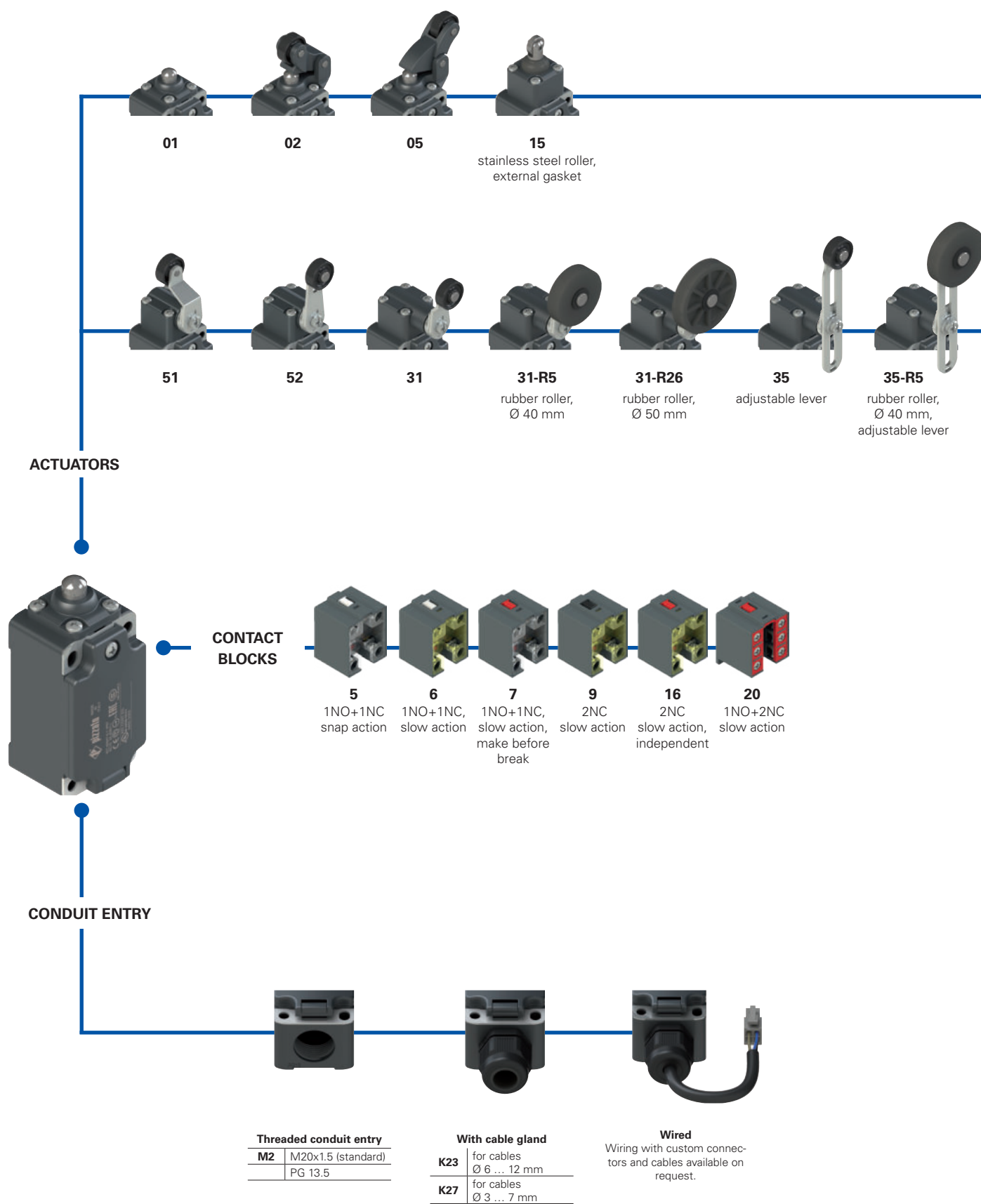
