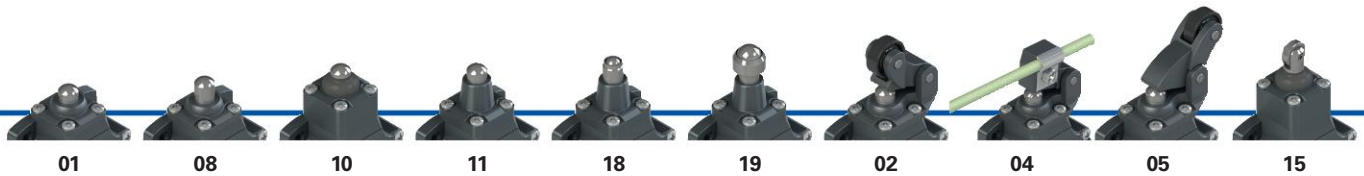
Selection diagram



01 **08** **10** **11** **18** **19** **02** **04** **05** **15**

10 External gasket

11 Ball Ø 8 mm stainless steel

19 Ball Ø 12.7 mm, stainless steel

04 Glass fibre rod

15 Steel roller with self-lubrication and external gasket



31 **51** **52** **57** **35** **56** **41** **42**

35 Adjustable lever

56 Adjustable safety lever

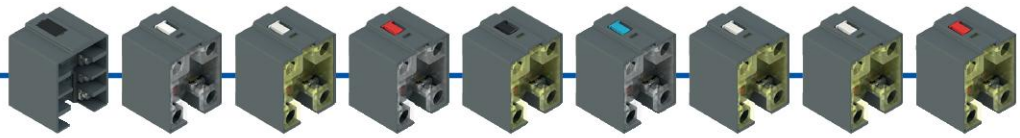
41 Bistable

42 Bistable

ACTUATORS



CONTACT BLOCKS



2 2x (1NO-1NC) snap action

5 1NO+1NC snap action

6 1NO+1NC slow action

7 1NO+1NC slow action, make before break

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, close

20 1NO+2NC slow action

21 3NC slow action

22 2NO+1NC slow action

E1 1NO-1NC electronic, PNP

CONDUIT ENTRY



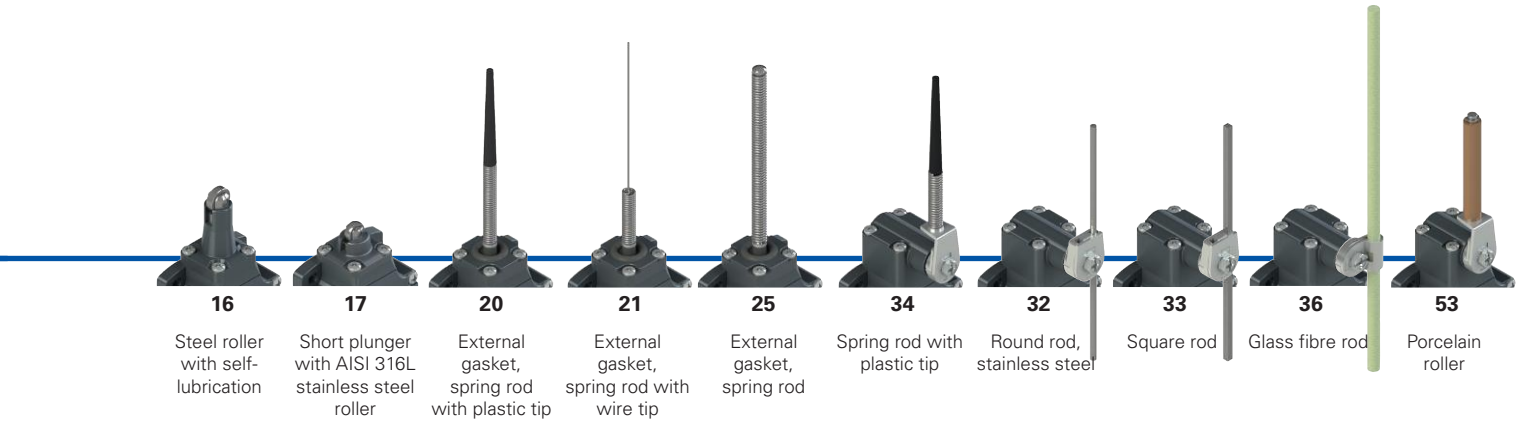
Threaded conduit entry	
M2	M20x1.5 (standard)
	PG 13.5

With cable gland	
K23	for cables Ø 6 … 12 mm on the bottom
K123	for cables Ø 6 … 12 mm on the right
K223	for cables Ø 6 … 12 mm on the left
K27	for cables Ø 3 … 7 mm on the bottom
K127	for cables Ø 3 … 7 mm on the right
K227	for cables Ø 3 … 7 mm on the left

With M12 metal connector	
K40	8-pole, bottom
K41	8-pole, right
K42	8-pole, left
K50	5-pole, bottom
K51	5-pole, right
K52	5-pole, left

Product options

Sold separately as accessory



16 Steel roller with self-lubrication

17 Short plunger with AISI 316L stainless steel roller

20 External gasket, spring rod with plastic tip

21 External gasket, spring rod with wire tip

25 External gasket, spring rod

34 Spring rod with plastic tip

32 Round rod, stainless steel

33 Square rod

36 Glass fibre rod

53 Porcelain roller



09 Rope switch for signalling

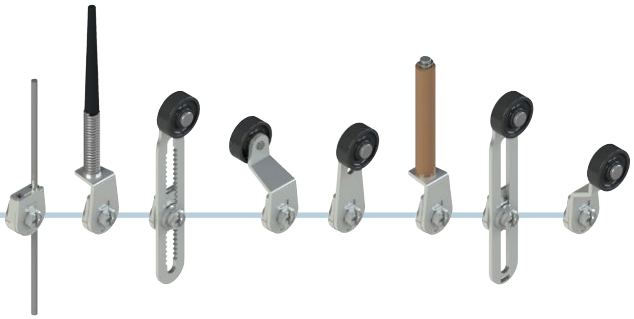
76 Rope switch for signalling

38 Without actuator

58 Without actuator

40 Bistable without actuator

SEPARATE ACTUATORS
See page 43



Code structure

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

article | options | options

FL 502-GM2K50R24T6

Housing	
FL	metal, three conduit entries

Contact block	
5	1NO+1NC, snap action
6	1NO+1NC, slow action
7	1NO+1NC, slow action, make before break
...	...

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

Contact type	
	silver contacts (standard)
G	silver contacts, 1 µm gold coating
G1	silver contacts, 2.5 µm gold coating (not for contact block 2, 20, 21, 22)

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

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

Rollers	
	standard roller
R24	steel, with self-lubrication, Ø 20 mm (for actuators 02, 05, 31, 35, 51, 52, 56, 57)
R41	316L stainless steel, Ø 20 mm (for actuators 02, 05, 31, 35, 51, 52, 56, 57)
R25	technopolymer, Ø 35 mm (for actuators 31, 35, 51, 52, 56, 57)
R5	rubber, Ø 40 mm (for actuators 31, 35, 51, 52, 56, 57)
R26	rubber, Ø 50 mm (for actuators 31, 35, 51, 52, 56, 57)
R27	rubber, protruding, Ø 50 mm (for actuators 35 and 56)

Pre-installed cable glands or connectors	
	no cable gland or connector (standard)
K23	cable gland for cables Ø 6 ... 12 mm
K50	M12 metal connector, 5-pole

For the complete list of possible combinations please contact our technical department.



