

## Description



Pizzato Elettrica position switches are daily installed in every type of industrial machinery all over the world for applications in the sector of wood, metal, plastic, automotive, packaging, lifting, medicinal, naval, etc.

In order to be used in a wide variety of sectors and countries, Pizzato Elettrica position switches are designed to be assembled in a lot of configurations, thanks to a wide range of body shapes, dozens of contact blocks, hundreds of actuators and materials, different actuating forces and several fixing methods.

Pizzato Elettrica can offer one of the widest product range of position switches in the world. Moreover, the use of high quality materials, high reliability technologies (e.g. twin bridge contact blocks) as well as the IP67 protection degree make this range of position switches one of the most technologically evolved.

## Protection degree IP67

# IP67

These devices are designed to be used in the toughest environmental conditions and they pass the IP67 immersion test acc. to EN 60529.

They can therefore be used in all environments where maximum protection degree of the housing is required.

## Extended temperature range

# -40°C

These devices are also available in a special version suitable for an ambient operating temperature range from -40°C up to +80°C.

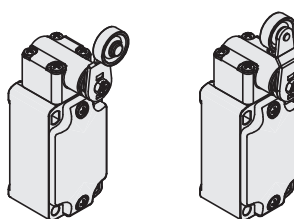
They can therefore be used for applications in cold stores, sterilisers, and other equipment operated in very low-temperature environments. The special materials used to produce these versions retain their characteristics even under these conditions, thereby expanding the installation possibilities.

## Laser engraving



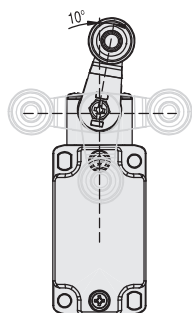
All devices are marked using a dedicated indelible laser system. These engravings are therefore suitable for extreme environments too. Thanks to this system that does not use labels, the loss of plate data is prevented and a greater resistance of the marking is achieved over time.

## Reversible levers



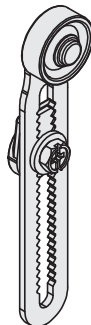
For switches with swivelling lever, the lever can be fastened on straight or reverse side maintaining the positive coupling. In this way two different working planes of the lever are possible.

## 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.

## Adjustable safety lever

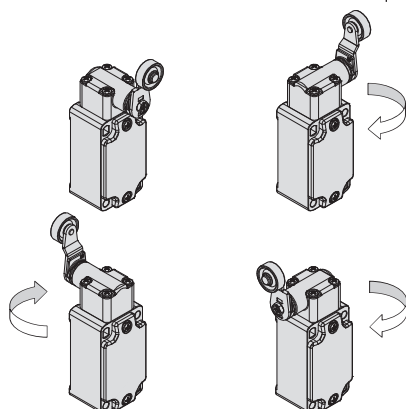


The adjustable lever code 56 (and variants) is provided with a notching that prevents the sliding also in case the fastening screw becomes loose.

Thanks to the special geometrical coupling it is suitable for safety applications.

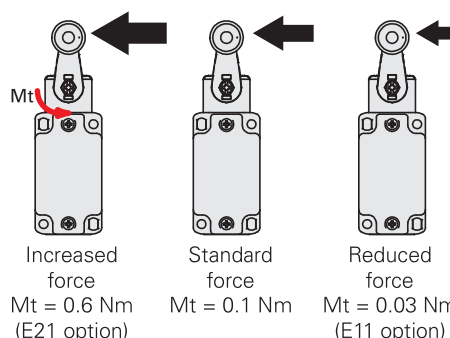
## Head with variable orientation

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



## Increased or reduced actuating force

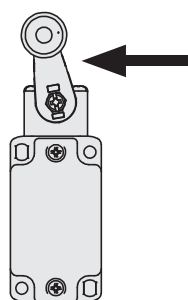
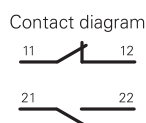
For actuators with swivelling lever, versions with increased or reduced actuating force are available upon request, in order to have a switch perfectly tailored for the application. For further information contact our technical department.



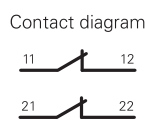
## Independent contacts

The contact block 16 is provided with two NC contacts, **both with positive opening**, that can be independently switched depending on the lever turning direction.

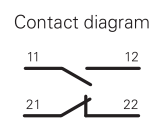
Lever turned to left



Lever not actuated

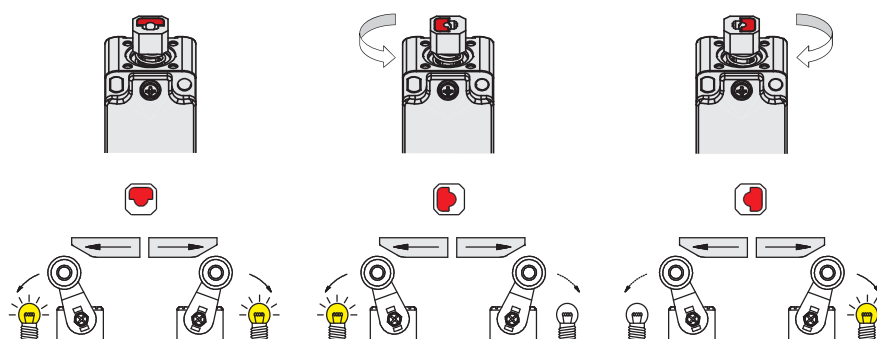
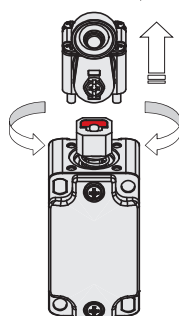


Lever turned to right



## Unidirectional heads

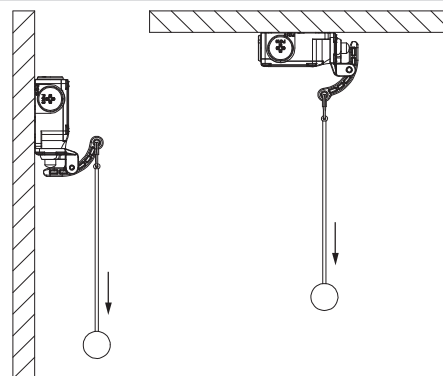
For switches with swivelling lever, the unidirectional operation can be set by removing the four head screws and rotating the internal plunger (except contact block 16).



## Actuator for wall or ceiling applications



For the heavy-duty FD, FP, FL, FC series, actuator 09 is available which, thanks to a sturdy actuation lever, allows the switch to be activated with a rope or stay bolt. This type of actuation is particularly useful, where the device requires wall or ceiling installation for particular applications; such as control of sectional or overhead gates.

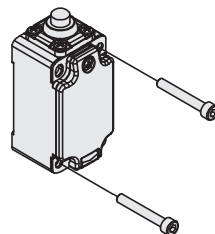


## Contact block



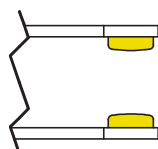
Contact blocks with captive screws, finger protection, twin bridge contacts and double interruption for higher contact reliability. They are available in multiple variants with shifted activation travels, simultaneous or overlapping. They are suitable for many different applications.

## Stainless steel fixing plates



The technopolymer switches of the FP series are provided with two robust stainless steel fixing plates. In this way no washer is needed under the head and still the fixing of the switch is more stable over time.

