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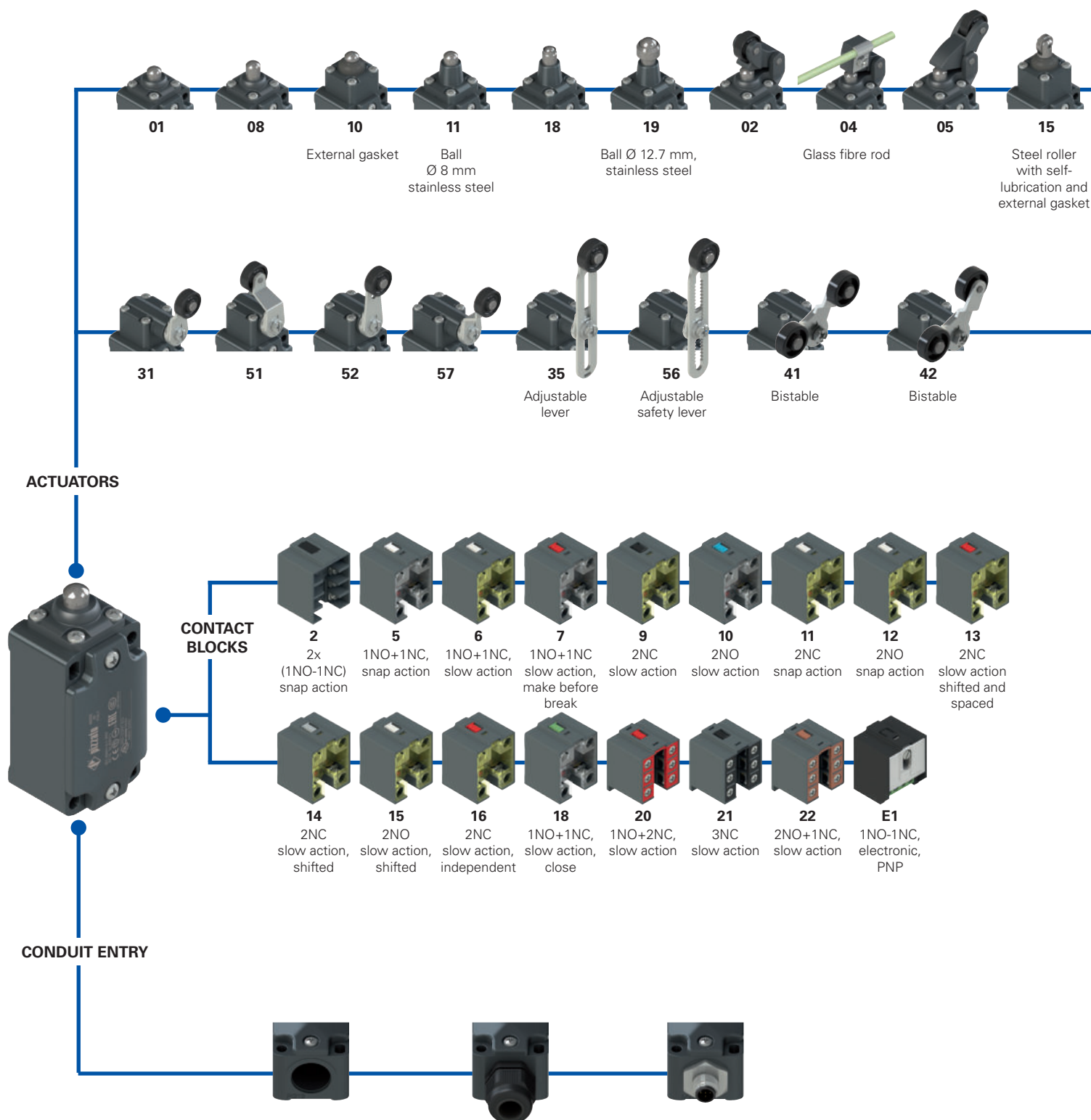
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Selection diagram



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

With cable gland	
K23	for cables Ø 6 ... 12 mm
K27	for cables Ø 3 ... 7 mm

With M12 metal connector	
K40	8-pole
K50	5-pole



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

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



- Main features
- Metal housing, one conduit entry
 - 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

One threaded conduit entry:

Protection degree acc. to EN 60529:

M20x1.5 (standard)

IP67 with cable gland of equal or higher protection degree

General data

Ambient temperature:

Max. actuation frequency:

Mechanical endurance:

