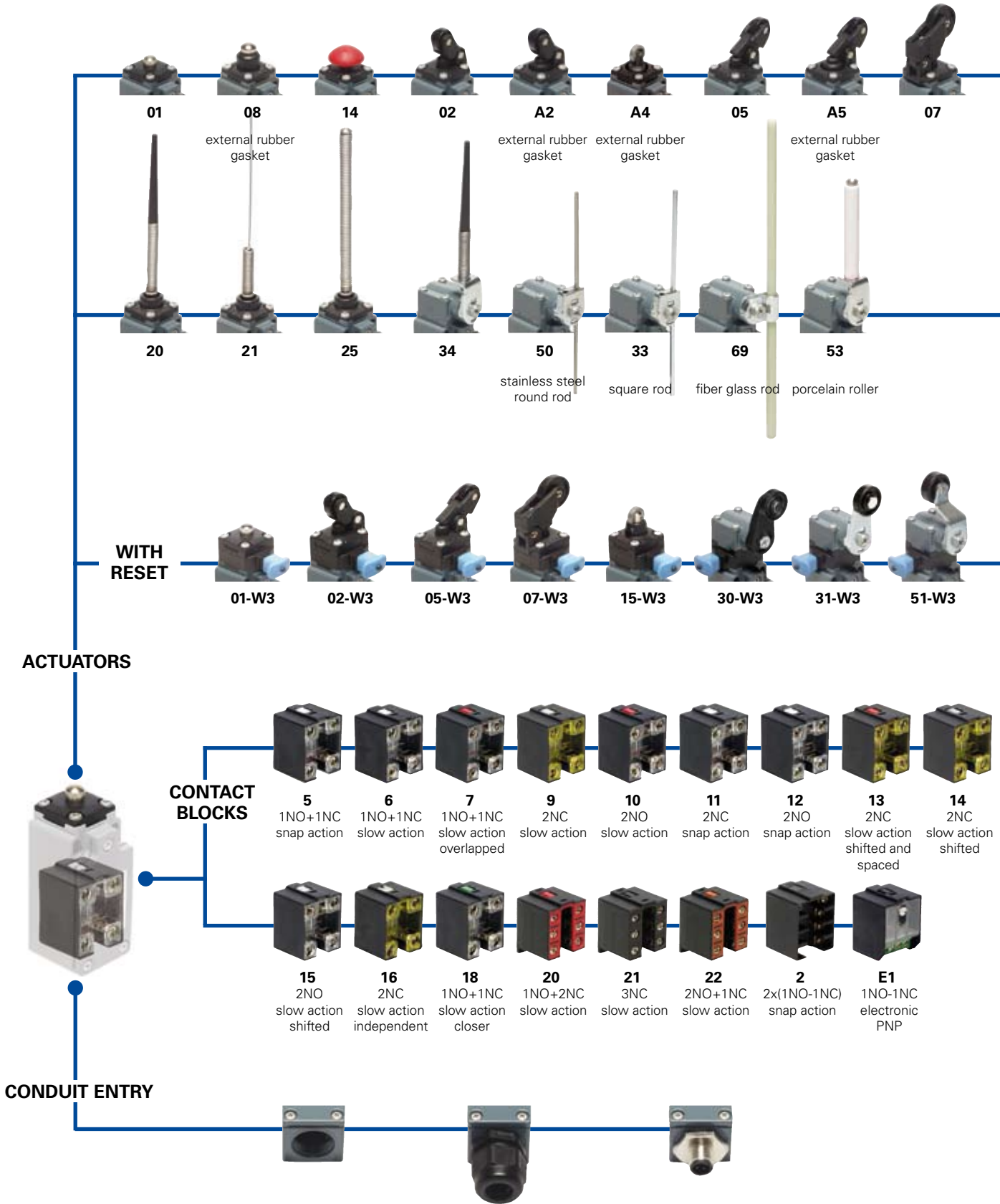


Selection diagram



Threaded conduit entry

	PG 13,5 (standard)
M2	M20x1,5

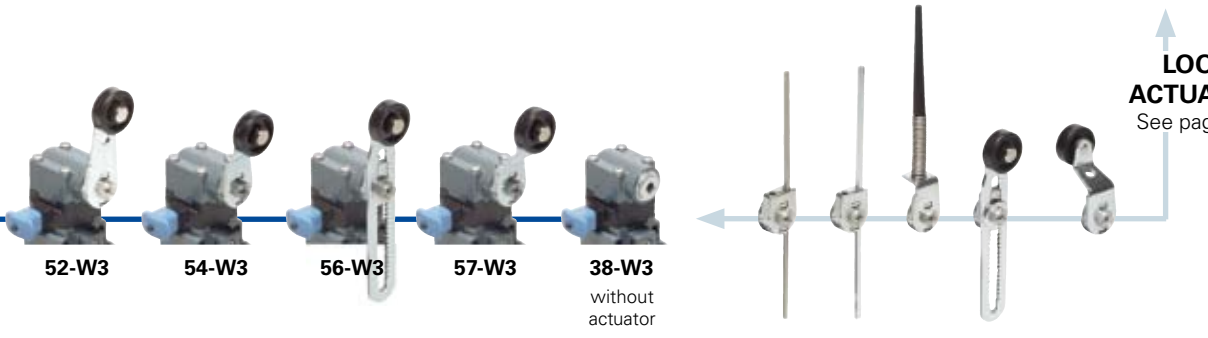
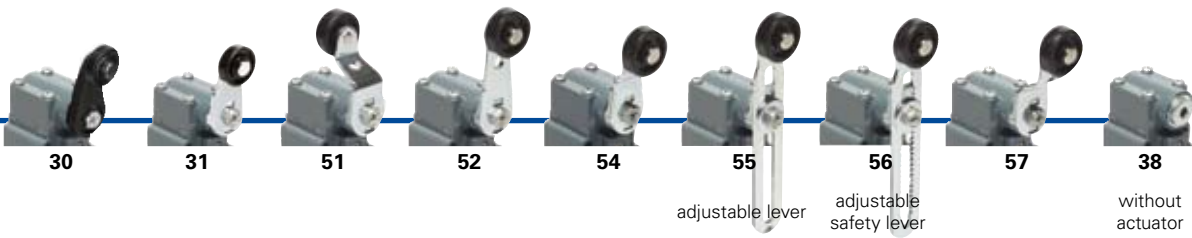
With assembled cable gland

