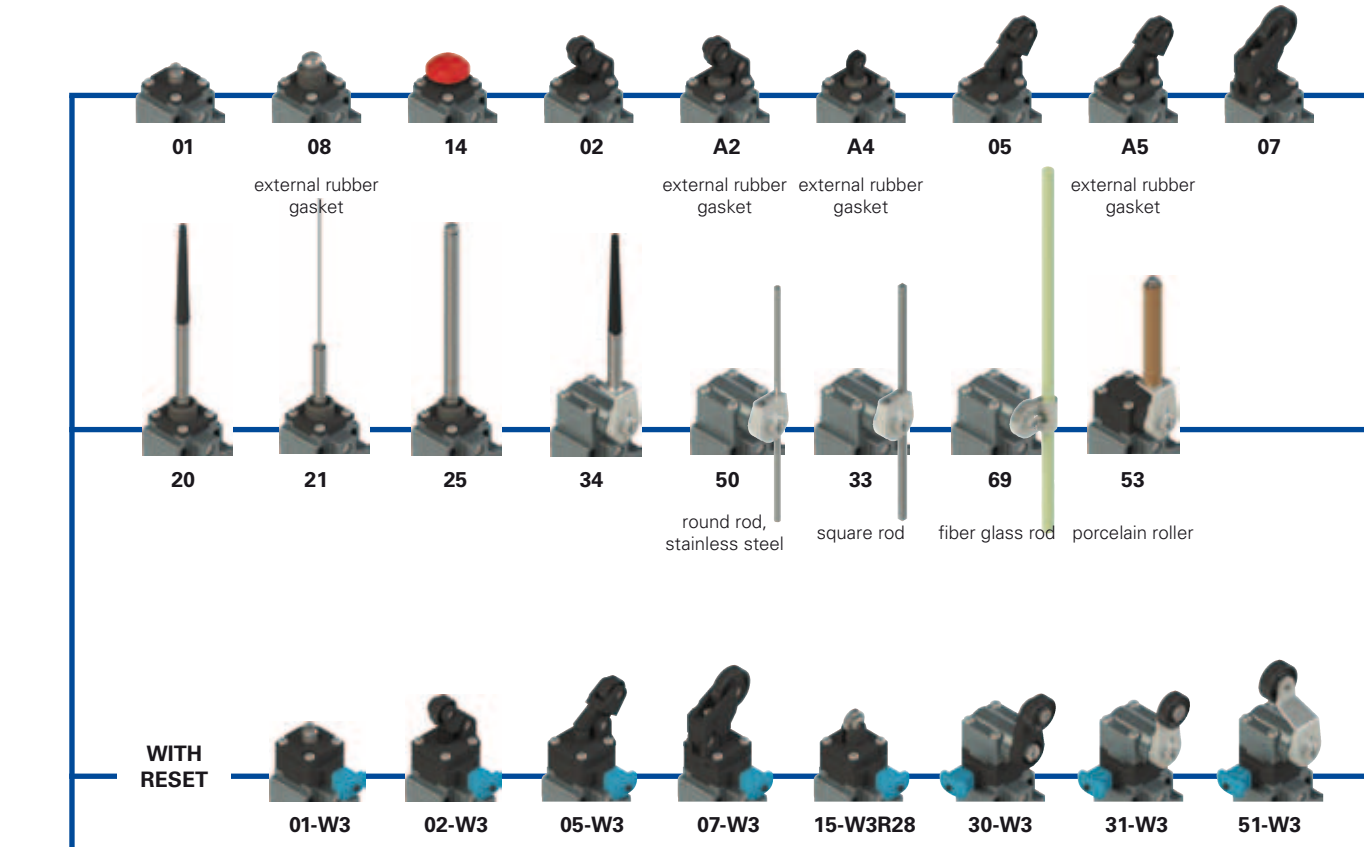
Selection diagram



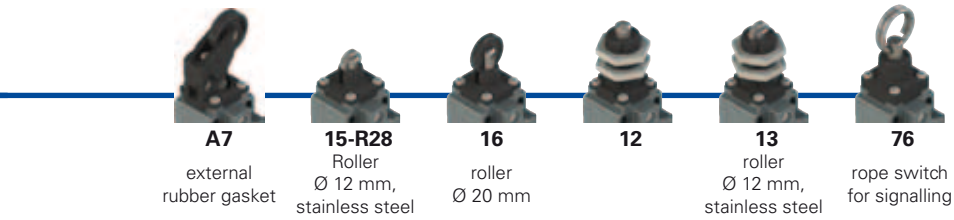
Threaded conduit entry	
M2	M20x1.5 (standard)
	PG 13.5

With cable gland	
K23	for cables Ø 6…Ø 12 mm
K27	for cables Ø 3…Ø 7 mm

With M12 metal connector	
K40	8 poles, bottom
K50	5 poles, bottom

product options

accessory sold separately



A7
external rubber gasket

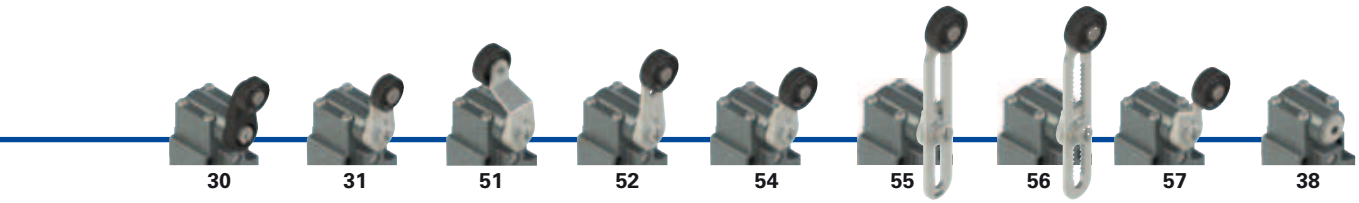
15-R28
Roller Ø 12 mm, stainless steel

16
roller Ø 20 mm

12

13
roller Ø 12 mm, stainless steel

76
rope switch for signalling

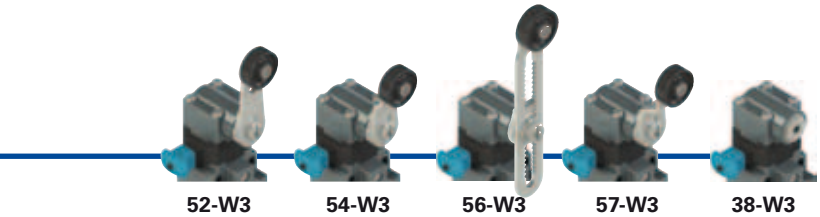


30 **31** **51** **52** **54** **55** **56** **57** **38**

55 adjustable lever

56 adjustable safety lever

38 without actuator



52-W3 **54-W3** **56-W3** **57-W3**

38-W3
without actuator

LOOSE ACTUATORS
See page 81

Code structure

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

article | options | options

FM 502-W3GM2K50R23T6

Housing	
FM	metal, one conduit entry

Contact blocks	
5	1NO+1NC, snap action
6	1NO+1NC, slow action
7	1NO+1NC, slow action, overlapped
...	.....

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

Reset	
	without reset (standard)
W3	simultaneous reset
W4	simultaneous reset, increased force

Contact type	
	silver contacts (standard)
G	silver contacts with 1 µm gold coating (not for contact block 2)

Ambient temperature	
	-25°C … +80°C (standard)
T6	-40°C … +80°C

Pre-installed cable glands or connectors	
	without cable gland or connector (standard)
K23	cable gland for cables Ø 6…Ø 12 mm
K50	M12 metal connector, 5 poles

Please contact our technical service for the complete list of possible combinations.

Threaded conduit entry	
M2	M20x1.5 (standard)
	PG 13.5

Rollers	
	standard roller
R28	stainless steel, Ø 12 mm (for actuators A4, 15)
R23	stainless steel, Ø 14 mm (for actuators A2, 02, A5, 05, 30, 31, 51, 52, 54, 55, 56, 57)
R24	stainless steel, Ø 20 mm (for actuators 30, 31, 51, 52, 54, 55, 56, 57)
R25	technopolymer, Ø 35 mm (for actuators 30, 31, 51, 52, 54, 55, 56, 57)
R5	rubber, Ø 40 mm (for actuators 30, 31, 51, 52, 54, 55, 56, 57)
R26	rubber, Ø 50 mm (for actuators 51, 52, 54, 55, 56, 57)
R27	rubber, protruding, Ø 50 mm (for actuators 55, 56)

Main features

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

Markings and quality marks:

IMQ approval:	EG609
UL approval:	E131787
CCC approval:	2007010305229998
EAC approval:	RU C-IT ДМ94.B.01024

Technical data

Housing

Metal housing, baked powder coating	
One threaded conduit entry:	M20x1.5 (standard)
Protection degree:	IP67 according to EN 60529 with cable gland having equal or higher protection degree

General data

Ambient temperature:	-25°C … +80°C
Max. actuation frequency:	3600 operating cycles[1]/hour
Mechanical endurance:	20 million operating cycles[1]
Mounting position:	any
Safety parameters:	
B_{10d}:	40,000,00 for NC contacts
Mechanical interlock, not coded:	type 1 according to EN ISO 14119
Tightening torques for installation:	see pages 235-246

(1) One operation cycle means two movements, one to close and one to open contacts, as defined in EN 60947-5-1.

