RFID Coded Overview

FEATURES & APPLICATION:

IDEM's extensive range of RFID Coded Non Contact safety interlock switches have been developed to provide and maintain a high level of functional safety whilst providing a very high anti-tamper coded activation.

Coding is achieved by using magnetic and radio frequency techniques, both principles need to be satisfied for the switch to operate safely.

They will connect to most popular standard Safety Relays to achieve up to PLe to ISO13849-1.

They are offered in high specification polyester or Stainless Steel 316 mirror polished housings and can be used in almost any environments including areas where high pressure cleaning is a requirement following contamination from foreign particles.

All switches have IP69K ingress protection and are suitable for CIP and SIP processes.

The typical sensing distance "on" is 14mm with wide tolerance to guard misalignment after setting.

The RFID sensing provides a tamper resistant operation when the actuator is in the sensing range of the switch.

The full range (both polyester and Stainless Steel 316) are available in two coding types either Master coded or Unique coded.

TYPE 1: **Master Coded** - (any actuator will operate any switch) - used when unique door activation is not required, but the benefit of RFID makes it virtually impossible to be overridden or by-passed by simple means.

TYPE 2: **Unique Code** - 32,000,000 unique codes. These switches are factory set and used when unique activation is required in areas where there are many interlocked doors and security of individual areas is required.

MAIN USER BENEFITS:

- RFID provides a high degree of anti-tamper thereby making it virtually impossible to be overridden.
- Unique RFID or series coding RFID available - this is dependent upon the user's risk assessment.
- Able to connect to most popular Safety Relays to achieve up to PLe ISO13849-1.
- LED Indication for on-switch diagnostics
- Mirror polished Stainless Steel 316 models can be used in virtually any environment that is subject to high levels of cleaning.

FUNCTIONAL SPECIFICATION:

High Functional Safety to ISO13849-1.

Connects to most Safety Relays to maintain PLe.

RFID Coded actuation to provide high tamper proof interlock security on Guard Doors.

Diagnostic LED: LED Green - Indication of Safety Circuits Closed.

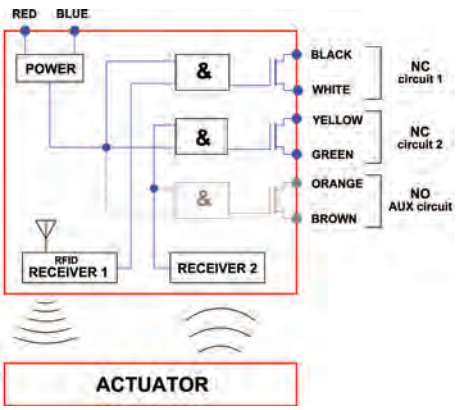
2NC Safety Outputs short circuit protected.

1NO Auxiliary Output for indication of door open.

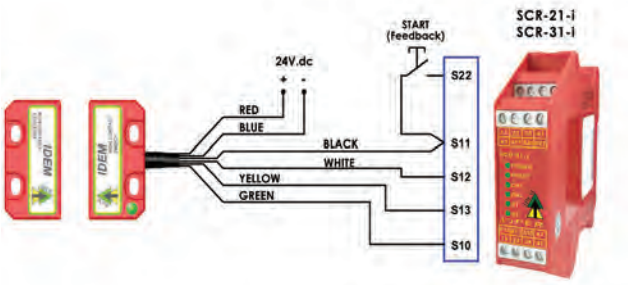
No moving parts - high switch life and resistance to shock and vibration.

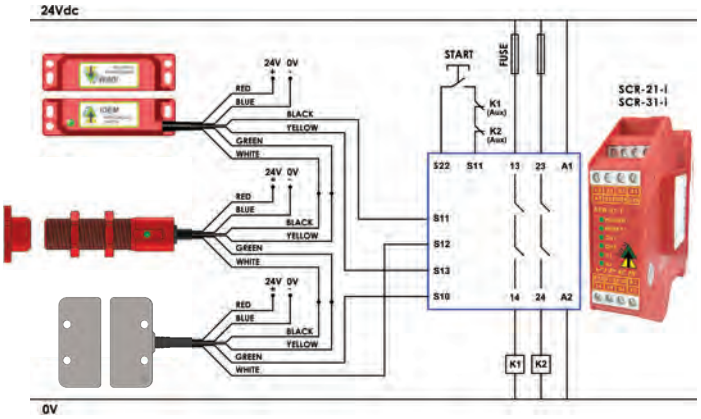
M12 Male 8-way Quick Connector versions available (Flying Lead 250mm (10")).

PRINCIPLE:



CONNECTIVITY:





RFID Coded Stainless Steel 316: **SMF-H**

FEATURES:

Specifically designed for Food Processing applications.
Suitable for CIP cleaning - Food Splash Zones EHEDG Guidelines.
Wide 14mm sensing with high tolerance to misalignment.
LED indication.
Can be high pressure hosed with detergent at high temperature.
Up to: PLe ISO13849-1.
2NC 1NO circuits - high switching life - no moving parts.
Quick Connect versions available.

