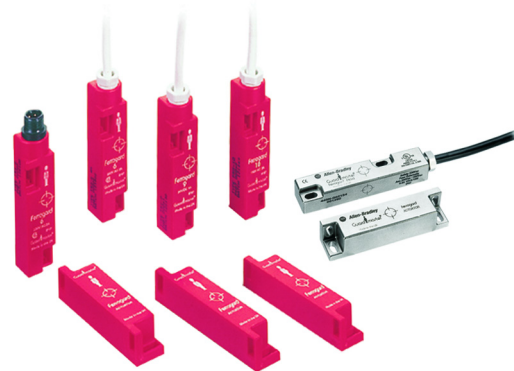


Ferrogard 6, 9, 10, 13, and 14 Non-contact Interlock Switches

The Ferrogard 6, 9, 10, 13, and 14 non-contact interlock switches have the following features:

- Non-contact actuation
- High tolerance to misalignment
- High switching current (up to 3 A)
- Two sensing faces
- IP67 (NEMA 6P) Rating
- Slim housings



Specifications

Attribute	Value
Safety Ratings	
Standards	ISO 14119, IEC 60947-5-3, ISO 13849-1, IEC 62061
Safety classification	Cat. 1 Device per ISO13849-1. Dual channel interlocks suitable for Cat. 3 or 4 systems
Functional safety data For up-to-date information, visit ab.rockwellautomation.com/safety	B10d: > 2 x 10 ⁶ operations Dual channel interlock may be suitable for Performance Level PL _e or PL _d (according to ISO 13849-1) and for use in SIL 2 or SIL 3 systems (according to IEC 62061) depending on application characteristics
Certifications	
FRS6, FRS9, FRS10	CE Marked for all applicable directives rok.auto/certifications
FRS13, FRS14	CE Marked for all applicable directives and cULus rok.auto/certifications
Outputs (Guard Door Closed, Actuator in Place)	
Safety outputs	1 N.C.
Auxiliary outputs	—
Operating Characteristics	
Operating distance, make	12 mm (0.47 in.)
Operating distance, break	23 mm (0.91 in.)
Environmental	
Enclosure type rating	IP67 (NEMA 6P)
Operating temperature	-10...+65 °C (14...149 °F)
Relative humidity	5...95%
Shock	IEC 68-2-27, 30 g, 11 ms
Vibration	IEC 68-2-6, 10...55 Hz
Radio frequency	IEC 61000-4-3, IEC 61000-4-6
Physical Characteristics	
Material	<ul style="list-style-type: none"> • Housing: Molded ABS plastic • Actuator: Molded ABS plastic
Weight	<ul style="list-style-type: none"> • Sensor: 28 g (0.06 lb) • Actuator: 70 g (0.15 lb)
Color	Red

Product Selection

Safety Contact Switching Capability	Safety Contacts ⁽¹⁾	Auxiliary Contacts ⁽¹⁾	Housing Material	Type	Connection	Cat. No.
250V AC, 2 A	1 N.C.	—	Red molded ABS plastic	FRS 6	2 m (6.6 ft) cable	440N-G02023
					4 m (13.1 ft) cable	440N-G02028
					6 m (19.7 ft) cable	440N-G02032
					10 m (32.8 ft) cable	440N-G02013
					4-pin Micro QD	440N-G02095
24V DC, 1 A				FRS 9	2 m (6.6 ft) cable	440N-G02044
					4 m (13.1 ft) cable	440N-G02075
					6 m (19.7 ft) cable	440N-G02082
					10 m (32.8 ft) cable	440N-G02089
					4-pin Micro QD	440N-G02096
110V AC, 3 A		FRS 10	2 m (6.6 ft) cable	440N-G02045		
			4 m (13.1 ft) cable	440N-G02088		
250V AC, 2 A		1 N.C.	Stainless steel	FRS 13	2 m (6.6 ft) cable	440N-G02154
					4 m (13.1 ft) cable	440N-G02155
	8-pin Micro QD				440N-G02160	
24V DC, 1 A	FRS 14			2 m (6.6 ft) cable	440N-G02156	
				4 m (13.1 ft) cable	440N-G02157	
				8-pin Micro QD	440N-G02161	

(1) Contacts are described with the guard door closed, that is, actuator in place.

