



Non Contact Coded Safety Switches Operating Instructions

MPC (PLASTIC)
MMC-H (S/STEEL)



SPC (PLASTIC)
SMC (S/STEEL)
SMC-F (S/STEEL)
SMC-H (S/STEEL)



WPC (PLASTIC)
WMC (S/STEEL)



LPC (PLASTIC)
LMC (S/STEEL)



CPC (PLASTIC)
CMC (S/STEEL)
CMC-F (S/STEEL)



RPC (PLASTIC)
RMC (S/STEEL)



IMPORTANT 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:

- poor guard alignment exists
- anti-tamper is required
- 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 or Control Device, Coded Non-Contact Switches can be used to provide protection up to Category 4 and PLe to ISO13849-1.

OPERATION:

All Coded Non-Contact Safety Switches are designed to conform to EN60947-5-3 and be used as directed by ISO14119 and EN ISO12100. They have coded magnetic sensing which provides a wide 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.

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 where infrequent guard access is foreseeable, the system must have a manual function test to detect a possible accumulation of faults. At least once per month for PLe Cat3/4 or once per year for PLd Cat3 (ISO13849-1). Where possible it is recommended that the control system of the machine demands and monitors these tests, and stops or prevents the machine from starting if the test is not done. (See ISO14119).

INSTALLATION:

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

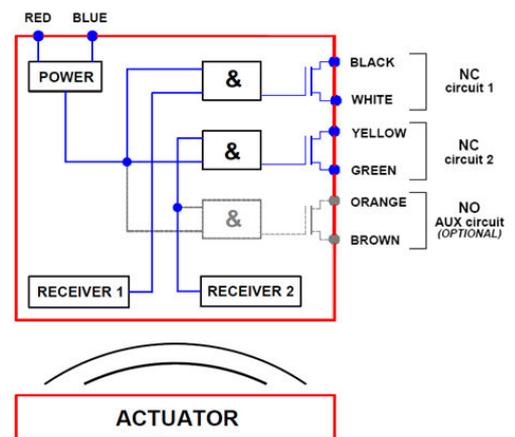
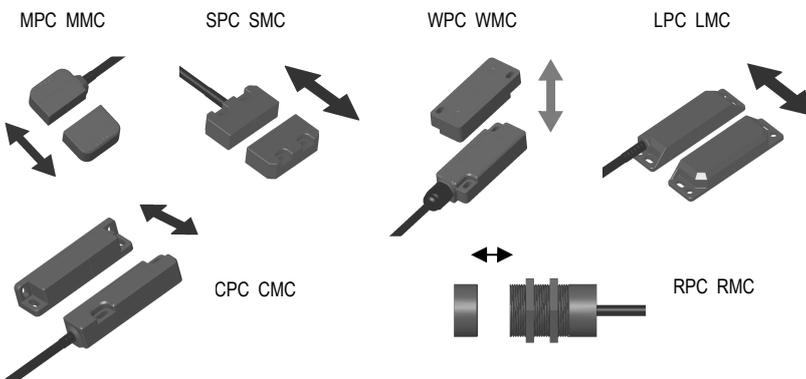
Installation of the devices must be carried out by a competent person with appropriate experience of machine control integration

The use of a Safety Relay or Control Device is required for monitoring Coded 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 RPC / RMC types, these types require fitting through 30.5mm clearance holes. The lock nuts supplied must be used to secure 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 Green LED on the switch and the LED's on the Safety Relay or Control device 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 MPC types, fit the protective screw covers after the final checks have been completed.

ACTUATOR OPERATING DIRECTIONS:



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 Green LED on the switch and the appropriate LED's on the Safety Relay or Control Device 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.



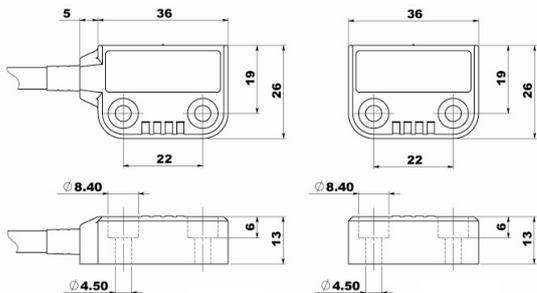
WARNING: DO NOT DEFEAT, TAMPER, OR BYPASS THE SAFETY FUNCTION. FAILURE TO DO SO CAN RESULT IN DEATH OR SERIOUS INJURY.

AVERTISSEMENT: NE PAS DESACTIVER, MODIFIER, RETIRER, OU CONTOURNER CETI INTERVERROUILLAGE IL PEUT EN RESULTER DES BLESSURES GRAVES DU PERSONNEL UTILISATEUR.