PG 13,5	K21	for Ø 6 to Ø 12 mm cables range	
	K25	for Ø 3 to Ø 7 mm cables range	
	M20x1,5	K23	for Ø 6 to Ø 12 mm cables range
		K27	for Ø 3 to Ø 7 mm cables range

With M12 metal connector assembled and wired

K40	8 poles from bottom
K50	5 poles from bottom

● product option
 → accessory sold separately



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
FM 502-1W3GM2K50

Housing	
FM	metal housing, 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	offset roller lever
...

Suffix	
	no suffix (standard)
1	with stainless steel roller: - Ø 14 mm for actuators A2, 02, A5, 05 - Ø 20 mm for actuators 30, 31, 51, 52, 54, 55, 56, 57
2	with Ø 35 mm polymer roller (see special loose actuators on page 2/64)
3	with Ø 50 mm rubber roller (see special loose actuators on page 2/64)
4	with Ø 50 mm overhanging rubber roller (see special loose actuators on page 2/64)

Preinstalled cable gland or connectors	
	no cable gland or connector (standard)
K21	with assembled cable gland suitable for Ø 6 to Ø 12 mm cables range
...
K50	with 5 poles M12 metal connector
...

For the complete list of all combinations, please contact our technical office.

Threaded conduit entry	
	PG 13,5 (standard)
M2	M20x1,5

Contacts type	
	silver contacts (standard)
G	silver contacts gold plated 1 µm (contact block 2 excluded)

Reset hooking	
	without reset (standard)
W3	simultaneous reset hooking



Main data

- Metal housing, one conduit entry
- Protection degree IP67
- 17 contact blocks available
- 43 actuators available
- M12 assembled connector versions
- Silver contacts gold plated versions

Technical data

Housing

Metal housing, coated with baked epoxy powder
 One threaded conduit entry
 Protection degree: IP67 according to EN 60529

General data

Ambient temperature: from -25°C to +80°C
 Version for operation in ambient temperature from -40°C to +80° C on request
 Max actuation frequency: 3600 operations cycles¹/hour
 Mechanical endurance: 20 million operations cycles¹
 Assembling position: any
 Driving torque for installation: see pages 7/1-7/10
 (1) One operation cycle means two movements, one to close and one to open contacts, as foreseen by EN 60947-5-1 standard.

Cross section of the conductors (flexible copper wire)

Contact blocks 20, 21, 22, 33, 34:	min.	1 x 0,34 mm ²	(1 x AWG 22)
	max.	2 x 1,5 mm ²	(2 x AWG 16)
Contact blocks 5, 6, 7, 9, 10, 11, 12, 13, 14, 15, 16, 18:	min.	1 x 0,5 mm ²	(1 x AWG 20)
	max.	2 x 2,5 mm ²	(2 x AWG 14)
Contact block 2:	min.	1 x 0,5 mm ²	(1 x AWG 20)
	max.	2 x 1,5 mm ²	(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 1088, EN ISO 12100-1, EN ISO 12100-2, IEC 60529, EN 60529, NFC 63-140, VDE 0660-200, VDE 0113.

Approvals:

IEC 60947-5-1, UL 508, GB14048.5-2001.

Markings and quality marks:

Approval IMO: EG609
 Approval UL: E131787
 Approval CCC: 2007010305229998
 Approval ECU: 1010151

In conformity with requirements requested by:

Low Voltage Directive 2006/95/EC, Machinery Directive 2006/42/EC and Electromagnetic Compatibility 2004/108/EC.

Positive contact opening in conformity with standards:

IEC 60947-5-1, EN 60947-5-1, VDE 0660-206.

Installation for safety applications:

Use only switches marked with the symbol ⊕. The safety circuit must always be connected with the **NC contacts** (normally closed contacts: 11-12, 21-22 or 31-32) as stated in the **standard EN 60947-5-1, encl. K, par. 2**. The switch must be actuated with **at least up to the positive opening travel** shown in the travels diagrams on page 7/6. The switch must be actuated **at least with the positive opening force**, shown in brackets, underneath each article, near the value of the min. force.

⚠ If not expressly indicated in this chapter, for the right installation and the correct utilization of all articles see requirements indicated from page 7/1 to page 7/10.

