Non Contact Magnetic Safety Switches

Operating Instructions

**MPR** (PLASTIC)  **SPR** (S/STEEL)  **WPR** (PLASTIC)  **LPR** (PLASTIC)  **CPR** (PLASTIC)  **RPR** (PLASTIC)

**MMR-H** (S/STEEL)  **SMR** (S/STEEL)  **WMR** (S/STEEL)  **LMR** (S/STEEL)  **CMR** (S/STEEL)  **RMR** (S/STEEL)

**SMR-F**

**IMPORANT NOTE:**
Read and understand these instructions before installing, operating, or maintaining this equipment.
The product is designed to be a component of a customized safety oriented control system. It is the responsibility of each manufacturer to ensure the correct overall functionality of its systems and machines. IDEM, its subsidiaries and affiliates, are not in a position to guarantee all of the characteristics of a given system or product not designed by IDEM.

**APPLICATION:**
Coded Non Contact switches are designed to interlock hinged, sliding or removable guard doors. They are specifically advantageous when:

a) poor guard alignment exists
b) high hygiene requirements exist e.g. food industry hose down
c) high mechanical life is required (no moving or touching parts).

When used in combination with a Dual Channel Safety Relay or Control Device, Magnetic Non-Contact Switches can be used to provide protection up to Category 4 and PLe to ISO13849-1.

**OPERATION:**
All Magnetic Non-Contact Safety Switches are designed to conform to EN60947-5-3 and be used as directed by ISO14119 and EN ISO12100. They have magnetic sensing which provides a wide sensing distance and provides a high tolerance to misalignment after sensing. They can operate in extreme environments of temperature and moisture.

**IMPORTANT:**
The Risk Assessment for the particular application should include the risk of spare actuators. Spare actuators should not be readily available and must be securely controlled.

The safety functions and mechanics must be tested regularly. For applications were frequent guard access is foreseeable, the system must have a manual function test to ensure the safety system is functional.

**INSTALLATION:**
Installation of all Non Contact Switches must be in accordance with a risk assessment for the individual application.

Installation of the devices must be carried out by a competent person with appropriate experience of machine control integration.

The use of a Safety Relay or Control Device is recommended for monitoring magnetic switches. These devices monitor 2 redundant circuits as per ISO13849-1 for up to PLe /Category 4 protection. M4 mounting bolts must be used to fix the switches. (Except RPR / RMR types, these types require fitting through 30.5mm clearance holes). The lock nuts supplied must be used to secure the switches.

Typical misalignment tolerance after setting is 5mm.

**MAINTENANCE:**
Monthly: Check alignment of actuator and look for signs of mechanical damage to the switch casing. Check wiring for signs of damage.
Check each switch function by opening and closing each guard individually in turn and ensuring that the appropriate LED’s on the Safety Relay are illuminated when the switch is closed and are extinguished when the switch is open. Check that the machine stops and cannot be re-started when each switch is open.
Never repair any switch, actuator or integral cables. Replace any switch displaying signs of mechanical damage to the casing or cables.

**WARNING:** DO NOT DEFEAT, TAMPER, OR BYPASS THE SAFETY FUNCTION.
FAILURE TO DO SO CAN RESULT IN DEATH OR SERIOUS INJURY.

**AVERTISSMENT:** NE PAS DESACTIVER, MODIFIER, RETIRER, OU CONTORNER CET INTERVERROUILLAGE IL PEUT EN RESULTER DES BLESSURES GRAVES DU PERSONNEL UTILISATEUR.
Non Contact Magnetic Safety Switches

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Quick Connect (QC)
M12 8 way  Male Plug
(on Flying Lead 250mm)
(Pin view from switch)

Flying Lead
Colours
Circuit
(Actuator present)
4 Yellow  Auxiliary (NO)
6 Green  Auxiliary (NO)
7 Black  NC 2
1 White  NC 2
2 Red  NC 1
3 Blue  NC 1

Safety Classification and Reliability Data:
ISO 13849-1
PFHd

Proof Test Interval (Life)
B10d

Usage
2.8 x 10^(-8)
20 years
3,300,000 cycles at 100mA load
Usage
8 cycles/hour 24 hours for 365 days per year

Technical Data:

Standards:
Up to PLe  Category 4
(24V, 200mA)
2.8 x 10^(-8)
20 years
3,300,000 cycles at 100mA load
Usage
8 cycles/hour 24 hours for 365 days per year

MPR MMR-H

Safety Circuits NC

WPR WMR CPR/CMR (2NC)

Safety Circuits NC

Auxiliary Circuits NO

Contact release time

Initial contact resistance

Delectric withstand

Insulation Resistance

Recommended setting gap

NC Switching Distance:

(Target to target)

NO Switching Distance

Tolerance to misalignment

5mm in any direction from 5mm setting gap

Switching frequency
1.0 Hz maximum

Approach speed
200mm/m to 1000mm/s

Body Material

Temperature Range

-25ºC to 105ºC, S/Steel for CIP/SIP cleaning

Enclosure Protection
IP67 and IP69K

(OC versions IP67 for connector)

Mounting Bolts
2 x M4  Tightening torque 1.0 Nm

Information with regard to UL 508:

Type 1 Enclosures. Maximum temperature: 90ºC Plastic versions, 90ºC S/Steel versions.

Maximum output 24V/200mA. Powered by Class 2 or equivalent.