastic

Mechanical characteristics

Terminals
Screw terminal front mounting
- Solid with end sleeves
  1 x (0.2 … 2.5 mm²), 2 x (0.2 … 0.75 mm²)
- Solid without end sleeves
  1 x (0.2 … 2.5 mm²), 2 x (0.2 … 0.75 mm²)
- Finely stranded with end sleeves
  1 x (0.2 … 2.5 mm²), 2 x (0.25 … 0.75 mm²)
- Finely stranded with end sleeves
  1 x (0.2 … 2.5 mm²), 2 x (0.2 … 0.75 mm²)
- For AWG cables
  1 x (24 … 14), (24 … 19)

Tightening torque
Screw terminal
0.35 … 0.4 Nm

Mechanical lifetime
100 000 switching cycles

Number of NO contacts
5

ID-Key

Authorization level	Key colour
1	green
1+2	yellow
1+2+3	red
1+2+3+4	blue

Electrical characteristics

Operating voltage
24 VDC

Environmental conditions

Operating temperature
–25 °C … +70 °C

Storage temperature
–40 °C … +80 °C

Protection degree
IP65

Environmental category
during operation according to IEC 60721:
3M6, 3S2, 3B2, 3C3, 3K6 (with relative air humidity of 10 … 95 %)

Selector switch actuator

Material

Actuator element
Round lever, plastic, illuminable
Short lever, plastic, illuminable
Long lever, plastic, illuminable

Front ring
Plastic or metal

Actuator housing
Plastic or metal

Mechanical characteristics

Operating frequency
max. 1800/h

Mechanical lifetime
1 000 000 switching cycles

Vibration resistance
according to IEC 60068-2-6
10 … 500 Hz: 5 g

Shock resistance
according to IEC 60068-2-27
Sinusoidal half-wave 50 g /11 ms

Environmental conditions

Operating temperature
–25 °C … +70 °C

Storage temperature
–40 °C … +80 °C

Protection degree
IP66, IP67, IP69K

Environmental category
during operation according to IEC 60721:
3K6, 3C3, 3S2, 3M6

Potentiometer

Material

Actuator element
Round lever, plastic

Front ring
Plastic or metal

Actuator housing
Plastic or metal

Mechanical characteristics

Terminals
Screw terminal
- Solid 2 x (1.0 … 1.5 mm^2)
- With end sleeves 2 x (0.5 … 0.75 mm^2)
- Finely stranded
- Without end sleeves 2 x (0.5 … 0.75 mm^2)
- With end sleeves 2 x (0.5 … 1.5 mm^2)
- For AWG cables for auxiliary contacts 2 x (18 … 14)

Tightening torque
0.8 … 1 Nm

Operating frequency
max. 1 800/h

Mechanical lifetime
25 000 switching cycles

Vibration resistance
according to IEC 60068-2-6
10 … 500 Hz: 5 g

Shock resistance
according to IEC 60068-2-27
Sinusoidal half-wave 50 g /11 ms

Slewing range
275° ±2°

Electrical characteristics

Active power consumption
0.5 W

Insulation voltage
Rated value 500 V

Environmental conditions

Operating temperature
–25 °C … +70 °C

Storage temperature
–40 °C … +80 °C

Protection degree
IP66, IP67, IP69K

Environmental category
during operation according to IEC 60721:
3K6, 3C3, 3S2, 3M6

Toggle stick actuator

Material

Actuator element
Plastic

Front ring
Plastic or metal

Actuator housing
Plastic or metal

Mechanical characteristics

Operating frequency
3 600/h

Mechanical lifetime
Momentary: 250 000 switching cycles

Vibration resistance
according to IEC 60068-2-6
10 … 500 Hz: 5 g

Shock resistance
according to IEC 60068-2-27
Sinusoidal half-wave 50 g /11 ms

Environmental conditions

Operating temperature
–25 °C … +70 °C

Storage temperature
–40 °C … +80 °C

Protection degree
IP65, IP67

Environmental category
during operation according to IEC 60721:
3K6, 3C3, 3S2, 3M6

Toggle switch actuator

Material

Actuator element
Plastic

Front ring
Plastic or metal

Actuator housing
Plastic or metal

Mechanical characteristics

Operating frequency
max. 1 800/h

Mechanical lifetime
1 000 000 switching cycles

Vibration resistance
according to IEC 60068-2-6
10 … 500 Hz: 5 g

Shock resistance
according to IEC 60068-2-27
Sinusoidal half-wave 50 g /11 ms

Environmental conditions

Operating temperature
–25 °C … +70 °C

Storage temperature
–40 °C … +80 °C

Protection degree
IP66, IP67, IP69K

Environmental category
during operation according to IEC 60721:
3K6, 3C3, 3S2, 3M6

Slow-make switching element

Switching system

The double-break, slow-make switching element is equipped with normally open or normally closed contact. The normally closed contact has forced opening. Slow-make contacts with forced action are ideal for high switch ratings. Up to six switching elements can be snapped to each holder.