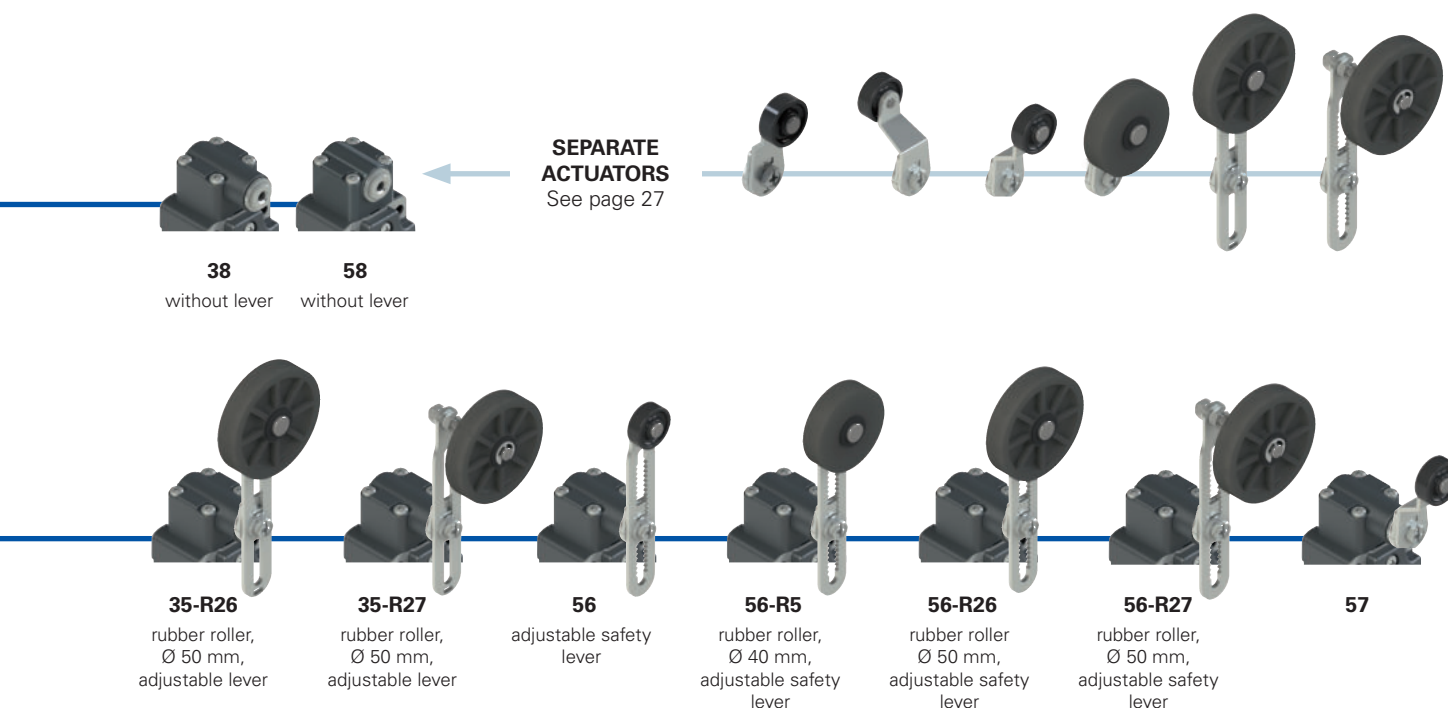


