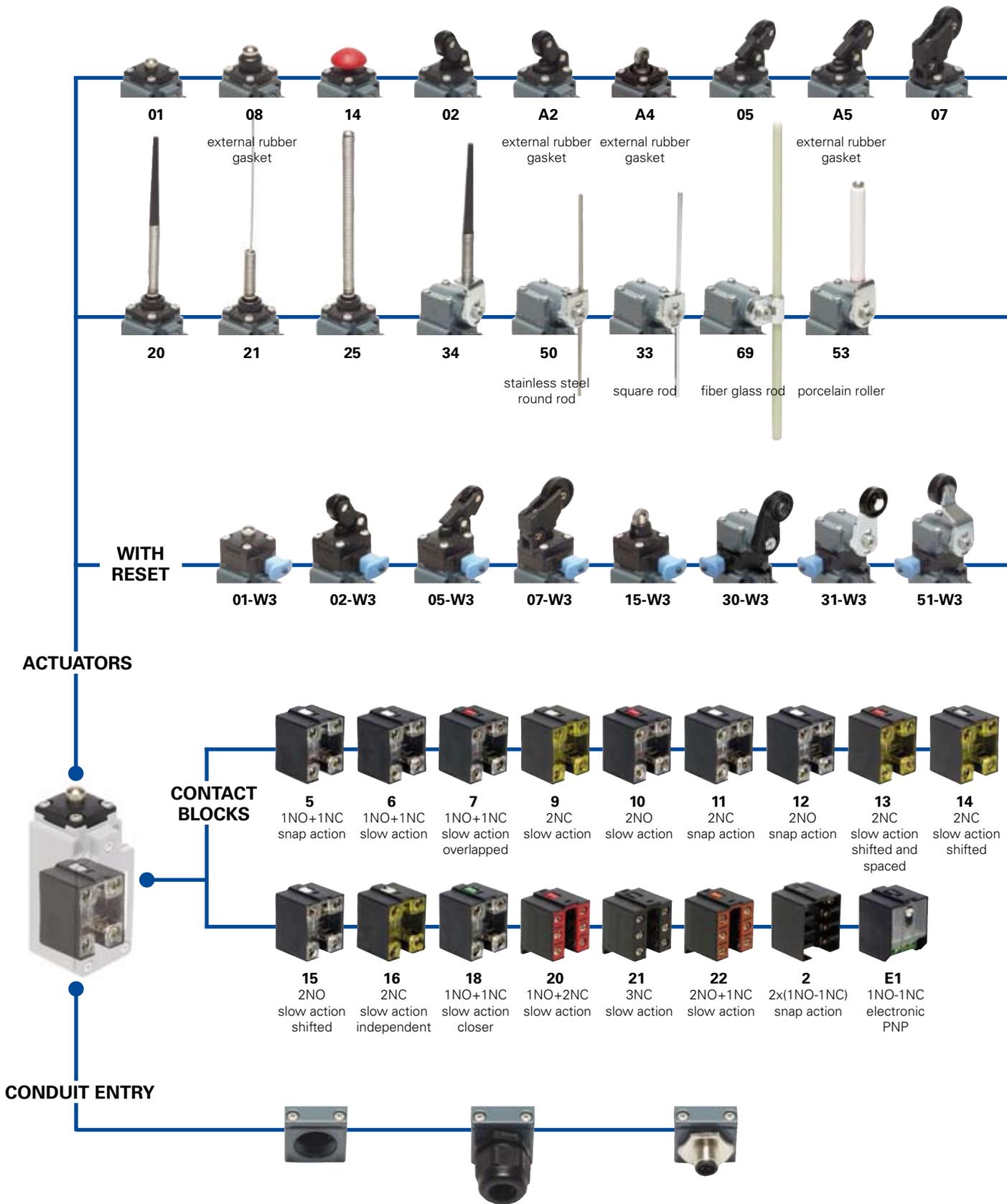


Selection diagram



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



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
		Alternate current: AC15 (50...60 Hz)
		U _e (V) 250 400 500
		I _e (A) 6 4 1
		Direct current: DC13
		U _e (V) 24 125 250
		I _e (A) 6 1,1 0,4
		Alternate current: AC15 (50...60 Hz)
		U _e (V) 24 120 250
		I _e (A) 4 4 4
		Direct current: DC13
		U _e (V) 24 125 250
		I _e (A) 4 1,1 0,4
		Alternate current: AC15 (50...60 Hz)
		U _e (V) 24
		I _e (A) 2
		Direct current: DC13
		U _e (V) 24
		I _e (A) 2



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

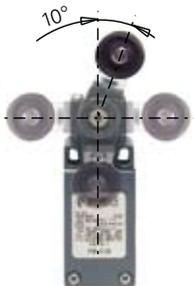
For all contact blocks except 2 and 3 use 60 or 75 °C copper (Cu) conductor and wire size No. 12-14 AWG. Terminal tightening torque of 7,1 lb in (0,8 Nm).
For contact blocks 2 and 3 use 60 or 75 °C copper (Cu) conductor and wire size No. 14 AWG. Terminal tightening torque of 12 lb in (1,4 Nm).