## Gold-plated contacts



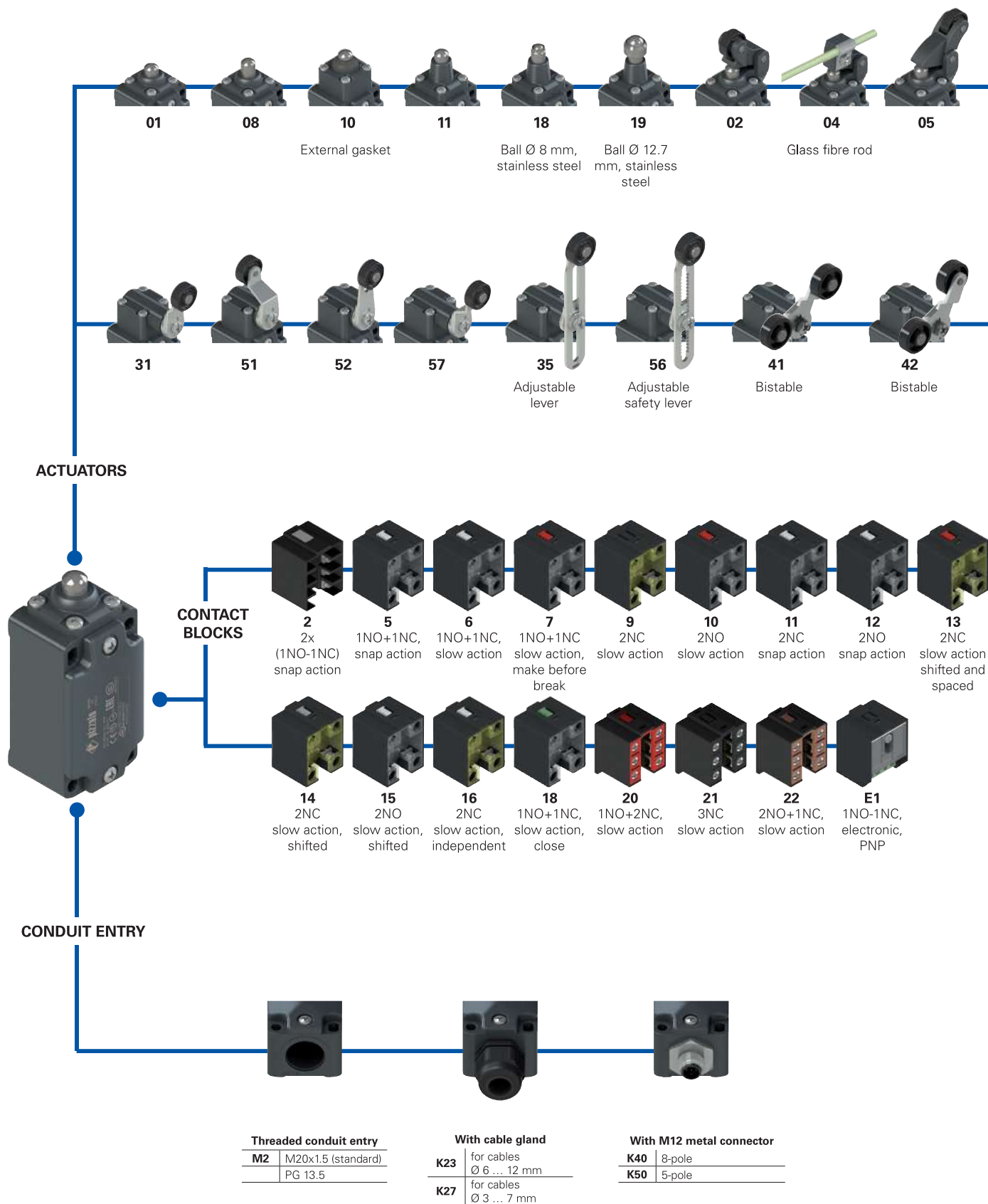
The contact blocks of these devices can be supplied gold-plated upon request. Ideal for applications with low voltages or currents; it ensures increased contact reliability. Available in two thicknesses (1 or 2.5 microns), it adapts perfectly to the various fields of application, ensuring a long endurance over time.

## Stainless steel external metallic parts

# AISI 304

Upon request, some of these devices can be supplied with stainless steel external metallic parts instead of the usual zinc-plated steel. This solution is particularly suited for environments where aggressive chemical agents or saline mist are present. See page 201.

## Selection diagram





**Attention!** The feasibility of a code number does not mean the effective availability of a product. Please contact our sales office.

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## Main features

- Metal housing, one conduit entry
- Protection degree IP67
- 17 contact blocks available
- 29 actuators available
- Versions with M12 connector
- Versions with gold-plated silver contacts

## Technical data

### Housing

Metal housing, powder-coated  
One threaded conduit entry:  
Protection degree acc. to EN 60529:

M20x1.5 (standard)  
IP67 with cable gland of equal or higher protection degree

### General data

Ambient temperature: -25°C ... +80°C (standard)  
-40°C ... +80°C (T6 option)  
Max. actuation frequency: 3600 operating cycles/hour  
Mechanical endurance: 20 million operating cycles  
Mounting position: any  
Safety parameter B<sub>10D</sub>: 40,000,000 for NC contacts  
Mechanical interlock, not coded: type 1 acc. to EN ISO 14119  
Tightening torques for installation: see page 227  
Wire cross-sections and wire stripping lengths: see page 247

### In compliance 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 IEC 63000, UL 508, CSA 22.2 No.14.

### Approvals:

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

### 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.

## Quality marks:



IMQ approval: EG605  
UL approval: E131787  
CCC approval: 2020970305002282  
EAC approval: RU C-IT.YT03.B.00035/19

## Installation for safety applications:

Use only switches marked with the symbol  next to 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 228. 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 the instructions given on pages 225 to 240.**

| Electrical data            |                                                                                               | Utilization category                                                         |                                      |                    |            |
|----------------------------|-----------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|--------------------------------------|--------------------|------------|
| without connector          | Thermal current (I <sub>th</sub> ):                                                           | 10 A                                                                         | Alternating current: AC15 (50÷60 Hz) |                    |            |
|                            | Rated insulation voltage (U <sub>i</sub> ):                                                   | 500 Vac 600 Vdc<br>400 Vac 500 Vdc<br>(contact blocks 2, 11, 12, 20, 21, 22) | U <sub>e</sub> (V)                   | 250                | 400 500    |
|                            | Rated impulse withstand voltage (U <sub>imp</sub> ):                                          | 6 kV<br>4 kV (contact blocks 20, 21, 22)                                     | I <sub>e</sub> (A)                   | 6                  | 4 1        |
|                            | Conditional short circuit current:<br>Protection against short circuits:<br>Pollution degree: | 1000 A acc. to EN 60947-5-1<br>type aM fuse 10 A 500 V<br>3                  | Direct current: DC13                 | U <sub>e</sub> (V) | 24 125 250 |
| with M12 connector, 5-pole | Thermal current (I <sub>th</sub> ):                                                           | 4 A                                                                          | U <sub>e</sub> (V)                   | 24                 | 120 250    |
|                            | Rated insulation voltage (U <sub>i</sub> ):                                                   | 250 Vac 300 Vdc                                                              | I <sub>e</sub> (A)                   | 4                  | 4 4        |
|                            | Protection against short circuits:                                                            | type gG fuse 4 A 500 V                                                       | Direct current: DC13                 | U <sub>e</sub> (V) | 24 125 250 |
|                            | Pollution degree:                                                                             | 3                                                                            | I <sub>e</sub> (A)                   | 3                  | 0.55 0.3   |
| with M12 connector, 8-pole | Thermal current (I <sub>th</sub> ):                                                           | 2 A                                                                          | Alternating current: AC15 (50÷60 Hz) |                    |            |
|                            | Rated insulation voltage (U <sub>i</sub> ):                                                   | 30 Vac 36 Vdc                                                                | U <sub>e</sub> (V)                   | 24                 |            |
|                            | Protection against short circuits:                                                            | type gG fuse 2 A 500 V                                                       | I <sub>e</sub> (A)                   | 2                  |            |
|                            | Pollution degree:                                                                             | 3                                                                            | Direct current: DC13                 | U <sub>e</sub> (V) | 24         |
|                            |                                                                                               |                                                                              | I <sub>e</sub> (A)                   | 2                  |            |



## Features approved by IMO

Rated insulation voltage (Ui): 500 Vac  
400 Vac (for contact blocks 2, 11, 12,  
20, 21, 22, 28, 29, 30, 33, 34, 37)  
Conventional free air thermal current  
(I<sub>th</sub>): 10 A  
Protection against short circuits: type aM fuse 10 A 500 V  
Rated impulse withstand voltage (U<sub>imp</sub>): 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 (U<sub>e</sub>): 400 Vac (50 Hz)  
Operating current (I<sub>e</sub>): 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 blocks 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.