Cable cross section (flexible copper strands)

Contact blocks 20, 21, 22, 33, 34:	min.	1 x 0.34 mm²	(1 x AWG 22)
	max.	2 x 1.5 mm²	(2 x AWG 16)
Contact block 5, 6, 7, 9, 10, 11, 12, 13, 14, 15, 16, 18:	min.	1 x 0.5 mm²	(1 x AWG 20)
	max.	2 x 2.5 mm²	(2 x AWG 14)
Contact block 2:	min.	1 x 0.5 mm²	(1 x AWG 20)
	max.	2 x 1.5 mm²	(2 x AWG 16)

In conformity with standards:
IEC 60947-5-1, EN 60947-5-1, EN 60947-1, EN 50047, IEC 60204-1, EN 60204-1, EN ISO 14119, EN ISO 12100, IEC 60529, EN 60529, UL 508, CSA 22.2 No.14 .
Approvals:
IEC 60947-5-1, UL 508, CSA 22.2 No.14, GB14048.5-2001.

In conformity with the requirements of:
Low Voltage Directive 2006/95/EC, Machinery Directive 2006/42/EC and EMC Directive 2004/108/EC.
Positive contact opening in conformity with standards:
IEC 60947-5-1, EN 60947-5-1.

Installation for safety applications:
Use only switches marked with the symbol ⊖ aside 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 60947-5-1, encl. K, par. 2**. Actuate the switch **at least up to the positive opening travel** shown in the travel diagrams on page 240. Operate the switch **at least with the positive opening force**, indicated between brackets below each article, aside the minimum force value.

⚠ **If not expressly indicated in this chapter, for correct installation and utilization of all articles see chapter utilization requirements from page 235 to page 246.**

	Electrical data		Utilization category
without connector	Thermal current (Ith):	10 A	Alternating current: AC15 (50÷60 Hz)
	Rated insulation voltage (Ui):	500 Vac 600 Vdc 400 Vac 500 Vdc (contact blocks 2, 11, 12, 20, 21, 22, 33, 34)	Ue (V) 250 400 500 Ie (A) 6 4 1
	Rated impulse withstand voltage (U_{imp}):	6 kV 4 kV (contact blocks 20, 21, 22, 33, 34)	Direct current: DC13
	Conditional short circuit current:	1000 A according to EN 60947-5-1	Ue (V) 24 125 250
	Protection against short circuits:	type aM fuse 10 A 500 V	Ie (A) 6 1.1 0.4
	Pollution degree:	3	
with M12 connector 5 poles	Thermal current (Ith):	4 A	Alternating current: AC15 (50÷60 Hz)
	Rated insulation voltage (Ui):	250 Vac 300 Vdc	Ue (V) 24 120 250
	Protection against short circuits:	type gG fuse 4 A 500 V	Ie (A) 4 4 4
	Pollution degree:	3	Direct current: DC13
			Ue (V) 24 125 250
			Ie (A) 4 1.1 0.4
with M12 connector 8 poles	Thermal current (Ith):	2 A	Alternating current: AC15 (50÷60 Hz)
	Rated insulation voltage (Ui):	30 Vac 36 Vdc	Ue (V) 24
	Protection against short circuits:	type gG fuse 2 A 500 V	Ie (A) 2
	Pollution degree:	3	Direct current: DC13
			Ue (V) 24
			Ie (A) 2

Characteristics approved by IMQ

Rated insulation voltage (Ui): 500 Vac
400 Vac (for contact blocks 2, 11, 12, 20, 21, 22, 33, 34)
Conventional free air thermal current (Ith): 10 A
Protection against short circuits: type aM fuse 10 A 500 V
Rated impulse withstand voltage (U_{imp}): 6 kV
4 kV (for contact blocks 20, 21, 22, 33, 34)
Protection degree of the housing: IP67
MV terminals (screw terminals)
Pollution degree 3
Utilization category: AC15
Operating voltage (Ue): 400 Vac (50 Hz)
Operating current (Ie): 3 A
Forms of the contact element: Za, Zb, Za+Za, Y+Y, X+X, Y+Y+X, Y+Y+Y, Y+X+X
Positive opening of contacts on contact blocks 5, 6, 7, 9, 11, 13, 14, 16, 18, 20, 21, 22, 33, 34
In conformity with standards: EN 60947-1, EN 60947-5-1+ A1:2009, fundamental requirements of the Low Voltage Directive 2006/95/EC.

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

Characteristics approved by UL

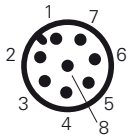
Utilization categories Q300 (69 VA, 125 … 250 Vdc)
A600 (720 VA, 120 … 600 Vac)
Data of housing type 1, 4X "indoor use only", 12, 13
For all contact blocks except 2 and 3 use 60 or 75°C copper (Cu) conductor, rigid or flexible, wire size AWG 12/14. Terminal tightening torque of 7.1 lb in (0.8 Nm).
For contact blocks 2 and 3 use 60 or 75 °C copper (Cu) conductor, rigid or flexible, wire size AWG 14. Terminal tightening torque of 12 lb in (1.4 Nm).

In conformity with standard: UL 508, CSA 22.2 No.14

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

Connection diagram for M12 connectors

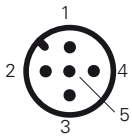
Contact block 2 — 1NO-1NC+1NO-1NC



M12 connector, 8 poles

Contacts	Pin no.
NO	3-4
NC	5-6
NC	7-8
NO	1-2

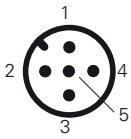
Contact block 5 — 1NO+1NC



M12 connector, 5 poles

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

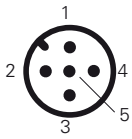
Contact block 6 — 1NO+1NC



M12 connector, 5 poles

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

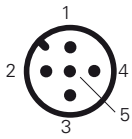
Contact block 7 — 1NO+1NC



M12 connector, 5 poles

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

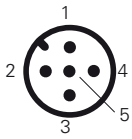
Contact block 9 — 2NC



M12 connector, 5 poles

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

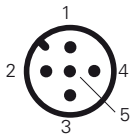
Contact block 10 — 2NO



M12 connector, 5 poles

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

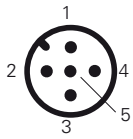
Contact block 11 — 2NC



M12 connector, 5 poles

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

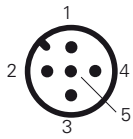
Contact block 12 — 2NO



M12 connector, 5 poles

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

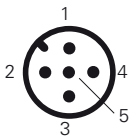
Contact block 13 — 2NC



M12 connector, 5 poles

Contacts	Pin no.
NC (1°)	1-2
NC (2°)	3-4
ground	5

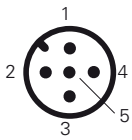
Contact block 14 — 2NC



M12 connector, 5 poles

Contacts	Pin no.
NC (1°)	1-2
NC (2°)	3-4
ground	5

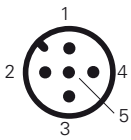
Contact block 15 — 2NO



M12 connector, 5 poles

Contacts	Pin no.
NO (1°)	1-2
NO (2°)	3-4
ground	5

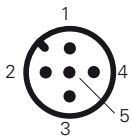
Contact block 16 — 2NC



M12 connector, 5 poles

Contacts	Pin no.
NC, lever at the right	1-2
NC, lever to the left	3-4
ground	5

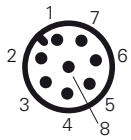
Contact block 18 — 1NO+1NC



M12 connector, 5 poles

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

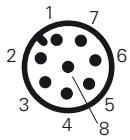
Contact block 20 — 2NC+1NO



M12 connector, 8 poles

Contacts	Pin no.
NC	3-4
NC	5-6
NO	7-8
ground	1

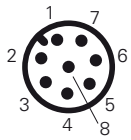
Contact block 21 — 3NC



M12 connector, 8 poles

Contacts	Pin no.
NC	3-4
NC	5-6
NC	7-8
ground	1

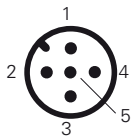
Contact block 22 — 1NC+2NO



M12 connector, 8 poles

Contacts	Pin no.
NC	3-4
NO	5-6
NO	7-8
ground	1

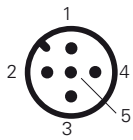
Contact block 33 — 1NC+1NO



M12 connector, 5 poles

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

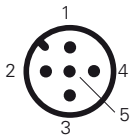
Contact block 34 — 2NC



M12 connector, 5 poles

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

Contact block E1 — PNP



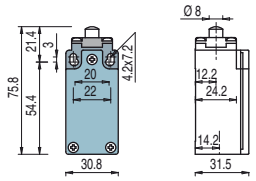
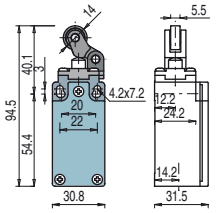
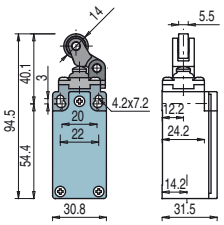
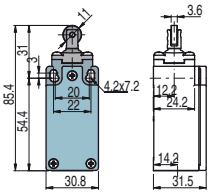
M12 connector, 5 poles