Table 30 - Connection Systems

Description	Cat. No.	
	4-pin Micro (M12)	8-pin Micro (M12)
Cordset	889D-F4AC-x ⁽¹⁾	889D-F8AB-x ⁽¹⁾
Patchcord	889D-F4ACDM-y ⁽²⁾	889D-F8ABDM-y ⁽²⁾

(1) Replace x with 2 (2 m [6.6 ft]), 5 (5 m [16.4 ft]), or 10 (10 m [32.8 ft]) for standard cable lengths.

(2) Replace y with 1 (1 m [3.3 ft]), 2 (2 m [6.6 ft]), 3 (3 m [9.8 ft]), 5 (5 m [16.4 ft]), or 10 (10 m [32.8 ft]) for standard cable lengths.

Accessories

Description	Cat. No.
FRS 6, 9, 10 plastic replacement actuator	440N-A02025
FRS 13, 14 stainless steel replacement actuator	440N-A02165

Approximate Dimensions

Dimensions are shown in mm (in.). Dimensions are not intended to be used for installation purposes.

Figure 24 - FRS 6, 9, and 10

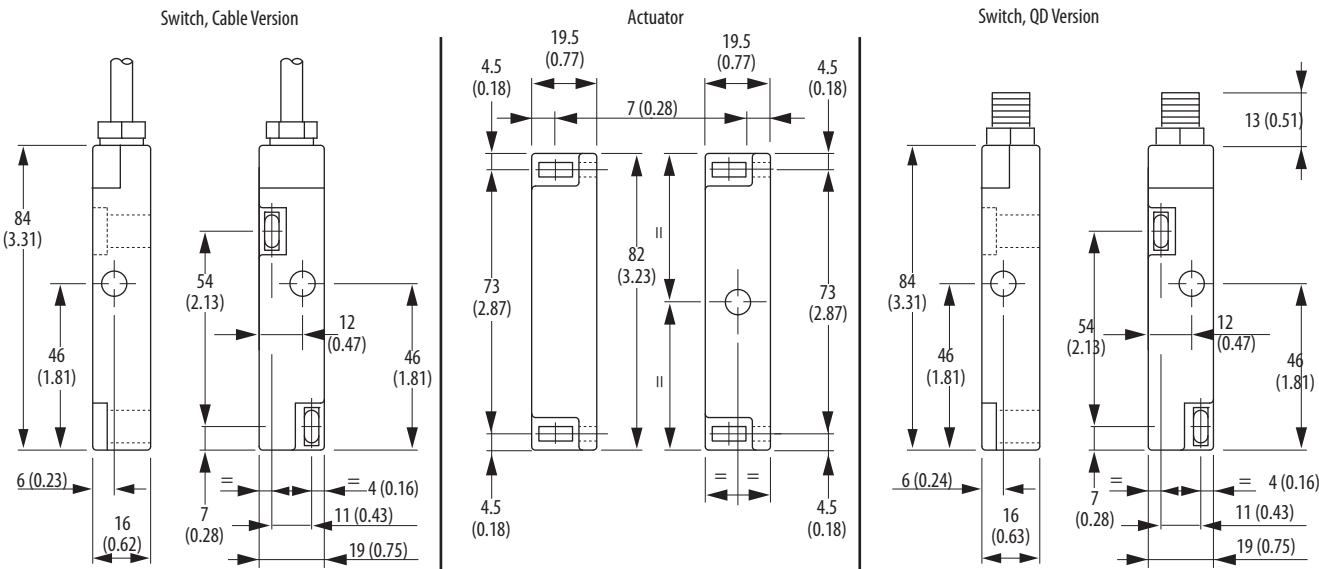
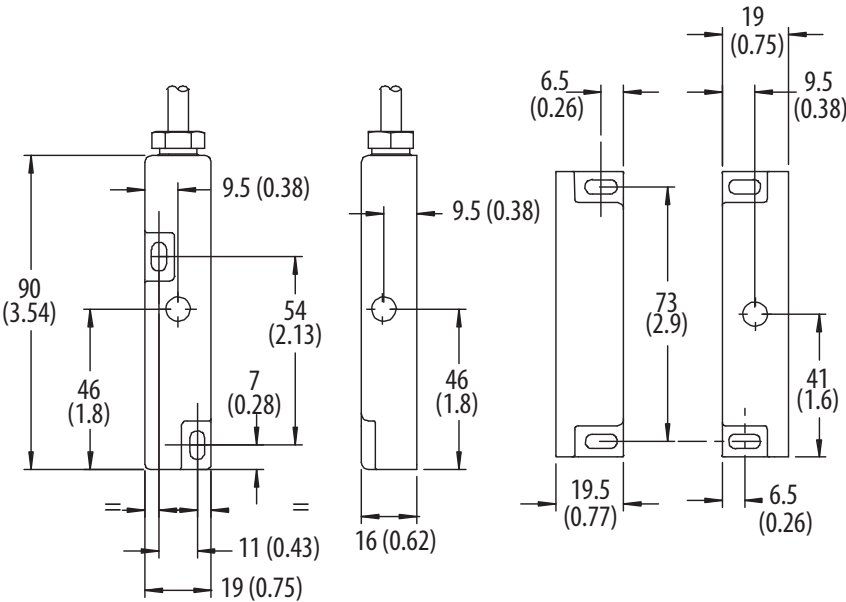
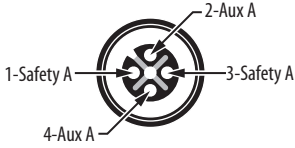
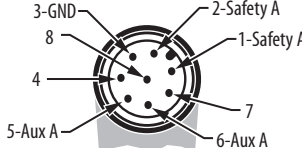


