

Article:

Description:

FD 2031-M2

Position switch with roller lever

Pizzato Elettrica S.r.l. Via Torino, 1 36063 Marostica (VI) ITALY

Tel. +39.0424.470.930 E-mail info@pizzato.com Web www.pizzato.com

Sheet:	32049-0-en-2.1.0
Date:	11/01/2022
Page:	1/3



Housina:

Metal housing, one threaded M20x1,5 conduit entry (FD series) Protection degree: IP67 acc. to EN 60529 with cable gland presenting same or higher protection degree

General data:

Ambient temperature: -25°C ... +80°C 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 cros min.	s-section max.	Wire stripping length	Captive screws	Terminals with finger protection
20 1NO+2N	$\begin{array}{c} 11 & 21 & 33 \\ 7 & 7 & 7 \\ 12 & 22 & 34 \end{array}$	Y+Y+X	slow action	yes	Double interruption, twin bridge	1 x 0.34 mm² 1 x AWG 22	2 x 1.5 mm² 2 x AWG 16	7 mm	yes	yes

Opening travel 2 x 2 mm (EN 81)

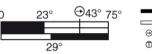
Activating forces:

Positive opening: 0,25 Nm

Min.: 0,01 Nm

Contact block travel diagrams:

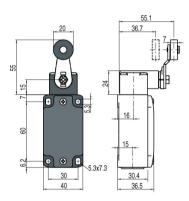
Positive switch opening:



Device with positive opening conforming to IEC 60947-5-1.

	Closed contact
	Open contact
⊖	Positive opening travel (EN 60947-5-1)

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



Markings and guality marks:



Electrical data:

Thermal current (Ith): 10 A Rated insulation voltage (Ui): 400 Vac 500 Vdc Rated impulse withstand voltage (Uimp): 4 kV Conditional shot circuit current: 1000 A according to EN 60947-5-1 Protection against short circuits: fuse 10 A 500 V type aM Pollution degree: 3

Device screw tightening torques:

Cover screws: 0,8 ... 1,2 Nm Head screws: 0,8 ... 1,2 Nm Lever screws: 0,8 ... 1,2 Nm Contact blocks screws: 0,6 ... 0,8 Nm M5 fixing screws, body: 2 ... 3 Nm Protection caps: 1,2 ... 1,6 Nm (M20/PG13,5) 1 ... 1,4 Nm (M16/PG11)

In conformity with standards:

IEC 60947-5-1, EN 60947-5-1, EN 60947-1, EN 50041, IEC 60204-1, EN 60204-1, EN ISO 14119, EN ISO 12100, IEC 60529, EN 60529, EN 50581, UL 508, CSA 22.2 No. 14. Approvals:

IEC 60947-5-1, UL 508, CSA 22.2 No. 14, GB/T14048.5-2017.

In conformity with requirements requested by:

Low Voltage Directive 2014/35/EU, EMC Directive 2014/30/EU, RoHS Directive 2011/65/EU.

Utilization categories:

Alternate current: AC15 (50...60 Hz) Ue (V) 400 250 le (Å) 6 4 Direct current: DC13 Ue (V) 24 125 250 le (A) 3 0.55 0.3

© 2019 Copyright Pizzato Elettrica. Technical modifications and errors reserved. The data quoted in this sheet are carefully checked and represent typical series values. Descriptions of device and its applications, the control contexts, details on external controls, installation and operating information are given to the best of our knowledge. This does not mean however that any assured properties or other claims under liability law that extend beyond the "General Sales Terms" as stated in the Pizzato Elettrica general catalogue may be derived. The user is not absolved of his obligation to examine our information and recommendations before using them for his own purposes.



Pizzato Elettrica S.r.l. Via Torino, 1 36063 Marostica (VI) ITALY

Tel. +39.0424.470.930 E-mail info@pizzato.com Web www.pizzato.com

FD 2031-M2

Position switch with roller lever Description:

Features approved by IMQ

Article:

Rated insulation voltage (Ui): 500 Vac / 400 Vac (for contact blocks 2, 11, 12, 20, 21, 22, 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, 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 (le): 3 A

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

Positive opening of contacts on contact block 5, 6, 7, 9, 11, 13, 14, 16, 18, 20, 21, 22, 33, 34.66

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

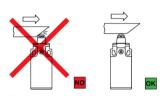
Electrical Ratings: Q300 pilot duty (69 VA, 125-250 V dc) A600 pilot duty (720 VA, 120-600 V ac) Environmental Ratings: Types 1, 4X, 12, 13

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).