Please contact our technical department for the list of approved products.

## 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).

Please contact our technical department for the list of approved products.

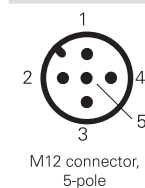
## Wiring diagram for M12 connectors

| Contact block 2<br>2x(1NO-1NC) | Contact block 5<br>1NO+1NC | Contact block 6<br>1NO+1NC | Contact block 7<br>1NO+1NC | Contact block 9<br>2NC   | Contact block 10<br>2NO  | Contact block 11<br>2NC  | Contact block 12<br>2NO  | Contact block 13<br>2NC  |         |
|--------------------------------|----------------------------|----------------------------|----------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|---------|
|                                |                            |                            |                            |                          |                          |                          |                          |                          |         |
| M12 connector,<br>8-pole       | M12 connector,<br>5-pole   | M12 connector,<br>5-pole   | M12 connector,<br>5-pole   | M12 connector,<br>5-pole | M12 connector,<br>5-pole | M12 connector,<br>5-pole | M12 connector,<br>5-pole | M12 connector,<br>5-pole |         |
| Contacts                       | Pin no.                    | Contacts                   | Pin no.                    | Contacts                 | Pin no.                  | Contacts                 | Pin no.                  | Contacts                 | Pin no. |
| NO                             | 3-4                        | NC                         | 1-2                        | NC                       | 1-2                      | NC                       | 1-2                      | NO                       | 1-2     |
| NC                             | 5-6                        | NO                         | 3-4                        | NO                       | 3-4                      | NC                       | 3-4                      | NO                       | 3-4     |
| NC                             | 7-8                        | ground                     | 5                          | ground                   | 5                        | ground                   | 5                        | ground                   | 5       |
| NO                             | 1-2                        |                            |                            |                          |                          |                          |                          |                          |         |

| Contact block 14<br>2NC  | Contact block 15<br>2NO  | Contact block 16<br>2NC  | Contact block 18<br>1NO+1NC | Contact block 20<br>1NO+2NC | Contact block 21<br>3NC  | Contact block 22<br>2NO+1NC | Contact block 33<br>1NO+1NC | Contact block 34<br>2NC  |         |        |   |
|--------------------------|--------------------------|--------------------------|-----------------------------|-----------------------------|--------------------------|-----------------------------|-----------------------------|--------------------------|---------|--------|---|
|                          |                          |                          |                             |                             |                          |                             |                             |                          |         |        |   |
| M12 connector,<br>5-pole | M12 connector,<br>5-pole | M12 connector,<br>5-pole | M12 connector,<br>5-pole    | M12 connector,<br>8-pole    | M12 connector,<br>8-pole | M12 connector,<br>8-pole    | M12 connector,<br>5-pole    | M12 connector,<br>5-pole |         |        |   |
| Contacts                 | Pin no.                  | Contacts                 | Pin no.                     | Contacts                    | Pin no.                  | Contacts                    | Pin no.                     | Contacts                 | Pin no. |        |   |
| NC (1°)                  | 1-2                      | NO (1°)                  | 1-2                         | NC, lever to the right 1-2  | NC                       | 1-2                         | NC                          | 1-2                      | NC      | 1-2    |   |
| NC (2°)                  | 3-4                      | NO (2°)                  | 3-4                         | NC, lever to the left 3-4   | NO                       | 3-4                         | NO                          | 3-4                      | NC      | 3-4    |   |
| ground                   | 5                        | ground                   | 5                           | ground                      | 5                        | NO                          | 7-8                         | ground                   | 5       | ground | 5 |
|                          |                          |                          |                             |                             |                          | ground                      | 1                           | ground                   | 1       | ground | 1 |

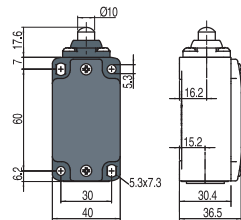
Contact block E1  
PNP



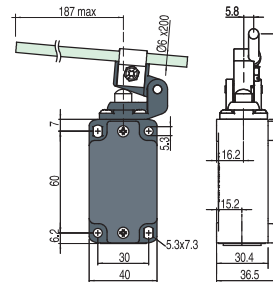
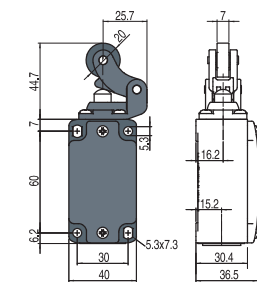
| Contacts | Pin no. |
|----------|---------|
| +        | 1       |
| -        | 3       |
| NC       | 2       |
| NO       | 4       |
| ground   | 5       |

# 2 FD series position switches

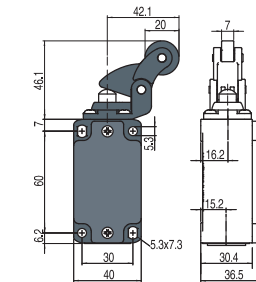
Contact type  
**R** = snap action  
**L** = slow action  
**LO** = slow action, make before break  
**LS** = slow action, shifted  
**LV** = slow action, shifted and spaced  
**LI** = slow action, independent  
**LA** = slow action, close  
 = electronic, PNP



With stainless steel roller on request



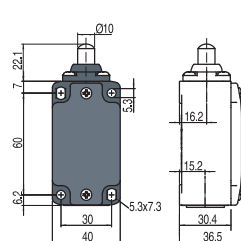
With stainless steel roller on request



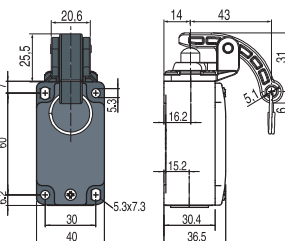
Contact block

|                 |           |                    |             |                    |             |                    |             |                    |             |
|-----------------|-----------|--------------------|-------------|--------------------|-------------|--------------------|-------------|--------------------|-------------|
| 2               | <b>R</b>  | FD 201-M2          | 2x(1NO-1NC) | FD 202-M2          | 2x(1NO-1NC) | FD 204-M2          | 2x(1NO-1NC) | FD 205-M2          | 2x(1NO-1NC) |
| 5               | <b>R</b>  | FD 501-M2          | 1NO+1NC     | FD 502-M2          | 1NO+1NC     | FD 504-M2          | 1NO+1NC     | FD 505-M2          | 1NO+1NC     |
| 6               | <b>L</b>  | FD 601-M2          | 1NO+1NC     | FD 602-M2          | 1NO+1NC     | FD 604-M2          | 1NO+1NC     | FD 605-M2          | 1NO+1NC     |
| 7               | <b>LO</b> | FD 701-M2          | 1NO+1NC     | FD 702-M2          | 1NO+1NC     | FD 704-M2          | 1NO+1NC     | FD 705-M2          | 1NO+1NC     |
| 9               | <b>L</b>  | FD 901-M2          | 2NC         | FD 902-M2          | 2NC         | FD 904-M2          | 2NC         | FD 905-M2          | 2NC         |
| 10              | <b>L</b>  | FD 1001-M2         | 2NO         | FD 1002-M2         | 2NO         | FD 1004-M2         | 2NO         | FD 1005-M2         | 2NO         |
| 11              | <b>R</b>  | FD 1101-M2         | 2NC         | FD 1102-M2         | 2NC         | FD 1104-M2         | 2NC         | FD 1105-M2         | 2NC         |
| 12              | <b>R</b>  | FD 1201-M2         | 2NO         | FD 1202-M2         | 2NO         | FD 1204-M2         | 2NO         | FD 1205-M2         | 2NO         |
| 13              | <b>LV</b> | FD 1301-M2         | 2NC         | FD 1302-M2         | 2NC         | FD 1304-M2         | 2NC         | FD 1305-M2         | 2NC         |
| 14              | <b>LS</b> | FD 1401-M2         | 2NC         | FD 1402-M2         | 2NC         | FD 1404-M2         | 2NC         | FD 1405-M2         | 2NC         |
| 15              | <b>LS</b> | FD 1501-M2         | 2NO         | FD 1502-M2         | 2NO         | FD 1504-M2         | 2NO         | FD 1505-M2         | 2NO         |
| 18              | <b>LA</b> | FD 1801-M2         | 1NO+1NC     | FD 1802-M2         | 1NO+1NC     | FD 1804-M2         | 1NO+1NC     | FD 1805-M2         | 1NO+1NC     |
| 20              | <b>L</b>  | FD 2001-M2         | 1NO+2NC     | FD 2002-M2         | 1NO+2NC     | FD 2004-M2         | 1NO+2NC     | FD 2005-M2         | 1NO+2NC     |
| 21              | <b>L</b>  | FD 2101-M2         | 3NC         | FD 2102-M2         | 3NC         | FD 2104-M2         | 3NC         | FD 2105-M2         | 3NC         |
| 22              | <b>L</b>  | FD 2201-M2         | 2NO+1NC     | FD 2202-M2         | 2NO+1NC     | FD 2204-M2         | 2NO+1NC     | FD 2205-M2         | 2NO+1NC     |
| E1              |           | FD E101-M2         | 1NO-1NC     | FD E102-M2         | 1NO-1NC     | FD E104-M2         | 1NO-1NC     | FD E105-M2         | 1NO-1NC     |
| Max. speed      |           | page 227 - type 4  |             | page 227 - type 3  |             | 0.5 m/s            |             | page 227 - type 3  |             |
| Actuating force |           | 8 N (25 N)         |             | 6 N (25 N)         |             | 0.17 Nm            |             | 6 N (25 N)         |             |
| Travel diagrams |           | page 228 - group 1 |             | page 228 - group 2 |             | page 228 - group 1 |             | page 228 - group 2 |             |

