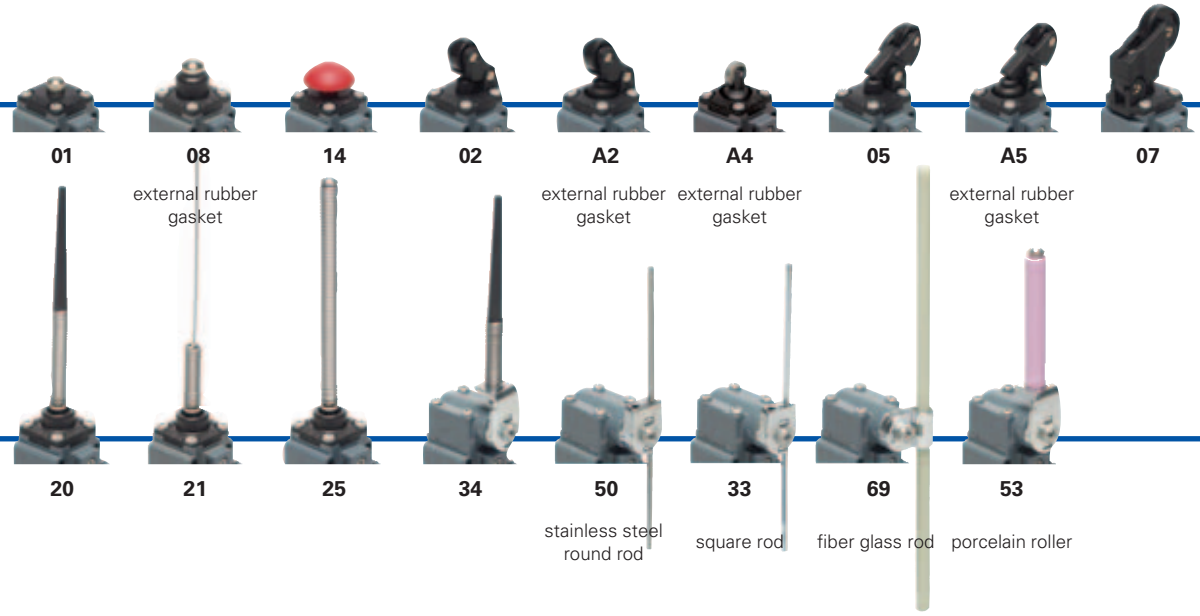
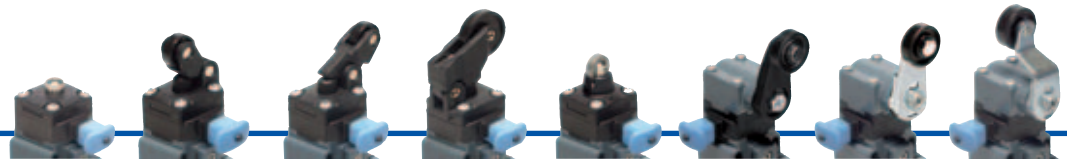
Selection diagram



01 | **08** external rubber gasket | **14** | **02** | **A2** external rubber gasket | **A4** external rubber gasket | **05** | **A5** external rubber gasket | **07**

20 | **21** | **25** | **34** | **50** stainless steel round rod | **33** square rod | **69** fiber glass rod | **53** porcelain roller

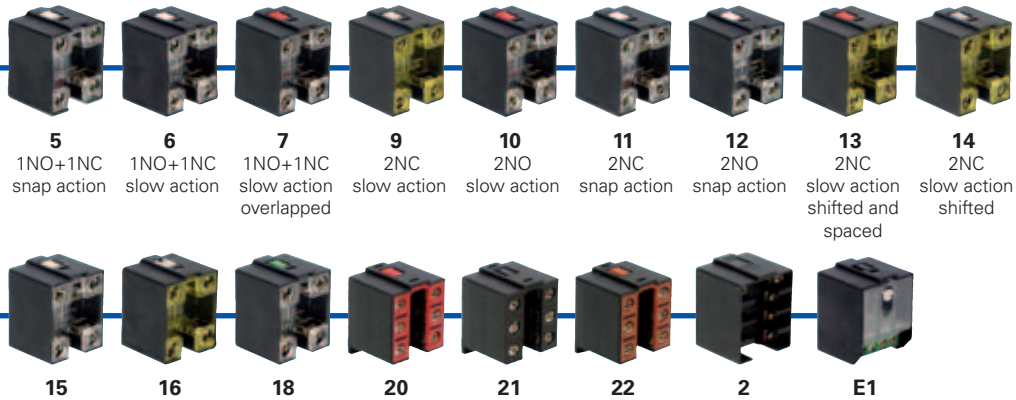
WITH RESET



01-W3 | **02-W3** | **05-W3** | **07-W3** | **15-W3** | **30-W3** | **31-W3** | **51-W3**

ACTUATORS

CONTACT BLOCKS



5 1NO+1NC snap action | **6** 1NO+1NC slow action | **7** 1NO+1NC slow action overlapped | **9** 2NC slow action | **10** 2NO slow action | **11** 2NC snap action | **12** 2NO snap action | **13** 2NC slow action shifted and spaced | **14** 2NC slow action shifted

15 2NO slow action shifted | **16** 2NC slow action independent | **18** 1NO+1NC slow action closer | **20** 1NO+2NC slow action | **21** 3NC slow action | **22** 2NO+1NC slow action | **2** 2x(1NO-1NC) snap action | **E1** 1NO-1NC electronic PNP

