



### Main data

- Metal housing, cable output from right or from bottom
- 4 integrated cable types available
- Versions with M12 connector from right or from bottom suitable for safety applications ⊕
- Protection degree IP67
- 4 contact blocks available
- 24 actuators available

### Markings and quality marks:



Approval IMQ: EI007  
 Approval UL: E131787  
 Approval UL: 2007010305229997  
 Approval ECU: 1010151

### Technical data

#### Housing

Metal housing, coated with baked epoxy powder

Version with cable integrated with 5x 0.75 mm<sup>2</sup> wires length 2 m, other lengths on request.

Versions with 5 poles M12 integrated connector suitable for safety applications ⊕

Protection degree: IP67

#### General data

Ambient temperature: See table on page 2/102  
 Max operating frequency: 3600 operations cycles<sup>1</sup>/hour  
 Mechanical endurance: 20 million operations cycles<sup>1</sup>  
 Assembling position: any  
 Vibrations holding: 20 gn (10...500 Hz) according to IEC 60068-2-6  
 Shock holding: 50 gn (11 ms) according to IEC 60068-2-27

(1) One operation cycle means two movements, one to close and one to open contacts, as foreseen by IEC 947-5-1 standard.

#### In conformity with standards:

IEC 60947-5-1, EN 60947-5-1, 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: see "internal connections" on page 2/102) 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 6/8. 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

with cable	Thermal current (I <sub>th</sub> ):	10 A	Alternate current: AC15 (50...60 Hz)		
	Rated insulation voltage (U <sub>i</sub> ):	500 VAC 600 VDC	U <sub>e</sub> (V)	120	250
Protection against short circuits:	fuse 10 A 500 V type aM	I <sub>e</sub> (A)	6	4	3
Pollution degree:	3	Direct current: DC13			
		U <sub>e</sub> (V)	24	125	250
		I <sub>e</sub> (A)	2,5	0,55	0,27

with 5 poles M12 connector	Thermal current (I <sub>th</sub> ):	4 A	Alternate current: AC15 (50...60 Hz)		
	Rated insulation voltage (U <sub>i</sub> ):	250 VAC 300 VDC	U <sub>e</sub> (V)	120	250
Protection against short circuits:	fuse 4 A 500 V type gG	I <sub>e</sub> (A)	4	4	
Pollution degree:	3	Direct current: DC13			
		U <sub>e</sub> (V)	24	125	250
		I <sub>e</sub> (A)	2,5	0,55	0,27

**Data type approved by IMQ and ECU**

Rated insulation voltage (Ui): 500 VAC / 250 VAC (with connector)  
 Thermal current (Ith): 10 A / 4 A (with connector)  
 Protection against short circuits: fuse 10 A 500 V type aM  
 Protection degree: IP67  
 MA terminals (seamed clamps)  
 Pollution degree 3  
 Utilization category: AC15 / DC13 (with connector)  
 Operation voltage (Ue): 400 VAC (50 Hz) / 24 VDC (with connector)  
 Operation current (Ie): 3 A / 2,5 A (with connector)  
 Forms of the contact element: Zb  
 Positive opening of contacts on contact block 45, 46, 48  
 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.

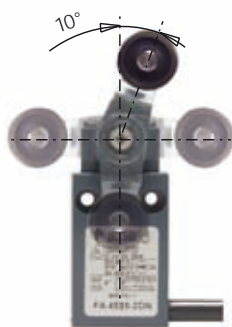
**Data type approved by UL**

Utilization categories Q300 (69 VA, 125-250 VDC)  
 A600 (720 VA, 120-600 VAC)  
 Data of the housing type 4X, 6 (indoor use only)  
 In conformity with standard: UL 508

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.



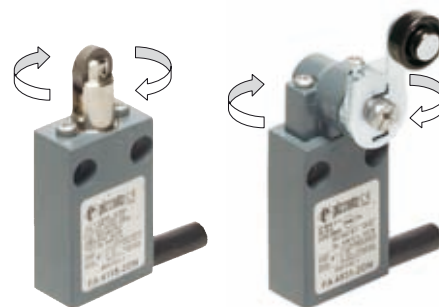
**Overturning levers**

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.

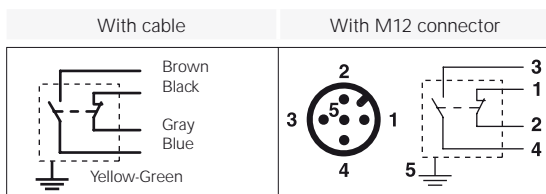


**Rotating heads**

According to different versions, it is possible to rotate the head in 90° or 180° steps.



**Internal connections**



**5 poles M12 safety connectors** ⊕

The long experience of Pizzato Elettrica has lead to the realization of the first 5-poles connector integrated in a safety switch complying with the requirements of standard IEC 947-5-1. Its high insulation voltage Ui 250 VAC allows to mark it as suitable for safety applications ⊕.

**Utilization temperatures and approvals**

Cable code	Cable features	Switches FA series standard versions								Available on request				Approvals of switches with integrated cable	
		Fixed laying cable		Dynamic laying cable		Fixed laying cable		Dynamic laying cable		Fixed laying cable		Dynamic laying cable			
		Tmin	Tmax	Tmin	Tmax	Tmin	Tmax	Tmin	Tmax	Tmin	Tmax	Tmin	Tmax		
<b>N</b>	PVC H05VV-F, fixed laying Not spreading the flame EN 50265-2-1	-25 °C	+70 °C	-	-	-	-	-	-	-	-	-	-	-	CE, IMQ, UL, CCC
<b>G</b>	PVC S05VV-F, fixed laying Not flame-spreading CEI 20-22 II	-25 °C	+70 °C	-	-	-	-	-	-	-	-	-	-	-	CE
<b>U</b>	Polyurethane H05BQ-F, fixed laying Oil-resistant IEC 60811-2-1	-25 °C	+70 °C	-	-	-35 °C	+80 °C	-	-	-	-	-	-	-	CE, IMQ, CCC
<b>H</b>	Polyurethane without halogens, dynamic laying Without halogens IEC 60754-1 Oil-resistant IEC 60811-2-1 Self-extinguishing IEC 60332-1, IEC 60332-2 Not flame-spreading IEC 60332-3 Gas emission reduced IEC 61034-1 Copper class 6 (IEC 228)	-25 °C	+80 °C	-25 °C	+80 °C	-35 °C	+80 °C	-35 °C	+80 °C	-35 °C	+80 °C	-35 °C	+80 °C	-	CE, UL

Connector code	Connector features	Switches FA series standard versions		Available on request		Approvals of switches with integrated connector
		Tmin	Tmax	Tmin	Tmax	
<b>K</b>	5 poles M12 connector	-25 °C	+80 °C	-35 °C	+80 °C	CE, IMQ, UL, CCC