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

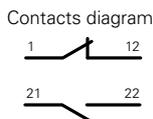
In all switches, it is possible to rotate the head in 90° steps.



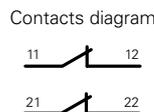
Working operation of contact block 16 with independent contacts

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

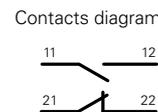
Lever turned to left



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	FM 501 R 1NO+1NC	FM 502 R 1NO+1NC	FM 5A2 R 1NO+1NC
6	FM 601 L 1NO+1NC	FM 602 L 1NO+1NC	FM 6A2 L 1NO+1NC
7	FM 701 LO 1NO+1NC	FM 702 LO 1NO+1NC	FM 7A2 LO 1NO+1NC
9	FM 901 L 2NC	FM 902 L 2NC	FM 9A2 L 2NC
10	FM 1001 L 2NO	FM 1002 L 2NO	FM 10A2 L 2NO
11	FM 1101 R 2NC	FM 1102 R 2NC	FM 11A2 R 2NC
12	FM 1201 R 2NO	FM 1202 R 2NO	FM 12A2 R 2NO
13	FM 1301 LV 2NC	FM 1302 LV 2NC	FM 13A2 LV 2NC
14	FM 1401 LS 2NC	FM 1402 LS 2NC	FM 14A2 LS 2NC
15	FM 1501 LS 2NO	FM 1502 LS 2NO	FM 15A2 LS 2NO
18	FM 1801 LA 1NO+1NC	FM 1802 LA 1NO+1NC	FM 18A2 LA 1NO+1NC
20	FM 2001 L 1NO+2NC	FM 2002 L 1NO+2NC	FM 20A2 L 1NO+2NC
21	FM 2101 L 3NC	FM 2102 L 3NC	FM 21A2 L 3NC
22	FM 2201 L 2NO+1NC	FM 2202 L 2NO+1NC	FM 22A2 L 2NO+1NC
2	FM 201 R 2x(1NO-1NC)	FM 202 R 2x(1NO-1NC)	FM 2A2 R 2x(1NO-1NC)
E1	FM E101 PNP 1NO-1NC	FM E102 PNP 1NO-1NC	FM E1A2 PNP 1NO-1NC
Max speed	page 7/5 - type 4	page 7/5 - type 3	page 7/5 - type 3
Min. force	8 N (25 N R)	6 N (25 N R)	4,3 N (25 N R)
Travel diagrams	page 7/6 - group 1	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	FM 505 R 1NO+1NC	FM 5A5 R 1NO+1NC	FM 507 R 1NO+1NC
6	FM 605 L 1NO+1NC	FM 6A5 L 1NO+1NC	FM 607 L 1NO+1NC
7	FM 705 LO 1NO+1NC	FM 7A5 LO 1NO+1NC	FM 707 LO 1NO+1NC
9	FM 905 L 2NC	FM 9A5 L 2NC	FM 907 L 2NC
10	FM 1005 L 2NO	FM 10A5 L 2NO	FM 1007 L 2NO
11	FM 1105 R 2NC	FM 11A5 R 2NC	FM 1107 R 2NC
12	FM 1205 R 2NO	FM 12A5 R 2NO	FM 1207 R 2NO
13	FM 1305 LV 2NC	FM 13A5 LV 2NC	FM 1307 LV 2NC
14	FM 1405 LS 2NC	FM 14A5 LS 2NC	FM 1407 LS 2NC
15	FM 1505 LS 2NO	FM 15A5 LS 2NO	FM 1507 LS 2NO
18	FM 1805 LA 1S+1Ö	FM 18A5 LA 1S+1Ö	FM 1807 LA 1S+1Ö
20	FM 2005 L 1NO+2NC	FM 20A5 L 1NO+2NC	FM 2007 L 1NO+2NC
21	FM 2105 L 3NC	FM 21A5 L 3NC	FM 2107 L 3NC
22	FM 2205 L 2NO+1NC	FM 22A5 L 2NO+1NC	FM 2207 L 2NO+1NC
2	FM 205 R 2x(1NO-1NC)	FM 2A5 R 2x(1NO-1NC)	FM 207 R 2x(1NO-1NC)
E1	FM E105 PNP 1NO-1NC	FM E1A5 PNP 1NO-1NC	FM E107 PNP 1NO-1NC
Max speed	page 7/5 - type 3	page 7/5 - type 3	page 7/5 - type 3
Min. force	6 N (25 N R)	4,3 N (25 N R)	4 N (25 N R)
Travel diagrams	page 7/6 - group 2	page 7/6 - group 2	page 7/6 - group 3