Main features

- Metal housing, three conduit entries
- Protection degree IP67
- 17 contact blocks available
- 29 actuators available
- Versions with M12 connector
- Versions with gold-plated silver contacts

Technical data

Housing

Metal housing, powder-coated	
Three threaded conduit entries:	M20x1.5 (standard)
Protection degree acc. to EN 60529:	IP67 with cable gland of equal or higher protection degree

General data

Ambient temperature:	-25°C … +80°C (standard) -40°C … +80°C (T6 option)
Max. actuation frequency:	3600 operating cycles/hour
Mechanical endurance:	20 million operating cycles
Mounting position:	any
Safety parameter B_{10D}:	40,000,000 for NC contacts
Mechanical interlock, not coded:	type 1 acc. to EN ISO 14119
Tightening torques for installation:	see page 219
Wire cross-sections and wire stripping lengths:	see page 239

In compliance with standards:
IEC 60947-5-1, EN 60947-5-1, IEC 60947-1, EN 60947-1, IEC 60204-1, EN 60204-1, EN ISO 14119, EN ISO 12100, IEC 60529, EN 60529, EN IEC 63000, UL 508, CSA C22.2 No. 14.
Approvals:
IEC 60947-5-1, UL 508, CSA C22.2 No. 14, GB/T14048.5.

Compliance with the requirements of:
Low Voltage Directive 2014/35/EU, EMC Directive 2014/30/EU, RoHS Directive 2011/65/EU.
Positive contact opening in conformity with standards:
IEC 60947-5-1, EN 60947-5-1.

Quality marks:

IMQ approval:	EG605
UL approval:	E131787
CCC approval:	2024010305654835
EAC approval:	RU Д-IT.PA07.B.37848/24

Installation for safety applications:
Use only switches marked with the ⊖ symbol beside the product code. Always connect the safety circuit to the **NC contacts** (normally closed contacts: 11-12, 21-22 or 31-32) as required by **EN ISO 14119, paragraph 5.4** for specific interlock applications and **EN ISO 13849-2 tables D3** (well-tried components) and **D.8** (fault exclusions) for safety applications in general. Actuate the switch **at least up to the positive opening travel** shown in the travel diagrams on page 220. Actuate the switch **at least with the positive opening force**, reported in brackets below each article, next to the actuating force value.

⚠ **If not expressly indicated in this chapter, for correct installation and utilization of all articles see chapter Utilization requirements from page 217 to page 232.**

Electrical data			Utilization category			
without connector	Thermal current (I_{th}):	10 A	Alternating current: AC15 (50÷60 Hz)			
	Rated insulation voltage (U_i):	500 Vac 600 Vdc 400 Vac 500 Vdc (contact blocks 2, 11, 12, 20, 21, 22)	Ue (V)	250	400	500
			Ie (A)	6	4	1
	Rated impulse withstand voltage (U_{imp}):	6 kV 4 kV (contact blocks 20, 21, 22)	Direct current: DC13			
	Conditional short circuit current:	1000 A acc. to EN 60947-5-1	Ue (V)	24	125	250
	Protection against short circuits:	type aM fuse 10 A 500 V	Ie (A)	3	0.55	0.3
	Pollution degree:	3				
with M12 connector, 5-pole	Thermal current (I_{th}):	4 A	Alternating current: AC15 (50÷60 Hz)			
	Rated insulation voltage (U_i):	250 Vac 300 Vdc	Ue (V)	24	120	250
	Protection against short circuits:	type gG fuse 4 A 500 V	Ie (A)	4	4	4
	Pollution degree:	3	Direct current: DC13			
			Ue (V)	24	125	250
			Ie (A)	3	0.55	0.3
with M12 connector, 8-pole	Thermal current (I_{th}):	2 A	Alternating current: AC15 (50÷60 Hz)			
	Rated insulation voltage (U_i):	30 Vac 36 Vdc	Ue (V)	24		
	Protection against short circuits:	type gG fuse 2 A 500 V	Ie (A)	2		
	Pollution degree:	3	Direct current: DC13			
			Ue (V)	24		
			Ie (A)	2		

Features approved by IMQ

Rated insulation voltage (U_i):	500 Vac 400 Vac (for contact blocks 2, 11, 12, 20, 21, 22, 28, 29, 30, 33, 34, 37)
Conventional free air thermal current (I_{th}):	10 A
Protection against short circuits:	type aM fuse 10 A 500 V
Rated impulse withstand voltage (U_{imp}):	6 kV 4 kV (for contact blocks 20, 21, 22, 28, 29, 30, 33, 34)
Protection degree of the housing:	IP67
MV terminals (screw terminals)	
Pollution degree:	3
Utilization category:	AC15
Operating voltage (U_e):	400 Vac (50 Hz)
Operating current (I_e):	3 A

Forms of the contact element: Za, Za+Za, X+X, Zb, Y+Y, Y+Y+X, Y+Y+Y, Y+X+X, Y, X.
Positive opening of contacts on contact blocks 5, 6, 7, 8, 9, 11, 13, 14, 16, 17, 18, 19, 20, 21, 22, 28, 29, 30, 33, 34, 37, 38, 39, 66.
In compliance with standards: EN 60947-1, EN 60947-5-1, fundamental requirements of the Low Voltage Directive 2014/35/EU.

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

Features approved by UL

Electrical Ratings: Q300 pilot duty (69 VA, 125-250 V dc)
A600 pilot duty (720 VA, 120-600 V ac)

Environmental Ratings: Types 1, 4X, 12, 13

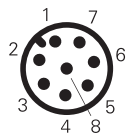
For all contact blocks except 2 and 3 use 60 or 75°C copper (Cu) conductors, rigid or flexible, wire size 12, 14 AWG. Tightening torque for terminal screws of 7.1 lb in (0.8 Nm).

For contact blocks 2 and 3 use 60 or 75°C copper (Cu) conductors, rigid or flexible, wire size 14 AWG. Tightening torque for terminal screws of 12 lb in (1.4 Nm).

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

Wiring diagram for M12 connectors

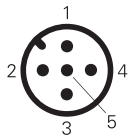
Contact block 2 — 2x(1NO-1NC)



M12 connector, 8-pole

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

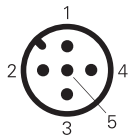
Contact block 5 — 1NO+1NC



M12 connector, 5-pole

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

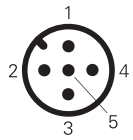
Contact block 6 — 1NO+1NC



M12 connector, 5-pole

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

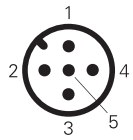
Contact block 7 — 1NO+1NC



M12 connector, 5-pole

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

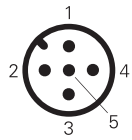
Contact block 9 — 2NC



M12 connector, 5-pole

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

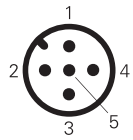
Contact block 10 — 2NO



M12 connector, 5-pole

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

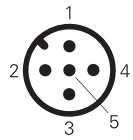
Contact block 11 — 2NC



M12 connector, 5-pole

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

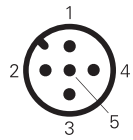
Contact block 12 — 2NO



M12 connector, 5-pole

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

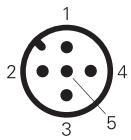
Contact block 13 — 2NC



M12 connector, 5-pole

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

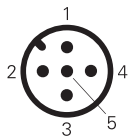
Contact block 14 — 2NC



M12 connector, 5-pole

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

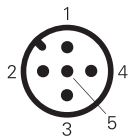
Contact block 15 — 2NO



M12 connector, 5-pole

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

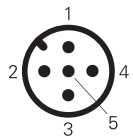
Contact block 16 — 2NC



M12 connector, 5-pole

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

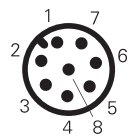
Contact block 18 — 1NO+1NC



M12 connector, 5-pole

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

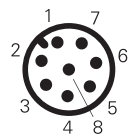
Contact block 20 — 1NO+2NC



M12 connector, 8-pole

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

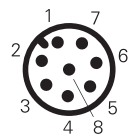
Contact block 21 — 3NC



M12 connector, 8-pole

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

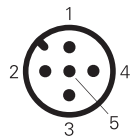
Contact block 22 — 2NO+1NC



M12 connector, 8-pole

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

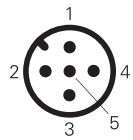
Contact block 33 — 1NO+1NC



M12 connector, 5-pole

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

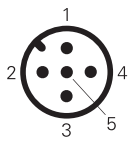
Contact block 34 — 2NC



M12 connector, 5-pole

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

Contact block E1 — PNP

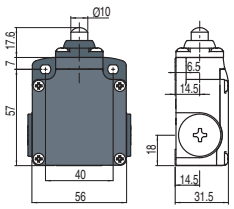


M12 connector, 5-pole

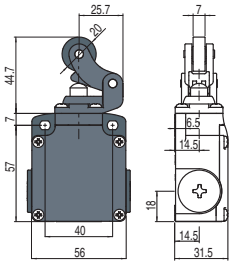
Contacts	Pin no.
+	1
-	3
NC	2
NO	4
ground	5

