IDEM Safety Switches Ltd.

IDEM
SAFETY
SWITCHES
LIMITED

Providing Machine Safety for you at work

Designed and manufactured in the UK ATEX Ex CE c UL us TÜV

IDEM History *Our journey back to where it started*

UK based facility for Research and Development,Design and Manufacture of Safety Interlock Switches for Machines and Industry.

Hindley Industrial Estate,
Hindley Green
Wigan, UK

About us - (who are IDEM ?)

- *IDEM SAFETY was created in 2003 by Medi Motasham, former head of Research and Development at EJA / Guardmaster.*
- *For over 18 years as Technical Director of EJA /Guardmaster and then later Rockwell Automation, Medi designed and developed the popular Guardmaster Brand Products such as Trojan, Titan, Cadet, Rotacam, Ferrogard, Spartan, Lifeline, Minotaur etc.*
- *Now IDEM's team with over 200 years experience have set a new industry standard by offering the 'next generation' of Machine Safety Interlocks and Devices with higher reliability, increased features and up to date durability to cope with the ever increasing environmental demands placed on Machine Safety Devices.*

IDEM's journey –

1985 - *Medi starts at EJA Engineering. EJA Engineering was a small local distributor of electrical products at Hindley, UK.*

1986 *- Medi creates Research and Development Department and designed Trojan, Atlas, Rotacam, LRS1 Rope Switches.*

1988 *- The Guardmaster brand is established and EJA Engineering becomes the top supplier of Safety Switches in the UK.*

1990-1996 *- The Guardmaster Brand is established throughout the world with the popular product lines of Trojan, Titan, Ferrogard, LRS4.*

1996 *- Medi is part of the Management buy out team that acquires the EJA Engineering Group (Guardmaster,Sigma Controls, Nelsa).*

1999 - *Rockwell Automation acquires the EJA Group and markets the safety switches as AB-Guardmaster brand globally.*

2003 - *Medi leaves Rockwell Automation to form IDEM Safety Switches with a vision to Design the 'Next Generation' of Safety Switches and all manufactured in the UK.*

2005 - *IDEM manufactures the first of the 'next generation' products in a purpose built factory near Manchester UK.*

2006- 2010 - *IDEM is established as the leading developer of next generation safety interlocks, specialising in products for the Food Industry, Explosion Proof applications and Factory Automation. The new brands of Kobra Tongue, Guardian Rope, Idemag, Idecode, Euromag, Hygiemag, Hygiecode, Modus are sold globally.*

2011 *- Manufacturing ceases at the Rockwell Automation site at Hindley, UK. IDEM acquires the site with a vision to set up a World Class Centre of Excellence for the Design and Manufacture of Machine Safety Devices. 80% of IDEM staff are ex-Guardmaster Rockwell Automation.* ***IDEM'S PEOPLE ARE BACK WHERE THE STORY STARTED.***

R&D with Innovative Spirit

- *As a technology company, our Research and Development efforts are focused on producing the finest products by fostering* ***innovation and ingenuity,*** *whilst maintaining compliance with the latest standards and approvals. Our expertise over many years has resulted in numerous inventions, providing ideal solutions for the human-machine environment.*
- *IDEM's new product portfolio for 2012 will re-affirm IDEM as the leading developer of Machine Safety Interlocks by using the best minds in the business and massive investment in R&D to provide the next generation of Safety Switches and Devices.*

Quality and Manufacturing

- *We are proud to manufacture in the UK and our policy is to ensure a World Class product to support all industry sector customers.*

Medi Motasham

Managing Director and IDEM founder
(former Technical Director
EJA / Guardmaster / Rockwell Automation)

One of our achievements – Motasham wins Rockwell Automations's Odo J. Struger Automation Award 2000.

The Odo J. Struger Automation Award is an honour bestowed annually on the engineer who has made the most outstanding contributions in the field of automation. This year's winner is Medi Mohtasham,Director of Research and Development at Guardmaster, UK, in the Components and Packaging Group.

Medi, an employee of Rockwell Automation with the acquisition of EJA Ltd. in 1999, was honoured for his contributions to the development of machine safety components.

Having been responsible for the initial set up of the Research and Development department of EJA, Medi initiated the design and invention of the majority of EJA's Safety Switches, and was responsible for the launch of Trojan, Titan, Atlas, LRS Rope Switches and various other Safety Products which are distributed on a worldwide basis.

His distinguished contributions to the Guardmaster line of safety products culminated in his increased responsibility for the Design of Guardmaster, Sigma and Nelsa product lines.

Safety Switches from IDEM

About Machine Interlocking Safety

International Standards / European Standards

Basic Safety Standards:

- ***EN ISO 12100-1 EN ISO 12100-2 (superscedes EN 292-1 EN 292-2) Safety of Machinery- Basic Terminology and concepts for Design***
  Outlines the concepts for Risk Assessment, Interlocking, Emergency Stops, and references other standards and directives e.g. EN 60204-1, EN ISO 13850.
- ***ISO 14121-1 (supersedes EN 1050) Safety of Machines – Risk Evaluation***
  Outlines the requirements for assessing Hazard analysis and Risk reduction for the Machine.
- ***EN 60204-1 Electrical Equipment of Machines – General requirements.***
  Outlines the requirements for Electrical wiring safety on machines and specifies the Emergency Stop functions and requirements.

Design Standards:

- ***EN 1088 Safety of Machinery – Safety of Machinery – Interlocking Devices***
  Outlines the principles for the design and selection of Interlock and Emergency Stop devices. Provides references to the other basic standards and to standards for verifying the performance of various devices e.g.IEC 947-5-1 for positive break switching elements and IEC 947-5-3 for Non Contact devices with defined behaviour.
- ***EN ISO 13849-1 (supersedes EN954-1) Safety of Machines – Safety related parts of control systems – General principles for Design***
  EN954-1 described the categories which apply to Safety related parts of the controls. It describes risk evaluation by means of which the required Safety Categories (B,1,2,3,4) are met. This standard will be superseded late in 2011 by ISO13849-1 which is based on the familiar categories from EN 954-1 but examines complete safety functions, including all the components involved in their design. ISO 13849-1 goes beyond the qualitative approach of EN 954-1 to include a quantitative assessment of the safety functions. A performance level (PL) is used for this, building upon the categories. There are five PL (a to e) replacing the five EN954-1 Categories (B to 4).
- ***IEC 60947-5-1 Low voltage switchgear and controlgear – Electro-Mechanical control circuit devices.***
  Describes the Mechanical Design and Test requirements for control circuit devices incorporating positive break contacts.
  Designates Electrical switching characteristics e.g. AC15 10A.
- ***IEC 60947-5-5 Low voltage switchgear and controlgear- Emergency Stop devices with mechanical latching.***
  In addition to the requirements of IEC 947-5-1, describes the Mechanical Design and Test requirements for Control circuit devices with Emergency Stop Functions with mechanical latching. Provides specific requirements relating to Safety Rope switches and systems.
- ***IEC 60947-5-3 Low voltage switchgear and controlgear- Proximity devices with defined behaviour under fault conditions***
  Describes the Design and Test requirements for Non Contact devices with defined behaviour under fault conditions.
  Specifies 4 categories to define Fault behaviour D T S or M.
- ***EN ISO 13850 (supersedes EN 418) - Emergency Stop Design guidelines.***
  Provides principles for design of latching Emergency Stop devices. Specifies the requirement for Emergency stop devices to be latching with a mechanical reset.
- ***UL 508 Industrial Control Equipment.***
  Describes the Electrical performance requirements and material specification used for Industrial Control switchgear in USA.
- ***IEC 61508 Functional Safety for Safety Related E/E/PES – Functional Safety for Electrical, Electronic or Programmable Electronic Systems***
  A generic standard covering various industries – Measures the Safety of an E/E/PES by using Safety Integrity Levels (SIL's).
  Provides a SIL based upon the Probability of Failure on demand (PFd) or the Probability of Failure per hour (PFh) up to SIL 4.
- ***EN 62061 Safety of Machines – Safety related parts of controls.***
  In addition to IEC 61508 and specifically for Machine Safety Systems this standard covers the entire life cycle of a 'system' or devices used to make up a system from concept through to shutdown. Measures Safety the same as IEC 61508 by using Safety Integrity Level up to SIL 3.
  Provides a SIL based upon the Probability of Failure on demand (PFd) or the Probability of Failure per hour (PFh) up to SIL 3.
  IDEM devices will be specified as up to SIL3 for devices provided as sub systems or intended to be used in sub systems by the end user.

EC Directives CE

All products are supplied with a Declaration of Conformity to the following EC Directive:

- *RoHS 02/95/EC*

and to one or more of the following EC Directives:

- *Machinery Directive 2006/42/EC*
- *Low Voltage Directive 2006/95/EC*
- *EMC Directive 2004/108/EC*

Third Party Approvals

All products are supplied with independent testing and approval by one or more of the following organisations:
Check www.idemsafety.com for latest information on Approvals, CE marking.

IMPORTANT: The information and application examples shown in this catalogue are for illustration only. The installer of these devices must satisfy themselves that each application meets all the requirements of the intended function and local and international regulations. IDEM Safety Switches reserves the right to revise the information in this catalogue and disclaims all liability for any incidental damages resulting from the use of this material.
Installation of these devices must be carried out by a competent person with appropriate experience of Machine Control Integration.

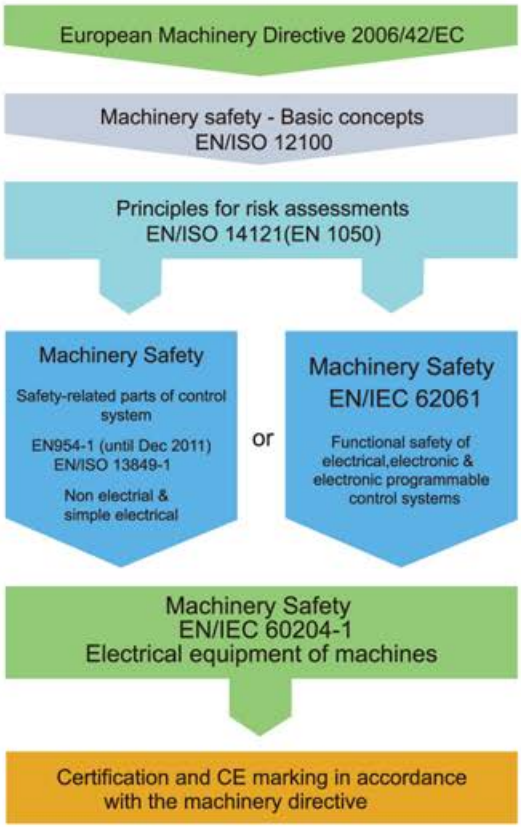
Terms and conditions of use are available at www.idemsafety.com

Safety Switches from IDEM

About Safety Levels for Machinery – the transition to ISO13849-1 and EN62061 from EN954-1.

Companies involved in building, refurbishing or maintaining machinery need to consider the transition to the new standards especially when designing new machinery or planning a major upgrade. In terms of the established machinery safety standard EN954-1 (Safety of Machinery – Safety related parts of Control Systems), this standard is superseded by two new standards that will coexist.
Designers and installers of safety systems can choose to conform to the requirements of either of two new standards.
Figure 1 shows the design process and how the standards relate. For most non electrical or simple electrical machine controls ISO13849-1 will be sufficient.
EN/IEC62061 is a derivative from the software based standard EN/ISO61508 which covers programmable devices such as Safety PLC's or sophisticated safety electronics.

Figure 1.



Before these standards can be applied, a risk assessment as defined in EN/ISO 14121 should have been performed, to identify potential risks and risk reduction measures.
Best practice dictates the assessments are documented and in many cases produced in addition to the equipment operating instructions and technical documentation.

EN/ISO 13849-1 Machine Safety - safety-related parts of control systems non electrical and simple electrical.

This standard is a development of EN954-1 and provides safety requirements and guiding principles for design and integration of safety-related parts of control systems. Introduced in 1996, EN954-1 was considered by some as an over simplistic approach and failed to force designers to assess the reliability of the safety components. The new standard EN/ISO13849-1 adds a quantitative calculation to the qualitative requirements of EN954-1 and considers the likelihood of safety system component failure. As with EN954-1 an estimation of risk is used to determine the required performance level (PL). EN954-1 establishes Safety Categories B,1,2,3, 4 (highest), EN ISO 13849-1 establishes Performance Levels PLa to PLe (highest).

This is done using a risk graph (see Figure 2).

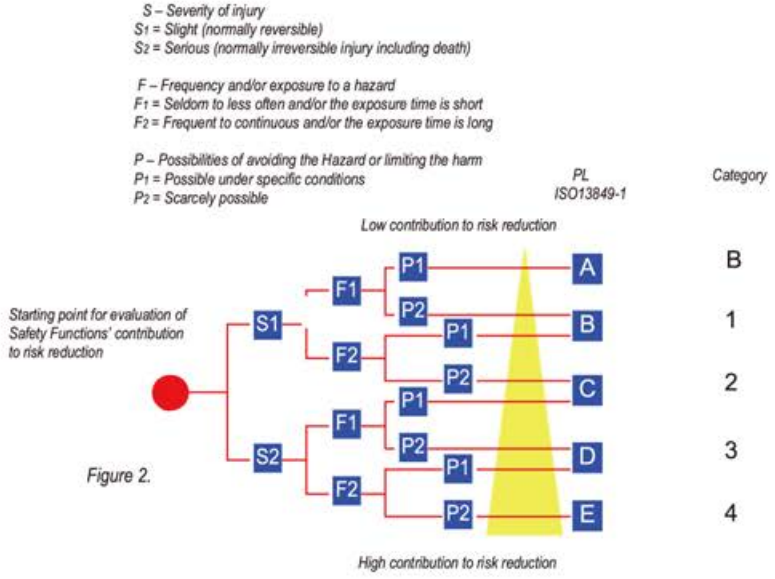


Figure 2.

Following on from this graph, further guidance is included in the new standards to assist with the system design, meaning that the math's required is minimal.

In general terms, EN/ISO13849-1 takes a four-stage approach to the design of safety-related control systems.

1. Perform a risk assessment (EN/ISO14121) 2. For the identified risks, allocate the safety measure, Performance Level (PL)
3. Devise a system architecture that is suitable for the Performance Level or Category. 4. Validate the design to check that it meets the requirements of the initial risk assessment.
For ISO 13849-1 and EN/IEC62061 this last step involves using manufacturers' data for the reliability of the components, including the calculation of MTTFd (Mean time to Dangerous Failure) and DC (Diagnostic Capability) and accounting for common mode failure of components. Idem PL data for each device is shown in the specification table on the product page.

EN/IEC 62061 Machine Safety - Functional safety of electrical, electronic and programmable electronic control systems.

Safety-related electrical control systems in machines (SRECS) are playing an increasing role in ensuring the overall safety of machines and are more and more frequently using complex electronic technology. EN/IEC62061 is a machinery sector standard and is derived from the more complex EN/IEC61508 (Functional safety of electrical/electronic/programmable electronic safety-related systems). EN/IEC62061 describes both the amount of risk to be reduced and the ability of a control system to reduce that risk in terms of SIL (Safety Integrity Level). There are 3 SILs used in the machinery sector, SIL 1 is the lowest and SIL 3 is the highest. Risks of greater magnitude can occur in other sectors such as the process industry and for that reason EN/IEC61508 includes SIL 4. A SIL applies to a safety function. The subsystems that make up the system that implements the safety function must have an appropriate SIL capability. This is sometimes referred to as the SIL Claim Limit (SIL CL).
The detailed requirements and steps to ensure compliance with EN/IEC62061 are too complex to be covered in detail here.
SIL data for each IDEM device is shown in the specification table on the product page.

PL and SIL Level

EN/ISO 13849-1 uses the term PL (Performance Level), EN/IEC 62061 will use SIL, and in many respects the five performance levels PLa to PLe can be related to SIL.
Figure 3 shows the approximate relationship between PL and SIL when applied to typical circuit structures achieved by low complexity electro-mechanical technology e.g. a Tongue Switch with a Safety Monitoring relay. This is for general guidance and to help show the relationship between the two standards. It should not be used for direct conversion purposes.

PL (Performance Level)	PFH_D (Probability of a failure to danger per hour)	SIL (Safety Integrity Level)
a	$\geq 10^{-5}$ to $< 10^{-4}$	None
b	$\geq 3x10^{-6}$ to $< 10^{-5}$	1
c	$\geq 10^{-6}$ to $< 3x10^{-6}$	1
d	$\geq 10^{-7}$ to $< 10^{-6}$	2
e	$\geq 10^{-8}$ to $< 10^{-7}$	3

Figure 3.

Explosion Proof Safety Switches

IDEM's range of Explosion Proof switches have been developed to satisfy the latest IECEx and ATEX standards and provide Explosion Proof switching to satisfy the hazardous conditions created within the oil, chemical and food processing industries. They combine Explosion Proof protection and satisfy high Functional Safety requirements all in one device.

Safety Switches for use in Hazardous Areas.
Gas and Dust

Functional Safety up to PLe ISO13849-1
IP69K suitable for harsh environments


KM-SS-Ex


KM-Ex


K-SS-Ex


KP-Ex


CM1-Ex


CM2-Ex


GLES-Ex


GLES-SS-Ex


ESL-SS(P)-Ex


ESL-SS-Ex


WM1-Ex
WM2-Ex


CM3-Ex


GLHD-SS-Ex


GLHL-Ex


GLHD-Ex


GLHR-Ex


LM-Ex


GLS-SS-Ex


GLS-Ex


RM-Ex

Application:

Interlock and Emergency Stop Safety Switches for use in Hazardous Areas – positively operated contacts or high life non contact dry reed switching.

For use in hazardous areas IECEx and ATEX EExd IIC T6. (Gas and Dust).
Designed for Petro-chemical and food applications where explosive atmospheres are present.

Exd IIC T6 (-20⩽Ta⩽+60C) Gb
II 2G Ex mb IIC T6 Gb

Ex tb IIIC T85C (-20⩽Ta⩽+60C) Db
II 2D Ex mb IIIC T80C Db

Mechanical Interlock Switches and Emergency Stop Switches
Non Contact Magnetic Interlock Switches

IDEM Explosion Proof Safety Interlock switches are designed to fit to the leading edge of sliding, hinged or lift off machine guards to provide safe electrical switching within explosion risk environments like petro-chemical and food production. IDEM Explosion Proof Rope Pull switches are designed to provide protection to conveyors used in hazardous areas like beverage production and chemical handling.
In addition to Explosion Proof switching, and depending upon the risk assessment for the application, they can also be used in combination with any dual channel safety monitoring relays to provide high functional safety up to Category 4 and PLe ISO 13849-1 or SIL3 EN62061.

General Features: Housings are either durable High Strength Plastic, Die cast painted or Stainless Steel 316
High temperature stability up to 80C. Resistant to high temperature hosing and detergent washdown – IP67 and IP69K
Electrical switching elements are fully encapsulated

Tongue and Emergency Stop Switches
Zones 1,21,2,22

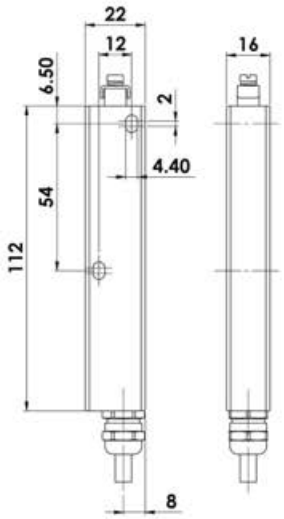
High Power Switching up to 230V.ac 4A.
Positive break contacts to IEC 60947-5-1

Non Contact Switches
Zones 0,20,1,21,2,22

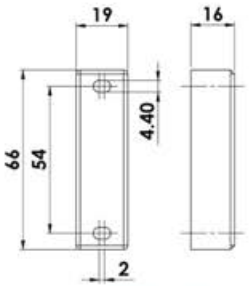
Highly reliable high power reed switching elements
Contacts de-rated and protected by internal fuses
High tolerance to guard misalignment

Explosion Proof Non Contact Safety Interlock Switches

II 2G Ex mb IIC T6 Gb **II 2D Ex mb IIIC T80 Db IP67*** **Zones 1, 21, 2, 22 Gas and Dust**

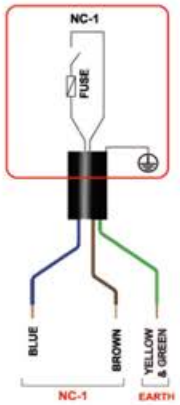


SWITCH



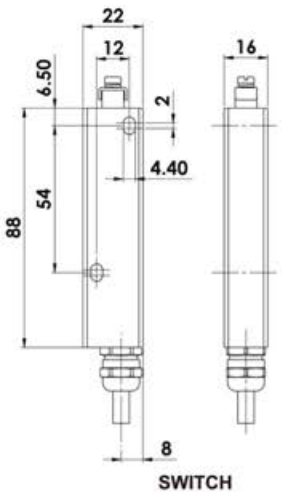
ACTUATOR

CM1-Ex

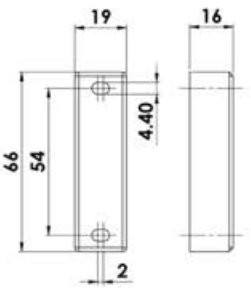


Sales Number	Type Zones 1,21,2,22	Body Housing	Cable Length 6mm O/D	Circuits	Electrical Rating Normally Closed Circuits (Actuator Present) NC
901101	CM1-Ex	S / Steel	5M	1NC	230V.ac / 24Vdc 2A. Max. Internally Fused
901102	CM1-Ex	S / Steel	10M	1NC	

II 2G Ex mb IIC T6 Gb **II 2D Ex mb IIIC T80 Db IP67*** **Zones 1, 21, 2, 22 Gas and Dust**

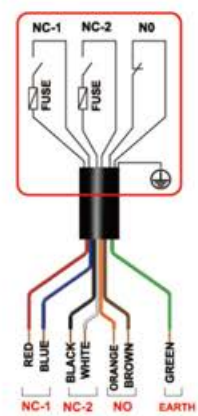


SWITCH



ACTUATOR

CM2-Ex



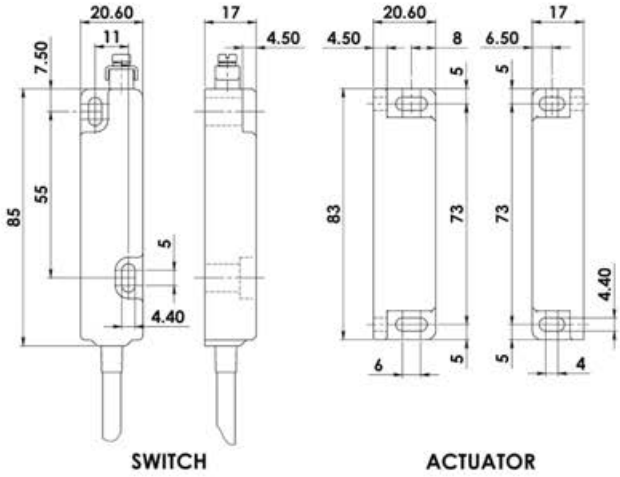
Sales Number	Type Zones 1,21,2,22	Body Housing	Cable Length 6mm O/D	Circuits	Electrical Rating Normally Closed Circuits (Actuator Present) NC	Electrical Rating Normally Open Circuits (Actuator Present) NO
902103	CM2-Ex	S / Steel	5M	1NC	230V.ac / 24Vdc 1A. Max. Internally Fused	
902104	CM2-Ex	S / Steel	10M	1NC		
902105	CM2-Ex	S / Steel	5M	2NC 1NO	230V.ac / 24Vdc 0.6A. Max. Internally Fused	230V.ac / 24Vdc 200mA. Max.
902106	CM2-Ex	S / Steel	10M	2NC 1NO		

*** Product is fully encapsulated which is considered to provide Ingress Protection to at least IP67**

Explosion Proof Non Contact Safety Interlock Switches

II 2G Ex mb IIC T6 Gb **II 2D Ex mb IIIC T80 Db IP67*** **Zones 1, 21, 2, 22 Gas and Dust**

CM3-Ex

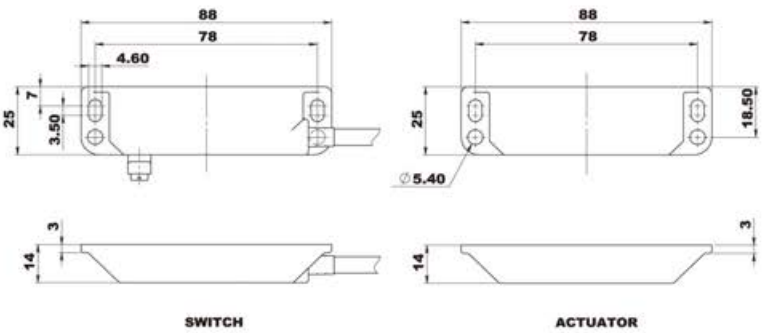


SWITCH ACTUATOR

Sales Number	Type Zones 1,21,2,22	Body Housing	Cable Length 6mm O/D	Circuits	Electrical Rating Normally Closed Circuits (Actuator Present) NC	Electrical Rating Normally Open Circuits (Actuator Present) NO
903101	CM3-Ex	S / Steel	5M	2NC 1NO	230V.ac / 24Vdc 0.6A. Max. Internally Fused	230V.ac / 24Vdc 200mA. Max.
903102	CM3-Ex	S / Steel	10M	2NC 1NO		

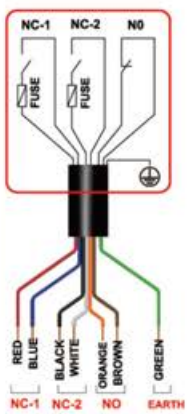
II 2G Ex mb IIC T6 Gb **II 2D Ex mb IIIC T80 Db IP67*** **Zones 1, 21, 2, 22 Gas and Dust**

LM-Ex



SWITCH ACTUATOR

Sales Number	Type Zones 1,21,2,22	Body Housing	Cable Length 6mm O/D	Circuits	Electrical Rating Normally Closed Circuits (Actuator Present) Red/Blue NC1 White/Black NC2	Electrical Rating Normally Open Circuits (Actuator Present) Orange/Brown NO
904101	LM-Ex	S / Steel	5M	2NC 1NO	230V.ac / 24Vdc 0.6A. Max. Internally Fused	230V.ac / 24Vdc 200mA. Max.
904102	LM-Ex	S / Steel	10M	2NC 1NO		



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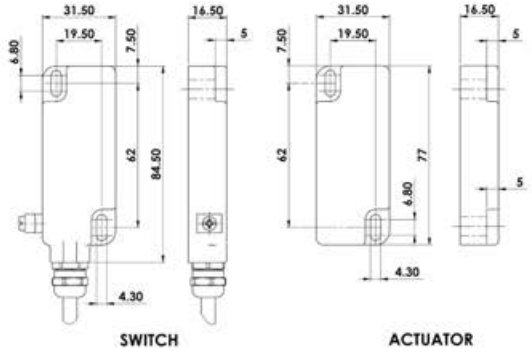
Explosion Proof Non Contact Safety Interlock Switches

II IG Ex ma IIC T6 Ga **II ID Ex ma IIIC T80 Da IP67***

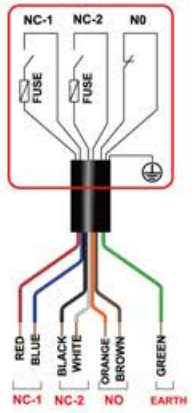
Zones 0,20,1,21,2,22 Gas and Dust



WM1-Ex

Stainless Steel housing - Supplied fitted with Stainless Steel Flexible conduit

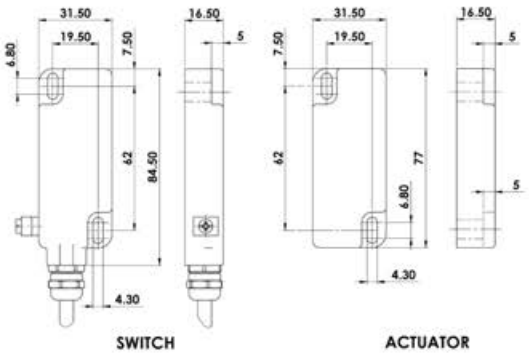
Sales Number	Type Zones 0, 20	Body Housing	Cable / Conduit Length 10mm O/D	Circuits	Electrical Rating Normally Closed Circuits (Actuator present) Red/Blue NC1 White/Black NC2	Electrical Rating Normally Open Circuit (Actuator present) Orange/Brown NO
900101	WM1-Ex	S / Steel	5M	2NC 1NO	230V.ac / 24Vdc 0.6A. Max. Internally fused	230V.ac / 24Vdc 200mA. Max.
900102	WM1-Ex	S / Steel	10M	2NC 1NO		



II 2G Ex mb IIC T6 Gb **II 2D Ex mb IIIC T80 Db IP67***

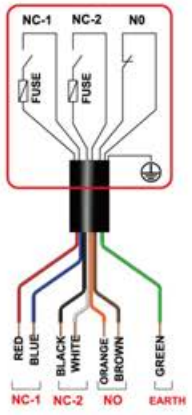
Zones 1, 21, 2, 22 Gas and Dust

Stainless Steel



WM2-Ex

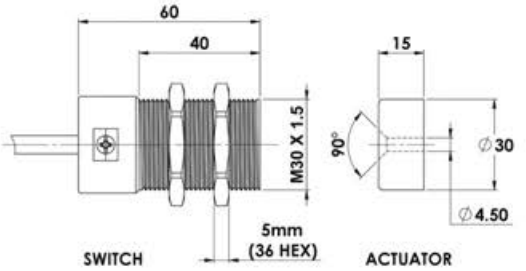
Sales Number	Type Zones 1,21,2,22	Body Housing	Cable Length 6mm O/D	Circuits	Electrical Rating Normally Closed Circuits (Actuator present) Red/Blue NC1 White/Black NC2	Electrical Rating Normally Open Circuit (Actuator present) Orange/Brown NO
900201	WM2-Ex	S / Steel	5M	2NC 1NO	230V.ac / 24Vdc 2A. Max. Internally fused	230V.ac / 24Vdc 200mA. Max.
900202	WM2-Ex	S / Steel	10M	2NC 1NO		



*** Product is fully encapsulated which is considered to provide Ingress Protection to at least IP67**

Explosion Proof Non Contact Safety Interlock Switches

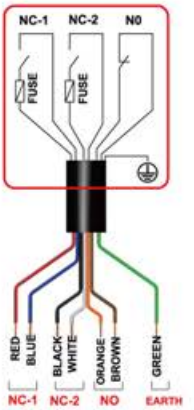
II 2G Ex mb IIC T6 Gb **II 2D Ex mb IIIC T80 Db IP67*** **Zones 1, 21, 2, 22 Gas and Dust**



Stainless Steel 316 M30 x 1.5mm threaded body

RM-Ex

Sales Number	Type Zones 1,2,21,22	Body Housing	Cable Length 6mm O/D	Circuits	Electrical Rating Normally Closed Circuits (Actuator present) Red/Blue NC White/Black NC	Electrical Rating Normally Open Circuit (Actuator present) Orange/Brown NO
905101	RM-Ex	S / Steel	5M	2NC 1NO	230V.ac / 24Vdc 0.6A. Max. Internally fused	230V.ac / 24Vdc 200mA. Max.
905102	RM-Ex	S / Steel	10M	2NC 1NO		



Explosion Proof Non Contact Safety Interlock Switches

Summary Specification and selection guide

Switch Type	Housing Material	Part Number series	Maximum current	Zones
WM1-Ex	Stainless Steel 316 and fitted with Stainless Steel Flexible conduit	9001_ _	0.6A	Zone 0 Gas Zone 20 Dust (An area where Gas and Dust are continuously present)
WM2-Ex	Stainless Steel 316	9002_ _	2.0A.	Zone 1 Gas Zone 21 Dust Zone 2 Gas Zone 21 Dust (An area where Gas and Dust is likely to occur in use)
CM1-Ex	Stainless Steel 316	901_ _ _	2.0A.	
CM2-Ex	Stainless Steel 316	902_ _ _	1.0A/0.6A	
CM3-Ex	Stainless Steel 316	903_ _ _	0.6A.	
LM-Ex	Stainless Steel 316	904_ _ _	0.6A.	
RM-Ex	Stainless Steel 316	905_ _ _	0.6A.	