	Electrical data	Utilization categories
without connector	Thermal current (I _{th}):	10 A
	Rated insulation voltage (U _i):	500 Vac 600 Vdc 400Vac500Vdc(contactblocks2,11,12,20,21,22,33,34)
	Rated impulse withstand voltage (U _{imp}):	6 kV 4 kV (contact blocks 20, 21, 22, 33, 34)
	Conditional shot circuit current: Protection against short circuits: Pollution degree:	1000 A according to EN 60947-5-1 fuse 10 A 500 V type aM 3
with 5 poles M12 connector	Thermal current (I _{th}):	4 A
	Rated insulation voltage (U _i):	250 Vac 300 Vdc
	Protection against short circuits: Pollution degree:	fuse 4 A 500 V type gG 3
with 8 poles M12 connector	Thermal current (I _{th}):	2 A
	Rated insulation voltage (U _i):	30 Vac 36 Vdc
	Protection against short circuits: Pollution degree:	fuse 2 A 500 V type gG 3



Data type approved by IMQ, CCC and EZU

Rated insulation voltage (Ui): 500 Vac
400 Vac (for contact blocks 2, 11, 12, 20, 21, 22, 33, 34)

Thermal current (Ith): 10 A

Protection against short circuits: fuse 10 A 500 V type aM

Rated impulse withstand voltage (U_{imp}): 6 kV
4 kV (for contact blocks 20, 21, 22, 33, 34)

Protection degree: IP67

MV terminals (screw clamps)

Pollution degree 3

Utilization category: AC15

Operation voltage (Ue): 400 Vac (50 Hz)

Operation 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 block 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/CE.

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

Data type approved by UL

Utilization categories Q300 (69 VA, 125-250 Vdc)
A600 (720 VA, 120-600 Vac)

Data of the housing type 1, 4X "indoor use only", 12, 13

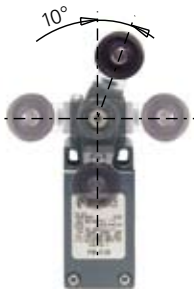
For all contact blocks except 2 and 3 use 60 or 75 °C copper (Cu) conductor and wire size No. 12-14 AWG. Terminal tightening torque of 7,1 lb in (0,8 Nm).
For contact blocks 2 and 3 use 60 or 75 °C copper (Cu) conductor and wire size No. 14 AWG. Terminal tightening torque of 12 lb in (1,4 Nm).

In conformity with standard: UL 508

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

Adjustable levers

In switches with revolving lever it is possible to adjust the lever with 10° steps for the whole 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.



Overturning levers

It's possible to fasten the lever on switches on straight or reverse side, maintaining the positive coupling. In this way it is possible to obtain two different work plans of the lever.



Rotating heads

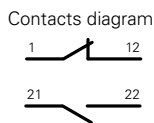
In all switches, it is possible to rotate the head in 90° steps.



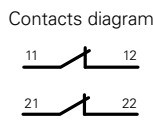
Working operation of contact block 16 with independent contacts

The contact block 16 has two NC contacts, both with positive opening activated independently according to the lever turning direction.

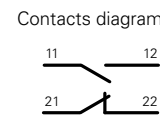
Lever turned to left



Lever not turned



Lever turned to right



Contacts 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
- PNP** = electronic PNP

Contact blocks

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

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

Accessories See page 6/1

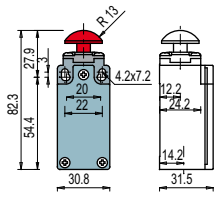
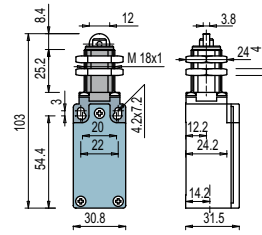
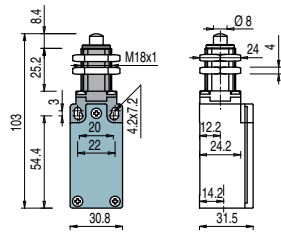
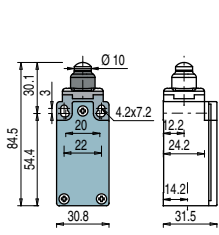
All measures in the drawings are in mm



Contacts 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

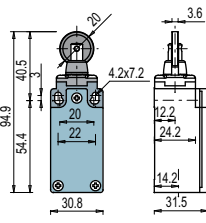
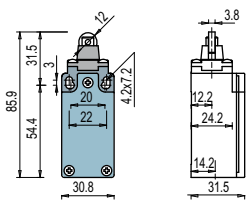
With external rubber gasket



