



Non Contact Magnetic Safety Switches

Operating Instructions

**MPR (PLASTIC)
MMR (METAL)**



**SPR (PLASTIC)
SMR (METAL)**



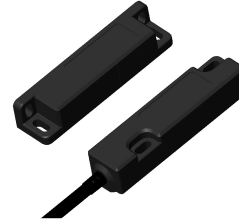
**WPR (PLASTIC)
WMR (METAL)**



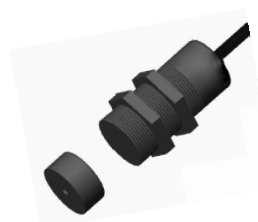
**LPR (PLASTIC)
LMR (METAL)**



**CPR (PLASTIC)
CMR (METAL)**



**RPR (PLASTIC)
RMR (METAL)**



IMPORTANT NOTE:

Read and understand these instructions before installing, operating, or maintaining this equipment.

The product is designed to be a component of a customised safety orientated 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:

Magnetic Non Contact switches are designed to interlock hinged, sliding or removal guard doors. They are specifically advantageous when:

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

When used in combination with a Dual Channel Safety Relay, Coded 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 IEC 60947-5-3 and be used as directed by EN1088, EN ISO12100 and EN 60204-1. They have magnetic sensing which provides a wide (>10mm) sensing distance and provides a high tolerance to misalignment after sensing. They can be fitted behind stainless steel fittings and can operate in extreme environments of temperature and moisture.

INSTALLATION:

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

The use of a Safety Relay is recommended for monitoring magnetic switches. These relays monitor 2 redundant circuits as per ISO13849-1 for up to Ple/Category 4 protection.

Magnetic Non Contact switches are designed to operate with most Dual Channel Safety Relays to satisfy IEC 60947-5-3 PDF-S.

M4 mounting bolts must be used to fix the switches. Tightening torque for mounting bolts to ensure reliable fixing is 1.0 Nm. Always mount on to Non Ferrous materials.

The recommended setting gap is 5mm. The Safety switch must not be used as a mechanical stop or be adjusted by striking with a hammer.

The actuator must not be allowed to strike the switch. Do not mount adjacent switches or actuators closer than 30mm.

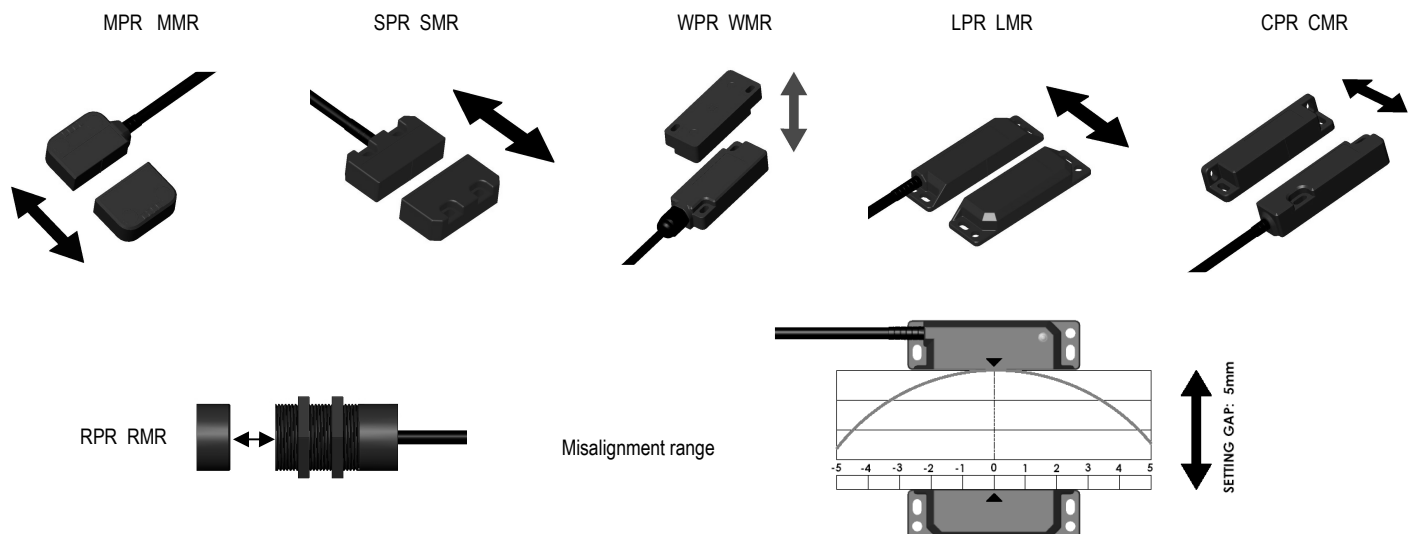
Typical misalignment tolerance after setting is 5mm.