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.

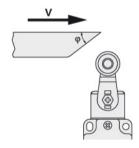
Actuation modes



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

Actuation speed

φ	Vmax (m/s)	Vmin (mm/s)	Vmin (mm/s) R	
15°	2,5	9		
30°	1,5	8	0.07	
45°	1	7	0,07	
60°	0,75	7		
Contacts ty	pe:			
	o action v action			



Recommended application Application to avoid Forbidden application This application is possible, but increased mechanical stress may shorten the operating life of the switch

00

mechanical stor

n Ol

0.00

© 2019 Copyright Pizzato Elettrica. Technical modifications and errors reserved. The data quoted in this sheet are carefully checked and represent typical series values. Descriptions of device and its applications, the control contexts, details on external controls, installation and operating information are given to the best of our knowledge. This does not mean however that any assured properties or other claims under liability law that extend beyond the "General Sales Terms" as stated in the Pizzato Elettrica general catalogue may be derived. The user is not absolved of his obligation to examine our information and recommendations before using them for his own purposes.

32049-0-en-2.1.0 Sheet: Date: 11/01/2022 Page: 2/3



Pizzato Elettrica S.r.l. Via Torino, 1 36063 Marostica (VI) ITALY

Tel. +39.0424.470.930 E-mail info@pizzato.com Web www.pizzato.com

Article:FD 2031-M2Description:Position switch with roller lever	Sheet: Date: Page:	32049-0-en-2.1.0 11/01/2022 3/3
---	--------------------------	---------------------------------------

Installation of single switches with safety functions

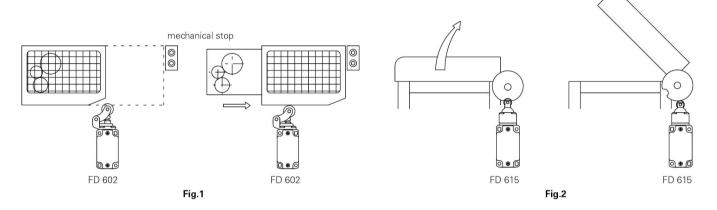
- Use only switches with the symbol \bigcirc
- Connect the safety circuit to the NC normally closed contacts (11-12, 21-22 or 31-32).
- The NO normally open contacts (13-14, 23-24, 33-34) should be used only for signalling; these contacts are not to be connected with the safety circuit. However, if two or more switches are used on the same guard, a connection can be established between the NO contacts and the safety circuit.

In this case at least one of the two switches must have positive opening and a normally closed contact NC (11-12, 21-22 or 31-32) must be connected to the safety circuit.

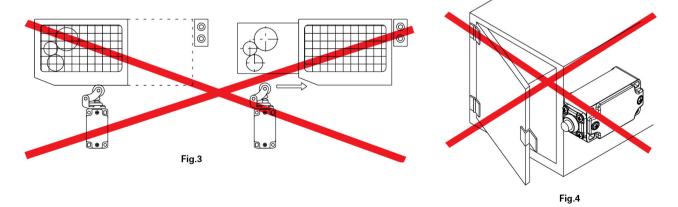
- Actuate the switch at least up to the positive opening travel shown in the travel diagrams with symbol \bigcirc .
- The actuation system must be able to exert a force that is greater than the positive opening force, as specified in brackets below each article, next to the minimum force value.
- The device must be affixed in compliance with EN ISO 14119.

Whenever the machine guard is opened and during the whole opening travel, the switch must be pressed directly (fig. 1) or through a rigid connection (fig. 2).

Only in this way the positive opening of the normally closed NC contacts (11-12, 21-22, 31-32) is guaranteed.



In safety applications with only one switch for each guard, the switches must never be activated by a release (fig. 3 and 4) or through a non rigid connection (i.e. by a spring).



© 2019 Copyright Pizzato Elettrica. Technical modifications and errors reserved. The data quoted in this sheet are carefully checked and represent typical series values. Descriptions of device and its applications, the control contexts, details on external controls, installation and operating information are given to the best of our knowledge. This does not mean however that any assured properties or other claims under liability law that extend beyond the "General Sales Terms" as stated in the Pizzato Elettrica general catalogue may be derived. The user is not absolved of his obligation to examine our information and recommendations before using them for his own purposes.