Original Instructions.

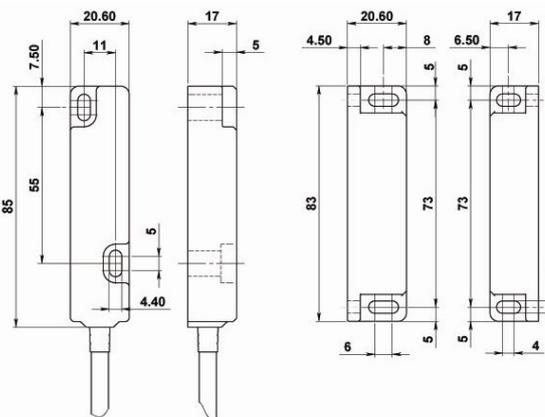
To request this data sheet in other languages please contact info@idemsafety.com
Um dieses Datenblatt in Deutscher Sprache wenden Sie sich bitte anfordern info@idemsafety.com
Pour obtenir cette fiche en Français, veuillez contacter info@idemsafety.com
Para solicitar esta hoja de datos en Español, por favor contacto con info@idemsafety.com

Non Contact Coded Safety Switches



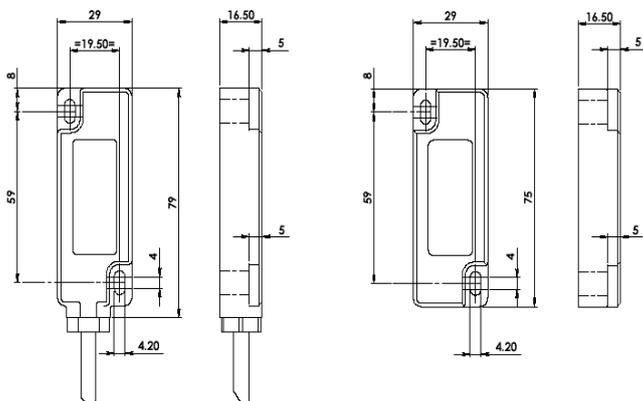
MPC MMC-H

MMC-H version has two 5mm through holes. Hexagon head bolts can be used for ease of cleaning.