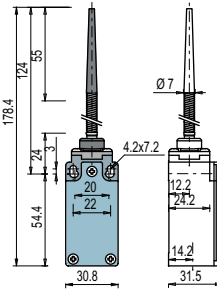
Contact blocks

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

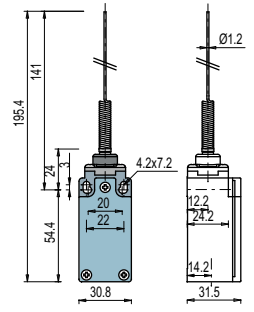
Ø 12 mm stainless steel roller



With external rubber gasket



With external rubber gasket



Contact blocks

5	R	FM 515	1NO+1NC	FM 516	1NO+1NC	FM 520	1NO+1NC	FM 521	1NO+1NC
6	L	FM 615	1NO+1NC	FM 616	1NO+1NC				
7	LO	FM 715	1NO+1NC	FM 716	1NO+1NC				
9	L	FM 915	2NC	FM 916	2NC				
10	L	FM 1015	2NO	FM 1016	2NO	FM 1020	2NO	FM 1021	2NO
11	R	FM 1115	2NC	FM 1116	2NC				
12	R	FM 1215	2NO	FM 1216	2NO	FM 1220	2NO	FM 1221	2NO
13	LV	FM 1315	2NC	FM 1316	2NC				
14	LS	FM 1415	2NC	FM 1416	2NC				
15	LS	FM 1515	2NO	FM 1516	2NO				
18	LA	FM 1815	1S+1Ö	FM 1816	1S+1Ö	FM 1820	1NO+1NC	FM 1821	1NO+1NC
20	L	FM 2015	1NO+2NC	FM 2016	1NO+2NC	FM 2020	1NO+2NC	FM 2021	1NO+2NC
21	L	FM 2115	3NC	FM 2116	3NC	FM 2120	3NC	FM 2121	3NC
22	L	FM 2215	2NO+1NC	FM 2216	2NO+1NC	FM 2220	2NO+1NC	FM 2221	2NO+1NC
2	R	FM 215	2x(1NO-1NC)	FM 216	2x(1NO-1NC)	FM 220	2x(1NO-1NC)	FM 221	2x(1NO-1NC)
E1	⚡	FM E115	1NO-1NC	FM E116	1NO-1NC	FM E120	1NO-1NC	FM E121	1NO-1NC
Max speed		page 7/5 - type 2		page 7/5 - 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 7/6 - group 1		page 7/6 - group 1		page 7/6 - group 4		page 7/6 - group 4	

Items with code on the green background are available in stock

- Contacts 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
 - E1** = electronic PNP

Contact blocks

	With external rubber gasket	With Ø 20 mm stainless steel roller on request	Other rollers available. See page 2/64	3x3 mm square rod
5	R FM 525	R FM 530	R FM 531	R FM 533
6	L FM 525	L FM 530	L FM 531	L FM 533
7	LO FM 525	LO FM 530	LO FM 531	LO FM 533
9	L FM 525	L FM 530	L FM 531	L FM 533
10	L FM 1025	L FM 1030	L FM 1031	L FM 1033
11	R FM 1225	R FM 1230	R FM 1231	R FM 1233
12	R FM 1225	R FM 1230	R FM 1231	R FM 1233
13	LV FM 1225	LV FM 1230	LV FM 1231	LV FM 1233
14	LS FM 1225	LS FM 1230	LS FM 1231	LS FM 1233
15	LS FM 1225	LS FM 1230	LS FM 1231	LS FM 1233
16	LI FM 1225	LI FM 1230	LI FM 1231	LI FM 1233
18	LA FM 1825	LA FM 1830	LA FM 1831	LA FM 1833
20	L FM 2025	L FM 2030	L FM 2031	L FM 2033
21	L FM 2125	L FM 2130	L FM 2131	L FM 2133
22	L FM 2225	L FM 2230	L FM 2231	L FM 2233
2	R FM 225	R FM 230	R FM 231	R FM 233
E1	E1 FM E125	E1 FM E130	E1 FM E131	E1 FM E133
Max speed	1 m/s	page 7/5 - type 1	page 7/5 - 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 7/6 - group 4	page 7/6 - group 5	page 7/6 - group 5	page 7/6 - group 5

	Ø 3 mm stainless steel round rod	Other rollers available. See page 2/64	Other rollers available. See page 2/64
5	R FM 534	R FM 551	R FM 552
6	L FM 634	L FM 651	L FM 652
7	LO FM 734	LO FM 751	LO FM 752
9	L FM 934	L FM 951	L FM 952
10	L FM 1034	L FM 1051	L FM 1052
11	R FM 1134	R FM 1151	R FM 1152
12	R FM 1234	R FM 1251	R FM 1252
13	LV FM 1334	LV FM 1351	LV FM 1352
14	LS FM 1434	LS FM 1451	LS FM 1452
15	LS FM 1534	LS FM 1551	LS FM 1552
16	LI FM 1634	LI FM 1651	LI FM 1652
18	LA FM 1834	LA FM 1851	LA FM 1852
20	L FM 2034	L FM 2051	L FM 2052
21	L FM 2134	L FM 2151	L FM 2152
22	L FM 2234	L FM 2251	L FM 2252
2	R FM 234	R FM 251	R FM 252
E1	E1 FM E134	E1 FM E151	E1 FM E152
Max speed	1,5 m/s	page 7/5 - type 1	page 7/5 - type 1
Min. force	0,06 Nm	0,06 Nm (0,25 Nm ⊕)	0,06 Nm (0,25 Nm ⊕)
Travel diagrams	page 7/6 - group 5	page 7/6 - group 5	page 7/6 - group 5

Accessories See page 6/1



Contacts 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
- A** = electronic PNP