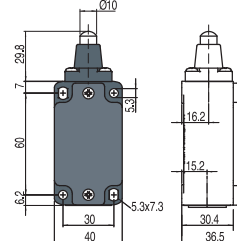
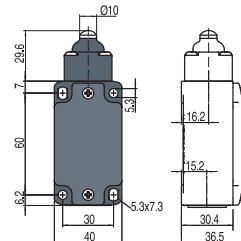
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**LS** = slow action, shifted  
**LV** = slow action, shifted and spaced  
**LI** = slow action, independent  
**LA** = slow action, close  
 = electronic, PNP



Rope switch for signalling



External gasket



Contact block

|                 |           |                    |             |            |             |                    |             |                    |             |
|-----------------|-----------|--------------------|-------------|------------|-------------|--------------------|-------------|--------------------|-------------|
| 2               | <b>R</b>  | FD 208-M2          | 2x(1NO-1NC) | FD 209-M2  | 2x(1NO-1NC) | FD 210-M2          | 2x(1NO-1NC) | FD 211-M2          | 2x(1NO-1NC) |
| 5               | <b>R</b>  | FD 508-M2          | 1NO+1NC     | FD 509-M2  | 1NO+1NC     | FD 510-M2          | 1NO+1NC     | FD 511-M2          | 1NO+1NC     |
| 6               | <b>L</b>  | FD 608-M2          | 1NO+1NC     | FD 609-M2  | 1NO+1NC     | FD 610-M2          | 1NO+1NC     | FD 611-M2          | 1NO+1NC     |
| 7               | <b>LO</b> | FD 708-M2          | 1NO+1NC     | FD 709-M2  | 1NO+1NC     | FD 710-M2          | 1NO+1NC     | FD 711-M2          | 1NO+1NC     |
| 9               | <b>L</b>  | FD 908-M2          | 2NC         | FD 909-M2  | 2NC         | FD 910-M2          | 2NC         | FD 911-M2          | 2NC         |
| 10              | <b>L</b>  | FD 1008-M2         | 2NO         | FD 1009-M2 | 2NO         | FD 1010-M2         | 2NO         | FD 1011-M2         | 2NO         |
| 11              | <b>R</b>  | FD 1108-M2         | 2NC         | FD 1109-M2 | 2NC         | FD 1110-M2         | 2NC         | FD 1111-M2         | 2NC         |
| 12              | <b>R</b>  | FD 1208-M2         | 2NO         | FD 1209-M2 | 2NO         | FD 1210-M2         | 2NO         | FD 1211-M2         | 2NO         |
| 13              | <b>LV</b> | FD 1308-M2         | 2NC         | FD 1309-M2 | 2NC         | FD 1310-M2         | 2NC         | FD 1311-M2         | 2NC         |
| 14              | <b>LS</b> | FD 1408-M2         | 2NC         | FD 1409-M2 | 2NC         | FD 1410-M2         | 2NC         | FD 1411-M2         | 2NC         |
| 15              | <b>LS</b> | FD 1508-M2         | 2NO         | FD 1509-M2 | 2NO         | FD 1510-M2         | 2NO         | FD 1511-M2         | 2NO         |
| 18              | <b>LA</b> | FD 1808-M2         | 1NO+1NC     | FD 1809-M2 | 1NO+1NC     | FD 1810-M2         | 1NO+1NC     | FD 1811-M2         | 1NO+1NC     |
| 20              | <b>L</b>  | FD 2008-M2         | 1NO+2NC     | FD 2009-M2 | 1NO+2NC     | FD 2010-M2         | 1NO+2NC     | FD 2011-M2         | 1NO+2NC     |
| 21              | <b>L</b>  | FD 2108-M2         | 3NC         | FD 2109-M2 | 3NC         | FD 2110-M2         | 3NC         | FD 2111-M2         | 3NC         |
| 22              | <b>L</b>  | FD 2208-M2         | 2NO+1NC     | FD 2209-M2 | 2NO+1NC     | FD 2210-M2         | 2NO+1NC     | FD 2211-M2         | 2NO+1NC     |
| E1              |           | FD E108-M2         | 1NO-1NC     | FD E109-M2 | 1NO-1NC     | FD E110-M2         | 1NO-1NC     | FD E111-M2         | 1NO-1NC     |
| Max. speed      |           | page 227 - type 4  |             | 0.5 m/s    |             | page 227 - type 4  |             | page 227 - type 4  |             |
| Actuating force |           | 8 N (25 N)         |             | 7 N        |             | 11 N (25 N)        |             | 8 N (25 N)         |             |
| Travel diagrams |           | page 228 - group 1 |             | /          |             | page 228 - group 1 |             | page 228 - group 1 |             |

All values in the drawings are in mm

Accessories See page 207

→ The 2D and 3D files are available at [www.pizzato.com](http://www.pizzato.com)