CONDUIT ENTRY

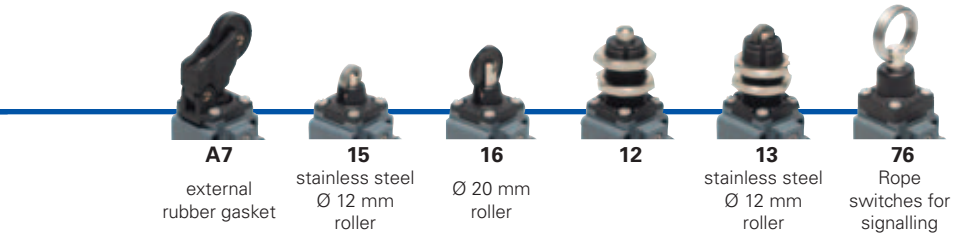
Threaded conduit entry	
	PG 13,5 (standard)
M2	M20x1,5

With assembled cable gland	
K21	for Ø 6 to Ø 12 mm cables range
K25	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



A7 external rubber gasket

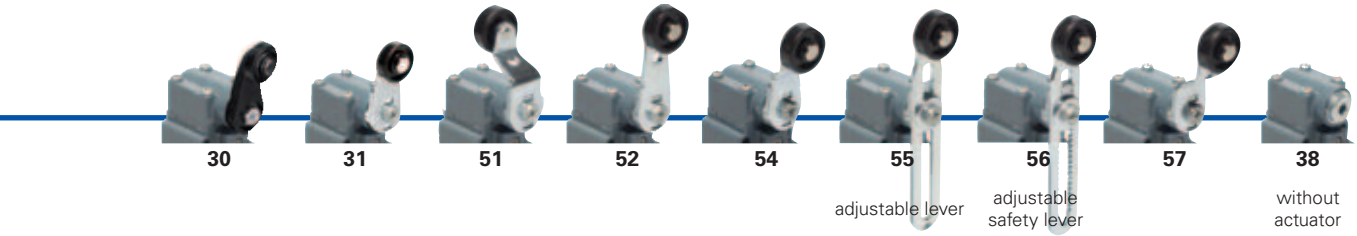
15 stainless steel Ø 12 mm roller

16 Ø 20 mm roller

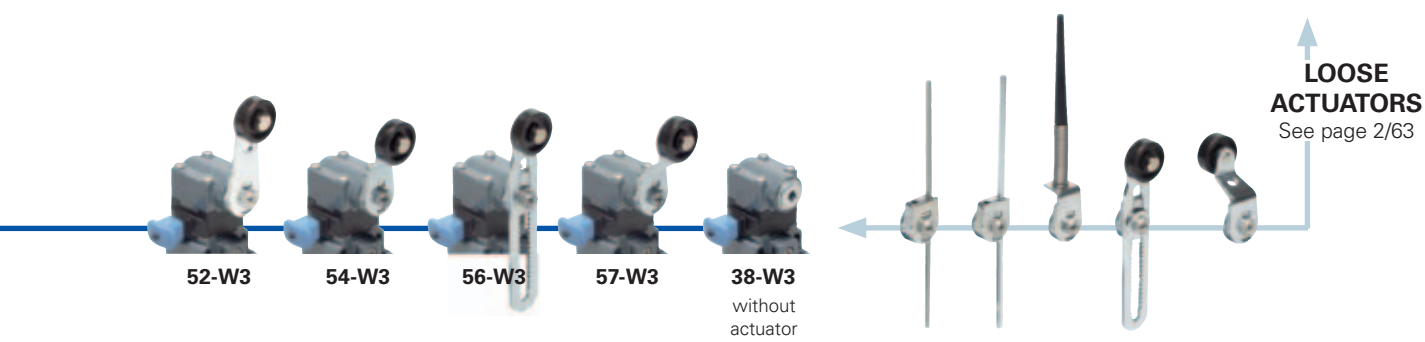
12

13 stainless steel Ø 12 mm roller

76 Rope switches for signalling



30 **31** **51** **52** **54** **55** adjustable lever **56** adjustable safety lever **57** **38** without actuator



52-W3 **54-W3** **56-W3** **57-W3** **38-W3** without actuator

LOOSE ACTUATORS
See page 2/63

Code structure

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

article: **FM 502** — options: **-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)

Reset hooking

	without reset (standard)
W3	simultaneous reset hooking

Contacts type

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

Threaded conduit entry

	PG 13,5 (standard)
M2	M20x1,5

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.

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

Markings and quality marks:

Approval IMQ: EG609
Approval UL: E131787
Approval CCC: 2007010305229998
Approval EZU: 1010151

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 operating frequency: 3600 operations cycles[1]/hour
Mechanical endurance: 20 million operations cycles[1]
Assembling position: any
Driving torque for installation: see pages 6/1-6/10
(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 mm²	(1 x AWG 22)
	max.	2 x 1,5 mm²	(2 x AWG 16)
Contact blocks 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 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, CENELEC EN 50013.
Approvals:
IEC 60947-5-1, UL 508, GB14048.5-2001

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 6/6. 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 6/1 to page 6/10.**

Electrical data			**Utilization categories**
without connector	Thermal current (Ith):	10 A	Alternate current: AC15 (50...60 Hz)
	Rated insulation voltage (Ui):	500 Vac 600 Vdc 400 Vac 500 Vdc for contact blocks 20, 21, 22, 33, 34	Ue (V) 250 400 500 Ie (A) 6 4 1 Direct current: DC13
	Conditional shot circuit current:	1000 A according to EN 60947-5-1	Ue (V) 24 125 250
	Protection against short circuits:	fuse 10 A 500 V type aM	Ie (A) 6 1,1 0,4
	Pollution degree:	3	
with 5 poles M12 connector	Thermal current (Ith):	4 A	Alternate current: AC15 (50...60 Hz)
	Rated insulation voltage (Ui):	250 Vac 300 Vdc	Ue (V) 24 120 250
	Protection against short circuits:	fuse 4 A 500 V type gG	Ie (A) 4 4 4
	Pollution degree:	3	Direct current: DC13 Ue (V) 24 125 250 Ie (A) 4 1,1 0,4
with 8 poles M12 connector	Thermal current (Ith):	2 A	Alternate current: AC15 (50...60 Hz)
	Rated insulation voltage (Ui):	30 Vac 36 Vdc	Ue (V) 24
	Protection against short circuits:	fuse 2 A 500 V type gG	Ie (A) 2
	Pollution degree:	3	Direct current: DC13 Ue (V) 24 Ie (A) 2

