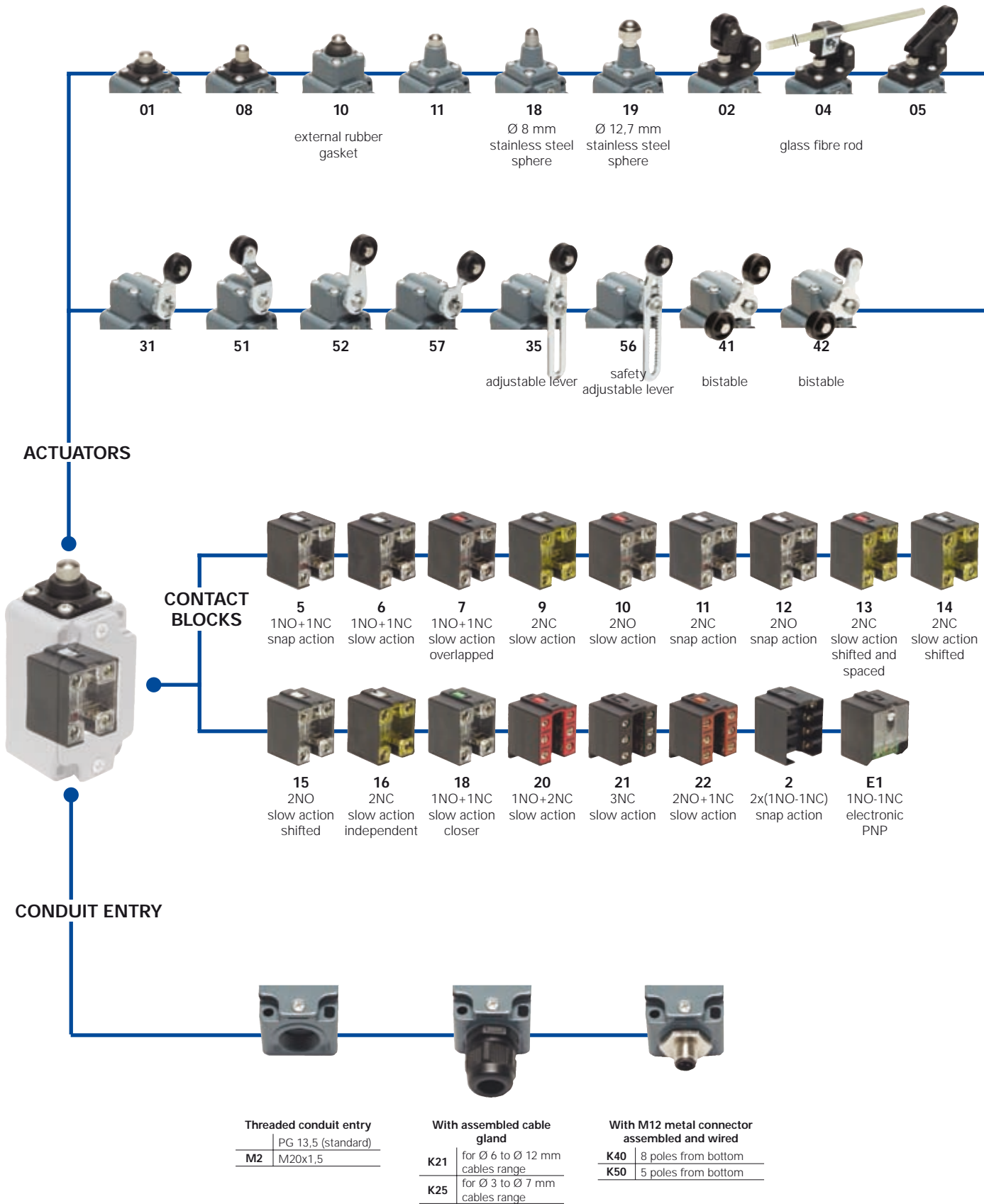
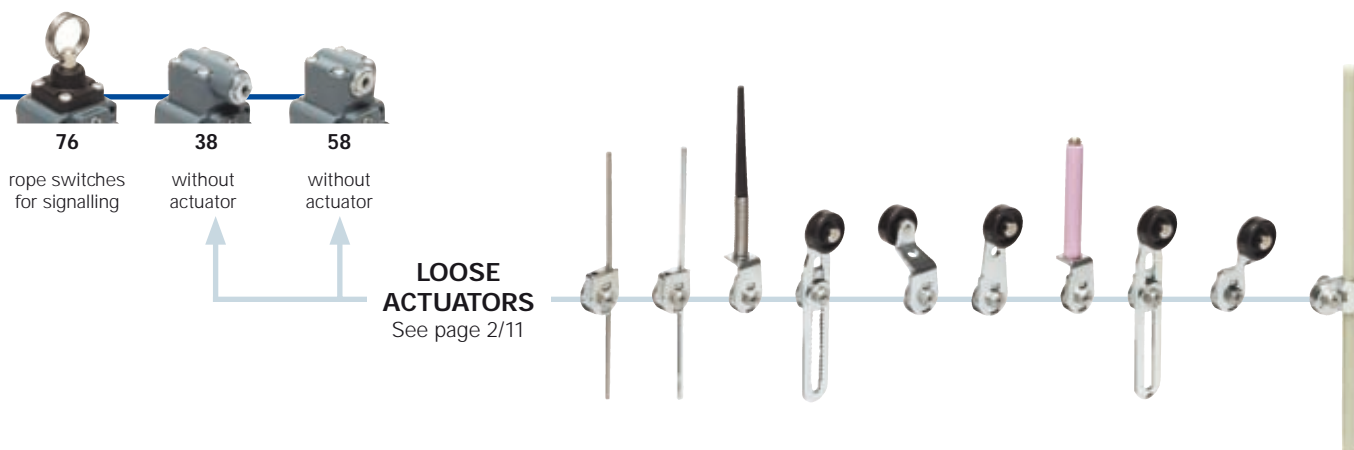
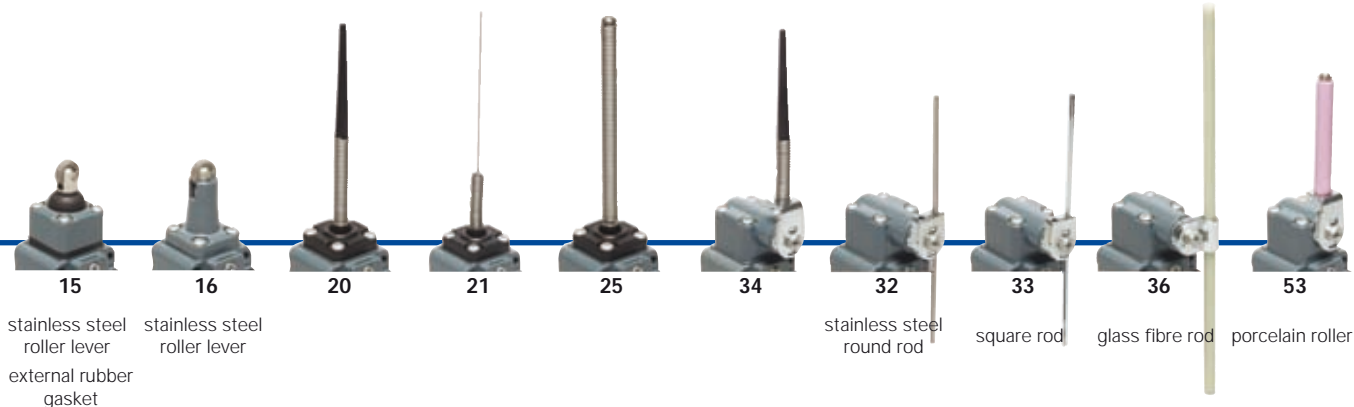


