

## Position switches for high temperature



# Position switches for high temperature



## Main data

- Operating temperature up to +180°C
- Metal housing, one conduit entry
- Protection degree IP67

## Technical data

### Housing

Metal housing with surface anticorrosive treatment  
 One threaded conduit entry M20 x 1,5  
 Protection degree: IP67

### General data

Ambient temperature: from -15°C to +180°C for article FD 2011-M2T2 and FD 2016-M2T2  
 from -25°C to +180°C for article FD 2038-M2T2

Max operating frequency: 3600 operations cycles<sup>1</sup>/hour  
 Mechanical endurance: 1 million operations cycles<sup>1</sup>  
 Assembling position: any

(1) One operation cycle means two movements, one to close and one to open contacts, as foreseen by IEC 947-5-1 standard.

### Cross section of the conductors (flexible copper wire)

Contact blocks 20: min. 1 x 0,34 mm<sup>2</sup> (1 x AWG 22)  
 max. 2 x 1,5 mm<sup>2</sup> (2 x AWG 16)

### In conformity with standards:

IEC 60947-5-1, EN 60947-5-1, EN 50041, IEC 60204-1, EN 60204-1, EN 1088, EN ISO 12100-1, EN ISO 12100-2, IEC 529, EN 60529, NFC 63-140, VDE 0660-200, VDE 0113, CENELEC EN 50013.

## Markings and quality marks:



### In conformity with requirements requested by:

Low Voltage Directive 2006/95/EC, Machinery Directive 2006/42/EC and Electromagnetic Compatibility 2004/108/EC.

### Positive contact opening in conformity with standards:

IEC 60947-5-1, EN 60947-5-1, VDE 0660-206.

## Installation for safety applications:

Use only switches marked with the symbol ⊕. The safety circuit must always be connected with the **NC contacts** (normally closed contacts: 11-12, 21-22 or 31-32) as stated in the **standard EN 60947-5-1, encl. K, par. 2**. The switch must be actuated with **at least up to the positive opening travel** shown in the travels diagrams on page 2. The switch must be actuated **at least with the positive opening force**, shown in brackets, underneath each article, near the value of the min. force.

**⚠ If not expressly indicated in this chapter, for the right installation and the correct utilization of all articles see requirements indicated from page 6/1 to page 6/8 of general catalog 2007-2008.**

## Electrical data

## Utilization categories

Ambient temperature	Electrical data	Utilization categories
+20 °C	Thermal current (Ith): 4 A Rated insulation voltage (Ui): 250 VAC 300 VDC Protection against short circuits: fuse 4 A 500 V type aM Pollution degree: 3	Alternate current: AC15 (50...60 Hz) Ue (V) 24 250 400 Ie (A) 4 4 4 Direct current: DC13 Ue (V) 24 125 250 Ie (A) 4 1,1 0,4
+180 °C	Thermal current (Ith): 4 A Rated insulation voltage (Ui): 250 VAC 300 VDC Protection against short circuits: fuse 4 A 500 V type aM Pollution degree: 3	Alternate current: AC15 (50...60 Hz) Ue (V) 24 250 400 Ie (A) 4 4 4 Direct current: DC13 Ue (V) 24 Ie (A) 1

## Adjustable levers

In switches with revolving lever it is possible to adjust the lever with 10° steps for the whole 360° range. The positive movement transmission is always guaranteed thanks to the particular geometrical coupling between the lever and the revolving shaft as prescribed for safety applications by the German standard BG-GS-ET-15.



## Overturning levers

It's possible to fasten the lever on switches on straight or reverse side, maintaining the positive coupling. In this way it is possible to obtain two different work plans of the lever.



## Rotating heads

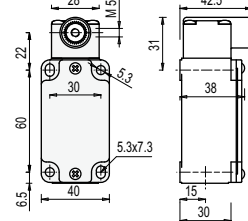
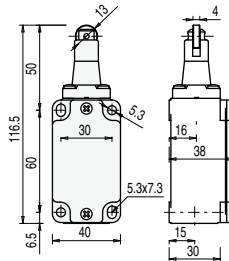
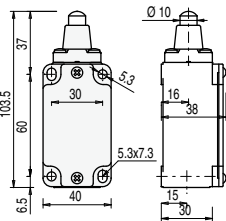
In all switches, it is possible to rotate the head in 90° steps.



## Dimensional drawings

Contacts type:

**L** = slow action



### IMPORTANT

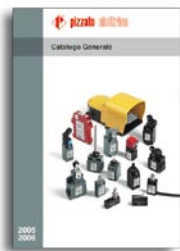
**For safety applications:** join only switches and actuators marked with symbol  $\ominus$ .

Contact blocks

20 <b>L</b>	FD 2011-M2T2 $\ominus$ 1NO+2NC	FD 2016-M2T2 $\ominus$ 1NO+2NC	FD 2038-M2T2 $\ominus$ 1NO+2NC
Max speed	0,5 m/s	0,5 m/s	0,1 Nm (0,25 Nm $\ominus$ )
Min. force	8 N (25 N $\ominus$ )	8 N (25 N $\ominus$ )	
Travel diagrams			

## Special loose actuators

Ø 20 mm stainless steel roller	Adjustable round rod Ø 3x125 mm	Adjustable square rod 3x3x125 mm	Ø 20 mm stainless steel roller	Ø 20 mm stainless steel roller	Adjustable actuator with Ø 20 mm stainless steel rollers	Ø 20 mm stainless steel roller
VF L31-1T2 $\ominus$	VF L32-T2	VF L33-T2	VF L51-1T2 $\ominus$	VF L52-1T2 $\ominus$	VF L56-1T2 $\ominus$	VF L57-1T2 $\ominus$



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