

## Miniature, high accuracy, pre-cabled limit switches with robust 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



## Options and ordering codes

	<b>FA</b>	<b>4</b>	<b>1</b>	<b>01</b>	
Miniature pre-cabled limit switches	FA				Actuators: Switch mounted by the case
1NO + 1NC contacts		4		01	Stainless steel piston plunger
Snap-action contacts			1	02	One way operation roller
Slow action contacts with positive break for safety circuits			6	08	Sealed piston plunger
Switch mounted by threaded head				15	In-line roller piston plunger
Stainless steel piston plunger				17	Transverse roller piston plunger
In-line roller piston plunger				31	Roller lever with small offset
Transverse roller piston plunger				40	Roller lever with large offset
Sealed piston plunger				50	Adjustable stainless steel rod lever

Versions available with 5 metre cable.  
Contact IMO for price and availability

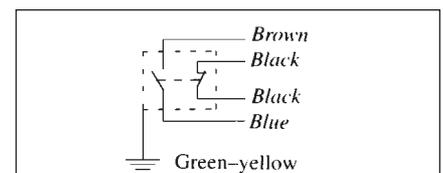
## Specifications

Rated thermal current Ith	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

## 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.

## Dimensions and characteristics

<p>Note: Top mounting panel holes</p>		<p>Doesn't switch</p>	<p>With external rubber gasket</p>	<p>Stainless steel</p>
	<p>1NO+1NC Snap action</p> <p>FA 4101</p>	<p>FA 4102</p>	<p>FA 4108</p>	<p>FA 4115</p>
	<p>1NO+1NC Slow action</p> <p>FA 4601</p>	<p>FA 4602</p>	<p>FA 4608</p>	<p>FA 4615</p>
	<p>Max speed</p> <p>0.5 m/sec</p>	<p>0.5 m/sec with cam 30°</p>	<p>0.5 m/sec</p>	<p>0.3 m/sec with cam 15°</p>
<p>Min force</p> <p>10 N (20 N)</p>	<p>5 N (15 N)</p>	<p>10 N (20 N)</p>	<p>10 N (20 N)</p>	
<p>Note: force figure in brackets is the recommended minimum force to ensure positive break of the NC contacts</p>		<p>Nylon</p>	<p>Nylon</p>	<p>Stainless steel</p>
	<p>1NO+1NC Snap action</p> <p>FA 4117</p>	<p>FA 4131</p>	<p>FA 4140</p>	<p>FA 4150</p>
	<p>1NO+1NC Slow action</p> <p>FA 4617</p>	<p>FA 4631</p>	<p>FA 4640</p>	<p>FA 4650</p>
	<p>Max speed</p> <p>0.3 m/sec with cam 15°</p>	<p>1.5 m/sec with cam 30°</p>	<p>1.5 m/sec with cam 30°</p>	<p>1.5 m/sec</p>
<p>Min force</p> <p>10 N (20 N)</p>	<p>6.5 Ncm (10 Ncm)</p>	<p>6.5 Ncm (10 Ncm)</p>	<p>6.5 Ncm (10 Ncm)</p>	
<p>Note: Slow action models, minimum operating speed 1mm/s</p>	<b>Secured by threaded head only</b>			
	<p>Stainless steel</p>	<p>Stainless steel</p>	<p>Stainless steel</p>	<p>With external rubber gasket</p>
	<p>1NO+1NC Snap action</p> <p>FA 4110</p>	<p>FA 4111</p>	<p>FA 4112</p>	<p>FA 4113</p>
	<p>1NO+1NC Slow action</p> <p>FA 4610</p>	<p>FA 4611</p>	<p>FA 4612</p>	<p>FA 4613</p>
<p>Max speed</p> <p>0.5 m/sec</p>	<p>0.3 m/sec with cam 15°</p>	<p>0.3 m/sec with cam 15°</p>	<p>0.5 m/sec</p>	
<p>Min force</p> <p>10 N (20 N)</p>	<p>10 N (20 N)</p>	<p>10 N (20 N)</p>	<p>10 N (20 N)</p>	