## Selection diagram

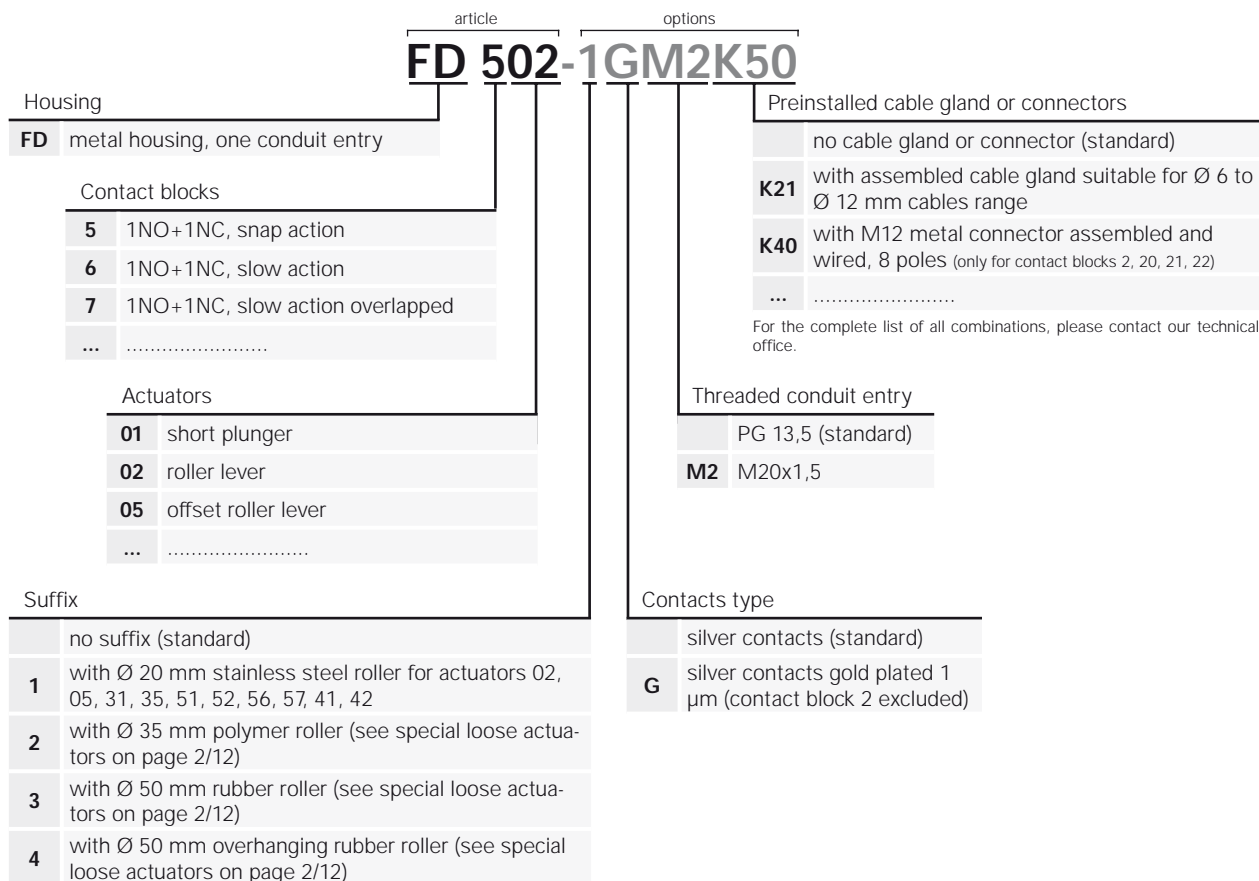


● product option  
 → accessory sold separately



**Code structure**

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

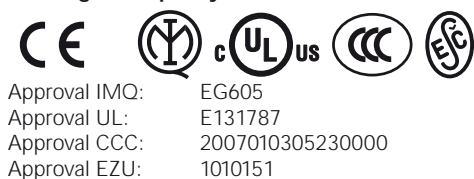




### Main data

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

### Markings and quality marks:



### Technical data

#### Housing

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

#### 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<sup>1</sup>/hour  
 Mechanical endurance: 20 million operations cycles<sup>1</sup>  
 Assembling position: any  
 (1) One operation cycle means two movements, one to close and one to open contacts, as foreseen by IEC 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 <sup>2</sup>	(1 x AWG 22)
	max.	2 x 1,5 mm <sup>2</sup>	(2 x AWG 16)
Contact blocks 5, 6, 7, 9, 10, 11, 12, 13, 14, 15, 16, 18:	min.	1 x 0,5 mm <sup>2</sup>	(1 x AWG 20)
	max.	2 x 2,5 mm <sup>2</sup>	(2 x AWG 14)
Contact block 2:	min.	1 x 0,5 mm <sup>2</sup>	(1 x AWG 20)
	max.	2 x 1,5 mm <sup>2</sup>	(2 x AWG 16)

#### In conformity with standards:

IEC 60947-5-1, EN 60947-5-1, EN 50041, IEC 60204-1, EN 60204-1, EN 1088, EN ISO 12100-1, EN ISO 12100-2, IEC 529, 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 6/4. 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 6/8.

Electrical data	Utilization categories
without connector	Alternate current: AC15 (50...60 Hz) Ue (V) 250 400 500 Ie (A) 6 4 1 Direct current: DC13 Ue (V) 24 125 250 Ie (A) 6 1,1 0,4
with 5 poles M12 connector	Alternate current: AC15 (50...60 Hz) Ue (V) 24 120 250 Ie (A) 4 4 4 Direct current: DC13 Ue (V) 24 125 250 Ie (A) 4 1,1 0,4