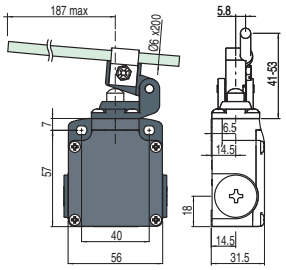
FL series position switches

Contact type
R = snap action
L = slow action
LO = slow action, make before break
LS = slow action, shifted
LV = slow action, shifted and spaced
LI = slow action, independent
LA = slow action, close
= electronic, PNP

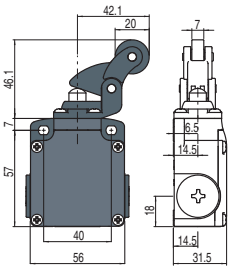


With steel roller with self-lubrication or 316L stainless steel on request



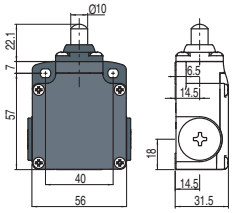


With steel roller with self-lubrication or 316L stainless steel on request

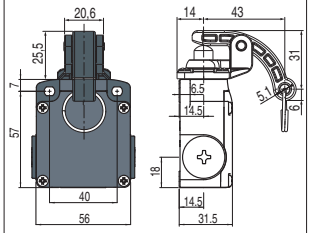


Contact block									
2	R	FL 201-M2	2x(1NO-1NC)	FL 202-M2	2x(1NO-1NC)	FL 204-M2	2x(1NO-1NC)	FL 205-M2	2x(1NO-1NC)
5	R	FL 501-M2	1NO+1NC	FL 502-M2	1NO+1NC	FL 504-M2	1NO+1NC	FL 505-M2	1NO+1NC
6	L	FL 601-M2	1NO+1NC	FL 602-M2	1NO+1NC	FL 604-M2	1NO+1NC	FL 605-M2	1NO+1NC
7	LO	FL 701-M2	1NO+1NC	FL 702-M2	1NO+1NC	FL 704-M2	1NO+1NC	FL 705-M2	1NO+1NC
9	L	FL 901-M2	2NC	FL 902-M2	2NC	FL 904-M2	2NC	FL 905-M2	2NC
10	L	FL 1001-M2	2NO	FL 1002-M2	2NO	FL 1004-M2	2NO	FL 1005-M2	2NO
11	R	FL 1101-M2	2NC	FL 1102-M2	2NC	FL 1104-M2	2NC	FL 1105-M2	2NC
12	R	FL 1201-M2	2NO	FL 1202-M2	2NO	FL 1204-M2	2NO	FL 1205-M2	2NO
13	LV	FL 1301-M2	2NC	FL 1302-M2	2NC	FL 1304-M2	2NC	FL 1305-M2	2NC
14	LS	FL 1401-M2	2NC	FL 1402-M2	2NC	FL 1404-M2	2NC	FL 1405-M2	2NC
15	LS	FL 1501-M2	2NO	FL 1502-M2	2NO	FL 1504-M2	2NO	FL 1505-M2	2NO
18	LA	FL 1801-M2	1NO+1NC	FL 1802-M2	1NO+1NC	FL 1804-M2	1NO+1NC	FL 1805-M2	1NO+1NC
20	L	FL 2001-M2	1NO+2NC	FL 2002-M2	1NO+2NC	FL 2004-M2	1NO+2NC	FL 2005-M2	1NO+2NC
21	L	FL 2101-M2	3NC	FL 2102-M2	3NC	FL 2104-M2	3NC	FL 2105-M2	3NC
22	L	FL 2201-M2	2NO+1NC	FL 2202-M2	2NO+1NC	FL 2204-M2	2NO+1NC	FL 2205-M2	2NO+1NC
E1		FL E101-M2	1NO-1NC	FL E102-M2	1NO-1NC	FL E104-M2	1NO-1NC	FL E105-M2	1NO-1NC
Max. speed		page 219 - type 4		page 219 - type 3		0.5 m/s		page 219 - type 3	
Actuating force		8 N (25 N →)		6 N (25 N →)		0.17 Nm		6 N (25 N →)	
Travel diagrams		page 220 - group 1		page 220 - group 2		page 220 - group 1		page 220 - group 2	

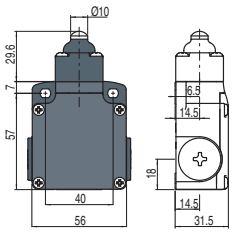
Contact type
R = snap action
L = slow action
LO = slow action, make before break
LS = slow action, shifted
LV = slow action, shifted and spaced
LI = slow action, independent
LA = slow action, close
= electronic, PNP

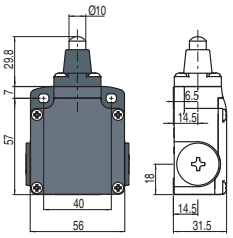


Rope switch for signalling



External gasket





Contact block									
2	R	FL 208-M2	2x(1NO-1NC)	FL 209-M2	2x(1NO-1NC)	FL 210-M2	2x(1NO-1NC)	FL 211-M2	2x(1NO-1NC)
5	R	FL 508-M2	1NO+1NC	FL 509-M2	1NO+1NC	FL 510-M2	1NO+1NC	FL 511-M2	1NO+1NC
6	L	FL 608-M2	1NO+1NC	FL 609-M2	1NO+1NC	FL 610-M2	1NO+1NC	FL 611-M2	1NO+1NC
7	LO	FL 708-M2	1NO+1NC	FL 709-M2	1NO+1NC	FL 710-M2	1NO+1NC	FL 711-M2	1NO+1NC
9	L	FL 908-M2	2NC	FL 909-M2	2NC	FL 910-M2	2NC	FL 911-M2	2NC
10	L	FL 1008-M2	2NO	FL 1009-M2	2NO	FL 1010-M2	2NO	FL 1011-M2	2NO
11	R	FL 1108-M2	2NC	FL 1109-M2	2NC	FL 1110-M2	2NC	FL 1111-M2	2NC
12	R	FL 1208-M2	2NO	FL 1209-M2	2NO	FL 1210-M2	2NO	FL 1211-M2	2NO
13	LV	FL 1308-M2	2NC	FL 1309-M2	2NC	FL 1310-M2	2NC	FL 1311-M2	2NC
14	LS	FL 1408-M2	2NC	FL 1409-M2	2NC	FL 1410-M2	2NC	FL 1411-M2	2NC
15	LS	FL 1508-M2	2NO	FL 1509-M2	2NO	FL 1510-M2	2NO	FL 1511-M2	2NO
18	LA	FL 1808-M2	1NO+1NC	FL 1809-M2	1NO+1NC	FL 1810-M2	1NO+1NC	FL 1811-M2	1NO+1NC
20	L	FL 2008-M2	1NO+2NC	FL 2009-M2	1NO+2NC	FL 2010-M2	1NO+2NC	FL 2011-M2	1NO+2NC
21	L	FL 2108-M2	3NC	FL 2109-M2	3NC	FL 2110-M2	3NC	FL 2111-M2	3NC
22	L	FL 2208-M2	2NO+1NC	FL 2209-M2	2NO+1NC	FL 2210-M2	2NO+1NC	FL 2211-M2	2NO+1NC
E1		FL E108-M2	1NO-1NC	FL E109-M2	1NO-1NC	FL E110-M2	1NO-1NC	FL E111-M2	1NO-1NC
Max. speed		page 219 - type 4		0.5 m/s		page 219 - type 4		page 219 - type 4	
Actuating force		8 N (25 N →)		7 N		11 N (25 N →)		8 N (25 N →)	
Travel diagrams		page 220 - group 1		/		page 220 - group 1		page 220 - group 1	