Data type approved by IMQ, CCC and EZU

Rated insulation voltage (Ui): 500 Vac
400 Vac for contact blocks 20, 21, 22, 33, 34
Thermal current (Ith): 10 A
Protection against short circuits: fuse 10 A 500 V type aM
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 and subsequent modifications and completions, fundamental requirements of the Low Voltage Directive 2006/95/CE and subsequent modifications and completions.

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

Data type approved by UL

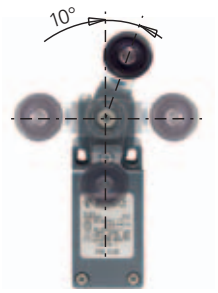
Utilization categories Q300 (69 VA, 125-250 Vdc)
A600 (720 VA, 120-600 Vac)
Data of the housing type 1, 4X "indoor use only", 12, 13
For all contact blocks except 2 and 3 use 60 or 75 °C copper (Cu) conductor and wire size No. 12-14 AWG. Terminal tightening torque of 7,1 lb in (0.8 Nm).
For contact blocks 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

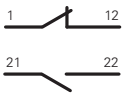
In all switches, it is possible to rotate the head in 90° steps.

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.

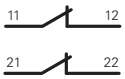
Lever turned to left

Contacts diagram



Lever not turned

Contacts diagram

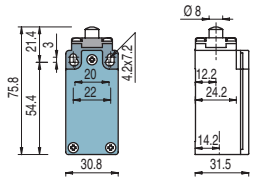
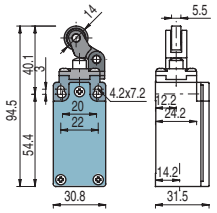
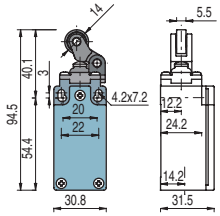
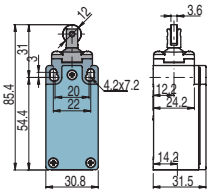


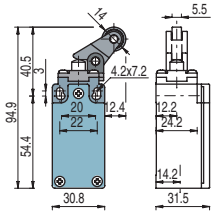
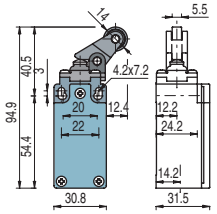
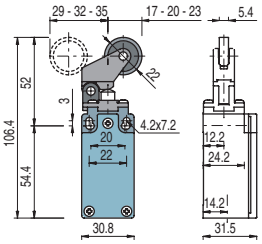
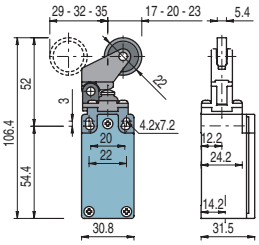
Lever turned to right

Contacts diagram

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

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		FM E101	1NO-1NC	FM E102	1NO-1NC	FM E1A2	1NO-1NC	FM E1A4	1NO-1NC
Max speed		page 6/5 - type 4		page 6/5 - type 3		page 6/5 - type 3		page 6/5 - 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 6/6 - group 1		page 6/6 - group 2		page 6/6 - group 2		page 6/6 - group 2	

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	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	1NO+1NC	FM 18A5	1NO+1NC	FM 1807	1NO+1NC	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		FM E105	1NO-1NC	FM E1A5	1NO-1NC	FM E107	1NO-1NC	FM E1A7	1NO-1NC
Max speed		page 6/5 - type 3		page 6/5 - type 3		page 6/5 - type 3		page 6/5 - type 3	
Min. force		6 N (25 N ⊕)		4,3 N (25 N ⊕)		4 N (25 N ⊕)		3 N (25 N ⊕)	
Travel diagrams		page 6/6 - group 2		page 6/6 - group 2		page 6/6 - group 3		page 6/6 - group 3	

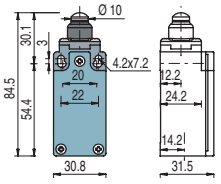
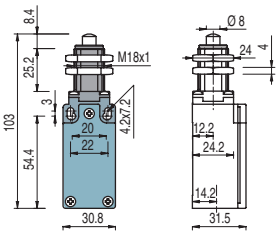
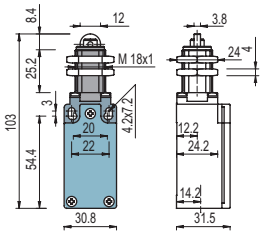
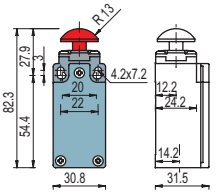
Accessories See page 5/1

All measures in the drawings are in mm

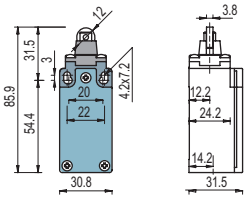
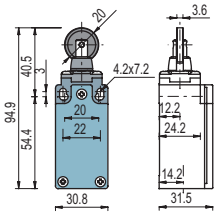
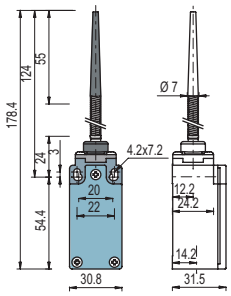
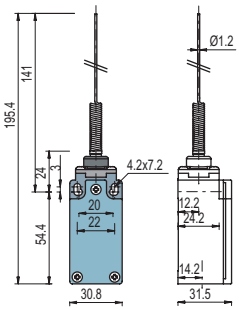
Contacts type:

