

Prewired position switches **FA** series



Technical data

Housing

Made of metal, coated with baked epoxy powder
 2 m wired cable with 5x0,75 mm² wires marked SEV and IMQ
 Protection degree: IP67

General data

Ambient temperature: from -25°C to +70°C (with cable)
 from -25°C to +80°C (with connector)
 Max operating frequency: 3600 operations cycles¹/hour
 Mechanical endurance: 20 million operations cycles¹
 (1) One operation cycle means two movements, one to close and one to open contacts, as foreseen by IEC 947-5-1 standard.

Markings and quality marks:



Approval IMQ: EH928
 (contact blocks 41)
 EI007
 (contact blocks 46)
 Approval UL: E131787
 Approval EZU: 1010151

Conforms to the standards:

IEC 947-5-1, IEC 337-1, EN 60947-5-1, CEI EN 60947-5-1, CEI 17-45, IEC 204-1, EN 60204-1, CEI 44-5, EN 1088, EN 292, IEC 529, EN 60529, CEI 70-1, NFC 63-140, VDE 0660-200, VDE 0113

Approvals:

IEC 947-5-1, UL 508

Complying with the requirements requested by:

Low Voltage Directive 73/23/EEC and subsequent modifications and completions, Machinery Directive 98/37/EEC, Electromagnetic Compatibility 89/336/EEC and subsequent modifications and completions.

Positive contact opening complying with the standards: IEC 947-5-1, EN 60947-5-1, CEI EN 60947-5-1, VDE 0660-206.

Installation for safety applications:

Use only switches marked with the symbol ⊕. Safety circuit must always be connected with the **NC contacts** as stated in the **standard CEI EN 60947-5-1, encl. K, par. 2**. **The switch must be actuated with the minimum positive opening travel** shown in the travels diagrams on chapter 6.1 - page 2. **The switch must be actuated with the minimum positive opening force**, shown in brackets, underneath each article, near the value of the min. force. For a correct installation of these articles see examples on chapter 19

(*) See internal connection on chapter 6.1 - page 2

Electrical data

Utilization categories

			Utilization categories			
with cable	Thermal current (I _{th}):	10 A	Alternate current: AC15 (50÷60 Hz)			
	Rated insulation voltage (U _i):	500 VAC 600 VDC	U _e (V)	120	250	400
	Protection against short circuits:	fuse 10 A 500 V type aM	I _e (A)	6	4	1
	Pollution degree:	3	Direct current: DC13			
			U _e (V)	24	125	250
			I _e (A)	2,5	0,55	0,27
with 5 poles M12 connectors	Thermal current (I _{th}):	4 A	Alternate current: AC15 (50÷60 Hz)			
	Rated insulation voltage (U _i):	250 VAC 300 VDC	U _e (V)	120	250	
	Protection against short circuits:	fuse 4 A 500 V type Gg	I _e (A)	4	4	
	Pollution degree:	3	Direct current: DC13			
			U _e (V)	24	125	250
			I _e (A)	2,5	0,55	0,27

Data type approved by IMQ and EZU

Rated insulation voltage (Ui): 500 VAC
 Thermal current (Ith): 10 A
 Protection against short circuits: fuse 10 A 500 V type aM
 Protection degree of the housing: IP67
 MA terminals (seamed clamps)
 Pollution degree 3
 Utilization category : AC15
 Operation voltage (Ue): 400 VAC (50 Hz)
 Operation current (Ie): 3 A
 Forms of the contact element: Zb (contact blocks 41 and 46)
 Positive opening of contacts on contact block 46
 Conforms to the standards: EN60947-1, EN60947-1 A11, EN60947-5-1
 and fundamental requirements of the Low Voltage Directive 73/23
 EEC and 93/68 EEC.

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

Data type approved by UL

Utilization categories Q300, A600
 Data of the housing type 4X (indoor use only) and 6
 Conforms to the standard: UL 508

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

How to order

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

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FA 4101-2DN1G

Housing

FA	metal housing
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Contact blocks

41	1NO+1NC, snap action
45	1NO+1NC, snap action
46	1NO+1NC, slow action
48	1NO+1NC, slow action

Actuator

01	short plunger
02	one-way lever
08	short roller lever
...