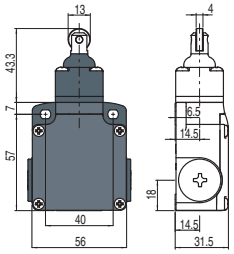
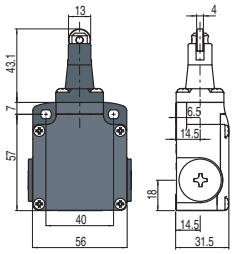
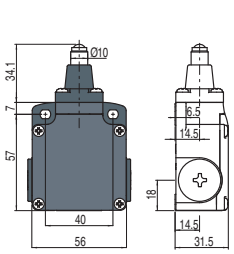
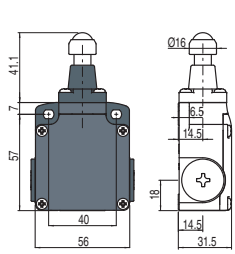
All values in the drawings are in mm

Accessories See page 195

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

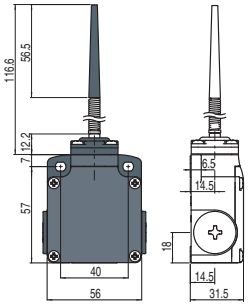
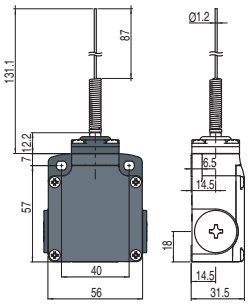
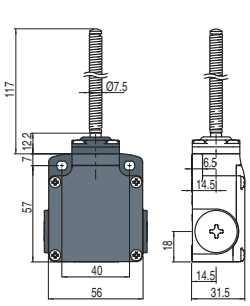
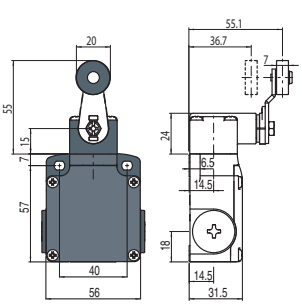
Contact type
R = snap action
L = slow action
LO = slow action, make before break
LS = slow action, shifted
LV = slow action, shifted and spaced
LI = slow action, independent
LA = slow action, close
= electronic, PNP

Contact block

		External gasket		External gasket		Ball, Ø 8 mm, stainless steel		Ball, Ø 12.7 mm, stainless steel	
									
2	R	FL 215-M2	2x(1NO-1NC)	FL 216-M2	2x(1NO-1NC)	FL 218-M2	2x(1NO-1NC)	FL 219-M2	2x(1NO-1NC)
5	R	FL 515-M2	1NO+1NC	FL 516-M2	1NO+1NC	FL 518-M2	1NO+1NC	FL 519-M2	1NO+1NC
6	L	FL 615-M2	1NO+1NC	FL 616-M2	1NO+1NC	FL 618-M2	1NO+1NC	FL 619-M2	1NO+1NC
7	LO	FL 715-M2	1NO+1NC	FL 716-M2	1NO+1NC	FL 718-M2	1NO+1NC	FL 719-M2	1NO+1NC
9	L	FL 915-M2	2NC	FL 916-M2	2NC	FL 918-M2	2NC	FL 919-M2	2NC
10	L	FL 1015-M2	2NO	FL 1016-M2	2NO	FL 1018-M2	2NO	FL 1019-M2	2NO
11	R	FL 1115-M2	2NC	FL 1116-M2	2NC	FL 1118-M2	2NC	FL 1119-M2	2NC
12	R	FL 1215-M2	2NO	FL 1216-M2	2NO	FL 1218-M2	2NO	FL 1219-M2	2NO
13	LV	FL 1315-M2	2NC	FL 1316-M2	2NC	FL 1318-M2	2NC	FL 1319-M2	2NC
14	LS	FL 1415-M2	2NC	FL 1416-M2	2NC	FL 1418-M2	2NC	FL 1419-M2	2NC
15	LS	FL 1515-M2	2NO	FL 1516-M2	2NO	FL 1518-M2	2NO	FL 1519-M2	2NO
18	LA	FL 1815-M2	1NO+1NC	FL 1816-M2	1NO+1NC	FL 1818-M2	1NO+1NC	FL 1819-M2	1NO+1NC
20	L	FL 2015-M2	1NO+2NC	FL 2016-M2	1NO+2NC	FL 2018-M2	1NO+2NC	FL 2019-M2	1NO+2NC
21	L	FL 2115-M2	3NC	FL 2116-M2	3NC	FL 2118-M2	3NC	FL 2119-M2	3NC
22	L	FL 2215-M2	2NO+1NC	FL 2216-M2	2NO+1NC	FL 2218-M2	2NO+1NC	FL 2219-M2	2NO+1NC
E1		FL E115-M2	1NO-1NC	FL E116-M2	1NO-1NC	FL E118-M2	1NO-1NC	FL E119-M2	1NO-1NC
Max. speed		page 219 - type 2		page 219 - type 2		page 219 - type 4		page 219 - type 4	
Actuating force		11 N (25 N ⊕)		8 N (25 N ⊕)		8 N (25 N ⊕)		8 N (25 N ⊕)	
Travel diagrams		page 220 - group 1		page 220 - group 1		page 220 - group 1		page 220 - group 1	

Contact type
R = snap action
L = slow action
LO = slow action, make before break
LS = slow action, shifted
LV = slow action, shifted and spaced
LI = slow action, independent
LA = slow action, close
= electronic, PNP

Contact block

		External gasket		External gasket		External gasket		Other rollers available. See page 44	
									
2	R	FL 220-M2	2x(1NO-1NC)	FL 221-M2	2x(1NO-1NC)	FL 225-M2	2x(1NO-1NC)	FL 231-M2	2x(1NO-1NC)
5	R	FL 520-M2	1NO+1NC	FL 521-M2	1NO+1NC	FL 525-M2	1NO+1NC	FL 531-M2	1NO+1NC
6	L	/		/		/		FL 631-M2	1NO+1NC
7	LO	/		/		/		FL 731-M2	1NO+1NC
9	L	/		/		/		FL 931-M2	2NC
10	L	FL 1020-M2	2NO	FL 1021-M2	2NO	FL 1025-M2	2NO	FL 1031-M2	2NO
11	R	/		/		/		FL 1131-M2	2NC
12	R	/		/		/		FL 1231-M2	2NO
13	LV	/		/		/		FL 1331-M2	2NC
14	LS	/		/		/		FL 1431-M2	2NC
15	LS	/		/		/		FL 1531-M2	2NO
16	LI	/		/		/		FL 1631-M2	2NC
18	LA	FL 1820-M2	1NO+1NC	FL 1821-M2	1NO+1NC	FL 1825-M2	1NO+1NC	FL 1831-M2	1NO+1NC
20	L	FL 2020-M2	1NO+2NC	FL 2021-M2	1NO+2NC	FL 2025-M2	1NO+2NC	FL 2031-M2	1NO+2NC
21	L	FL 2120-M2	3NC	FL 2121-M2	3NC	FL 2125-M2	3NC	FL 2131-M2	3NC
22	L	FL 2220-M2	2NO+1NC	FL 2221-M2	2NO+1NC	FL 2225-M2	2NO+1NC	FL 2231-M2	2NO+1NC
E1		FL E120-M2	1NO-1NC	FL E121-M2	1NO-1NC	FL E125-M2	1NO-1NC	FL E131-M2	1NO-1NC
Max. speed		1 m/s		1 m/s		1 m/s		page 219 - type 1	
Actuating force		0.09 Nm		0.08 Nm		0.14 Nm		0.1 Nm (0.25 Nm ⊕)	
Travel diagrams		page 220 - group 3		page 220 - group 3		page 220 - group 3		page 220 - group 4	