Selection diagram



—●— Product options
 —→— Sold separately as accessory



Code structure

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

article option options
FP 635-GM2K23R26T6

Housing

FP technopolymer, one conduit entry

Contact block

5	1NO+1NC, snap action
6	1NO+1NC, slow action
7	1NO+1NC, slow action, make before break
9	2NC, slow action
16	2NC, slow action, independent
20	1NO+2NC, slow action

Actuators

01	short plunger
02	roller lever
05	angled lever with roller
...	...

Contact type

	silver contacts (standard)
G	silver contacts with 1 µm gold coating
G1	silver contacts, 2.5 µm gold coating (not for contact block 20)

Ambient temperature

	-25°C ... +80°C (standard)
T6	-40°C ... +80°C

Rollers

	standard roller
R5	rubber roller, Ø 40 mm
R26	rubber roller, Ø 50 mm
R27	rubber roller, protruding, Ø 50 mm

Pre-installed cable glands

K23	for cables Ø 6 ... 12 mm
K27	for cables Ø 3 ... 7 mm

Threaded conduit entry

M2	M20x1.5 (standard)
	PG 13.5



Main features

- Technopolymer housing, one conduit entry
- Protection degree IP67
- Stainless steel fixing plates
- Wired versions
- Versions with gold-plated silver contacts

Quality marks:



IMQ approval:	EG605
UL approval:	E131787
CCC approval:	2021000305000099
EAC approval:	RU C-IT.YT03.B.00035/19

Technical data

Housing

Housing made of glass fibre reinforced technopolymer, self-extinguishing, shock-proof and with double insulation:

One threaded conduit entry:



M20x1.5 (standard)

Protection degree acc. to EN 60529:

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. operating frequency:

3600 operating cycles/hour

Mechanical endurance:

20 million operating cycles

Mounting position:

any

Safety parameter B_{10D}:

40,000,000 for NC contacts

Mechanical interlock, not coded:

type 1 acc. to EN ISO 14119

Tightening torques for installation:

see page 157

Wire cross-sections and

wire stripping lengths:

see page 169

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, EN 81-20, EN 81-50, UL 508, CSA 22.2 No.14

Approvals:

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

Compliance with the requirements of:

Low Voltage Directive 2014/35/EU, EMC Directive 2014/30/EU, Lift Directive 2014/33/EU, RoHS Directive 2011/65/EU.

Positive contact opening in conformity with standards:

IEC 60947-5-1, EN 60947-5-1.

Installation for safety applications:

Use only switches marked with the $\ominus$ symbol beside the product code. Always connect the safety circuit to the **NC contacts** (normally closed contacts: 11-12, 21-22 or 31-32) as stated in **standard EN 81-20 par. 5.11.2.2.1**. Actuate the switch **at least up to the positive opening travel** shown in the travel diagrams on page 157. 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 153 to 162.

Electrical data		Utilization category			
Thermal current (I _{th}):	10 A	Alternating current: AC15 (50–60 Hz)			
Rated insulation voltage (U _i):	500 Vac 600 Vdc	U _e (V)	250	400	500
	400 Vac 500 Vdc (contact block 20)	I _e (A)	6	4	1
Rated impulse withstand voltage (U _{imp}):	6 kV	Direct current: DC13			
	4 kV (contact block 20)	U _e (V)	24	125	250
Conditional short circuit current:	1000 A acc. to EN 60947-5-1	I _e (A)	3	0.55	0.3
Protection against short circuits:	type aM fuse 10 A 500 V				
Pollution degree:	3				

Features approved by IMQ

Rated insulation voltage (U _i):	500 Vac 400 Vac (for contact block 20)
Conventional free air thermal current (I _{th}):	10 A
Protection against short circuits:	type aM fuse 10 A 500 V
Rated impulse withstand voltage (U _{imp}):	6 kV 4 kV (for contact block 20)
Protection degree of the housing:	IP67
MV terminals (screw terminals)	
Pollution degree:	3
Utilization category:	AC15
Operating voltage (U _e):	400 Vac (50 Hz)
Operating current (I _e):	3 A
Forms of the contact element:	Zb, Y+Y, Y+Y+X
Positive opening contacts on contact blocks	5, 6, 7, 9, 16, 20
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

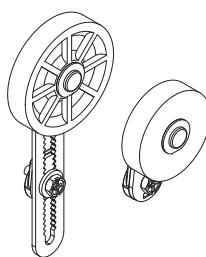
Electrical Ratings:	Q300 pilot duty (69 VA, 125-250 V dc) A600 pilot duty (720 VA, 120-600 V ac)
Environmental Ratings:	Types 1, 4X, 12, 13
For all contact blocks use 60 or 75°C copper (Cu) conductors, rigid or flexible, wire size 12, 14 AWG. Tightening torque for terminal screws of 7.1 lb in (0.8 Nm).	
The hub is to be connected to the conduit before the hub is connected to the enclosure.	
Please contact our technical department for the list of approved products.	