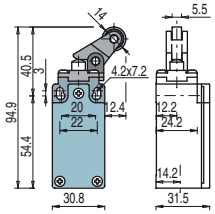
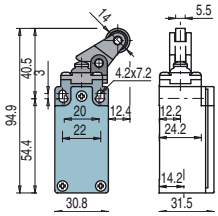
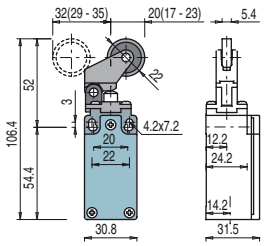
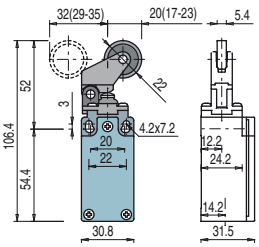
Contacts	Pin no.
+	1
-	3
NC	2
NO	4
ground	5

Position switches **FM** series

Contact type:

- R = snap action
- L = slow action
- LO = slow action overlapped
- LS = slow action shifted
- LV = slow action shifted and spaced
- LI = slow action independent
- LA = slow action closer
- = electronic PNP

Contact blocks					
			With stainless steel roller on request 	With external rubber gasket With stainless steel roller on request 	With external rubber gasket 
5	R	FM 501-M2 1NO+1NC	FM 502-M2 1NO+1NC	FM 5A2-M2 1NO+1NC	FM 5A4-M2 1NO+1NC
6	L	FM 601-M2 1NO+1NC	FM 602-M2 1NO+1NC	FM 6A2-M2 1NO+1NC	FM 6A4-M2 1NO+1NC
7	LO	FM 701-M2 1NO+1NC	FM 702-M2 1NO+1NC	FM 7A2-M2 1NO+1NC	FM 7A4-M2 1NO+1NC
9	L	FM 901-M2 2NC	FM 902-M2 2NC	FM 9A2-M2 2NC	FM 9A4-M2 2NC
10	L	FM 1001-M2 2NO	FM 1002-M2 2NO	FM 10A2-M2 2NO	FM 10A4-M2 2NO
11	R	FM 1101-M2 2NC	FM 1102-M2 2NC	FM 11A2-M2 2NC	FM 11A4-M2 2NC
12	R	FM 1201-M2 2NO	FM 1202-M2 2NO	FM 12A2-M2 2NO	FM 12A4-M2 2NO
13	LV	FM 1301-M2 2NC	FM 1302-M2 2NC	FM 13A2-M2 2NC	FM 13A4-M2 2NC
14	LS	FM 1401-M2 2NC	FM 1402-M2 2NC	FM 14A2-M2 2NC	FM 14A4-M2 2NC
15	LS	FM 1501-M2 2NO	FM 1502-M2 2NO	FM 15A2-M2 2NO	FM 15A4-M2 2NO
18	LA	FM 1801-M2 1NO+1NC	FM 1802-M2 1NO+1NC	FM 18A2-M2 1NO+1NC	FM 18A4-M2 1NO+1NC
20	L	FM 2001-M2 1NO+2NC	FM 2002-M2 1NO+2NC	FM 20A2-M2 1NO+2NC	FM 20A4-M2 1NO+2NC
21	L	FM 2101-M2 3NC	FM 2102-M2 3NC	FM 21A2-M2 3NC	FM 21A4-M2 3NC
22	L	FM 2201-M2 2NO+1NC	FM 2202-M2 2NO+1NC	FM 22A2-M2 2NO+1NC	FM 22A4-M2 2NO+1NC
2	R	FM 201-M2 2x(1NO-1NC)	FM 202-M2 2x(1NO-1NC)	FM 2A2-M2 2x(1NO-1NC)	FM 2A4-M2 2x(1NO-1NC)
E1		FM E101-M2 1NO-1NC	FM E102-M2 1NO-1NC	FM E1A2-M2 1NO-1NC	FM E1A4-M2 1NO-1NC
Max. speed		page 239 - type 4	page 239 - type 3	page 239 - type 3	page 239 - type 5
Min. force		8 N (25 N →)	6 N (25 N →)	4.3 N (25 N →)	4.3 N (25 N →)
Travel diagrams		page 240 - group 1	page 240 - group 2	page 240 - group 2	page 240 - group 1

Contact blocks					
		With stainless steel roller on request 	With external rubber gasket With stainless steel roller on request 		With external rubber gasket 
5	R	FM 505-M2 1NO+1NC	FM 5A5-M2 1NO+1NC	FM 507-M2 1NO+1NC	FM 5A7-M2 1NO+1NC
6	L	FM 605-M2 1NO+1NC	FM 6A5-M2 1NO+1NC	FM 607-M2 1NO+1NC	FM 6A7-M2 1NO+1NC
7	LO	FM 705-M2 1NO+1NC	FM 7A5-M2 1NO+1NC	FM 707-M2 1NO+1NC	FM 7A7-M2 1NO+1NC
9	L	FM 905-M2 2NC	FM 9A5-M2 2NC	FM 907-M2 2NC	FM 9A7-M2 2NC
10	L	FM 1005-M2 2NO	FM 10A5-M2 2NO	FM 1007-M2 2NO	FM 10A7-M2 2NO
11	R	FM 1105-M2 2NC	FM 11A5-M2 2NC	FM 1107-M2 2NC	FM 11A7-M2 2NC
12	R	FM 1205-M2 2NO	FM 12A5-M2 2NO	FM 1207-M2 2NO	FM 12A7-M2 2NO
13	LV	FM 1305-M2 2NC	FM 13A5-M2 2NC	FM 1307-M2 2NC	FM 13A7-M2 2NC
14	LS	FM 1405-M2 2NC	FM 14A5-M2 2NC	FM 1407-M2 2NC	FM 14A7-M2 2NC
15	LS	FM 1505-M2 2NO	FM 15A5-M2 2NO	FM 1507-M2 2NO	FM 15A7-M2 2NO
18	LA	FM 1805-M2 1NO+1NC	FM 18A5-M2 1NO+1NC	FM 1807-M2 1NO+1NC	FM 18A7-M2 1NO+1NC
20	L	FM 2005-M2 1NO+2NC	FM 20A5-M2 1NO+2NC	FM 2007-M2 1NO+2NC	FM 20A7-M2 1NO+2NC
21	L	FM 2105-M2 3NC	FM 21A5-M2 3NC	FM 2107-M2 3NC	FM 21A7-M2 3NC
22	L	FM 2205-M2 2NO+1NC	FM 22A5-M2 2NO+1NC	FM 2207-M2 2NO+1NC	FM 22A7-M2 2NO+1NC
2	R	FM 205-M2 2x(1NO-1NC)	FM 2A5-M2 2x(1NO-1NC)	FM 207-M2 2x(1NO-1NC)	FM 2A7-M2 2x(1NO-1NC)
E1		FM E105-M2 1NO-1NC	FM E1A5-M2 1NO-1NC	FM E107-M2 1NO-1NC	FM E1A7-M2 1NO-1NC
Max. speed		page 239 - type 3	page 239 - type 3	page 239 - type 3	page 239 - type 3
Min. force		6 N (25 N →)	4.3 N (25 N →)	4 N (25 N →)	3 N (25 N →)
Travel diagrams		page 240 - group 2	page 240 - group 2	page 240 - group 3	page 240 - group 3

All measures in the drawings are in mm

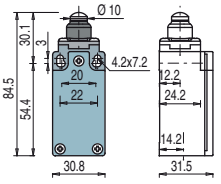
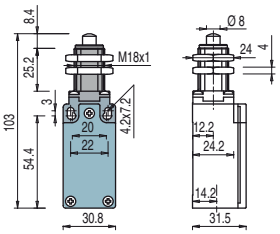
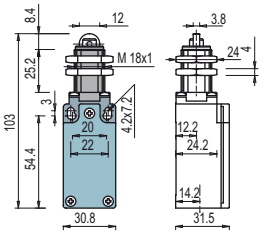
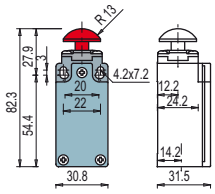
Items with code on **green** background are stock items

