

Article: **FR 520**

Description: Position switch, coil spring with plastic point

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**Housing:**

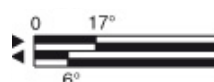
Technopolymer housing, one threaded PG 13,5 conduit entry (FR series)  
Protection degree: IP67 acc. to EN 60529 with cable gland presenting same or higher protection degree

**General data:**

Ambient temperature: from -25°C to +80°C (from -40°C to +80°C with option T6)  
Max. actuation frequency: 3600 operating cycles/hour  
Mechanical endurance: 20 million operating cycles  
Safety parameter B10D: 40,000,000 for NC contacts  
Mechanical interlock, not coded: type 1 acc. to EN ISO 14119

**Contact block characteristics:**

| Contact block | Contact diagram                                                                   | Contact design | Operation type | Positive opening | Contact type                     | Wire cross-section min.               | Wire cross-section max.               | Wire stripping length | Captive screws | Terminals with finger protection |
|---------------|-----------------------------------------------------------------------------------|----------------|----------------|------------------|----------------------------------|---------------------------------------|---------------------------------------|-----------------------|----------------|----------------------------------|
| 5 1NO+1NC     |  | Zb             | snap action    | yes              | Double interruption, twin bridge | 1 x 0.5 mm <sup>2</sup><br>1 x AWG 20 | 2 x 2.5 mm <sup>2</sup><br>2 x AWG 14 | 8 mm                  | yes            | yes                              |

**Contact block travel diagrams:**


-  Closed contact
-  Open contact
-  Positive opening travel (EN 60947-5-1)
-  Opening travel 2 x 2 mm (EN 81)

-  Switch pressed
-  Switch released
-  Reset engagement travel
-  Mechanical switching point

**Positive contact opening in conformity with standards:**

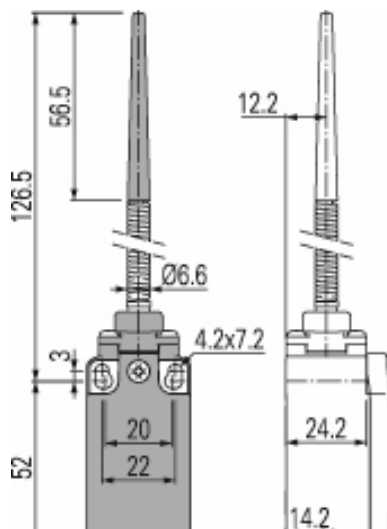
Device without positive opening. If installed individually, not suitable for safety applications.

**Device screw tightening torques:**

Cover screws: 0,7 ... 0,9 Nm  
Head screws: 0,5 ... 0,7 Nm  
Lever screws: 0,7 ... 0,9 Nm  
Contact blocks screws: 0,6 ... 0,8 Nm  
Protection caps: 1,2 ... 1,6 Nm

**Activating forces:**

Min.: 0,07 Nm


**Markings and quality marks:**

**Electrical data:**

Thermal current (I<sub>th</sub>): 10 A  
Rated insulation voltage (U<sub>i</sub>): 500 Vac 600 Vdc  
Rated impulse withstand voltage (U<sub>imp</sub>): 6 kV  
Conditional short circuit current: 1000 A according to EN 60947-5-1  
Protection against short circuits: fuse 10 A 500 V type aM  
Pollution degree: 3

**Utilization categories:**

Alternate current: AC15 (50...60 Hz)  
U<sub>e</sub> (V) 250 400 500  
I<sub>e</sub> (A) 6 4 1  
Direct current: DC13  
U<sub>e</sub> (V) 24 125 250  
I<sub>e</sub> (A) 3 0.55 0.3

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**Features approved by IMQ**

Rated insulation voltage (Ui): 500 Vac / 400 Vac (for contact blocks 2, 11, 12, 20, 21, 22, 28, 29, 30, 37, 33, 34)

Conventional free air thermal current (Ith): 10 A

Protection against short circuits: type aM fuse 10 A 500 V

Rated impulse withstand voltage (Uimp): 6 kV / 4 kV (for contact blocks 20, 21, 22, 28, 29, 30, 33, 34)

Protection degree of the housing: IP67

MV terminals (screw terminals)

Pollution degree: 3

Utilization category: AC15

Operating voltage (Ue): 400 Vac (50 Hz)

Operating current (Ie): 3 A

Forms of the contact element: Za, Za+Za, X+X, Zb, Y+Y, Y+Y+X, Y+Y+Y, Y+X+X, Y, X.

Positive opening of contacts on contact block 5, 6, 7, 8, 9, 11, 13, 14, 16, 17, 18, 19, 20, 21, 22, 28, 29, 30, 33, 34, 37, 38, 39, 66.

In compliance with standards: EN 60947-1, EN 60947-5-1, fundamental requirements of the Low Voltage Directive 2014/35/EU.

**Features approved by UL**

Electrical Ratings:

Q300 pilot duty (69 VA, 125-250 V dc)

A600 pilot duty (720 VA, 120-600 V ac)

Environmental Ratings: Types 1, 4X, 12, 13

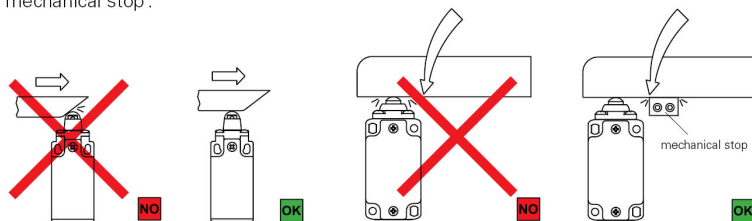
For all contact blocks except 2 and 3 use 60 or 75°C copper (Cu) conductors, rigid or flexible, wire size 12, 14 AWG. Tightening torque for terminal screws of 7.1 lb in (0.8 Nm).

For contact blocks 2 and 3 use 60 or 75°C copper (Cu) conductors, rigid or flexible, wire size 14 AWG. Tightening torque for Terminal screws of 12 lb in (1.4 Nm).

The hub is to be connected to the conduit before the hub is connected to the enclosure.

**Mechanical stop**

Acc. to EN ISO 14119 paragraph 5.2 "the position sensors must not be used as mechanical stop".



The actuator must not exceed the max. travel as indicated in the travel diagrams.

The guard must not use the switch head as a mechanical stop.

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This device **does not** feature positive opening and therefore **cannot be used individually for safety functions.**