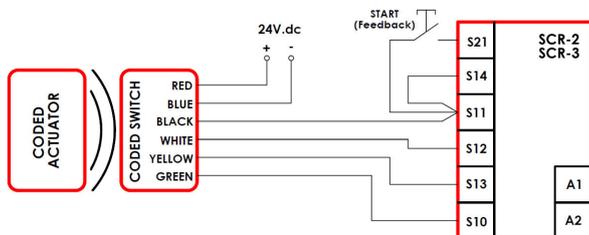
CPC CMC CMC-F

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

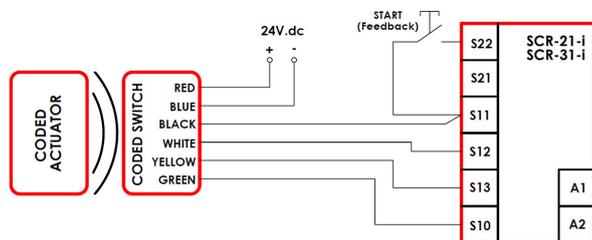


WPC WMC

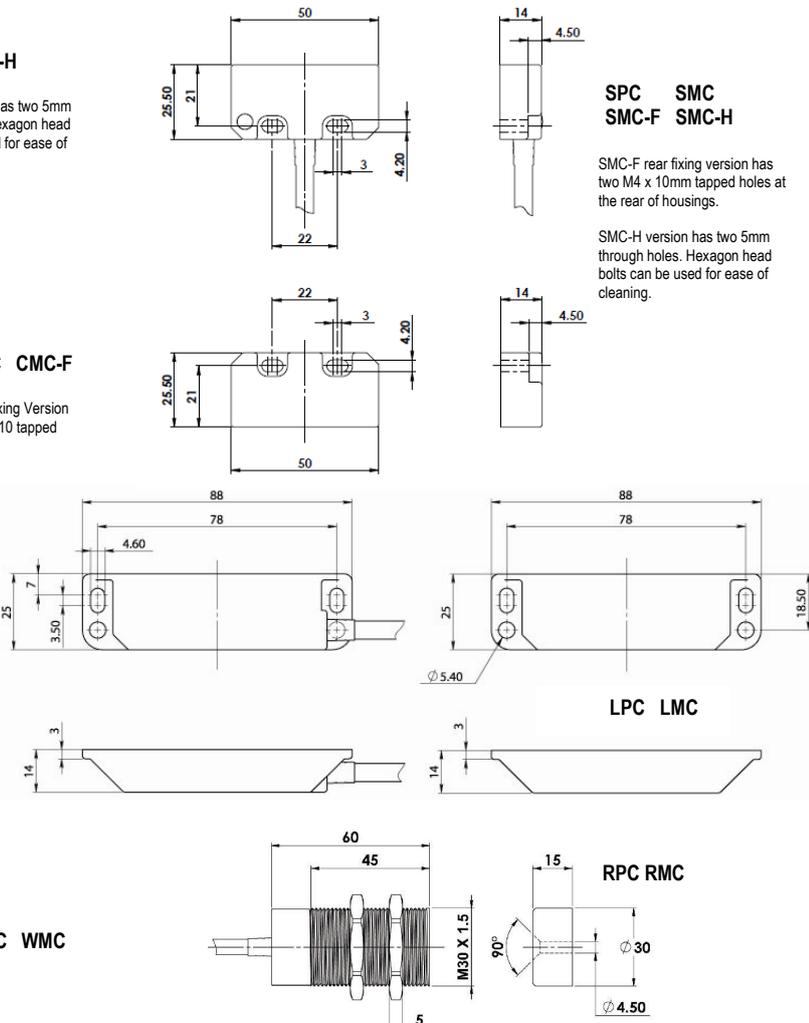
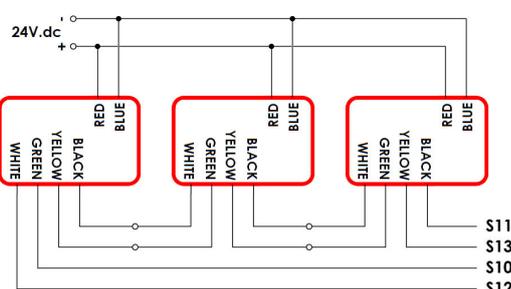
Single switch to SCR-2 or SCR-3 Safety Relay



Single switch to SCR-21-I or SCR-31-I Safety Relay (Viper range)



Connecting in series to SCR range



SPC SMC SMC-F SMC-H

SMC-F rear fixing version has two M4 x 10mm tapped holes at the rear of housings.

SMC-H version has two 5mm through holes. Hexagon head bolts can be used for ease of cleaning.

LPC LMC

RPC RMC

Quick Connect (QC) M12 8 way Male Plug (on Flying Lead 250mm) (Pin view from switch)	Flying Lead Colours	Circuit (Actuator present)	Output Types Solid State	
	8	Orange	Auxiliary (NO)	
	5	Brown	Auxiliary (NO)	
	4	Yellow	NC 2	
	6	Green	NC 2	
	7	Black	NC 1	
	1	White	NC 1	
	2	Red	Supply +24Vdc	+/- 10%
	3	Blue	Supply 0Vdc	USE SELV / PELV

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

Safety Classification and Reliability Data:

ISO 13849-1

Up to PLe Category 4

(if both channels are used with a PLe control device)

2.6 x 10⁻¹⁰ (1/h)

PFHd

Proof Test Interval (Life)

20 years

MTTFd

866 years

Technical Data:

Standards:

ISO14119 EN60947-5-3 EN60204-1 ISO13849-1 UL508

Power consumption

25mA max.

Maximum switched current (outputs)

200mA (minimum internal resistance 8.5ohms)

Dielectric withstand

250V.ac

Insulation Resistance

100 Mohms

Switching distance

Sao 8mm

Recommended setting gap

5mm

Tolerance to misalignment

5mm in any direction from 5mm setting gap

Switching frequency

1.0 Hz maximum

Approach speed

200mm/m. to 1000m/s.

Body Material

Plastic (Polyester) or S/Steel 316

Temperature Range

-25/80C Plastic 105C S/Steel for CIP/SIP cleaning

Enclosure Protection

IP67 and IP69K

(QC versions IP67 for connector)

Shock Resistance

IEC 68-2-27 11ms 30g

Vibration Resistance

IEC 68-2-6 10-55 Hz. 1mm

Cable Type

PVC 6mm outside diameter

Mounting Bolts

2 x M4 Tightening torque 1.0 Nm

Mounting Position

Any

Information with regard to UL 508:

Type 1 Enclosures. Maximum temperature: 50°C plastic versions, 70°C S/Steel versions.

Maximum output 24V.dc 100mA. Powered by Class 2 or equivalent.