Compliant with EN 81-20 and EN 81-50



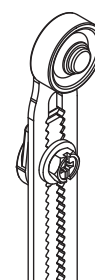
- Safety contacts in compliance with EN 60947-5-1, annex K.
- Protection degree higher than IP4x.
- Mechanical service life > 10⁶ cycles.

Rubber rollers



Actuators are available with rubber rollers of varying degrees of elasticity. Customers can therefore use the most suitable product for the speed of their particular lift, to reduce cabin noise to a minimum.

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.

Protection degree IP67

IP67

All switches of this series have protection degree IP67.

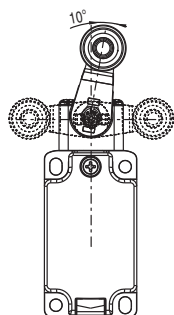
Extended temperature range

-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.

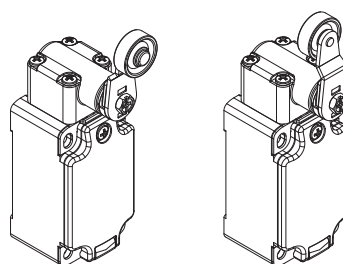
Adjustable levers

For switches with swivelling lever, the lever can be adjusted in 10° steps over the entire 360° range. The positive movement transmission is always guaranteed thanks to the particular geometrical coupling between the lever and the revolving shaft as prescribed for safety applications by the German standard BG-GS-ET-15.



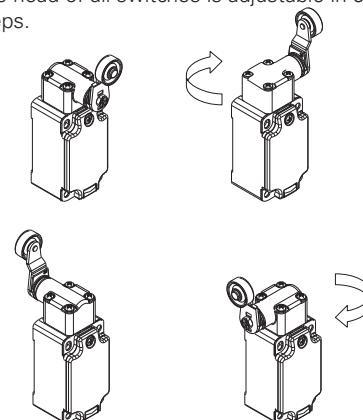
Reversible levers

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



Head with variable orientation

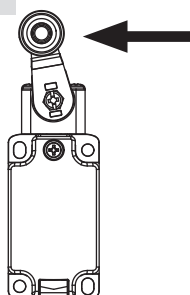
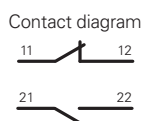
The head of all switches is adjustable in 90° steps.



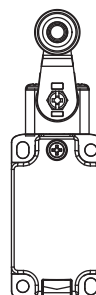
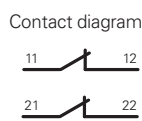
Operation of contact block 16 with independent contacts

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.

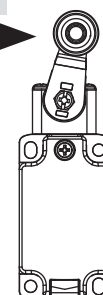
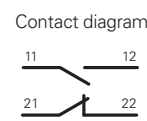
Lever turned to left



Lever not actuated

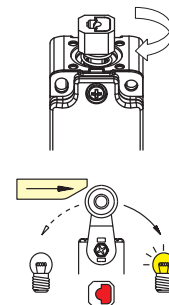
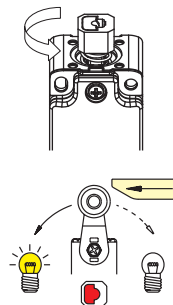
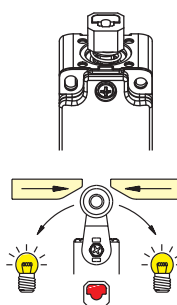
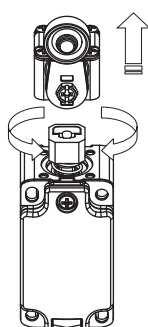


Lever turned to right



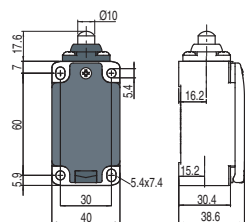
Unidirectional heads

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).