with 8 poles M12 connector	Alternate current: AC15 (50...60 Hz) Ue (V) 24 Ie (A) 2 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, 12, 13, 14, 16, 18, 20, 21, 22, 33, 34  
 In conformity with standards: EN60947-1, EN 60947-5-1 and subsequent modifications and completions, fundamental requirements of the Low Voltage Directive 73/23 EEC and subsequent modifications and completions.

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

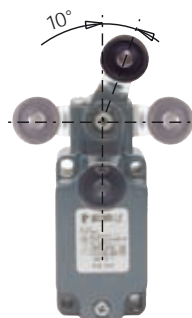
**Data type approved by UL**

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  
 In conformity with standard: UL 508  
 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.  
 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.

Please contact our technical service for the list of type 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**

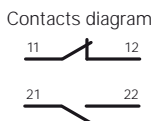
In all switches, it is possible to rotate the head in 90° steps.



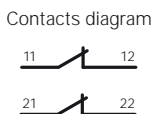
**Working operation of contact block 16 with independent contacts**

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

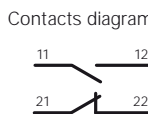
Lever turned to left



Lever not turned

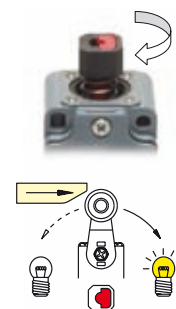
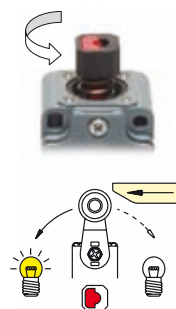
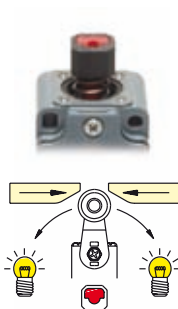
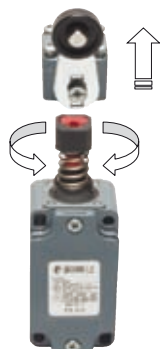


Lever turned to right



**Unidirectional heads**

In the switches with revolving lever, it is possible to select the directional operation by removing the four screws of the head and revolving the internal piston (contact block 16 excluded).