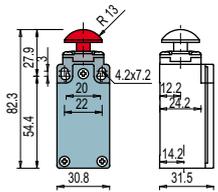
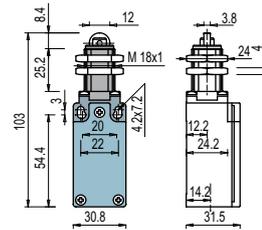
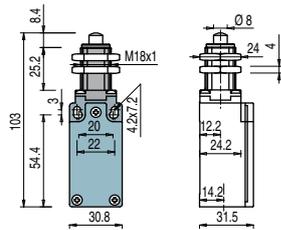
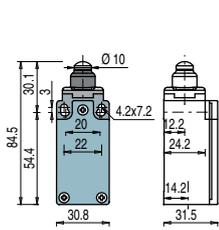
Accessories See page 6/1

All measures in the drawings are in mm



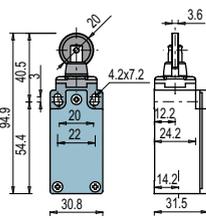
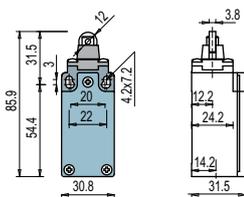
- Contacts type:
- R** = snap action
 - L** = slow action
 - LO** = slow action overlapped
 - LS** = slow action shifted
 - LV** = slow action shifted and spaced
 - LI** = slow action independent
 - LA** = slow action closer
 - E** = electronic PNP

With external rubber gasket

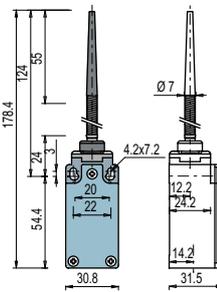


Contact blocks	With external rubber gasket			
5 R	FM 508 1NO+1NC	FM 512 1NO+1NC	FM 513 1NO+1NC	FM 514 1NO+1NC
6 L	FM 608 1NO+1NC	FM 612 1NO+1NC	FM 613 1NO+1NC	FM 614 1NO+1NC
7 LO	FM 708 1NO+1NC	FM 712 1NO+1NC	FM 713 1NO+1NC	FM 714 1NO+1NC
9 L	FM 908 2NC	FM 912 2NC	FM 913 2NC	FM 914 2NC
10 L	FM 1008 2NO	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 E	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 \rightarrow)			
Travel diagrams	page 7/6 - group 1			

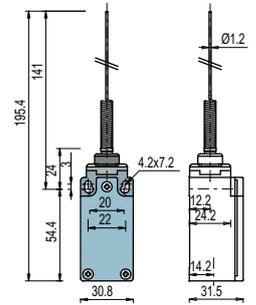
Ø 12 mm stainless steel roller



With external rubber gasket



With external rubber gasket



Contact blocks	Ø 12 mm stainless steel roller	With external rubber gasket	With external rubber gasket
5 R	FM 515 1NO+1NC	FM 516 1NO+1NC	FM 520 1NO+1NC
6 L	FM 615 1NO+1NC	FM 616 1NO+1NC	FM 521 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
11 R	FM 1115 2NC	FM 1116 2NC	FM 1021 2NO
12 R	FM 1215 2NO	FM 1216 2NO	FM 1220 2NO
13 LV	FM 1315 2NC	FM 1316 2NC	FM 1221 2NO
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
20 L	FM 2015 1NO+2NC	FM 2016 1NO+2NC	FM 1821 1NO+1NC
21 L	FM 2115 3NC	FM 2116 3NC	FM 2020 1NO+2NC
22 L	FM 2215 2NO+1NC	FM 2216 2NO+1NC	FM 2120 3NC
2 R	FM 215 2x(1NO-1NC)	FM 216 2x(1NO-1NC)	FM 2220 2NO+1NC
E1 E	FM E115 1NO-1NC	FM E116 1NO-1NC	FM 2221 2NO+1NC
Max speed	page 7/5 - type 2	page 7/5 - type 2	1 m/s
Min. force	8 N (25 N \rightarrow)	8 N (25 N \rightarrow)	0,07 Nm
Travel diagrams	page 7/6 - group 1	page 7/6 - group 1	page 7/6 - group 4