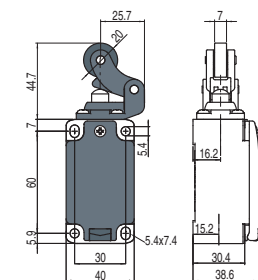


Contact type:

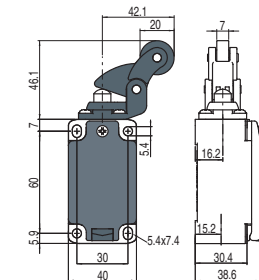
- R** = snap action
L = slow action
LO = slow action, make before break
LI = slow action, independent



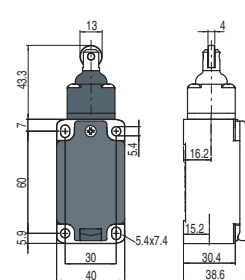
With stainless steel roller on request



With stainless steel roller on request



External gasket

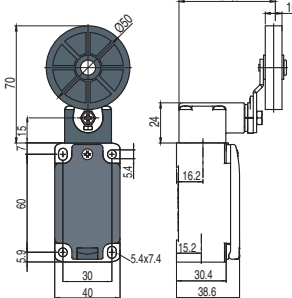
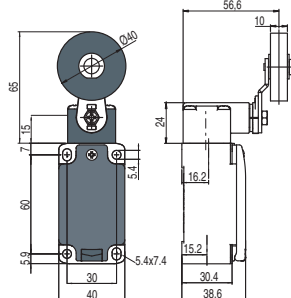
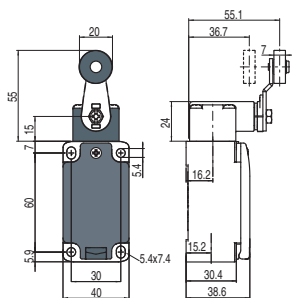


Contact block

5	R	FP 501-M2	➔	1NO+1NC	FP 502-M2	➔	1NO+1NC	FP 505-M2	➔	1NO+1NC	FP 515-M2	➔	1NO+1NC		
6	L	FP 601-M2	➔	1NO+1NC	FP 602-M2	➔	1NO+1NC	FP 605-M2	➔	1NO+1NC	FP 615-M2	➔	1NO+1NC		
7	LO	FP 701-M2	➔	1NO+1NC	FP 702-M2	➔	1NO+1NC	FP 705-M2	➔	1NO+1NC	FP 715-M2	➔	1NO+1NC		
9	L	FP 901-M2	➔	2NC	FP 902-M2	➔	2NC	FP 905-M2	➔	2NC	FP 915-M2	➔	2NC		
16	LI	/			/			/			/				
20	L	FP 2001-M2	➔	1NO+2NC	FP 2002-M2	➔	1NO+2NC	FP 2005-M2	➔	1NO+2NC	FP 2015-M2	➔	1NO+2NC		
Max. speed		page 157 - type 4				page 157 - type 3				page 157 - type 3				page 157 - type 2	
Actuating force		8 N (25 N ➔)				6 N (25 N ➔)				6 N (25 N ➔)				11 N (25 N ➔)	
Travel diagrams		page 157 - group 1b				page 157 - group 2b				page 157 - group 2b				page 157 - group 1b	

Contact type:

- R** = snap action
L = slow action
LO = slow action, make before break
LI = slow action, independent