| Contact type                                                                                                                                                                                                                                                                              | External gasket    |                       | Ball, Ø 8 mm, stainless steel |                       | Ball, Ø 12.7 mm, stainless steel |                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------------|-------------------------------|-----------------------|----------------------------------|-----------------------|
| <b>R</b> = snap action<br><b>L</b> = slow action<br><b>LO</b> = slow action, make before break<br><b>LS</b> = slow action, shifted<br><b>LV</b> = slow action, shifted and spaced<br><b>LI</b> = slow action, independent<br><b>LA</b> = slow action, close<br><b>A</b> = electronic, PNP |                    |                       |                               |                       |                                  |                       |
| Contact block                                                                                                                                                                                                                                                                             | External gasket    |                       | Ball, Ø 8 mm, stainless steel |                       | Ball, Ø 12.7 mm, stainless steel |                       |
| 2                                                                                                                                                                                                                                                                                         | <b>R</b>           | FD 215-M2 2x(1NO-1NC) | <b>R</b>                      | FD 216-M2 2x(1NO-1NC) | <b>R</b>                         | FD 218-M2 2x(1NO-1NC) |
| 5                                                                                                                                                                                                                                                                                         | <b>R</b>           | FD 515-M2 1NO+1NC     | <b>R</b>                      | FD 516-M2 1NO+1NC     | <b>R</b>                         | FD 518-M2 1NO+1NC     |
| 6                                                                                                                                                                                                                                                                                         | <b>L</b>           | FD 615-M2 1NO+1NC     | <b>L</b>                      | FD 616-M2 1NO+1NC     | <b>L</b>                         | FD 618-M2 1NO+1NC     |
| 7                                                                                                                                                                                                                                                                                         | <b>LO</b>          | FD 715-M2 1NO+1NC     | <b>LO</b>                     | FD 716-M2 1NO+1NC     | <b>LO</b>                        | FD 718-M2 1NO+1NC     |
| 9                                                                                                                                                                                                                                                                                         | <b>L</b>           | FD 915-M2 2NC         | <b>L</b>                      | FD 916-M2 2NC         | <b>L</b>                         | FD 918-M2 2NC         |
| 10                                                                                                                                                                                                                                                                                        | <b>L</b>           | FD 1015-M2 2NO        | <b>L</b>                      | FD 1016-M2 2NO        | <b>L</b>                         | FD 1018-M2 2NO        |
| 11                                                                                                                                                                                                                                                                                        | <b>R</b>           | FD 1115-M2 2NC        | <b>R</b>                      | FD 1116-M2 2NC        | <b>R</b>                         | FD 1118-M2 2NC        |
| 12                                                                                                                                                                                                                                                                                        | <b>R</b>           | FD 1215-M2 2NO        | <b>R</b>                      | FD 1216-M2 2NO        | <b>R</b>                         | FD 1218-M2 2NO        |
| 13                                                                                                                                                                                                                                                                                        | <b>LV</b>          | FD 1315-M2 2NC        | <b>LV</b>                     | FD 1316-M2 2NC        | <b>LV</b>                        | FD 1318-M2 2NC        |
| 14                                                                                                                                                                                                                                                                                        | <b>LS</b>          | FD 1415-M2 2NC        | <b>LS</b>                     | FD 1416-M2 2NC        | <b>LS</b>                        | FD 1418-M2 2NC        |
| 15                                                                                                                                                                                                                                                                                        | <b>LS</b>          | FD 1515-M2 2NO        | <b>LS</b>                     | FD 1516-M2 2NO        | <b>LS</b>                        | FD 1518-M2 2NO        |
| 18                                                                                                                                                                                                                                                                                        | <b>LA</b>          | FD 1815-M2 1NO+1NC    | <b>LA</b>                     | FD 1816-M2 1NO+1NC    | <b>LA</b>                        | FD 1818-M2 1NO+1NC    |
| 20                                                                                                                                                                                                                                                                                        | <b>L</b>           | FD 2015-M2 1NO+2NC    | <b>L</b>                      | FD 2016-M2 1NO+2NC    | <b>L</b>                         | FD 2018-M2 1NO+2NC    |
| 21                                                                                                                                                                                                                                                                                        | <b>L</b>           | FD 2115-M2 3NC        | <b>L</b>                      | FD 2116-M2 3NC        | <b>L</b>                         | FD 2118-M2 3NC        |
| 22                                                                                                                                                                                                                                                                                        | <b>L</b>           | FD 2215-M2 2NO+1NC    | <b>L</b>                      | FD 2216-M2 2NO+1NC    | <b>L</b>                         | FD 2218-M2 2NO+1NC    |
| E1                                                                                                                                                                                                                                                                                        | <b>A</b>           | FD E115-M2 1NO-1NC    | <b>A</b>                      | FD E116-M2 1NO-1NC    | <b>A</b>                         | FD E118-M2 1NO-1NC    |
| Max. speed                                                                                                                                                                                                                                                                                | page 227 - type 2  |                       | page 227 - type 2             |                       | page 227 - type 4                |                       |
| Actuating force                                                                                                                                                                                                                                                                           | 11 N (25 N)        |                       | 8 N (25 N)                    |                       | 8 N (25 N)                       |                       |
| Travel diagrams                                                                                                                                                                                                                                                                           | page 228 - group 1 |                       | page 228 - group 1            |                       | page 228 - group 1               |                       |

| Contact type                                                                                                                                                                                                                                                                              | External gasket    |                       | External gasket    |                       | External gasket    |                       | Other rollers available. See page 24 |                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------------|--------------------|-----------------------|--------------------|-----------------------|--------------------------------------|-----------------------|
| <b>R</b> = snap action<br><b>L</b> = slow action<br><b>LO</b> = slow action, make before break<br><b>LS</b> = slow action, shifted<br><b>LV</b> = slow action, shifted and spaced<br><b>LI</b> = slow action, independent<br><b>LA</b> = slow action, close<br><b>A</b> = electronic, PNP |                    |                       |                    |                       |                    |                       |                                      |                       |
| Contact block                                                                                                                                                                                                                                                                             | External gasket    |                       | External gasket    |                       | External gasket    |                       | Other rollers available. See page 24 |                       |
| 2                                                                                                                                                                                                                                                                                         | <b>R</b>           | FD 220-M2 2x(1NO-1NC) | <b>R</b>           | FD 221-M2 2x(1NO-1NC) | <b>R</b>           | FD 225-M2 2x(1NO-1NC) | <b>R</b>                             | FD 231-M2 2x(1NO-1NC) |
| 5                                                                                                                                                                                                                                                                                         | <b>R</b>           | FD 520-M2 1NO+1NC     | <b>R</b>           | FD 521-M2 1NO+1NC     | <b>R</b>           | FD 525-M2 1NO+1NC     | <b>R</b>                             | FD 531-M2 1NO+1NC     |
| 6                                                                                                                                                                                                                                                                                         | <b>L</b>           | /                     | /                  | /                     | /                  | /                     | <b>R</b>                             | FD 631-M2 1NO+1NC     |
| 7                                                                                                                                                                                                                                                                                         | <b>LO</b>          | /                     | /                  | /                     | /                  | /                     | <b>R</b>                             | FD 731-M2 1NO+1NC     |
| 9                                                                                                                                                                                                                                                                                         | <b>L</b>           | /                     | /                  | /                     | /                  | /                     | <b>R</b>                             | FD 931-M2 2NC         |
| 10                                                                                                                                                                                                                                                                                        | <b>L</b>           | FD 1020-M2 2NO        | <b>L</b>           | FD 1021-M2 2NO        | <b>L</b>           | FD 1025-M2 2NO        | <b>R</b>                             | FD 1031-M2 2NO        |
| 11                                                                                                                                                                                                                                                                                        | <b>R</b>           | /                     | /                  | /                     | /                  | /                     | <b>R</b>                             | FD 1131-M2 2NC        |
| 12                                                                                                                                                                                                                                                                                        | <b>R</b>           | /                     | /                  | /                     | /                  | /                     | <b>R</b>                             | FD 1231-M2 2NO        |
| 13                                                                                                                                                                                                                                                                                        | <b>LV</b>          | /                     | /                  | /                     | /                  | /                     | <b>R</b>                             | FD 1331-M2 2NC        |
| 14                                                                                                                                                                                                                                                                                        | <b>LS</b>          | /                     | /                  | /                     | /                  | /                     | <b>R</b>                             | FD 1431-M2 2NC        |
| 15                                                                                                                                                                                                                                                                                        | <b>LS</b>          | /                     | /                  | /                     | /                  | /                     | <b>R</b>                             | FD 1531-M2 2NO        |
| 16                                                                                                                                                                                                                                                                                        | <b>LI</b>          | /                     | /                  | /                     | /                  | /                     | <b>R</b>                             | FD 1631-M2 2NC        |
| 18                                                                                                                                                                                                                                                                                        | <b>LA</b>          | FD 1820-M2 1NO+1NC    | <b>LA</b>          | FD 1821-M2 1NO+1NC    | <b>LA</b>          | FD 1825-M2 1NO+1NC    | <b>R</b>                             | FD 1831-M2 1NO+1NC    |
| 20                                                                                                                                                                                                                                                                                        | <b>L</b>           | FD 2020-M2 1NO+2NC    | <b>L</b>           | FD 2021-M2 1NO+2NC    | <b>L</b>           | FD 2025-M2 1NO+2NC    | <b>R</b>                             | FD 2031-M2 1NO+2NC    |
| 21                                                                                                                                                                                                                                                                                        | <b>L</b>           | FD 2120-M2 3NC        | <b>L</b>           | FD 2121-M2 3NC        | <b>L</b>           | FD 2125-M2 3NC        | <b>R</b>                             | FD 2131-M2 3NC        |
| 22                                                                                                                                                                                                                                                                                        | <b>L</b>           | FD 2220-M2 2NO+1NC    | <b>L</b>           | FD 2221-M2 2NO+1NC    | <b>L</b>           | FD 2225-M2 2NO+1NC    | <b>R</b>                             | FD 2231-M2 2NO+1NC    |
| E1                                                                                                                                                                                                                                                                                        | <b>A</b>           | FD E120-M2 1NO-1NC    | <b>A</b>           | FD E121-M2 1NO-1NC    | <b>A</b>           | FD E125-M2 1NO-1NC    | <b>R</b>                             | FD E131-M2 1NO-1NC    |
| Max. speed                                                                                                                                                                                                                                                                                | 1 m/s              |                       | 1 m/s              |                       | 1 m/s              |                       | page 227 - type 1                    |                       |
| Actuating force                                                                                                                                                                                                                                                                           | 0.09 Nm            |                       | 0.08 Nm            |                       | 0.14 Nm            |                       | 0.1 Nm (0.25 Nm)                     |                       |
| Travel diagrams                                                                                                                                                                                                                                                                           | page 228 - group 3 |                       | page 228 - group 3 |                       | page 228 - group 3 |                       | page 228 - group 4                   |                       |