Mounting position:

Safety parameter B_{10D}:

Mechanical interlock, not coded:

Tightening torques for installation:

Wire cross-sections and wire stripping lengths:

-25°C ... +80°C (standard)

-40°C ... +80°C (T6 option)

3600 operating cycles/hour

20 million operating cycles

any

40,000,000 for NC contacts

type 1 acc. to EN ISO 14119

see page 229

see page 249

In compliance with standards:

IEC 60947-5-1, EN 60947-5-1, EN 60947-1, EN 50041, 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:

CE

UL

CCC

EAC

UKCA

IMQ approval:

UL approval:

CCC approval:

EAC approval:

EG605

E131787

2021000305000099

RU C-IT.YT03.B.00035/19

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 230. 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 the instructions given on pages 227 to 242.

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)	U _e (V)	250	400	500
	Rated impulse withstand voltage (U _{imp}):	6 kV 4 kV (contact blocks 20, 21, 22)	I _e (A)	6	4	1
	Conditional short circuit current:	1000 A acc. to EN 60947-5-1	Direct current: DC13			
	Protection against short circuits:	type aM fuse 10 A 500 V	U _e (V)	24	125	250
	Pollution degree:	3	I _e (A)	3	0.55	0.3
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	U _e (V)	24	120	250
	Protection against short circuits:	type gG fuse 4 A 500 V	I _e (A)	4	4	4
	Pollution degree:	3	Direct current: DC13			
			U _e (V)	24	125	250
			I _e (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	U _e (V)	24		
	Protection against short circuits:	type gG fuse 2 A 500 V	I _e (A)	2		
	Pollution degree:	3	Direct current: DC13			
			U _e (V)	24		
			I _e (A)	2		

**Features approved by IMO**

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

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

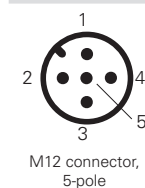
Electrical Ratings:	Q300 pilot duty (69 VA, 125-250 V dc) A600 pilot duty (720 VA, 120-600 V ac)
Environmental Ratings:	Types 1, 4X, 12, 13
For all contact blocks except 2 and 3 use 60 or 75°C copper (Cu) conductors, rigid or flexible, wire size 12, 14 AWG. Tightening torque for terminal screws of 7.1 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)	Contact block 5 1NO+1NC	Contact block 6 1NO+1NC	Contact block 7 1NO+1NC	Contact block 9 2NC	Contact block 10 2NO	Contact block 11 2NC	Contact block 12 2NO	Contact block 13 2NC											
M12 connector, 8-pole	M12 connector, 5-pole	M12 connector, 5-pole	M12 connector, 5-pole	M12 connector, 5-pole	M12 connector, 5-pole	M12 connector, 5-pole	M12 connector, 5-pole	M12 connector, 5-pole											
Contacts	Pin no.	Contacts	Pin no.	Contacts	Pin no.	Contacts	Pin no.	Contacts	Pin no.	Contacts	Pin no.	Contacts	Pin no.	Contacts	Pin no.	Contacts	Pin no.	Contacts	Pin no.
NO	3-4	NC	1-2	NC	1-2	NC	1-2	NO	1-2	NC	1-2	NO	1-2	NC (1°)	1-2	NC (2°)	3-4	NC (1°)	1-2
NC	5-6	NO	3-4	NO	3-4	NO	3-4	NC	3-4	NC	3-4	NO	3-4	NC	3-4	NC	3-4	NC	3-4
NC	7-8	ground	5	ground	5	ground	5	ground	5	ground	5	ground	5	ground	5	ground	5	ground	5
NO	1-2																		

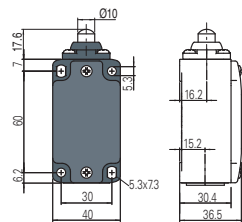
Contact block 14 2NC	Contact block 15 2NO	Contact block 16 2NC	Contact block 18 1NO+1NC	Contact block 20 1NO+2NC	Contact block 21 3NC	Contact block 22 2NO+1NC	Contact block 33 1NO+1NC	Contact block 34 2NC											
M12 connector, 5-pole	M12 connector, 5-pole	M12 connector, 5-pole	M12 connector, 5-pole	M12 connector, 8-pole	M12 connector, 8-pole	M12 connector, 8-pole	M12 connector, 5-pole	M12 connector, 5-pole											
Contacts	Pin no.	Contacts	Pin no.	Contacts	Pin no.	Contacts	Pin no.	Contacts	Pin no.	Contacts	Pin no.	Contacts	Pin no.	Contacts	Pin no.	Contacts	Pin no.	Contacts	Pin no.
NC (1°)	1-2	NO (1°)	1-2	NC, lever to the right	1-2	NC	3-4	NC	3-4	NC	3-4	NC	3-4	NC	1-2	NC	1-2	NC	1-2
NC (2°)	3-4	NO (2°)	3-4	NC, lever to the left	3-4	NO	5-6	NC	5-6	NC	5-6	NO	5-6	NC	3-4	NC	3-4	NC	3-4
ground	5	ground	5	ground	5	ground	5	ground	5	ground	5	ground	5	ground	5	ground	5	ground	5
						ground	1	ground	1	ground	1								

