

# Miniature Pre-Cabled Limit Switches FA



Miniature, high accuracy, pre-cabled limit switches with robust plastic or metal cases conforming to standards NF C63-140 and NF C63-145 class Y2

- Positive break versions for safety circuits in conformity with BS60947-5-1, VDE 0660 part 206 and IEC 337-1
- Double-break Zb contacts with electrically separate NO and NC circuits
- Snap-action types
- Mounting holes are counterbored to keep screw heads within switch housing dimensions
- Standard types can be mounted using side holes or the screws in the top which also secure the actuator
- Threaded-head mounting models
- Actuator heads can be removed and rotated
- Plunger types are suitable for gang-mounting
- Lever type – Lever can be adjusted over 360° in 10° increments
- IP67
- UL and CUL approved



## Options and ordering codes

	<b>FA</b>	<b>4</b>	<b>1</b>	<b>01</b>	<b>- 2DN*</b>
Plastic	<b>FF</b>				
Metal	<b>FA</b>				
		1NO + 1NC contacts	<b>4</b>		
Snap action contacts				<b>1</b>	
Slow-action contacts with positive break for safety circuits				<b>6</b>	
					<b>Actuators: Switch mounted by the case</b>
				<b>01</b>	Stainless steel piston plunger
				<b>02</b>	One way operation roller
				<b>08</b>	Sealed piston plunger
				<b>15</b>	In-line roller piston plunger
				<b>17</b>	Transverse roller piston plunger
				<b>31</b>	Roller lever with small offset
				<b>40</b>	Roller lever with large offset
				<b>50</b>	Adjustable stainless steel rod lever
					<b>Switch mounted by threaded head</b>
				<b>10</b>	Stainless steel piston plunger
				<b>11</b>	In-line roller piston plunger
				<b>12</b>	Transverse roller piston plunger
				<b>13</b>	Sealed piston plunger

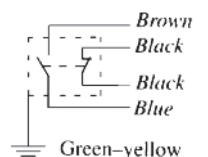
\*Versions available with 5 metre cable. Contact IMO for other available options

## Contact ratings

BS/EN 60947-5-1 AC15 – Control of AC electromagnetic loads >72VA sealed – replaces AC11	120VAC	6A
	240VAC	4A
	400VAC	3A
DC13 – Control of DC electromagnetic loads where the time taken to reach 95% of the rated current is equal to 6 times the power of the load (where P>50W) – replaces DC11	24VDC	2.5A
	125VDC	0.55A
	250VDC	0.27A

## Wiring connections

Note: The positive break applies to the NC wires of the type 6 contacts only. Connections to safety circuits should be made to the black wires only. Connections to safety circuits should NOT be made using the type 1 contacts. Slow action contacts are break before make. To ensure positive breaking of the NC contacts on the type 6 models, exceed the pre-travel by 1.5mm or 25°, according to the model.



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continued

## Specification

Rated thermal current I <sub>th</sub>	10A
Rated working voltage	500VAC/600VDC
Maximum operating frequency	6000/hour
Mechanical life	20 million operations
Contact form	1NO + 1NC
Initial contact resistance	<20 mOhms
Contact material	silver
Repeat accuracy	0.01mm
Dielectric strength	4000V between current carrying parts and ground
Protection rating	IP67
Ambient operating temperature	-25 to +75 deg. C
Cable	5 core, 0.75mm <sup>2</sup> x 2 metres long
Short-circuit protection required	10A HRC quick blow max.
Housing material	die cast metal alloy

## Dimensions and characteristics

<p>Note: Top mounting panel holes</p>							
	<p>1NO+1NC Snap action</p> <p>FA 4101-*DN</p>	<p>1NO+1NC Slow action</p> <p>FA 4601-*DN</p>	<p>1NO+1NC Snap action</p> <p>FA 4102-*DN</p>	<p>1NO+1NC Slow action</p> <p>FA 4602-*DN</p>	<p>1NO+1NC Snap action</p> <p>FA 4108-*DN</p>	<p>1NO+1NC Slow action</p> <p>FA 4608-*DN</p>	<p>1NO+1NC Snap action</p> <p>FA 4115-*DN</p>
<p>Max speed</p>	0.5 m/sec	0.5 m/sec with cam 30°	0.5 m/sec	0.3 m/sec with cam 15°			
<p>Min force</p>	10 N (20 N)	5 N (15 N)	10 N (20 N)	10 N (20 N)			
<p>Note: force figure in brackets is the recommended minimum force to ensure positive break of the NC contacts</p>							
	<p>1NO+1NC Snap action</p> <p>FA 4117-*DN</p>	<p>1NO+1NC Snap action</p> <p>FA 4131-*DN</p>	<p>1NO+1NC Snap action</p> <p>FA 4140-*DN</p>	<p>1NO+1NC Snap action</p> <p>FA 4150-*DN</p>			
<p>1NO+1NC Slow action</p> <p>FA 4617-*DN</p>	<p>1NO+1NC Slow action</p> <p>FA 4631-*DN</p>	<p>1NO+1NC Slow action</p> <p>FA 4640-*DN</p>	<p>1NO+1NC Slow action</p> <p>FA 4650-*DN</p>				
<p>Max speed</p>	0.3 m/sec with cam 15°	1.5 m/sec with cam 30°	1.5 m/sec with cam 30°	1.5 m/sec			
<p>Min force</p>	10 N (20 N)	6.5 Ncm (10 Ncm)	6.5 Ncm (10 Ncm)	6.5 Ncm (10 Ncm)			

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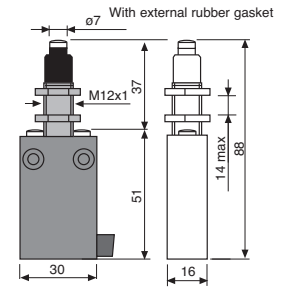
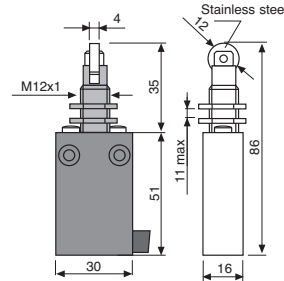
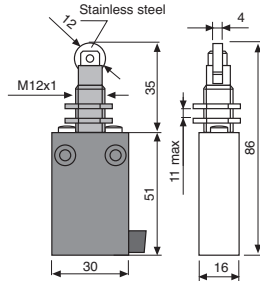
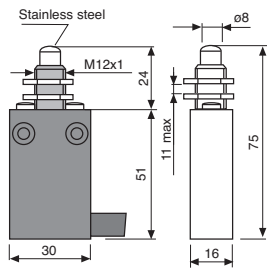


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## Dimensions and characteristics continued

### Secured by threaded head only

Note: Slow action models, minimum operating speed 1mm/s



1NO+1NC Snap action	FA 4110-*DN	FA 4111-*DN	FA 4112-*DN	FA 4113-*DN
1NO+1NC Slow action	FA 4610-*DN	FA 4611-*DN	FA 4612-*DN	FA 4613-*DN
Max speed	0.5 m/sec	0.3 m/sec with cam 15°	0.3 m/sec with cam 15°	0.5 m/sec
Min force	10 N (20 N)	10 N (20 N)	10 N (20 N)	10 N (20 N)

\* = Cable length