All values in the drawings are in mm

Accessories See page 207

The 2D and 3D files are available at [www.pizzato.com](http://www.pizzato.com)

Contact type

**R** = snap action  
**L** = slow action  
**LO** = slow action, make before break  
**LS** = slow action, shifted  
**LV** = slow action, shifted and spaced  
**LI** = slow action, independent  
**LA** = slow action, close  
 = electronic, PNP

Contact block

|                 |                                                                                  |                    |             |                    |             |                    |             |                                                                                                         |                                                                                             |
|-----------------|----------------------------------------------------------------------------------|--------------------|-------------|--------------------|-------------|--------------------|-------------|---------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| 2               | <b>R</b>                                                                         | FD 232-M2          | 2x(1NO-1NC) | FD 233-M2          | 2x(1NO-1NC) | FD 234-M2          | 2x(1NO-1NC) | FD 235-M2                                                                                               | 2x(1NO-1NC)                                                                                 |
| 5               | <b>R</b>                                                                         | FD 532-M2          | 1NO+1NC     | FD 533-M2          | 1NO+1NC     | FD 534-M2          | 1NO+1NC     | FD 535-M2                                                                                               |  1NO+1NC |
| 6               | <b>L</b>                                                                         | FD 632-M2          | 1NO+1NC     | FD 633-M2          | 1NO+1NC     | FD 634-M2          | 1NO+1NC     | FD 635-M2                                                                                               |  1NO+1NC |
| 7               | <b>LO</b>                                                                        | FD 732-M2          | 1NO+1NC     | FD 733-M2          | 1NO+1NC     | FD 734-M2          | 1NO+1NC     | FD 735-M2                                                                                               |  1NO+1NC |
| 9               | <b>L</b>                                                                         | FD 932-M2          | 2NC         | FD 933-M2          | 2NC         | FD 934-M2          | 2NC         | FD 935-M2                                                                                               |  2NC     |
| 10              | <b>L</b>                                                                         | FD 1032-M2         | 2NO         | FD 1033-M2         | 2NO         | FD 1034-M2         | 2NO         | FD 1035-M2                                                                                              | 2NO                                                                                         |
| 11              | <b>R</b>                                                                         | FD 1132-M2         | 2NC         | FD 1133-M2         | 2NC         | FD 1134-M2         | 2NC         | FD 1135-M2                                                                                              |  2NC     |
| 12              | <b>R</b>                                                                         | FD 1232-M2         | 2NO         | FD 1233-M2         | 2NO         | FD 1234-M2         | 2NO         | FD 1235-M2                                                                                              | 2NO                                                                                         |
| 13              | <b>LV</b>                                                                        | FD 1332-M2         | 2NC         | FD 1333-M2         | 2NC         | FD 1334-M2         | 2NC         | FD 1335-M2                                                                                              |  2NC     |
| 14              | <b>LS</b>                                                                        | FD 1432-M2         | 2NC         | FD 1433-M2         | 2NC         | FD 1434-M2         | 2NC         | FD 1435-M2                                                                                              |  2NC     |
| 15              | <b>LS</b>                                                                        | FD 1532-M2         | 2NO         | FD 1533-M2         | 2NO         | FD 1534-M2         | 2NO         | FD 1535-M2                                                                                              | 2NO                                                                                         |
| 16              | <b>LI</b>                                                                        | FD 1632-M2         | 2NC         | FD 1633-M2         | 2NC         | FD 1634-M2         | 2NC         | FD 1635-M2                                                                                              |  2NC     |
| 18              | <b>LA</b>                                                                        | FD 1832-M2         | 1NO+1NC     | FD 1833-M2         | 1NO+1NC     | FD 1834-M2         | 1NO+1NC     | FD 1835-M2                                                                                              |  1NO+1NC |
| 20              | <b>L</b>                                                                         | FD 2032-M2         | 1NO+2NC     | FD 2033-M2         | 1NO+2NC     | FD 2034-M2         | 1NO+2NC     | FD 2035-M2                                                                                              |  1NO+2NC |
| 21              | <b>L</b>                                                                         | FD 2132-M2         | 3NC         | FD 2133-M2         | 3NC         | FD 2134-M2         | 3NC         | FD 2135-M2                                                                                              |  3NC     |
| 22              | <b>L</b>                                                                         | FD 2232-M2         | 2NO+1NC     | FD 2233-M2         | 2NO+1NC     | FD 2234-M2         | 2NO+1NC     | FD 2235-M2                                                                                              |  2NO+1NC |
| E1              |  | FD E132-M2         | 1NO-1NC     | FD E133-M2         | 1NO-1NC     | FD E134-M2         | 1NO-1NC     | FD E135-M2                                                                                              | 1NO-1NC                                                                                     |
| Max. speed      |                                                                                  | 1.5 m/s            |             | 1.5 m/s            |             | 1 m/s              |             | page 227 - type 1                                                                                       |                                                                                             |
| Actuating force |                                                                                  | 0.1 Nm             |             | 0.1 Nm             |             | 0.1 Nm             |             | 0.1 Nm (0.25 Nm  ) |                                                                                             |
| Travel diagrams |                                                                                  | page 228 - group 4 |             | page 228 - group 4 |             | page 228 - group 4 |             | page 228 - group 4                                                                                      |                                                                                             |

Contact type

**R** = snap action  
**L** = slow action  
**LO** = slow action, make before break  
**LS** = slow action, shifted  
**LV** = slow action, shifted and spaced  
**LI** = slow action, independent  
**LA** = slow action, close  
 = electronic, PNP