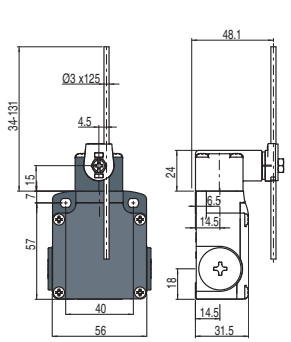
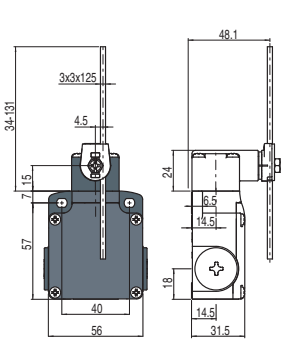
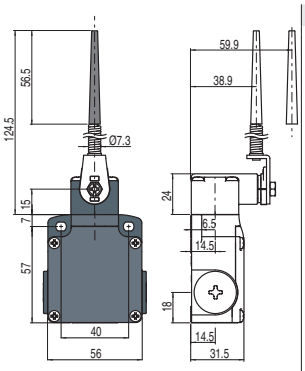
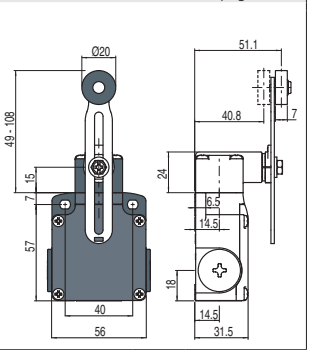
All values in the drawings are in mm

Accessories See page 195

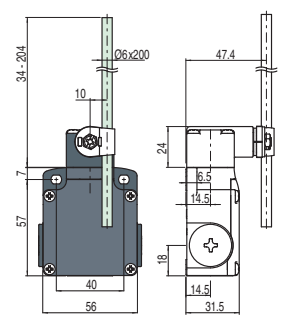
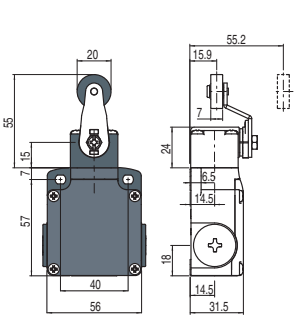
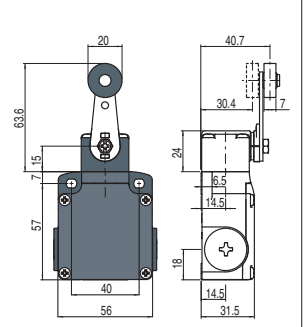
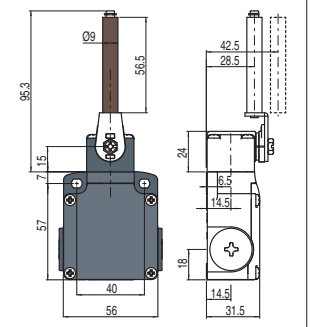
➔ The 2D and 3D files are available at **www.pizzato.com**

FL series position switches

Contact type
- R = snap action
- L = slow action
- LO = slow action, make before break
- LS = slow action, shifted
- LV = slow action, shifted and spaced
- LI = slow action, independent
- LA = slow action, close
- = electronic, PNP

Contact block		Round rod, Ø 3 mm, stainless steel		Square rod, 3x3 mm			Other rollers available. See page 44		
									
2	R	FL 232-M2	2x(1NO-1NC)	FL 233-M2	2x(1NO-1NC)	FL 234-M2	2x(1NO-1NC)	FL 235-M2	2x(1NO-1NC)
5	R	FL 532-M2	1NO+1NC	FL 533-M2	1NO+1NC	FL 534-M2	1NO+1NC	FL 535-M2 → (1)	1NO+1NC
6	L	FL 632-M2	1NO+1NC	FL 633-M2	1NO+1NC	FL 634-M2	1NO+1NC	FL 635-M2 → (1)	1NO+1NC
7	LO	FL 732-M2	1NO+1NC	FL 733-M2	1NO+1NC	FL 734-M2	1NO+1NC	FL 735-M2 → (1)	1NO+1NC
9	L	FL 932-M2	2NC	FL 933-M2	2NC	FL 934-M2	2NC	FL 935-M2 → (1)	2NC
10	L	FL 1032-M2	2NO	FL 1033-M2	2NO	FL 1034-M2	2NO	FL 1035-M2	2NO
11	R	FL 1132-M2	2NC	FL 1133-M2	2NC	FL 1134-M2	2NC	FL 1135-M2 → (1)	2NC
12	R	FL 1232-M2	2NO	FL 1233-M2	2NO	FL 1234-M2	2NO	FL 1235-M2	2NO
13	LV	FL 1332-M2	2NC	FL 1333-M2	2NC	FL 1334-M2	2NC	FL 1335-M2 → (1)	2NC
14	LS	FL 1432-M2	2NC	FL 1433-M2	2NC	FL 1434-M2	2NC	FL 1435-M2 → (1)	2NC
15	LS	FL 1532-M2	2NO	FL 1533-M2	2NO	FL 1534-M2	2NO	FL 1535-M2	2NO
16	LI	FL 1632-M2	2NC	FL 1633-M2	2NC	FL 1634-M2	2NC	FL 1635-M2 → (1)	2NC
18	LA	FL 1832-M2	1NO+1NC	FL 1833-M2	1NO+1NC	FL 1834-M2	1NO+1NC	FL 1835-M2 → (1)	1NO+1NC
20	L	FL 2032-M2	1NO+2NC	FL 2033-M2	1NO+2NC	FL 2034-M2	1NO+2NC	FL 2035-M2 → (1)	1NO+2NC
21	L	FL 2132-M2	3NC	FL 2133-M2	3NC	FL 2134-M2	3NC	FL 2135-M2 → (1)	3NC
22	L	FL 2232-M2	2NO+1NC	FL 2233-M2	2NO+1NC	FL 2234-M2	2NO+1NC	FL 2235-M2 → (1)	2NO+1NC
E1		FL E132-M2	1NO-1NC	FL E133-M2	1NO-1NC	FL E134-M2	1NO-1NC	FL E135-M2	1NO-1NC
Max. speed		1.5 m/s		1.5 m/s		1 m/s		page 219 - type 1	
Actuating force		0.1 Nm		0.1 Nm		0.1 Nm		0.1 Nm (0.25 Nm →)	
Travel diagrams		page 220 - group 4		page 220 - group 4		page 220 - group 4		page 220 - group 4	

Contact type
- R = snap action
- L = slow action
- LO = slow action, make before break
- LS = slow action, shifted
- LV = slow action, shifted and spaced
- LI = slow action, independent
- LA = slow action, close
- = electronic, PNP

Contact block		Glass fibre rod		Other rollers available. See page 44		Other rollers available. See page 44		Porcelain roller	
									
