FD series position switches for high temperatures



Main features

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

Quality marks:

EAC approval: RU Д-IT.PA07.B.37848/24

Technical data

Housing

Metal housing, powder-coated	
One threaded conduit entry:	M20 x 1.5
Protection degree acc. to EN 60529:	IP67 with cable gland of equal or higher protection degree

General data

Ambient temperature:	-15°C … +180°C for FD 2011-M2T2 and FD 2016-M2T2 articles -25°C … +180°C for all other articles
Max. actuation frequency:	3600 operating cycles/hour
Mechanical endurance:	1 million operating cycles
Mounting position:	any
Safety parameter B_{10D}:	2,000,000 for NC contacts
Mechanical interlock, not coded:	type 1 acc. to EN ISO 14119
Fixing screws for the housing:	M5 with spring washer
Tightening torques for installation:	see page 219
Wire cross-sections and wire stripping lengths:	see page 239

In compliance with standards:
IEC 60947-5-1, EN 60947-5-1, IEC 60947-1, EN 60947-1, EN 50041, IEC 60204-1, EN 60204-1, EN ISO 14119, EN ISO 12100, IEC 60529, EN 60529, EN IEC 63000, UL 508, CSA C22.2 No. 14.

Compliance with the requirements of:
Low Voltage Directive 2014/35/EU, EMC Directive 2014/30/EU, RoHS Directive 2011/65/EU.
Positive contact opening in conformity with standards:
IEC 60947-5-1, EN 60947-5-1.

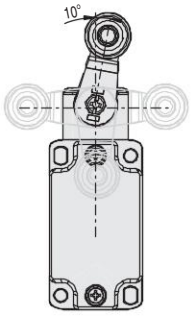
Installation for safety applications:
Use only switches marked with the ⊖ symbol beside the product code. Always connect the safety circuit to the **NC contacts** (normally closed contacts: 11-12, 21-22 or 31-32) as required by **EN ISO 14119, paragraph 5.4** for specific interlock applications and **EN ISO 13849-2 tables D3** (well-tried components) and **D.8** (fault exclusions) for safety applications in general. Actuate the switch **at least up to the positive opening travel** shown in the travel diagrams on page 220. Actuate the switch **at least with the positive opening force**, reported in brackets below each article, next to the actuating force value.

⚠ **If not expressly indicated in this chapter, for correct installation and utilization of all articles see chapter Utilization requirements from page 217 to page 232.**

	Electrical data		Utilization category
Ambient temperature +20 °C	Thermal current (I_{th}):	4 A	Alternating current: AC15 (50÷60 Hz)
	Rated insulation voltage (U_i):	250 Vac 300 Vdc	Ue (V) 24 120 250
	Rated impulse withstand voltage (U_{imp}):	4 kV	Ie (A) 4 4 4
	Conditional short circuit current:	1000 A acc. to EN 60947-5-1	Direct current: DC13
	Protection against short circuits:	type gG fuse 4 A 250 V	Ue (V) 24 125 250
	Pollution degree:	3	Ie (A) 3 0.55 0.3
Ambient temperature +180 °C	Thermal current (I_{th}):	4 A	Alternating current: AC15 (50÷60 Hz)
	Rated insulation voltage (U_i):	250 Vac 300 Vdc	Ue (V) 24 120 250
	Protection against short circuits:	type gG fuse 4 A 250 V	Ie (A) 4 4 4
	Pollution degree:	3	Direct current: DC13
			Ue (V) 24
			Ie (A) 1

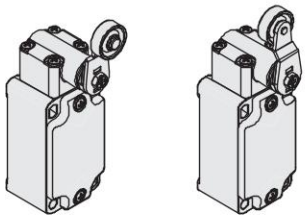
Adjustable levers

For switches with swivelling lever, the lever can be adjusted in 10° steps over the entire 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.



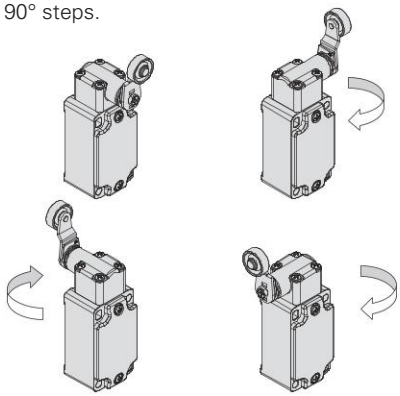
Reversible levers

For switches with swivelling lever, the lever can be fastened on straight or reverse side maintaining the positive coupling.
In this way two different working planes of the lever are possible.



Head with variable orientation

For all switches the head can be rotated in 90° steps.



Dimensional drawings

Contact type
L = slow action

Contact block

20 L	FD 2011-M2T2 1NO+2NC	FD 2016-M2T2 1NO+2NC	FD 2031-M2R24T2 1NO+2NC	FD 2032-M2T2 1NO+2NC
Max. speed	page 219 - type 4	page 219 - type 2	page 219 - type 1	1.5 m/s
Actuating force	8 N (25 N)	8 N (25 N)	0.1 Nm (0.25 Nm)	0.1 Nm
Travel diagrams	page 220 - group 1	page 220 - group 1	page 220 - group 4	page 220 - group 4

Contact type
L = slow action

Contact block

20 L	FD 2033-M2T2 1NO+2NC	FD 2056-M2R24T2 1NO+2NC	FD 2057-M2R24T2 1NO+2NC	Without actuator FD 2038-M2T2 1NO+2NC
Max. speed	1.5 m/s	page 219 - type 1	page 219 - type 1	/
Actuating force	0.1 Nm	0.1 Nm (0.25 Nm)	0.1 Nm (0.25 Nm)	0.1 Nm (0.25 Nm)
Travel diagrams	page 220 - group 4	page 220 - group 4	page 220 - group 4	page 220 - group 4

Special separate actuators for high temperatures

Steel roller with self-lubrication, Ø 20 mm	Adjustable round rod Ø 3x125 mm	Adjustable square rod, 3x3x125 mm	Steel roller with self-lubrication, Ø 20 mm	Steel roller with self-lubrication, Ø 20 mm	Adjustable actuator with steel roller with self-lubrication, Ø 20 mm	Steel roller with self-lubrication, Ø 20 mm
VF L31-R24T2	VF L32-T2	VF L33-T2	VF L51-R24T2	VF L52-R24T2	VF L56-R24T2	VF L57-R24T2

Note: To order with 316L stainless steel roller: replace R24 with R41 in the order numbers.

IMPORTANT: For safety applications: join only switches and actuators marked with symbol next to the product code.

All values in the drawings are in mm

Accessories See page 195

→ The 2D and 3D files are available at **www.pizzato.com**