Contact blocks

	Porcelain roller	Other rollers available. See page 2/64	Other rollers available. See page 2/64	Other rollers available. See page 2/64
5	R FM 553-E0V9 1NO+1NC	FM 554 1NO+1NC	FM 555 (1) 1NO+1NC	FM 556 1NO+1NC
6	L FM 653-E0V9 1NO+1NC	FM 654 1NO+1NC	FM 655 (1) 1NO+1NC	FM 656 1NO+1NC
7	LO FM 753-E0V9 1NO+1NC	FM 754 1NO+1NC	FM 755 (1) 1NO+1NC	FM 756 1NO+1NC
9	L FM 953-E0V9 2NC	FM 954 2NC	FM 955 (1) 2NC	FM 956 2NC
10	L FM 1053-E0V9 2NO	FM 1054 2NO	FM 1055 2NO	FM 1056 2NO
11	R FM 1253-E0V9 2NO	FM 1254 2NO	FM 1255 2NO	FM 1256 2NO
13	LV FM 1353-E0V9 2NC	FM 1354 2NC	FM 1355 (1) 2NC	FM 1356 2NC
14	LS FM 1453-E0V9 2NC	FM 1454 2NC	FM 1455 (1) 2NC	FM 1456 2NC
15	LS FM 1553-E0V9 2NO	FM 1554 2NO	FM 1555 2NO	FM 1556 2NO
16	LI FM 1653-E0V9 2NC	FM 1654 2NC	FM 1655 (1) 2NC	FM 1656 2NC
18	LA FM 1853-E0V9 1S+1Ö	FM 1854 1S+1Ö	FM 1855 1S+1Ö	FM 1856 1S+1Ö
20	L FM 2053-E0V9 1NO+2NC	FM 2054 1NO+2NC	FM 2055 (1) 1NO+2NC	FM 2056 1NO+2NC
21	L FM 2153-E0V9 3NC	FM 2154 3NC	FM 2155 (1) 3NC	FM 2156 3NC
22	L FM 2253-E0V9 2NO+1NC	FM 2254 2NO+1NC	FM 2255 (1) 2NO+1NC	FM 2256 2NO+1NC
2	R FM 253-E0 2x(1NO-1NC)	FM 254 2x(1NO-1NC)	FM 255 2x(1NO-1NC)	FM 256 2x(1NO-1NC)
E1	A FM E153-E0V9 1NO-1NC	FM E154 1NO-1NC	FM E155 1NO-1NC	FM E156 1NO-1NC
Max speed	0,5 m/s	page 7/5 - type 1	page 7/5 - type 1	page 7/5 - 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 7/6 - group 6	page 7/6 - group 5	page 7/6 - group 5	page 7/6 - group 5

	Other rollers available. See page 2/64	Fiber glass rod	Rope switches for signalling
5	R FM 557 1NO+1NC	FM 569 1NO+1NC	FM 576 1NO+1NC
6	L FM 657 1NO+1NC	FM 669 1NO+1NC	FM 676 1NO+1NC
7	LO FM 757 1NO+1NC	FM 769 1NO+1NC	FM 776 1NO+1NC
9	L FM 957 2NC	FM 969 2NC	FM 976 2NO
10	L FM 1057 2NO	FM 1069 2NO	FM 1076 2NC
11	R FM 1157 2NC	FM 1169 2NC	FM 1176 2NO
12	R FM 1257 2NO	FM 1269 2NO	FM 1276 2NC
13	LV FM 1357 2NC	FM 1369 2NC	FM 1376 2NO
14	LS FM 1457 2NC	FM 1469 2NC	FM 1476 2NO
15	LS FM 1557 2NO	FM 1569 2NO	FM 1576 2NC
16	LI FM 1657 2NC	FM 1669 2NC	
18	LA FM 1857 1S+1Ö	FM 1869 1S+1Ö	FM 1876 1NO+1NC
20	L FM 2057 1NO+2NC	FM 2069 1NO+2NC	FM 2076 2NO+1NC
21	L FM 2157 3NC	FM 2169 3NC	FM 2176 3NO
22	L FM 2257 2NO+1NC	FM 2269 2NO+1NC	FM 2276 1NO+2NC
2	R FM 257 2x(1NO-1NC)	FM 269 2x(1NO-1NC)	FM 276 2x(1NO-1NC)
E1	A FM E157 1NO-1NC	FM E169 1NO-1NC	
Max speed	page 7/5 - 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 7/6 - group 5	page 7/6 - group 5	page 7/6 - group 7

Items with code on the green background are available in stock

(1) Positive opening only with lever adjusted on the max. See page 2/63.
General Catalog 2011-2012



Position switches FM series with reset

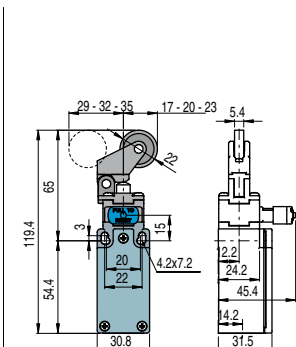
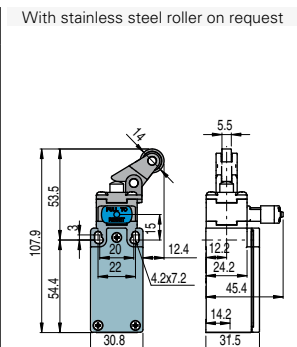
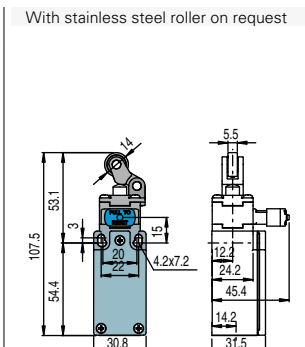
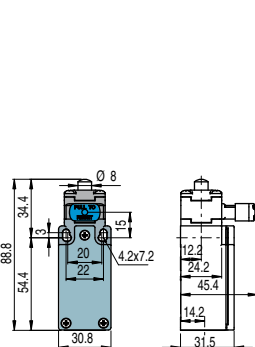


