Non contact Switches

Ferrogard 3, 4 & 5



Description

The Ferrogard range of magnetically actuated switches offers non contact reliability together with tolerance to misalignment. They are designed to be installed so that when a guard door is opened, the action of the magnetic actuator being removed from the switches opens the N.C. safety contacts which are intended for the isolation of control power to a machine primary control element.

The FRS 3, 4 and 5 have terminal connections. The user must drill a hole in the housing at a convenient location to allow the wiring to enter the housing. The cover is secured with anti-tamper security screws.

Unlike some magnetic switches the Ferrogards have protected safety contacts to help ensure that they do not fail to danger. In addition, some versions have independent auxiliary signal contacts to indicate the guard condition.

All Ferrogards have internal non-resettable overload protection on the safety contact. They should be protected by an external fuse rated as shown in the specifications table.

Features

- Non contact actuation
- High tolerance to misalignment
- High switching current (up to 2A)
- Various contact arrangements
- Terminal connections

Specifications

Standards	EN954-1, ISO13849-1, IEC/EN60204-1, NFPA79, EN1088, ISO14119, ANSI B11.19, AS4024.1
Category	Cat. 1 Device per EN954-1 Dual channel interlocks suitable for Cat. 3 or 4 systems
Approvals	CE marked for all applicable directives and cULus
Reed Contacts	Safety Auxiliary
Operating Distance – Make FRS3 FRS4 FRS5	 12mm (0.47in) 21mm (0.83in) 12mm (0.47in) 13mm (0.51in) 12mm (0.47in) NA
Operating Distance – Break FRS3 FRS4 FRS5	 23mm (0.91in) 24mm (0.94in) 23mm (0.91in) 10mm (0.39in) 12mm (0.47in) NA
Closing Time	3.0ms 0.5ms
Dropout Time	2.1ms 0.3ms
Bounce Time	0.7ms 0.7ms
Initial Contact Resistance	15mΩ 10mΩ
Initial Capacitance, Terminal to Terminal	0.65pF 0.2pF
Initial Insulation Resistance Terminal to Terminal	$1.x.10^6$ Ω $1x10^6$ Ω
Safety Contact Switching Capability	250V AC 2A max
Safety Contact External Fusing	≤1.6A quick blow
Auxiliary Contact Switching Capability	300V DC, 250V AC, 0.5A including inrush. 15VA/10W suitable for AC/DC circuits
Min Initial Breakdown Voltage	600V AC 600V AC
Operating Temperature	-10°C to +65°C (14° to 149°F)
Enclosure Protection	IP65 (NEMA 13)
Case Material	Red moulded ABS Plastic
Mounting	Any Position M4 mounting security screws included.
Electrical Life	1×10^6 at rated loaded
Mechanical Life	10×10^6
Vibration	10 to 200Hz
Shock	50g

Product Selection

Safety Contact Switching Capability	Connection	Housing Material	Safety Contacts	Auxiliary Contacts	Type	Catalogue Number
250VAC 2A	Terminals	ABS Plastic	1 N.C.	1 N.C.	FRS 3	**440N-G02003**
				1 N.O.	FRS 4	**440N-G02008**
				None	FRS 5	**440N-G02009**

Note: Contacts are described with the guard door closed, that is, actuator in place.

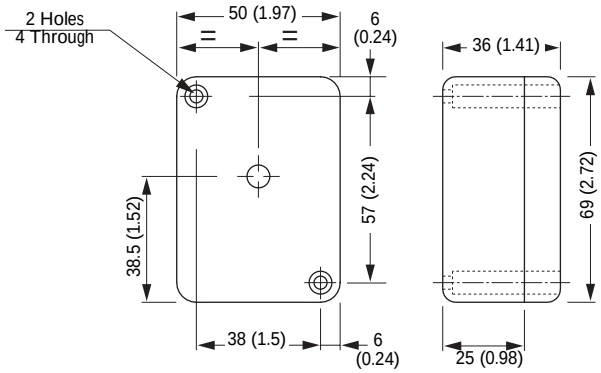
Accessories

Description	Page Number	Catalogue Number
Replacement Actuator	—	**440N-A02005**

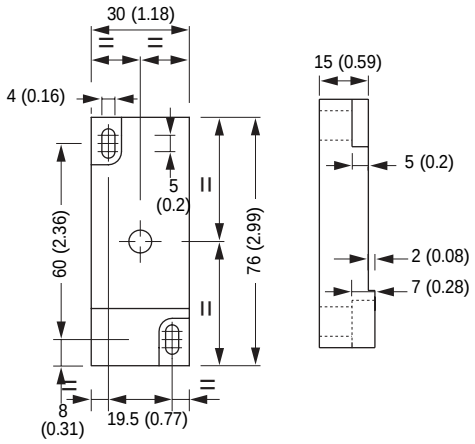
Approximate Dimensions—mm (inches)

Dimensions are not intended to be used for installation purposes.

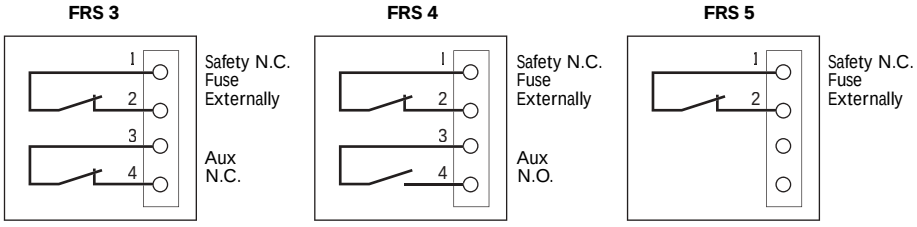
Switch



Actuator



Typical Wiring Diagrams



Application Details

See page 3-54 for operating principles and mounting examples.