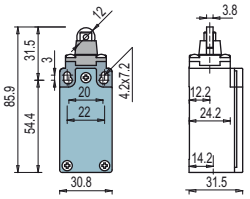
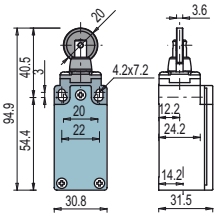
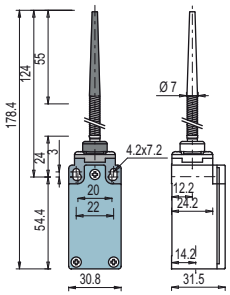
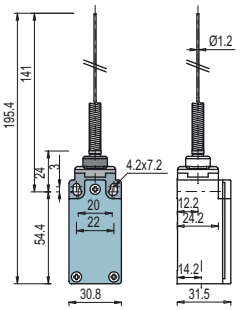
Accessories See page 225

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

Contact type:

R = snap action
L = slow action
LO = slow action overlapped
LS = slow action shifted
LV = slow action shifted and spaced
LI = slow action independent
LA = slow action closer
= electronic PNP

Contact blocks		With external rubber gasket			
					
5	R	FM 508-M2 → 1NO+1NC	FM 512-M2 → 1NO+1NC	FM 513-M2 → 1NO+1NC	FM 514-M2 → 1NO+1NC
6	L	FM 608-M2 → 1NO+1NC	FM 612-M2 → 1NO+1NC	FM 613-M2 → 1NO+1NC	FM 614-M2 → 1NO+1NC
7	LO	FM 708-M2 → 1NO+1NC	FM 712-M2 → 1NO+1NC	FM 713-M2 → 1NO+1NC	FM 714-M2 → 1NO+1NC
9	L	FM 908-M2 → 2NC	FM 912-M2 → 2NC	FM 913-M2 → 2NC	FM 914-M2 → 2NC
10	L	FM 1008-M2 2NO	FM 1012-M2 2NO	FM 1013-M2 2NO	FM 1014-M2 2NO
11	R	FM 1108-M2 → 2NC	FM 1112-M2 → 2NC	FM 1113-M2 → 2NC	FM 1114-M2 → 2NC
12	R	FM 1208-M2 2NO	FM 1212-M2 2NO	FM 1213-M2 2NO	FM 1214-M2 2NO
13	LV	FM 1308-M2 → 2NC	FM 1312-M2 → 2NC	FM 1313-M2 → 2NC	FM 1314-M2 → 2NC
14	LS	FM 1408-M2 → 2NC	FM 1412-M2 → 2NC	FM 1413-M2 → 2NC	FM 1414-M2 → 2NC
15	LS	FM 1508-M2 2NO	FM 1512-M2 2NO	FM 1513-M2 2NO	FM 1514-M2 2NO
18	LA	FM 1808-M2 → 1NO+1NC	FM 1812-M2 → 1NO+1NC	FM 1813-M2 → 1NO+1NC	FM 1814-M2 → 1NO+1NC
20	L	FM 2008-M2 → 1NO+2NC	FM 2012-M2 → 1NO+2NC	FM 2013-M2 → 1NO+2NC	FM 2014-M2 → 1NO+2NC
21	L	FM 2108-M2 → 3NC	FM 2112-M2 → 3NC	FM 2113-M2 → 3NC	FM 2114-M2 → 3NC
22	L	FM 2208-M2 → 2NO+1NC	FM 2212-M2 → 2NO+1NC	FM 2213-M2 → 2NO+1NC	FM 2214-M2 → 2NO+1NC
2	R	FM 208-M2 2x(1NO-1NC)	FM 212-M2 2x(1NO-1NC)	FM 213-M2 2x(1NO-1NC)	FM 214-M2 2x(1NO-1NC)
E1		FM E108-M2 1NO-1NC	FM E112-M2 1NO-1NC	FM E113-M2 1NO-1NC	FM E114-M2 1NO-1NC
Max. speed		page 239 - type 4	page 239 - type 4	page 239 - type 2	page 239 - type 4
Min. force		8 N (25 N →)	8 N (25 N →)	8 N (25 N →)	8 N (25 N →)
Travel diagrams		page 240 - group 1	page 240 - group 1	page 240 - group 1	page 240 - group 1

Contact blocks		Roller, Ø 12 mm, stainless steel		With external rubber gasket	With external rubber gasket
					
5	R	FM 515-M2R28 → 1NO+1NC	FM 516-M2 → 1NO+1NC	FM 520-M2 1NO+1NC	FM 521-M2 1NO+1NC
6	L	FM 615-M2R28 → 1NO+1NC	FM 616-M2 → 1NO+1NC		
7	LO	FM 715-M2R28 → 1NO+1NC	FM 716-M2 → 1NO+1NC		
9	L	FM 915-M2R28 → 2NC	FM 916-M2 → 2NC		
10	L	FM 1015-M2R28 2NO	FM 1016-M2 2NO	FM 1020-M2 2NO	FM 1021-M2 2NO
11	R	FM 1115-M2R28 → 2NC	FM 1116-M2 → 2NC		
12	R	FM 1215-M2R28 2NO	FM 1216-M2 2NO	FM 1220-M2 2NO	FM 1221-M2 2NO
13	LV	FM 1315-M2R28 → 2NC	FM 1316-M2 → 2NC		
14	LS	FM 1415-M2R28 → 2NC	FM 1416-M2 → 2NC		
15	LS	FM 1515-M2R28 2NO	FM 1516-M2 2NO		
18	LA	FM 1815-M2R28 → 1NO+1NC	FM 1816-M2 → 1NO+1NC	FM 1820-M2 1NO+1NC	FM 1821-M2 1NO+1NC
20	L	FM 2015-M2R28 → 1NO+2NC	FM 2016-M2 → 1NO+2NC	FM 2020-M2 1NO+2NC	FM 2021-M2 1NO+2NC
21	L	FM 2115-M2R28 → 3NC	FM 2116-M2 → 3NC	FM 2120-M2 3NC	FM 2121-M2 3NC
22	L	FM 2215-M2R28 → 2NO+1NC	FM 2216-M2 → 2NO+1NC	FM 2220-M2 2NO+1NC	FM 2221-M2 2NO+1NC
2	R	FM 215-M2R28 2x(1NO-1NC)	FM 216-M2 2x(1NO-1NC)	FM 220-M2 2x(1NO-1NC)	FM 221-M2 2x(1NO-1NC)
E1		FM E115-M2R28 1NO-1NC	FM E116-M2 1NO-1NC	FM E120-M2 1NO-1NC	FM E121-M2 1NO-1NC
Max. speed		page 239 - type 2	page 239 - type 2	1 m/s	1 m/s
Min. force		8 N (25 N →)	8 N (25 N →)	0.07 Nm	0.07 Nm
Travel diagrams		page 240 - group 1	page 240 - group 1	page 240 - group 4	page 240 - group 4

All measures in the drawings are in mm

Items with code on **green** background are stock items

Accessories See page 225

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

Position switches **FM** series

Contact type:

- R = snap action
- L = slow action
- LO = slow action overlapped
- LS = slow action shifted
- LV = slow action shifted and spaced
- LI = slow action independent
- LA = slow action closer
- = electronic PNP

Contact blocks		With external rubber gasket		With Ø 20 mm stainless steel roller on request		Other rollers available. See on page 82		Square rod, 3x3 mm	
5	R	FM 525-M2	1NO+1NC	FM 530-M2	1NO+1NC	FM 531-M2	1NO+1NC	FM 533-M2	1NO+1NC
6	L			FM 630-M2	1NO+1NC	FM 631-M2	1NO+1NC	FM 633-M2	1NO+1NC
7	LO			FM 730-M2	1NO+1NC	FM 731-M2	1NO+1NC	FM 733-M2	1NO+1NC
9	L			FM 930-M2	2NC	FM 931-M2	2NC	FM 933-M2	2NC
10	L	FM 1025-M2	2NO	FM 1030-M2	2NO	FM 1031-M2	2NO	FM 1033-M2	2NO
11	R			FM 1130-M2	2NC	FM 1131-M2	2NC	FM 1133-M2	2NC
12	R	FM 1225-M2	2NO	FM 1230-M2	2NO	FM 1231-M2	2NO	FM 1233-M2	2NO
13	LV			FM 1330-M2	2NC	FM 1331-M2	2NC	FM 1333-M2	2NC
14	LS			FM 1430-M2	2NC	FM 1431-M2	2NC	FM 1433-M2	2NC
15	LS			FM 1530-M2	2NO	FM 1531-M2	2NO	FM 1533-M2	2NO
16	LI			FM 1630-M2	2NC	FM 1631-M2	2NC	FM 1633-M2	2NC
18	LA	FM 1825-M2	1NO+1NC	FM 1830-M2	1NO+1NC	FM 1831-M2	1NO+1NC	FM 1833-M2	1NO+1NC
20	L	FM 2025-M2	1NO+2NC	FM 2030-M2	1NO+2NC	FM 2031-M2	1NO+2NC	FM 2033-M2	1NO+2NC
21	L	FM 2125-M2	3NC	FM 2130-M2	3NC	FM 2131-M2	3NC	FM 2133-M2	3NC
22	L	FM 2225-M2	2NO+1NC	FM 2230-M2	2NO+1NC	FM 2231-M2	2NO+1NC	FM 2233-M2	2NO+1NC
2	R	FM 225-M2	2x(1NO-1NC)	FM 230-M2	2x(1NO-1NC)	FM 231-M2	2x(1NO-1NC)	FM 233-M2	2x(1NO-1NC)
E1		FM E125-M2	1NO-1NC	FM E130-M2	1NO-1NC	FM E131-M2	1NO-1NC	FM E133-M2	1NO-1NC
Max. speed		1 m/s		page 239 - type 1		page 239 - type 1		1.5 m/s	
Min. force		0.12 Nm		0.06 Nm (0.25 Nm)		0.06 Nm (0.25 Nm)		0.06 Nm	
Travel diagrams		page 240 - group 4		page 240 - group 5		page 240 - group 5		page 240 - group 5	