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

Contact blocks

		With stainless steel roller on request	With stainless steel roller on request	With stainless steel roller on request
5	<b>R</b> FD 501	FD 502	FD 504	FD 505
6	<b>L</b> FD 601	FD 602	FD 604	FD 605
7	<b>LO</b> FD 701	FD 702	FD 704	FD 705
9	<b>L</b> FD 901	FD 902	FD 904	FD 905
10	<b>L</b> FD 1001	FD 1002	FD 1004	FD 1005
11	<b>R</b> FD 1101	FD 1102	FD 1104	FD 1105
12	<b>R</b> FD 1201	FD 1202	FD 1204	FD 1205
13	<b>LV</b> FD 1301	FD 1302	FD 1304	FD 1305
14	<b>LS</b> FD 1401	FD 1402	FD 1404	FD 1405
15	<b>LS</b> FD 1501	FD 1502	FD 1504	FD 1505
18	<b>LA</b> FD 1801	FD 1802	FD 1804	FD 1805
20	<b>L</b> FD 2001	FD 2002	FD 2004	FD 2005
21	<b>L</b> FD 2101	FD 2102	FD 2104	FD 2105
22	<b>L</b> FD 2201	FD 2202	FD 2204	FD 2205
2	<b>R</b> FD 201	FD 202	FD 204	FD 205
E1	<b>E</b> FD E101	FD E102	FD E104	FD E105
Max speed	page 6/3 - type 4	page 6/3 - type 3	0,5 m/s	page 6/3 - type 3
Min. force	8 N (25 N $\oplus$ ) page 6/4 - group 1	6 N (25 N $\oplus$ ) page 6/4 - group 2	0,17 Nm page 6/4 - group 1	6 N (25 N $\oplus$ ) page 6/4 - group 2

		With external rubber gasket	With external rubber gasket	With external rubber gasket
5	<b>R</b> FD 508	FD 510	FD 511	FD 515
6	<b>L</b> FD 608	FD 610	FD 611	FD 615
7	<b>LO</b> FD 708	FD 710	FD 711	FD 715
9	<b>L</b> FD 908	FD 910	FD 911	FD 915
10	<b>L</b> FD 1008	FD 1010	FD 1011	FD 1015
11	<b>R</b> FD 1108	FD 1110	FD 1111	FD 1115
12	<b>R</b> FD 1208	FD 1210	FD 1211	FD 1215
13	<b>LV</b> FD 1308	FD 1310	FD 1311	FD 1315
14	<b>LS</b> FD 1408	FD 1410	FD 1411	FD 1415
15	<b>LS</b> FD 1508	FD 1510	FD 1511	FD 1515
18	<b>LA</b> FD 1808	FD 1810	FD 1811	FD 1815
20	<b>L</b> FD 2008	FD 2010	FD 2011	FD 2015
21	<b>L</b> FD 2108	FD 2110	FD 2111	FD 2115
22	<b>L</b> FD 2208	FD 2210	FD 2211	FD 2215
2	<b>R</b> FD 208	FD 210	FD 211	FD 215
E1	<b>E</b> FD E108	FD E110	FD E111	FD E115
Max speed	page 6/3 - type 4	page 6/3 - type 4	page 6/3 - type 4	page 6/3 - type 2
Min. force	8 N (25 N $\oplus$ )	11 N (25 N $\oplus$ )	8 N (25 N $\oplus$ )	11 N (25 N $\oplus$ )
Travel diagrams	page 6/4 - group 1	page 6/4 - group 1	page 6/4 - group 1	page 6/4 - group 1

Accessories See page 5/1

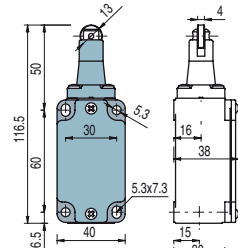
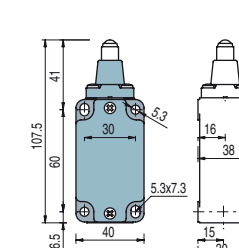
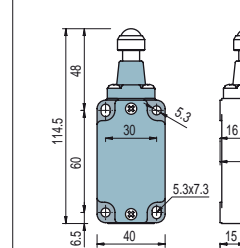
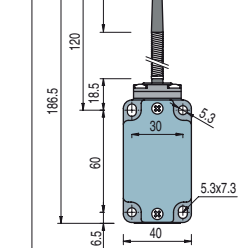




