**Contact block E1
PNP**

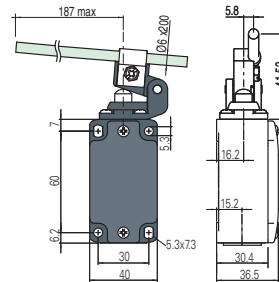
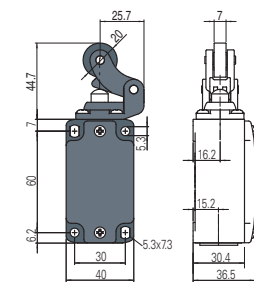
Contacts	Pin no.
+	1
-	3
NC	2
NO	4
ground	5

Contact type

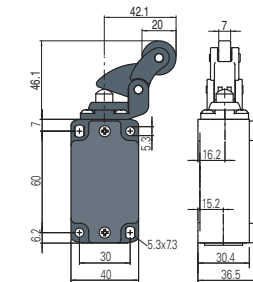
R = snap action
L = slow action
LO = slow action, make before break
LS = slow action, shifted
LV = slow action, shifted and spaced
LI = slow action, independent
LA = slow action, close
 = electronic, PNP



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



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

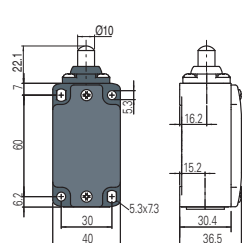


Contact block

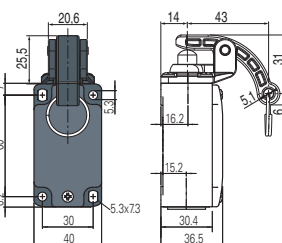
2	R	FD 201-M2	2x(1NO-1NC)	FD 202-M2	2x(1NO-1NC)	FD 204-M2	2x(1NO-1NC)	FD 205-M2	2x(1NO-1NC)
5	R	FD 501-M2	1NO+1NC	FD 502-M2	1NO+1NC	FD 504-M2	1NO+1NC	FD 505-M2	1NO+1NC
6	L	FD 601-M2	1NO+1NC	FD 602-M2	1NO+1NC	FD 604-M2	1NO+1NC	FD 605-M2	1NO+1NC
7	LO	FD 701-M2	1NO+1NC	FD 702-M2	1NO+1NC	FD 704-M2	1NO+1NC	FD 705-M2	1NO+1NC
9	L	FD 901-M2	2NC	FD 902-M2	2NC	FD 904-M2	2NC	FD 905-M2	2NC
10	L	FD 1001-M2	2NO	FD 1002-M2	2NO	FD 1004-M2	2NO	FD 1005-M2	2NO
11	R	FD 1101-M2	2NC	FD 1102-M2	2NC	FD 1104-M2	2NC	FD 1105-M2	2NC
12	R	FD 1201-M2	2NO	FD 1202-M2	2NO	FD 1204-M2	2NO	FD 1205-M2	2NO
13	LV	FD 1301-M2	2NC	FD 1302-M2	2NC	FD 1304-M2	2NC	FD 1305-M2	2NC
14	LS	FD 1401-M2	2NC	FD 1402-M2	2NC	FD 1404-M2	2NC	FD 1405-M2	2NC
15	LS	FD 1501-M2	2NO	FD 1502-M2	2NO	FD 1504-M2	2NO	FD 1505-M2	2NO
18	LA	FD 1801-M2	1NO+1NC	FD 1802-M2	1NO+1NC	FD 1804-M2	1NO+1NC	FD 1805-M2	1NO+1NC
20	L	FD 2001-M2	1NO+2NC	FD 2002-M2	1NO+2NC	FD 2004-M2	1NO+2NC	FD 2005-M2	1NO+2NC
21	L	FD 2101-M2	3NC	FD 2102-M2	3NC	FD 2104-M2	3NC	FD 2105-M2	3NC
22	L	FD 2201-M2	2NO+1NC	FD 2202-M2	2NO+1NC	FD 2204-M2	2NO+1NC	FD 2205-M2	2NO+1NC
E1		FD E101-M2	1NO-1NC	FD E102-M2	1NO-1NC	FD E104-M2	1NO-1NC	FD E105-M2	1NO-1NC
Max. speed		page 229 - type 4		page 229 - type 3		0.5 m/s		page 229 - type 3	
Actuating force		8 N (25 N )		6 N (25 N )		0.17 Nm		6 N (25 N )	
Travel diagrams		page 230 - group 1		page 230 - group 2		page 230 - group 1		page 230 - group 2	