2	R	FL 236-M2	2x(1NO-1NC)	FL 251-M2	2x(1NO-1NC)	FL 252-M2	2x(1NO-1NC)	FL 253-E11M2	2x(1NO-1NC)
5	R	FL 536-M2	1NO+1NC	FL 551-M2 →	1NO+1NC	FL 552-M2 →	1NO+1NC	FL 553-E11M2V9 →	1NO+1NC
6	L	FL 636-M2	1NO+1NC	FL 651-M2 →	1NO+1NC	FL 652-M2 →	1NO+1NC	FL 653-E11M2V9 →	1NO+1NC
7	LO	FL 736-M2	1NO+1NC	FL 751-M2 →	1NO+1NC	FL 752-M2 →	1NO+1NC	FL 753-E11M2V9 →	1NO+1NC
9	L	FL 936-M2	2NC	FL 951-M2 →	2NC	FL 952-M2 →	2NC	FL 953-E11M2V9 →	2NC
10	L	FL 1036-M2	2NO	FL 1051-M2	2NO	FL 1052-M2	2NO	FL 1053-E11M2V9	2NO
11	R	FL 1136-M2	2NC	FL 1151-M2 →	2NC	FL 1152-M2 →	2NC	/	
12	R	FL 1236-M2	2NO	FL 1251-M2	2NO	FL 1252-M2	2NO	FL 1253-E11M2V9	2NO
13	LV	FL 1336-M2	2NC	FL 1351-M2 →	2NC	FL 1352-M2 →	2NC	FL 1353-E11M2V9 →	2NC
14	LS	FL 1436-M2	2NC	FL 1451-M2 →	2NC	FL 1452-M2 →	2NC	FL 1453-E11M2V9 →	2NC
15	LS	FL 1536-M2	2NO	FL 1551-M2	2NO	FL 1552-M2	2NO	FL 1553-E11M2V9	2NO
16	LI	FL 1636-M2	2NC	/		/		/	
18	LA	FL 1836-M2	1NO+1NC	FL 1851-M2 →	1NO+1NC	FL 1852-M2 →	1NO+1NC	FL 1853-E11M2V9 →	1NO+1NC
20	L	FL 2036-M2	1NO+2NC	FL 2051-M2 →	1NO+2NC	FL 2052-M2 →	1NO+2NC	FL 2053-E11M2V9 →	1NO+2NC
21	L	FL 2136-M2	3NC	FL 2151-M2 →	3NC	FL 2152-M2 →	3NC	FL 2153-E11M2V9 →	3NC
22	L	FL 2236-M2	2NO+1NC	FL 2251-M2 →	2NO+1NC	FL 2252-M2 →	2NO+1NC	FL 2253-E11M2V9 →	2NO+1NC
E1		FL E136-M2	1NO-1NC	FL E151-M2	1NO-1NC	FL E152-M2	1NO-1NC	FL E153-E11M2V9	1NO-1NC
Max. speed		1.5 m/s		page 219 - type 1		page 219 - type 1		0.5 m/s	
Actuating force		0.1 Nm		0.06 Nm (0.25 Nm →)		0.06 Nm (0.25 Nm →)		0.03 Nm (0.25 Nm →)	
Travel diagrams		page 220 - group 4		page 220 - group 4		page 220 - group 4		page 220 - group 5	

(1) Positive opening only with actuator set to max. See page 44.

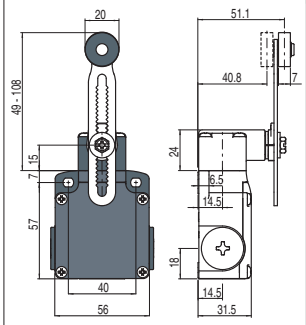
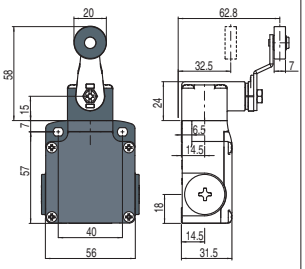
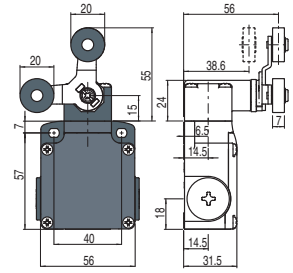
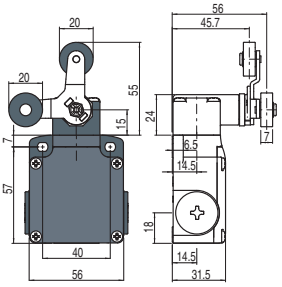
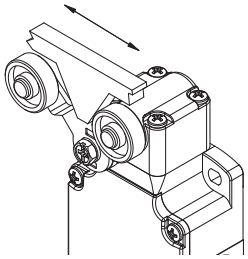
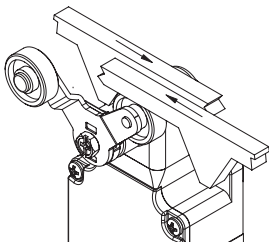
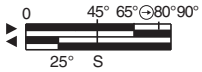
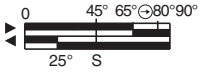
All values in the drawings are in mm

Accessories See page 195

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

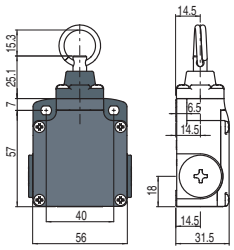
Contact type
R = snap action
L = slow action
LO = slow action, make before break
LS = slow action, shifted
LV = slow action, shifted and spaced
LI = slow action, independent
LA = slow action, close
= electronic, PNP

Contact block

	Other rollers available. See page 44	Other rollers available. See page 44	With steel roller with self-lubrication or 316L stainless steel on request	With steel roller with self-lubrication or 316L stainless steel on request
				
2 R	FL 256-M2 2x(1NO-1NC)	FL 257-M2 2x(1NO-1NC)	/	/
5 R	FL 556-M2 ⊕ 1NO+1NC	FL 557-M2 ⊕ 1NO+1NC	FL 541-M2 ⊕ 1NO+1NC	FL 542-M2 ⊕ 1NO+1NC
6 L	FL 656-M2 ⊕ 1NO+1NC	FL 657-M2 ⊕ 1NO+1NC	Bistable switch with lyra lever, single track	Bistable switch with lyra lever, dual track
7 LO	FL 756-M2 ⊕ 1NO+1NC	FL 757-M2 ⊕ 1NO+1NC		
9 L	FL 956-M2 ⊕ 2NC	FL 957-M2 ⊕ 2NC		
10 L	FL 1056-M2 2NO	FL 1057-M2 2NO	S = mechanical switching point positive opening on contacts 21-22 only	S = mechanical switching point positive opening on contacts 21-22 only
11 R	FL 1156-M2 ⊕ 2NC	FL 1157-M2 ⊕ 2NC		
12 R	FL 1256-M2 2NO	FL 1257-M2 2NO		
13 LV	FL 1356-M2 ⊕ 2NC	FL 1357-M2 ⊕ 2NC		
14 LS	FL 1456-M2 ⊕ 2NC	FL 1457-M2 ⊕ 2NC		
15 LS	FL 1556-M2 2NO	FL 1557-M2 2NO		
16 LI	FL 1656-M2 ⊕ 2NC	FL 1657-M2 ⊕ 2NC		
18 LA	FL 1856-M2 ⊕ 1NO+1NC	FL 1857-M2 ⊕ 1NO+1NC		
20 L	FL 2056-M2 ⊕ 1NO+2NC	FL 2057-M2 ⊕ 1NO+2NC		
21 L	FL 2156-M2 ⊕ 3NC	FL 2157-M2 ⊕ 3NC		
22 L	FL 2256-M2 ⊕ 2NO+1NC	FL 2257-M2 ⊕ 2NO+1NC		
E1	FL E156-M2 1NO-1NC	FL E157-M2 1NO-1NC		
Max. speed	page 219 - type 1	page 219 - type 1	0.5 m/s with cam at 30°	0.5 m/s with cam at 30°
Actuating force	0.1 Nm (0.25 Nm ⊕)	0.1 Nm (0.25 Nm ⊕)	0.21 Nm (0.36 Nm ⊕)	0.21 Nm (0.36 Nm ⊕)
Travel diagrams	page 220 - group 4	page 220 - group 4	/	/