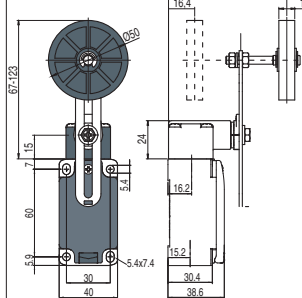
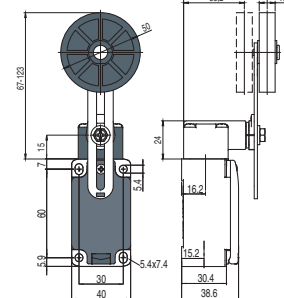
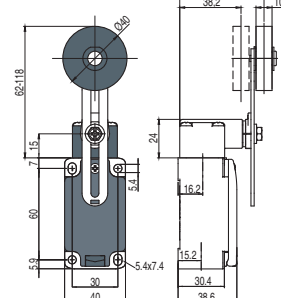
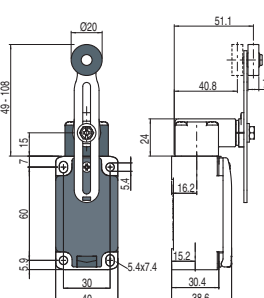


Contact block

5	R	FP 531-M2	➔	1NO+1NC	FP 531-M2R5	➔	1NO+1NC	FP 531-M2R26	➔	1NO+1NC
6	L	FP 631-M2	➔	1NO+1NC	FP 631-M2R5	➔	1NO+1NC	FP 631-M2R26	➔	1NO+1NC
7	LO	FP 731-M2	➔	1NO+1NC	FP 731-M2R5	➔	1NO+1NC	FP 731-M2R26	➔	1NO+1NC
9	L	FP 931-M2	➔	2NC	FP 931-M2R5	➔	2NC	FP 931-M2R26	➔	2NC
16	LI	FP 1631-M2	➔	2NC	FP 1631-M2R5	➔	2NC	FP 1631-M2R26	➔	2NC
20	L	FP 2031-M2	➔	1NO+2NC	FP 2031-M2R5	➔	1NO+2NC	FP 2031-M2R26	➔	1NO+2NC
Max. speed		page 157 - type 1			page 157 - type 1			page 157 - type 1		
Actuating force		0.1 Nm (0.25 Nm ➔)			0.1 Nm (0.25 Nm ➔)			0.1 Nm (0.25 Nm ➔)		
Travel diagrams		page 157 - group 3b			page 157 - group 3b			page 157 - group 3b		

Contact type:

- R** = snap action
L = slow action
LO = slow action, make before break
LI = slow action, independent



Contact block

5	R	FP 535-M2	➔ ⁽¹⁾	1NO+1NC	FP 535-M2R5	➔ ⁽¹⁾	1NO+1NC	FP 535-M2R26	➔ ⁽¹⁾	1NO+1NC	FP 535-M2R27	➔ ⁽¹⁾	1NO+1NC
6	L	FP 635-M2	➔ ⁽¹⁾	1NO+1NC	FP 635-M2R5	➔ ⁽¹⁾	1NO+1NC	FP 635-M2R26	➔ ⁽¹⁾	1NO+1NC	FP 635-M2R27	➔ ⁽¹⁾	1NO+1NC
7	LO	FP 735-M2	➔ ⁽¹⁾	1NO+1NC	FP 735-M2R5	➔ ⁽¹⁾	1NO+1NC	FP 735-M2R26	➔ ⁽¹⁾	1NO+1NC	FP 735-M2R27	➔ ⁽¹⁾	1NO+1NC
9	L	FP 935-M2	➔ ⁽¹⁾	2NC	FP 935-M2R5	➔ ⁽¹⁾	2NC	FP 935-M2R26	➔ ⁽¹⁾	2NC	FP 935-M2R27	➔ ⁽¹⁾	2NC
16	LI	FP 1635-M2	➔ ⁽¹⁾	2NC	FP 1635-M2R5	➔ ⁽¹⁾	2NC	FP 1635-M2R26	➔ ⁽¹⁾	2NC	FP 1635-M2R27	➔ ⁽¹⁾	2NC
20	L	FP 2035-M2	➔ ⁽¹⁾	1NO+2NC	FP 2035-M2R5	➔ ⁽¹⁾	1NO+2NC	FP 2035-M2R26	➔ ⁽¹⁾	1NO+2NC	FP 2035-M2R27	➔ ⁽¹⁾	1NO+2NC
Max. speed		page 157 - type 1			page 157 - type 1			page 157 - type 1			page 157 - type 1		
Actuating force		0.1 Nm (0.25 Nm ➔)			0.1 Nm (0.25 Nm ➔)			0.1 Nm (0.25 Nm ➔)			0.1 Nm (0.25 Nm ➔)		
Travel diagrams		page 157 - group 3b			page 157 - group 3b			page 157 - group 3b			page 157 - group 3b		