Contact type

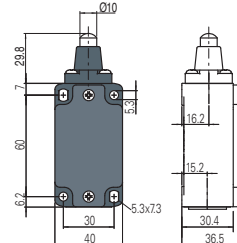
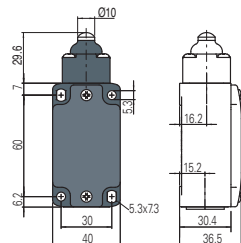
R = snap action
L = slow action
LO = slow action, make before break
LS = slow action, shifted
LV = slow action, shifted and spaced
LI = slow action, independent
LA = slow action, close
 = electronic, PNP



Rope switch for signalling



External gasket



Contact block

2	R	FD 208-M2	2x(1NO-1NC)	FD 209-M2	2x(1NO-1NC)	FD 210-M2	2x(1NO-1NC)	FD 211-M2	2x(1NO-1NC)
5	R	FD 508-M2	1NO+1NC	FD 509-M2	1NO+1NC	FD 510-M2	1NO+1NC	FD 511-M2	1NO+1NC
6	L	FD 608-M2	1NO+1NC	FD 609-M2	1NO+1NC	FD 610-M2	1NO+1NC	FD 611-M2	1NO+1NC
7	LO	FD 708-M2	1NO+1NC	FD 709-M2	1NO+1NC	FD 710-M2	1NO+1NC	FD 711-M2	1NO+1NC
9	L	FD 908-M2	2NC	FD 909-M2	2NC	FD 910-M2	2NC	FD 911-M2	2NC
10	L	FD 1008-M2	2NO	FD 1009-M2	2NO	FD 1010-M2	2NO	FD 1011-M2	2NO
11	R	FD 1108-M2	2NC	FD 1109-M2	2NC	FD 1110-M2	2NC	FD 1111-M2	2NC
12	R	FD 1208-M2	2NO	FD 1209-M2	2NO	FD 1210-M2	2NO	FD 1211-M2	2NO
13	LV	FD 1308-M2	2NC	FD 1309-M2	2NC	FD 1310-M2	2NC	FD 1311-M2	2NC
14	LS	FD 1408-M2	2NC	FD 1409-M2	2NC	FD 1410-M2	2NC	FD 1411-M2	2NC
15	LS	FD 1508-M2	2NO	FD 1509-M2	2NO	FD 1510-M2	2NO	FD 1511-M2	2NO
18	LA	FD 1808-M2	1NO+1NC	FD 1809-M2	1NO+1NC	FD 1810-M2	1NO+1NC	FD 1811-M2	1NO+1NC
20	L	FD 2008-M2	1NO+2NC	FD 2009-M2	1NO+2NC	FD 2010-M2	1NO+2NC	FD 2011-M2	1NO+2NC
21	L	FD 2108-M2	3NC	FD 2109-M2	3NC	FD 2110-M2	3NC	FD 2111-M2	3NC
22	L	FD 2208-M2	2NO+1NC	FD 2209-M2	2NO+1NC	FD 2210-M2	2NO+1NC	FD 2211-M2	2NO+1NC
E1		FD E108-M2	1NO-1NC	FD E109-M2	1NO-1NC	FD E110-M2	1NO-1NC	FD E111-M2	1NO-1NC
Max. speed		page 229 - type 4		0.5 m/s		page 229 - type 4		page 229 - type 4	
Actuating force		8 N (25 N )		7 N		11 N (25 N )		8 N (25 N )	
Travel diagrams		page 230 - group 1		/		page 230 - group 1		page 230 - group 1	