Contact type
R = snap action
L = slow action
LO = slow action, make before break
LS = slow action, shifted
LV = slow action, shifted and spaced
LI = slow action, independent
LA = slow action, close
= electronic, PNP

Contact block

	Rope switch for signalling
	
2 R	FL 276-M2 2x(1NO-1NC)
5 R	FL 576-M2 1NO+1NC
6 L	FL 676-M2 1NO+1NC
7 LO	FL 776-M2 1NO+1NC
9 L	FL 976-M2 2NO
10 L	FL 1076-M2 2NC
11 R	FL 1176-M2 2NO
12 R	FL 1276-M2 2NC
13 LV	FL 1376-M2 2NO
14 LS	FL 1476-M2 2NO
15 LS	FL 1576-M2 2NC
16 LI	/
18 LA	FL 1876-M2 1NO+1NC
20 L	FL 2076-M2 2NO+1NC
21 L	FL 2176-M2 3NO
22 L	FL 2276-M2 1NO+2NC
E1	/
Max. speed	0.5 m/s
Actuating force	initial 20 N - final 40 N
Travel diagrams	page 220 - group 6

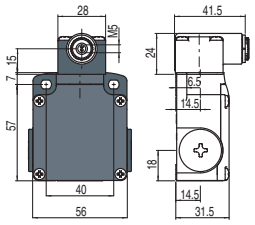
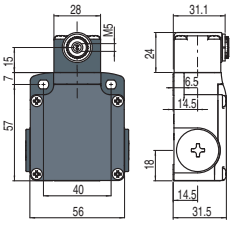
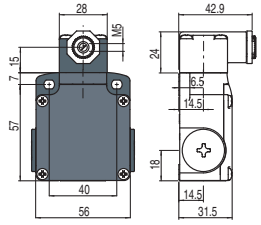
All values in the drawings are in mm

Accessories See page 195

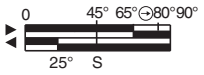
➔ The 2D and 3D files are available at **www.pizzato.com**

Position switches with swivelling lever without actuator

Contact type
- R = snap action
- L = slow action
- LO = slow action, make before break
- LS = slow action, shifted
- LV = slow action, shifted and spaced
- LI = slow action, independent
- LA = slow action, close
- = electronic, PNP

Contact block		Regular head	Compact head	
				
2	R	FL 238-M2 2x(1NO-1NC)	FL 258-M2 2x(1NO-1NC)	/
5	R	FL 538-M2 → 1NO+1NC	FL 558-M2 → 1NO+1NC	FL 540-M2 → 1NO+1NC
6	L	FL 638-M2 → 1NO+1NC	FL 658-M2 → 1NO+1NC	
7	LO	FL 738-M2 → 1NO+1NC	FL 758-M2 → 1NO+1NC	
9	L	FL 938-M2 → 2NC	FL 958-M2 → 2NC	
10	L	FL 1038-M2 2NO	FL 1058-M2 2NO	
11	R	FL 1138-M2 → 2NC	FL 1158-M2 → 2NC	
12	R	FL 1238-M2 2NO	FL 1258-M2 2NO	
13	LV	FL 1338-M2 → 2NC	FL 1358-M2 → 2NC	
14	LS	FL 1438-M2 → 2NC	FL 1458-M2 → 2NC	
15	LS	FL 1538-M2 2NO	FL 1558-M2 2NO	
16	LI	FL 1638-M2 → 2NC	/	
18	LA	FL 1838-M2 → 1NO+1NC	FL 1858-M2 → 1NO+1NC	
20	L	FL 2038-M2 → 1NO+2NC	FL 2058-M2 → 1NO+2NC	
21	L	FL 2138-M2 → 3NC	FL 2158-M2 → 3NC	
22	L	FL 2238-M2 → 2NO+1NC	FL 2258-M2 → 2NO+1NC	
E1		FL E138-M2 1NO-1NC	FL E158-M2 1NO-1NC	
Actuating force		0.1 Nm (0.25 Nm →)	0.06 Nm (0.25 Nm →)	0.21 Nm (0.36 Nm →)
Travel diagrams		page 220 - group 4	page 220 - group 4	/

Bistable switch

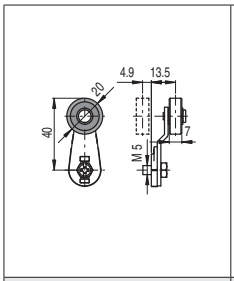
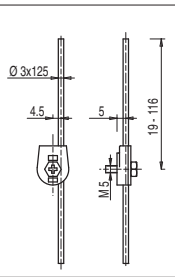
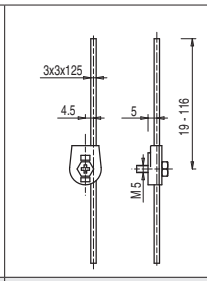
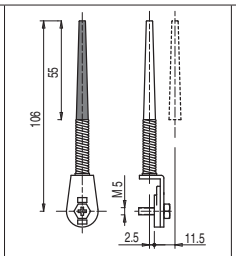
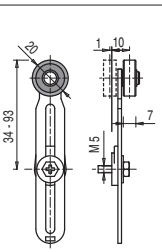
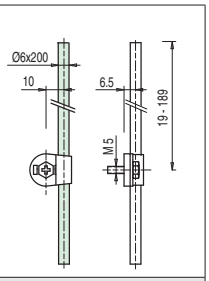


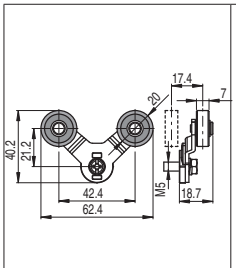
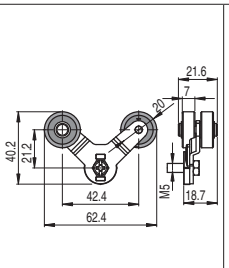
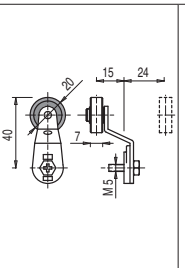
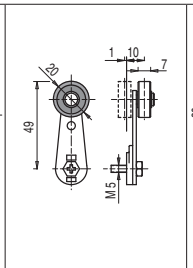
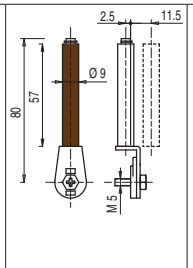
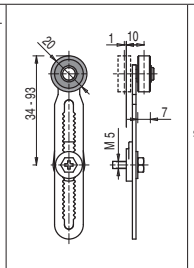
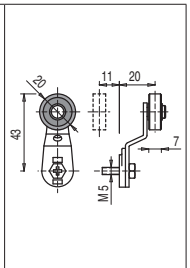
S = mechanical switching point
positive opening on contacts 21-22 only

IMPORTANT
For safety applications: join only switches and actuators marked with symbol → next to the product code.
For more information about safety applications see details on page 217.

Separate actuators

IMPORTANT: These separate actuators can be used only with items of the FD, FP, FL, and FC series.

