

Interlock Switches

Non contact Switches

Ferrogard GS1 & GS2



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 contacts which are intended for the isolation of control power to a machine primary control element.

The GS1 and GS2 are designed for heavy duty applications. The GS1 is housed in a stainless steel or brass housing. The GS2 offers the same characteristic as the GS1, but in an Ex housing for hazardous locations.

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.

See the **Explosion Proof** section on page 16-1 for more information on the EX version of the Ferrogard GS2.

Features

- Non contact actuation
- High tolerance to misalignment
- High switching current (2A AC)
- Metal housings (IP 68)
- Ex version available

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	GS1 and GS2 GS2 Ex CE marked for all applicable directives and cULus EEExd IIC T6 Baseefa
Operating Distance – Make	GS1 GS2 12mm (0.47in) 15mm (0.59in)
Operating Distance – Break	GS1 GS2 23mm (0.91in) 26mm (1.02in)
Closing Time	3.0ms
Dropout Time	2.1ms
Bounce Time	0.7ms
Initial Contact Resistance	15mW
Initial Capacitance, Terminal to Terminal	0.65pF
Initial Insulation Resistance, Terminal to Terminal	1 x 10 ⁶ Ω
Safety Contact Switching Capability	250V AC 2A max
Safety Contact External Fusing	≤ 1.6A quick blow
Min Initial Breakdown Voltage	600V AC
Operating Temperature	-25°C to +125°C (-13° to +257°F)
Enclosure Protection	IP68 (NEMA 6P)
Cable	GS1 Brass Stainless Steel GS2 0.75 mm ² (18AWG) 2 wire Grey PVC Jacket OD 6mm (0.24in) 0.75 mm ² (18AWG) 2 wire White PVC Jacket OD 7mm (0.28in) 1.34 mm ² (16AWG) 2 wire Braided Polyolefin Jacket OD 8.4mm (0.32in)
Case Material	Stainless Steel or Brass
Mounting	Any Position M3 mounting security screws included.
Weight (not including cable)	GS1 Brass GS1 Steel Actuator 381g (0.84lbs) 388g (0.86lbs) 116g (0.26lbs)
Electrical Life	1 X 10 ⁶ at rated load
Mechanical Life	10 X 10 ⁶
Vibration	15g, 20 to 1000Hz
Shock	50g
Ex Version	See Explosion Proof Section

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Product Selection

Safety Contact Switching Capability	Safety Contacts	Auxiliary Contacts	Connection	Housing	Type	Catalogue Number
250V AC, 2A	1 N.C.	None	2m Cable	Brass	GS 1	440N-G02048
				Stainless Steel		440N-G02049
			3m Cable	Brass	GS 2 Ex	440N-H02046
				Stainless Steel		440N-H02047

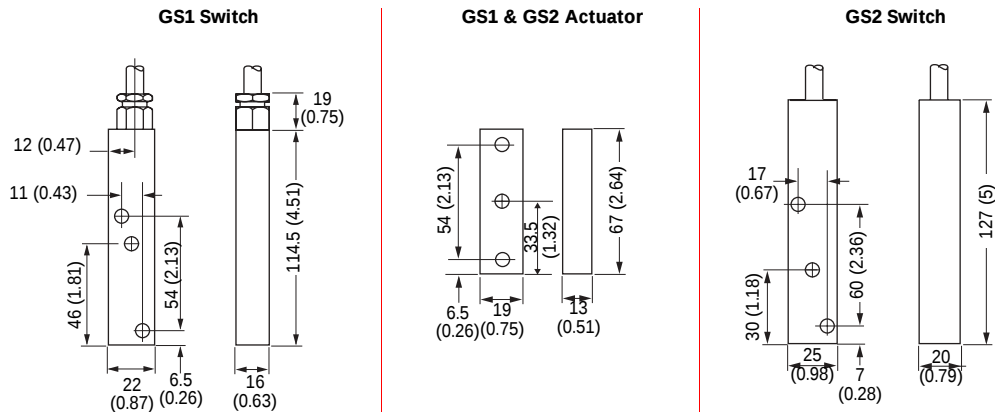
Note: Contacts are described with the guard door closed, that is, actuator in place. Switch is shipped complete with Actuator.

Accessories

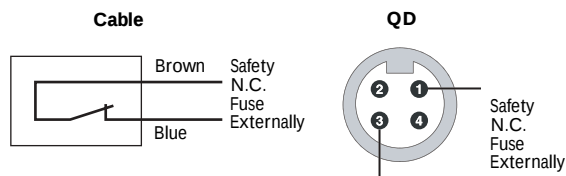
Description	Used with	Page Number	Catalogue Number
Actuator, Alnico	Brass Switch	—	440N-A02056
Actuator, Epoxy-painted	Stainless Steel	—	440N-A02057

Approximate Dimensions—mm (inches)

Dimensions are not intended to be used for installation purposes.



Typical Wiring Diagrams



Note: Unit must be grounded to a grounded metal frame or grounded via the field wiring per NEC requirements.