The NC contact opens automatically upon disconnection of the actuator. On delivery, the contact is open (= safe state). Activation (= NC contacts on the non-actuated commanding device are closed) takes place upon first-time actuation after the contact block is snapped onto the actuator.

Material

Material of contact
Silver alloy

Housing
Plastic

Mechanical characteristics

Terminals
Screw terminal
- Solid 2 x (1.0 … 1.5 mm^2)
- With end sleeves 2 x (0.5 … 0.75 mm^2)
- Finely stranded
- Without end sleeves 2 x (0.5 … 0.75 mm^2)
- With end sleeves 2 x (0.5 … 1.5 mm^2)
- For AWG cables for auxiliary contacts 2 x (18 … 14)

Spring-type terminal (SP)
- Solid 2 x (0.25 … 1.5 mm^2)
- Finely stranded
- Without end sleeves 2 x (0.5 … 1.5 mm^2)
- With end sleeves 2 x (0.5 … 0.75 mm^2)
- For AWG cables for auxiliary contacts 2 x (24 … 16)

Tightening torque
Screw terminal, spring-type terminal 0.8 … 0.9 Nm

Operating frequency
max. 3 600/h

Mechanical lifetime
10 000 000 switching cycles

Vibration resistance
according to IEC 60068-2-6
2 … 500 Hz: 5 g

Shock resistance
according to IEC 60068-2-27
Sinusoidal half-wave 50 g /11 ms

Electrical characteristics

Standards
The switches comply with the “Standards for low-voltage switching devices” EN IEC 60947-5-1

Thermal current
10 A

Insulation voltage
Rated value 500 V

Pollution degree
3

Surge voltage resistance
Rated value 6 kV

Contact reliability
One contact failure per 100 million switching operations (17 V, 5 mA)
One contact failure per 10 million switching operations (5 V, 1 mA)

Operating voltage
at AC
- Rated value 5 … 500 V

at DC
- Rated value 5 … 500 V

Operating current
at AC-12

Voltage	24 V	230 V	500 V
Current	10 A	10 A	10 A

at AC-15

Voltage	24V	230 V	400 V	500 V
Current	6 A	6 A	3 A	1.4 A

at DC-12

Voltage	24 V	48 V	110 V	230 V	400 V	500 V
Current	10 A	5 A	2.5 A	1 A	0.3 A	0.2 A

at DC-13

Voltage	24 V	48 V	110 V	230 V	400 V	500 V
Current	3 A	1.5 A	0.7 A	0.3 A	0.1 A	0.07 A

Environmental conditions

Operating temperature
–25 °C … +70 °C

Storage temperature
–40 °C … +80 °C

Protection degree
Housing IP40
Terminal IP20

Environmental category
during operation according to IEC 60721:
3K6, 3C3, 3S2, 3M6

Approvals

Approbations
CCC
CSA
UL

Declaration of conformity
CE

Illumination element

Material

Housing
Plastic

Mechanical characteristics

Terminals
Screw terminal
- Solid 2 x (1.0 … 1.5 mm²)
- With end sleeves 2 x (0.5 … 0.75 mm²)
- Finely stranded
- Without end sleeves 2 x (0.5 … 0.75 mm²)
- With end sleeves 2 x (0.5 … 1.5 mm²)
- For AWG cables for auxiliary contacts 2 x (18 … 14)

Spring-type terminal (SP)
- Solid 2 x (0.25 … 1.5 mm²)
- Finely stranded
- Without end sleeves 2 x (0.5 … 1.5 mm²)
- With end sleeves 2 x (0.5 … 0.75 mm²)
- For AWG cables for auxiliary contacts 2 x (24 … 16)

Tightening torque
Screw terminal, spring-type terminal 0.8 … 0.9 Nm

Shock resistance
according to IEC 60068-2-27
Sinusoidal half-wave 50 g /11 ms

Vibration resistance
according to IEC 60068-2-6
2 … 500 Hz: 5 g

Electrical characteristics

Standards
The switches comply with the “Standards for low-voltage switching devices” EN IEC 60947-5-1

Electrical life
100 000 h

Insulation voltage
Rated value 320 V

Surge voltage resistance
Rated value 4 kV

Environmental conditions

Operating temperature
–25 °C … +70 °C

Storage temperature
–40 °C … +80 °C

Protection degree
Terminal IP20

Environmental category
during operation according to IEC 60721:
3K6, 3C3, 3S2, 3M6

Approvals

Approbations
CCC
CSA
UL

Declaration of conformity
CE