Figure 25 - FRS 13 and 14



Typical Wiring Diagrams

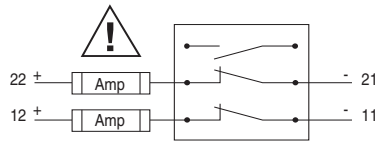
Description		FRS 6, 9 and 10 1 N.C.	FRS 13 and 14 1 N.C. and 1 N.C.
4-pin Micro (M12)			—
8-pin Micro (M12)		—	
Cordset 889D-F4AC-x ⁽¹⁾	Brown	Safety A	Safety A
	Blue		
	White	—	Aux A
	Black		
Cordset 889D-F8AB-x ⁽¹⁾	White	—	Safety A
	Brown		Aux A
	Gray		
	Pink		
	Green		Ground
Cable version	Safety A	Brown	Brown
		Blue	Blue
	Aux A	—	Black
			Gray

(1) Replace x with 2 (2 m [6.6 ft]), 5 (5 m [16.4 ft]), or 10 (10 m [32.8 ft]) for standard cable lengths.



WARNING: All safety contacts fitted with internal non-resettable fuse and must be fused externally as detailed.

Table 31 - External Fuse Safety Contacts

	
FRS 1, 2, 3, 4, 5, 6, 13, 21 AC	AC 1.6 A ⁽¹⁾ ≤ (F) IEC 60127-2
FRS 9, 14, 2 DC, 20 DC, 21 DC	DC 0.4 A ⁽²⁾ ≤ (F) IEC 60127-2
FRS 10	AC 2.5 A ⁽³⁾ ≤ (F) IEC 60127-2

(1) Recommended: Bussman BK/GDA-1.6 A

(2) Recommended: Bussman BK/GDA-400 mA

(3) Recommended: Bussman BK/GDA-2.5 A