Contact type	External gasket		Ball, Ø 8 mm, stainless steel		Ball, Ø 12.7 mm, stainless steel	
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 A = electronic, PNP						
Contact block						
2	R	FD 215-M2 2x(1NO-1NC)	FD 216-M2 2x(1NO-1NC)	FD 218-M2 2x(1NO-1NC)	FD 219-M2 2x(1NO-1NC)	
5	R	FD 515-M2 1NO+1NC	FD 516-M2 1NO+1NC	FD 518-M2 1NO+1NC	FD 519-M2 1NO+1NC	
6	L	FD 615-M2 1NO+1NC	FD 616-M2 1NO+1NC	FD 618-M2 1NO+1NC	FD 619-M2 1NO+1NC	
7	LO	FD 715-M2 1NO+1NC	FD 716-M2 1NO+1NC	FD 718-M2 1NO+1NC	FD 719-M2 1NO+1NC	
9	L	FD 915-M2 2NC	FD 916-M2 2NC	FD 918-M2 2NC	FD 919-M2 2NC	
10	L	FD 1015-M2 2NO	FD 1016-M2 2NO	FD 1018-M2 2NO	FD 1019-M2 2NO	
11	R	FD 1115-M2 2NC	FD 1116-M2 2NC	FD 1118-M2 2NC	FD 1119-M2 2NC	
12	R	FD 1215-M2 2NO	FD 1216-M2 2NO	FD 1218-M2 2NO	FD 1219-M2 2NO	
13	LV	FD 1315-M2 2NC	FD 1316-M2 2NC	FD 1318-M2 2NC	FD 1319-M2 2NC	
14	LS	FD 1415-M2 2NC	FD 1416-M2 2NC	FD 1418-M2 2NC	FD 1419-M2 2NC	
15	LS	FD 1515-M2 2NO	FD 1516-M2 2NO	FD 1518-M2 2NO	FD 1519-M2 2NO	
18	LA	FD 1815-M2 1NO+1NC	FD 1816-M2 1NO+1NC	FD 1818-M2 1NO+1NC	FD 1819-M2 1NO+1NC	
20	L	FD 2015-M2 1NO+2NC	FD 2016-M2 1NO+2NC	FD 2018-M2 1NO+2NC	FD 2019-M2 1NO+2NC	
21	L	FD 2115-M2 3NC	FD 2116-M2 3NC	FD 2118-M2 3NC	FD 2119-M2 3NC	
22	L	FD 2215-M2 2NO+1NC	FD 2216-M2 2NO+1NC	FD 2218-M2 2NO+1NC	FD 2219-M2 2NO+1NC	
E1	A	FD E115-M2 1NO-1NC	FD E116-M2 1NO-1NC	FD E118-M2 1NO-1NC	FD E119-M2 1NO-1NC	
Max. speed	page 229 - type 2		page 229 - type 2		page 229 - type 4	
Actuating force	11 N (25 N)		8 N (25 N)		8 N (25 N)	
Travel diagrams	page 230 - group 1		page 230 - group 1		page 230 - group 1	

Contact type	External gasket		External gasket		External gasket		Other rollers available. See page 24	
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 A = electronic, PNP								
Contact block								
2	R	FD 220-M2 2x(1NO-1NC)	FD 221-M2 2x(1NO-1NC)	FD 225-M2 2x(1NO-1NC)	FD 231-M2 2x(1NO-1NC)			
5	R	FD 520-M2 1NO+1NC	FD 521-M2 1NO+1NC	FD 525-M2 1NO+1NC	FD 531-M2 1NO+1NC			
6	L	/	/	/	FD 631-M2 1NO+1NC			
7	LO	/	/	/	FD 731-M2 1NO+1NC			
9	L	/	/	/	FD 931-M2 2NC			
10	L	FD 1020-M2 2NO	FD 1021-M2 2NO	FD 1025-M2 2NO	FD 1031-M2 2NO			
11	R	/	/	/	FD 1131-M2 2NC			
12	R	/	/	/	FD 1231-M2 2NO			
13	LV	/	/	/	FD 1331-M2 2NC			
14	LS	/	/	/	FD 1431-M2 2NC			
15	LS	/	/	/	FD 1531-M2 2NO			
16	LI	/	/	/	FD 1631-M2 2NC			
18	LA	FD 1820-M2 1NO+1NC	FD 1821-M2 1NO+1NC	FD 1825-M2 1NO+1NC	FD 1831-M2 1NO+1NC			
20	L	FD 2020-M2 1NO+2NC	FD 2021-M2 1NO+2NC	FD 2025-M2 1NO+2NC	FD 2031-M2 1NO+2NC			
21	L	FD 2120-M2 3NC	FD 2121-M2 3NC	FD 2125-M2 3NC	FD 2131-M2 3NC			
22	L	FD 2220-M2 2NO+1NC	FD 2221-M2 2NO+1NC	FD 2225-M2 2NO+1NC	FD 2231-M2 2NO+1NC			
E1	A	FD E120-M2 1NO-1NC	FD E121-M2 1NO-1NC	FD E125-M2 1NO-1NC	FD E131-M2 1NO-1NC			
Max. speed	1 m/s		1 m/s		1 m/s		page 229 - type 1	
Actuating force	0.09 Nm		0.08 Nm		0.14 Nm		0.1 Nm (0.25 Nm)	
Travel diagrams	page 230 - group 3		page 230 - group 3		page 230 - group 3		page 230 - 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