After installation always check each switch function by opening and closing each guard individually in turn and ensuring that the 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.

For MPR types, fit the protective screw covers after the final checks have been completed.

ACTUATOR OPERATING DIRECTIONS:

Align actuator and switch using the target lines.



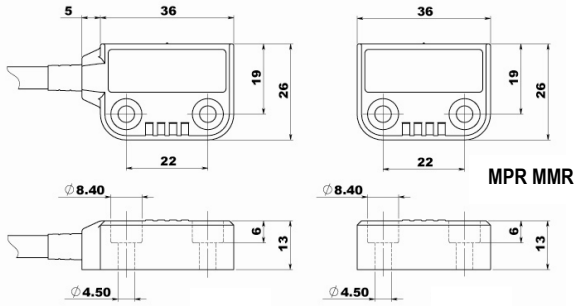
MAINTENANCE:

Monthly: Check alignment of actuator and look for signs of mechanical damage to the switch casing. Check wiring for signs of damage.

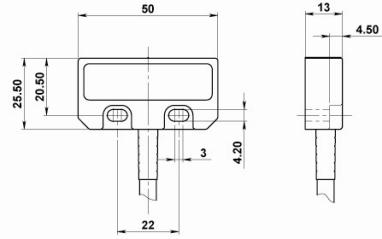
Check each switch function by opening and closing each guard individually in turn and ensuring that the appropriate LED's on the Safety Relay are illuminated when the switch is closed and are extinguished when the switch is open. Check that the machine stops and cannot be re-started when each switch is open.

Never repair any switch, actuator or integral cables. Replace any switch displaying signs of mechanical damage to the casing or cables.