Pizzato Elettrica has developed a reset device code W3 to make perfectly simultaneous the actuator and the contact block tripping. The new device is a block inserted between the switch body and the head, and could be rotated independently from this last one. This new device has following advantages:

- * The reset device integrate in any standard actuation head
- * Contact blocks 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 the maximum flexibility during the assembling.

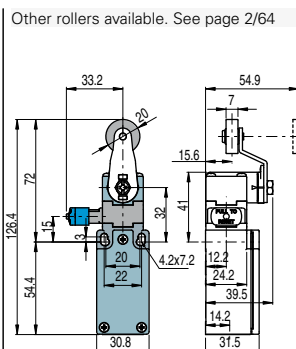
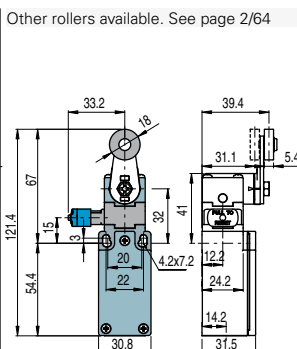
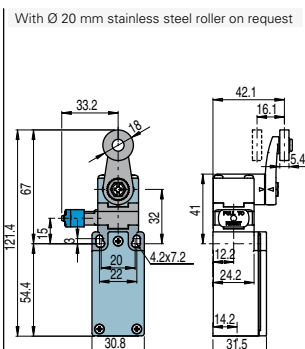
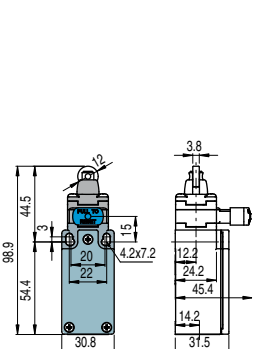
Contacts type:

- R** = snap action
- L** = slow action



Contact blocks

6	L	FM 601-W3	⊕ 1NO+1NC	FM 602-W3	⊕ 1NO+1NC	FM 605-W3	⊕ 1NO+1NC	FM 607-W3	⊕ 1NO+1NC
9	L	FM 901-W3	⊕ 2NC	FM 902-W3	⊕ 2NC	FM 905-W3	⊕ 2NC	FM 907-W3	⊕ 2NC
10	L	FM 1001-W3	2NO	FM 1002-W3	2NO	FM 1005-W3	2NO	FM 1007-W3	2NO
20	L	FM 2001-W3	⊕ 1NO+2NC	FM 2002-W3	⊕ 1NO+2NC	FM 2005-W3	⊕ 1NO+2NC	FM 2007-W3	⊕ 1NO+2NC
21	L	FM 2101-W3	⊕ 3NC	FM 2102-W3	⊕ 3NC	FM 2105-W3	⊕ 3NC	FM 2107-W3	⊕ 3NC
22	L	FM 2201-W3	⊕ 2NO+1NC	FM 2202-W3	⊕ 2NO+1NC	FM 2205-W3	⊕ 2NO+1NC	FM 2207-W3	⊕ 2NO+1NC
2	R	FM 201-W3	2NO+2NC	FM 202-W3	2NO+2NC	FM 205-W3	2NO+2NC	FM 207-W3	2NO+2NC
Max speed		page 7/5 - type 4		page 7/5 - type 3		page 7/5 - type 3		page 7/5 - type 3	
Min. force		8 N (25 N ⊕)		6 N (25 N ⊕)		6 N (25 N ⊕)		4 N (25 N ⊕)	
Travel diagrams		page 7/7 - group 1		page 7/7 - group 2		page 7/7 - group 2		page 7/7 - group 3	