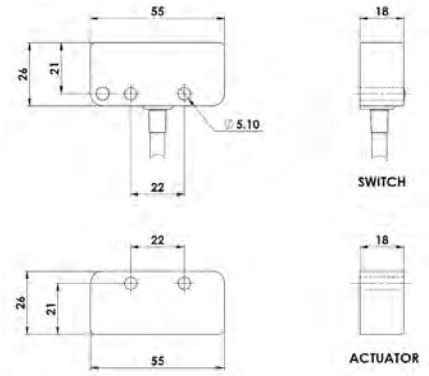
NEW

RFID Coded Actuation.
Switching Tolerance up to 14mm.
Will operate with most Safety Relays.

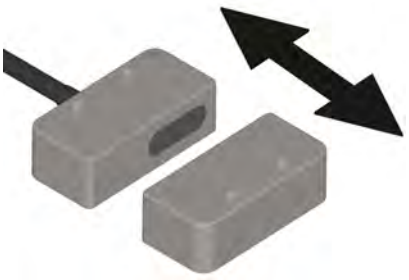
IP69K

Quick Connect M12 versions fitted with 250mm (10") cable

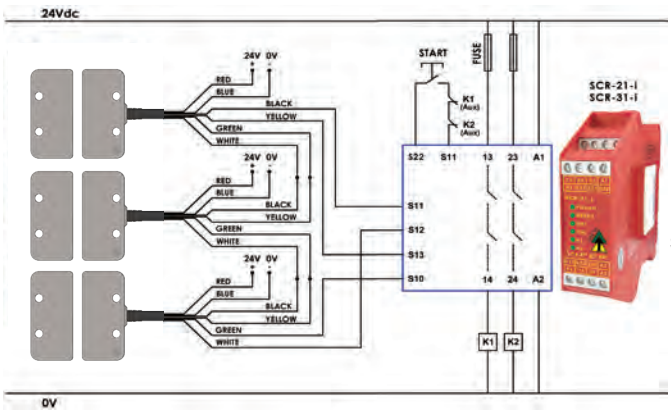
DIMENSIONS:



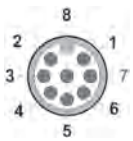
OPERATING DIRECTION:

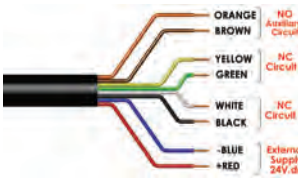


CONNECTION EXAMPLE



Three 2NC version switches connected in series to an SCR-21-i or SCR-31-i to give Dual Channel monitoring with Manual Start and Contactor Feedback Check





Quick Connect QC M12 8 Way Male Plug Pin view from Switch	Flying Lead Colour	Circuit (Actuator Present)	Output Types Solid State
8	Orange	Auxiliary NO	200mA Max. 24Vdc
5	Brown	Auxiliary NO	
4	Yellow	Safety NC2	200mA Max. 24Vdc
6	Green	Safety NC2	
7	Black	Safety NC1	200mA Max. 24Vdc
1	White	Safety NC1	
2	Red	Supply +24Vdc	Supply 24Vdc +/- 10%
3	Blue	Supply 0Vdc	

SALES NUMBER	MASTER CODED (same code every switch)	CABLE LENGTH
	SMF-H-M-RFID	5M
	SMF-H-M-RFID	10M
	SMF-H-M-RFID	QC-M12
	Replacement Actuator Master Coded	

For all IDEM switches the normally closed (NC) circuits are closed when the guard is closed and the actuator is present.

Standards: ISO14119 EN60947-5-3 EN60204-1 ISO13849-1 EN62061 UL508

Safety Classification and Reliability Data:

Minimum switched current:	10V.dc 1mA
Dielectric Withstand:	250V.ac
Insulation Resistance:	100 Mohms
Recommended setting gap:	5mm
Switching Distance:	Sao 8mm Close Sar 20mm Open
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:	Stainless Steel 316 (mirror polished finish)
Temperature Range:	-25/80C (105C for CIP/SIP)
Enclosure Protection:	IP67/IP69K (QC versions IP67 for connector)
Cable Type:	PVC 6 or 8 core 6mm OD Conductors 0.25mm^2
Mounting Bolts:	2 x M4 Tightening torque 1.0 Nm
Mounting Position:	Any

Characteristic Data according to IEC62061 (used as a sub system):

Safety Integrity Level	SIL3
PFH (1/h)	4.77E-10 Corresponds to 4.8% of SIL3
PFD	4.18E-05 Corresponds to 4.2% of SIL3
Proof Test Interval T_1	20a

Characteristic Data according to EN ISO13849-1:

Performance Level	e If both channels are used in combination with a SIL3/PLe control device
Category	Cat4
MTTFd	1100a
Diagnostic Coverage DC	99% (high)
Number of operating days per year:	d_{op} = 365d
Number of operating hours per day:	h_{op} = 24h
B10d	not mechanical parts implemented

When the product is used deviant from these assumptions (different load, operating frequency, etc.) the values have to be adjusted accordingly.

SALES NUMBER	UNIQUELY CODED (every switch unique activation)	CABLE LENGTH
	SMF-H-U-RFID	5M
	SMF-H-U-RFID	10M
	SMF-H-U-RFID	QC-M12

140101	Female QC Lead	M12 Female 5m. 8 way
140102	Female QC Lead	M12 Female 10m. 8 way