Technical and Safety Specification :

Standards	IEC/EN 60079-0 IEC/EN 60079-18 EN1088 IEC 947-5-3 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508
Safety Classification and Reliability Data:	
Mechanical Reliability B10d	3.3 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	2.52 x 10^{-8}
Proof Test Interval (Life)	47 years
MTTFd	470 years

Contact release time	<2ms
Initial contact resistance	<500 milliohm
Minimum switched current	10V. dc 1mA
Insulation Resistance	100 Mohms
Recommended setting gap	5mm
Switching Distance:	Sao 10mm Close
(Target to target)	Sar 22mm Open
Approach speed	200mm/m. to 1000mm/s.
Temperature Range	-20 / +80C. (or +60C at 2A)
Enclosure Protection	IP67
Shock Resistance	IEC 68-2-27 11ms 30g
Vibration Resistance	IEC 68-2-6 10-55 Hz. 1mm
Cable Type	6mm O.D.
Mounting Position	Any
Approval Body	BASEEFA UK

*** Product is fully encapsulated which is considered to provide Ingress Protection to at least IP67**

Explosion Proof Emergency Stop Switches

Emergency Stop Switches with ATEX EExd IIC T6 certified explosion proof contact blocks.

These switches conform to European harmonized standards EN 60079-0 and EN 60079-1 and can be used in European Zone 1, 2, 21, 22 environments. (Gas and Dust).

Designed to the latest standard ISO13850, the switch mechanism will latch the instant the safety contacts open.

Designed for use in oil, petro-chemical and food applications where potential explosive atmospheres are present.

Exd IIC T6 (-20⩽Ta⩽+60C) Gb Ex tb IIIC T85C (-20⩽Ta⩽+60C) Db

Standard Duty Mushroom Button Types – ESL-SS(P)-Ex ESL-SS-Ex

ESL-SS(P)-Ex ESL-SS-Ex

Protection shroud and lock off versions
Special Lid Safety Trip Mechanism – contacts will open if the lid is removed
Positive break contacts to IEC 60947-5-1
Resistant to high temperature hosing and detergent washdown.
Enclosure Protected to IP67 and IP69K
Robust Stainless Steel 316 Housings
Pre-wired 1NC 1NO, 2NC, or 2NC 2NO contacts

Heavy Duty Mushroom Button Types – GLES-Ex GLES-SS-Ex

GLES-Ex GLES-SS-Ex

High Impact Robust Housings - Die Cast (painted yellow) or S/Steel 316
Button mounted top of enclosure
Positive break contacts to IEC 60947-5-1
Resistant to high temperature hosing
Enclosure Protected to IP67 and IP69K
High Impact Robust Stainless Steel 316 Housings
Available with up to 4 pole contacts
1NC 1NO, 2NC, 3NC 1NO or 2NC 2NO contacts

Standard Duty Rope Pull Types - GLS-SS-Ex GLS-Ex

GLS-SS-Ex
Protect up to 100m.

GLS-Ex
Protect up to 80m.

Die Cast (painted yellow) or S/Steel 316
Positive break contacts to IEC 60947-5-1
Resistant to high temperature hosing
Enclosure Protected to IP67 and IP69K
High Impact Robust Stainless Steel 316 Housings
1NC 1NO, 2NC, or 2NC 2NO

Heavy Duty Rope Pull Types - GLH-Ex GLH-SS-Ex

GLHD-SS-Ex
Protect up to 250m.

GLHL-Ex

GLHD-Ex

Die Cast (painted yellow) or S/Steel 316
Positive break contacts to IEC 60947-5-1
Resistant to high temperature hosing
Enclosure Protected to IP67 and IP69K
1NC 1NO, 2NC, 3NC 1NO or 2NC 2NO

Dual Head version covers up to 250m. with one switch or can be connected in series with other switches to protect long lengths over hundreds of metres.

Standards:	IEC/EN 60079-0 IEC/EN 60079-1 EN1088 IEC 60947-5-1 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508
Safety Classification and Reliability Data:	
Mechanical Reliability B10d	1.5 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	<1.0 x 10^{-7}
Proof Test Interval (Life)	21 years
MTTFd	214 years

Enclosure Protection	IP69K IP67
Operating Temperature	-20C +60C.
Vibration	IEC 68-2-6, 10-55Hz+1Hz, Excursion: 0.35mm, 1 octave/min
Classification	Exd IIC T6 (-20⩽Ta⩽+60C) Gb Ex tb IIIC T85C (-20⩽Ta ⩽+60C) Db
Rated Voltage	250V a.c
Rated Current	2 Pole 4A.ac 4 Pole 2.5A.ac
Cable length	3m.

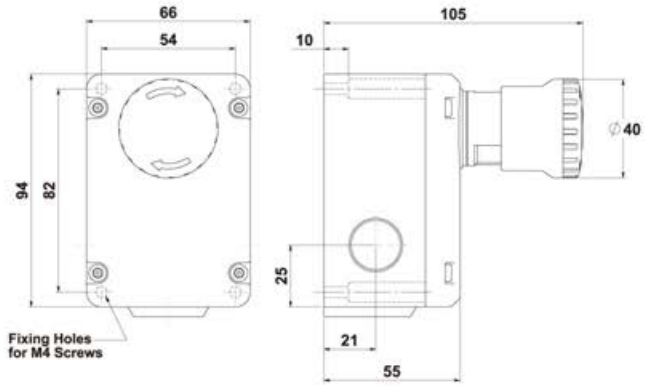
Explosion Proof Emergency Stop Switches

(P) versions include button protection shroud and padlock holes for lock off.

ESL-SS(P)-Ex

ESL-SS-Ex

Zones 1 and 2 Zones 21 and 22 Gas and Dust IP67



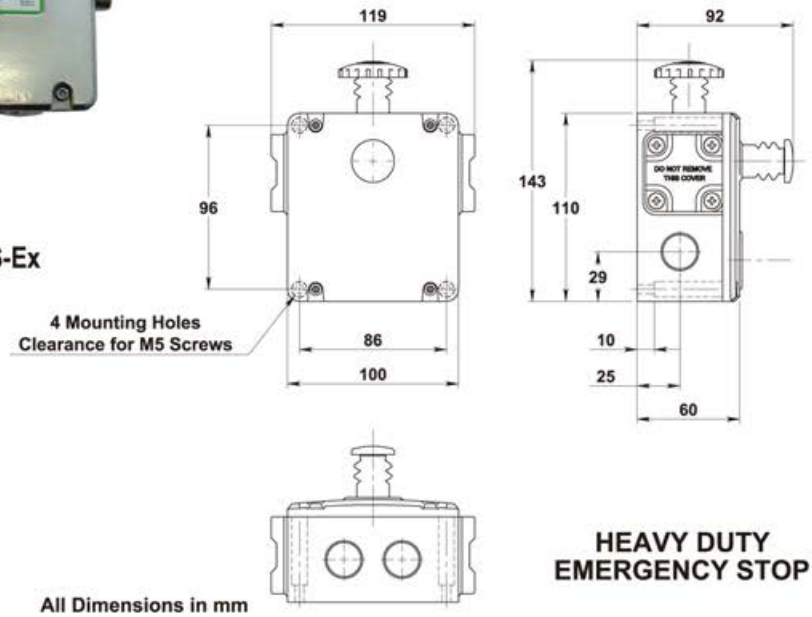
Sales Number	Type	Contacts
232015	ESL-SS(P)-Ex	1NC 1NO
232016	ESL-SS(P)-Ex	2NC
232030	ESL-SS(P)-Ex	2NC 2NO
232007	ESL-SS-Ex	1NC 1NO
232008	ESL-SS-Ex	2NC
232029	ESL-SS-Ex	2NC 2NO

All switches are pre-wired with 3m. length of cabling through the cable glands as shown. Other lengths and cable exits available upon request.

GLES-Ex

GLES-SS-Ex

Zones 1 and 2 Zones 21 and 22 Gas and Dust IP67



Sales Number	Type	Contacts
146003	GLES-Ex	1NC 1NO
146004	GLES-Ex	3NC 1NO
146005	GLES-Ex	2NC
146006	GLES-Ex	2NC 2NO
147003	GLES-SS-Ex	1NC 1NO
147004	GLES-SS-Ex	3NC 1NO
147005	GLES-SS-Ex	2NC
147006	GLES-SS-Ex	2NC 2NO

All Dimensions in mm

HEAVY DUTY EMERGENCY STOP

Explosion Proof Emergency Stop Switches

Rope Pull Emergency Stop Switches

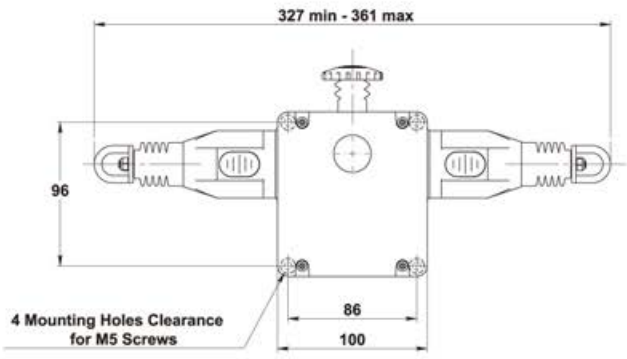
Zones 1 and 2 Zones 21 and 22 Gas and Dust IP67

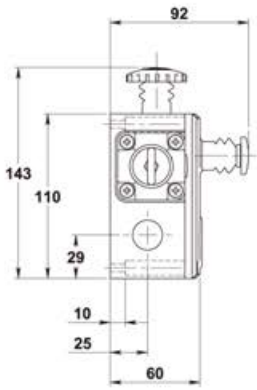
GLHL-Ex

GLHD-Ex

GLHR-Ex

GLHD-SS-Ex



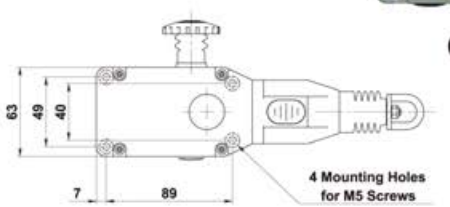


GLHL-SS-Ex

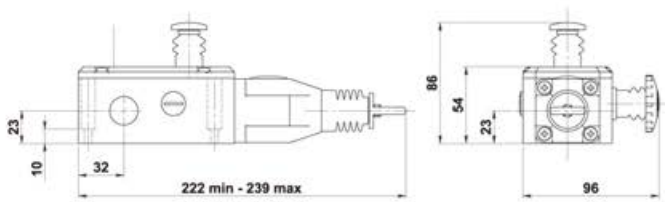
All switches are pre-wired with 3m. length of cabling through the cable glands as shown. Other lengths and cable exits available upon request.

GLS-Ex

GLS-SS-Ex



All Dimensions in mm



Sales Number	Type	Contacts
141003	GLHD-Ex	1NC 1NO
141014	GLHD-Ex	3NC 1NO
141017	GLHD-Ex	2NC
141018	GLHD-Ex	2NC 2NO
141007	GLHL-Ex	1NC 1NO
141015	GLHL-Ex	3NC 1NO
141019	GLHL-Ex	2NC
141020	GLHL-Ex	2NC 2NO
141011	GLHR-Ex	1NC 1NO
141016	GLHR-Ex	3NC 1NO
141021	GLHR-Ex	2NC
141022	GLHR-Ex	2NC 2NO
145003	GLHD-SS-Ex	1NC 1NO
145014	GLHD-SS-Ex	3NC 1NO
145017	GLHD-SS-Ex	2NC
145018	GLHD-SS-Ex	2NC 2NO
145007	GLHL-SS-Ex	1NC 1NO
145015	GLHL-SS-Ex	3NC 1NO
145019	GLHL-SS-Ex	2NC
145020	GLHL-SS-Ex	2NC 2NO
145011	GLHR-SS-Ex	1NC 1NO
145016	GLHR-SS-Ex	3NC 1NO
145021	GLHR-SS-Ex	2NC
145022	GLHR-SS-Ex	2NC 2NO
142025	GLS-Ex	1NC 1NO
142028	GLS-Ex	2NC
142030	GLS-Ex	2NC 2NO
144025	GLS-SS-Ex	1NC 1NO
144026	GLS-SS-Ex	2NC
144030	GLS-SS-Ex	2NC 2NO

Kobra - Explosion Proof Tongue Interlock Switches

Tongue Interlock Switches for use in Hazardous Areas.
ATEX approved contact blocks. Gas and Dust (Zones 1, 2, 21, 22)

Functional Safety up to PLe ISO13849-1
IP69K suitable for harsh environments

Tongue Interlock Safety Switches for use in Hazardous Areas – positively operated ATEX Certified contact blocks.
For use in hazardous areas IECEx and ATEX EExd IIC T6. (Gas and Dust).
These switches conform to harmonized standards IEC/EN 60079-0 and IEC/EN 60079-1.
Suitable for European Zones 1, 2, and 21, 22. Designed for Petro-chemical and food applications where explosive atmospheres are present.

- Exd IIC T6 (-20≤Ta≤+60C) Gb
- Ex tb IIIC T85C (-20≤Ta≤+60C) Db

Application:

IDEM ATEX approved Tongue operated Safety Interlock switches are designed to fit to the leading edge of sliding, hinged or lift off machine guards to provide positively operated switching contacts and provide a tamper resistant, not easily defeatable key mechanism.
They are designed to provide robust position interlock detection for moving guards within areas which have an explosion risk atmosphere.
Depending upon the risk assessment for the application, they can be used independently to provide positive interlocking to IEC 60947-5-1 or they can be used in combination with any dual channel safety monitoring relays to provide functional safety up to PLe ISO 13849-1 or SIL3 EN62061.

Operation:

The switch is rigidly mounted to the frame of the guard or machine. The actuator is fitted to the moving part (frame) of the guard and is aligned to the switch entry aperture. The actuator profile is designed to match a cam mechanism within the switch head and provides a positively operated not easily defeatable interlock switch. When the actuator is inserted into the switch the safety contacts close and allow the machine start circuit to be enabled. When the actuator is withdrawn from the switch the safety contacts are positively opened and the machine circuit is broken. The internal contact blocks are robust, fully encapsulated and pre-wired.

Features:

High Power Switching up to 230V.ac 4A.

1NC 1NO or 2NC or 2NC 2NO

High tolerance to guard misalignment

Enclosure Protected to IP67 and IP69K

Conformance to IEC 60947-5-1 Positively operated

Rotatable heads to give up to 8 actuator entry positions

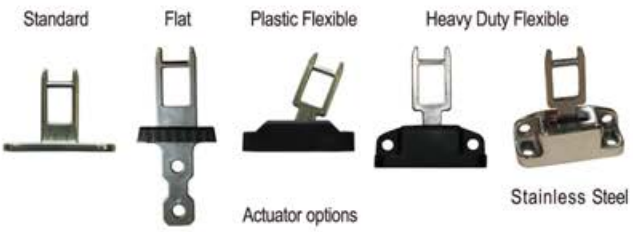
Resistant to high temperature hosing and detergent washdown

Choice of actuators to suit mounting conditions and alignment

2 enclosure shapes are available providing Plastic, Die cast painted or Stainless Steel

High temperature stability up to 60C.

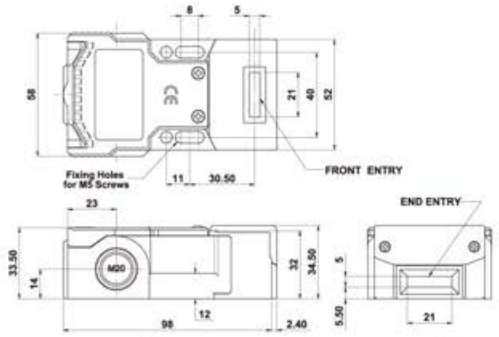
Resistance to many organic and inorganic chemicals



Kobra - Explosion Proof Tongue Interlock Switches

KP-Ex

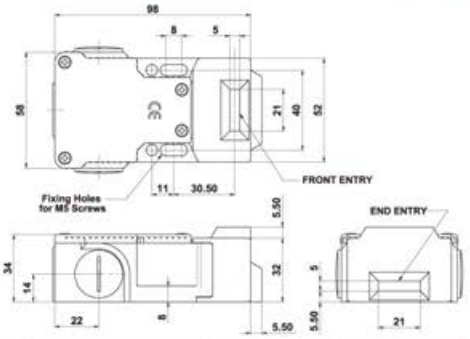
Polyester Housing
Zones 1 and 2 Zones 21 and 22 Gas and Dust IP67



Sales Number	Type	Pre-wired	Contacts
200016	Kobra KP-Ex	3m. 4 core	1NC 1NO
200019	Kobra KP-Ex	3m. 4 core	2NC
200026	Kobra KP-Ex	3m. 8 core	2NC 2NO
Stainless Steel Head Version		Add SS to Sales Part Number	

K-SS-Ex

Stainless Steel 316 Housing
Zones 1 and 2 Zones 21 and 22 Gas and Dust IP67

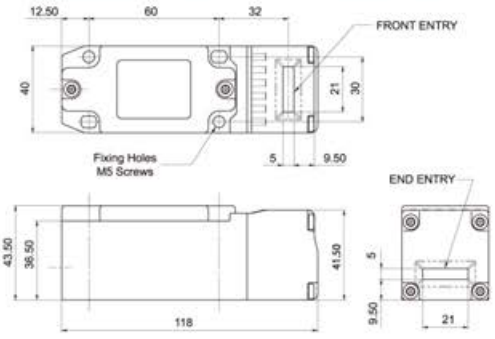


Sales Number	Type	Pre-wired	Contacts
208016	Kobra K-SS-Ex	3m. 4 core	1NC 1NO
208019	Kobra K-SS-Ex	3m. 4 core	2NC
208026	Kobra K-SS-Ex	3m. 8 core	2NC 2NO

Add Actuator code to part number:
A-Standard, F-Flat, PF-Plastic Flexible, HF-Heavy Flexible, HFH-Heavy Flexible Stainless Steel

KM-Ex

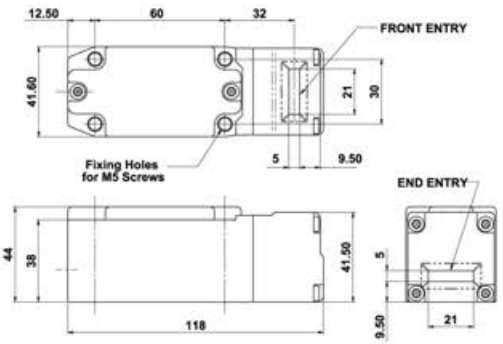
Die Cast Housing (Painted Red)
Zones 1 and 2 Zones 21 and 22 Gas and Dust IP67



Sales Number	Type	Pre-wired	Contacts
203016	Kobra KM-Ex	3m. 4 core	1NC 1NO
203019	Kobra KM-Ex	3m. 4 core	2NC
203026	Kobra KM-Ex	3m. 8 core	2NC 2NO
Stainless Steel Head Version		Add SS to Sales Part Number	

KM-SS-Ex

Stainless Steel 316 Housing
Zones 1 and 2 Zones 21 and 22 Gas and Dust IP67



Sales Number	Type	Pre-wired	Contacts
204016	Kobra KM-SS-Ex	3m. 4 core	1NC 1NO
204019	Kobra KM-SS-Ex	3m. 4 core	2NC
204026	Kobra KM-SS-Ex	3m. 8 core	2NC 2NO

Add Actuator code to part number:
A-Standard, F-Flat, PF-Plastic Flexible, HF-Heavy Flexible, HFH-Heavy Flexible Stainless Steel

Standards	IEC/EN 60079-0 IEC/EN 60079-1 EN1088 IEC 60947-5-1 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508

Safety Classification and Reliability Data:

Mechanical Reliability B10d	2.5 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	3.44 x 10^{-8}
Proof Test Interval (Life)	35 years
MTTFd	356 years

Travel for Positive Opening	8mm
Actuator entry minimum radius	175mm Standard
Enclosure Protection	IP69K IP67
Operating Temperature	-20C +60C.
Vibration	IEC 68-2-6, 10-55Hz+1Hz, Excursion: 0.35mm, 1 octave/min
Classification	Exd IIC T6 (-20⩽Ta⩽+60C) Gb Ex tb IIIC T85C (-20⩽Ta ⩽+60C) Db
Rated Voltage	250V a.c
Rated Current	2 Pole 4A.ac 4 Pole 2.5A.ac
Cable length	3m.

Kobra - Tongue Operated Safety Interlock Switches

Application:

IDEM Tongue operated Safety Interlock switches are designed to fit to the leading edge of sliding, hinged or lift off machine guards to provide positively operated switching contacts and provide a tamper resistant, not easily defeatable key mechanism.

They are designed to provide robust position interlock detection for moving guards.

Depending upon the risk assessment for the application, they can be used independently to provide positively operated contacts to IEC 60947-5-1 or they can be used in combination with any dual channel safety monitoring relays to provide up to Category 4 PLe ISO 13849-1 or SIL3 EN62061. They are available in various materials and housing styles to provide complete flexibility of choice depending upon the application. They offer a choice of contact blocks (including Explosion Proof) and various actuators to aid installation and maintain durability.

Operation:

The switch is rigidly mounted to the frame of the guard or machine. The actuator is fitted to the moving part (frame) of the guard and is aligned to the switch entry aperture. The actuator profile is designed to match a cam mechanism within the switch head and provides a positively operated not easily defeatable interlock switch. When the actuator is inserted into the switch the safety contacts close and allow the machine start circuit to be enabled. When the actuator is withdrawn from the switch the safety contacts are positively opened and the machine circuit is broken. Standard versions use high specification plastic or die-cast housings and are sealed to IP67 and provide long term protection against moisture ingress. For harsh applications like Food Processing, Pharmaceutical and Chemical Industries the Stainless Steel 316 range offers protection up to IP69K for use in high pressure chemical cleaning or CIP/SIP applications.

IDIS-1 (Plastic)

8 actuator entry positions – rotatable head
3 pole contact blocks or 2 pole snap action
32mm wide 97mm long 22mm fixing
IP67

K-15 (Plastic)

4 actuator entry positions – rotatable head
Compact Body 3 conduit entries
3 pole contact blocks
54mm wide 86mm long 40mm fixing
Plastic or Stainless Steel Head
IP67

KM and KP also offer Explosion Proof pre-wired versions.

KM (Metal)

8 actuator entry positions – rotatable head
3 pole or 4 pole contact blocks
40mm wide 118mm long 30mm fixing
Die Cast Alloy
IP67

KP (Plastic)

4 actuator entry positions – rotatable head
3 conduit entries
3 pole or 4 pole contact blocks
52mm wide 98mm long 40mm fixing
Plastic or Stainless Steel Head
IP67

KM-SS (Fully Stainless Steel)

8 actuator entry positions – rotatable head
3 pole or 4 pole contact blocks
42mm wide 118mm long 30mm fixing
IP69K high temperature hose down

KM-SS and K-SS developed for guard interlocking in the applications of Food Processing, Pharmaceutical, Packaging and Chemical Industries.

They are tested to ingress protection degree IP69K (high pressure hosing with detergent at 80C. and 100psi).

KM-SS and K-SS also offer Explosion Proof pre-wired versions.

K-SS (Fully Stainless Steel)

4 actuator entry positions – rotatable head
3 conduit entries
3 pole or 4 pole contact blocks
52mm wide 99mm long 40mm fixing
IP69K high temperature hose down

Tongue Interlock Safety Switch - Type: IDIS-1

IDEM IDIS-1 Compact Safety Interlock switches are designed to provide position interlock detection for small moving guards.

They are designed to fit to the leading edge of sliding, hinged or lift off machine guards.