All measures in the drawings are in mm

Items with code on the green background are available in stock

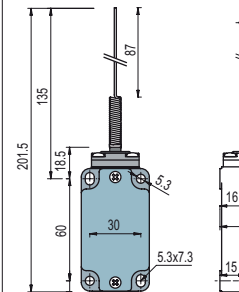
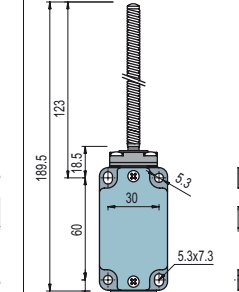
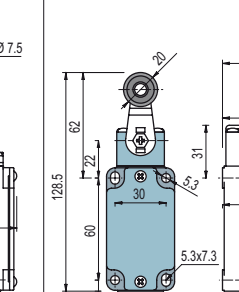
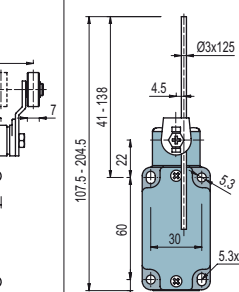













Contacts type:

- 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

				
5 <b>R</b>	FD 516  1NO+1NC	FD 518  1NO+1NC	FD 519  1NO+1NC	FD 520 1NO+1NC
6 <b>L</b>	FD 616  1NO+1NC	FD 618  1NO+1NC	FD 619  1NO+1NC	
7 <b>LO</b>	FD 716  1NO+1NC	FD 718  1NO+1NC	FD 719  1NO+1NC	
9 <b>L</b>	FD 916  2NC	FD 918  2NC	FD 919  2NC	
10 <b>L</b>	FD 1016 2NO	FD 1018 2NO	FD 1019 2NO	FD 1020 2NO
11 <b>R</b>	FD 1116  2NC	FD 1118  2NC	FD 1119  2NC	
12 <b>R</b>	FD 1216 2NO	FD 1218 2NO	FD 1219 2NO	FD 1220 2NO
13 <b>LV</b>	FD 1316  2NC	FD 1318  2NC	FD 1319  2NC	
14 <b>LS</b>	FD 1416  2NC	FD 1418  2NC	FD 1419  2NC	
15 <b>LS</b>	FD 1516 2NO	FD 1518 2NO	FD 1519 2NO	
18 <b>LA</b>	FD 1816  1NO+1NC	FD 1818  1NO+1NC	FD 1819  1NO+1NC	FD 1820 1NO+1NC
20 <b>L</b>	FD 2016  1NO+2NC	FD 2018  1NO+2NC	FD 2019  1NO+2NC	FD 2020 1NO+2NC
21 <b>L</b>	FD 2116  3NC	FD 2118  3NC	FD 2119  3NC	FD 2120 3NC
22 <b>L</b>	FD 2216  2NO+1NC	FD 2218  2NO+1NC	FD 2219  2NO+1NC	FD 2220 2NO+1NC
2 <b>R</b>	FD 216 2x(1NO-1NC)	FD 218 2x(1NO-1NC)	FD 219 2x(1NO-1NC)	FD 220 2x(1NO-1NC)
E1 <b>⏏</b>	FD E116 1NO-1NC	FD E118 1NO-1NC	FD E119 1NO-1NC	FD E120 1NO-1NC
Max speed	page 6/3 - type 2	page 6/3 - type 4	page 6/3 - type 4	1 m/s
Min. force	8 N (25 N  )	8 N (25 N  )	8 N (25 N  )	0,09 Nm
Travel diagrams	page 6/4 - group 1	page 6/4 - group 1	page 6/4 - group 1	page 6/4 - group 3

Contact blocks

				
5 <b>R</b>	FD 521 1NO+1NC	FD 525 1NO+1NC	FD 531  1NO+1NC	FD 532 1NO+1NC
6 <b>L</b>			FD 631  1NO+1NC	FD 632 1NO+1NC
7 <b>LO</b>			FD 731  1NO+1NC	FD 732 1NO+1NC
9 <b>L</b>			FD 931  2NC	FD 932 2NC
10 <b>L</b>	FD 1021 2NO	FD 1025 2NO	FD 1031 2NO	FD 1032 2NO
11 <b>R</b>			FD 1131  2NC	FD 1132 2NC
12 <b>R</b>	FD 1221 2NO	FD 1225 2NO	FD 1231 2NO	FD 1232 2NO
13 <b>LV</b>			FD 1331  2NC	FD 1332 2NC
14 <b>LS</b>			FD 1431  2NC	FD 1432 2NC
15 <b>LS</b>			FD 1531 2NO	FD 1532 2NO
16 <b>LI</b>			FD 1631  2NC	FD 1632 2NC
18 <b>LA</b>	FD 1821 1NO+1NC	FD 1825 1NO+1NC	FD 1831  1NO+1NC	FD 1832 1NO+1NC
20 <b>L</b>	FD 2021 1NO+2NC	FD 2025 1NO+2NC	FD 2031  1NO+2NC	FD 2032 1NO+2NC
21 <b>L</b>	FD 2121 3NC	FD 2125 3NC	FD 2131  3NC	FD 2132 3NC
22 <b>L</b>	FD 2221 2NO+1NC	FD 2225 2NO+1NC	FD 2231  2NO+1NC	FD 2232 2NO+1NC
2 <b>R</b>	FD 221 2x(1NO-1NC)	FD 225 2x(1NO-1NC)	FD 231 2x(1NO-1NC)	FD 232 2x(1NO-1NC)
E1 <b>⏏</b>	FD E121 1NO-1NC	FD E125 1NO-1NC	FD E131 1NO-1NC	FD E132 1NO-1NC
Max speed	1 m/s	1 m/s	page 6/3 - type 1	1,5 m/s
Min. force	0,08 Nm	0,14 Nm	0,1 Nm (0,25 Nm  )	0,1 Nm
Travel diagrams	page 6/4 - group 3	page 6/4 - group 3	page 6/4 - group 4	page 6/4 - group 4