All values in the drawings are in mm

Accessories See page 149

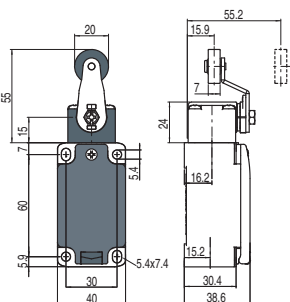
➔ The 2D and 3D files are available at www.pizzato.com



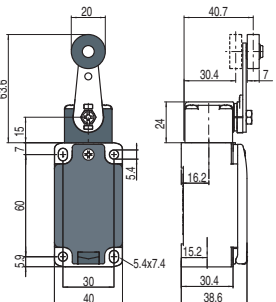
Contact type:

- R** = snap action
L = slow action
LO = slow action, make before break
LI = slow action, independent

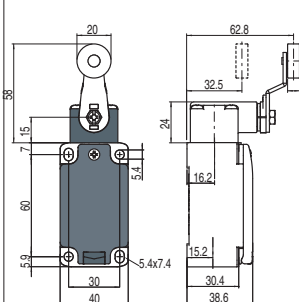
Other rollers available. See page 27



Other rollers available. See page 27



Other rollers available. See page 27

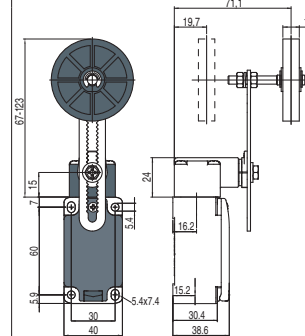
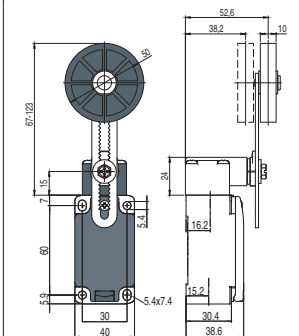
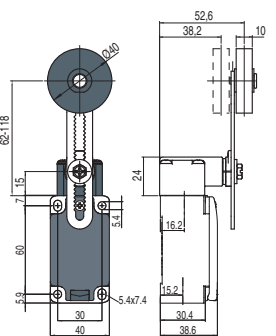
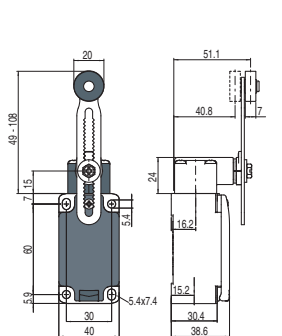


Contact block

5	R	FP 551-M2	➔	1NO+1NC	FP 552-M2	➔	1NO+1NC	FP 557-M2	➔	1NO+1NC
6	L	FP 651-M2	➔	1NO+1NC	FP 652-M2	➔	1NO+1NC	FP 657-M2	➔	1NO+1NC
7	LO	FP 751-M2	➔	1NO+1NC	FP 752-M2	➔	1NO+1NC	FP 757-M2	➔	1NO+1NC
9	L	FP 951-M2	➔	2NC	FP 952-M2	➔	2NC	FP 957-M2	➔	2NC
16	LI	/			/			FP 1657-M2	➔	2NC
20	L	FP 2051-M2	➔	1NO+2NC	FP 2052-M2	➔	1NO+2NC	FP 2057-M2	➔	1NO+2NC
Max. speed		page 157 - type 1			page 157 - type 1			page 157 - type 1		
Actuating force		0.06 Nm (0.25 Nm ➔)			0.06 Nm (0.25 Nm ➔)			0.06 Nm (0.25 Nm ➔)		
Travel diagrams		page 157 - group 3b			page 157 - group 3b			page 157 - group 3b		