Non Contact Magnetic Safety Switches

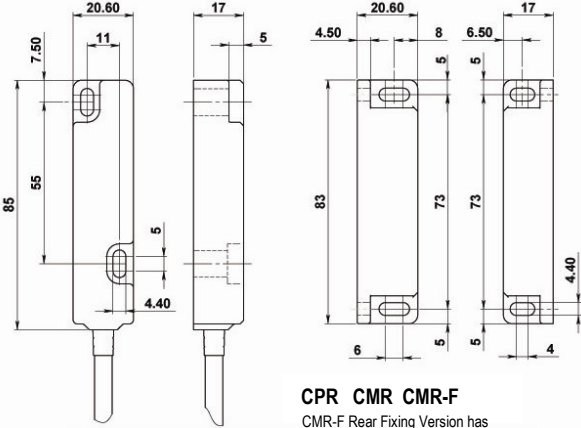


MPR MMR



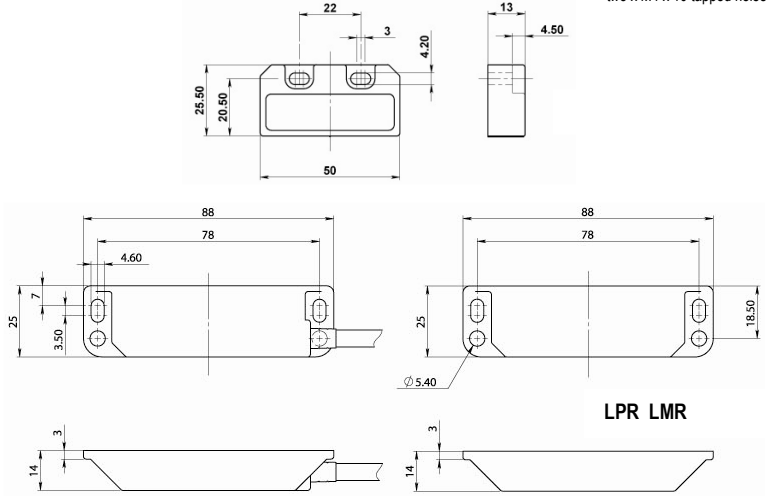
SPR SMR SMR-F

SMR-F Rear Fixing Version has two x M4 x 10 tapped holes at rear

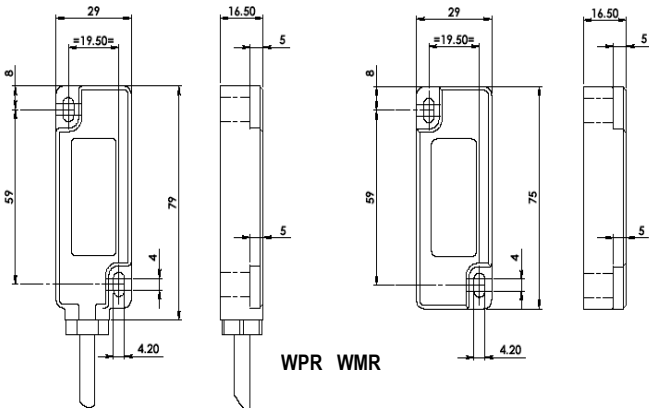


CPR CMR CMR-F

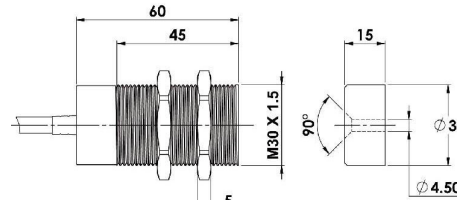
CMR-F Rear Fixing Version has two x M4 x 10 tapped holes at rear



LPR LMR



WPR WMR



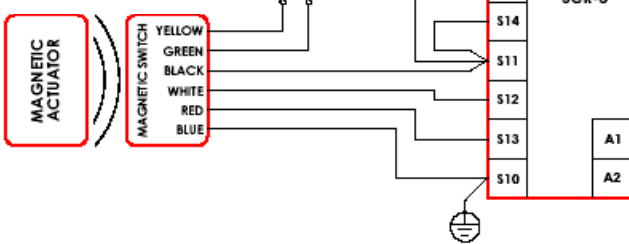
RPR RMR

Safety Classification and Reliability Data:

Switching Reliability
EN 954-1
ISO 13849-1
EN 62061
Safety Data – Annual Usage
PFHd
Proof Test Interval (Life)
MTTFd
Standards:
EN1088 IEC 60947-5-3 EN 60204-1
ISO13849-1 UL508

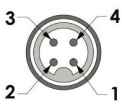
3.3 x 10⁶ operations at 100mA load
Up to Category 4 with Safety Relay
Up to PLe depending upon system architecture
Up to SIL3 depending upon system architecture
8 cycles per hour/24 hours per day/365 days
2.52 x 10⁻⁸
47 years
470 years
EN1088 IEC 60947-5-3 EN 60204-1
ISO13849-1 UL508

Single switch to SCR2/3 Safety Relay



Quick Connect (QC) M12 8 way Male Plug (Pin view from switch)	Flying Lead Colours	Circuit (Actuator present)
4	Yellow	NO
6	Green	NO
7	Black	NC 2
1	White	NC 2
2	Red	NC 1
3	Blue	NC 1

For all switches the NC circuits are closed when the guard is closed and the actuator present.



NC1 Pins 1 and 2
NC2 Pins 3 and 4
M12 4 Way Versions
Asi compatible pins out
(Pin view from Switch)

Information with regard to UL 508:
Type 1 Enclosures.
Control No: 48W5.
Max.Temp: 70°C Plastic version.
90°C Stainless Steel

Type : MPR
Safety Channels NC
Type: (Medium)
Safety Channels NC
Auxiliary Channel NO
Voltage free: 250V.ac 0.5 A Max.
Voltage free: 250V.ac 1.0 A Max.
Voltage free: 24V.dc 0.2 A Max.

Type: (Heavy)
Safety Channels NC
Auxiliary Channel NO
Voltage free: 250V.ac 2.0 A Max.
Voltage free: 24V.dc 0.2 A Max.

Fuses (NC Circuits)
Types: (Medium Duty)
Fuse externally 0.8A (F)
Type: (Heavy Duty)
Fuse externally 1.6A (F)
Type: MP Fuse externally 0.5A (F)

Contact release time <2ms
Initial contact resistance <500 milliohm
Minimum switched current 10V. dc 1mA
Dielectric withstand 250V.ac
Insulation Resistance 100 Mohms
Recommended setting gap 5mm
NC Switching Distance (Target to target) Sa0 10mm Close (RMR/RPR 8mm Close)
Sar 20mm Open (RMR/RPR 12mm Open)
NO Switching Distance Opens before NC circuits close
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 MPR SPR CPR LPR WPR RPR Polyester
MMR SMR WMR CMR LMR RMR S/Steel 316
-25/80C Polyester -25/105C S/Steel 316
Enclosure Protection IP67 (Plastic) IP69K (S/Steel 316)
Shock Resistance IEC 68-2-27 11ms 30g
Vibration Resistance IEC 68-2-6 10-55 Hz. 1mm
Mechanical Life Expectancy 10,000,000 switchings
Electrical Life Expectancy Tested to 2,000,000 cycles at 24V. 0.2A
Cable Type PVC 2 core or 6 core 6mm O.D. Max.
Mounting Bolts 2 x M4 Tightening torque 1.0 Nm