

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

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

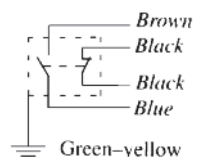
*Versions available with 5 metre cable. Contact IMO for other available options

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.



Miniature Pre-Cabled Limit Switches FA



continued

Specification

| | |
|---------------------------------------|-------------------------------------------------|
| Rated thermal current I _{th} | 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 ² 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>Doesn't switch</p> | <p>With external rubber gasket</p> | |
| | <p>1NO+1NC Snap action</p> <p>FA 4101-*DN</p> | <p>FA 4102-*DN</p> | <p>FA 4108-*DN</p> | <p>FA 4115-*DN</p> |
| <p>1NO+1NC Slow action</p> <p>FA 4601-*DN</p> | <p>FA 4602-*DN</p> | <p>FA 4608-*DN</p> | <p>FA 4615-*DN</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>1NO+1NC Snap action</p> <p>FA 4117-*DN</p> | <p>FA 4131-*DN</p> | <p>FA 4140-*DN</p> | <p>FA 4150-*DN</p> |
| <p>1NO+1NC Slow action</p> <p>FA 4617-*DN</p> | <p>FA 4631-*DN</p> | <p>FA 4640-*DN</p> | <p>FA 4650-*DN</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> | |

Miniature Pre-Cabled Limit Switches FA

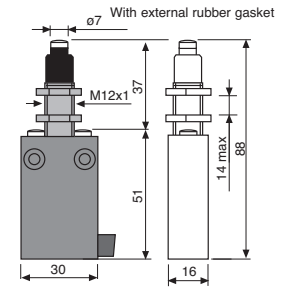
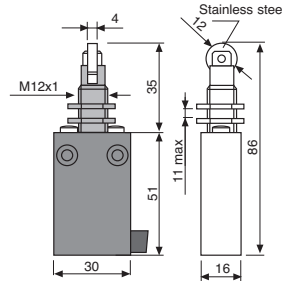
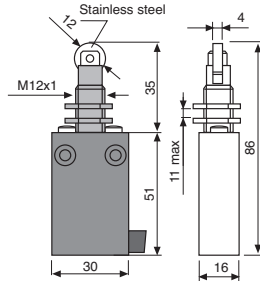
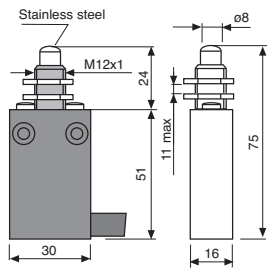


continued

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