Hinged guard | Sliding guard | Lift off guard

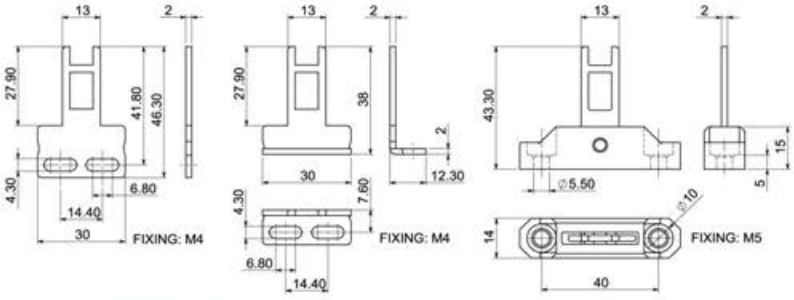
Actuator options

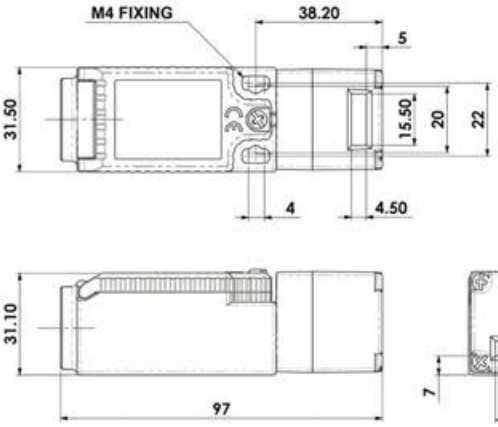
Flat | Angled | Plastic Flexible

The rugged Stainless Steel actuator profile is designed to match a cam mechanism to provide a positively operated not easily defeatable interlock mechanism.

The compact body, 22mm fixing profile and rotatable head make them easy to install where space is restricted.
A Plastic Flexible Actuator is available for tight radius guards.

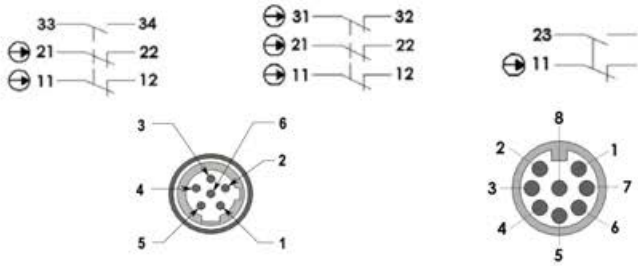
Contact blocks are replaceable with optional slow or snap break operation.





Contact Block Options:

Slow Make Break 2NC 1NO | Slow Make Break 3NC | Snap Action 1NC 1NO



Quick Connect (QC) ½" UNF 6 Way Male (connector length 14mm) Pin view from switch	Switch Circuit	Quick Connect (QC) M12 8 Way Male (on Flying Lead 250mm) Pin view from switch
1 5	11 / 12	1 7
2 6	21 / 22 or 23 / 24	6 5
3 4	33 / 34 or 31 / 32	4 3

Female QC Leads	Length	Sales Number
M12 8 Way	5m. (15Ft.)	140101
M12 8 Way	10m. (30Ft.)	140102
½" UNF	2m. (6Ft.)	140141
½" UNF	5m. (15Ft.)	140142

Standards	EN1088 IEC 60947-5-1 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508

Safety Classification and Reliability Data:

Mechanical Reliability B10d	2.5×10^8 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	3.44×10^{-8}
Proof Test Interval (Life)	35 years
MTTFd	356 years
Utilization Category	AC15 A300 3A.
Thermal Current (Ith)	5A
Rated Insulation / Withstand Voltages	600VAC / 2500 VAC
Travel for Positive Opening	6mm
Actuator entry minimum radius	175mm Standard 100mm Flexible
Maximum Approach / Withdrawal speed	600mm/s.
Body Material	Polyester
Enclosure Protection	IP67
Operating Temperature	-25C. +80C.
Vibration	IEC 68-2-6, 10-55Hz+1Hz, Excursion: 0.35mm, 1 octave/min
Conduit Entry	Various (See Sales Part Numbers)
Fixing	2 x M4

Sales Numbers	Contacts	M20	½"NPT	QC ½" UNF 6 way	QC M12 8 Way
Angled Actuator	2NC 1NO	190001	190002	190003	190028
Flat Actuator	2NC 1NO	190004	190005	190006	190029
Plastic Flex.Actuator	2NC 1NO	190019	190020	190021	190030
Angled Actuator	3NC	190007	190008	190009	190031
Flat Actuator	3NC	190010	190011	190012	190032
Plastic Flex.Actuator	3NC	190022	190023	190024	190033
Angled Actuator	1NC 1NO Snap	190013	190014	190015	190034
Flat Actuator	1NC 1NO Snap	190016	190017	190018	190035
Plastic Flex.Actuator	1NC 1NO Snap	190025	190026	190027	190036

Gold Plated Contacts available for low power circuits (5V. 5mA).
Add GC to Part Number e.g. 190001-GC

Hinge Interlock Safety Switch - Type: IDIS-2

IDEM IDIS-2 Compact Hinge Safety Interlock switches are designed to provide position interlock detection for moving guards.

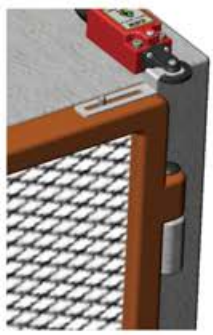
They are designed to fit to the hinged axis of machine guard doors. The switch body fits to the door frame and the leaf actuator fits to the door.

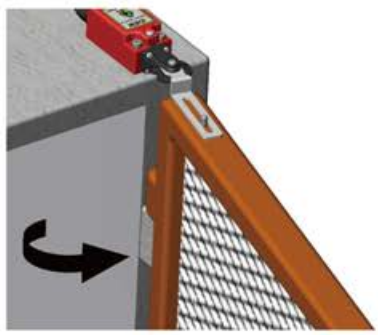
Universal fitting – opening angle 180 degrees for swing doors

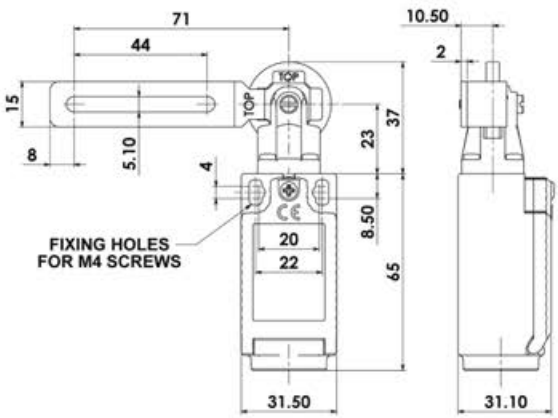
The rugged Stainless Steel actuator profile is designed to fix to the door and provide a positively operated not easily defeatable interlock mechanism. They can be mounted unobtrusively away from direct vision or contact.

The compact body and 22mm fixing profile make them easy to install where space is restricted.
The head can be rotated through 90 degree increments to provide ease of mounting in 4 positions.

Contact blocks are replaceable with optional slow or snap break operation.

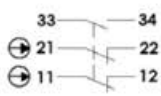




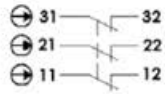


Contact Block Options:

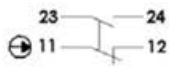
Slow Make Break 2NC 1NO

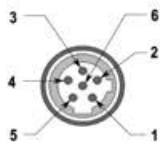


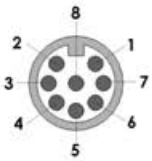
Slow Make Break 3NC



Snap Action 1NC 1NO







Standards	EN1088 IEC 60947-5-1 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508
Safety Classification and Reliability Data:	
Mechanical Reliability B10d	2.5 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	3.44 x 10^{-8}
Proof Test Interval (Life)	35 years
MTTFd	356 years
Utilization Category	AC15 A300 3A.
Thermal Current (Ith)	10A
Rated Insulation / Withstand Voltages	600VAC / 2500 VAC
Actuator Rotation for Positive Opening	7 degrees 0.5Nm
Materials	UL approved glass-filled polyester
Enclosure Protection	IP67
Operating Temperature	-25C. +80C.
Vibration	IEC 68-2-6, 10-55Hz+1Hz, Excursion: 0.35mm, 1 octave/min
Conduit Entry	Various (See Sales Part Numbers)
Fixing	2 x M4

Quick Connect (QC) ½" UNF 6 Way Male (connector length 14mm) Pin view from switch	Switch Circuit	Quick Connect (QC) M12 8 Way Male (on Flying Lead 250mm) Pin view from switch
1 5	11 / 12	1 7
2 6	21 / 22 or 23 / 24	6 5
3 4	33 / 34 or 31 / 32	4 3

Female QC Leads	Length	Sales Number
M12 8 Way	5m. (15Ft.)	140101
M12 8 Way	10m. (30Ft.)	140102
½" UNF	2m. (6Ft.)	140141
½" UNF	5m. (15Ft.)	140142

Sales Number	Contacts	M20	½"NPT	QC ½" UNF 6 way	QC M12 8 Way
Universal Actuator	2NC 1NO	192001	192002	192003	192022
Universal Actuator	3NC	192004	192005	192006	192023
Universal Actuator	1NC 1NO Snap	192007	192008	192009	192024

Gold Plated Contacts available for low power circuits (5V. 5mA).
Add GC to Part Number e.g. 192001-GC

Kobra - Tongue Switches - Type: K-15 & K-15-SS

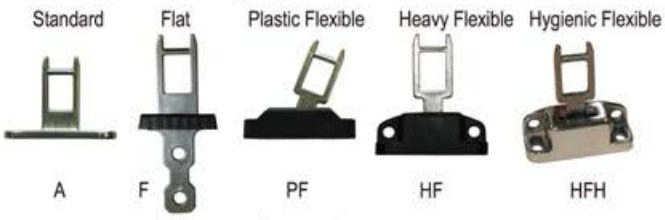
IDEM K-15 and K-15-SS Safety Interlock switches are designed to provide position interlock detection for moving guards.

They are designed to fit to the leading edge of sliding, hinged or lift off machine guards.

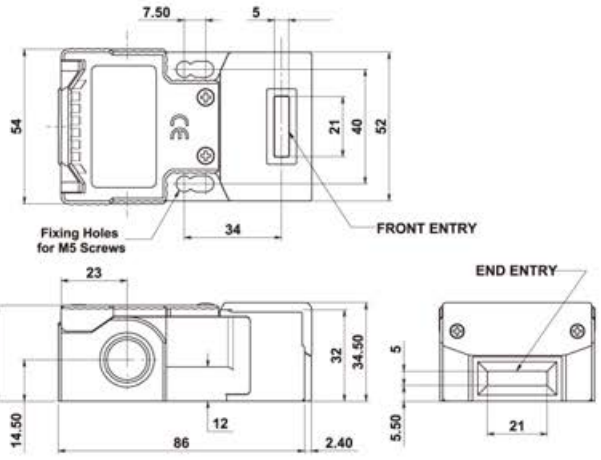
They offer a compact 86mm long body to fit to applications where space is restricted, yet offer 3 pole contacts and choice of 3 conduit entries for wiring versatility. The head can be rotated to give 4 actuator entry positions. For extra durability, Flexible Actuators and Stainless Steel head versions are available.

Contact blocks are replaceable.

Actuator options (See Page 51)

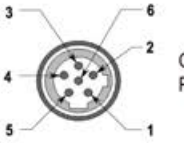


Accessories: (See Page 50)



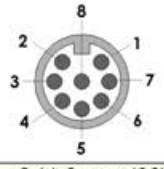
Contact Block Options:

Slow Make Break 2NC 1NO



Quick Connect
Pin View from switch

Slow Make Break 3NC



Quick Connect (QC) ½" UNF 6 Way Male	Switch Circuit	Quick Connect (QC) M12 8 Way Male (on Flying Lead 250mm) Pin view from switch
1 5	11 / 12	1 7
2 6	21 / 22 or 23 / 24	6 5
3 4	33 / 34 or 31 / 32	4 3

Female QC Leads	Length	Sales Number
M12 8 Way	5m. (15Ft.)	140101
M12 8 Way	10m. (30Ft.)	140102
½" UNF	2m. (6Ft.)	140141
½" UNF	5m. (15Ft.)	140142

Standards	EN1088 IEC 60947-5-1 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508

Safety Classification and Reliability Data:

Mechanical Reliability B10d	2.5 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	3.44 x 10^{-8}
Proof Test Interval (Life)	35 years
MTTFd	356 years
Utilization Category	AC15 A300 3A.
Thermal Current (Ith)	5A
Rated Insulation / Withstand Voltages	500VAC / 2500 VAC
Travel for Positive Opening	8mm
Actuator entry minimum radius	175mm Standard 100mm Flexible
Maximum Approach / Withdrawal speed	600mm/s.
Body Material	Polyester
Head Material	Polyester or Stainless Steel 316
Enclosure Protection	IP67
Operating Temperature	-25C. +80C.
Vibration	IEC 68-2-6, 10-55Hz+1Hz, Excursion: 0.35mm, 1 octave/min
Conduit Entry	Various (See Sales Part Numbers)
Fixing	2 x M5

Sales Numbers	Contacts	M20	½"NPT	QC ½" UNF 6 way	QC M12 8 Way
K-15 Switch	2NC 1NO	207001	207002	207003	207008
K-15 Switch	3NC	207004	207005	207006	207009

Actuator	Standard	Add A to Sales Part Number
Actuator	Flat	Add F to Sales Part Number
Actuator	Plastic Flexible	Add PF to Sales Part Number
Actuator	Heavy Duty Flexible	Add HF to Sales Part Number
Actuator	Heavy Duty S/Steel	Add HFH to Sales Part Number
Stainless Steel Head Version		Add SS to Sales Part Number
Actuator Holding - 40N.		Add 40N to Part Number

Ordering Example: Kobra K - 15 M20 2NC 1NO with Standard Actuator and Stainless Steel Head Part Number. 207001-A-SS

Gold Plated Contacts available for low power circuits (5V. 5mA). Add GC to Part Number e.g. 207001-A-GC

Kobra - Tongue Switches - Type: KP & KP-SS

IDEM KP Interlock switches are designed to provide position interlock detection for moving guards.

They are designed to fit to the leading edge of sliding, hinged or lift off machine guards. They provide a forced disconnect of the safety contacts at the withdrawal of the actuator and have an anti-tamper mechanism.

The head can be rotated to give 4 actuator entry positions. For extra durability, Flexible Actuators and Stainless Steel head versions are available.

Contact blocks are replaceable with optional explosion proof versions. They are sealed to IP67 and survive most wash down solutions due to the high material specification.

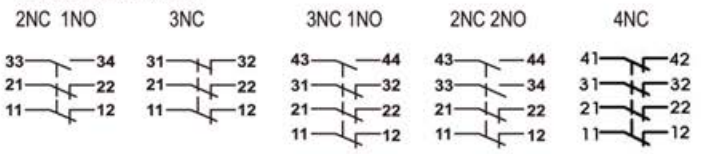
Functional Specification:

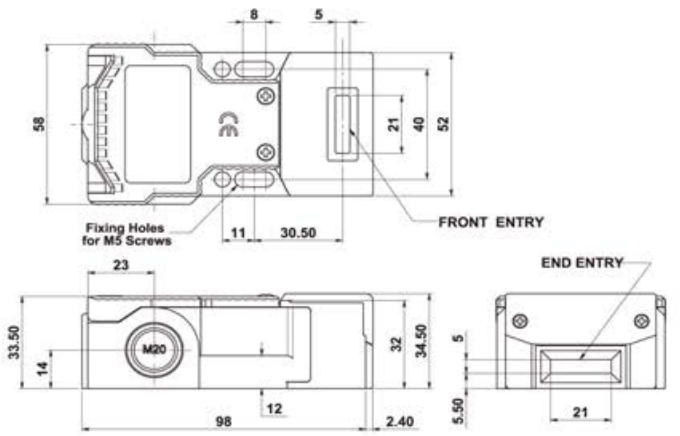
Positive break contacts to IEC 60947-5-1

High Functional Safety to ISO 13849-1

3 pole, 4 pole or Explosion Proof Contact Blocks

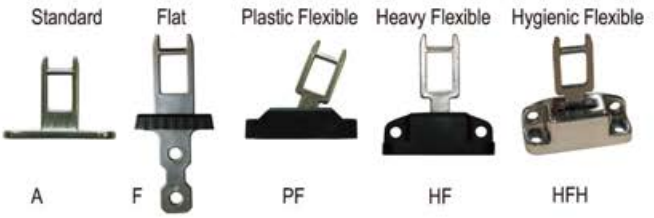
Contact Block Options:

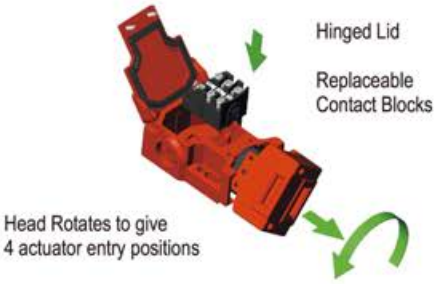




For all IDEM switches the normally closed (NC) circuits are closed when the guard is closed actuator inserted.

Actuator options (See Page 51)





Stainless Steel Head version available

Connects to most Safety Relays to give up to PLe Cat.4.

Industry Fitting 52mm wide 98mm long 40mm fixing

Pre-Wired Explosion Proof

Classification	Exd IIC T6 (-20⩽Ta⩽+60C) Gb Ex tb IIIC T85C (-20⩽Ta⩽+60C) Db
Standards	EN1088 IEC 60947-5-1 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508

Safety Classification and Reliability Data:

Mechanical Reliability B10d	2.5 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	3.44 x 10^{-8}
Proof Test Interval (Life)	35 years
MTTFd	356 years
Utilization Category	AC15 A300 3A.
Thermal Current (Ith)	5A
Rated Insulation / Withstand Voltages	500VAC / 2500 VAC
Travel for Positive Opening	8mm
Actuator entry minimum radius	175mm Standard 100mm Flexible
Maximum Approach / Withdrawal speed	600mm/s.
Body Material	Polyester
Head Material	Polyester or Stainless Steel 316
Enclosure Protection	IP67
Operating Temperature	-25C. +80C
Vibration	IEC 68-2-6, 10-55Hz+1Hz, Excursion: 0.35mm, 1 octave/min
Conduit Entry	Various (See Sales Part Numbers)
Fixing	2 x M5

Kobra - Tongue Switches - Type: KP & KP-SS

Contact operation at withdrawal of Actuator

2NC 1NO — 6.8 6.0 0 mm

11/12	Open	
21/22	Open	
33/34		Open

3NC (1NO) — 6.8 6.0 0 mm

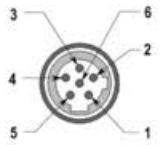
11/12	Open	
21/22	Open	
31/32	Open	
43/44		Open

4NC — 6.0 0 mm

11/12	Open	
21/22	Open	
31/32	Open	
41/42	Open	

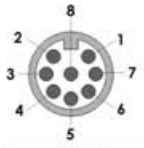
2NC 2NO — 6.8 6.0 0 mm

11/12	Open	
21/22	Open	
33/34		Open
43/44		Open



QC Quick Connect Versions

Quick Connect
Pin view from switch



Quick Connect (QC) ½" UNF 6 Way Male (connector length 14mm)	Switch Circuit	Quick Connect (QC) M12 8 Way Male (on Flying Lead 250mm) Pin view from switch
1 5	11 / 12	1 7
2 6	21 / 22	6 5
3 4	33 / 34 or 31 / 32	4 3
	41 / 42 or 43 / 44	8 2

Accessories: (See Page 50)

Maintenance Lockout Actuator

Fits to switch aperture during maintenance and provides multiple padlock holes.

Actuator with chain

Flat Actuator supplied with 300mm (12 inch) chain. Can be used where poor alignment exists and provides manual insertion of actuator by operator.

2 Colour LED Conduit Beacon
(Available voltages 24Vdc 110Vac 230Vac and M20 or ½" NPT)

2 colour LED (3 wires) providing Steady Red and Steady Green. Fits to conduit entry and provides option for LED indication based upon switch contacts.

Guard Door Interlocked - Dual Channel (Non Monitored)

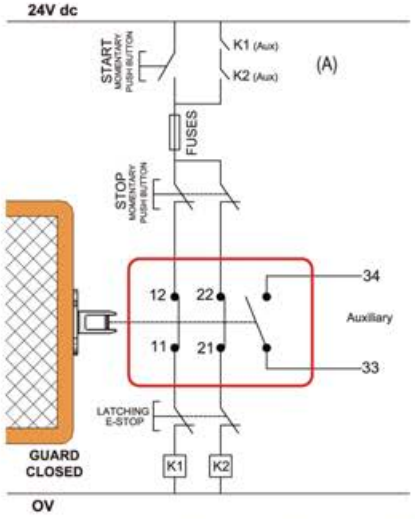
Application Example:

This system shows interlock switch circuits 11-12 and 21-22 configured to allow direct feed to contactor coils K1 and K2. This provides Dual Channel wiring and a check of the contactor feedback circuits through the auxiliary contacts (A) of K1 and K2.

Opening the Interlock switch or depressing the E Stop will isolate power to the contactor coils.

Re-start can only occur providing the Guard is closed, and the E-Stop is reset.

System is shown with machine stopped, guard closed and the contactors able to be energised.



Female QC Leads	Length	Sales Number
M12 8 Way	5m. (15Ft.)	140101
M12 8 Way	10m. (30Ft.)	140102
½" UNF	2m. (6Ft.)	140141
½" UNF	5m. (15Ft.)	140142

Sales Numbers	Contacts	M20	½"NPT	QC ½" UNF 6 way	QC M12 8 Way
Kobra KP Switch	2NC 1NO	200001	200002	200003	200021
Kobra KP Switch	3NC	200004	200005	200006	200022
Kobra KP Switch	3NC 1NO	200007	200008		200023
Kobra KP Switch	2NC 2NO	200010	200011		200024
Kobra KP Switch	4NC	200013	200014		200025
Kobra KP Switch	1NC 1NO Ex	200016	3m. 4 Core Ex		
Kobra KP Switch	2NC Ex	200019	3m. 4 Core Ex		
Kobra KP Switch	2NC 2NO Ex	200026	3m. 8 Core Ex		
Actuator	Standard	Add A to Sales Part Number			
Actuator	Flat	Add F to Sales Part Number			
Actuator	Plastic Flexible	Add PF to Sales Part Number			
Actuator	Heavy Duty Flexible	Add HF to Sales Part Number			
Actuator	Heavy Duty S/Steel	Add HFH to Sales Part Number			
Stainless Steel Head Version		Add SS to Sales Part Number			
Actuator Holding - 40N. (3 pole versions only)		Add 40N to Part Number			

Ordering Example: Kobra KP M20 3NC with Stainless Steel Head and Heavy Duty Flexible Actuator Part No. 200004-HF-SS

Gold Plated Contacts available for low power circuits (5V. 5mA). Add GC to Part Number e.g. 200001-A-GC

Kobra Metal - Tongue Switches - Type: KM

IDEM KM Interlock switches are designed to provide position interlock detection for medium to heavy duty moving guards.

They have robust die-cast housings and are designed to fit to the leading edge of sliding, hinged or lift off machine guards. They provide a forced disconnect of the safety contacts at the withdrawal of the actuator and have an anti-tamper mechanism.

The rotatable heads have dual actuator entry positions to give up to 8 different entry positions. For extra durability, Flexible Actuators and Stainless Steel head versions are available.

Contact blocks are replaceable with optional explosion proof versions. High holding force versions are available for applications where vibration can be a nuisance.

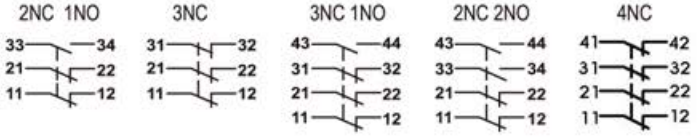
Functional Specification:

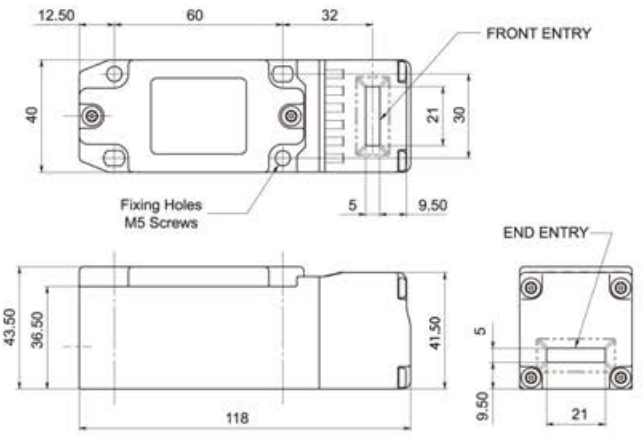
Positive break contacts to IEC 60947-5-1

High Functional Safety to ISO 13849-1

3 pole, 4 pole or Explosion Proof Contact Blocks

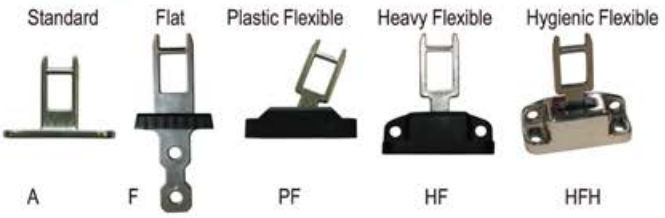
Contact Block Options:

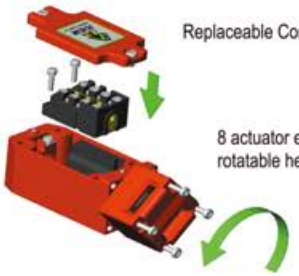




For all IDEM switches the normally closed (NC) circuits are closed when the guard is closed actuator inserted.

Actuator options (See Page 51)





Stainless Steel Head version available

Connects to most Safety Relays to give up to PLe Cat.4.

Industry Fitting 118mm long 40mm wide 30mm fixing

Pre-Wired Explosion Proof

Classification Exd IIC T6 (-20⩽Ta⩽+60C) Gb
Ex tb IIIC T85C (-20⩽Ta⩽+60C) Db

Standards	EN1088 IEC 60947-5-1 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508
Safety Classification and Reliability Data:	
Mechanical Reliability B10d	2.5 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	3.44 x 10^{-8}
Proof Test Interval (Life)	35 years
MTTFd	356 years
Utilization Category	AC15 A300 3A.
Thermal Current (Ith)	5A
Rated Insulation / Withstand Voltages	500VAC / 2500 VAC
Travel for Positive Opening	8mm
Actuator entry minimum radius	175mm Standard 100mm Flexible
Maximum Approach / Withdrawal speed	600mm/s.
Body Material	Die Cast Painted Red
Head Material	Die Cast Painted Red or Stainless Steel 316
Enclosure Protection	IP67
Operating Temperature	-25C. +80C.
Vibration	IEC 68-2-6, 10-55Hz+1Hz, Excursion: 0.35mm, 1 octave/min
Conduit Entry	Various (See Sales Part Numbers)
Fixing	4 x M5

Kobra Metal - Tongue Switches - Type: KM

Contact operation at withdrawal of Actuator

2NC 1NO — 6.8 6.0 0 mm

11/12	Open	
21/22	Open	
33/34		Open

3NC (1NO) — 6.8 6.0 0 mm

11/12	Open	
21/22	Open	
31/32	Open	
43/44		Open

4NC — 6.0 0 mm

11/12	Open	
21/22	Open	
31/32	Open	
41/42	Open	

2NC 2NO — 6.8 6.0 0 mm

11/12	Open	
21/22	Open	
33/34		Open
43/44		Open

QC Quick Connect Versions

Quick Connect
Pin view from switch

Quick Connect (QC) M23 12 Way Male (connector Length 26mm) Pin view from switch	Switch Circuit	Quick Connect (QC) M12 8 Way Male (on Flying Lead 250mm) Pin view from switch
1 3	11 / 12	1 7
4 6	21 / 22	6 5
7 8	33 / 34 or 31 / 32	4 3
9 10	41 / 42 or 43 / 44	
12	Earth	8

Accessories: (See Page 50)

Maintenance Lockout Actuator

Fits to switch aperture during maintenance and provides multiple padlock holes.