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

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 1NO+1NC	FM 1813 1NO+1NC	FM 1814 1NO+1NC
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 6/5 - type 4	page 6/5 - type 4	page 6/5 - type 2	page 6/5 - type 4
Min. force		8 N (25 N ⊕)	8 N (25 N ⊕)	8 N (25 N ⊕)	8 N (25 N ⊕)
Travel diagrams		page 6/6 - group 1	page 6/6 - group 1	page 6/6 - group 1	page 6/6 - group 1

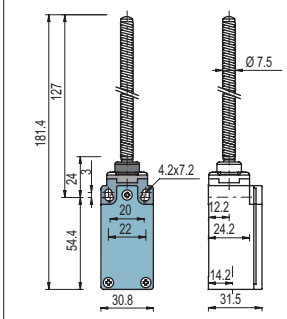
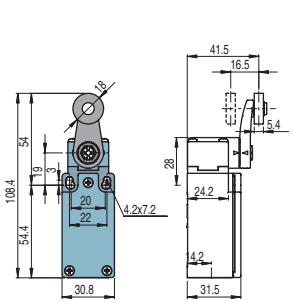
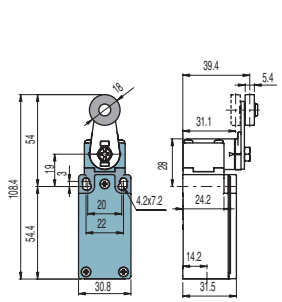
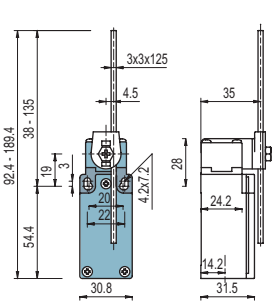
Contact blocks

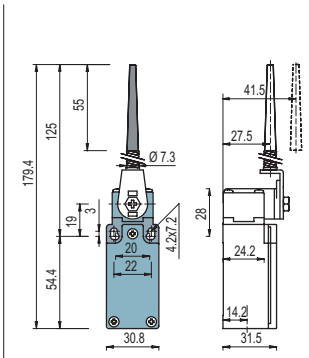
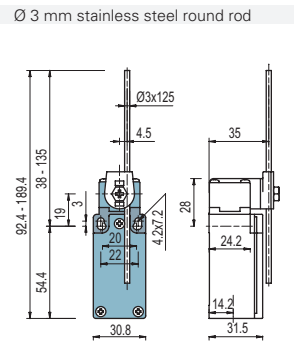
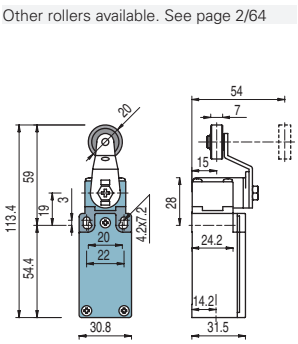
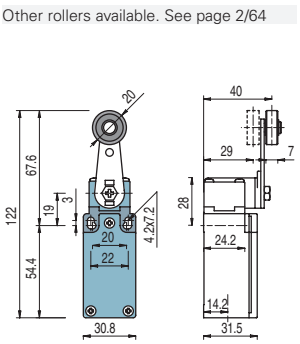
		Ø 12 mm stainless steel roller		With external rubber gasket	With external rubber gasket
					
5	R	FM 515 1NO+1NC	FM 516 1NO+1NC	FM 520 1NO+1NC	FM 521 1NO+1NC
6	L	FM 615 1NO+1NC	FM 616 1NO+1NC		
7	LO	FM 715 1NO+1NC	FM 716 1NO+1NC		
9	L	FM 915 2NC	FM 916 2NC		
10	L	FM 1015 2NO	FM 1016 2NO	FM 1020 2NO	FM 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 1NO+1NC	FM 1816 1NO+1NC	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 6/5 - type 2	page 6/5 - 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 6/6 - group 1	page 6/6 - group 1	page 6/6 - group 4	page 6/6 - 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
- = electronic PNP

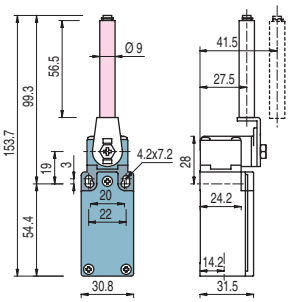
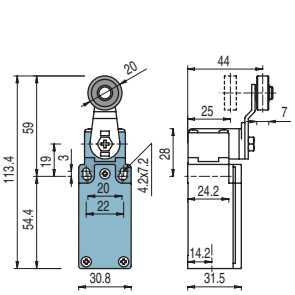
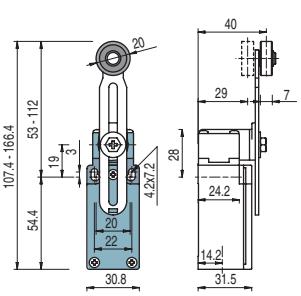
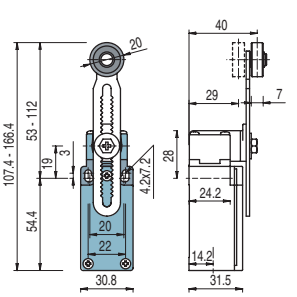
Contact blocks		With external rubber gasket		With Ø 20 mm stainless steel roller on request		Other rollers available. See page 2/64		3x3 mm square rod	
									