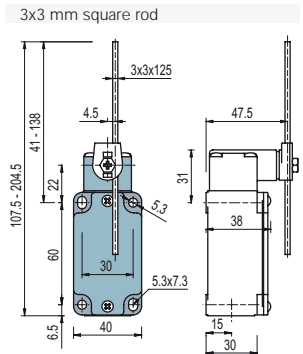
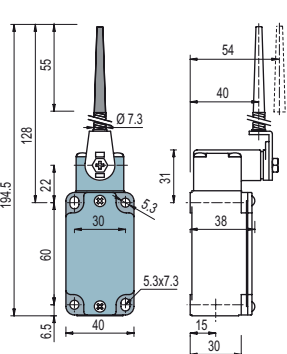
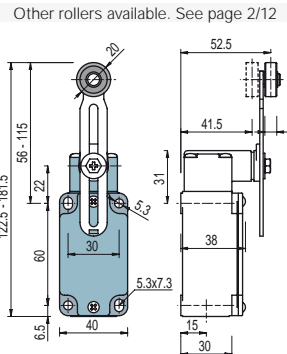
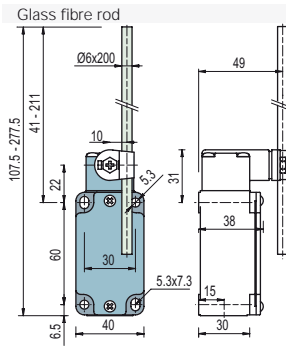
Accessories See page 5/1

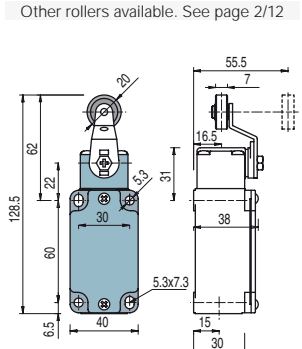
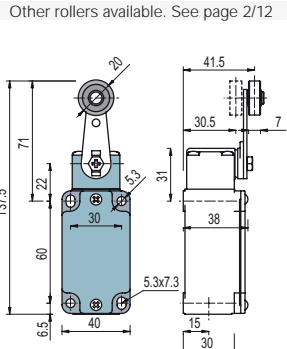
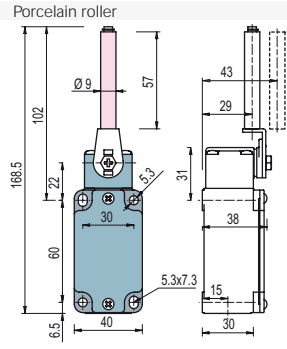
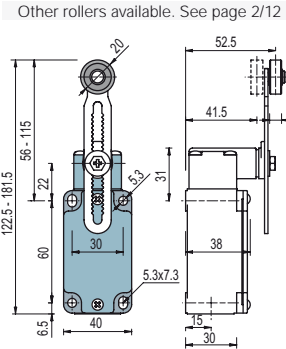
Items with code on the green background are available in stock

