## Interlock Switches

Non contact Switches
Ferrogard GD2


## ( $\mathrm{E}_{\mathrm{c} \text { (TLU }) ~}^{\text {us }}$

## 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 GD2 version has a stainless steel housing for added protection against inadvertent impacts to the housing. The contacts are completely sealed to meet IP68 (NEMA6P) requirements, making them ideal for wet environments. The GD2 also has a wider temperature range than the plastic Ferrogard switches, making them useful in a wider range of applications.

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 machine and 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 AC, 1A DC)
- Wide Temperature Range $\left(-25^{\circ} \mathrm{C}\right.$ to $\left.+125^{\circ} \mathrm{C}\right)$
- Stainless Steel Housing
- Various Contact Arrangements

Specifications

| Standards | EN 954-1, ISO 13849-1, IEC/EN 60204-1, N FPA 79, EN 1088, ISO 14119, AN SI B11.19, AS4024.1 |
| :---: | :---: |
| Category | Cat. 1 D evice per EN 954-1 D ual channel interlocks suitable for C at. 3 or 4 systems |
| Approvals | CE marked for all applicable directives and cULus |
| Reed Contacts | Safety Auxiliary |
| O perating Distance - Make | 12 mm (0.47in) 15 mm (0.59in) |
| O perating Distance - Break | 23 mm (0.91in) 26 mm (1.02in) |
| Closing Time | 3.0 ms 0.5 ms |
| Dropout Time | 2.1 ms 0.3 ms |
| Bounce Time | 0.7 ms 0.7 ms |
| Initial Contact Resistance | $15 \mathrm{~m} \Omega 10 \mathrm{~m} \Omega$ |
| Initial C apacitance, Terminal to Terminal | 0.65pF 0.2pF |
| Initial Insulation Resistance, Terminal to Terminal | $1 \times 10^{6} \Omega 1 \times 10^{6} \Omega$ |
| Safety C ontact Switching C apability | 250V AC 2A max 24V DC 1A max |
| Safety C ontact External Fusing | $\leq 1.6 \mathrm{~A}$ quick blow $\leq 0.8 \mathrm{~A}$ quick blow |
| Auxiliary C ontact Switching C apability | 300 V DC, 250 V AC, 0.5 A including inrush. 15VA/10W suitable for AC/DC circuits |
| Min Initial Breakdown Voltage | 600 VAC 600 V AC |
| Environmental | IP68 (NEMA 6P) |
| C able | $0.50 \mathrm{~mm}^{2}$ (20 AW G) 7 wire Flexible thermoplastic elastomer Jacket OD 8 mm (0.2in) |
| 0 perating Temperature | $-25^{\circ} \mathrm{C}$ to $+125^{\circ} \mathrm{C}\left(-13^{\circ}\right.$ to $\left.+257^{\circ} \mathrm{F}\right)$ |
| C ase Material | Stainless Steel; BS3146 AN C4B (316L) |
| Mounting | Any Position; M4 mounting security screws included |
| W eight (not including cable) Sensor Actuator |  |
| Electrical Life | $1 \times 10^{6}$ at rated load |
| Mechanical Life | $10 \times 10^{6}$ |
| Vibration | $7-15 \mathrm{~g}, 10$ to 200 Hz |
| Shock | 50 g |

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Product Selection

| Safety Contact Switching Capability | Safety Contacts | Auxiliary Contacts | Connection | Housing Material | Type | Catalogue Number |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 250V AC 2A | 1 N .C | 1 N.0. | 3 m C able | Stainless Steel | FRS 2 GD 2 | 440N-G02112 |
|  | 2 N.C. | N one |  |  | FRS 20 GD2 | 440N-G02113 |
|  |  |  |  |  | FRS 21 GD2 | 440N-G02117 |
| 24V DC 1A | 1 N.C. |  |  |  | FRS 2 GD 2 | 440N-G02118 |
|  | 2 N.C. | N one |  |  | FRS 20 GD2 | 440N-G02119 |
|  |  | 1 N.0. |  |  | FRS 21 GD2 | 440N-G02123 |

Note: C ontacts are described with the guard door closed, that is, actuator in place. Switch is shipped with complete actuator.
Accessories

| Description | Page Number | Catalogue Number |
| :--- | :---: | :---: |
| Actuator | - | $440 N-A 02128$ |

Approximate Dimensions-mm (inches)
D imensions are not intended to be used for installation purposes.


## Typical Wiring Diagrams

FRS 2


FRS 20


FRS 21


Note: Unit must be to a 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.