Type of connection

1	cable length 1 m
2	cable length 2 m
...
0	cable length 10 m
K	with connector

Type of contacts

	silver contacts (standard)
G	silver contacts gold plated (1 µm)

Suffix

	no suffix (standard)
1	with stainless steel roller: - ø 14 mm for actuators 31, 40 - ø 20 mm for actuators 51, 52, 54, 55, 56, 57

Type of connector or cable

N	cable EN 50265-2-1 black (standard)
G	cable CEI 20-22 II (grey)
M	connector M12 5 poles

Output direction

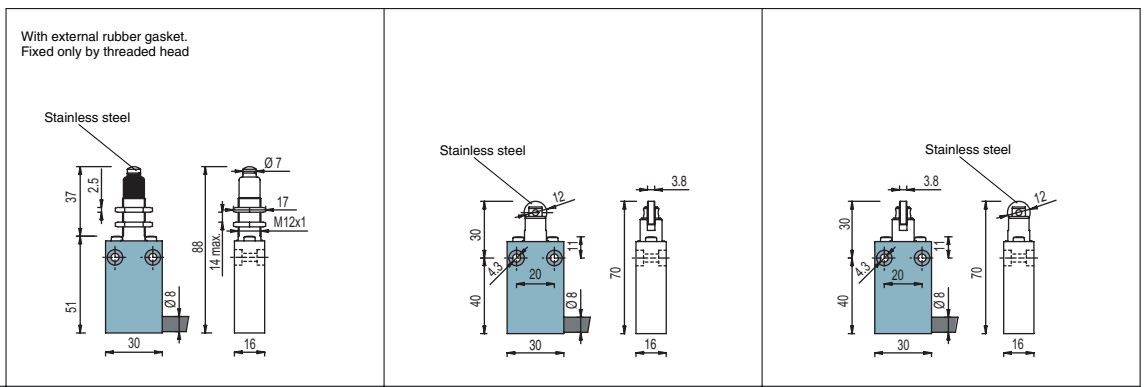
D	from right
S	from bottom

FA series
metal housing

Contact blocks								
41	Zb	snap action	FA 4101-2DN	1NO+1NC	FA 4102-2DN	1NO+1NC	FA 4108-2DN	1NO+1NC
45	Zb	snap action	FA 4501-2DN ⊕	1NO+1NC	FA 4502-2DN ⊕	1NO+1NC	FA 4508-2DN ⊕	1NO+1NC
46	Zb	slow action	FA 4601-2DN ⊕	1NO+1NC	FA 4602-2DN ⊕	1NO+1NC	FA 4608-2DN ⊕	1NO+1NC
48	Zb	slow action	FA 4801-2DN ⊕	1NO+1NC	FA 4802-2DN ⊕	1NO+1NC	FA 4808-2DN ⊕	1NO+1NC
Max speed			0,5 m/s		0,5 m/s with 30° cam		0,5 m/s	
Min. force			10 N (20 N)		5 N (15 N)		10 N (20 N)	
Travel diagrams			chap. 6.1 - page 2 - group 1		chap. 6.1 - page 2 - group 2		chap. 6.1 - page 2 - group 1	
FA series metal housing			Fixed only by threaded head		Fixed only by threaded head		Fixed only by threaded head	
Contact blocks								
41	Zb	snap action	FA 4110-2DN	1NO+1NC	FA 4111-2DN	1NO+1NC	FA 4112-2DN	1NO+1NC
45	Zb	snap action	FA 4510-2DN ⊕	1NO+1NC	FA 4511-2DN ⊕	1NO+1NC	FA 4512-2DN ⊕	1NO+1NC
46	Zb	slow action	FA 4610-2DN ⊕	1NO+1NC	FA 4611-2DN ⊕	1NO+1NC	FA 4612-2DN ⊕	1NO+1NC
48	Zb	slow action	FA 4810-2DN ⊕	1NO+1NC	FA 4811-2DN ⊕	1NO+1NC	FA 4812-2DN ⊕	1NO+1NC
Max speed			0,5 m/s		0,1 m/s with 30° cam		0,1 m/s with 30° cam	
Min. force			10 N (20 N)		10 N (20 N)		10 N (20 N)	
Travel diagrams			chap. 6.1 - page 2 - group 1		chap. 6.1 - page 2 - group 1		chap. 6.1 - page 2 - group 1	

Items with code on the grey background are available in stock.