Contact block

|                 |                                                                                    |                    |             |                     |             |                     |             |                     |             |
|-----------------|------------------------------------------------------------------------------------|--------------------|-------------|---------------------|-------------|---------------------|-------------|---------------------|-------------|
| 2               | <b>R</b>                                                                           | FD 236-M2          | 2x(1NO-1NC) | FD 251-M2           | 2x(1NO-1NC) | FD 252-M2           | 2x(1NO-1NC) | FD 253-E11M2        | 2x(1NO-1NC) |
| 5               | <b>R</b>                                                                           | FD 536-M2          | 1NO+1NC     | FD 551-M2           | ➔ 1NO+1NC   | FD 552-M2           | ➔ 1NO+1NC   | FD 553-E11M2V9      | ➔ 1NO+1NC   |
| 6               | <b>L</b>                                                                           | FD 636-M2          | 1NO+1NC     | FD 651-M2           | ➔ 1NO+1NC   | FD 652-M2           | ➔ 1NO+1NC   | FD 653-E11M2V9      | ➔ 1NO+1NC   |
| 7               | <b>LO</b>                                                                          | FD 736-M2          | 1NO+1NC     | FD 751-M2           | ➔ 1NO+1NC   | FD 752-M2           | ➔ 1NO+1NC   | FD 753-E11M2V9      | ➔ 1NO+1NC   |
| 9               | <b>L</b>                                                                           | FD 936-M2          | 2NC         | FD 951-M2           | ➔ 2NC       | FD 952-M2           | ➔ 2NC       | FD 953-E11M2V9      | ➔ 2NC       |
| 10              | <b>L</b>                                                                           | FD 1036-M2         | 2NO         | FD 1051-M2          | 2NO         | FD 1052-M2          | 2NO         | FD 1053-E11M2V9     | 2NO         |
| 11              | <b>R</b>                                                                           | FD 1136-M2         | 2NC         | FD 1151-M2          | ➔ 2NC       | FD 1152-M2          | ➔ 2NC       | /                   |             |
| 12              | <b>R</b>                                                                           | FD 1236-M2         | 2NO         | FD 1251-M2          | 2NO         | FD 1252-M2          | 2NO         | FD 1253-E11M2V9     | 2NO         |
| 13              | <b>LV</b>                                                                          | FD 1336-M2         | 2NC         | FD 1351-M2          | ➔ 2NC       | FD 1352-M2          | ➔ 2NC       | FD 1353-E11M2V9     | ➔ 2NC       |
| 14              | <b>LS</b>                                                                          | FD 1436-M2         | 2NC         | FD 1451-M2          | ➔ 2NC       | FD 1452-M2          | ➔ 2NC       | FD 1453-E11M2V9     | ➔ 2NC       |
| 15              | <b>LS</b>                                                                          | FD 1536-M2         | 2NO         | FD 1551-M2          | 2NO         | FD 1552-M2          | 2NO         | FD 1553-E11M2V9     | 2NO         |
| 16              | <b>LI</b>                                                                          | FD 1636-M2         | 2NC         | /                   |             | /                   |             | /                   |             |
| 18              | <b>LA</b>                                                                          | FD 1836-M2         | 1NO+1NC     | FD 1851-M2          | ➔ 1NO+1NC   | FD 1852-M2          | ➔ 1NO+1NC   | FD 1853-E11M2V9     | ➔ 1NO+1NC   |
| 20              | <b>L</b>                                                                           | FD 2036-M2         | 1NO+2NC     | FD 2051-M2          | ➔ 1NO+2NC   | FD 2052-M2          | ➔ 1NO+2NC   | FD 2053-E11M2V9     | ➔ 1NO+2NC   |
| 21              | <b>L</b>                                                                           | FD 2136-M2         | 3NC         | FD 2151-M2          | ➔ 3NC       | FD 2152-M2          | ➔ 3NC       | FD 2153-E11M2V9     | ➔ 3NC       |
| 22              | <b>L</b>                                                                           | FD 2236-M2         | 2NO+1NC     | FD 2251-M2          | ➔ 2NO+1NC   | FD 2252-M2          | ➔ 2NO+1NC   | FD 2253-E11M2V9     | ➔ 2NO+1NC   |
| E1              |  | FD E136-M2         | 1NO-1NC     | FD E151-M2          | 1NO-1NC     | FD E152-M2          | 1NO-1NC     | FD E153-E11M2V9     | 1NO-1NC     |
| Max. speed      |                                                                                    | 1.5 m/s            |             | page 227 - type 1   |             | page 227 - type 1   |             | 0.5 m/s             |             |
| Actuating force |                                                                                    | 0.1 Nm             |             | 0.06 Nm (0.25 Nm ➔) |             | 0.06 Nm (0.25 Nm ➔) |             | 0.03 Nm (0.25 Nm ➔) |             |
| Travel diagrams |                                                                                    | page 228 - group 4 |             | page 228 - group 4  |             | page 228 - group 4  |             | page 228 - group 5  |             |

<sup>(1)</sup> Positive opening only with actuator set to max. See page 24.

All values in the drawings are in mm

Accessories See page 207

➔ The 2D and 3D files are available at [www.pizzato.com](http://www.pizzato.com)



- Contact type
- R** = snap action
  - L** = slow action
  - LO** = slow action, make before break
  - LS** = slow action, shifted
  - LV** = slow action, shifted and spaced
  - LI** = slow action, independent
  - LA** = slow action, close
  - = electronic, PNP

## Contact block

| Other rollers available. See page 24 |           |            | Other rollers available. See page 24 |            |             | With stainless steel rollers on request                                                                                            |   |           | With stainless steel rollers on request                                                                                          |           |         |
|--------------------------------------|-----------|------------|--------------------------------------|------------|-------------|------------------------------------------------------------------------------------------------------------------------------------|---|-----------|----------------------------------------------------------------------------------------------------------------------------------|-----------|---------|
|                                      |           |            |                                      |            |             |                                                                                                                                    |   |           |                                                                                                                                  |           |         |
| 2                                    | <b>R</b>  | FD 256-M2  | 2x(1NO-1NC)                          | FD 257-M2  | 2x(1NO-1NC) | /                                                                                                                                  | / | FD 541-M2 | 1NO+1NC                                                                                                                          | FD 542-M2 | 1NO+1NC |
| 5                                    | <b>R</b>  | FD 556-M2  | 1NO+1NC                              | FD 557-M2  | 1NO+1NC     | <br>Bistable switch with lyra lever, single track<br><br>S = mechanical switching point<br>positive opening on contacts 21-22 only |   |           | <br>Bistable switch with lyra lever, dual track<br><br>S = mechanical switching point<br>positive opening on contacts 21-22 only |           |         |
| 6                                    | <b>L</b>  | FD 656-M2  | 1NO+1NC                              | FD 657-M2  | 1NO+1NC     |                                                                                                                                    |   |           |                                                                                                                                  |           |         |
| 7                                    | <b>LO</b> | FD 756-M2  | 1NO+1NC                              | FD 757-M2  | 1NO+1NC     |                                                                                                                                    |   |           |                                                                                                                                  |           |         |
| 9                                    | <b>L</b>  | FD 956-M2  | 2NC                                  | FD 957-M2  | 2NC         |                                                                                                                                    |   |           |                                                                                                                                  |           |         |
| 10                                   | <b>L</b>  | FD 1056-M2 | 2NO                                  | FD 1057-M2 | 2NO         |                                                                                                                                    |   |           |                                                                                                                                  |           |         |
| 11                                   | <b>R</b>  | FD 1156-M2 | 2NC                                  | FD 1157-M2 | 2NC         |                                                                                                                                    |   |           |                                                                                                                                  |           |         |
| 12                                   | <b>R</b>  | FD 1256-M2 | 2NO                                  | FD 1257-M2 | 2NO         |                                                                                                                                    |   |           |                                                                                                                                  |           |         |
| 13                                   | <b>LV</b> | FD 1356-M2 | 2NC                                  | FD 1357-M2 | 2NC         |                                                                                                                                    |   |           |                                                                                                                                  |           |         |
| 14                                   | <b>LS</b> | FD 1456-M2 | 2NC                                  | FD 1457-M2 | 2NC         |                                                                                                                                    |   |           |                                                                                                                                  |           |         |
| 15                                   | <b>LS</b> | FD 1556-M2 | 2NO                                  | FD 1557-M2 | 2NO         |                                                                                                                                    |   |           |                                                                                                                                  |           |         |
| 16                                   | <b>LI</b> | FD 1656-M2 | 2NC                                  | FD 1657-M2 | 2NC         |                                                                                                                                    |   |           |                                                                                                                                  |           |         |
| 18                                   | <b>LA</b> | FD 1856-M2 | 1NO+1NC                              | FD 1857-M2 | 1NO+1NC     |                                                                                                                                    |   |           |                                                                                                                                  |           |         |
| 20                                   | <b>L</b>  | FD 2056-M2 | 1NO+2NC                              | FD 2057-M2 | 1NO+2NC     |                                                                                                                                    |   |           |                                                                                                                                  |           |         |
| 21                                   | <b>L</b>  | FD 2156-M2 | 3NC                                  | FD 2157-M2 | 3NC         |                                                                                                                                    |   |           |                                                                                                                                  |           |         |
| 22                                   | <b>L</b>  | FD 2256-M2 | 2NO+1NC                              | FD 2257-M2 | 2NO+1NC     |                                                                                                                                    |   |           |                                                                                                                                  |           |         |
| E1                                   |           | FD E156-M2 | 1NO-1NC                              | FD E157-M2 | 1NO-1NC     |                                                                                                                                    |   |           |                                                                                                                                  |           |         |
| Max. speed                           |           |            | page 227 - type 1                    |            |             | 0.5 m/s with cam at 30°                                                                                                            |   |           | 0.5 m/s with cam at 30°                                                                                                          |           |         |
| Actuating force                      |           |            | 0.1 Nm (0.25 Nm )                    |            |             | 0.21 Nm (0.36 Nm )                                                                                                                 |   |           | 0.21 Nm (0.36 Nm )                                                                                                               |           |         |
| Travel diagrams                      |           |            | page 228 - group 4                   |            |             | /                                                                                                                                  |   |           | /                                                                                                                                |           |         |