5	R	FM 525	1NO+1NC	FM 530	1NO+1NC	FM 531	1NO+1NC	FM 533	1NO+1NC
6	L			FM 630	1NO+1NC	FM 631	1NO+1NC	FM 633	1NO+1NC
7	LO			FM 730	1NO+1NC	FM 731	1NO+1NC	FM 733	1NO+1NC
9	L			FM 930	2NC	FM 931	2NC	FM 933	2NC
10	L	FM 1025	2NO	FM 1030	2NO	FM 1031	2NO	FM 1033	2NO
11	R			FM 1130	2NC	FM 1131	2NC	FM 1133	2NC
12	R	FM 1225	2NO	FM 1230	2NO	FM 1231	2NO	FM 1233	2NO
13	LV			FM 1330	2NC	FM 1331	2NC	FM 1333	2NC
14	LS			FM 1430	2NC	FM 1431	2NC	FM 1433	2NC
15	LS			FM 1530	2NO	FM 1531	2NO	FM 1533	2NO
16	LI			FM 1630	2NC	FM 1631	2NC	FM 1633	2NC
18	LA	FM 1825	1NO+1NC	FM 1830	1NO+1NC	FM 1831	1NO+1NC	FM 1833	1NO+1NC
20	L	FM 2025	1NO+2NC	FM 2030	1NO+2NC	FM 2031	1NO+2NC	FM 2033	1NO+2NC
21	L	FM 2125	3NC	FM 2130	3NC	FM 2131	3NC	FM 2133	3NC
22	L	FM 2225	2NO+1NC	FM 2230	2NO+1NC	FM 2231	2NO+1NC	FM 2233	2NO+1NC
2	R	FM 225	2x(1NO-1NC)	FM 230	2x(1NO-1NC)	FM 231	2x(1NO-1NC)	FM 233	2x(1NO-1NC)
E1		FM E125	1NO-1NC	FM E130	1NO-1NC	FM E131	1NO-1NC	FM E133	1NO-1NC
Max speed		1 m/s		page 6/5 - type 1		page 6/5 - 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 6/6 - group 4		page 6/6 - group 5		page 6/6 - group 5		page 6/6 - group 5	

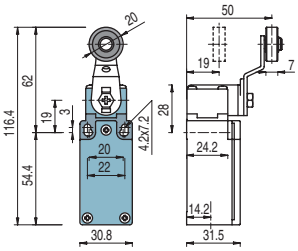
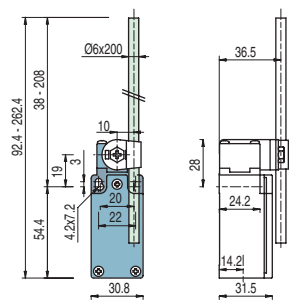
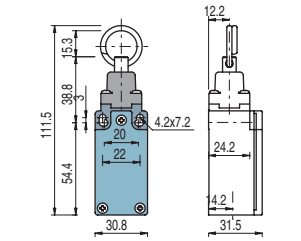
Contact blocks				Ø 3 mm stainless steel round rod 		Other rollers available. See page 2/64 		Other rollers available. See page 2/64 	
5	R	FM 534	1NO+1NC	FM 550	1NO+1NC	FM 551	1NO+1NC	FM 552	1NO+1NC
6	L	FM 634	1NO+1NC	FM 650	1NO+1NC	FM 651	1NO+1NC	FM 652	1NO+1NC
7	LO	FM 734	1NO+1NC	FM 750	1NO+1NC	FM 751	1NO+1NC	FM 752	1NO+1NC
9	L	FM 934	2NC	FM 950	2NC	FM 951	2NC	FM 952	2NC
10	L	FM 1034	2NO	FM 1050	2NO	FM 1051	2NO	FM 1052	2NO
11	R	FM 1134	2NC	FM 1150	2NC	FM 1151	2NC	FM 1152	2NC
12	R	FM 1234	2NO	FM 1250	2NO	FM 1251	2NO	FM 1252	2NO
13	LV	FM 1334	2NC	FM 1350	2NC	FM 1351	2NC	FM 1352	2NC
14	LS	FM 1434	2NC	FM 1450	2NC	FM 1451	2NC	FM 1452	2NC
15	LS	FM 1534	2NO	FM 1550	2NO	FM 1551	2NO	FM 1552	2NO
16	LI	FM 1634	2NC	FM 1650	2NC	FM 1651	2NC	FM 1652	2NC
18	LA	FM 1834	1NO+1NC	FM 1850	1NO+1NC	FM 1851	1NO+1NC	FM 1852	1NO+1NC
20	L	FM 2034	1NO+2NC	FM 2050	1NO+2NC	FM 2051	1NO+2NC	FM 2052	1NO+2NC
21	L	FM 2134	3NC	FM 2150	3NC	FM 2151	3NC	FM 2152	3NC
22	L	FM 2234	2NO+1NC	FM 2250	2NO+1NC	FM 2251	2NO+1NC	FM 2252	2NO+1NC
2	R	FM 234	2x(1NO-1NC)	FM 250	2x(1NO-1NC)	FM 251	2x(1NO-1NC)	FM 252	2x(1NO-1NC)
E1		FM E134	1NO-1NC	FM E150	1NO-1NC	FM E151	1NO-1NC	FM E152	1NO-1NC
Max speed		1,5 m/s		1,5 m/s		page 6/5 - type 1		page 6/5 - 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 6/6 - group 5		page 6/6 - group 5		page 6/6 - group 5		page 6/6 - group 5	