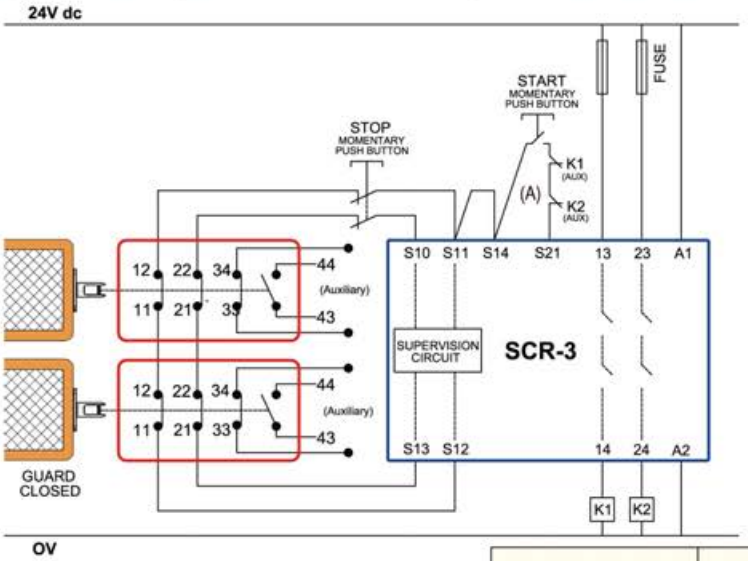
Actuator with chain

Flat Actuator supplied with 300mm (12 inch) chain. Can be used where poor alignment exists and provides manual insertion of actuator by operator.

2 Colour LED Conduit Beacon
(Available voltages 24Vdc 110Vac 230Vac and M20 or ½" NPT)

2 colour LED (3 wires) providing Steady Red and Steady Green. Fits to conduit entry and provides option for LED indication based upon switch contacts.

Application Example: **Multiple Guard Door Interlocks - Dual Channel (Monitored)**



The switch contacts 11-12 and 21-22 from each switch are wired in series to an SCR-3 Safety Relay to monitor for wiring short circuits.
This provides Dual Channel monitoring and a check of the contactor feedback circuits through the auxiliary contacts (A) of K1 and K2.
The SCR-3 monitors the switch and the contactors K1 and K2 and provides its own self-monitoring via force guided internal relays.

System is shown with machine stopped, guards closed and the contactors able to be energised.

Female QC Leads	Length	Sales Number
M12 8 Way	5m. (15Ft.)	140101
M12 8 Way	10m. (30Ft.)	140102
M23 12 Way	5m. (15Ft.)	140143
M23 12 Way	10m. (30Ft.)	140144

Sales Number	Contacts	M20	½"NPT	QC M23	QC M12 8 Way
Kobra KM Switch	2NC 1NO	203001	203002	203003	203021
Kobra KM Switch	3NC	203004	203005	203006	203022
Kobra KM Switch	3NC 1NO	203007	203008	203009	
Kobra KM Switch	2NC 2NO	203010	203011	203012	
Kobra KM Switch	4NC	203013	203014	203015	
Kobra KM Switch	1NC 1NO Ex	203016	3m. 4 core Ex		
Kobra KM Switch	2NC Ex	203019	3m. 4 core Ex		
Kobra KM Switch	2NC 2NO Ex	203026	3m. 8 core Ex		
Kobra Actuator	Standard	Add A to Sales Part Number			
Kobra Actuator	Flat	Add F to Sales Part Number			
Kobra Actuator	Plastic Flexible	Add PF to Sales Part Number			
Kobra Actuator	Heavy Duty Flexible	Add HF to Sales Part Number			
Kobra Actuator	Heavy Duty S/Steel	Add HFH to Sales Part Number			
Stainless Steel Head Version		Add SS to Sales Part Number			
Actuator Holding - 40N (3 pole versions only)		Add 40N to Part Number			

Ordering Example: Kobra KM M20 2NC 1NO with Heavy Flexible Actuator Part No. 203001- HF

Gold Plated Contacts available for low power circuits (5V. 5mA). Add GC to Part Number e.g. 203001-A-GC

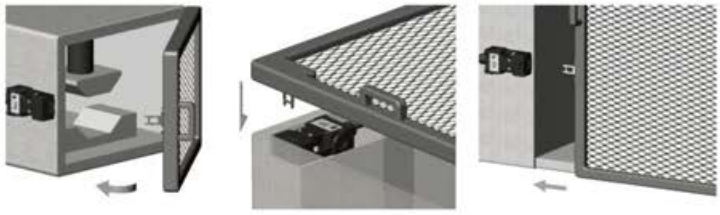
Kobra Stainless Steel Tongue Switch - Type: HYGIECAM K-SS

HYGIECAM Series Interlock Switches have a rugged Stainless Steel 316 body and have been designed to cope with the rigorous applications of the Food Processing and Chemical Industries.

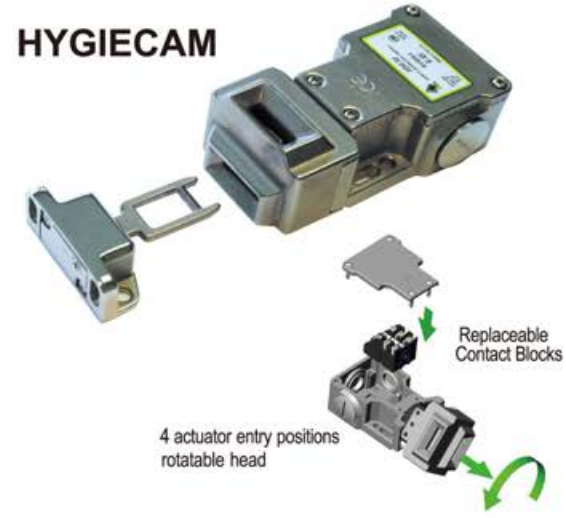
They have IP69K enclosure protection (maintained by a double seal lid gasket and seals) and can be high pressure hosed with detergent at high temperature.

They are designed to fit to the leading edge of sliding, hinged or lift off machine guards. They provide a forced disconnect of the safety contacts at the withdrawal of the actuator and have an anti-tamper mechanism.

Actuator options (See Page 51)



Hinged Guard | Sliding Guard | Lift off Guard



The head can be rotated to give 4 actuator entry positions. For extra durability, Flexible Actuators are available.
Contact blocks are replaceable with optional explosion proof versions.
They are sealed to IP69K and survive most caustic wash down solutions.

Functional Specification:

Positive break contacts to IEC 60947-5-1

High Functional Safety to ISO 13849-1

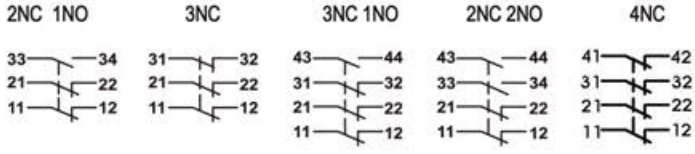
Will fit on 40mm fixing centres –industry standard housing

Stainless Steel 316 Body and External Fixings

Connects to most Safety Relays to give up to PLe Cat.4.

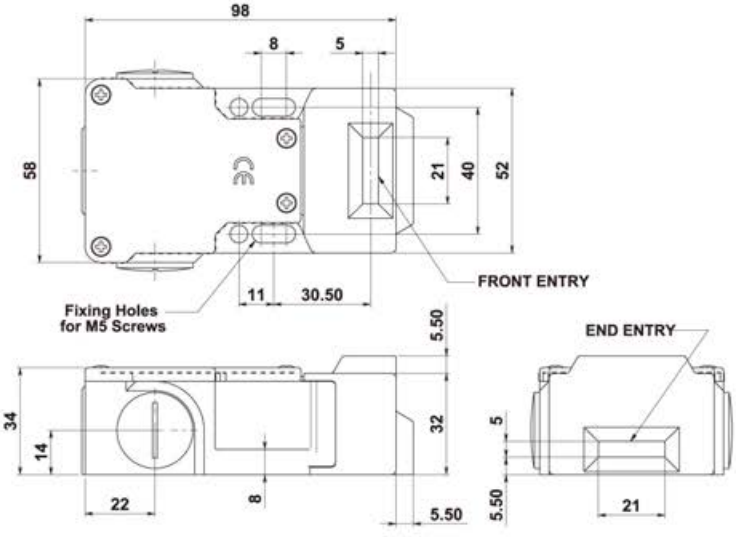
IP69K Suitable for SIP and CIP processes

Contact Block Options:



Pre-Wired Explosion Proof

Classification Exd IIC T6 (-20⩽Ta⩽+60C) Gb
Ex tb IIIC T85C (-20⩽Ta⩽+60C) Db



Standards	EN1088 IEC 60947-5-1 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508
Safety Classification and Reliability Data:	
Mechanical Reliability B10d	2.5 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	3.44 x 10^{-8}
Proof Test Interval (Life)	35 years
MTTFd	356 years
Utilization Category	AC15 A300 3A.
Thermal Current (Ith)	5A
Rated Insulation / Withstand Voltages	500VAC / 2500 VAC
Travel for Positive Opening	8mm
Actuator entry minimum radius	175mm Standard 100mm Flexible
Maximum Approach / Withdrawal speed	600mm/s.
Body Material	Stainless Steel 316
Head Material	Stainless Steel 316
Enclosure Protection	IP67 IP69K
Operating Temperature	-25C. +80C.
Vibration	IEC 68-2-6, 10-55Hz+1Hz, Excursion: 0.35mm, 1 octave/min
Conduit Entry	Various (See Sales Part Numbers)
Fixing	4 x M5

Kobra Stainless Steel Tongue Switch - Type: HYGIECAM K-SS

Contact operation at withdrawal of Actuator

2NC 1NO — 6.8 6.0 0 mm

11/12	Open	
21/22	Open	
33/34		Open

3NC (1NO) — 6.8 6.0 0 mm

11/12	Open	
21/22	Open	
31/32	Open	
43/44		Open

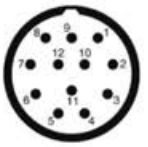
4NC — 6.0 0 mm

11/12	Open	
21/22	Open	
31/32	Open	
41/42	Open	

2NC 2NO — 6.8 6.0 0 mm

11/12	Open	
21/22	Open	
33/34		Open
43/44		Open

QC Quick Connect Versions



Quick Connect
Pin view from switch

Quick Connect (QC) M23 12 Way Male (connector Length 26mm) Pin view from switch	Switch Circuit	Quick Connect (QC) M12 8 Way Male (on Flying Lead 250mm) Pin view from switch
1 3	11 / 12	1 7
4 6	21 / 22	6 5
7 8	33 / 34 or 31 / 32	4 3
9 10	41 / 42 or 43 / 44	
12	Earth	8

Accessories: (See Page 50)

Maintenance Lockout Actuator

Fits to switch aperture during maintenance and provides multiple padlock holes.

Actuator with chain

Flat Actuator supplied with 300mm (12 inch) chain. Can be used where poor alignment exists and provides manual insertion of actuator by operator.

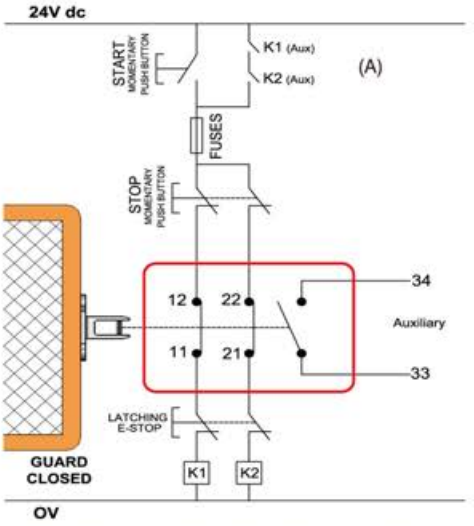
2 Colour LED Conduit Beacon
(Available voltages 24Vdc 110Vac 230Vac and M20 or ½" NPT)

2 colour LED (3 wires) providing Steady Red and Steady Green. Fits to conduit entry and provides option for LED indication based upon switch contacts.

Application Example: **Guard Door Interlocked - Dual Channel (Non Monitored)**

This system shows interlock switch circuits 11-12 and 21-22 configured to allow direct feed to contactor coils K1 and K2. This provides Dual Channel wiring and a check of the contactor feedback circuits through the auxiliary contacts (A) of K1 and K2. Opening the Interlock switch or depressing the E stop will isolate power to the contactor coils. Restart can only occur providing the Guard is closed, and the E-stop is reset.

System is shown with machine stopped, guard closed and the contactors able to be energised.



Female QC Leads	Length	Sales Number
M12 8 Way	5m. (15Ft.)	140101
M12 8 Way	10m. (30Ft.)	140102
M23 12 Way	5m. (15Ft.)	140143
M23 12 Way	10m. (30Ft.)	140144

Gland		stainless steel 316
M20	140120	
1/2"NPT	140121	

It is recommended to use our stainless steel gland with this switch

Sales Numbers	Contacts	M20	½"NPT	QC M23	QC M12 8 Way
Kobra K-SS Switch	2NC 1NO	208001	208002	208003	208021
Kobra K-SS Switch	3NC	208004	208005	208006	208022
Kobra K-SS Switch	3NC 1NO	208007	208008	208009	
Kobra K-SS Switch	2NC 2NO	208010	208011	208012	
Kobra K-SS Switch	4NC	208013	208014	208015	
Kobra K-SS Switch	1NC 1NO Ex	208016	3m. 4 Core Ex		
Kobra K-SS Switch	2NC Ex	208019	3m. 4 Core Ex		
Kobra K-SS Switch	2NC 2NO Ex	208026	3m. 8 Core Ex		
Actuator	Standard	Add A to Sales Part Number			
Actuator	Flat	Add F to Sales Part Number			
Actuator	Plastic Flexible	Add PF to Sales Part Number			
Actuator	Heavy Duty Flexible	Add HF to Sales Part Number			
Actuator	Heavy Duty S/Steel	Add HFH to Sales Part Number			
Actuator Holding - 40N. (3 pole versions only)		Add 40N to Part Number			

Ordering Example:
Kobra K - SS M20 3NC 1NO with Standard Actuator Part No. 208007 - A

Gold Plated Contacts available for low power circuits (5V. 5mA).
Add GC to Part Number e.g. 208001-A-GC

Kobra Stainless Steel Switch Type: HYGIECAM KM-SS

HYGIECAM Series Interlock Switches have a rugged Stainless Steel 316 body and have been designed to cope with the rigorous applications of the Food Processing and Packaging Industries. The surface finish is mirror polished to Ra10 to resist the accumulation of food debris and is suitable for high pressure hosing at high temperature.

They offer a compact slimline housing which will fit to areas where there are space resitrictions and are sealed to IP69K enclosure protection.They can be high pressure hosed with most detergents at high temperature.

They are designed to fit to the leading edge of sliding, hinged or lift off machine guards.They provide a forced disconnect of the safety contacts at the withdrawal of the actuator and have an anti-tamper mechanism.

The rotatable heads have dual actuator entry positions to give up to 8 different entry positions. High holding force versions are available for applications where vibration can be a nuisance.

Actuator options (See Page 51)


Hinged Guard


Sliding Guard


Lift off Guard

They offer up to 4 pole contacts to suit modern control circuits and are available with Explosion Proof contact blocks.

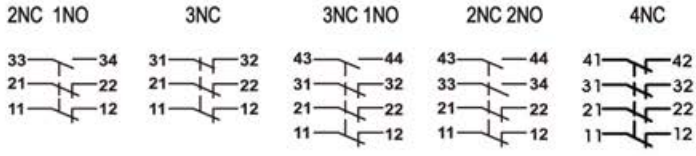
Functional Specification:

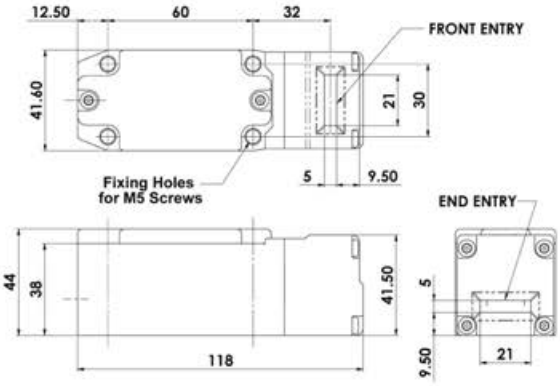
Positive break contacts to IEC 60947-5-1

High Functional Safety to ISO 13849-1

Will fit on 30mm fixing centres –DIN standard body mounting

Contact Block Options:





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

Mirror Finish Stainless Steel 316 Body

Connects to most Safety Relays to give up to PLe Cat.4.

IP69K Suitable for SIP and CIP processes

Pre-Wired Explosion Proof

Classification	Exd IIC T6 (-20⩽Ta⩽+60C) Gb Ex tb IIIC T85C (-20⩽Ta⩽+60C) Db
Standards	EN1088 IEC 60947-5-1 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508

/ Classification and Reliability Data:

Mechanical Reliability B10d	2.5 x 10^5 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	3.44 x 10^{-8}
Proof Test Interval (Life)	35 years
MTTFd	356 years
Utilization Category	AC15 A300 3A.
Thermal Current (Ith)	5A
Rated Insulation / Withstand Voltages	500VAC / 2500 VAC
Travel for Positive Opening	8mm
Actuator entry minimum radius	175mm Standard 100mm Flexible
Maximum Approach / Withdrawal speed	600mm/s.
Body Material	Stainless Steel 316
Head Material	Stainless Steel 316
Enclosure Protection	IP67
Operating Temperature	-25C. +80C.
Vibration	IEC 68-2-6, 10-55Hz+1Hz, Excursion: 0.35mm, 1 octave/min
Conduit Entry	Various (See Sales Part Numbers)
Fixing	4 x M5

Kobra Stainless Steel Switch Type: HYGIECAM KM-SS

Contact operation at withdrawal of Actuator

2NC 1NO — 6.8 6.0 0 mm

11/12	Open	
21/22	Open	
33/34		Open

3NC (1NO) — 6.8 6.0 0 mm

11/12	Open	
21/22	Open	
31/32	Open	
43/44		Open

4NC — 6.0 0 mm

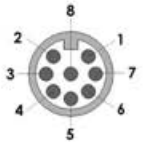
11/12	Open	
21/22	Open	
31/32	Open	
41/42	Open	

2NC 2NO — 6.8 6.0 0 mm

11/12	Open	
21/22	Open	
33/34		Open
43/44		Open

QC Quick Connect Versions

Quick Connect
Pin view from switch



Quick Connect (QC) M23 12 Way Male (connector Length 26mm) Pin view from switch	Switch Circuit	Quick Connect (QC) M12 8 Way Male (on Flying Lead 250mm) Pin view from switch
1 3	11 / 12	1 7
4 6	21 / 22	6 5
7 8	33 / 34 or 31 / 32	4 3
9 10	41 / 42 or 43 / 44	
12	Earth	8

Accessories: (See Page 50)

Maintenance Lockout Actuator

Fits to switch aperture during maintenance and provides multiple padlock holes.

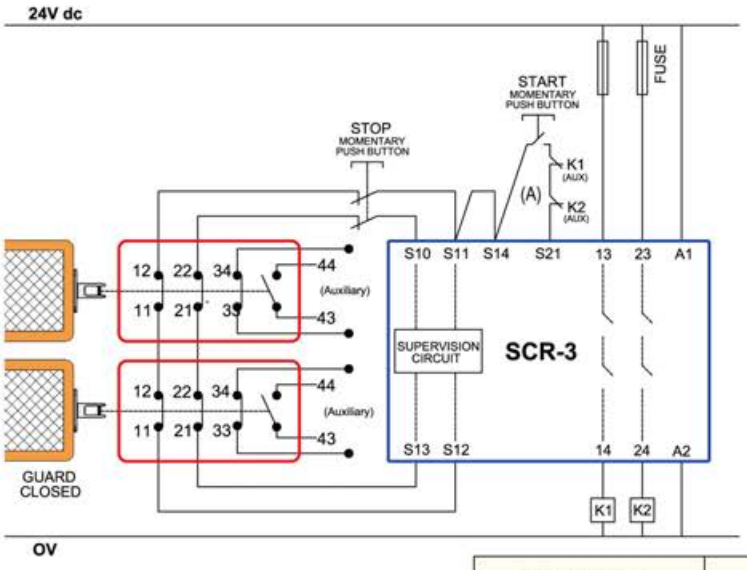
Actuator with chain

Flat Actuator supplied with 300mm (12 inch) chain. Can be used where poor alignment exists and provides manual insertion of actuator by operator.

2 Colour LED Conduit Beacon
(Available voltages 24Vdc 110Vac 230Vac and M20 or ½" NPT)

2 colour LED (3 wires) providing Steady Red and Steady Green. Fits to conduit entry and provides option for LED indication based upon switch contacts.

Application Example: **Multiple Guard Door Interlocks - Dual Channel (Monitored)**



The switch contacts 11-12 and 21-22 from each switch and wired in series to an SCR-3 Safety Relay to monitor for wiring short circuits.
This provides Dual Channel monitoring and a check of the contactor feedback circuits through the auxiliary contacts (A) of K1 and K2.
The SCR-3 monitors the switch and the contactors K1 and K2 and provides its own self-monitoring via force guide internal relays.

System is shown with machine stopped, guards closed and the contactors able to energised.

Female QC Leads	Length	Sales Number
M12 8 Way	5m. (15Ft.)	140101
M12 8 Way	10m. (30Ft.)	140102
M23 12 Way	5m. (15Ft.)	140143
M23 12 Way	10m. (30Ft.)	140144

Gland		stainless steel 316
M20	140120	
1/2"NPT	140121	

It is recommended to use our stainless steel gland with this switch

Sales Number	Contacts	M20	½"NPT	QC M23	QC M12 8 Way
Kobra KM-SS Switch	2NC 1NO	204001	204002	204003	204021
Kobra KM-SS Switch	3NC	204004	204005	204006	204022
Kobra KM-SS Switch	3NC 1NO	204007	204008	204009	
Kobra KM-SS Switch	2NC 2NO	204010	204011	204012	
Kobra KM-SS Switch	4NC	204013	204014	204015	
Kobra KM-SS Switch	1NC 1NO Ex	204016	3m. 4 core Ex		
Kobra KM-SS Switch	2NC Ex	204019	3m. 4 core Ex		
Kobra KM-SS Switch	2NC 2NO Ex	204026	3m. 8 core Ex		
Kobra Actuator	Standard	Add A to Sales Part Number			
Kobra Actuator	Flat	Add F to Sales Part Number			
Kobra Actuator	Plastic Flexible	Add PF to Sales Part Number			
Kobra Actuator	Heavy Duty Flexible	Add HF to Sales Part Number			
Kobra Actuator	Heavy Duty S/Steel	Add HFH to Sales Part Number			
Actuator Holding - 40N (3 pole versions only)		Add 40N to Part Number			

Ordering Example:
Kobra KM - SS 1/2"NPT 2NC 2NO with Heavy Flexible Actuator Part No.204011 - HF

Gold Plated Contacts available for low power circuits (5V. 5mA).
Add GC to Part Number e.g. 204001-A-GC

Guard Locking Safety Interlock Switches

Application:

IDEM Guard Locking switches are designed to provide robust position interlock detection for moving guards and provide a lock mechanism to keep the guard closed until the hazard has been removed.

They are Tongue operated and are designed to fit to the leading edge of sliding or hinged machine guards to provide positively operated switching contacts and provide a tamper resistant, not easily defeatable key mechanism.
Depending upon the risk assessment for the application, they can be used independently to provide positively operated contacts to IEC 60947-5-1 or they can be used in combination with any dual channel safety monitoring relays to provide up to PLe Category 4 to ISO 13849-1 or SIL3 EN62061.They are available in various materials and housing styles to provide complete flexibility of choice depending upon the application. They offer a choice of contact blocks, LED diagnostics and various actuators to aid installation and maintain durability throughout the rigorous applications of Factory Automation, Packaging, Food Processing, Pharmaceutical and Petro-Chemical Industries.

Operation:

The switch is rigidly mounted to the frame of the guard or machine. The actuator is fitted to the moving part (frame) of the guard and is aligned to the switch entry aperture. The actuator profile is designed to match a cam mechanism within the switch head and provides a positively operated interlock switch. When the actuator is inserted into the switch the safety contacts can be closed and allow the machine start circuit to be enabled. When the solenoid receives the required signal the safety contacts are positively opened, the machine circuit is broken and the guard door can be opened. They can be used in combination with safety timers to provide a delay before allowing the guard to open (e.g. for machines which require run down).

Standard versions automatically spring locked at the insertion of the actuator and will only unlock when power is applied to the solenoid.
Power to Lock versions are available for special applications where the hazard is immediately removed (no run down time) and it is favourable to have the switch unlock if a power failure occurs.

They offer a choice of high specification plastic or die-cast housings and are sealed to IP67 and provide long term protection against moisture ingress. For harsh applications like Food Processing, Pharmaceutical and Chemical Industries the Stainless Steel 316 range offers protection up to IP69K for use in high pressure chemical cleaning or CIP/SIP applications.

KL1-P Solenoid Locking (Plastic)

4 actuator entry positions – rotatable head
Compact 63mm wide 143mm long 40mm fixing
2 lock monitoring safety contacts
Medium Holding Force: 1400N.
LED 1 status of solenoid applied power
LED 2 status of guard lock
2 Emergency manual release points
IP67

KLP Solenoid Locking (Plastic)

8 actuator entry positions – rotatable head
High Holding Force: 1800N.
2 lock monitoring safety contacts
46mm wide 160mm long 30mm fixing
LED 1 status of solenoid applied power
LED 2 status of guard lock
2 Emergency manual release points
IP67

KLM Solenoid Locking (Metal)

8 actuator entry positions – rotatable head
46mm wide 176mm long 30mm fixing
2 lock monitoring safety contacts
Die Cast Alloy
High Holding Force: 2000N.
LED 1 status of solenoid applied power
LED 2 status of guard lock
2 Emergency manual release points
IP67

RAMZLOCK KLTM-RFID

Integral High Security RFID coding
Rugged body 105mm wide 150mm long
Industry standard 73mm fixing
2 lock Monitoring safety contacts
Auxiliary PNP outputs for switch status
LED diagnostics for Solenoid, Lock and RFID
Holding Force: 2000N.
2 Emergency manual release points
IP67

Stainless Steel 316 versions have been developed for guard interlocking in the applications of Food Processing, Pharmaceutical, Packaging and Chemical Industries. They are tested to ingress protection degree IP69K (high pressure hosing with detergent at 80C. and 100psi).

KL1-SS Solenoid Locking (Fully Stainless Steel)

4 actuator entry positions – rotatable head
Compact 63mm wide 143mm long 40mm fixing
2 lock monitoring safety contacts
Medium Holding Force: 1600N.
LED 1 status of solenoid applied power
LED 2 status of guard lock
2 Emergency manual release points
IP69K high temperature hose down

Mirror Polished Finish

KL3-SS Solenoid Locking (Fully Stainless Steel)

8 actuator entry positions – rotatable head
48mm wide 177mm long 30mm fixing
2 lock monitoring safety contacts
High Holding Force: 2000N.
LED 1 status of solenoid applied power
LED 2 status of guard lock
2 Emergency manual release points
IP69K high temperature hose down

KL4-SS Solenoid Locking (Fully Stainless Steel)

8 actuator entry positions – rotatable head
48mm wide 198mm long 30mm fixing
2 lock monitoring safety contacts
High Holding Force: 2000N.
LED 1 status of solenoid applied power
LED 2 status of guard lock
2 Emergency manual release points
Optional Request Button
IP69K high temperature hose down

Guard Locking Safety Interlock Switches

Function Guide:

All Guard Locking Switches are intended to prevent an operator accidentally opening a guard door and being exposed to a hazard.

When choosing the correct switch it is necessary to take into account the dimensions and weight of the guard door and to install the switch so as to avoid applying unnecessary forces to the switch locking mechanism during normal use.

Door catches, stops and guides should always be fitted in addition to the safety switch to prevent unnecessary damage to the switch.

Standard Versions - (Energise the switch solenoid to unlock).

KL1-P

KL1-SS

KLP

KLM

RAMZLOCK
KLTM-RFID

KL3-SS

KL4-SS

When the guard is closed the switch actuator is automatically locked and the switch safety contacts close.

The guard will be held closed and can only be opened after the switch solenoid is energised causing the actuator to unlock.

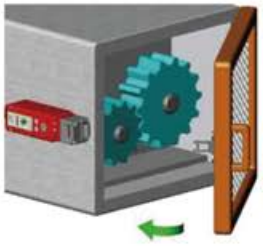
The operator cannot accidentally open the guard until the hazard is removed. When the solenoid is energised the safety contacts open and the actuator can be released.

Depending upon a risk assessment for the application, the solenoid is usually energised either by:

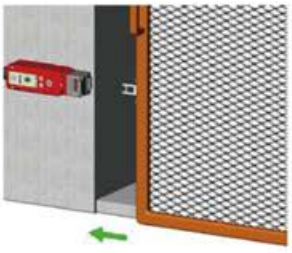
A request push button (for applications with immediate removal of the hazard).