FA series metal housing

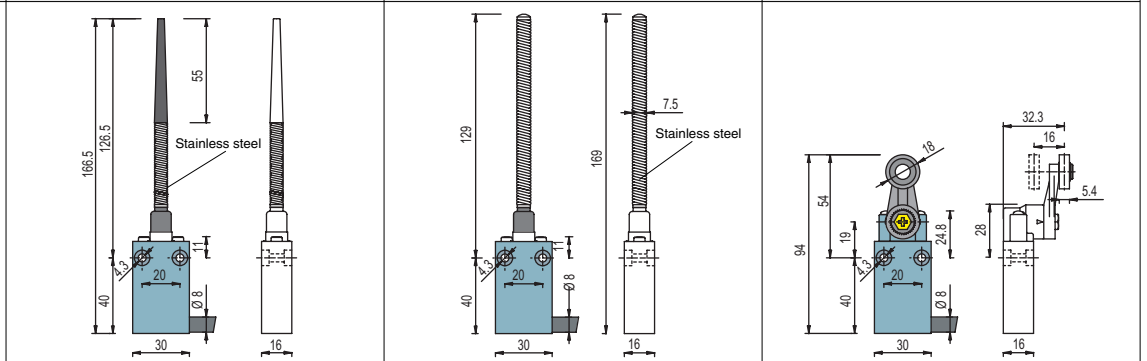


Contact blocks

41	Zb	snap action	FA 4113-2DN	1NO+1NC	FA 4115-2DN	1NO+1NC	FA 4117-2DN	1NO+1NC
45	Zb	snap action	FA 4513-2DN	1NO+1NC	FA 4515-2DN	1NO+1NC	FA 4517-2DN	1NO+1NC
46	Zb	slow action	FA 4613-2DN	1NO+1NC	FA 4615-2DN	1NO+1NC	FA 4617-2DN	1NO+1NC
48	Zb	slow action	FA 4813-2DN	1NO+1NC	FA 4815-2DN	1NO+1NC	FA 4817-2DN	1NO+1NC
Max speed			0,5 m/s		0,1 m/s with 30° cam		0,1 m/s with 30° cam	
Min. force			10 N (20 N)		10 N (20 N)		10 N (20 N)	
Travel diagrams			chap. 6.1 - page 2 - group 1		chap. 6.1 - page 2 - group 1		chap. 6.1 - page 2 - group 1	

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FA series metal housing



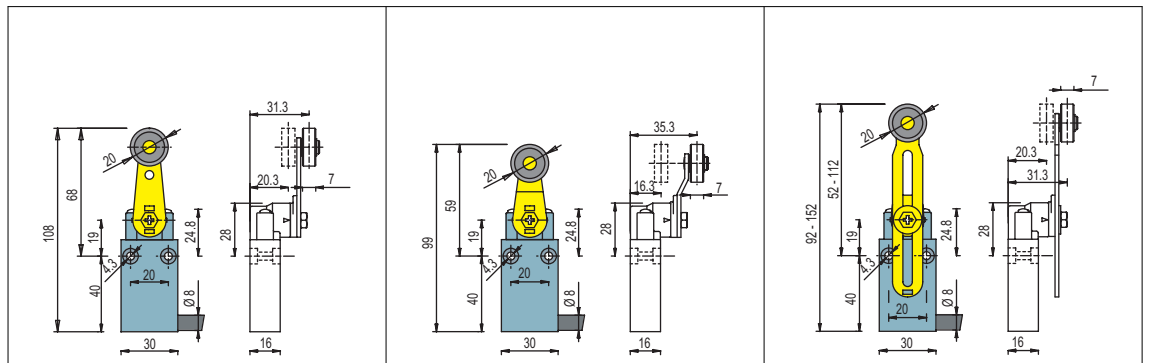
Contact blocks

41	Zb	snap action	FA 4120-2DN	1NO+1NC	FA 4125-2DN	1NO+1NC	FA 4130-2DN	1NO+1NC
45	Zb	snap action	FA 4520-2DN	1NO+1NC	FA 4525-2DN	1NO+1NC	FA 4530-2DN	1NO+1NC
46	Zb	slow action					FA 4630-2DN	1NO+1NC
48	Zb	slow action	FA 4820-2DN	1NO+1NC	FA 4825-2DN	1NO+1NC	FA 4830-2DN	1NO+1NC
Max speed			1 m/s		1 m/s		1,5 m/s with 30° cam	
Min. force			7 Ncm		6 Ncm		6,5 Ncm (10 Ncm)	
Travel diagrams			chap. 6.1 - page 2 - group 3		chap. 6.1 - page 2 - group 3		chap. 6.1 - page 2 - group 4	