Technopolymer roller Ø 20 mm	Adjustable round rod Ø 3x125 mm	Adjustable square rod, 3x3x125 mm	Spring rod with plastic tip	Adjustable actuator with technopolymer roller	Adjustable glass fibre rod
					
VF L31 →	VF L32 (3)	VF L33 (3)	VF L34	VF L35 → (1) (3)	VF L36 (3)

Lyra actuator, single track	Lyra actuator, dual track	Technopolymer roller, Ø 20 mm	Technopolymer roller, Ø 20 mm	Porcelain roller	Adjustable safety actuator with technopolymer roller	Technopolymer roller, Ø 20 mm
						
VF L41 →	VF L42 →	VF L51 →	VF L52 →	VF L53 → (2)	VF L56 → (3)	VF L57 →

All values in the drawings are in mm

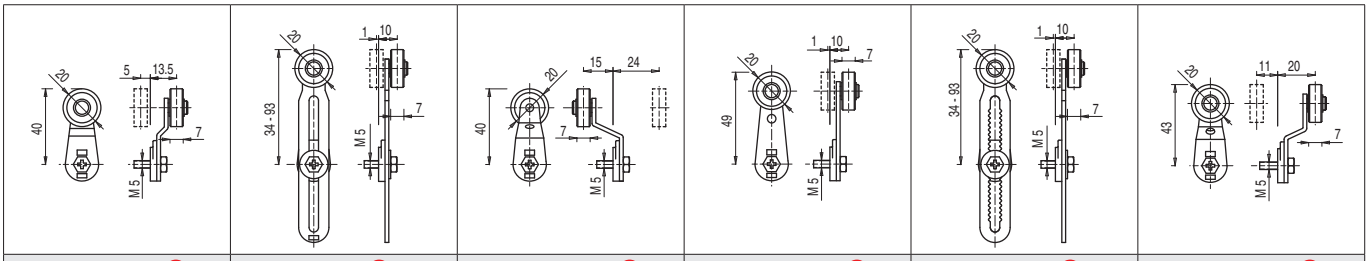
Accessories See page 195

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

Special separate actuators

IMPORTANT: These separate actuators can be used only with items of the FD, FP, FL, and FC series.

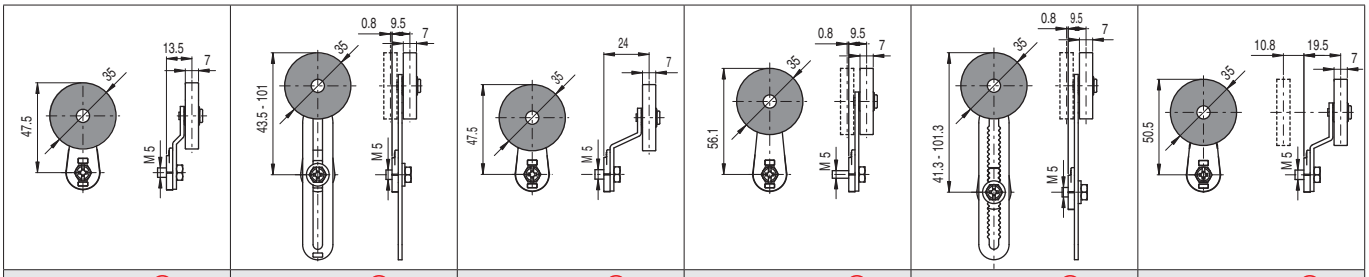
Steel rollers, Ø 20 mm, with self-lubrication



VF L31-R24 | VF L35-R24 (1) (3) | VF L51-R24 | VF L52-R24 | VF L56-R24 (3) | VF L57-R24

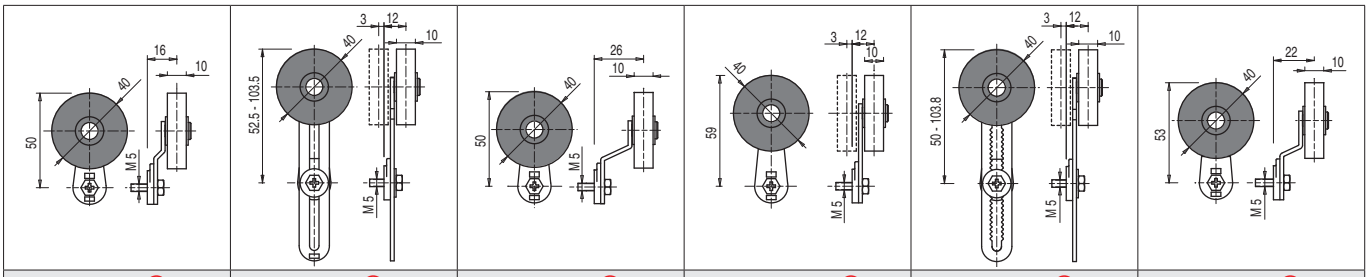
Note: To order with 316L stainless steel roller: replace R24 with R41 in the order numbers.

Technopolymer rollers, Ø 35 mm



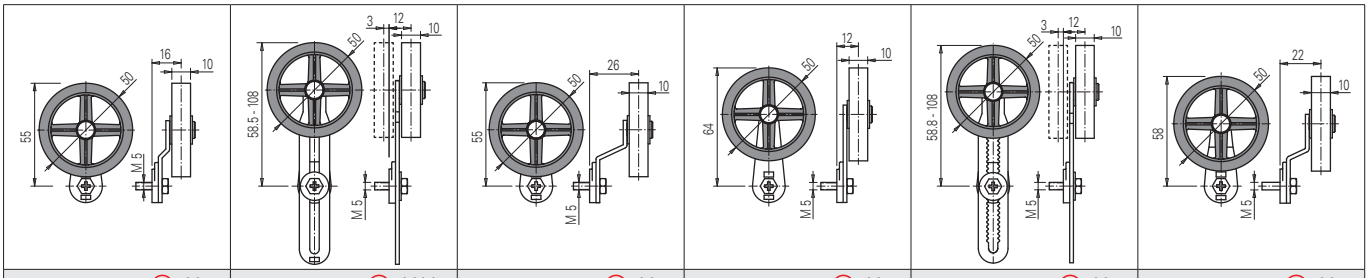
VF L31-R25 (4) | VF L35-R25 (1) (3) | VF L51-R25 (4) | VF L52-R25 | VF L56-R25 (3) | VF L57-R25

Rubber rollers, Ø 40 mm



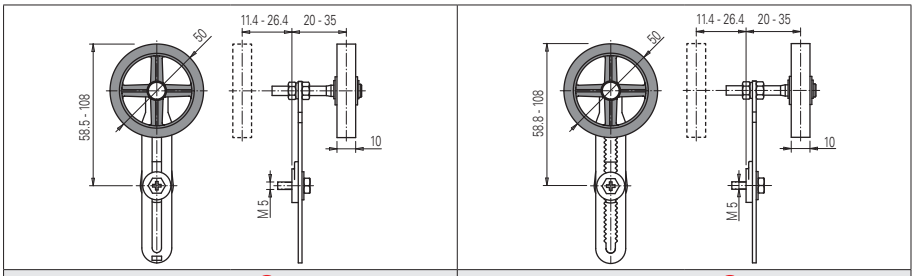
VF L31-R5 (4) | VF L35-R5 (1) (3) | VF L51-R5 (4) | VF L52-R5 | VF L56-R5 (3) | VF L57-R5 (4)

Rubber rollers, Ø 50 mm



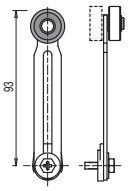
VF L31-R26 (4) | VF L35-R26 (1) (3) | VF L51-R26 (4) | VF L52-R26 (4) | VF L56-R26 (3) | VF L57-R26 (4)

Protruding rubber rollers, Ø 50 mm



VF L35-R27 (1) (3) | VF L56-R27 (3)

- (1) Lever VF L35 can only be used in safety applications if adjusted to its max. length, as shown in the figure to the right. If an adjustable lever is required for safety applications, use the VF L56 adjustable safety lever.
- (2) The position switch obtained by assembling switch FL •58-M2 (e.g. FL 558-M2, FL 658-M2, ...) with actuator VF L53 will not present the same travel diagrams and actuating forces as switch FL •53-E11M2V9 (e.g. FL 553-E11M2V9, FL 653-E11M2V9, ...)
- (3) If installed with switch FL •58-M2 (e.g. FL 558-M2, FL 658-M2, ...) the actuator may hit the housing of the switch upon actuation. This possible interference depends on the fixing position of actuator and switch head.
- (4) The actuator cannot be rotated to the inside because it will hit the switch head upon actuation.



All values in the drawings are in mm

Accessories See page 195

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