A request push button and safety timer (for applications with a run down hazard after removing the machine power).

From a PLC or if necessary a Safety PLC via a machine control command.



Hinged Guard

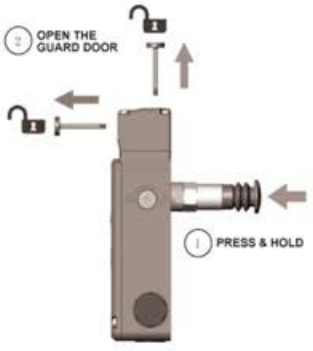


Sliding Guard

Standard Versions with Rear Manual release buttons:

KLM-RR

KL3-SS-RR



All the features and specifications of the standard KLM and KL3-SS are maintained.

Where the risk assessment for the application permits, a non-latching manual escape release is provided to enable quick release of the switch lock in case of emergency.

The switch can be mounted such that access to the release button is available from inside the active guard area.

Pressing and holding the red button will release the lock mechanism and open the lock monitoring safety contacts and allow the guard to be pushed open.

Power to Lock Versions – (Energise the switch solenoid to keep locked)

Only suitable for applications where immediate unlocking is required at removal or loss of solenoid power.
Not suitable for machines with a running down time.

KLP-P2L

KLM-P2L

When the guard is closed the switch actuator will only lock and allow the safety contacts to close after the solenoid is energised.

The guard will be held closed and can only be opened after the solenoid is de-energised either by controlled request (or by power loss).

A latching Stop/Start circuit or a PLC or Safety PLC machine command usually energises the solenioid.

Guard Locking Switch Plastic - Type: LEILOCK-KL1-P

Solenoid Locking Interlock Switches featuring Guard Holding up to 1400N. (140Kg.)

The KL1-P Series Guard Locking switches have a compact plastic body design and have been developed with a holding force of 1400N. to keep small to medium Guard Doors closed until hazards have been removed.

IP67 enclosure protection is maintained by a double seal lid gasket design and metal fixings.

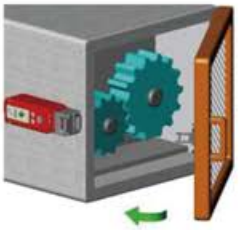
They have a low profile and fixing holes are on an industry standard 40mm centre to enable easy fitting to new or existing guards (or where replacement of a non locking tongue switch is required).

The Head will rotate to provide up to 4 actuator entry positions.

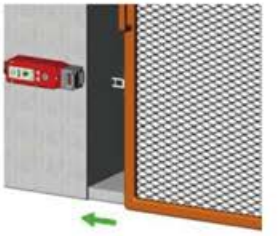
Choice of contact / LED diagnostics (by Part Number):

Standard - Version 1 :	or	Extra LED2 - Version 2:
2NC Safety Contacts		2NC Safety Contacts
1NO Auxiliary Contact (Guard open)		1NO Auxiliary Contact (Guard open)
1NO Auxiliary Contact (Lock Open)		LED2 Lock Status – Closed and Locked
LED1 Solenoid Power		LED1 Solenoid Power

Spring to lock when actuator is inserted. Energise solenoid to unlock.



Hinged Guard



Sliding Guard

Functional Specification:

Positive break contacts to IEC 60947-5-1

High Functional Safety to ISO 13849-1

Will fit on 40mm fixing centres

Universal M12 8 way MicroLock

Connector version available for ease of installation

High specification polyester housings

Connects to most Safety Relays to give up to PLe Cat.4.

2 Manual override points

Actuator options (See Page 51)

Actuator insertion

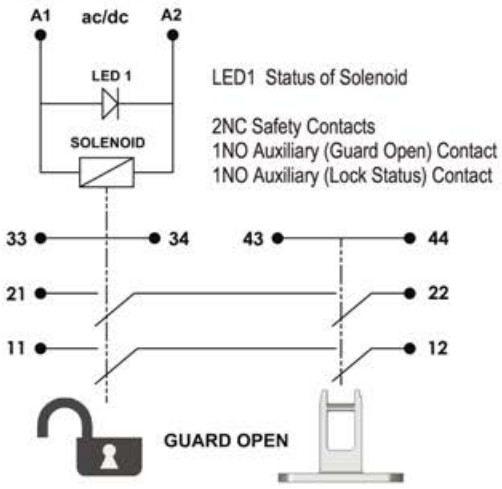
	6.0	5.0	0 mm
11/12	Open		
21/22	Open		
33/34			Open
43/44			Open

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

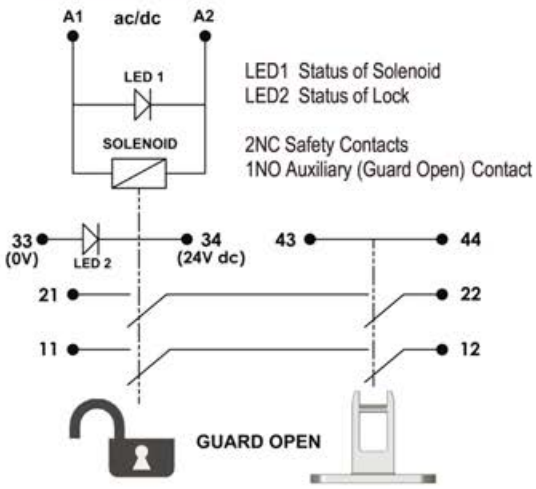
Standards	EN1088 IEC 60947-5-1 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508
Safety Classification and Reliability Data:	
Mechanical Reliability B10d	2.5 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	3.44 x 10^{-8}
Proof Test Interval (Life)	35 years
MTTFd	356 years
Solenoid Voltage (by part number)	24V ac/dc or 110V. ac or 230V. ac
Solenoid Wattage	12W.
LED 2 version Supply Voltage	24V dc
Utilization Category	AC15 A300 3A.
Thermal Current (Ith)	5A
Rated Insulation / Withstand Voltages	600VAC / 2500 VAC
Travel for Positive Opening	10mm
Actuator entry minimum radius	175mm Standard 100mm Heavy Duty
Maximum Approach / Withdrawal speed	600mm/s.
Body Material	Polyester
Head Material	Stainless Steel 316
Enclosure Protection	IP67
Operating Temperature	-25C. 55C.
Vibration	IEC 68-2-6, 10-55Hz+1Hz, Excursion: 0.35mm, 1 octave/min
Conduit Entry	Various (See Sales Part Numbers)
Fixing	2 x M5

Guard Locking Switch Plastic - Type: LEILOCK-KL1-P

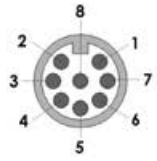
Standard - Version 1 :



Extra LED2 - Version 2 :



QC Quick Connect
M12 8 pin Flying Lead 250mm (10inches).
Available Standard Version only

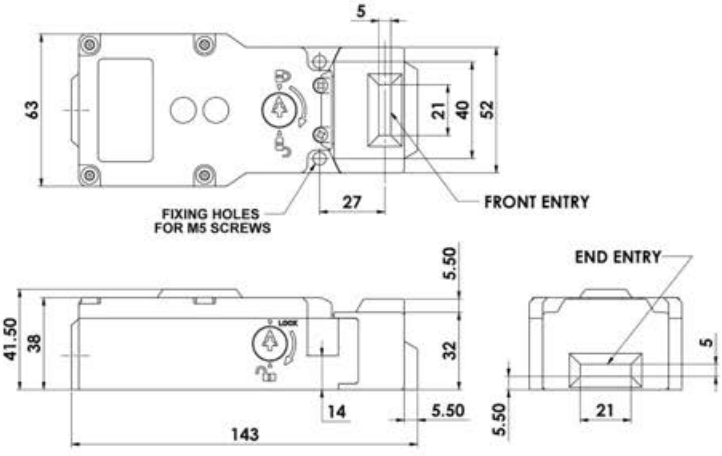


Quick Connect (QC) M12 8 way Male Plug (Pin view from switch)	Switch Circuit
2 7	A1 A2
4 6	11 / 12
8 5	21 / 22
3 1	43 / 44

Female QC Leads	Length	Sales Number
M12 8 Way	5m. (15Ft.)	140101
M12 8 Way	10m. (30Ft.)	140102

Maintenance Lockout Actuator - Fits to switch aperture and provides multiple padlock holes.

(See Page 50)



		Standard Version 1 (Solenoid LED only)				Extra LED2 Version 2 (Lock Status)	
Sales Numbers	Solenoid Voltage	M20	½"NPT	QC M12		M20	½"NPT
Kobra KL1-P Switch	24V. ac/dc	221001	221002	221003		221301	221302
Kobra KL1-P Switch	110V. ac	221004	221005	221006		221304	221305
Kobra KL1-P Switch	230V. ac	221007	221008	221009		221307	221308

Kobra Actuator	Standard	Add A to Sales Part Number
Kobra Actuator	Flat	Add F to Sales Part Number
Kobra Actuator	Heavy Duty Flexible	Add HF to Sales Part Number
Kobra Actuator	S/Steel Heavy Duty Flexible	Add HFH to Sales Part Number

ORDERING EXAMPLES:

24V Solenoid M20 Conduit LED2 version Heavy Flexible Actuator - Part No. 221301-HF

110V Solenoid ½"NPT Conduit Standard version Standard Actuator - Part No. 221005-A

Guard Locking Switch Plastic - Type: SEZYLOCK - KLP

Solenoid Locking Interlock Safety Switches featuring Guard Holding up to 1800N. (180Kg.)

The KLP Series Guard Locking switches have a slim plastic body design and have been developed with a holding force of 1800N. to keep medium Guard Doors closed until hazards have been removed.

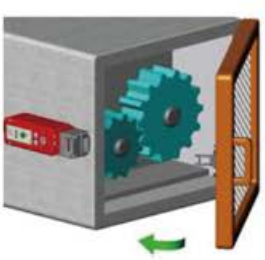
The high specification plastic body has a high resistance to chemical and washdown solutions, and the Stainless Steel Head provides a durable robust protection of the cam interlock

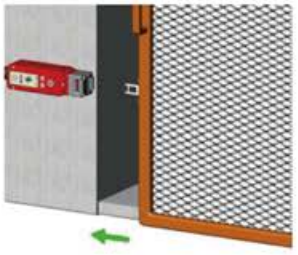
IP67 enclosure protection is maintained by a double seal lid gasket design and metal fixings.

They have a slim profile and are designed to fit on 50mm (2in.) frame sections or to applications where space is restricted.
The Head will rotate to provide up to 8 actuator entry positions.

An LED is available to indicate Lock Status.

Accessories include a Sliding Handle Gate Bolt and lock off actuators.


Hinged Guard


Sliding Guard

Functional Specification:

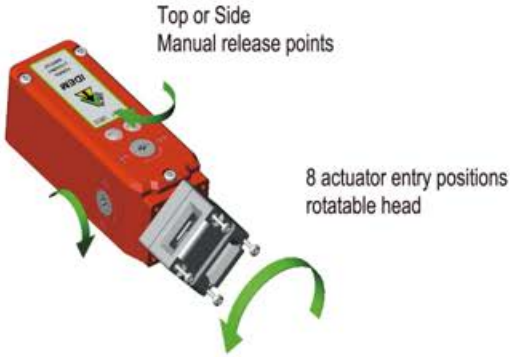
Positive break contacts to IEC 60947-5-1

High Functional Safety to ISO 13849-1

2NC Safety Circuits - Solenoid/Lock and Actuator/Guard wired in series
1NO Auxiliary Circuit for indication of actuator status (Guard open)
1NO Auxiliary Circuit for Lock Status (selectable with LED2)

High specification polyester housings Stainless Steel Head

Connects to most Safety Relays to give up to PLe Cat.4.



Actuator insertion

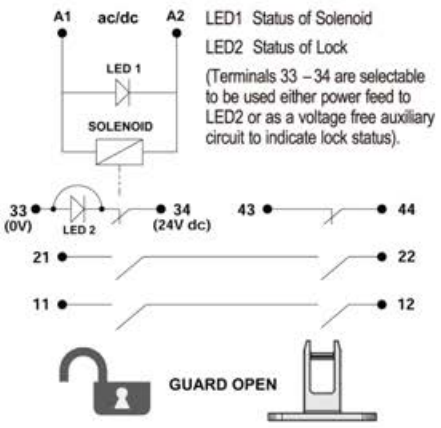
	6.0	5.0	0 mm
11/12	Open		
21/22	Open		
33/34			Open
43/44			Open

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

Standards	EN1088 IEC 60947-5-1 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508
Safety Classification and Reliability Data:	
Mechanical Reliability B10d	2.5 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	3.44 x 10^{-8}
Proof Test Interval (Life)	35 years
MTTFd	356 years
Solenoid Voltage (by part number)	24V ac/dc or 110V. ac or 230V. ac
Solenoid Wattage	12W.
LED 2 Supply Voltage	24V dc
Utilization Category	AC15 A300 3A.
Thermal Current (Ith)	5A
Rated Insulation / Withstand Voltages	600VAC / 2500 VAC
Travel for Positive Opening	10mm
Actuator entry minimum radius	175mm Standard 100mm Heavy Duty
Maximum Approach / Withdrawal speed	600mm/s.
Body Material	Polyester
Head Material	Stainless Steel 316
Enclosure Protection	IP67
Operating Temperature	-25C. 55C.
Vibration	IEC 68-2-6, 10-55Hz+1Hz, Excursion: 0.35mm, 1 octave/min
Conduit Entry	Various (See Sales Part Numbers)
Fixing	4 x M5

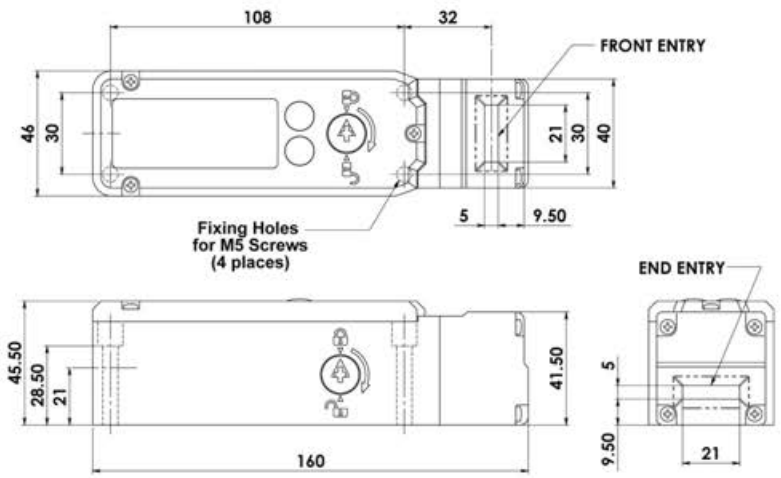
Guard Locking Switch Plastic - Type: SEZYLOCK - KLP

Schematic circuit:



LED1 Status of Solenoid
LED2 Status of Lock
(Terminals 33 – 34 are selectable to be used either power feed to LED2 or as a voltage free auxiliary circuit to indicate lock status).

Dimensions:



QC Quick Connect
Connector Length 24mm

Quick Connect (QC) M23 12 way Male Plug (Pin view from switch)	Switch Circuit
1 3	A1 A2
4 6	11 / 12
7 8	21 / 22
2 5	43 / 44
9 10	33 / 44

Female QC Leads	Length	Sales Number
M23 12 Way	5m. (15Ft.)	140143
M23 12 Way	10m. (30Ft.)	140144

Related Products and Accessories: (See Page 50)

Sliding Handle Gate Bolt
with Lock Off Feature

Rugged metal construction, easy to install on sliding or hinged guards. Holes for fitting padlocks during maintenance. Painted yellow and comes with plastic handle and flat actuator.

Maintenance Lockout Actuator
Fits to switch aperture and provides multiple padlock holes.

		Standard Manual Release Lid and Side			Manual Release Lid only (not Side)			No Manual Release fitted (Blanked)		
										
Sales Numbers	Solenoid Voltage	M20	½"NPT	QC M23	M20	½"NPT	QC M23	M20	½"NPT	QC M23
Kobra KLP Switch	24V. ac/dc	201001	201002	201003	201401	201402	201403	201301	201302	201303
Kobra KLP Switch	110V. ac	201004	201005	201006	201404	201405	201406	201304	201305	201306
Kobra KLP Switch	230V. ac	201007	201008	201009	201407	201408	201409	201307	201308	201309

Kobra Actuator	Standard	Add A to Sales Part Number
Kobra Actuator	Flat	Add F to Sales Part Number
Kobra Actuator	Heavy Duty Flexible	Add HF to Sales Part Number
Kobra Actuator	S/Steel Heavy Duty Flexible	Add HFH to Sales Part Number

ORDERING EXAMPLES:

24V Solenoid M20 Conduit Standard Manual Release Heavy Flexible Actuator - Part No. 201001-HF

110V Solenoid ½"NPT Conduit Manual Release Lid only Standard Actuator - Part No. 201405-A

Guard Locking Switches Metal - Type: SAMLOCK - KLM

Solenoid Locking Interlock Safety Switches featuring Guard Holding up to 2000N. (200Kg.)

The KLM Series Guard Locking switches have rugged Die Cast housings and have been developed with a high holding force of 2000N. to keep medium to large Guard Doors closed until hazards have been removed.

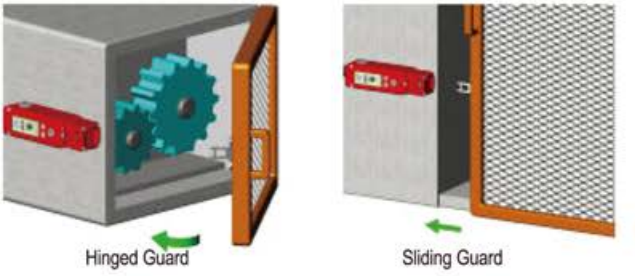
They have a slim profile and are designed to fit on 50mm (2in.) frame sections or to applications where space is restricted. The Head will rotate to provide up to 8 actuator entry positions.

They have 2 independent contact blocks to individually monitor the Lock status and Door Status.

An LED is available to indicate Lock Status.

Versions are available offering a Rear Manual Escape Release.

Accessories include a Sliding Handle Bolt to provide holding of heavy or hinged doors and lock off actuators.

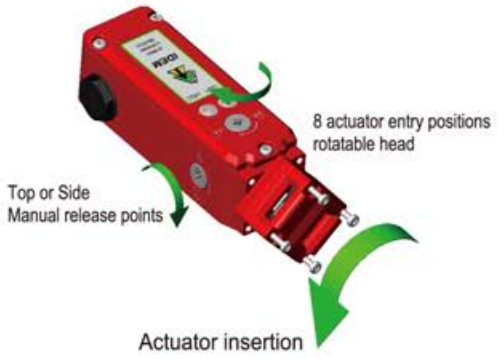


Functional Specification:

Positive break contacts to IEC 60947-5-1

High Functional Safety to ISO 13849-1

4NC Safety Circuits - 2 Solenoid/Lock 2 Actuator/Guard
1NO Auxiliary Circuit for indication of actuator status (Guard open)
1NO Auxiliary Circuit for Lock Status (selectable with LED2)



	6.0	5.0	0 mm
11/12	Open		
21/22	Open		
33/34			Open
43/44			Open

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

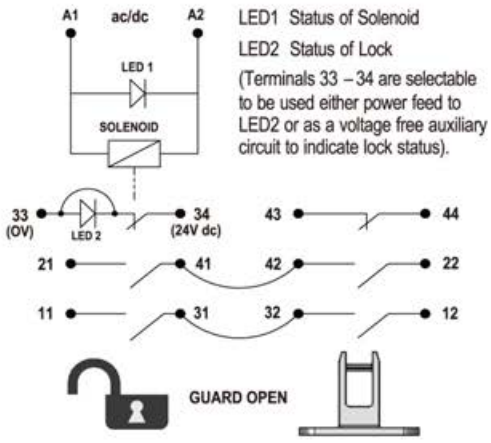
Stainless Steel Head version available

Connects to most Safety Relays to give up to PLe Cat.4.

Standards	EN1088 IEC 60947-5-1 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508
Safety Classification and Reliability Data:	
Mechanical Reliability B10d	2.5 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	3.44 x 10^{-8}
Proof Test Interval (Life)	35 years
MTTFd	356 years
Solenoid Voltage (by part number)	24V ac/dc or 110V. ac or 230V. ac
Solenoid Wattage	12W.
LED 2 Supply Voltage	24V dc
Utilization Category	AC15 A300 3A.
Thermal Current (Ith)	5A
Rated Insulation / Withstand Voltages	600VAC / 2500 VAC
Travel for Positive Opening	10mm
Actuator entry minimum radius	175mm Standard 100mm Heavy Duty
Maximum Approach / Withdrawal speed	600mm/s.
Body Material	Die Cast Painted Red
Head Material	Die Cast Painted Red or Stainless Steel 316
Enclosure Protection	IP67
Operating Temperature	-25C. 55C.
Vibration	IEC 68-2-6, 10-55Hz+1Hz, Excursion: 0.35mm, 1 octave/min
Conduit Entry	Various (See Sales Part Numbers)
Fixing	4 x M5

Guard Locking Switches Metal - Type: SAMLOCK - KLM

Schematic circuit:

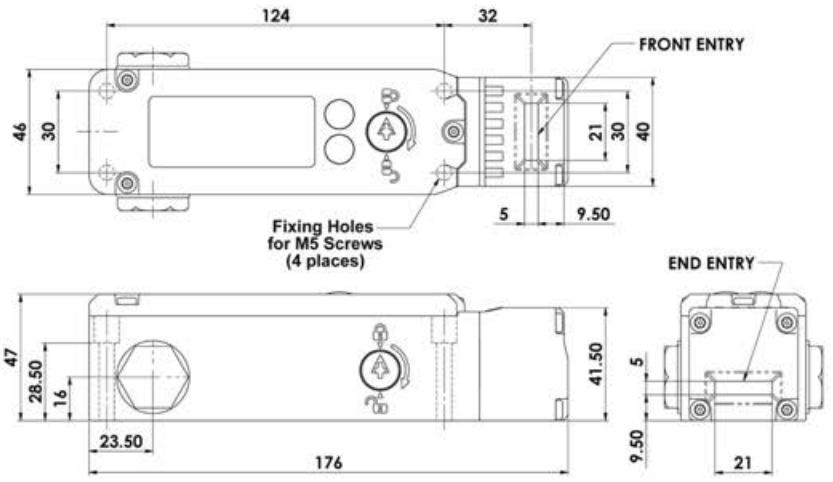


LED1 Status of Solenoid

LED2 Status of Lock

(Terminals 33 – 34 are selectable to be used either power feed to LED2 or as a voltage free auxiliary circuit to indicate lock status).

Dimensions:



Related Products and Accessories: (See Page 50)

QC Quick Connect
Connector Length 24mm

Quick Connect (QC) M23 12 way Male Plug (Pin view from switch)	Switch Circuit
1 3	A1 A2
4 6	11 / 12
7 8	21 / 22
2 5	43 / 44
9	33
10	34
12	Earth

Female QC Leads	Length	Sales Number
M23 12 Way	5m. (15Ft.)	140143
M23 12 Way	10m. (30Ft.)	140144

Sliding Handle Gate Bolt with Lock Off Feature

Rugged metal construction, easy to install on sliding or hinged guards. Holes for fitting padlocks during maintenance. Painted yellow and comes with plastic handle and flat actuator.

Rear Manual Release version

Rear Push Button Manual release versions provides a means of escape from inside the guarded area.

Maintenance Lockout Actuator - Fits to switch aperture and provides multiple padlock holes.

		Standard Manual Release Lid and Side			Manual Release Lid only (not Side)			No Manual Release fitted (Blanked)		
										
Sales Numbers	Solenoid Voltage	M20	½"NPT	QC M23	M20	½"NPT	QC M23	M20	½"NPT	QC M23
Kobra KLM Switch	24V. ac/dc	202001	202002	202003	202401	202402	202403	202301	202302	202303
Kobra KLM Switch	110V. ac	202004	202005	202006	202404	202405	202406	202304	202305	202306
Kobra KLM Switch	230V. ac	202007	202008	202009	202407	202408	202409	202307	202308	202309

Kobra Actuator	Standard	Add A to Sales Part Number
Kobra Actuator	Flat	Add F to Sales Part Number
Kobra Actuator	Heavy Duty Flexible	Add HF to Sales Part Number
Kobra Actuator	S/Steel Heavy Duty Flexible	Add HFH to Sales Part Number
Stainless Steel Head Versions		Add SS to Sales Part Number

ORDERING EXAMPLES:

24V Solenoid M20 Conduit Standard Manual Release S/Steel Head Flat Actuator - Part No. 202001-SS-F

110V Solenoid ½"NPT Conduit No Manual Release Standard Actuator - Part No. 202305-A

Kobra - Tongue Switches with Guard Locking - Type: SEZYLOCK KLP-P2L

Solenoid Locking Interlock Safety Switches featuring POWER TO LOCK Guard Holding up to 1800N.(180kg.)

The KLP-P2L Series Guard Locking switches have a slim plastic body design and have been developed with a holding force of 1800N. to keep medium Guard Doors closed until hazards have been removed.

They are Power to Lock - Spring to unlock - suitable for applications where immediate unlocking is required at removal or loss of power. (They are NOT suitable for machines with a running down time).

The high specification plastic body has a high resistance to chemical and washdown solutions, and the Stainless Steel Head provides a durable robust protection of the cam interlock

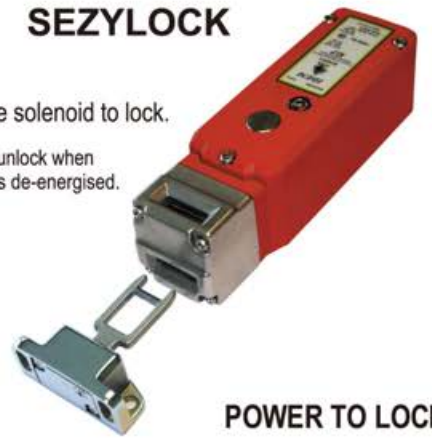
IP67 enclosure protection is maintained by a double seal lid gasket design and metal fixings.

They have a slim profile and are designed to fit on 50mm (2in.) frame sections or to applications where space is restricted.
The Head will rotate to provide up to 8 actuator entry positions.

SEZYLOCK

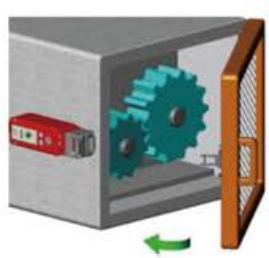
Energise solenoid to lock.

Spring to unlock when solenoid is de-energised.

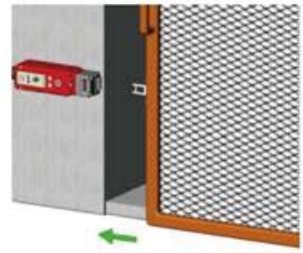


POWER TO LOCK

Actuator options (See Page 51)



Hinged Guard



Sliding Guard

Functional Specification:

Positive break contacts to IEC 60947-5-1

2NC Safety circuits

1NC 1NO Auxiliary circuits - Actuator / Door Status

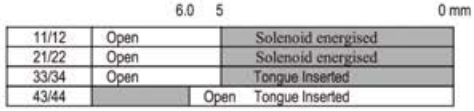
High specification polyester housings Stainless Steel Head

Machine Safety Contacts open when power is released.