2	R	FD 232-M2	2x(1NO-1NC)	FD 233-M2	2x(1NO-1NC)	FD 234-M2	2x(1NO-1NC)	FD 235-M2	2x(1NO-1NC)
5	R	FD 532-M2	1NO+1NC	FD 533-M2	1NO+1NC	FD 534-M2	1NO+1NC	FD 535-M2	 ⁽¹⁾ 1NO+1NC
6	L	FD 632-M2	1NO+1NC	FD 633-M2	1NO+1NC	FD 634-M2	1NO+1NC	FD 635-M2	 ⁽¹⁾ 1NO+1NC
7	LO	FD 732-M2	1NO+1NC	FD 733-M2	1NO+1NC	FD 734-M2	1NO+1NC	FD 735-M2	 ⁽¹⁾ 1NO+1NC
9	L	FD 932-M2	2NC	FD 933-M2	2NC	FD 934-M2	2NC	FD 935-M2	 ⁽¹⁾ 2NC
10	L	FD 1032-M2	2NO	FD 1033-M2	2NO	FD 1034-M2	2NO	FD 1035-M2	2NO
11	R	FD 1132-M2	2NC	FD 1133-M2	2NC	FD 1134-M2	2NC	FD 1135-M2	 ⁽¹⁾ 2NC
12	R	FD 1232-M2	2NO	FD 1233-M2	2NO	FD 1234-M2	2NO	FD 1235-M2	2NO
13	LV	FD 1332-M2	2NC	FD 1333-M2	2NC	FD 1334-M2	2NC	FD 1335-M2	 ⁽¹⁾ 2NC
14	LS	FD 1432-M2	2NC	FD 1433-M2	2NC	FD 1434-M2	2NC	FD 1435-M2	 ⁽¹⁾ 2NC
15	LS	FD 1532-M2	2NO	FD 1533-M2	2NO	FD 1534-M2	2NO	FD 1535-M2	2NO
16	LI	FD 1632-M2	2NC	FD 1633-M2	2NC	FD 1634-M2	2NC	FD 1635-M2	 ⁽¹⁾ 2NC
18	LA	FD 1832-M2	1NO+1NC	FD 1833-M2	1NO+1NC	FD 1834-M2	1NO+1NC	FD 1835-M2	 ⁽¹⁾ 1NO+1NC
20	L	FD 2032-M2	1NO+2NC	FD 2033-M2	1NO+2NC	FD 2034-M2	1NO+2NC	FD 2035-M2	 ⁽¹⁾ 1NO+2NC
21	L	FD 2132-M2	3NC	FD 2133-M2	3NC	FD 2134-M2	3NC	FD 2135-M2	 ⁽¹⁾ 3NC
22	L	FD 2232-M2	2NO+1NC	FD 2233-M2	2NO+1NC	FD 2234-M2	2NO+1NC	FD 2235-M2	 ⁽¹⁾ 2NO+1NC
E1		FD E132-M2	1NO-1NC	FD E133-M2	1NO-1NC	FD E134-M2	1NO-1NC	FD E135-M2	1NO-1NC
Max. speed		1.5 m/s		1.5 m/s		1 m/s		page 229 - type 1	
Actuating force		0.1 Nm		0.1 Nm		0.1 Nm		0.1 Nm (0.25 Nm )	
Travel diagrams		page 230 - group 4		page 230 - group 4		page 230 - group 4		page 230 - 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

