

Interlock Switches

Non contact Switches

Ferrogard 6, 9 & 10



Description

The Ferrogard range of magnetically actuated safety 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 switch opens the N.C. safety contact which is intended for the isolation of control power to a machine primary control element.

The FRS 6, 9 and 10 sensors and actuators incorporate slim housings to accommodate narrow mounting areas. They are environmentally sealed to IP67 (NEMA6P), which makes them ideal for wet environments. These Ferrogard switches have two active sensing faces allowing more flexible mounting options.

Unlike some magnetic switches the Ferrogards have protected safety contacts to help ensure that they do not fail to danger.

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 3A)
- Two sensing faces
- IP67 (NEMA 6P) Rating
- Slim housings

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
Contact Arrangements	1 N.C. Safety Contact
Electrical Life	1 x 10 ⁶ at rated load
Safety Contact Switching Capability	FRS 6 250V AC 2A max FRS 9 24V DC 1A max FRS 10 110V AC 3A max
Safety Contact External Fusing	FRS 6 ≤1.6A quick blow FRS 9 ≤0.8A quick blow FRS 10 ≤2.5A quick blow
Operating Distance – Make	12mm (0.47in)
Operating Distance – Break	23mm (0.91in)
Closing Time	3.0ms
Dropout Time	2.1ms
Bounce Time	0.7ms
Initial Contact Resistance	15mΩ
Initial Capacitance, Terminal to Terminal	0.65pF
Initial Insulation Resistance, Terminal to Terminal	1 x 10 ⁶ Ω
Min Initial Breakdown Voltage	600VAC
Mechanical Life	10 x 10 ⁶
Mounting	Any Position M4 mounting security screws included.
Weight (not including cable)	Sensor Actuator FRS 6 28g (0.06lbs) 70g (0.15lbs) FRS 9 28g (0.06lbs) 70g (0.15lbs) FRS 10 28g (0.06lbs) 70g (0.15lbs)
Case Material	Red moulded ABS Plastic
Cable	0.75mm ² (18 AWG) 2 wire Jacket OD 5.6mm (0.22in)
Operating Temperature	-10°C to +65°C (14° to +149°F)
Environmental	IP67 (NEMA 6P)
Vibration	7-15g, 10 to 200Hz
Shock	50g

Product Selection

Safety Contact Switching Capability	Safety Contacts	Auxiliary Contacts	Connection	Housing Material	Type	Catalogue Number
250V AC 2A	1 N.C.	None	2m Cable	ABS Plastic	FRS 6	440N-G02023
			4m Cable			440N-G02028
			6m Cable			440N-G02032
			10m Cable			440N-G02013
			4 Pin Micro QD			440N-G02095
24V DC 1A			2m Cable		440N-G02044	
			4m Cable		440N-G02075	
			6m Cable		440N-G02082	
			10m Cable		440N-G02089	
			4 Pin Micro QD		440N-G02096	
110V AC 3A	2m Cable	440N-G02045				
	4m Cable	440N-G02088				
	Mating cable, 4-pin straight 2m. See page 15-10 for details and additional lengths.					889D-F4AC-2
	Mating cable, 4-pin straight 5m. See page 15-10 for details and additional lengths.					889D-F4AC-5
	Mating cable, 4-pin straight 10m. See page 15-10 for details and additional lengths.					889D-F4AC-10

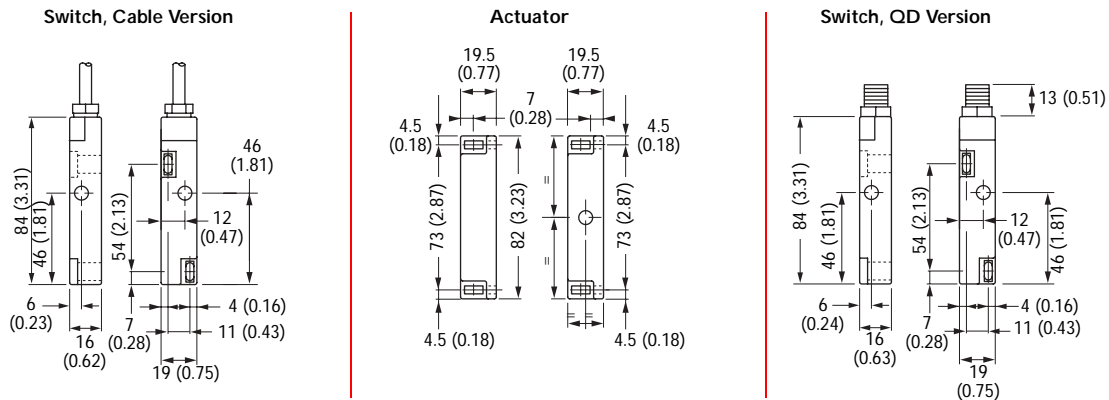
Note: Contacts are described with the guard door closed, that is, actuator in place.

Accessories

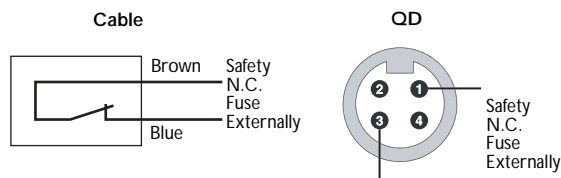
Description	Page Number	Catalogue Number
Replacement Actuator	—	440N-A02025

Approximate Dimensions—mm (inches)

Dimensions are not intended to be used for installation purposes.



Typical Wiring Diagrams



Application Details

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