LED Status of solenoid power

8 actuator entry positions rotatable head

Actuator insertion



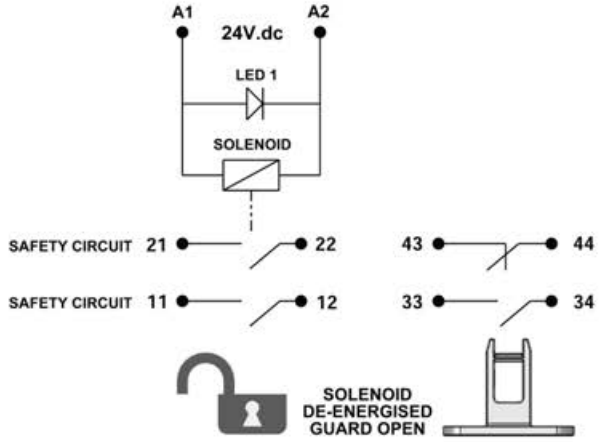
11/12	Open		Solenoid energised
21/22	Open		Solenoid energised
33/34	Open		Tongue Inserted
43/44		Open	Tongue Inserted

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

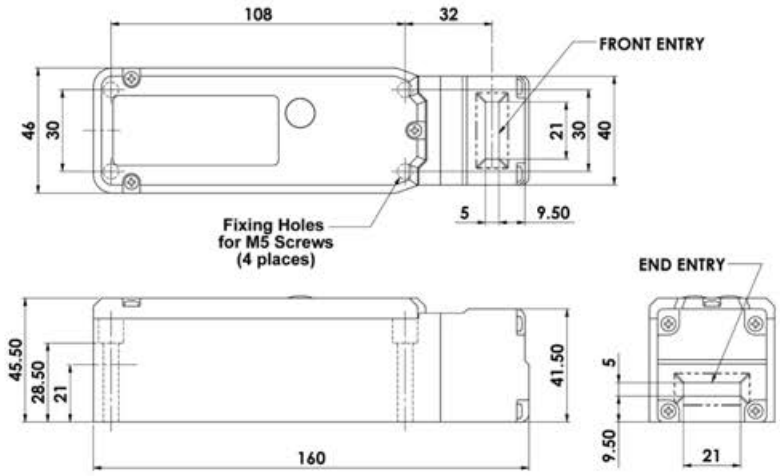
Standards	EN1088 IEC 60947-5-1 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508
Safety Classification and Reliability Data:	
Mechanical Reliability B10d	2.5 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	3.44 x 10^{-8}
Proof Test Interval (Life)	35 years
MTTFd	356 years
Solenoid Voltage (by part number)	24V dc
Solenoid Wattage	12W. (Inrush 50W)
Utilization Category	AC15 A300 3A.
Thermal Current (Ith)	5A
Rated Insulation / Withstand Voltages	600VAC / 2500 VAC
Travel for Positive Opening	10mm
Actuator entry minimum radius	175mm Standard 100mm Heavy Duty
Maximum Approach / Withdrawal speed	600mm/s.
Body Material	Polyester
Head Material	Stainless Steel 316
Enclosure Protection	IP67
Operating Temperature	-25C. 40C.
Vibration	IEC 68-2-6, 10-55Hz+1Hz, Excursion: 0.35mm, 1 octave/min
Conduit Entry	Various (See Sales Part Numbers)
Fixing	4 x M5

Kobra - Tongue Switches with Guard Locking - Type: SEZYLOCK KLP-P2L

Schematic circuit:



Dimensions:



Related Products and Accessories: (See Page 50)

QC Quick Connect
Connector Length 24mm

Quick Connect (QC) M23 12 way Male Plug (Pin view from switch)	Switch Circuit
1 3	A1 A2
4 6	11 / 12
7 8	21 / 22
2 5	43 / 44
9	33
10	44

Female QC Leads	Length	Sales Number
M23 12 Way	5m. (15Ft.)	140143
M23 12 Way	10m. (30Ft.)	140144

Sliding Handle Gate Bolt
with Lock Off Feature

Rugged metal construction, easy to install on sliding or hinged guards. Holes for fitting padlocks during maintenance. Painted yellow and comes with plastic handle and flat actuator.

Maintenance Lockout Actuator
Fits to switch aperture and provides multiple padlock holes.

Sales Number	Solenoid Voltage	M20	½"NPT	QC M23
Kobra KLP-P2L Switch	24V. dc	201021	201022	201023
To Order Switch with Actuator				
Kobra Actuator	Standard	Add A to Sales Part Number		
Kobra Actuator	Flat	Add F to Sales Part Number		
Kobra Actuator	Heavy Duty Flexible	Add HF to Sales Part Number		
Kobra Actuator	S/Steel Heavy Duty Flexible	Add HFH to Sales Part Number		

Kobra - Tongue Switches with Guard Locking - Type: SAMLOCK KLM-P2L

Solenoid Locking Interlock Safety Switches featuring POWER TO LOCK Guard Holding up to 2000N. (200Kg.)

The KLM-P2L Series Guard Locking switches have a slim metal body design and have been developed with a holding force of 2000N. to keep large Guard Doors closed until hazards have been removed.

They are Power to Lock – Spring to unlock – suitable for applications where immediate unlocking is required at removal or loss of power.
(They are NOT suitable for machines with a running down time).

The rugged Die Cast body provides a durable robust hold closed interlock protection and is available with Stainless Steel Heads for extra durability. Flexible actuators are available to aid where some alignment is a problem.

IP67 enclosure protection is maintained by a double seal lid gasket design and metal fixings.

They have a slim profile and are designed to fit on 50mm (2in.) frame sections or to applications where space is restricted. The Head will rotate to provide up to 8 actuator entry positions.

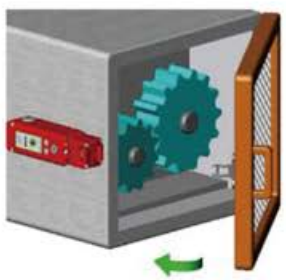
SAMLOCK

Energise solenoid to lock.

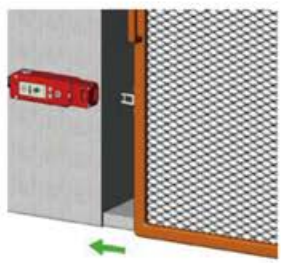
Spring to unlock when solenoid is de-energised.

POWER TO LOCK

Actuator options (See Page 51)



Hinged Guard



Sliding Guard

Functional Specification:

Positive break contacts to IEC 60947-5-1

2NC Safety circuits

1NC 1NO Auxiliary circuits - Actuator / Door Status

Die Casting Metal Housing - Painted Red

Machine Safety Contacts open when power is released.

LED Status of solenoid power

8 actuator entry positions rotatable head

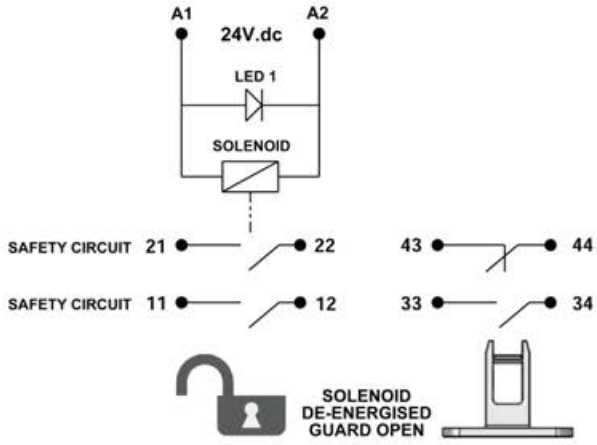
Actuator insertion

For all IDEM Power To Lock switches the normally closed (NC) circuits are closed when the guard is closed actuator inserted and power is applied to the solenoid.

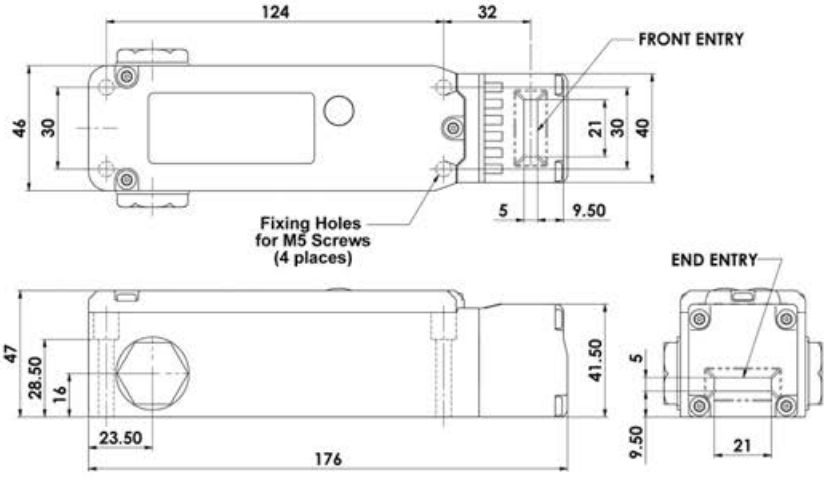
Standards	EN1088 IEC 60947-5-1 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508
Safety Classification and Reliability Data:	
Mechanical Reliability B10d	2.5 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	3.44 x 10^{-8}
Proof Test Interval (Life)	35 years
MTTFd	356 years
Solenoid Voltage (by part number)	24V dc
Solenoid Wattage	12W. (Inrush 50W).
Utilization Category	AC15 A300 3A.
Thermal Current (Ith)	5A
Rated Insulation / Withstand Voltages	600VAC / 2500 VAC
Travel for Positive Opening	10mm
Actuator entry minimum radius	175mm Standard 100mm Heavy Duty
Maximum Approach / Withdrawal speed	600mm/s.
Body Material	Die Cast Painted Red
Head Material	Die Cast Painted Red or Stainless Steel 316
Enclosure Protection	IP67
Operating Temperature	-25C. 40C.
Vibration	IEC 68-2-6, 10-55Hz+1Hz, Excursion: 0.35mm, 1 octave/min
Conduit Entry	Various (See Sales Part Numbers)
Fixing	4 x M5

Kobra - Tongue Switches with Guard Locking - Type: SAMLOCK KLM-P2L

Schematic Circuit:



Dimensions:



Related Products and Accessories: (See Page 50)

QC Quick Connect
Connector Length 24mm

Quick Connect (QC) M23 12 way Male Plug (Pin view from switch)	Switch Circuit
1 3	A1 A2
4 6	11 / 12
7 8	21 / 22
2 5	43 / 44
9	33
10	34
12	Earth

Female QC Leads	Length	Sales Number
M23 12 Way	5m. (15Ft.)	140143
M23 12 Way	10m. (30Ft.)	140144

Sliding Handle Gate Bolt
with Lock Off Feature

Rugged metal construction, easy to install on sliding or hinged guards. Holes for fitting padlocks during maintenance. Painted yellow and comes with plastic handle and flat actuator.

Maintenance Lockout Actuator
Fits to switch aperture and provides multiple padlock holes.

Sales Number	Solenoid Voltage	M20	½"NPT	QC M23
Kobra KLM-P2L Switch	24V. dc	202021	202022	202023
To Order Switch with Actuator				
Kobra Actuator	Standard	Add A to Sales Part Number		
Kobra Actuator	Flat	Add F to Sales Part Number		
Kobra Actuator	Heavy Duty Flexible	Add HF to Sales Part Number		
Kobra Actuator	Heavy Duty S/Steel	Add HFH to Sales Part Number		
Stainless Steel Head Version		Add SS to Sales Part Number		

Guard Locking Switches Metal - Type: RAMZLOCK KLTM-RFID & KLTM

Solenoid Locking Door Interlock Switch with Integral Unique RFID Coding featuring Guard Holding up to 2000N.

The KLTM-RFID Series Guard Locking switches are Tongue Type Safety Interlock Switches incorporating traditional Mechanical Anti-Tamper Tongue Technology (cam system) but also incorporating Uniquely Coded RFID Non Contact Coded Sensor Technology in one device.

They interlock and hold closed guard doors closed to protect operators from moving or hazardous machinery. They are suited where a high anti-tamper technology is required to prevent accidental or deliberate attempts to by-pass the interlock.

Both technologies must be satisfied to enable the machine to be started.

They have a rugged metal body design and have been developed with a holding force of 2000N. to keep medium to large Guard Doors closed until hazards have been removed.

IP67 enclosure protection is maintained by a double seal lid gasket design and metal fixings.

They have a low profile and fixing holes are on an industry standard 73mm centre to enable easy retro fitting to new or existing guards (or where extra anti-tamper is required).

The Head will rotate to provide up to 4 actuator entry positions. (KLTM VERSION ONLY)

Spring to lock when actuator is inserted. Energise solenoid to unlock.

RAMZLOCK
Type: KLTM-RFID

2 Types available:

Type KLTM-RFID (Incorporating RFID Coding)	or	KLTM Tongue only (No RFID coding).
4NC Safety Contacts		4NC Safety Contacts
1NO Auxiliary PNP Signal (Guard open) 1NO Auxiliary PNP Signal (Guard locked)		1NO Auxiliary Contact (Guard open) 1NO Auxiliary Contact (Guard locked) (selectable option for LED2 Guard Locked)
LED1 RED Solenoid Power on LED2 GREEN Switch Locked LED2 YELLOW (Diagnostic fault)		LED1 RED Solenoid Power on LED2 GREEN Switch Locked (if selected)

Functional Specification:

Positive break contacts to IEC 60947-5-1

High Functional Safety to ISO 13849-1

Will fit on 73mm fixing centres

Universal M23 connector versions available for ease of installation

Rugged Die Cast Housings with Stainless Steel Head

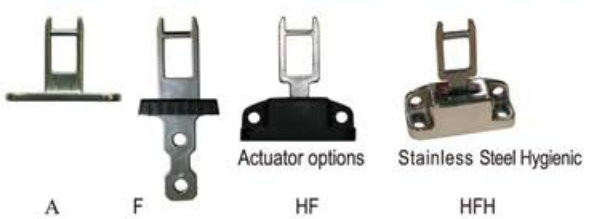
Connects to most Safety Relays to give up to PLe Cat.4.

2 Manual override points

LED Diagnostics for Solenoid, Lock and faults.

Actuator – KLTM-RFID

Actuator options for KLTM (See Page 51)



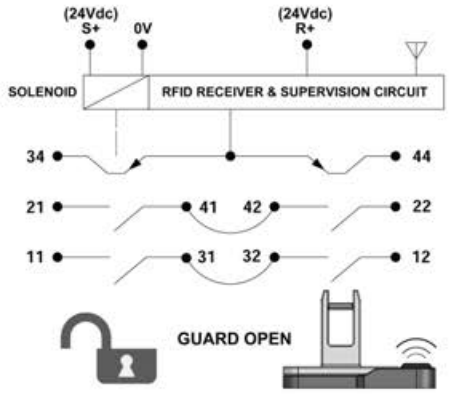
For all IDEM switches the normally closed (NC) circuits are closed when the guard is closed actuator inserted.

Standards	EN1088 IEC 60947-5-1 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508
Safety Classification and Reliability Data:	
Mechanical Reliability B10d	2.5 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	3.44 x 10^{-8}
Proof Test Interval (Life)	35 years
MTTFd	356 years
KLTM Solenoid Voltage (by part number)	24V ac/dc or 110V. ac or 230V. ac
KLTM-RFID Supply / Solenoid Voltage	24V.dc
Solenoid Wattage	12W.
Utilization Category	AC15 A300 3A.
Thermal Current (Ith)	5A
Rated Insulation / Withstand Voltages	600VAC / 2500 VAC
Travel for Positive Opening	10mm
Maximum Approach / Withdrawal speed	600mm/s.
Body Material	Die Cast Metal Painted Red
Head Material	Stainless Steel 316
Enclosure Protection	IP67
Operating Temperature	-25C. 45C.
Vibration	IEC 68-2-6, 10-55Hz+1Hz, Excursion: 0.35mm, 1 octave/min
Conduit Entry	Various (See Sales Part Numbers)
Fixing	4 x M5

Guard Locking Switches Metal - Type: RAMZLOCK KLTM-RFID & KLTM

Schematic circuit:s

KLTM-RFID Version (incorporating RFID Coding)



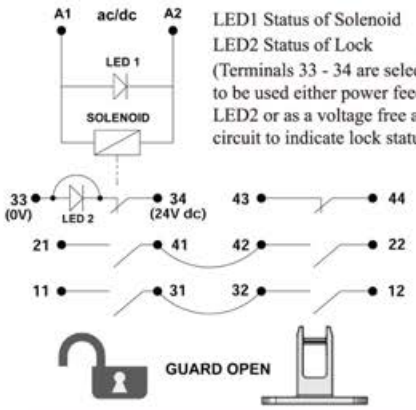
Quick Connect (QC) M23 12 way Male Plug (Pin view from switch)	KLTM-RFD Switch Circuit
1	0V
2	R+ 24V.dc
3	S+ 24V.dc
4 6	11 / 12
7 8	21 / 22
5	44
9	34
12	Earth

Female QC Leads	Length	Sales Number
M23 12 Way	5m. (15Ft.)	140143
M23 12 Way	10m. (30Ft.)	140144

Type: KLTM-RFID

(Mechanical and RFID Coding)

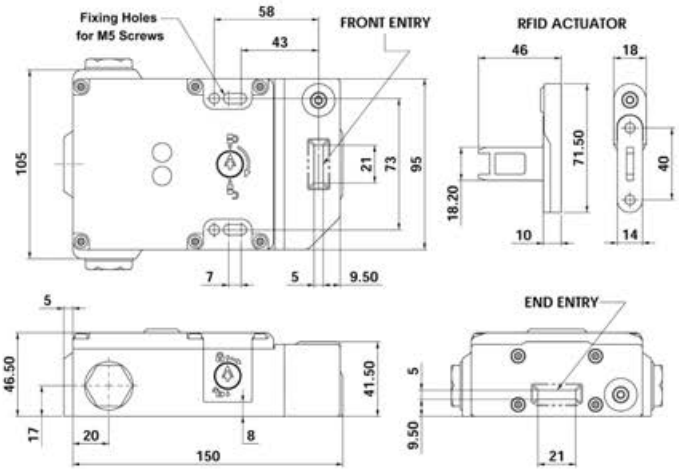
KLTM Version (Mechanical only)



Quick Connect (QC) M23 12 way Male Plug (Pin view from switch)	KLTM Switch Circuit
1 3	A1 A2
4 6	11 / 12
7 8	21 / 22
2 5	43 / 44
9	33
10	34
12	Earth

Type: KLTM

(Mechanical only (without RFID coding)



Sales Numbers		Solenoid Voltage	M20	½"NPT	QC M23
RAMZLOCK KLTM Switch (Mechanical only)		24V. ac/dc	450001	450002	450003
RAMZLOCK KLTM Switch (Mechanical only)		110V. ac	450004	450005	450006
RAMZLOCK KLTM Switch (Mechanical only)		230V. ac	450007	450008	450009
RAMZLOCK KLTM Actuator Standard		Standard	Add A to Sales Part Number		
RAMZLOCK KLTM Actuator Flat		Flat	Add F to Sales Part Number		
RAMZLOCK KLTM Actuator Heavy Duty Flexible		Heavy Duty Flexible	Add HF to Sales Part Number		
RAMZLOCK KLTM Actuator S/Steel Heavy Duty Flexible		S/Steel Heavy Duty Flexible	Add HFH to Sales Part Number		
	Ordering Example: KLTM M20 24V.ac/dc Solenoid Heavy Duty Flex. Act. Part 450001-HF				

		Supply Voltage / Head position	M20	½"NPT	QC M23
RAMZLOCK KLTM-RFID Switch Supplied complete with uniquely coded actuator 		24V.dc Actuator entry positions: Front Entry End Entry (Lower)	450201	450202	450203
		24V.dc Actuator entry positions: Rear Entry Front Entry (Upper)	450301	450302	430303

Stainless Steel Guard Locking Switch - Type: RYANLOCK KL1-SS

Solenoid Locking Interlock Switches featuring Guard Holding up to 1600N. (160Kg.)

The KL1-SS Series Guard Locking switches have a rugged Stainless Steel 316 body and have been developed with a holding force of 1600N. to keep medium to large Guard Doors closed until hazards have been removed.

They are designed to cope with the rigorous applications of the Food Processing and Chemical Industries.

They have IP69K enclosure protection (maintained by a double seal lid gasket and seals) and can be high pressure hosed with detergent at high temperature.

They have a low profile compact body profile with fixing holes on an industry standard 40mm centre to enable easy fitting to new or existing guards (or where replacement of a non locking tongue switch is required).

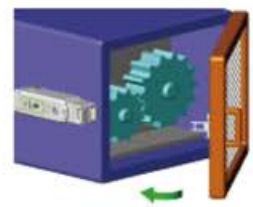
The Head will rotate to provide up to 4 actuator entry positions.

Choice of contact / LED diagnostics (by Part Number):

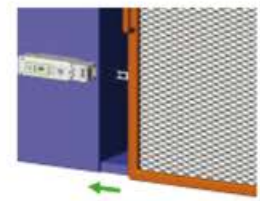
RYANLOCK

Spring to lock when actuator is inserted. Energise solenoid to unlock.

Standard - Version 1	or	Extra LED2 - Version 2
2NC Safety Contacts		2NC Safety Contacts
1NO Auxiliary Contact (Guard Open)		1NO Auxiliary Contact (Guard Open)
1NO Auxiliary Contact (Lock Open)		LED2 Lock Status – Closed and Locked
LED1 Solenoid Power		LED1 Solenoid Power



Hinged Guard



Sliding Guard

Functional Specification:

Positive break contacts to IEC 60947-5-1

High Functional Safety to ISO 13849-1

Will fit on 40mm fixing centres

Universal M12 8 way MicroLock Connector version available

Stainless Steel 316 Body

Connects to most Safety Relays to give up to PLe Cat.4.

2 Manual override points

IP69K Suitable for SIP and CIP processes

Actuator options (See Page 51)

Actuator insertion

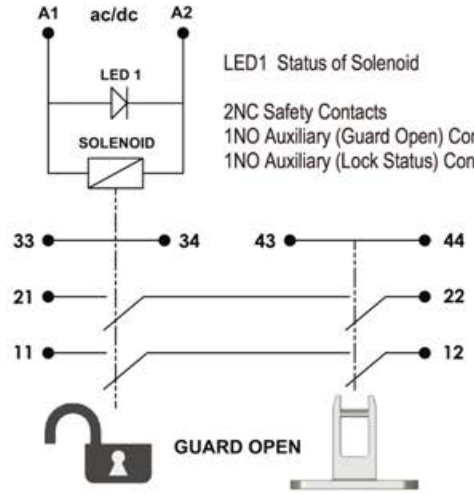
	6.0	5.0	0 mm
11/12	Open		
21/22	Open		
33/34			Open
43/44			Open

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

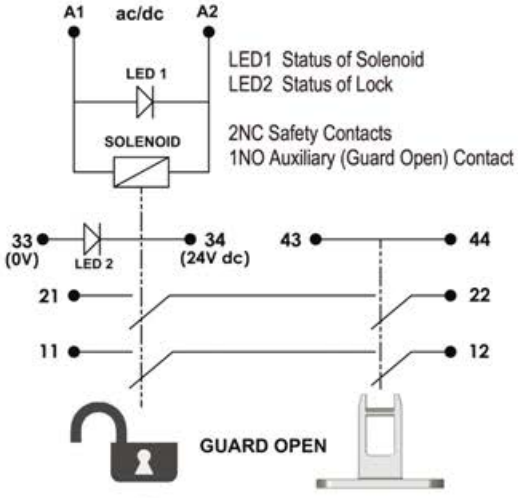
Standards	EN1088 IEC 60947-5-1 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508
Safety Classification and Reliability Data:	
Mechanical Reliability B10d	2.5 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	3.44 x 10^{-8}
Proof Test Interval (Life)	35 years
MTTFd	356 years
Solenoid Voltage (by part number)	24V ac/dc or 110V. ac or 230V. ac
Solenoid Wattage	12W.
LED 2 version Supply Voltage	24V dc
Utilization Category	AC15 A300 3A.
Thermal Current (Ith)	5A
Rated Insulation / Withstand Voltages	600VAC / 2500 VAC
Travel for Positive Opening	10mm
Actuator entry minimum radius	175mm Standard 100mm Heavy Duty
Maximum Approach / Withdrawal speed	600mm/s.
Body Material	Stainless Steel 316
Enclosure Protection	IP69K / IP67
Operating Temperature	-25C. 55C.
Vibration	IEC 68-2-6, 10-55Hz+1Hz, Excursion: 0.35mm, 1 octave/min
Conduit Entry	Various (See Sales Part Numbers)
Fixing	2 x M5

Stainless Steel Guard Locking Switch - Type: RYANLOCK KL1-SS

Standard - Version 1 :



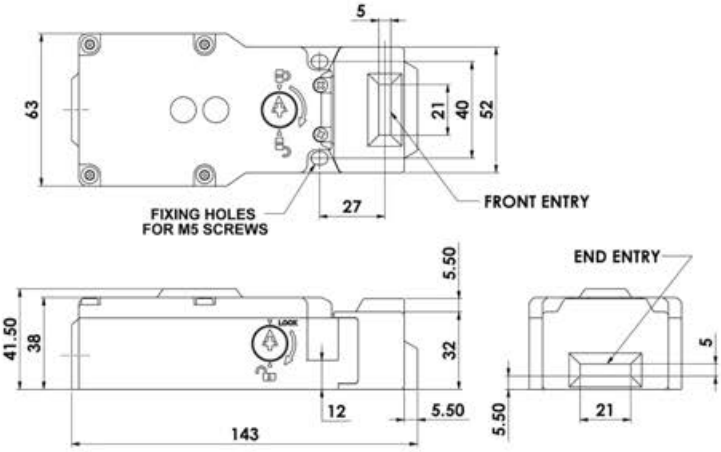
Extra LED2 - Version 2 :



Quick Connect (QC) M12 8 way Male Plug (Pin view from switch)	Switch Circuit
2 7	A1 A2
4 6	11 / 12
8 5	21 / 22
3 1	43 / 44

QC Quick Connect
M12 8 pin Flying Lead 250mm (10inches).
Available Standard Version only

Female QC Leads	Length	Sales Number
M12 8 Way	5m. (15Ft.)	140101
M12 8 Way	10m. (30Ft.)	140102



Gland		stainless steel 316
M20	140120	
1/2"NPT	140121	

It is recommended to use our stainless steel gland with this switch

Maintenance Lockout Actuator - Fits to switch aperture and provides multiple padlock holes.

		Standard Version 1 (Solenoid LED only)				Extra LED2 Version 2 (Lock Status)	
							
Sales Numbers	Solenoid Voltage	M20	½"NPT	QC M12		M20	½"NPT
Kobra KL1-SS Switch	24V. ac/dc	220001	220002	220003		220301	220302
Kobra KL1-SS Switch	110V. ac	220004	220005	220006		220304	220305
Kobra KL1-SS Switch	230V. ac	220007	220008	220009		220307	220308

Kobra Actuator	Standard	Add A to Sales Part Number
Kobra Actuator	Flat	Add F to Sales Part Number
Kobra Actuator	Heavy Duty Flexible	Add HF to Sales Part Number
Kobra Actuator	S/Steel Heavy Duty Flexible	Add HFH to Sales Part Number

ORDERING EXAMPLES:

24V Solenoid M20 Conduit LED2 version Heavy Flexible Actuator - Part No. 220301-HF

110V Solenoid ½"NPT Conduit Standard version Standard Actuator - Part No. 220005-A

Stainless Steel Guard Locking Switch - Type: HYGIELOCK KL3-SS

Solenoid Locking Interlock Safety Switches featuring Guard Holding up to 2000N. (200Kg.)

The KL3-SS Series Guard Locking switches have a rugged Stainless Steel 316 body and have been developed with a holding force of 2000N. to keep medium to large Guard Doors closed until hazards have been removed.

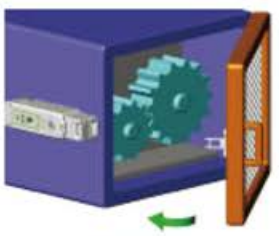
They are designed in accordance with EHEDG guidelines for hygienic design (EHEDG European Hygienic Engineering & Design Group). The mirror-polished surface to Ra10 is designed to cope with direct food splash and cleaning found in the tough applications of the Food Processing Industries.
They have IP69K enclosure protection and can be high pressure hosed with detergent at high temperature.

They have a slim body design under 50mm wide and can be fitted to 50mm (2in.) frame sections or to applications where space is restricted. The Head will rotate to provide up to 8 actuator entry positions.