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
- A** = electronic PNP

Contact blocks

				
5	<b>R</b> FD 533 1NO+1NC	FD 534 1NO+1NC	FD 535 <b>R</b> (1) 1NO+1NC	FD 536 1NO+1NC
6	<b>L</b> FD 633 1NO+1NC	FD 634 1NO+1NC	FD 635 <b>R</b> (1) 1NO+1NC	FD 636 1NO+1NC
7	<b>LO</b> FD 733 1NO+1NC	FD 734 1NO+1NC	FD 735 <b>R</b> (1) 1NO+1NC	FD 736 1NO+1NC
9	<b>L</b> FD 933 2NC	FD 934 2NC	FD 935 <b>R</b> (1) 2NC	FD 936 2NC
10	<b>L</b> FD 1033 2NO	FD 1034 2NO	FD 1035 <b>R</b> (1) 2NO	FD 1036 2NO
11	<b>R</b> FD 1133 2NC	FD 1134 2NC	FD 1135 <b>R</b> (1) 2NC	FD 1136 2NC
12	<b>R</b> FD 1233 2NO	FD 1234 2NO	FD 1235 <b>R</b> (1) 2NO	FD 1236 2NO
13	<b>LV</b> FD 1333 2NC	FD 1334 2NC	FD 1335 <b>R</b> (1) 2NC	FD 1336 2NC
14	<b>LS</b> FD 1433 2NC	FD 1434 2NC	FD 1435 <b>R</b> (1) 2NC	FD 1436 2NC
15	<b>LS</b> FD 1533 2NO	FD 1534 2NO	FD 1535 <b>R</b> (1) 2NO	FD 1536 2NO
16	<b>LI</b> FD 1633 2NC	FD 1634 2NC	FD 1635 <b>R</b> (1) 2NC	FD 1636 2NC
18	<b>LA</b> FD 1833 1NO+1NC	FD 1834 1NO+1NC	FD 1835 <b>R</b> (1) 1NO+1NC	FD 1836 1NO+1NC
20	<b>L</b> FD 2033 1NO+2NC	FD 2034 1NO+2NC	FD 2035 <b>R</b> (1) 1NO+2NC	FD 2036 1NO+2NC
21	<b>L</b> FD 2133 3NC	FD 2134 3NC	FD 2135 <b>R</b> (1) 3NC	FD 2136 3NC
22	<b>L</b> FD 2233 2NO+1NC	FD 2234 2NO+1NC	FD 2235 <b>R</b> (1) 2NO+1NC	FD 2236 2NO+1NC
2	<b>R</b> FD 233 2x(1NO-1NC)	FD 234 2x(1NO-1NC)	FD 235 2x(1NO-1NC)	FD 236 2x(1NO-1NC)
E1	<b>A</b> FD E133 1NO-1NC	FD E134 1NO-1NC	FD E135 1NO-1NC	FD E136 1NO-1NC
Max speed	1,5 m/s	1 m/s	page 6/3 - type 1	1,5 m/s
Min. force	0,1 Nm	0,1 Nm	0,1 Nm (0,25 Nm <b>R</b> )	0,1 Nm
Travel diagrams	page 6/4 - group 4	page 6/4 - group 4	page 6/4 - group 4	page 6/4 - group 4

				
5	<b>R</b> FD 551 <b>R</b> (1) 1NO+1NC	FD 552 <b>R</b> (1) 1NO+1NC	FD 553-E11V9 <b>R</b> (1) 1NO+1NC	FD 556 <b>R</b> (1) 1NO+1NC
6	<b>L</b> FD 651 <b>R</b> (1) 1NO+1NC	FD 652 <b>R</b> (1) 1NO+1NC	FD 653-E11V9 <b>R</b> (1) 1NO+1NC	FD 656 <b>R</b> (1) 1NO+1NC
7	<b>LO</b> FD 751 <b>R</b> (1) 1NO+1NC	FD 752 <b>R</b> (1) 1NO+1NC	FD 753-E11V9 <b>R</b> (1) 1NO+1NC	FD 756 <b>R</b> (1) 1NO+1NC
9	<b>L</b> FD 951 <b>R</b> (1) 2NC	FD 952 <b>R</b> (1) 2NC	FD 953-E11V9 <b>R</b> (1) 2NC	FD 956 <b>R</b> (1) 2NC
10	<b>L</b> FD 1051 2NO	FD 1052 2NO	FD 1053-E11V9 2NO	FD 1056 2NO
11	<b>R</b> FD 1151 <b>R</b> (1) 2NC	FD 1152 <b>R</b> (1) 2NC	FD 1153-E11V9 2NC	FD 1156 <b>R</b> (1) 2NC
12	<b>R</b> FD 1251 2NO	FD 1252 2NO	FD 1253-E11V9 2NO	FD 1256 2NO
13	<b>LV</b> FD 1351 <b>R</b> (1) 2NC	FD 1352 <b>R</b> (1) 2NC	FD 1353-E11V9 <b>R</b> (1) 2NC	FD 1356 <b>R</b> (1) 2NC
14	<b>LS</b> FD 1451 <b>R</b> (1) 2NC	FD 1452 <b>R</b> (1) 2NC	FD 1453-E11V9 <b>R</b> (1) 2NC	FD 1456 <b>R</b> (1) 2NC
15	<b>LS</b> FD 1551 2NO	FD 1552 2NO	FD 1553-E11V9 2NO	FD 1556 2NO
16	<b>LI</b> FD 1651 2NC	FD 1652 2NC	FD 1653-E11V9 2NC	FD 1656 <b>R</b> (1) 2NC
18	<b>LA</b> FD 1851 <b>R</b> (1) 1NO+1NC	FD 1852 <b>R</b> (1) 1NO+1NC	FD 1853-E11V9 <b>R</b> (1) 1NO+1NC	FD 1856 <b>R</b> (1) 1NO+1NC
20	<b>L</b> FD 2051 <b>R</b> (1) 1NO+2NC	FD 2052 <b>R</b> (1) 1NO+2NC	FD 2053-E11V9 <b>R</b> (1) 1NO+2NC	FD 2056 <b>R</b> (1) 1NO+2NC
21	<b>L</b> FD 2151 <b>R</b> (1) 3NC	FD 2152 <b>R</b> (1) 3NC	FD 2153-E11V9 <b>R</b> (1) 3NC	FD 2156 <b>R</b> (1) 3NC
22	<b>L</b> FD 2251 <b>R</b> (1) 2NO+1NC	FD 2252 <b>R</b> (1) 2NO+1NC	FD 2253-E11V9 <b>R</b> (1) 2NO+1NC	FD 2256 <b>R</b> (1) 2NO+1NC
2	<b>R</b> FD 251 2x(1NO-1NC)	FD 252 2x(1NO-1NC)	FD 253-E11 2x(1NO-1NC)	FD 256 2x(1NO-1NC)
E1	<b>A</b> FD E151 1NO-1NC	FD E152 1NO-1NC	FD E153-E11V9 1NO-1NC	FD E156 1NO-1NC
Max speed	page 6/3 - type 1	page 6/3 - type 1	0,5 m/s	page 6/3 - type 1
Min. force	0,06 Nm (0,25 Nm <b>R</b> )	0,06 Nm (0,25 Nm <b>R</b> )	0,03 Nm (0,25 Nm <b>R</b> )	0,1 Nm (0,25 Nm <b>R</b> )
Travel diagrams	page 6/4 - group 4	page 6/4 - group 4	page 6/4 - group 5	page 6/4 - group 4