- Contact type
- R** = snap action
  - L** = slow action
  - LO** = slow action, make before break
  - LS** = slow action, shifted
  - LV** = slow action, shifted and spaced
  - LI** = slow action, independent
  - LA** = slow action, close
  - = electronic, PNP

## Contact block

|                            |           |                           |             |
|----------------------------|-----------|---------------------------|-------------|
| Rope switch for signalling |           |                           |             |
|                            |           |                           |             |
| 2                          | <b>R</b>  | FD 276-M2                 | 2x(1NO-1NC) |
| 5                          | <b>R</b>  | FD 576-M2                 | 1NO+1NC     |
| 6                          | <b>L</b>  | FD 676-M2                 | 1NO+1NC     |
| 7                          | <b>LO</b> | FD 776-M2                 | 1NO+1NC     |
| 9                          | <b>L</b>  | FD 976-M2                 | 2NO         |
| 10                         | <b>L</b>  | FD 1076-M2                | 2NC         |
| 11                         | <b>R</b>  | FD 1176-M2                | 2NO         |
| 12                         | <b>R</b>  | FD 1276-M2                | 2NC         |
| 13                         | <b>LV</b> | FD 1376-M2                | 2NO         |
| 14                         | <b>LS</b> | FD 1476-M2                | 2NO         |
| 15                         | <b>LS</b> | FD 1576-M2                | 2NC         |
| 16                         | <b>LI</b> | /                         |             |
| 18                         | <b>LA</b> | FD 1876-M2                | 1NO+1NC     |
| 20                         | <b>L</b>  | FD 2076-M2                | 2NO+1NC     |
| 21                         | <b>L</b>  | FD 2176-M2                | 3NO         |
| 22                         | <b>L</b>  | FD 2276-M2                | 1NO+2NC     |
| E1                         |           | /                         |             |
| Max. speed                 |           | 0.5 m/s                   |             |
| Actuating force            |           | initial 20 N - final 40 N |             |
| Travel diagrams            |           | page 228 - group 6        |             |

All values in the drawings are in mm

Accessories See page 207

→ The 2D and 3D files are available at [www.pizzato.com](http://www.pizzato.com)

# 2 FD series position switches

## Position switches with swivelling lever without actuator

Contact type

- R** = snap action
- L** = slow action
- LO** = slow action, make before break
- LS** = slow action, shifted
- LV** = slow action, shifted and spaced
- LI** = slow action, independent
- LA** = slow action, close
- A** = electronic, PNP

Contact block

|                 |           |                    |             |                     |             |                     |           |
|-----------------|-----------|--------------------|-------------|---------------------|-------------|---------------------|-----------|
| contact block   |           |                    |             |                     |             |                     |           |
| 2               | <b>R</b>  | FD 238-M2          | 2x(1NO-1NC) | FD 258-M2           | 2x(1NO-1NC) | /                   |           |
| 5               | <b>R</b>  | FD 538-M2          | ➡ 1NO+1NC   | FD 558-M2           | ➡ 1NO+1NC   | FD 540-M2           | ➡ 1NO+1NC |
| 6               | <b>L</b>  | FD 638-M2          | ➡ 1NO+1NC   | FD 658-M2           | ➡ 1NO+1NC   |                     |           |
| 7               | <b>LO</b> | FD 738-M2          | ➡ 1NO+1NC   | FD 758-M2           | ➡ 1NO+1NC   |                     |           |
| 9               | <b>L</b>  | FD 938-M2          | ➡ 2NC       | FD 958-M2           | ➡ 2NC       |                     |           |
| 10              | <b>L</b>  | FD 1038-M2         | 2NO         | FD 1058-M2          | 2NO         |                     |           |
| 11              | <b>R</b>  | FD 1138-M2         | ➡ 2NC       | FD 1158-M2          | ➡ 2NC       |                     |           |
| 12              | <b>R</b>  | FD 1238-M2         | 2NO         | FD 1258-M2          | 2NO         |                     |           |
| 13              | <b>LV</b> | FD 1338-M2         | ➡ 2NC       | FD 1358-M2          | ➡ 2NC       |                     |           |
| 14              | <b>LS</b> | FD 1438-M2         | ➡ 2NC       | FD 1458-M2          | ➡ 2NC       |                     |           |
| 15              | <b>LS</b> | FD 1538-M2         | 2NO         | FD 1558-M2          | 2NO         |                     |           |
| 16              | <b>LI</b> | FD 1638-M2         | ➡ 2NC       |                     | /           |                     |           |
| 18              | <b>LA</b> | FD 1838-M2         | ➡ 1NO+1NC   | FD 1858-M2          | ➡ 1NO+1NC   |                     |           |
| 20              | <b>L</b>  | FD 2038-M2         | ➡ 1NO+2NC   | FD 2058-M2          | ➡ 1NO+2NC   |                     |           |
| 21              | <b>L</b>  | FD 2138-M2         | ➡ 3NC       | FD 2158-M2          | ➡ 3NC       |                     |           |
| 22              | <b>L</b>  | FD 2238-M2         | ➡ 2NO+1NC   | FD 2258-M2          | ➡ 2NO+1NC   |                     |           |
| E1              | <b>A</b>  | FD E138-M2         | 1NO-1NC     | FD E158-M2          | 1NO-1NC     |                     |           |
| Actuating force |           | 0.1 Nm (0.25 Nm ➡) |             | 0.06 Nm (0.25 Nm ➡) |             | 0.21 Nm (0.36 Nm ➡) |           |
| Travel diagrams |           | page 228 - group 4 |             | page 228 - group 4  |             | /                   |           |

Bistable switch

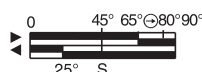
S = mechanical switching point  
positive opening on contacts 21-22 only

### IMPORTANT

**For safety applications:** join only switches and actuators marked with symbol  $\rightarrow$  next to the product code.

For more information about safety applications see details on page 225.

Bistable switch



S = mechanical switching point  
positive opening on contacts 21-22 only

## Separate actuators

**IMPORTANT:** These separate actuators can be used only with items of the FD, FP, FL, FC series.

| Technopolymer roller<br>Ø 20 mm | Adjustable round rod<br>Ø 3x125 mm | Adjustable square rod,<br>3x3x125 mm | Spring rod with plastic tip      | Adjustable actuator with<br>technopolymer roller | Adjustable glass fibre rod                              |                                  |
|---------------------------------|------------------------------------|--------------------------------------|----------------------------------|--------------------------------------------------|---------------------------------------------------------|----------------------------------|
|                                 |                                    |                                      |                                  |                                                  |                                                         |                                  |
| VF L31 →                        | VF L32 (3)                         | VF L33 (3)                           | VF L34                           | VF L35 → (1) (3)                                 | VF L36 (3)                                              |                                  |
| Lyra actuator,<br>single track  | Lyra actuator,<br>dual track       | Technopolymer roller,<br>Ø 20 mm     | Technopolymer roller,<br>Ø 20 mm | Porcelain roller                                 | Adjustable safety actuator with<br>technopolymer roller | Technopolymer roller,<br>Ø 20 mm |
|                                 |                                    |                                      |                                  |                                                  |                                                         |                                  |
| VF L41 →                        | VF L42 →                           | VF L51 →                             | VF L52 →                         | VF L53 → (2)                                     | VF L56 → (3)                                            | VF L57 →                         |

All values in the drawings are in mm

Accessories See page 207

$\rightarrow$  The 2D and 3D files are available at [www.pizzato.com](http://www.pizzato.com)