Accessories See page 5/1

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
- = 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 1154 2NC	FM 1155 (1) 2NC	FM 1156 2NC
12	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 1654 2NC	FM 1655 (1) 2NC	FM 1656 2NC
18	LA	FM 1853-E0V9 1NO+1NC	FM 1854 1NO+1NC	FM 1855 1NO+1NC	FM 1856 1NO+1NC
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		FM E153-E0V9 1NO-1NC	FM E154 1NO-1NC	FM E155 1NO-1NC	FM E156 1NO-1NC
Max speed		0,5 m/s	page 6/5 - type 1	page 6/5 - type 1	page 6/5 - 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 6/6 - group 6	page 6/6 - group 5	page 6/6 - group 5	page 6/6 - group 5

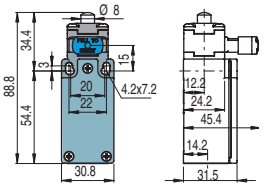
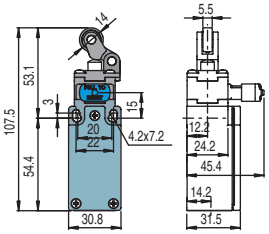
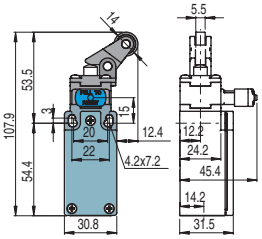
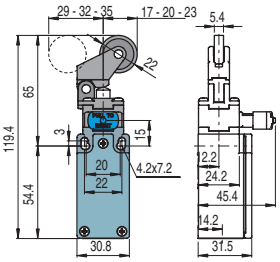
Contact blocks		Other rollers available. See page 2/64	Fiber glass rod	Rope switches for signalling
				
5	R	FM 557 1NO+1NC	FM 569 1NO+1NC	FM 576 1NO+1NC
6	L	FM 657 1NO+1NC	FM 669 1NO+1NC	FM 676 1NO+1NC
7	LO	FM 757 1NO+1NC	FM 769 1NO+1NC	FM 776 1NO+1NC
9	L	FM 957 2NC	FM 969 2NC	FM 976 2NO
10	L	FM 1057 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 1NO+1NC	FM 1869 1NO+1NC	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		FM E157 1NO-1NC	FM E169 1NO-1NC	
Max speed		page 6/5 - 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 6/6 - group 5	page 6/6 - group 5	page 6/6 - group 7

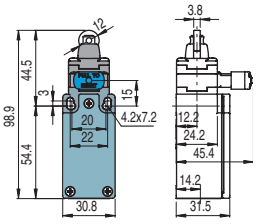
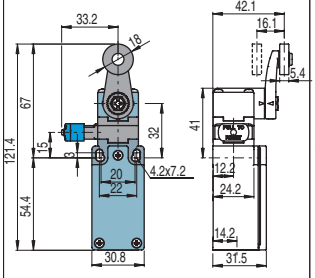
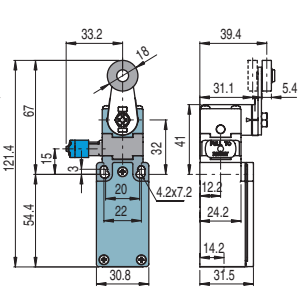
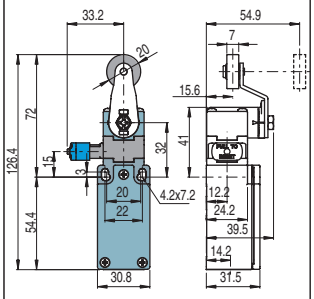
Items with code on the **green** background are available in stock

(1) Positive opening only with lever adjusted on the max. See page 2/63

Pizzato Elettrica has developed an innovative 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, which can 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
* Unlike some previous versions, 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

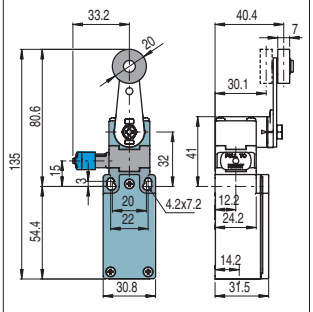
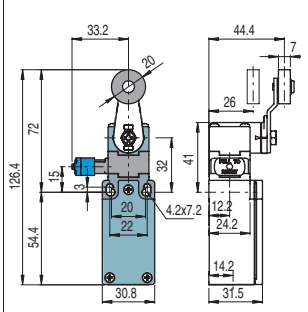
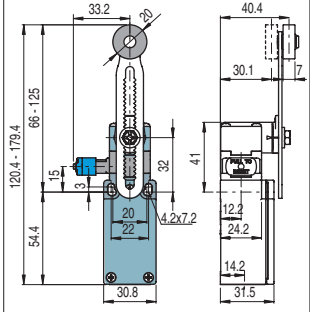
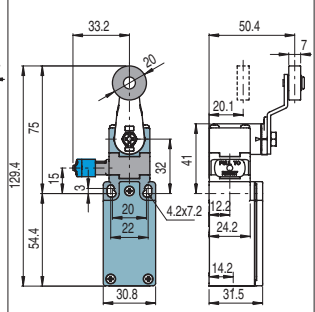
Contact blocks			With stainless steel roller on request	With stainless steel roller on request	
					
6	L	FM 601-W3 → 1NO+1NC	FM 602-W3 → 1NO+1NC	FM 605-W3 → 1NO+1NC	FM 607-W3 → 1NO+1NC
9	L	FM 901-W3 → 2NC	FM 902-W3 → 2NC	FM 905-W3 → 2NC	FM 907-W3 → 2NC
10	L	FM 1001-W3 2NO	FM 1002-W3 2NO	FM 1005-W3 2NO	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 6/5 - type 4	page 6/5 - type 3	page 6/5 - type 3	page 6/5 - type 3
Min. force		8 N (25 N →)	6 N (25 N →)	6 N (25 N →)	4 N (25 N →)
Travel diagrams		page 6/7 - group 1	page 6/7 - group 2	page 6/7 - group 2	page 6/7 - group 3