2 Manual override points are provided (by using anti-tamper key).

A unique mechanical design featuring 2 independent contact blocks gives a high function and diagnostic specification:

4NC Safety Contacts
1NO Auxiliary Contact (Guard open)
LED1 Solenoid Power
LED2 Lock Status indication or 1NO Auxiliary Contact (Lock Open)



Hinged Guard

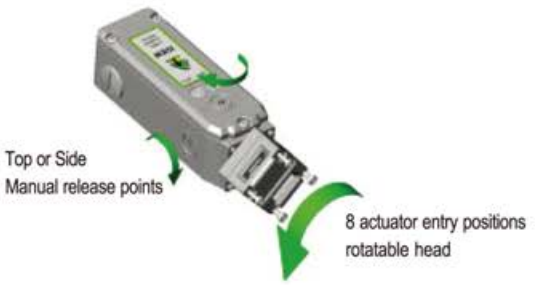
Sliding Guard

Functional Specification:

Positive break contacts to IEC 60947-5-1

High Functional Safety to ISO 13849-1

4NC Safety Contacts independently selectable

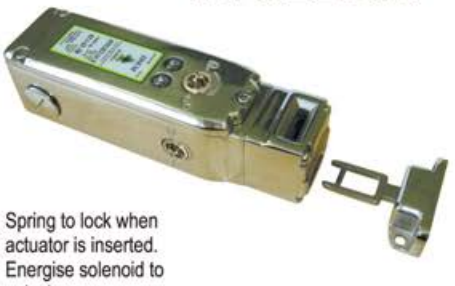


Actuator insertion

	6.0	5.0	0 mm
11/12	Open		
21/22	Open		
33/34			Open
43/44			Open

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

HYGIELOCK



Spring to lock when actuator is inserted. Energise solenoid to unlock.

Actuator options (See Page 51)

IDEM's Stainless Steel 316 Gland is designed to maintain the enclosure seal.
It is recommended to use IDEM's Stainless Steel 316 Glands with the KL3-SS.

Stainless 316 Housings – Mirror Polished Finish to Ra10

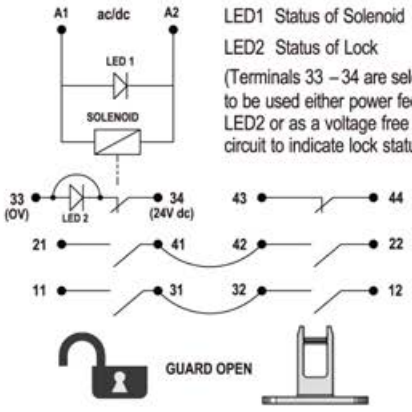
Connects to most Safety Relays to give up to PLe Cat.4.

IP69K Suitable for SIP and CIP processes

Standards	EN1088 IEC 60947-5-1 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508
Safety Classification and Reliability Data:	
Mechanical Reliability B10d	2.5 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	3.44 x 10^{-8}
Proof Test Interval (Life)	35 years
MTTFd	356 years
Solenoid Voltage (by part number)	24V ac/dc or 110V. ac or 230V. ac
Solenoid Wattage	12W.
LED 2 Supply Voltage	24V dc
Utilization Category	AC15 A300 3A.
Thermal Current (Ith)	5A
Rated Insulation / Withstand Voltages	600VAC / 2500 VAC
Travel for Positive Opening	10mm
Actuator entry minimum radius	175mm Standard 100mm Heavy Duty
Maximum Approach / Withdrawal speed	600mm/s.
Body Material	Stainless Steel 316
Enclosure Protection	IP69K / IP67
Operating Temperature	-25C. 55C.
Vibration	IEC 68-2-6, 10-55Hz+1Hz, Excursion: 0.35mm, 1 octave/min
Conduit Entry	Various (See Sales Part Numbers)
Fixing	4 x M5

Stainless Steel Guard Locking Switch - Type: HYGIELOCK KL3-SS

Schematic circuit:

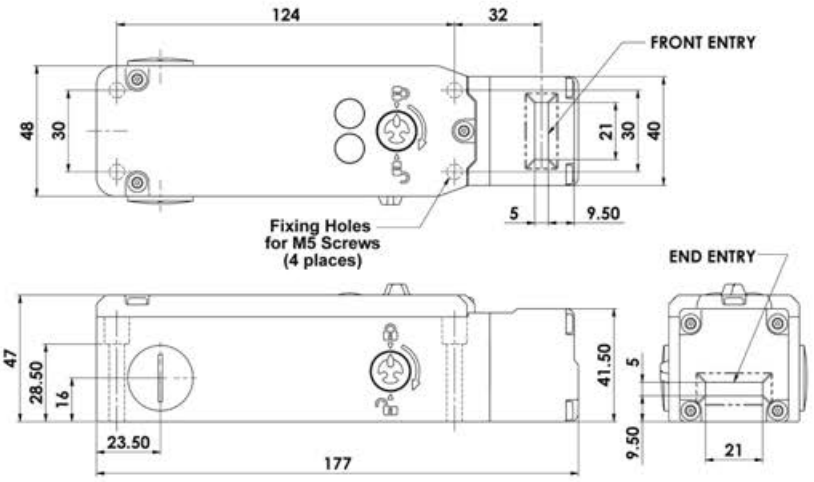


LED1 Status of Solenoid

LED2 Status of Lock

(Terminals 33 – 34 are selectable to be used either power feed to LED2 or as a voltage free auxiliary circuit to indicate lock status).

Dimensions:



Related Products and Accessories: (See Page 50)

QC Quick Connect M23
Connector Length 24mm

Quick Connect (QC) M23 12 way Male Plug (Pin view from switch)	Switch Circuit
1 3	A1 A2
4 6	11 / 12
7 8	21 / 22
2 5	43 / 44
9	33
10	34
Earth	12

Female QC Leads	Length	Sales Number
M23 12 Way	5m. (15Ft.)	140143
M23 12 Way	10m. (30Ft.)	140144

Rear Manual Release version

Rear Push Button Manual release versions provides a means of escape from inside the guarded area.

Maintenance Lockout Actuator - Fits to switch aperture and provides multiple padlock holes.

It is recommended to use our stainless steel gland with this switch

Gland		stainless steel 316
M20	140120	
1/2"NPT	140121	

		Standard Manual Release Lid and Side			Manual Release Lid only (not Side)			No Manual Release fitted (Blanked)		
										
Sales Numbers	Solenoid Voltage	M20	½"NPT	QC M23	M20	½"NPT	QC M23	M20	½"NPT	QC M23
Kobra KL3-SS Switch	24V. ac/dc	205001	205002	205003	205401	205402	205403	205301	205302	209303
Kobra KL3-SS Switch	110V. ac	205004	205005	205006	205404	205405	205406	205304	205305	209306
Kobra KL3-SS Switch	230V. ac	205007	205008	205009	205407	205408	205409	205307	205308	209309

Kobra Actuator	Standard — Add A to Sales Part Number
Kobra Actuator	Flat — Add F to Sales Part Number
Kobra Actuator	Heavy Duty Flexible — Add HF to Sales Part Number
Kobra Actuator	S/Steel Heavy Duty Flexible — Add HFH to Sales Part Number

Manual Release Key
(order separately - not supplied with switches)

Part No.140123

ORDERING EXAMPLES:

24V Solenoid M20 Conduit Standard Manual Release Flat Actuator - Part No. 205001-F

110V Solenoid ½"NPT Conduit No Manual Release Standard Actuator - Part No. 205305-A

Stainless Steel Guard Locking Switch - Type: HYGIELOCK KL4-SS

Solenoid Locking Interlock Safety Switches featuring Guard Holding up to 2000N. (200Kg.)

The KL4-SS Series Guard Locking switches have a rugged Stainless Steel 316 body and have been developed with a holding force of 2000N. to keep medium to large Guard Doors closed until hazards have been removed.

They are designed to cope with the rigorous applications of the Food Processing,Packaging and Chemical Industries.

They have IP69K enclosure protection and can be high pressure hosed with detergent at high temperature.

They have slim body design under 50mm wide and can be fitted to 50mm (2in.) frame sections or to applications where space is restricted. The Head will rotate to provide up to 8 actuator entry positions.

2 Manual override points provided (by using anti-tamper key).

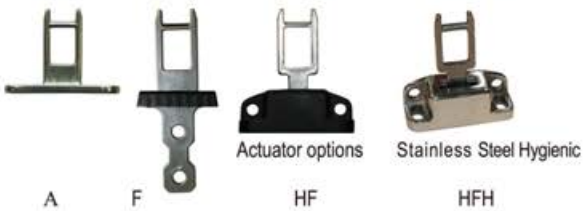
A unique mechanical design featuring 2 independent contact blocks gives a high function and diagnostic specification:

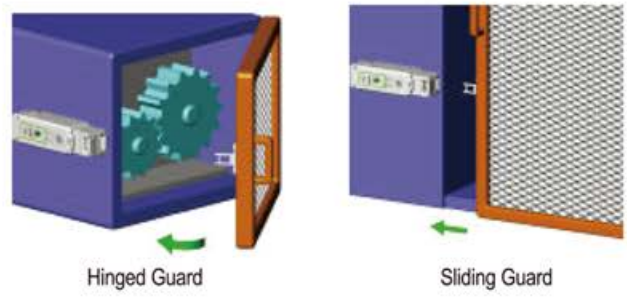
4NC Safety Contacts
1NO Auxiliary Contact (Guard Open)
LED1 Solenoid Power
LED2 Lock Status indication or 1NO Auxiliary Contact (Lock Open)

Version with REQUEST Button

(Momentary Push Button with 1 set of changeover contacts in Lid Assembly)

Actuator options (See Page 51)





Functional Specification:

Positive break contacts to IEC 60947-5-1

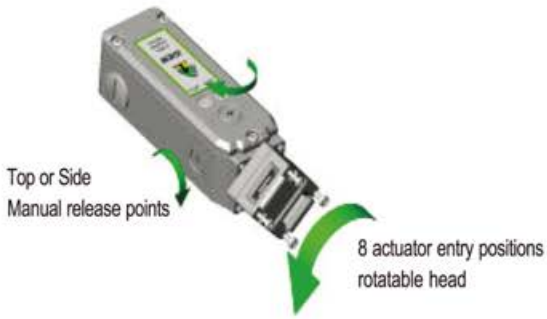
High Functional Safety to ISO 13849-1

4NC Safety Contacts independently selectable

Stainless 316 Housings

Connects to most Safety Relays to give up to PLe Cat.4.

IP69K Suitable for SIP and CIP processes



Actuator insertion

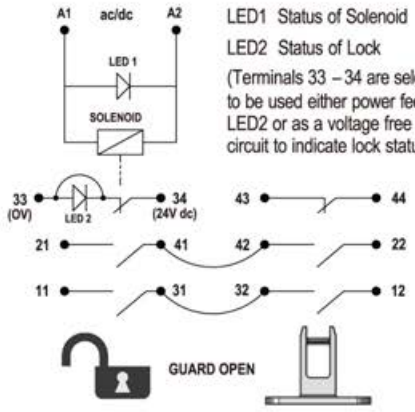
	6.0	5.0	0 mm
11/12	Open		
21/22	Open		
33/34			Open
43/44			Open

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

Standards	EN1088 IEC 60947-5-1 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508
Safety Classification and Reliability Data:	
Mechanical Reliability B10d	2.5 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	3.44 x 10^{-8}
Proof Test Interval (Life)	35 years
MTTFd	356 years
Solenoid Voltage (by part number)	24V ac/dc or 110V. ac or 230V. ac
Solenoid Wattage	12W.
LED 2 Supply Voltage	24V dc
Utilization Category	AC15 A300 3A.
Thermal Current (Ith)	5A
Rated Insulation / Withstand Voltages	600VAC / 2500 VAC
Travel for Positive Opening	10mm
Actuator entry minimum radius	175mm Standard 100mm Heavy Duty
Maximum Approach / Withdrawal speed	600mm/s.
Body Material	Stainless Steel 316
Enclosure Protection	IP69K / IP67
Operating Temperature	-25C. 55C.
Vibration	IEC 68-2-6, 10-55Hz+1Hz, Excursion: 0.35mm, 1 octave/min
Conduit Entry	Various (See Sales Part Numbers)
Fixing	4 x M5

Stainless Steel Guard Locking Switch - Type: HYGIELOCK KL4-SS

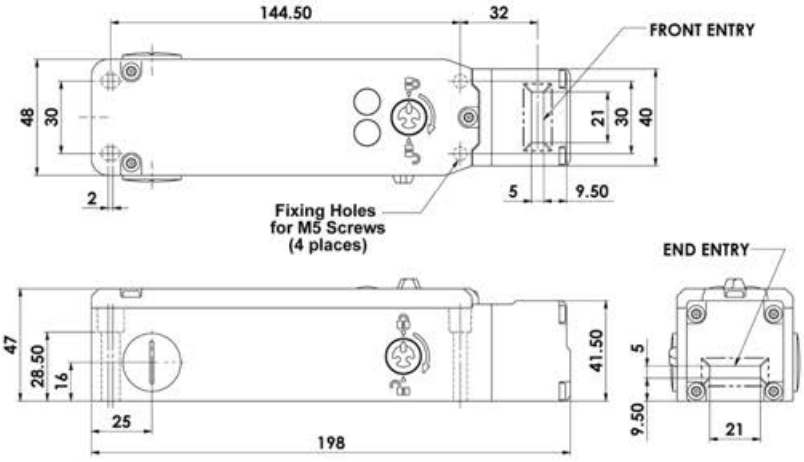
Schematic Circuit:



LED1 Status of Solenoid

LED2 Status of Lock

(Terminals 33 – 34 are selectable to be used either power feed to LED2 or as a voltage free auxiliary circuit to indicate lock status).



Related Products and Accessories: (See Page 50)

QC Quick Connect M23
Connector Length 24mm

Quick Connect (QC) M23 12 way Male Plug (Pin view from switch)	Switch Circuit
1 3	A1 A2
4 6	11 / 12
7 8	21 / 22
2 5	43 / 44
9	33
10	34
Earth	12

Sliding Handle Gate Bolt
with Lock Off Feature

2 Colour Conduit LED Beacon
Steady RED Steady GREEN

Maintenance Lockout Actuator
Fits to switch aperture and provides multiple padlock holes.

Female QC Leads	Length	Sales Number
M23 12 Way	5m. (15Ft.)	140143
M23 12 Way	10m. (30Ft.)	140144

Rugged metal construction, easy to install on sliding or hinged guards. Holes for fitting padlocks during maintenance. Painted yellow and comes with plastic handle and flat actuator.

		Standard Manual Release Lid and Side			Manual Release Lid only (not Side)			No Manual Release fitted (Blanked)		
										
Sales Numbers	Solenoid Voltage	M20	½"NPT	QC M23	M20	½"NPT	QC M23	M20	½"NPT	QC M23
Kobra KL4-SS Switch	24V. ac/dc	209001	209002	209003	209401	209402	209403	209301	209302	209303
Kobra KL4-SS Switch	110V. ac	209004	209005	209006	209404	209405	209406	209304	209305	209306
Kobra KL4-SS Switch	230V. ac	209007	209008	209009	209407	209408	209409	209307	209308	209309

Kobra Actuator	Standard	Add A to Sales Part Number
Kobra Actuator	Flat	Add F to Sales Part Number
Kobra Actuator	Heavy Duty Flexible	Add HF to Sales Part Number
Kobra Actuator	S/Steel Heavy Duty Flexible	Add HFH to Sales Part Number
Momentary Request Push Button (fitted to Lid) 1 x Changeover Contact Common - Closed/Open		Add PB to Sales Part Number

Manual Release Key
(order separately - not supplied with switches)

Part No.140123

ORDERING EXAMPLES:

24V Solenoid M20 Conduit Standard Manual Release Flat Actuator - Part No. 209001-F

110V Solenoid ½"NPT Conduit No Manual Release Push Button Standard Actuator - Part No. 209305-A-PB

24V Solenoid M20 Conduit Standard Manual Release S/Steel Heavy Flexible Actuator - Part No. 209301-HFH

Guard Locking-Rear Manual Escape Release Switches
Types: KLM-RR & HYGIELOCK KL3-SS-RR

Solenoid Locking Interlock Safety Switches featuring Guard Holding up to 2000N. (200Kg.) & Rear Manual Release

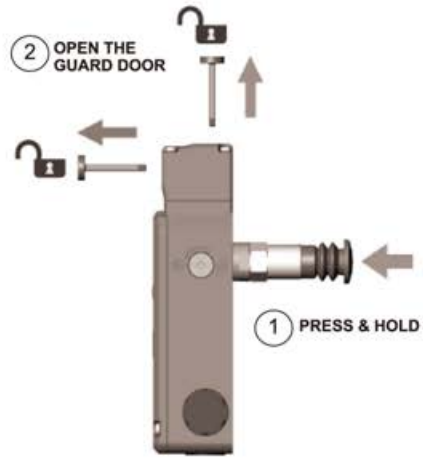
Features:

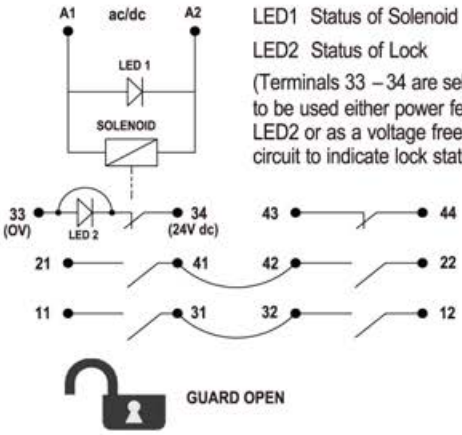
All the features and specifications of the standard KLM and KL3-SS are maintained, an extra Rear Manual Release button is provided at the rear of the housing.

Application:

Where the risk assessment for the application permits, a non latching manual escape release is provided to enable quick release of the switch lock in case of emergency. The switch can be mounted such that access to the release button is available from inside the active guard area.

Pressing and holding the red button will release the lock mechanism and open the lock monitoring contacts whilst the guard can be pushed open.





LED1 Status of Solenoid

LED2 Status of Lock

(Terminals 33 – 34 are selectable to be used either power feed to LED2 or as a voltage free auxiliary circuit to indicate lock status).

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

KLM-RR
IP67 - Die - Cast Painted Red

KL3-SS-RR
Stainless Steel 316 Housing - Mirror polished finish (Ra10)

Spring to lock when actuator is inserted. Energise solenoid to unlock or press rear release button.

Actuator options (See Page 51)

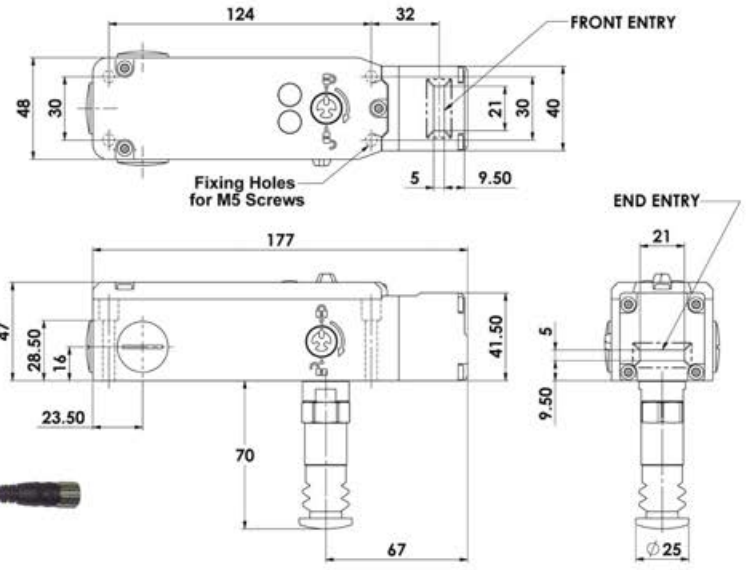
Standards	EN1088 IEC 60947-5-1 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508
Safety Classification and Reliability Data:	
Mechanical Reliability B10d	2.5 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	3.44 x 10^{-8}
Proof Test Interval (Life)	35 years
MTTFd	356 years
Solenoid Voltage (by part number)	24V ac/dc or 110V. ac or 230V. ac
Solenoid Wattage	12W.
LED 2 Supply Voltage	24V dc
Utilization Category	AC15 A300 3A.
Thermal Current (Ith)	5A
Rated Insulation / Withstand Voltages	600VAC / 2500 VAC
Travel for Positive Opening	10mm
Actuator entry minimum radius	175mm Standard 100mm Heavy Duty
Maximum Approach / Withdrawal speed	600mm/s.
Body Material	KLM-RR Die Cast Painted Red KL3-SS Stainless Steel 316
Head Material	Die Cast Painted Red or Stainless Steel 316
Enclosure Protection	KLM-RR IP67 KL3-SS-RR IP69K
Operating Temperature	-25C. 55C.
Vibration	IEC 68-2-6, 10-55Hz+1Hz, Excursion: 0.35mm, 1 octave/min
Conduit Entry	Various (See Sales Part Numbers)
Fixing	4 x M5

Guard Locking-Rear Manual Escape Release Switches
Types: KLM-RR & HYGIELOCK KL3-SS-RR

QC Quick Connect
Connector Length 24mm

Quick Connect (QC) M23 12 way Male Plug (Pin view from switch)	Switch Circuit
1 3	A1 A2
4 6	11 / 12
7 8	21 / 22
2 5	43 / 44
9	33
10	34
Earth	12

Female QC Leads	Length	Sales Number
M23 12 Way	5m. (15Ft.)	140143
M23 12 Way	10m. (30Ft.)	140144



KLM-RR Die Cast Painted Red (Stainless Steel Head optional)		Standard Manual Release Lid and Side			Manual Release Lid only (not Side)			No Manual Release fitted (Blanked)		
										
Sales Numbers	Solenoid Voltage	M20	½"NPT	QC M23	M20	½"NPT	QC M23	M20	½"NPT	QC M23
Kobra KLM-RR Switch	24V. ac/dc	212001	212002	212003	212401	212402	212403	212301	212302	212303
Kobra KLM-RR Switch	110V. ac	212004	212005	212006	212404	212405	212406	212304	212305	212306
Kobra KLM-RR Switch	230V. ac	212007	212008	212009	212407	212408	212409	212307	212308	212309
Kobra Actuator	Standard	Add A to Sales Part Number								
Kobra Actuator	Flat	Add F to Sales Part Number								
Kobra Actuator	Heavy Duty Flexible	Add HF to Sales Part Number								
Kobra Actuator	S/Steel Heavy Duty Flexible	Add HFH to Sales Part Number								
Stainless Steel Head Versions		Add SS to Sales Part Number								
		ORDERING EXAMPLE: **24V Solenoid M20 Conduit Standard Manual Release Standard Actuator - Part No. 212001-A**								

KL3-SS-RR Stainless Steel 316		Standard Manual Release Lid and Side			Manual Release Lid only (not Side)			No Manual Release fitted (Blanked)		
										
Sales Numbers	Solenoid Voltage	M20	½"NPT	QC M23	M20	½"NPT	QC M23	M20	½"NPT	QC M23
Kobra KL3-SS-RR Switch	24V. ac/dc	215001	215002	215003	215401	215402	215403	215301	215302	215303
Kobra KL3-SS-RR Switch	110V. ac	215004	215005	215006	215404	215405	215406	215304	215305	215306
Kobra KL3-SS-RR Switch	230V. ac	215007	215008	215009	215407	215408	215409	215307	215308	215309
Kobra Actuator	Standard	Add A to Sales Part Number								
Kobra Actuator	Flat	Add F to Sales Part Number								
Kobra Actuator	Heavy Duty Flexible	Add HF to Sales Part Number								
Kobra Actuator	S/Steel Heavy Duty Flexible	Add HFH to Sales Part Number								

Manual Release Key
(order separately - not supplied with switches)
Part No.140123

It is recommended to use IDEM's Stainless Steel 316 Glands with the KL3-SS-RR

ORDERING EXAMPLE:
24V Solenoid ½"NPT Conduit Manual Release Lid only Flat Actuator - Part No. 215402-F

Gland		stainless steel 316
M20	140120	
1/2"NPT	140121	

Kobra - Tongue Switches

GBL-1 shown fitted with KLM Switch

Left Hand Versions shown

Gate Bolt Actuators provide:

Rugged metal construction, providing shearing forces up to 10,000 Newtons on large hinged doors.

Easy to install on hinged or sliding guards. (4 x M6 Mounting Bolts).

Once installed there is no need for extra brackets or door handles.

Not susceptible to misalignment damage.

Operators are required to manually close the guard, they cannot close accidentally.

Padlock holes are provided as a means of locking open the handle and prevent the guard from being closed and the machine started during maintenance.

Yellow and Black colours to aid with Hazard Identification.

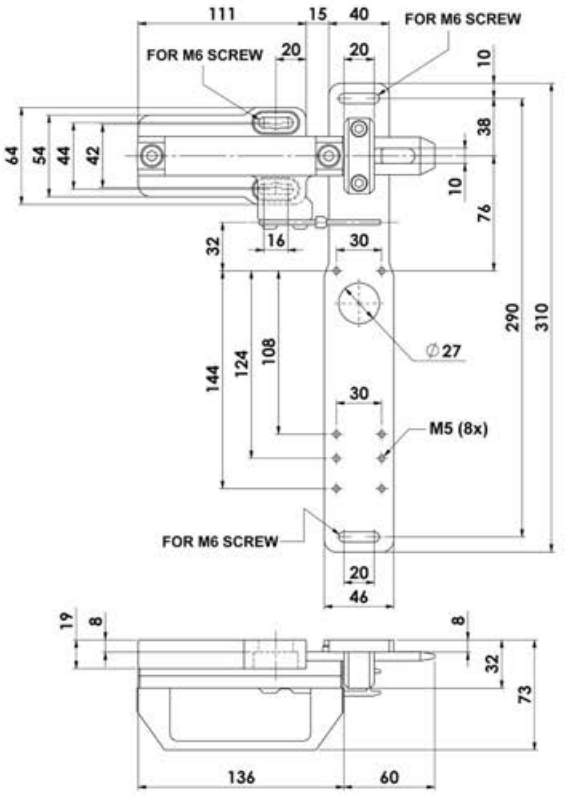
Supplied with Handle and Flat Actuator (Type F).

Optional Accessories (which can be fitted later after installation):

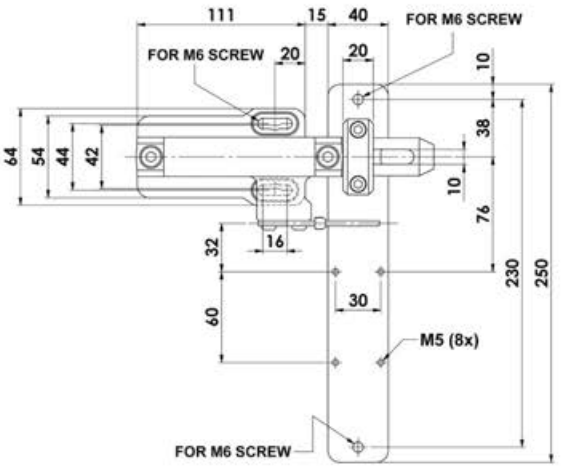
Rear handle where there is a requirement to move the handle from inside the guard area.

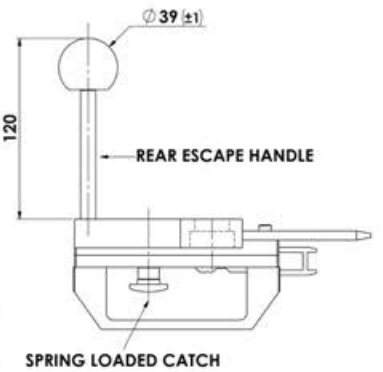
Spring loaded catch to prevent accidental actuation after opening of the handle.

TYPE : GBL-1



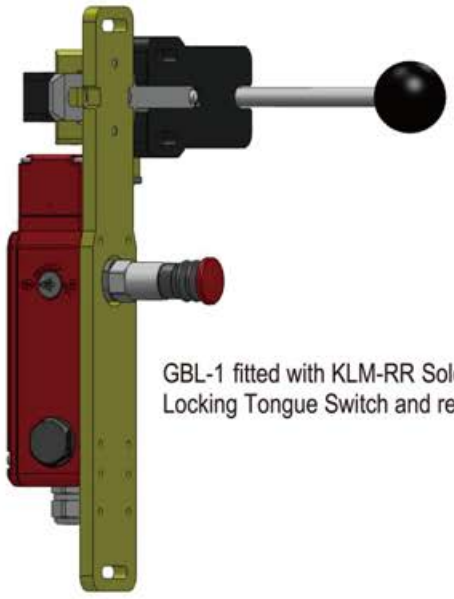
TYPE : GBA-1





Description			Sales Number	
Gate Bolt Lock	GBL-1	Left Hand	210001	Suitable for Switch Types: KLP KLM KL4-SS
Gate Bolt Lock	GBL-1	Right Hand	210002	
Gate Bolt Tongue	GBA-1	Left Hand	210003	Suitable for Switch Type: KM
Gate Bolt Tongue	GBA-1	Right Hand	210004	
Rear handle			210005	Suitable for GBL-1 and GBA-1
Spring Loaded Catch			210006	Suitable for GBL-1 and GBA-1

Kobra - Tongue Switches

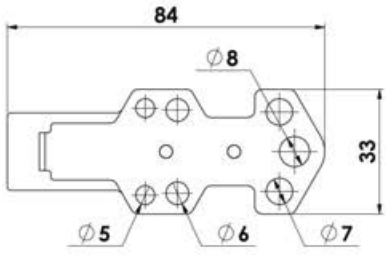


GBL-1 fitted with KLM-RR Solenoid Locking Tongue Switch and rear handle.