Items with code on the green background are available in stock

Position switches FM series

- 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

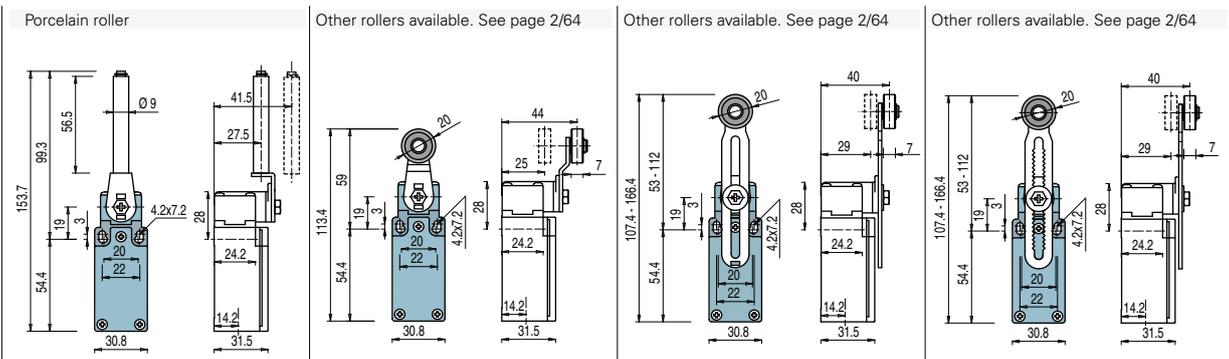
	Ø 3 mm stainless steel round rod	Other rollers available. See page 2/64	Other rollers available. See page 2/64
5	R FM 534	R FM 551	R FM 552
6	L FM 634	L FM 651	L FM 652
7	LO FM 734	LO FM 751	LO FM 752
9	L FM 934	L FM 951	L FM 952
10	L FM 1034	L FM 1051	L FM 1052
11	R FM 1134	R FM 1151	R FM 1152
12	R 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

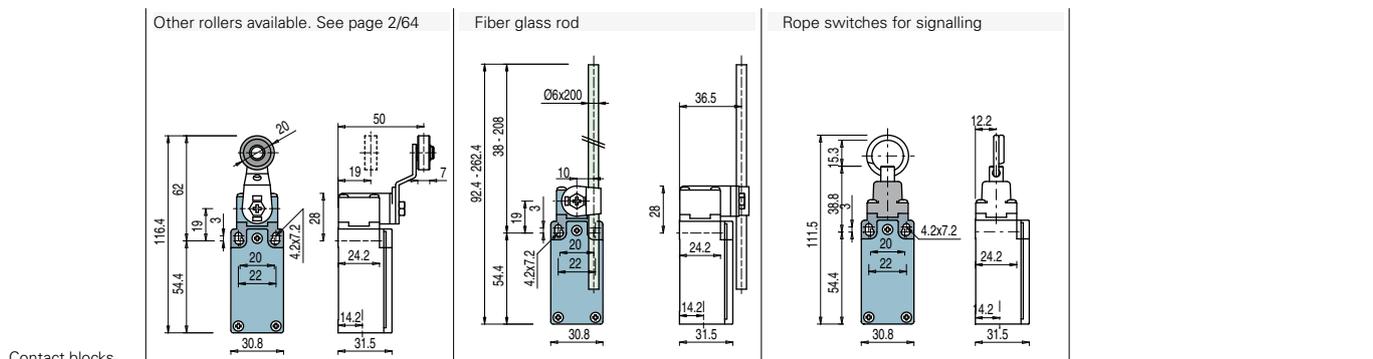


- Contacts type:
- R** = snap action
 - L** = slow action
 - LO** = slow action overlapped
 - LS** = slow action shifted
 - LV** = slow action shifted and spaced
 - LI** = slow action independent
 - LA** = slow action closer
 - A** = electronic PNP