Contact blocks				Round rod, Ø 3 mm, stainless steel		Other rollers available. See on page 82		Other rollers available. See on page 82	
5	R	FM 534-M2	1NO+1NC	FM 550-M2	1NO+1NC	FM 551-M2	1NO+1NC	FM 552-M2	1NO+1NC
6	L	FM 634-M2	1NO+1NC	FM 650-M2	1NO+1NC	FM 651-M2	1NO+1NC	FM 652-M2	1NO+1NC
7	LO	FM 734-M2	1NO+1NC	FM 750-M2	1NO+1NC	FM 751-M2	1NO+1NC	FM 752-M2	1NO+1NC
9	L	FM 934-M2	2NC	FM 950-M2	2NC	FM 951-M2	2NC	FM 952-M2	2NC
10	L	FM 1034-M2	2NO	FM 1050-M2	2NO	FM 1051-M2	2NO	FM 1052-M2	2NO
11	R	FM 1134-M2	2NC	FM 1150-M2	2NC	FM 1151-M2	2NC	FM 1152-M2	2NC
12	R	FM 1234-M2	2NO	FM 1250-M2	2NO	FM 1251-M2	2NO	FM 1252-M2	2NO
13	LV	FM 1334-M2	2NC	FM 1350-M2	2NC	FM 1351-M2	2NC	FM 1352-M2	2NC
14	LS	FM 1434-M2	2NC	FM 1450-M2	2NC	FM 1451-M2	2NC	FM 1452-M2	2NC
15	LS	FM 1534-M2	2NO	FM 1550-M2	2NO	FM 1551-M2	2NO	FM 1552-M2	2NO
16	LI	FM 1634-M2	2NC	FM 1650-M2	2NC	FM 1651-M2	2NC	FM 1652-M2	2NC
18	LA	FM 1834-M2	1NO+1NC	FM 1850-M2	1NO+1NC	FM 1851-M2	1NO+1NC	FM 1852-M2	1NO+1NC
20	L	FM 2034-M2	1NO+2NC	FM 2050-M2	1NO+2NC	FM 2051-M2	1NO+2NC	FM 2052-M2	1NO+2NC
21	L	FM 2134-M2	3NC	FM 2150-M2	3NC	FM 2151-M2	3NC	FM 2152-M2	3NC
22	L	FM 2234-M2	2NO+1NC	FM 2250-M2	2NO+1NC	FM 2251-M2	2NO+1NC	FM 2252-M2	2NO+1NC
2	R	FM 234-M2	2x(1NO-1NC)	FM 250-M2	2x(1NO-1NC)	FM 251-M2	2x(1NO-1NC)	FM 252-M2	2x(1NO-1NC)
E1		FM E134-M2	1NO-1NC	FM E150-M2	1NO-1NC	FM E151-M2	1NO-1NC	FM E152-M2	1NO-1NC
Max. speed		1.5 m/s		1.5 m/s		page 239 - type 1		page 239 - type 1	
Min. force		0.06 Nm		0.06 Nm		0.06 Nm (0.25 Nm)		0.06 Nm (0.25 Nm)	
Travel diagrams		page 240 - group 5		page 240 - group 5		page 240 - group 5		page 240 - group 5	

All measures in the drawings are in mm

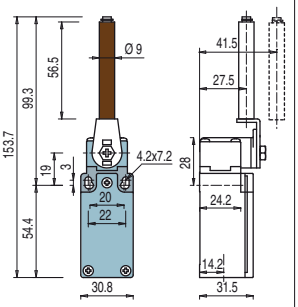
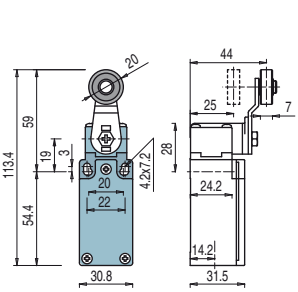
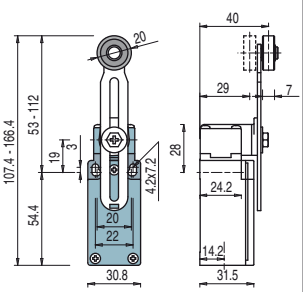
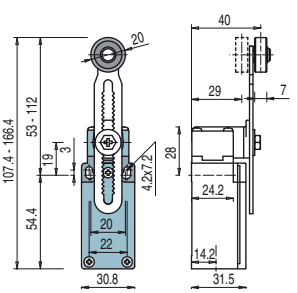
Items with code on **green** background are stock items

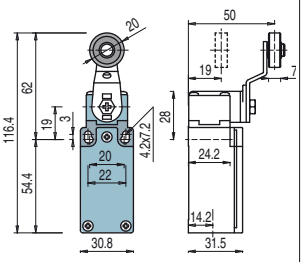
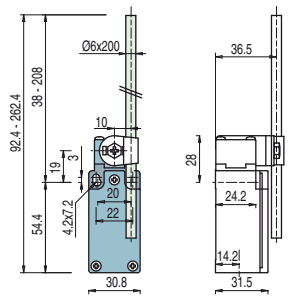
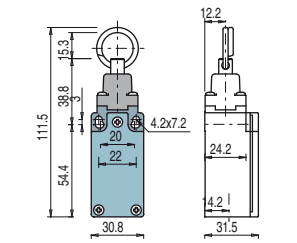
Accessories See page 225

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

Contact type:

R = snap action
L = slow action
LO = slow action overlapped
LS = slow action shifted
LV = slow action shifted and spaced
LI = slow action independent
LA = slow action closer
= electronic PNP

Contact blocks		Porcelain roller	Other rollers available. See on page 82	Other rollers available. See on page 82	Other rollers available. See on page 82
					
5	R	FM 553-E0M2V9 1NO+1NC	FM 554-M2 1NO+1NC	FM 555-M2 (1) 1NO+1NC	FM 556-M2 1NO+1NC
6	L	FM 653-E0M2V9 1NO+1NC	FM 654-M2 1NO+1NC	FM 655-M2 (1) 1NO+1NC	FM 656-M2 1NO+1NC
7	LO	FM 753-E0M2V9 1NO+1NC	FM 754-M2 1NO+1NC	FM 755-M2 (1) 1NO+1NC	FM 756-M2 1NO+1NC
9	L	FM 953-E0M2V9 2NC	FM 954-M2 2NC	FM 955-M2 (1) 2NC	FM 956-M2 2NC
10	L	FM 1053-E0M2V9 2NO	FM 1054-M2 2NO	FM 1055-M2 2NO	FM 1056-M2 2NO
11	R		FM 1154-M2 2NC	FM 1155-M2 (1) 2NC	FM 1156-M2 2NC
12	R	FM 1253-E0M2V9 2NO	FM 1254-M2 2NO	FM 1255-M2 2NO	FM 1256-M2 2NO
13	LV	FM 1353-E0M2V9 2NC	FM 1354-M2 2NC	FM 1355-M2 (1) 2NC	FM 1356-M2 2NC
14	LS	FM 1453-E0M2V9 2NC	FM 1454-M2 2NC	FM 1455-M2 (1) 2NC	FM 1456-M2 2NC
15	LS	FM 1553-E0M2V9 2NO	FM 1554-M2 2NO	FM 1555-M2 2NO	FM 1556-M2 2NO
16	LI		FM 1654-M2 2NC	FM 1655-M2 (1) 2NC	FM 1656-M2 2NC
18	LA	FM 1853-E0M2V9 1NO+1NC	FM 1854-M2 1NO+1NC	FM 1855-M2 (1) 1NO+1NC	FM 1856-M2 1NO+1NC
20	L	FM 2053-E0M2V9 1NO+2NC	FM 2054-M2 1NO+2NC	FM 2055-M2 (1) 1NO+2NC	FM 2056-M2 1NO+2NC
21	L	FM 2153-E0M2V9 3NC	FM 2154-M2 3NC	FM 2155-M2 (1) 3NC	FM 2156-M2 3NC
22	L	FM 2253-E0M2V9 2NO+1NC	FM 2254-M2 2NO+1NC	FM 2255-M2 (1) 2NO+1NC	FM 2256-M2 2NO+1NC
2	R	FM 253-E0M2 2x(1NO-1NC)	FM 254-M2 2x(1NO-1NC)	FM 255-M2 2x(1NO-1NC)	FM 256-M2 2x(1NO-1NC)
E1		FM E153-E0M2V9 1NO-1NC	FM E154-M2 1NO-1NC	FM E155-M2 1NO-1NC	FM E156-M2 1NO-1NC
Max. speed		0.5 m/s	page 239 - type 1	page 239 - type 1	page 239 - type 1
Min. force		0.03 Nm (0.25 Nm)	0.06 Nm (0.25 Nm)	0.06 Nm (0.25 Nm)	0.06 Nm (0.25 Nm)
Travel diagrams		page 240 - group 6	page 240 - group 5	page 240 - group 5	page 240 - group 5