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				Square rod 3x3				
Contact blocks								
41	Zb	snap action	FA 4131-2DN	1NO+1NC	FA 4133-2DN	1NO+1NC	FA 4134-2DN	1NO+1NC
45	Zb	snap action	FA 4531-2DN ⊕	1NO+1NC	FA 4533-2DN	1NO+1NC	FA 4534-2DN	1NO+1NC
46	Zb	slow action	FA 4631-2DN ⊕	1NO+1NC	FA 4633-2DN	1NO+1NC	FA 4634-2DN	1NO+1NC
48	Zb	slow action	FA 4831-2DN ⊕	1NO+1NC	FA 4833-2DN	1NO+1NC	FA 4834-2DN	1NO+1NC
Max speed			1,5 m/s with 30° cam		1,5 m/s		1,5 m/s	
Min. force			6,5 Ncm (10 Ncm)		6,5 Ncm		6,5 Ncm	
Travel diagrams			chap. 6.1 - page 2 - group 4		chap. 6.1 - page 2 - group 4		chap. 6.1 - page 2 - group 4	
					Stainless steel ø 3 round rod			
Contact blocks								
41	Zb	snap action	FA 4140-2DN	1NO+1NC	FA 4150-2DN	1NO+1NC	FA 4151-2DN	1NO+1NC
45	Zb	snap action	FA 4540-2DN ⊕	1NO+1NC	FA 4550-2DN	1NO+1NC	FA 4551-2DN ⊕	1NO+1NC
46	Zb	slow action	FA 4640-2DN ⊕	1NO+1NC	FA 4650-2DN	1NO+1NC	FA 4651-2DN ⊕	1NO+1NC
48	Zb	slow action	FA 4840-2DN ⊕	1NO+1NC	FA 4850-2DN	1NO+1NC	FA 4851-2DN ⊕	1NO+1NC
Max speed			1,5 m/s with 30° cam		1,5 m/s		1,5 m/s with 30° cam	
Min. force			6,5 Ncm (10 Ncm)		6,5 Ncm		6,5 Ncm (10 Ncm)	
Travel diagrams			chap. 6.1 - page 2 - group 4		chap. 6.1 - page 2 - group 4		chap. 6.1 - page 2 - group 4	

FA series metal housing

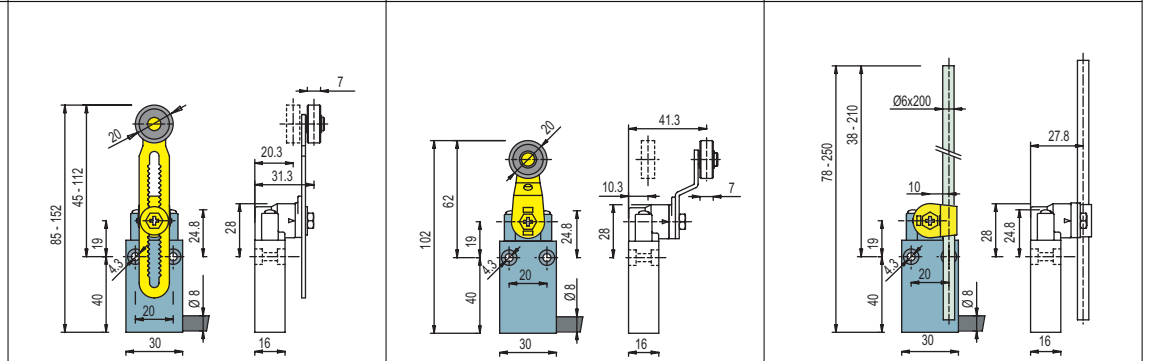


Contact blocks

41	Zb	snap action	FA 4152-2DN	1NO+1NC	FA 4154-2DN	1NO+1NC	FA 4155-2DN	1NO+1NC
45	Zb	snap action	FA 4552-2DN	1NO+1NC	FA 4554-2DN	1NO+1NC	FA 4555-2DN	1NO+1NC
46	Zb	slow action	FA 4652-2DN	1NO+1NC	FA 4654-2DN	1NO+1NC	FA 4655-2DN	1NO+1NC
48	Zb	slow action	FA 4852-2DN	1NO+1NC	FA 4854-2DN	1NO+1NC	FA 4855-2DN	1NO+1NC
Max speed			1,5 m/s with 30° cam		1,5 m/s with 30° cam		1,5 m/s with 30° cam	
Min. force			6,5 Ncm (10 Ncm)		6,5 Ncm (10 Ncm)		6,5 Ncm (10 Ncm)	
Travel diagrams			chap. 6.1 - page 2 - group 4		chap. 6.1 - page 2 - group 4		chap. 6.1 - page 2 - group 4	

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FA series metal housing



Contact blocks

41	Zb	snap action	FA 4156-2DN	1NO+1NC	FA 4157-2DN	1NO+1NC	FA 4169-2DN	1NO+1NC
45	Zb	snap action	FA 4556-2DN	1NO+1NC	FA 4557-2DN	1NO+1NC	FA 4569-2DN	1NO+1NC
46	Zb	slow action	FA 4656-2DN	1NO+1NC	FA 4657-2DN	1NO+1NC	FA 4669-2DN	1NO+1NC
48	Zb	slow action	FA 4856-2DN	1NO+1NC	FA 4857-2DN	1NO+1NC	FA 4869-2DN	1NO+1NC
Max speed			1,5 m/s with 30° cam		1,5 m/s with 30° cam		1,5 m/s	
Min. force			6,5 Ncm (10 Ncm)		6,5 Ncm (10 Ncm)		6,5 Ncm	
Travel diagrams			chap. 6.1 - page 2 - group 4		chap. 6.1 - page 2 - group 4		chap. 6.1 - page 2 - group 4	

⊕* positive opening with lever adjusted on the max. See chapter 5.2 - page 9