Application Details

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

Interlock Switches

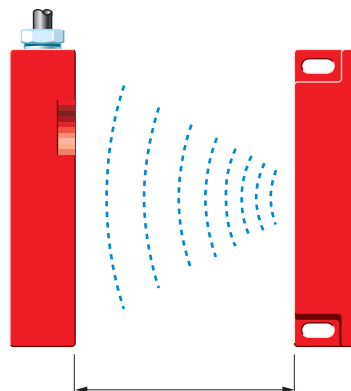
Non contact Switches

Ferrogard Applications

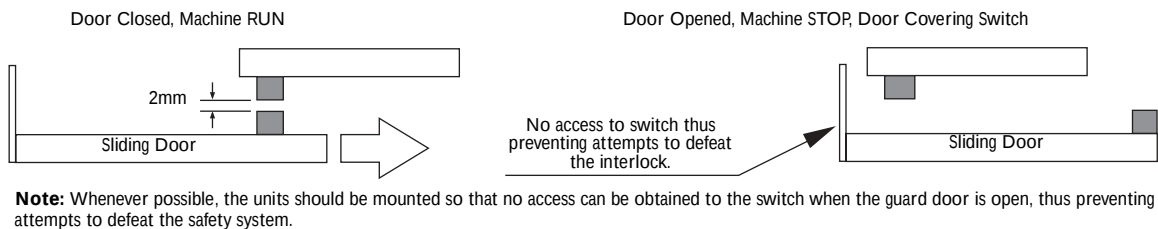
Application Details

Operating Principle

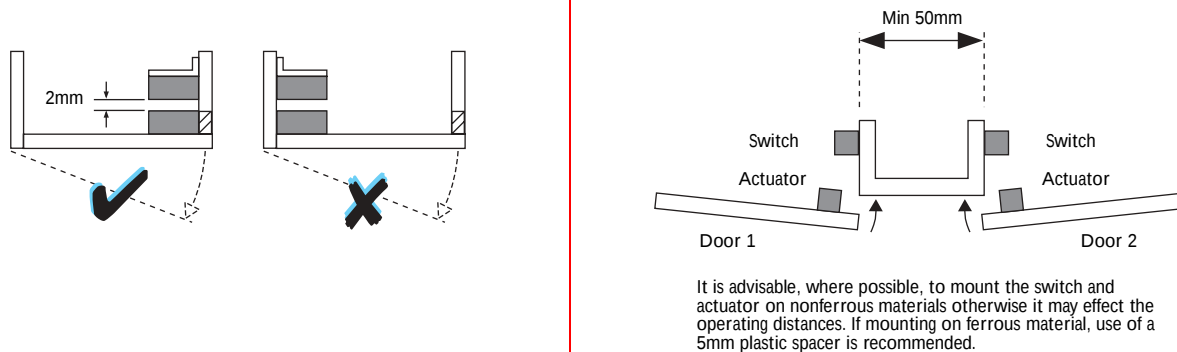
Encapsulated in the Ferrogard is a unique high power industrial reed, capable of switching up to 15A. The reed switch is de-rated by a non resettable overload protection fuse. On presenting the actuator to the switch, the high intensity magnetic field from the actuator causes the contacts to close. On removing the actuator (opening the door), the safety contacts open.



Mounting Example 1

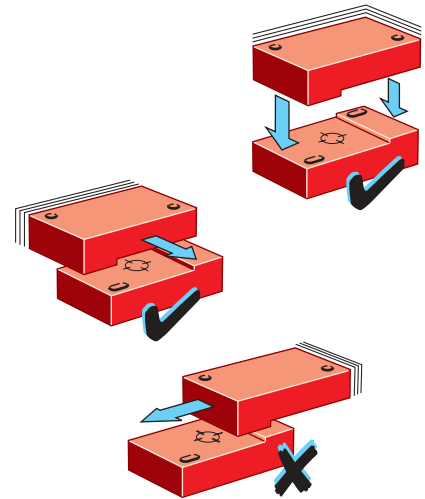


Mounting Example 2



Application Details

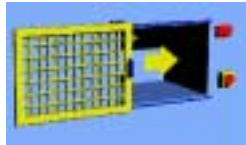
Note: Under the requirements of the Machinery Directive all machinery must undergo risk assessment to determine the necessary level (or category) of the safety related control system or hazard avoidance measures. While the Ferrogard complies with the requirements of EN1088 it may not be suitable for all types of machinery or environments. Where magnetic materials are present or if it is foreseeable that through machine function or use, Ferrogard operation by magnets other than the supplied actuator is possible, then use of an alternative Allen-Bradley Guardmaster switch is recommended. Other Non contact options include: Ferrocode (which utilizes additional coding techniques preventing them from being overridden by simple means). Alternatively additional measures may be taken to prevent the Ferrogard being easily bypassed. Consideration should be given to the recommended installation example given in the instructions and those in EN1088.



Typical Applications

Note: Removable guards using Non contact switches may require two switches, one at either side of the guard, or the use of a flap to prevent initial lifting of the non-interlocked edge.

Sliding Guard



Removable Guard



Hinged Guard