Contact blocks		Other rollers available. See on page 82	Fiber glass rod	Rope switch for signalling	
					
5	R	FM 557-M2 1NO+1NC	FM 569-M2 1NO+1NC	FM 576-M2 1NO+1NC	
6	L	FM 657-M2 1NO+1NC	FM 669-M2 1NO+1NC	FM 676-M2 1NO+1NC	
7	LO	FM 757-M2 1NO+1NC	FM 769-M2 1NO+1NC	FM 776-M2 1NO+1NC	
9	L	FM 957-M2 2NC	FM 969-M2 2NC	FM 976-M2 2NO	
10	L	FM 1057-M2 2NO	FM 1069-M2 2NO	FM 1076-M2 2NC	
11	R	FM 1157-M2 2NC	FM 1169-M2 2NC	FM 1176-M2 2NO	
12	R	FM 1257-M2 2NO	FM 1269-M2 2NO	FM 1276-M2 2NC	
13	LV	FM 1357-M2 2NC	FM 1369-M2 2NC	FM 1376-M2 2NO	
14	LS	FM 1457-M2 2NC	FM 1469-M2 2NC	FM 1476-M2 2NO	
15	LS	FM 1557-M2 2NO	FM 1569-M2 2NO	FM 1576-M2 2NC	
16	LI	FM 1657-M2 2NC	FM 1669-M2 2NC		
18	LA	FM 1857-M2 1NO+1NC	FM 1869-M2 1NO+1NC	FM 1876-M2 1NO+1NC	
20	L	FM 2057-M2 1NO+2NC	FM 2069-M2 1NO+2NC	FM 2076-M2 2NO+1NC	
21	L	FM 2157-M2 3NC	FM 2169-M2 3NC	FM 2176-M2 3NO	
22	L	FM 2257-M2 2NO+1NC	FM 2269-M2 2NO+1NC	FM 2276-M2 1NO+2NC	
2	R	FM 257-M2 2x(1NO-1NC)	FM 269-M2 2x(1NO-1NC)	FM 276-M2 2x(1NO-1NC)	
E1		FM E157-M2 1NO-1NC	FM E169-M2 1NO-1NC		
Max. speed		page 239 - type 1	1.5 m/s	0.5 m/s	
Min. force		0.06 Nm (0.25 Nm)	0.06 Nm	initial 20 N - final 40 N	
Travel diagrams		page 240 - group 5	page 240 - group 5	page 240 - group 7	

(1) Positive opening only with actuator set to max. See page 81.

All measures in the drawings are in mm

Accessories See page 225

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

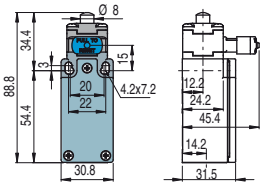
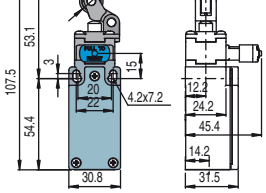
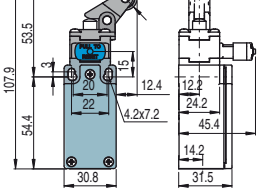
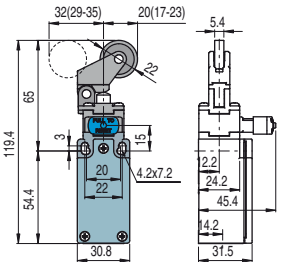
Position switches **FM** series with reset

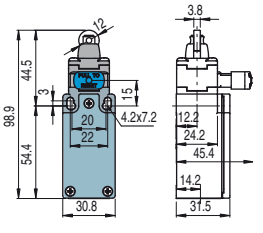
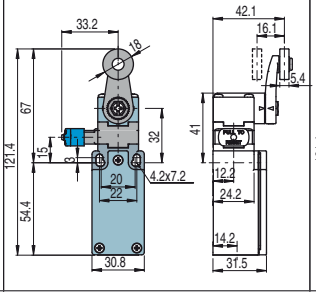
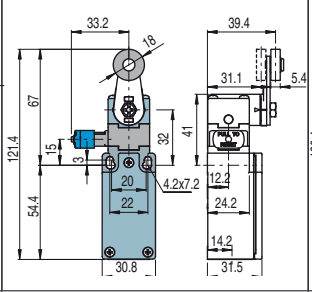
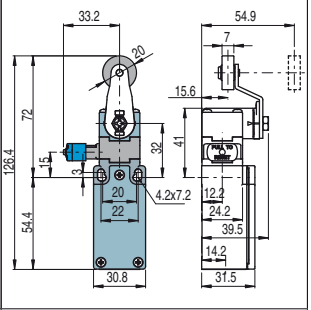
Pizzato Elettrica has developed a reset device code W3 to make perfectly simultaneous the actuator and the contact block tripping. The new device is a block inserted between the switch body and the head, and could be rotated independently from this last one. This new device has following advantages:

- The reset device can be integrated into almost all standard actuator heads
- Contact bllocks with snap action are no more necessary because the tripping movement is made by the reset device itself
- The reset device can be rotated independently from the head for maximum flexibility during installation
- Two driving forces: standard and increased for applications with vibrations
- Mechanical endurance: 1 million operating cycles.

Contact type:

R = snap action
L = slow action

Contact blocks			With stainless steel roller on request 	With stainless steel roller on request 	
6	L	FM 601-W3M2 → 1NO+1NC	FM 602-W3M2 → 1NO+1NC	FM 605-W3M2 → 1NO+1NC	FM 607-W3M2 → 1NO+1NC
9	L	FM 901-W3M2 → 2NC	FM 902-W3M2 → 2NC	FM 905-W3M2 → 2NC	FM 907-W3M2 → 2NC
10	L	FM 1001-W3M2 2NO	FM 1002-W3M2 2NO	FM 1005-W3M2 2NO	FM 1007-W3M2 2NO
20	L	FM 2001-W3M2 → 1NO+2NC	FM 2002-W3M2 → 1NO+2NC	FM 2005-W3M2 → 1NO+2NC	FM 2007-W3M2 → 1NO+2NC
21	L	FM 2101-W3M2 → 3NC	FM 2102-W3M2 → 3NC	FM 2105-W3M2 → 3NC	FM 2107-W3M2 → 3NC
22	L	FM 2201-W3M2 → 2NO+1NC	FM 2202-W3M2 → 2NO+1NC	FM 2205-W3M2 → 2NO+1NC	FM 2207-W3M2 → 2NO+1NC
2	R	FM 201-W3M2 2NO+2NC	FM 202-W3M2 2NO+2NC	FM 205-W3M2 2NO+2NC	FM 207-W3M2 2NO+2NC
Max. speed		page 239 - type 4	page 239 - type 3	page 239 - type 3	page 239 - type 3
Min. force		4.5 N (25 N →)	4 N (25 N →)	4 N (25 N →)	2.5 N (25 N →)
Travel diagrams		page 241 - group 1	page 241 - group 2	page 241 - group 2	page 241 - group 3

Contact blocks		With Ø 12 mm stainless steel roller on request 	With Ø 20 mm stainless steel roller on request 	Other rollers available. See on page 82 	Other rollers available. See on page 82 
6	L	FM 615-W3M2R28 →1NO+1NC	FM 630-W3M2 → 1NO+1NC	FM 631-W3M2 → 1NO+1NC	FM 651-W3M2 → 1NO+1NC
9	L	FM 915-W3M2R28 →2NC	FM 930-W3M2 → 2NC	FM 931-W3M2 → 2NC	FM 951-W3M2 → 2NC
10	L	FM 1015-W3M2R28 2NO	FM 1030-W3M2 2NO	FM 1031-W3M2 2NO	FM 1051-W3M2 2NO
20	L	FM 2015-W3M2R28 →1NO+2NC	FM 2030-W3M2 → 1NO+2NC	FM 2031-W3M2 → 1NO+2NC	FM 2051-W3M2 → 1NO+2NC
21	L	FM 2115-W3M2R28 →3NC	FM 2130-W3M2 → 3NC	FM 2131-W3M2 → 3NC	FM 2151-W3M2 → 3NC
22	L	FM 2215-W3M2R28 →2NO+1NC	FM 2230-W3M2 → 2NO+1NC	FM 2231-W3M2 → 2NO+1NC	FM 2251-W3M2 → 2NO+1NC
2	R	FM 215-W3M2R28 2NO+2NC	FM 230-W3M2 2NO+2NC	FM 231-W3M2 2NO+2NC	FM 251-W3M2 2NO+2NC
Max. speed		page 239 - type 2	page 239 - type 1	page 239 - type 1	page 239 - type 1
Min. force		4.5 N (25 N →)	0.07 Nm (0.25 Nm →)	0.07 Nm (0.25 Nm →)	0.07 Nm (0.25 Nm →)
Travel diagrams		page 241 - group 1	page 241 - group 4	page 241 - group 4	page 241 - group 4