Contact blocks			With Ø 20 mm stainless steel roller on request	Other rollers available. See page 2/64	Other rollers available. See page 2/64
					
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 6/5 - type 2	page 6/5 - type 1	page 6/5 - type 1	page 6/5 - 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 6/7 - group 1	page 6/7 - group 4	page 6/7 - group 4	page 6/7 - group 4

Accessories See page 5/1

Contacts type:

R = snap action
L = slow action

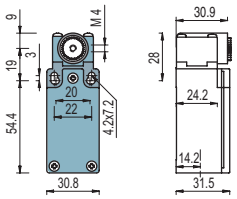
Contact blocks		Other rollers available. See page 2/64	Other rollers available. See page 2/64	Other rollers available. See page 2/64	Other rollers available. See page 2/64
					
6	L	FM 652-W3 → 1NO+1NC	FM 654-W3 → 1NO+1NC	FM 656-W3 → 1NO+1NC	FM 657-W3 → 1NO+1NC
9	L	FM 952-W3 → 2NC	FM 954-W3 → 2NC	FM 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 6/5 - type 1	page 6/5 - type 1	page 6/5 - type 1	page 6/5 - 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 6/7 - group 4	page 6/7 - group 4	page 6/7 - group 4	page 6/7 - group 4

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

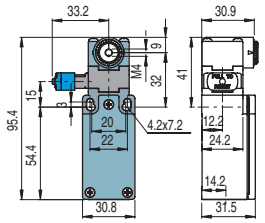
Position switches with revolving lever without actuator

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



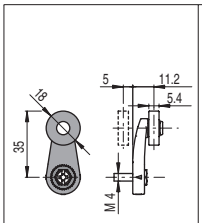
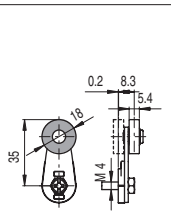
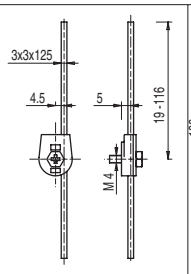
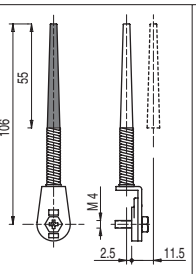
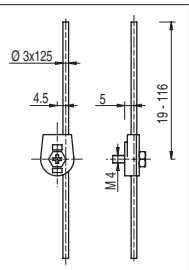
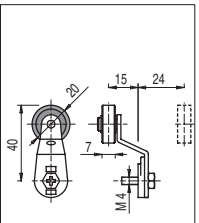
Contact blocks			
5	R	FM 538 → 1NO+1NC	
6	L	FM 638 → 1NO+1NC	FM 638-W3 → 1NO+1NC
7	LO	FM 738 → 1NO+1NC	
9	L	FM 938 → 2NC	FM 938-W3 → 2NC
10	L	FM 1038 2NO	FM 1038-W3 2NO
11	R	FM 1138 → 2NC	
12	R	FM 1238 2NO	
13	LV	FM 1338 → 2NC	
14	LS	FM 1438 → 2NC	
15	LS	FM 1538 2NO	
16	LI	FM 1638 → 2NC	
18	LA	FM 1838 → 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 6/6 - group 5	page 6/7 - group 4

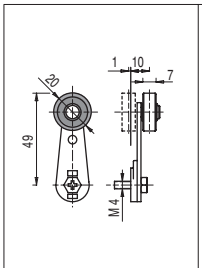
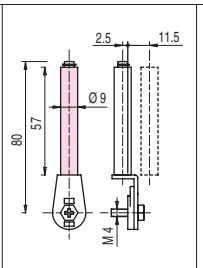
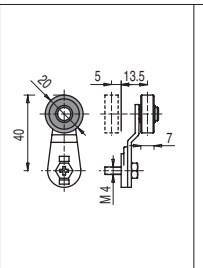
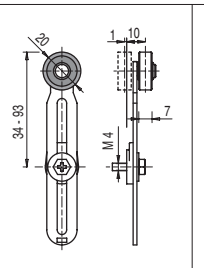
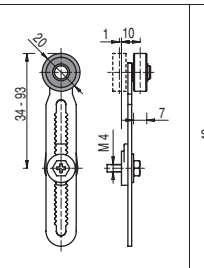
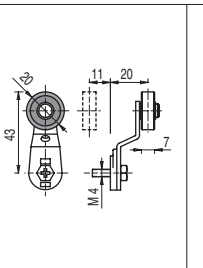
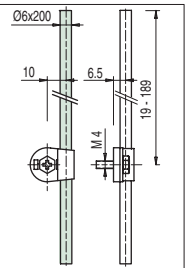
IMPORTANT
For safety applications: join only switches and actuators marked with symbol →.
For more information about safety applications see page 6/1.

Loose actuators

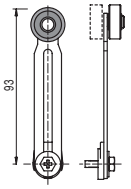
10 pcs pack

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

Ø 18 mm roller	Ø 18 mm roller	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.