2		FD 236-M2	2x(1NO-1NC)	FD 251-M2	2x(1NO-1NC)	FD 252-M2	2x(1NO-1NC)	FD 253-E11M2	2x(1NO-1NC)	
5		FD 536-M2	1NO+1NC	FD 551-M2		FD 552-M2		FD 553-E11M2V9		
6		FD 636-M2	1NO+1NC	FD 651-M2		FD 652-M2		FD 653-E11M2V9		
7		FD 736-M2	1NO+1NC	FD 751-M2		FD 752-M2		FD 753-E11M2V9		
9		FD 936-M2	2NC	FD 951-M2		FD 952-M2		FD 953-E11M2V9		
10		FD 1036-M2	2NO	FD 1051-M2	2NO	FD 1052-M2	2NO	FD 1053-E11M2V9	2NO	
11		FD 1136-M2	2NC	FD 1151-M2		FD 1152-M2		/		
12		FD 1236-M2	2NO	FD 1251-M2	2NO	FD 1252-M2	2NO	FD 1253-E11M2V9	2NO	
13		FD 1336-M2	2NC	FD 1351-M2		FD 1352-M2		FD 1353-E11M2V9		
14		FD 1436-M2	2NC	FD 1451-M2		FD 1452-M2		FD 1453-E11M2V9		
15		FD 1536-M2	2NO	FD 1551-M2	2NO	FD 1552-M2	2NO	FD 1553-E11M2V9	2NO	
16		FD 1636-M2	2NC	/		/		/		
18		FD 1836-M2	1NO+1NC	FD 1851-M2		FD 1852-M2		FD 1853-E11M2V9		
20		FD 2036-M2	1NO+2NC	FD 2051-M2		FD 2052-M2		FD 2053-E11M2V9		
21		FD 2136-M2	3NC	FD 2151-M2		FD 2152-M2		FD 2153-E11M2V9		
22		FD 2236-M2	2NO+1NC	FD 2251-M2		FD 2252-M2		FD 2253-E11M2V9		
E1		FD E136-M2	1NO-1NC	FD E151-M2	1NO-1NC	FD E152-M2	1NO-1NC	FD E153-E11M2V9	1NO-1NC	
Max. speed		1.5 m/s		page 229 - type 1			page 229 - 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 230 - group 4		page 230 - group 4			page 230 - group 4			page 230 - group 5



Contact type	Other rollers available. See page 24		Other rollers available. See page 24		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		FD 256-M2	2x(1NO-1NC)	FD 257-M2	2x(1NO-1NC)	/
5		FD 556-M2	1NO+1NC	FD 557-M2	1NO+1NC	FD 541-M2
6		FD 656-M2	1NO+1NC	FD 657-M2	1NO+1NC	1NO+1NC
7		FD 756-M2	1NO+1NC	FD 757-M2	1NO+1NC	Bistable switch with lyra lever, single track
9		FD 956-M2	2NC	FD 957-M2	2NC	 S = mechanical switching point positive opening on contacts 21-22 only
10		FD 1056-M2	2NO	FD 1057-M2	2NO	
11		FD 1156-M2	2NC	FD 1157-M2	2NC	
12		FD 1256-M2	2NO	FD 1257-M2	2NO	
13		FD 1356-M2	2NC	FD 1357-M2	2NC	
14		FD 1456-M2	2NC	FD 1457-M2	2NC	
15		FD 1556-M2	2NO	FD 1557-M2	2NO	
16		FD 1656-M2	2NC	FD 1657-M2	2NC	
18		FD 1856-M2	1NO+1NC	FD 1857-M2	1NO+1NC	
20		FD 2056-M2	1NO+2NC	FD 2057-M2	1NO+2NC	
21		FD 2156-M2	3NC	FD 2157-M2	3NC	
22		FD 2256-M2	2NO+1NC	FD 2257-M2	2NO+1NC	
E1		FD E156-M2	1NO-1NC	FD E157-M2	1NO-1NC	
Max. speed	page 229 - type 1		page 229 - 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 230 - group 4		page 230 - group 4		/	/

Contact type	Rope switch for signalling	
Contact block		
2		FD 276-M2
5		FD 576-M2
6		FD 676-M2
7		FD 776-M2
9		FD 976-M2
10		FD 1076-M2
11		FD 1176-M2
12		FD 1276-M2
13		FD 1376-M2
14		FD 1476-M2
15		FD 1576-M2
16		/
18		FD 1876-M2
20		FD 2076-M2
21		FD 2176-M2
22		FD 2276-M2
E1		/
Max. speed	0.5 m/s	
Actuating force	initial 20 N - final 40 N	
Travel diagrams	page 230 - group 6	