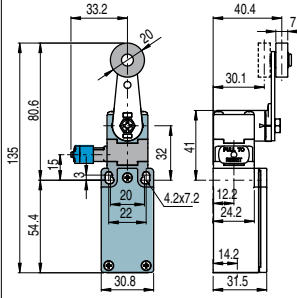
Contact blocks

6	L	FM 615-W3	⊕ 1NO+1NC	FM 630-W3	⊕ 1NO+1NC	FM 631-W3	⊕ 1NO+1NC	FM 651-W3	⊕ 1NO+1NC
9	L	FM 915-W3	⊕ 2NC	FM 930-W3	⊕ 2NC	FM 931-W3	⊕ 2NC	FM 951-W3	⊕ 2NC
10	L	FM 1015-W3	2NO	FM 1030-W3	2NO	FM 1031-W3	2NO	FM 1051-W3	2NO
20	L	FM 2015-W3	⊕ 1NO+2NC	FM 2030-W3	⊕ 1NO+2NC	FM 2031-W3	⊕ 1NO+2NC	FM 2051-W3	⊕ 1NO+2NC
21	L	FM 2115-W3	⊕ 3NC	FM 2130-W3	⊕ 3NC	FM 2131-W3	⊕ 3NC	FM 2151-W3	⊕ 3NC
22	L	FM 2215-W3	⊕ 2NO+1NC	FM 2230-W3	⊕ 2NO+1NC	FM 2231-W3	⊕ 2NO+1NC	FM 2251-W3	⊕ 2NO+1NC
2	R	FM 215-W3	2NO+2NC	FM 230-W3	2NO+2NC	FM 231-W3	2NO+2NC	FM 251-W3	2NO+2NC
Max speed		page 7/5 - type 2		page 7/5 - type 1		page 7/5 - type 1		page 7/5 - type 1	
Min. force		8 N (25 N ⊕)		0,06 Nm (0,25 Nm ⊕)		0,06 Nm (0,25 Nm ⊕)		0,06 Nm (0,25 Nm ⊕)	
Travel diagrams		page 7/7 - group 1		page 7/7 - group 4		page 7/7 - group 4		page 7/7 - group 4	

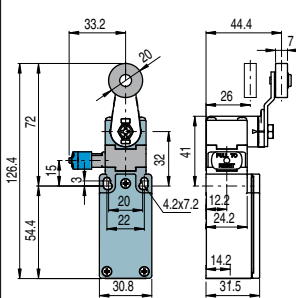
Contacts type:

R = snap action
L = slow action

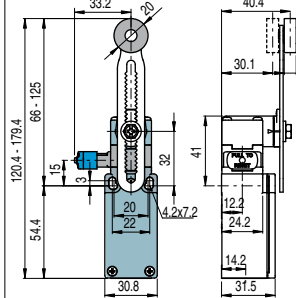
Other rollers available. See page 2/64



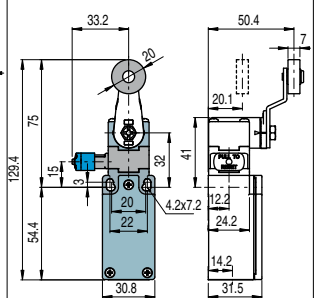
Other rollers available. See page 2/64



Other rollers available. See page 2/64



Other rollers available. See page 2/64




Contact blocks

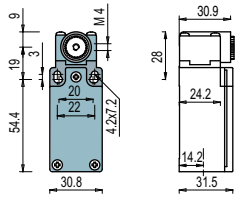
6	L	FM 652-W3	1NO+1NC	FM 654-W3	1NO+1NC	FM 656-W3	1NO+1NC	FM 657-W3	1NO+1NC
9	L	FM 952-W3	2NC	FM 954-W3	2NC	FM 956-W3	2NC	FM 957-W3	2NC
10	L	FM 1052-W3	2NO	FM 1054-W3	2NO	FM 1056-W3	2NO	FM 1057-W3	2NO
20	L	FM 2052-W3	1NO+2NC	FM 2054-W3	1NO+2NC	FM 2056-W3	1NO+2NC	FM 2057-W3	1NO+2NC
21	L	FM 2152-W3	3NC	FM 2154-W3	3NC	FM 2156-W3	3NC	FM 2157-W3	3NC
22	L	FM 2252-W3	2NO+1NC	FM 2254-W3	2NO+1NC	FM 2256-W3	2NO+1NC	FM 2257-W3	2NO+1NC
2	R	FM 252-W3	2NO+2NC	FM 254-W3	2NO+2NC	FM 256-W3	2NO+2NC	FM 257-W3	2NO+2NC
Max speed		page 7/5 - type 1		page 7/5 - type 1		page 7/5 - type 1		page 7/5 - type 1	
Min. force		0,06 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 7/7 - group 4		page 7/7 - group 4		page 7/7 - group 4		page 7/7 - group 4	

 Items with code on the **green** background are available in stock

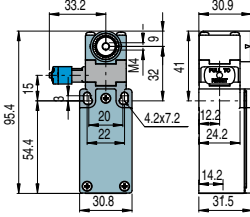
Position switches with revolving lever without actuator