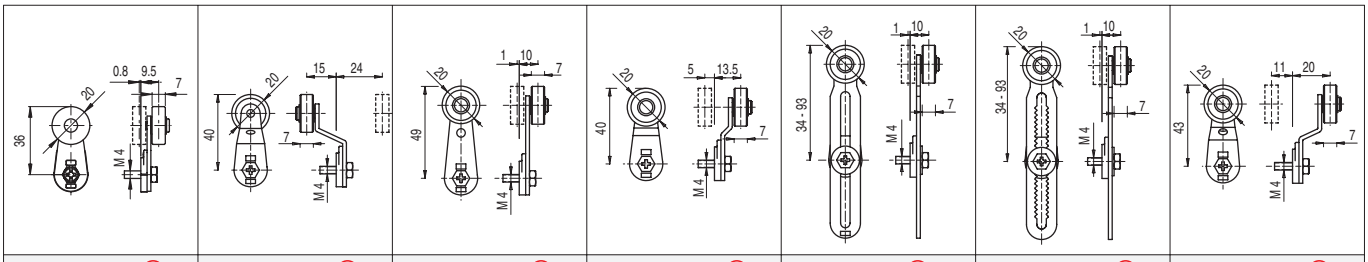
Accessories See page 5/1

Special loose actuators

10 pcs pack

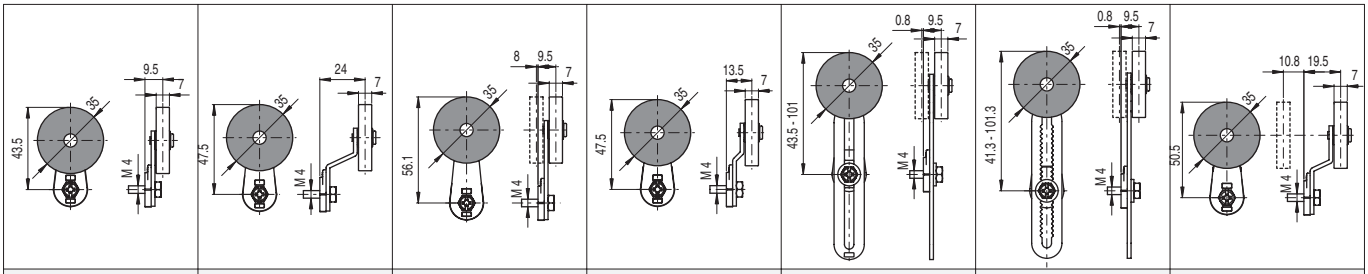
IMPORTANT: These loose actuators can be used with items of series FR, FM, FX, FZ, FK only

Ø 20 mm stainless steel rollers



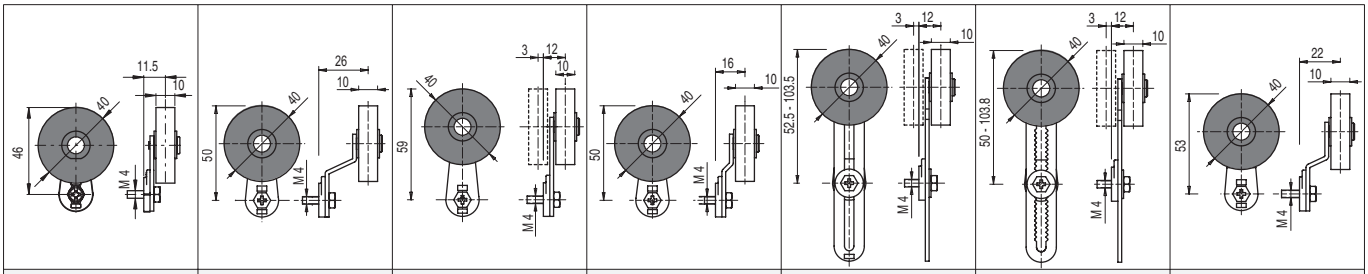
VF LE31-1 | VF LE51-1 | VF LE52-1 | VF LE54-1 | VF LE55-1 (1) | VF LE56-1 | VF LE57-1

Ø 35 mm polymer rollers



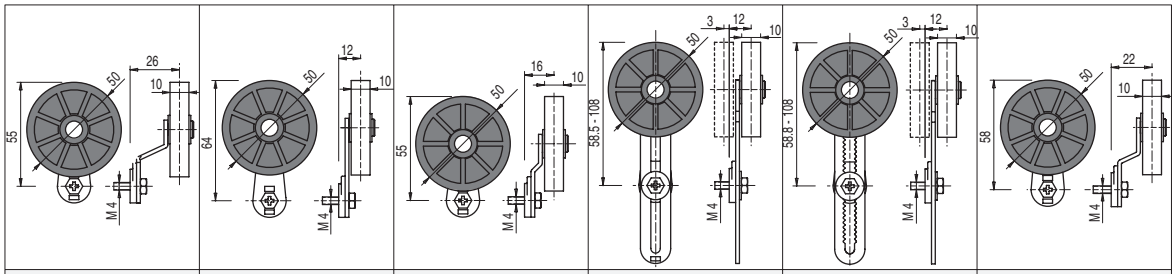
VF LE31-2 (4) | VF LE51-2 (4) | VF LE52-2 | VF LE54-2 (4) | VF LE55-2 (1) | VF LE56-2 | VF LE57-2

Ø 40 mm rubber rollers



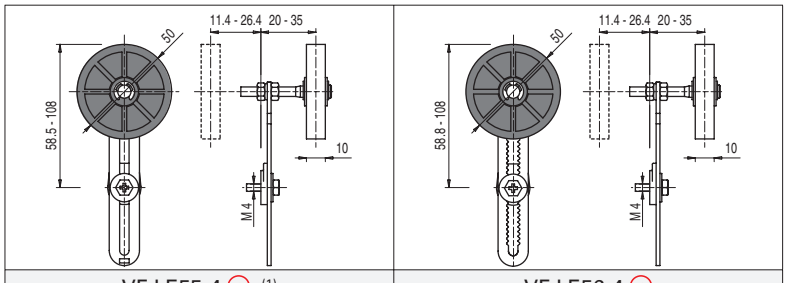
VF LE31-R5 (4) | VF LE51-R5 (4) | VF LE52-R5 | VF LE54-R5 (4) | VF LE55-R5 (1) | VF LE56-R5 | VF LE57-R5 (4)

Ø 50 mm rubber rollers



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

Ø 50 mm overhanging rubber rollers



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

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