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

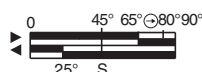
		Regular head		Compact head	
2	R	FD 238-M2	2x(1NO-1NC)	FD 258-M2	2x(1NO-1NC)
5	R	FD 538-M2	1NO+1NC	FD 558-M2	1NO+1NC
6	L	FD 638-M2	1NO+1NC	FD 658-M2	1NO+1NC
7	LO	FD 738-M2	1NO+1NC	FD 758-M2	1NO+1NC
9	L	FD 938-M2	2NC	FD 958-M2	2NC
10	L	FD 1038-M2	2NO	FD 1058-M2	2NO
11	R	FD 1138-M2	2NC	FD 1158-M2	2NC
12	R	FD 1238-M2	2NO	FD 1258-M2	2NO
13	LV	FD 1338-M2	2NC	FD 1358-M2	2NC
14	LS	FD 1438-M2	2NC	FD 1458-M2	2NC
15	LS	FD 1538-M2	2NO	FD 1558-M2	2NO
16	LI	FD 1638-M2	2NC	/	
18	LA	FD 1838-M2	1NO+1NC	FD 1858-M2	1NO+1NC
20	L	FD 2038-M2	1NO+2NC	FD 2058-M2	1NO+2NC
21	L	FD 2138-M2	3NC	FD 2158-M2	3NC
22	L	FD 2238-M2	2NO+1NC	FD 2258-M2	2NO+1NC
E1		FD E138-M2	1NO-1NC	FD 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 230 - group 4		page 230 - group 4	/

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 225.

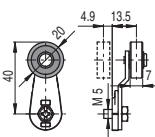
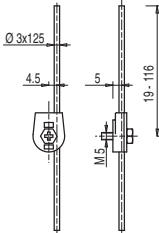
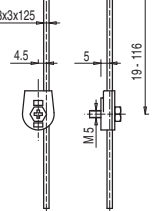
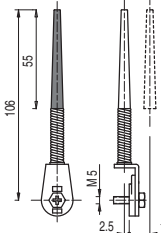
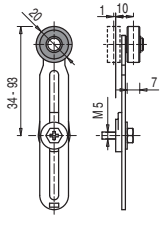
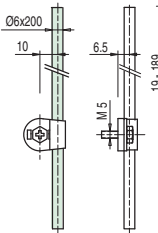
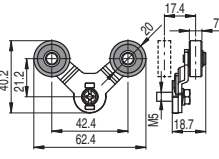
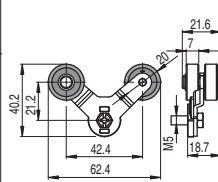
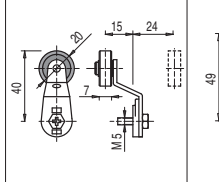
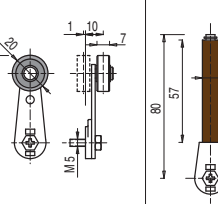
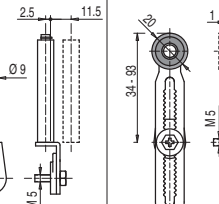
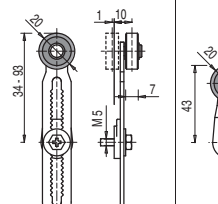
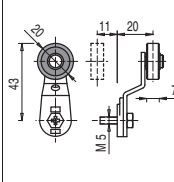
Bistable switch



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

Separate actuators

IMPORTANT: These separate actuators can be used only with items of the FD, FP, FL, 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 →



Special separate actuators

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

Steel rollers, Ø 20 mm, with self-lubrication

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

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 (1)	VF L56-R25 (3)	VF L57-R25 (1)

Rubber rollers, Ø 40 mm

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)

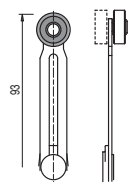
Rubber rollers, Ø 50 mm

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 FD •58-M2 (e.g. FD 558-M2, FD 658-M2, ...) with actuator VF L53 will not present the same travel diagrams and actuating forces as switch FD •53-E11M2V9 (e.g. FD 553-E11M2V9, FD 653-E11M2V9, ...)
- (3) If installed with switch FD •58-M2 (e.g. FD 558-M2, FD 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.





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