Contacts 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



IMPORTANT

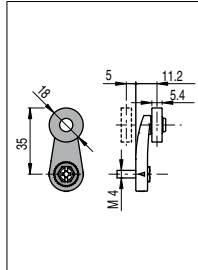
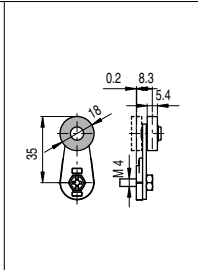
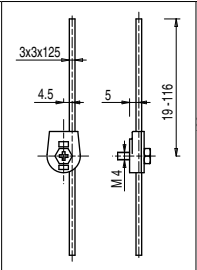
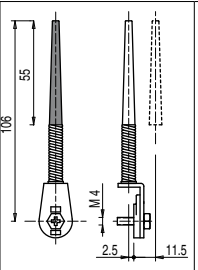
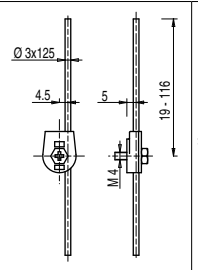
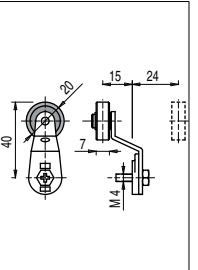
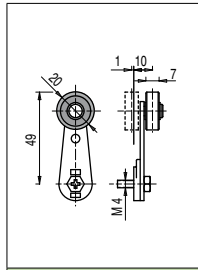
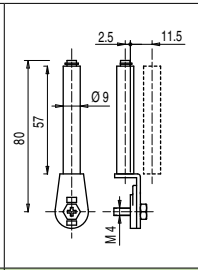
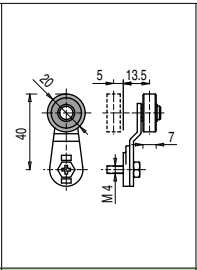
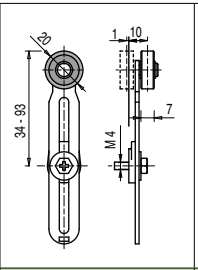
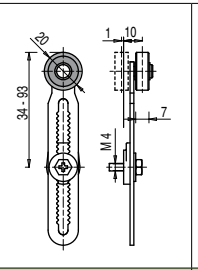
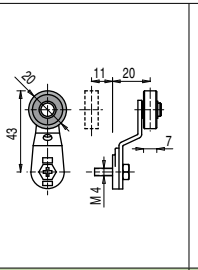
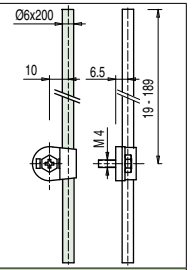
For safety applications: join only switches and actuators marked with symbol ⊕.
For more information about safety applications see page 7/1.

Contact blocks

5	R	FM 538 ⊕	1NO+1NC	
6	L	FM 638 ⊕	1NO+1NC	FM 638-W3 ⊕ 1NO+1NC
7	LO	FM 738 ⊕	1NO+1NC	
9	L	FM 938 ⊕	2NC	FM 938-W3 ⊕ 2NC
10	L	FM 1038	2NO	FM 1038-W3 2NO
11	R	FM 1138 ⊕	2NC	
12	R	FM 1238	2NO	
13	LV	FM 1338 ⊕	2NC	
14	LS	FM 1438 ⊕	2NC	
15	LS	FM 1538	2NO	
16	LI	FM 1638 ⊕	2NC	
18	LA	FM 1838 ⊕	1NO+1NC	
20	L	FM 2038 ⊕	1NO+2NC	FM 2038-W3 ⊕ 1NO+2NC
21	L	FM 2138 ⊕	3NC	FM 2138-W3 ⊕ 3NC
22	L	FM 2238 ⊕	2NO+1NC	FM 2238-W3 ⊕ 2NO+1NC
2	R	FM 238	2x(1NO-1NC)	FM 238-W3 2NO+2NC
E1		FM E138	1NO-1NC	
Min. force		0,06 Nm (0,25 Nm) ⊕		0,06 Nm (0,25 Nm) ⊕
Travel diagrams		page 7/6 - group 5		page 7/7 - group 4

Loose actuators

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

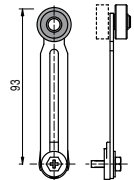
Polymer roller Ø 18 mm	Polymer roller Ø 18 mm	Adjustable square rod 3x3x125 mm	Flexible rod actuator	Adjustable round rod Ø 3x125 mm	Polymer roller Ø 20 mm	
						
VF LE30 ⊕	VF LE31 ⊕	VF LE33	VF LE34	VF LE50	VF LE51 ⊕	
Polymer roller Ø 20 mm	Porcelain roller	Polymer roller Ø 20 mm	Adjustable actuator with polymer roller	Adjustable safety actuator with polymer roller	Polymer roller Ø 20 mm	Adjustable fiber glass rod
						
VF LE52 ⊕	VF LE53 ⊕ ⁽²⁾	VF LE54 ⊕	VF LE55 ⊕ ⁽¹⁾	VF LE56 ⊕	VF LE57 ⊕	VF LE69

- Only orders for multiple quantities of the packs are accepted.

⁽¹⁾ Actuator VF LE55 suits to safety applications only if adjusted to its max length, as you can see 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 the switch FM •38 (e.g. FM 538, FM 638) with the actuator VF LE53 will not present the same travel diagrams and actuating forces as the position switch FM •53-E0V9 (e.g. FM 553-E0V9, FM 653-E0V9...).

⁽⁴⁾ The actuator cannot be oriented to inside direction because it will mechanically interfere with the switch head.



Accessories See page 6/1



Special loose actuators

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

Ø 20 mm stainless steel rollers

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

Ø 35 mm polymer rollers

VF LE31-2 (4)	VF LE51-2 (4)	VF LE52-2 (4)	VF LE54-2 (4)	VF LE55-2 (1)	VF LE56-2 (4)	VF LE57-2 (4)

Ø 40 mm rubber rollers

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

Ø 50 mm rubber rollers

VF LE51-3 (4)	VF LE52-3 (4)	VF LE54-3 (4)	VF LE55-3 (1)	VF LE56-3 (4)	VF LE57-3 (4)

Ø 50 mm overhanging rubber rollers

VF LE55-4 (1)	VF LE56-4 (4)

Items with code on the green background are available in stock

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[T9A](#) [924CE2-T9](#) [924CE31-Y20-X5](#) [924CE31-Y3L1](#) [GL-10054](#) [GL-85710](#) [GL-85714](#) [GLAB26J2B](#) [GLDB03C-6](#) [GLZ324](#) [PS21R-](#)
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