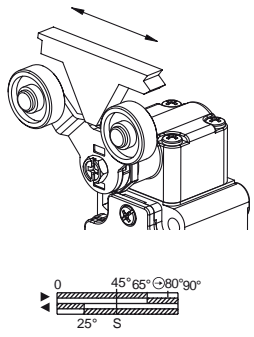
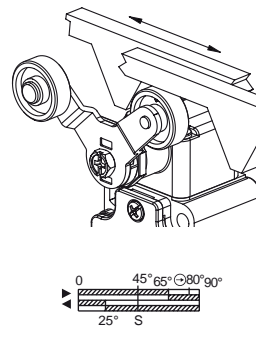
Accessories See page 5/1

(1) Positive opening only with lever adjusted on the max. See page 2/11

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  - LA** = slow action closer
  - A** = electronic PNP

Contact blocks

	Other rollers available. See page 2/12	With stainless steel rollers on request	With stainless steel rollers on request	Rope switches for signalling
5 <b>R</b>	FD 557 1NO+1NC	FD 541 1NO+1NC	FD 542 1NO+1NC	FD 576 1NO+1NC
6 <b>L</b>	FD 657 1NO+1NC	Bistable switch with single track lyra lever	Bistable switch with double tracks lyra lever	FD 676 1NO+1NC
7 <b>LO</b>	FD 757 1NO+1NC			FD 776 1NO+1NC
9 <b>L</b>	FD 957 2NC	 <p>S = mechanical snap point positive opening with 21-22 contact only</p>	 <p>S = mechanical snap point positive opening with 21-22 contact only</p>	FD 976 2NO
10 <b>L</b>	FD 1057 2NO			FD 1076 2NC
11 <b>R</b>	FD 1157 2NC			FD 1176 2NO
12 <b>R</b>	FD 1257 2NO			FD 1276 2NC
13 <b>LV</b>	FD 1357 2NC			FD 1376 2NO
14 <b>LS</b>	FD 1457 2NC			FD 1476 2NO
15 <b>LS</b>	FD 1557 2NO			FD 1576 2NC
16 <b>LI</b>	FD 1657 2NC			FD 1876 1NO+1NC
18 <b>LA</b>	FD 1857 1NO+1NC			FD 2076 2NO+1NC
20 <b>L</b>	FD 2057 1NO+2NC			FD 2176 3NO
21 <b>L</b>	FD 2157 3NC	FD 2276 1NO+2NC		
22 <b>L</b>	FD 2257 2NO+1NC	FD 276 2x(1NO-1NC)		
2 <b>R</b>	FD 257 2x(1NO-1NC)			
E1 <b>A</b>	FD E157 1NO-1NC			
Max speed	page 6/3 - type 1	0,5 m/s with 30° cam	0,5 m/s with 30° cam	0,5 m/s
Min. force	0,1 Nm (0,25 Nm ⊖)	0,21 Nm	0,21 Nm	initial 20 N - final 40 N
Travel diagrams	page 6/4 - group 4			page 6/4 - group 6





**Special loose actuators**

10 pcs pack

**IMPORTANT:** These loose actuators can be used with items of series FD, FP, FL, FC only

Ø 20 mm stainless steel rollers

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

Ø 35 mm polymer rollers

VF L31-2 (4)	VF L35-2 (1) (3)	VF L51-2 (4)	VF L52-2 (1)	VF L56-2 (3)	VF L57-2 (1)

Ø 40 mm rubber rollers

VF L31-R5 (4)	VF L35-R5 (1) (3)	VF L51-R5 (4)	VF L52-R5 (1)	VF L56-R5 (3)	VF L57-R5 (4)

Ø 50 mm rubber rollers

VF L31-3 (4)	VF L35-3 (1) (3)	VF L51-3 (4)	VF L52-3 (4)	VF L56-3 (3)	VF L57-3 (4)

Ø 50 mm overhanging rubber rollers

VF L35-4 (1) (3)	VF L56-4 (3)