Contact type:

- R** = snap action
L = slow action
LO = slow action, make before break
LI = slow action, independent



Contact block

5	R	FP 556-M2	➔	1NO+1NC	FP 556-M2R5	➔	1NO+1NC	FP 556-M2R26	➔	1NO+1NC	FP 556-M2R27	➔	1NO+1NC
6	L	FP 656-M2	➔	1NO+1NC	FP 656-M2R5	➔	1NO+1NC	FP 656-M2R26	➔	1NO+1NC	FP 656-M2R27	➔	1NO+1NC
7	LO	FP 756-M2	➔	1NO+1NC	FP 756-M2R5	➔	1NO+1NC	FP 756-M2R26	➔	1NO+1NC	FP 756-M2R27	➔	1NO+1NC
9	L	FP 956-M2	➔	2NC	FP 956-M2R5	➔	2NC	FP 956-M2R26	➔	2NC	FP 956-M2R27	➔	2NC
16	LI	FP 1656-M2	➔	2NC	FP 1656-M2R5	➔	2NC	FP 1656-M2R26	➔	2NC	FP 1656-M2R27	➔	2NC
20	L	FP 2056-M2	➔	1NO+2NC	FP 2056-M2R5	➔	1NO+2NC	FP 2056-M2R26	➔	1NO+2NC	FP 2056-M2R27	➔	1NO+2NC
Max. speed		page 157 - type 1			page 157 - type 1			page 157 - type 1			page 157 - type 1		
Actuating force		0.1 Nm (0.25 Nm ➔)			0.1 Nm (0.25 Nm ➔)			0.1 Nm (0.25 Nm ➔)			0.1 Nm (0.25 Nm ➔)		
Travel diagrams		page 157 - group 3b			page 157 - group 3b			page 157 - group 3b			page 157 - group 3b		

⁽¹⁾ Positive opening only with actuator set to max.

All values in the drawings are in mm

Position switches with swivelling lever without actuator

Contact type:

- R** = snap action
L = slow action
LO = slow action, make before break
LI = slow action, independent

Contact block

	Regular head	Compact head
5	FP 538-M2 (⊕) 1NO+1NC	FP 558-M2 (⊕) 1NO+1NC
6	FP 638-M2 (⊕) 1NO+1NC	FP 658-M2 (⊕) 1NO+1NC
7	FP 738-M2 (⊕) 1NO+1NC	FP 758-M2 (⊕) 1NO+1NC
9	FP 938-M2 (⊕) 2NC	FP 958-M2 (⊕) 2NC
16	FP 1638-M2 (⊕) 2NC	/
20	FP 2038-M2 (⊕) 1NO+2NC	FP 2058-M2 (⊕) 1NO+2NC
Actuating force	0.1 Nm (0.25 Nm ⊕)	0.06 Nm (0.25 Nm ⊕)
Travel diagrams	page 157 - group 3b	page 157 - group 3b

IMPORTANT

For safety applications: join only switches and actuators marked with symbol ⊕ next to the product code. For more information about safety applications see details on page 153.

Separate actuators

IMPORTANT: These separate actuators can be used only with items of the FP series.

Technopolymer rollers, Ø 20 mm

VF L31 (⊕)	VF L35 (⊕) (1) (3)	VF L51 (⊕)	VF L52 (⊕)	VF L56 (⊕)	VF L57 (⊕)

Stainless steel rollers, Ø 20 mm

VF L31-R24 (⊕)	VF L35-R24 (⊕) (1) (3)	VF L51-R24 (⊕)	VF L52-R24 (⊕)	VF L56-R24 (⊕) (3)	VF L57-R24 (⊕)

Technopolymer rollers, Ø 35 mm

Rubber rollers, Ø 40 mm

Rubber rollers, Ø 50 mm

Protruding rubber rollers, Ø 50 mm

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