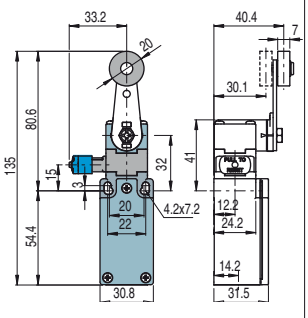
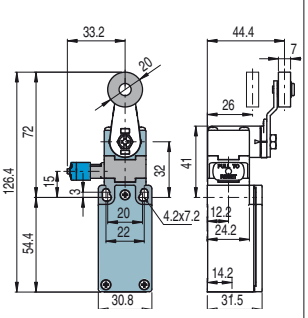
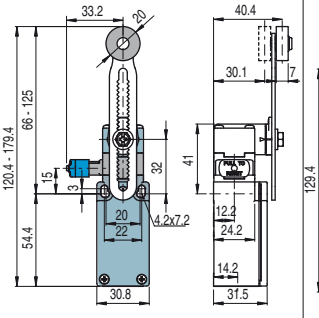
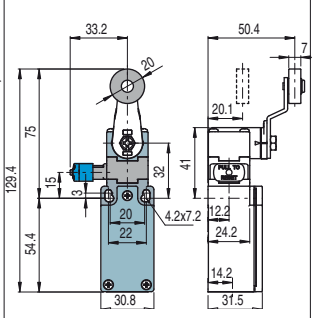
All measures in the drawings are in mm

Accessories See page 225

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

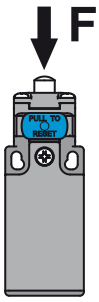
Contact type:

R = snap action
L = slow action

Contact blocks		Other rollers available. See on page 82	Other rollers available. See on page 82	Other rollers available. See on page 82	Other rollers available. See on page 82
					
6	L	FM 652-W3M2 → 1NO+1NC	FM 654-W3M2 → 1NO+1NC	FM 656-W3M2 → 1NO+1NC	FM 657-W3M2 → 1NO+1NC
9	L	FM 952-W3M2 → 2NC	FM 954-W3M2 → 2NC	FM 956-W3M2 → 2NC	FM 957-W3M2 → 2NC
10	L	FM 1052-W3M2 2NO	FM 1054-W3M2 2NO	FM 1056-W3M2 2NO	FM 1057-W3M2 2NO
20	L	FM 2052-W3M2 → 1NO+2NC	FM 2054-W3M2 → 1NO+2NC	FM 2056-W3M2 → 1NO+2NC	FM 2057-W3M2 → 1NO+2NC
21	L	FM 2152-W3M2 → 3NC	FM 2154-W3M2 → 3NC	FM 2156-W3M2 → 3NC	FM 2157-W3M2 → 3NC
22	L	FM 2252-W3M2 → 2NO+1NC	FM 2254-W3M2 → 2NO+1NC	FM 2256-W3M2 → 2NO+1NC	FM 2257-W3M2 → 2NO+1NC
2	R	FM 252-W3M2 2NO+2NC	FM 254-W3M2 2NO+2NC	FM 256-W3M2 2NO+2NC	FM 257-W3M2 2NO+2NC
Max. speed		page 239 - type 1	page 239 - type 1	page 239 - type 1	page 239 - type 1
Min. force		0.07 Nm (0.25 Nm →)	0.07 Nm (0.25 Nm →)	0.07 Nm (0.25 Nm →)	0.07 Nm (0.25 Nm →)
Travel diagrams		page 241 - group 4	page 241 - group 4	page 241 - group 4	page 241 - group 4

All measures in the drawings are in mm

Increased actuating force



The switch can be delivered with increased actuating force (option W4). Ideal for applications with vibrations.

Actuators	Min. force
01, 14, 15, 16	7 N
02, 05	6 N
07	3.5 N
30 ... 57	0.08 Nm

Accessories See page 225

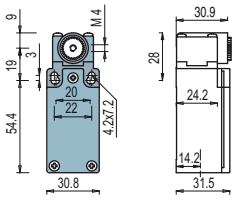
→ The 2D/3D files are available at **www.pizzato.com**

Position switches with revolving lever without actuator

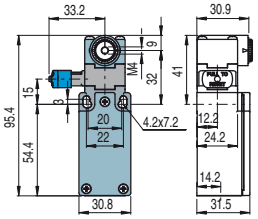
All measures in the drawings are in mm

Contact type:

- R = snap action
- L = slow action
- LO = slow action overlapped
- LS = slow action shifted
- LV = slow action shifted and spaced
- LI = slow action independent
- LA = slow action closer
- = electronic PNP



With manual reset knob



Contact blocks			
5	R	FM 538-M2 → 1NO+1NC	
6	L	FM 638-M2 → 1NO+1NC	FM 638-W3M2 → 1NO+1NC
7	LO	FM 738-M2 → 1NO+1NC	
9	L	FM 938-M2 → 2NC	FM 938-W3M2 → 2NC
10	L	FM 1038-M2 2NO	FM 1038-W3M2 2NO
11	R	FM 1138-M2 → 2NC	
12	R	FM 1238-M2 2NO	
13	LV	FM 1338-M2 → 2NC	
14	LS	FM 1438-M2 → 2NC	
15	LS	FM 1538-M2 2NO	
16	LI	FM 1638-M2 → 2NC	
18	LA	FM 1838-M2 → 1NO+1NC	
20	L	FM 2038-M2 → 1NO+2NC	FM 2038-W3M2 → 1NO+2NC
21	L	FM 2138-M2 → 3NC	FM 2138-W3M2 → 3NC
22	L	FM 2238-M2 → 2NO+1NC	FM 2238-W3M2 → 2NO+1NC
2	R	FM 238-M2 2x(1NO-1NC)	FM 238-W3M2 2NO+2NC
E1		FM E138-M2 1NO-1NC	
Min. force		0.06 Nm (0.25 Nm →)	0.07 Nm (0.25 Nm →)
Travel diagrams		page 240 - group 5	page 241 - group 4

All measures in the drawings are in mm

IMPORTANT

For safety applications: join only switches and actuators marked with symbol → aside the product code.

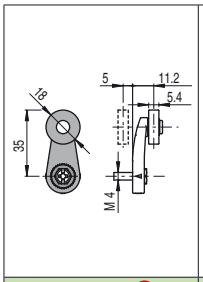
For more information about safety applications see details on page 235.

Loose actuators

All measures in the drawings are in mm

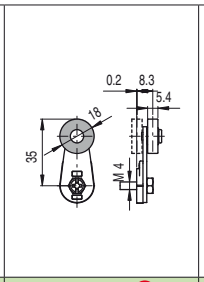
IMPORTANT: These loose actuators can be used with items of series FR, FM, FX, FZ and FK only.

Technopolymer roller Ø 18 mm



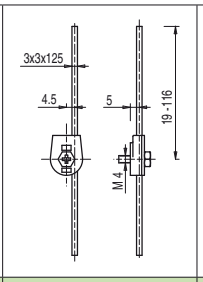
VF LE30 →

Technopolymer roller Ø 18 mm



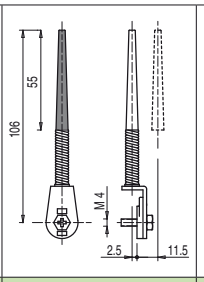
VF LE31 →

Adjustable square rod, 3x3x125 mm



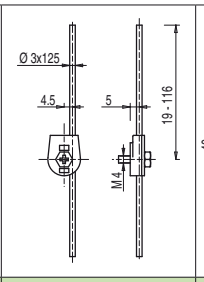
VF LE33

Flexible rod with pointed end



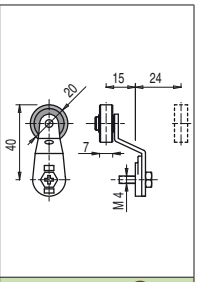
VF LE34

Adjustable round rod Ø 3x125 mm



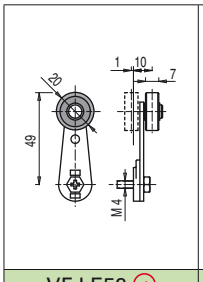
VF LE50

Technopolymer roller Ø 20 mm



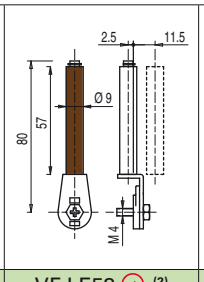
VF LE51 →

Technopolymer roller Ø 20 mm



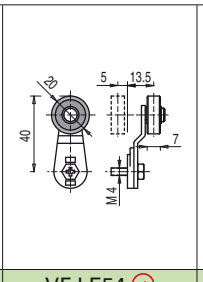
VF LE52 →

Porcelain roller



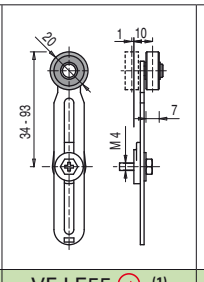
VF LE53 → (2)