Contact blocks



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	



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

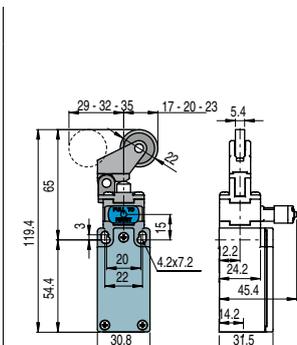
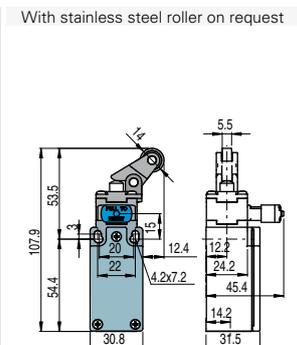
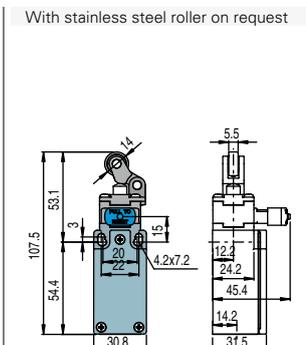
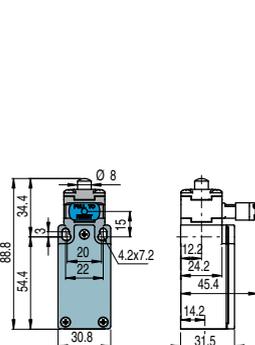


Pizzato Elettrica has developed a reset device code W3 to make perfectly simultaneous the actuator and the contact block tripping. The new device is a block inserted between the switch body and the head, and could be rotated independently from this last one. This new device has following advantages:

- * 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.

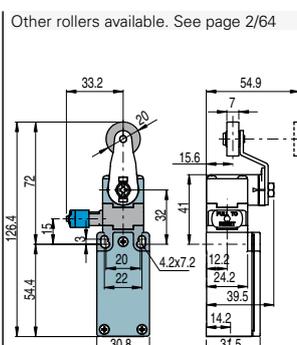
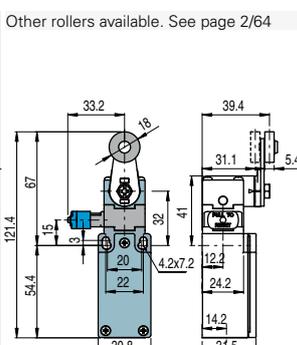
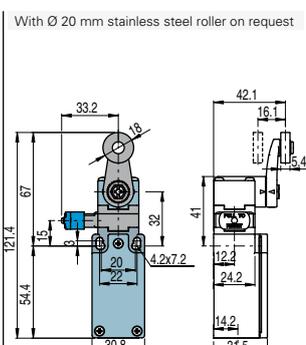
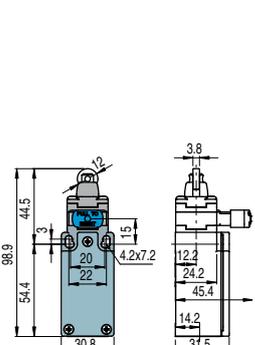
Contacts type:

- 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	



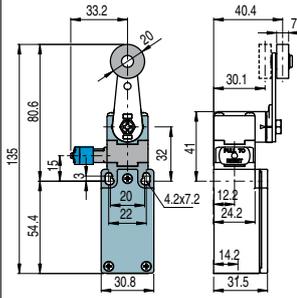
Contact blocks

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	

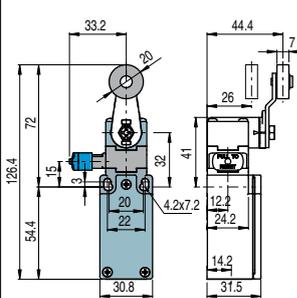
Contacts type:

R = snap action
L = slow action

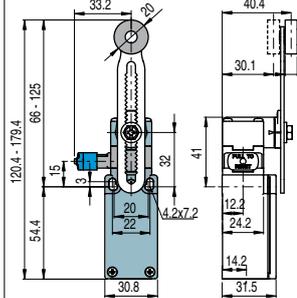
Other rollers available. See page 2/64



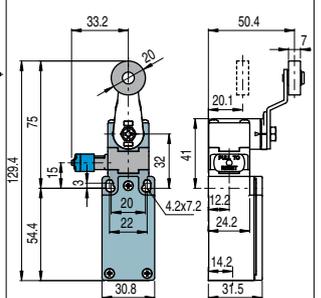
Other rollers available. See page 2/64



Other rollers available. See page 2/64



Other rollers available. See page 2/64



Contact blocks

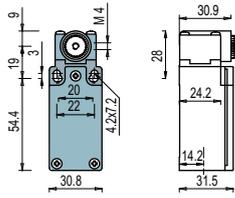
6	L	FM 652-W3	1NO+1NC	FM 654-W3	1NO+1NC	FM 656-W3	1NO+1NC	FM 657-W3	1NO+1NC
9	L	FM 952-W3	2NC	FM 954-W3	2NC	FM 956-W3	2NC	FM 957-W3	2NC
10	L	FM 1052-W3	2NO	FM 1054-W3	2NO	FM 1056-W3	2NO	FM 1057-W3	2NO
20	L	FM 2052-W3	1NO+2NC	FM 2054-W3	1NO+2NC	FM 2056-W3	1NO+2NC	FM 2057-W3	1NO+2NC
21	L	FM 2152-W3	3NC	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

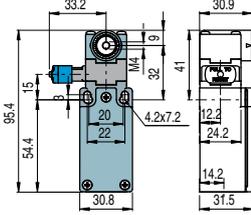
Position switches with revolving lever without actuator

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

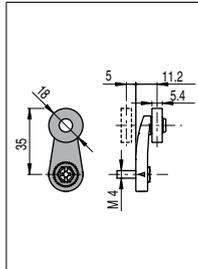
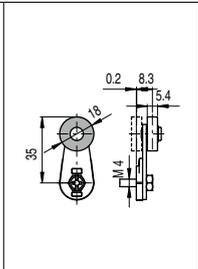
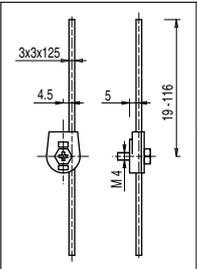
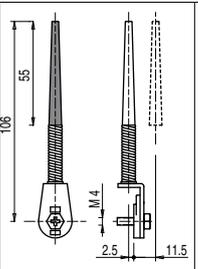
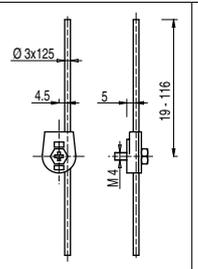
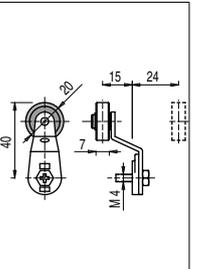
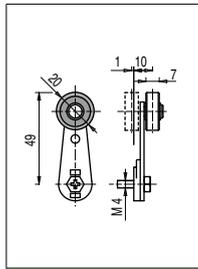
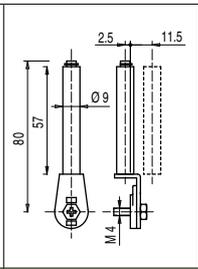
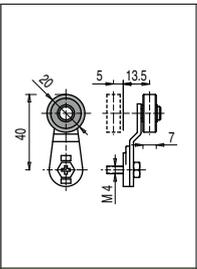
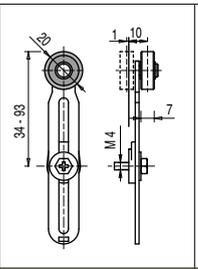
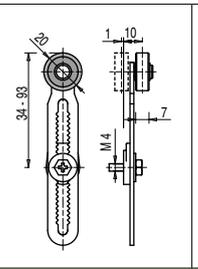
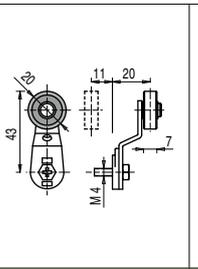
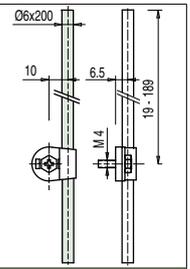
For safety applications: join only switches and actuators marked with symbol ⊕.
For more information about safety applications see page 7/1.

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.

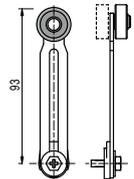
Polymer roller Ø 18 mm	Polymer roller Ø 18 mm	Adjustable square rod 3x3x125 mm	Flexible rod actuator	Adjustable round rod Ø 3x125 mm	Polymer roller Ø 20 mm	
						
VF LE30 ⊕	VF LE31 ⊕	VF LE33	VF LE34	VF LE50	VF LE51 ⊕	
Polymer roller Ø 20 mm	Porcelain roller	Polymer roller Ø 20 mm	Adjustable actuator 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)

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