Technopolymer roller Ø 20 mm



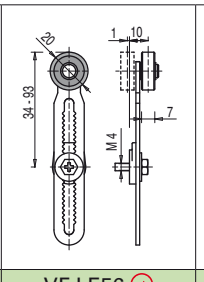
VF LE54 →

Adjustable actuator with technopolymer roller



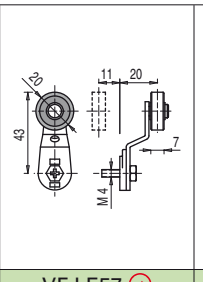
VF LE55 → (1)

Adjustable safety actuator with technopolymer roller



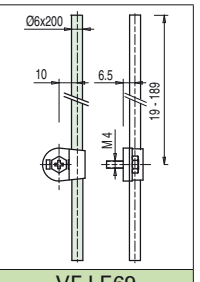
VF LE56 →

Technopolymer roller Ø 20 mm



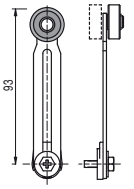
VF LE57 →

Adjustable fiber glass rod



VF LE69

- (1) Actuator VF LE55 can only be used in safety applications if adjusted to its max. length, as shown in figure beside. If you need an adjustable lever for safety applications, use the adjustable safety lever VF LE56.
- (2) The position switch obtained by assembling switch FM •38-M2 (e.g. FM 538-M2, FM 638-M2…) with actuator VF L53 will not present the same travel diagrams and actuating forces as switch FM •53-E0M2V9 (e.g. FM 553-E0M2V9, FM 653-E0M2V9…).
- (4) The actuator cannot be rotated to the inside because it will mechanically interfere with the switch head.



Items with code on **green** background are stock items

Accessories See page 225

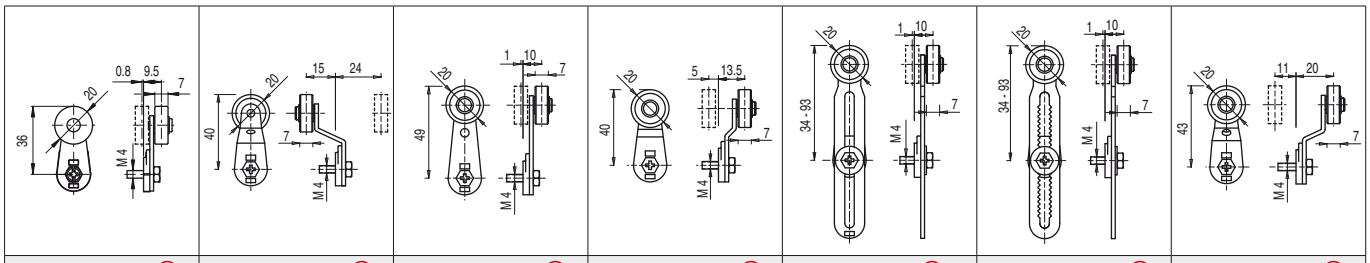
→ The 2D/3D files are available at **www.pizzato.com**

Special loose actuators

All measures in the drawings are in mm

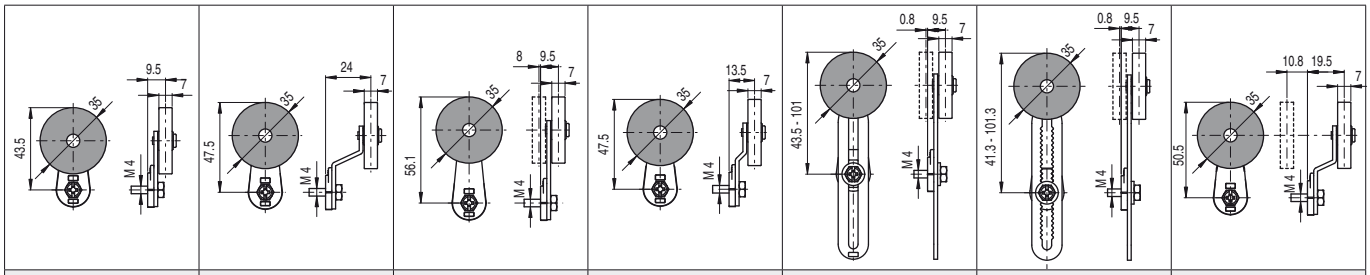
IMPORTANT: These loose actuators can be used with items of series FR, FM, FX, FZ and FK only.

Stainless steel rollers, Ø 20 mm



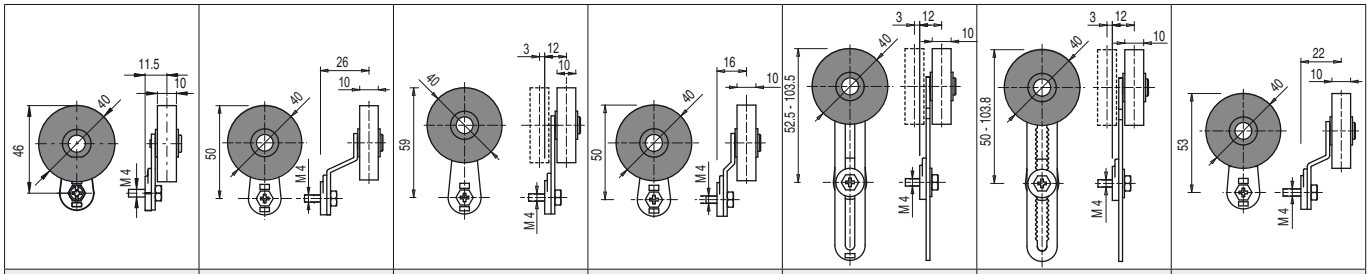
VF LE31-R24 | VF LE51-R24 | VF LE52-R24 | VF LE54-R24 | VF LE55-R24 (1) | VF LE56-R24 | VF LE57-R24

Technopolymer rollers, Ø 35 mm



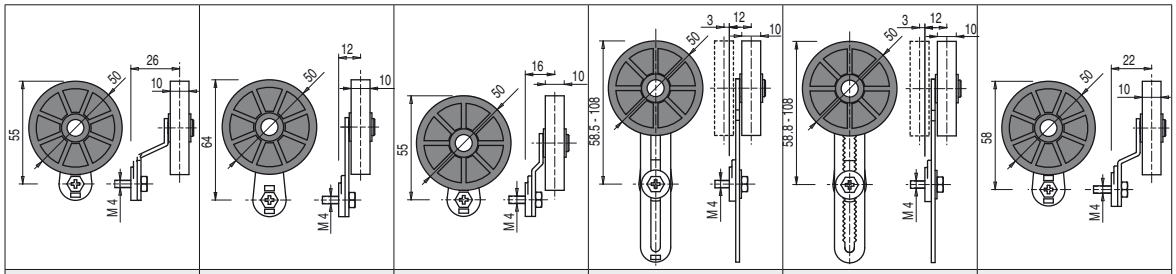
VF LE31-R25 (4) | VF LE51-R25 (4) | VF LE52-R25 | VF LE54-R25 (4) | VF LE55-R25 (1) | VF LE56-R25 | VF LE57-R25

Rubber rollers, Ø 40 mm



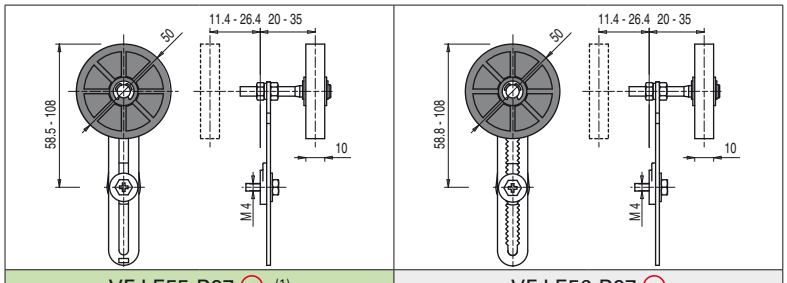
VF LE31-R5 (4) | VF LE51-R5 (4) | VF LE52-R5 | VF LE54-R5 (4) | VF LE55-R5 (1) | VF LE56-R5 | VF LE57-R5 (4)

Rubber rollers, Ø 50 mm



VF LE51-R26 (4) | VF LE52-R26 (4) | VF LE54-R26 (4) | VF LE55-R26 (1) | VF LE56-R26 | VF LE57-R26 (4)

Protruding rubber rollers, Ø 50 mm



VF LE55-R27 (1) | VF LE56-R27

Items with code on **green** background are stock items

Accessories See page 225

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