GBA-1 fitted with KM Tongue Switch and rear handle.

Accessories

Maintenance Lockout Actuator – Fits to all IDEM Tongue Switches StainlessSteel



Fits to switch aperture during maintenance and provides multiple Padlock holes

Shown fitted to KM Switch (Padlock not included).

Actuator with Chain Stainless Steel

Flat Actuator supplied with 300mm (12 inch) chain. Can be used where poor alignment exists and provides manual insertion of actuator by operator.

Conduit fitting LED Beacons

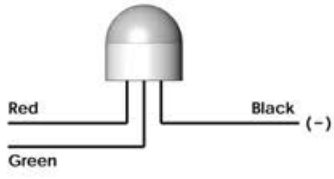
2 colour LED (3 wires) providing Steady Red and Steady Green.

Fits to the conduit entry of most switches and provides option for LED indication based upon switch contacts.

The dome shaped LED can be seen from narrow angles

Available voltages 24Vdc, 110Vac, 230Vac and either M20 or ½" NPT conduit thread.

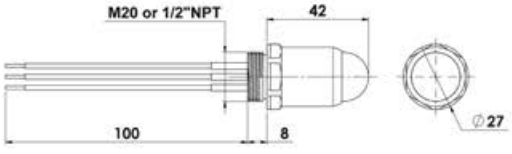
PVC conductors, fully encapsulated IP67.
Maximum temperature: 60C.
Housing material polyester.



Black is common.
(0V.dc or negative for ac versions).

When power is applied to the Red wire the lamp will illuminate Red

When power is applied to the Green Wire the Lamp will illuminate Green.

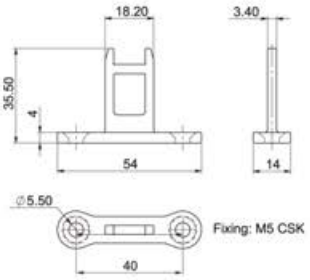


Description			Sales Number
Lockout Actuator			140130
Flat Actuator with chain			140131
Conduit LED Beacon	24V.dc	M20 conduit thread	140134
Conduit LED Beacon	110V.ac	M20 conduit thread	140136
Conduit LED Beacon	230V.ac	M20 conduit thread	140138
Conduit LED Beacon	24V.dc	½"NPT conduit thread	140135
Conduit LED Beacon	110V.ac	½"NPT conduit thread	140137
Conduit LED Beacon	230V.dc	½"NPT conduit thread	140139

Kobra - Tongue Switches

Actuator Dimensions

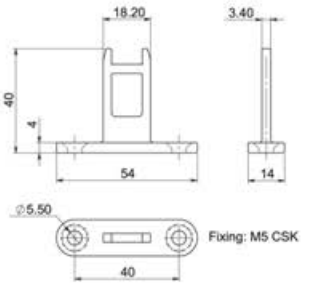
Standard Actuator Kobra KP - K15
(With plastic head)



Type A

Stainless Steel 316

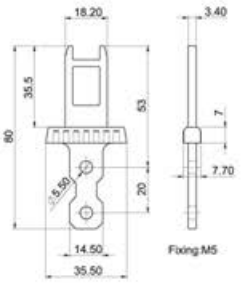
Standard Actuator Kobra: KM , KLP , KLM , K15-SS
KM-SS , KSS , KL3-SS , KP-SS
KL4-SS , KL1-P , KL1-SS



Type A

Stainless Steel 316

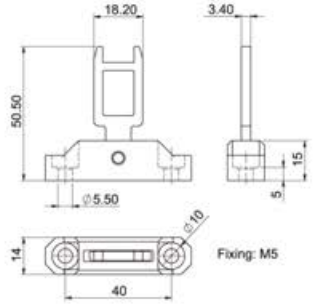
Flat Actuator Kobra: KP , KM , K15 , KLP , KLM
KM-SS , KSS , KL3-SS
KL4-SS , KL1-P , KL1-SS



Type F

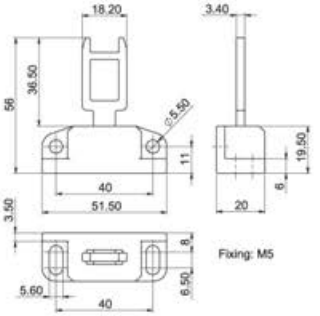
Stainless Steel 316
Plastic Shroud

Plastic Flexible Actuator Kobra: KP , KM , K15



Type PF
Plastic Flexible Actuator
(Adjust angle by screw)
Stainless Steel 316
Plastic Housing

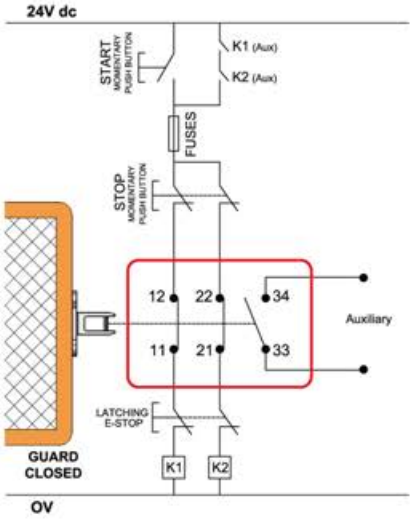
Metal Heavy Duty Actuator Kobra: KP , KM , KLP , KLM , K15
KL3-SS , KM-SS , K-SS
KL4-SS , KL1-P , KL1-SS



Type HF
Heavy Duty Flexible
Stainless Steel 316
Die Cast Metal Housing (Black colour)

Type HFH
Heavy Duty Flexible (Hygienic Version)
Stainless Steel 316 Housing
Mirror Polished Finish

Application Examples - Tongue Switches



Guard Door Mechanical Interlock and E Stop – Dual Channel Non Monitored.

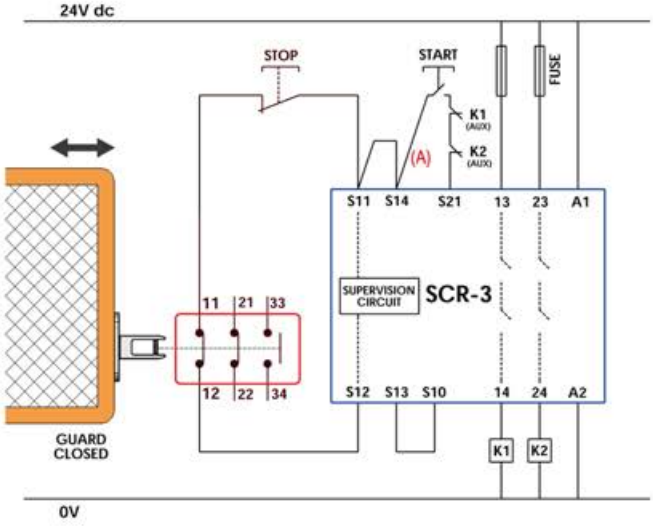
System shows interlock switch circuits 11-12 and 21-22 configured to allow direct feed to contactor coils K1 and K2.

Opening the Interlock switch or depressing the E Stop will isolate power to the contactor coils.

Re-start can only occur providing the Guard is closed and the E Stop is reset.

System is shown with machine stopped, guard closed and the contactors able to be energised.

Contacts 33-34 provide an auxiliary circuit for signalling guard open or closed.



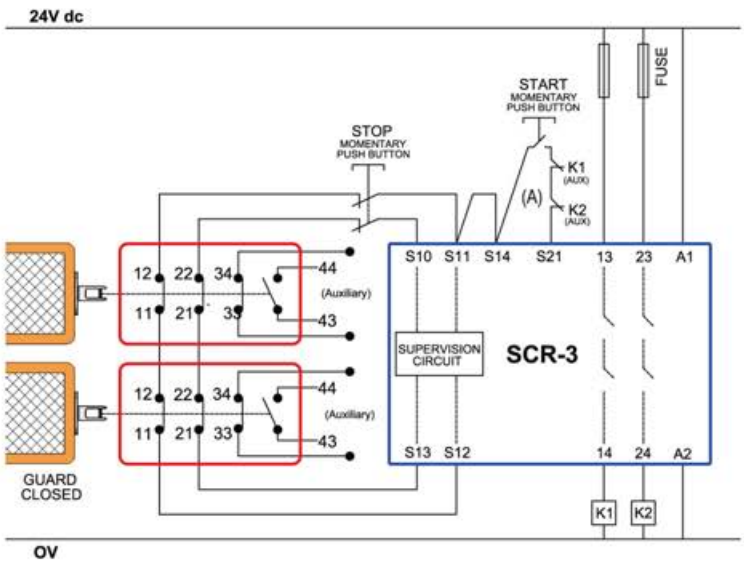
One Guard Door Mechanical Interlock – Single Channel Monitored.

The positively operated interlock contacts from circuit 11-12 is connected single channel input to S11-S12 on the SCR-3 Safety Relay.

This provides a positively operated single channel monitored circuit but provides a check of the contactor feedback circuits through the auxiliary contacts (A) of K1 and K2. The SCR-3 monitors the switch circuit and the contactors K1and K2 and provides it's own self-monitoring via force guided internal relays.

Opening the guard or pressing the Stop button will cause the machine to stop. Re-start can only be achieved if the guard is closed and the contactors K1 and K2 have both opened and the Start button is pressed.

System is shown with machine stopped, guards closed and the contactors able to be energised.



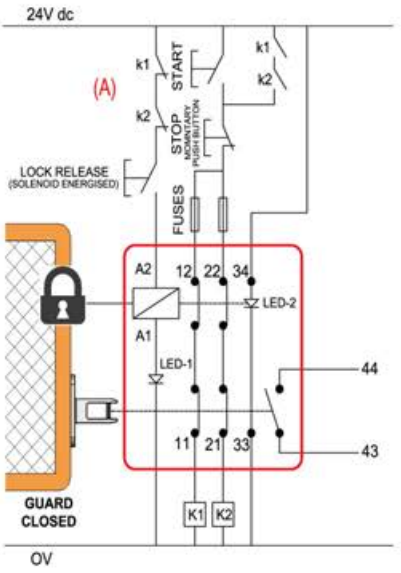
Two Guard Door Mechanical Interlocks in series. Dual Channel Monitored.

The safety category can be enhanced by connecting two switch circuits 11-12 and 21-22 from mechanical interlocks to an SCR-3 Safety Relay to monitor for wiring short circuits.

This provides Dual Channel monitoring and a check of the contactor feedback circuits through the auxiliary contacts (A) of K1 and K2.
The SCR-3 monitors the switch circuits and the contactors K1 and K2 and provides it's own self-monitoring via force guided internal relays.

System is shown with machine stopped, guards closed and the contactors able to be energised.

Application Examples - Tongue Switches

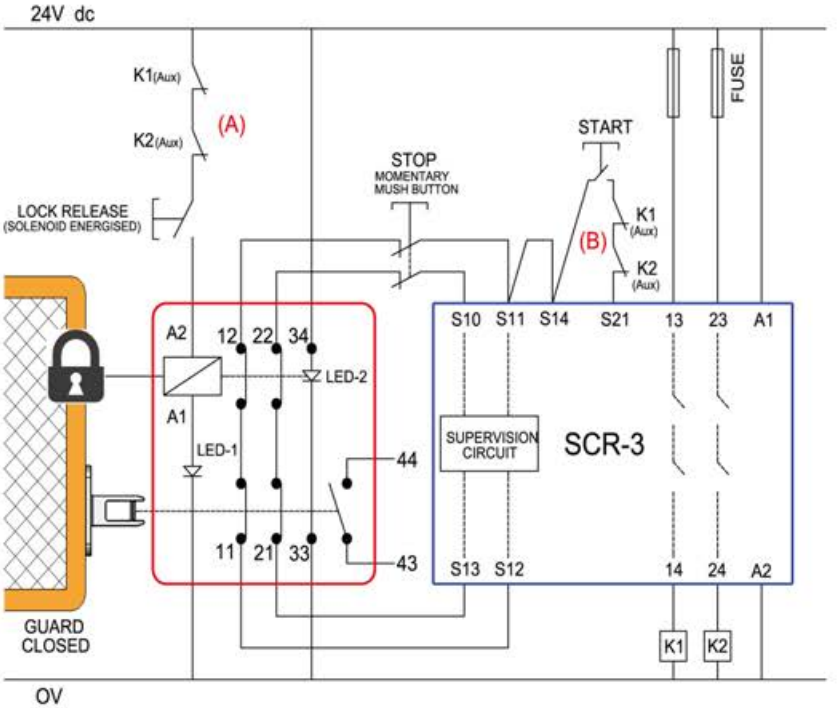


Solenoid Locking Guard Switch - Dual Channel Non Monitored.

The guard is locked closed until the solenoid is energized. The solenoid can only be energized when the auxiliary contacts (A) of contactors K1 and K2 are closed.
When the lock release button is pushed the locking mechanism is released and the switch contacts 11-12 and 21-22 are opened. These contacts are in series with contactor coils of K1 and K2 and will prevent re-start whilst the guard is open.
If after pressing the Stop button either contactor K1 or K2 stays closed the motor will stop but the solenoid cannot be energized or the guard opened.

LED 1 provides visual indication of solenoid power applied.
LED 2 provides visual indication of guard locked and machine able to start.

System is shown with machine stopped, guard closed and locked, and the solenoid able to be energised.



Solenoid Locking Guard Switch - Dual Channel Monitored.

A high safety category can be achieved by connecting the solenoid switch circuits 11-12 and 21-22 to an SCR-3 Safety Relay to monitor for wiring short circuits. This provides Dual Channel monitoring and a check of the contactor feedback circuits through the auxiliary contacts (A) & (B) of K1 and K2. The SCR-3 monitors the switch and the contactors K1 and K2 and provides it's own self-monitoring via force guided internal relays.

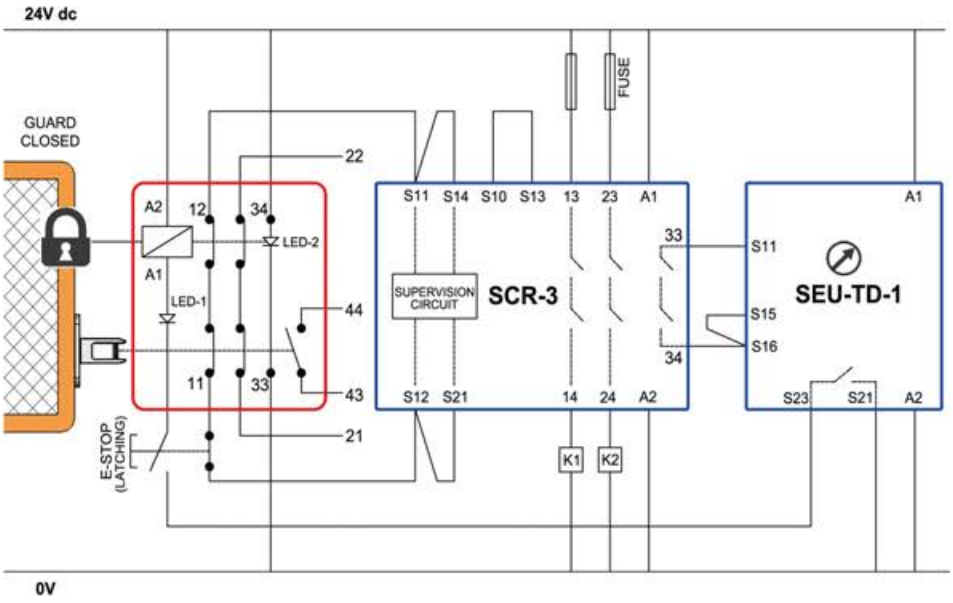
Pressing the Lock Release button will energise the solenoid, open the solenoid switch contacts and cause the safety relay output contacts at 13-14 and 23-24 to open. (The guard can be opened whilst the solenoid is energised).

Pressing the Stop button will cause the safety relay output contacts at 13-14 and 23-24 to open. (The guard remains closed and locked).

Re-start can only be achieved if the guard is closed and the contactors K1 and K2 have both opened and the Start button is pressed.

System is shown with machine stopped, guard closed and locked, and the solenoid able to be energised.

Application Examples - Tongue Switches

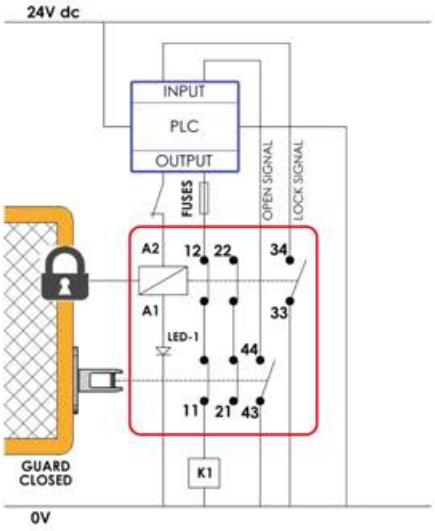


Solenoid Locking Guard Switch and E Stop - Single Channel monitored with time delayed guard opening.

For systems requiring run down after activating a stop, a time delay can be added by connecting the delayed output from an SEU-TD-1 to the solenoid feed.

The output contacts 33-34 of the SCR-3 provide the input to the SEU-TD-1. Pressing the E Stop causes the SCR-3 contacts to open immediately and isolate power to contactors K1 and K2.
Also the input to the SEU-TD-1 will be opened and activate the pre-set time delay contacts. Only when the set time delay has lasped will the SEU-TD-1 allow power to the solenoid and enable the guard to be opened.

Providing that the guard is closed and locked and the E Stop is reset the machine will start when 24V.dc is applied.



Solenoid Locking Guard Switch – Safety PLC controlled.

The guard is locked until the solenoid is energised.

The PLC then issues an energise signal to the solenoid switch at A1. When the switch locking mechanism is released the monitoring contacts 11-12 are opened. These contacts are in series with the contactor K1 control circuit and will therefore prevent restart while the switch is in the unlocked mode.

If the guard is opened contacts 11-12 are open and will also prevent restart while guard is open.

Coded Non Contact Safety Interlock Switches

Operation:

All IDEM Coded Non Contact Safety Switches are designed to conform to IEC 60947-5-3 and be used as directed by ISO12100, ISO14121 and EN 60204-1.

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 from 4 directions even in extreme environments of temperature and moisture.

When used in combination with most Dual Channel Safety Monitoring Relays they can be used to provide up to PLe / Category 4 to ISO 13849-1.

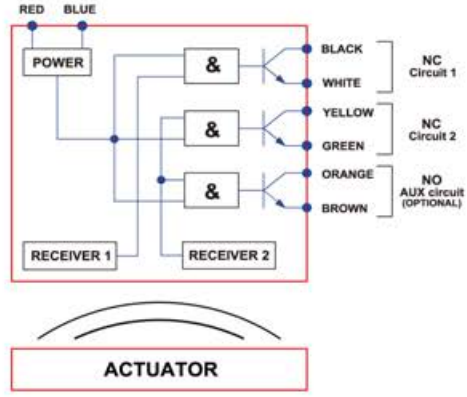
They offer a choice of high specification plastic or Stainless Steel 316

Application:

IDEM Coded Non Contact switches are designed to interlock hinge, sliding or removal guard doors.
They are specifically advantageous when :

a) poor guard alignment exists
b) anti tamper sensing is required
c) high hygiene requirements exist, e.g. food industry hose down
d) long life is required (no moving or touching parts)
e) LED status indication is desirable

Principle:



Features:

Dual channel electronic safety output 2NC (1NO auxiliary optional)

Visual LED indication of switch status

Enclosure Protected to IP67 or IP69K - wash down suitable

Conformance to IEC 60947-5-3 PDF-S

No moving parts to give high reliability and long life

Wide sensing distance 14mm

Plastic versions:

The Plastic **Idecode** range have been developed for non-contact guard door interlocking in the applications of general factory automation, packaging, and some food processing industries.

Supplied with Screw Cap covers to prevent contamination from food deposits.

MPC

Miniature industry standard design. 22mm fixing centres, available with Left or Right cable exit.

SPC

Universal 22mm fixing centres.

LPC

European industry standard fitting. End cable exit.

CPC

Compact slim fitting housing - suitable for fitting to applications where space is limited.

WPC

Industry standard wide fitting. Front face actuation for large guards.

RPC

M30 threaded body – easy to mount

KPC

Industry Standard Interlock Switch housing. Can be retro-fitted in place of similar mechanical switches. Fixing centres 40mm.

Coded Non Contact Safety Interlock Switches

Stainless Steel 316 versions:

The Stainless Steel 316 **Hygiecode** range have been developed for non-contact guard door interlocking in the applications of Food Processing, Pharmaceutical, Packaging and Chemical Industries.

Stainless Steel 316
Suitable for CIP and SIP cleaning
Can be high pressure hosed at high temperature - IP69K
Wide 14mm sensing high tolerance to misalignment
Designed in accordance with EHEDG guidelines for hygienic design (EHEDG European Hygienic Engineering & Design Group)

The housing designs, surface finish and styling means they can be used in almost any environments subject to high levels of cleaning following contamination from foreign particles.

They are offered with various types of mounting styles to cover different levels of food contact (as described by the EHEDG).

- Direct contact zone - The switch mounting is designed according to EHEDG hygienic guidelines and also fulfils the requirements of the splash zone
- Splash zone - The switch must be easy to clean and withstand the CIP and SIP cleaning processes found in the food industry (tested IP69K).

Mirror polished finish – Ra4
Suitable for CIP and SIP cleaning
Can be high pressure hosed at high temperature - IP69K
Can be mounted on steel structures
Designed in accordance with EHEDG guidelines for hygienic design (EHEDG European Hygienic Engineering & Design Group)

SMC

Universal 22mm fixing centres - suitable for food splash zones.

CMC

Compact slim fitting housing - suitable for food splash zones. Can be fitted to applications where space is restricted.

LMC

European industry standard fitting - suitable for food splash zones.

WMC

Industry standard wide fitting - suitable for food splash zones. Front face actuation.

SMC-F

Universal 22mm fixing centres.
Rear fixing - M4 tapped holes at rear of housing.
Suitable for food contact zones.

CMC - F

Compact slim fitting housing .
Rear fixing - M4 tapped holes at rear of housing.
Suitable for food contact zones.

RMC

M30 thread -suitable for some food contact zones.

SMC-H

Universal 22mm fixing centres.
Through hole fixing – M4 clearance holes for front mounting by hexagon head bolts.
Suitable for food splash or contact zones.

For SMC-H and MMC-H use Hexagon Head Bolts for ease of cleaning.

MMC-H

Miniature industry standard design - through hole mounting on M4 clearance for front mounting by hexagon head bolts. Suitable for food splash or contact zones.

All types are available without LED for extremely harsh environments.

They are tested to ingress protection degree IP69K (high pressure hosing with detergent at 80C. and 100psi).

IDECODE - Coded Interlock Switches - Type: MPC

Coded Magnetic Actuation **Switching Tolerance up to 10mm**

Specified to 80C but designed to work up to 100C

Will operate with most EN 954-1 Cat.4 Safety Relays

Compact yet robust fitting suitable for all small guard applications.

LED indication.

Hygienic screw covers ensure suitablility for Food Processing washdown.

Cost effective interlock solution.

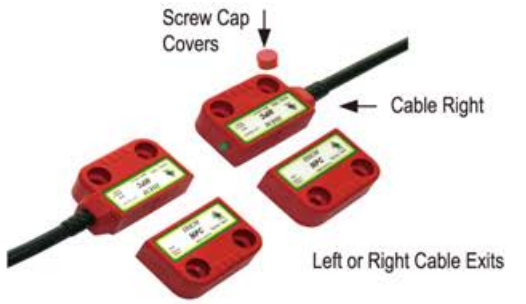
Wide sensing at 10mm.

High Specification polyester housing with backplate

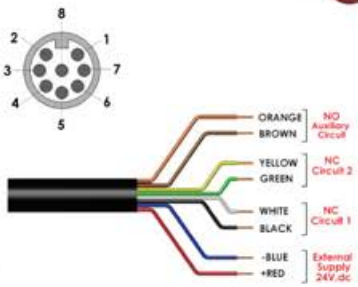
Can be mounted unobtrusively in channels or behind doors, left or right cable exit

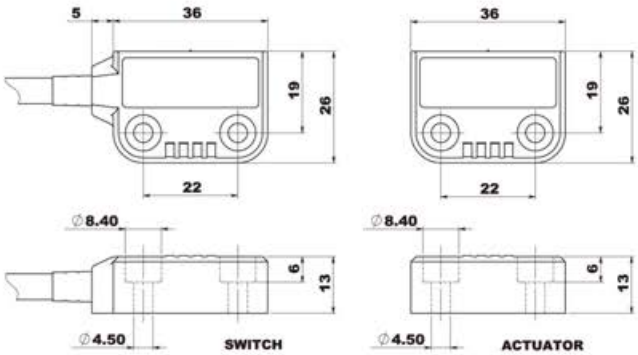
Up to: PLe ISO 13849-1 SIL 3 EN 62061 Cat 4 EN 954-1

2NC 1NO circuits - High switching life - no moving parts

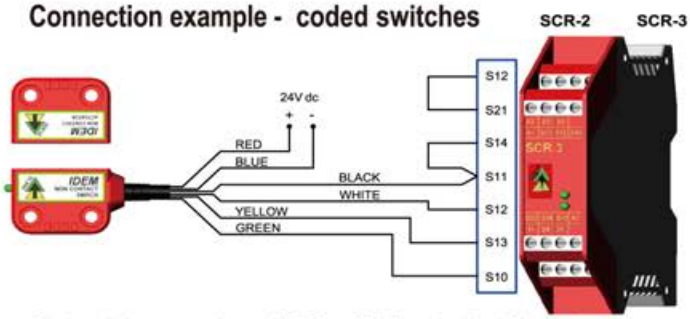


Quick Connect (QC) M12 8 way Male Plug (Pin view from switch)	Flying Lead Colours	Circuit (Actuator Present)	Output Types Solid State
8	Orange	Auxiliary NO or NC	200mA Max. 24Vdc
5	Brown	Auxiliary NO or NC	
4	Yellow	Safety NC2 +ve	200mA Max. 24Vdc
6	Green	Safety NC2 -ve	
7	Black	Safety NC1 +ve	200mA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





Connection example - coded switches



Single switch connected to an SCR-2 or SCR-3 to give Dual Channel monitoring with Automatic Start.

Standards	EN1088 IEC 60947-5-3 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508
Safety Classification and Reliability Data:	
Switching Reliability	3.3 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	2.52 x 10^{-8}
Proof Test Interval (Life)	47 years
MTTFd	470 years
Safety Channel 1 NC	24V.dc 0.2 A Max. Rating
Safety Channel 2 NC	24V.dc 0.2 A Max. Rating
Safety Channel 3 NO	24V.dc 0.2 A Max. Rating
Minimum switched current	10V. dc 1mA
Dielectric withstand	250V.ac
Insulation Resistance	100 Mohms
Recommended setting gap	5mm
Switching Distance:	Sao 8mm Close
(Target to target)	Sar 12mm 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	UL approved polyester
Temperature Range	–25 +80C.
Enclosure Protection	IP69K IP67
Shock Resistance	IEC 68-2-27 11ms 30g
Vibration Resistance	IEC 68-2-6 10-55 Hz. 1mm
Cable Type	PVC 6 or 8 core 6mm O.D.
Mounting Bolts	2 x M4 Tightening torque 1.0 Nm
Mounting Position	Any

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

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

Sales Number	Type	Cable Length	Circuits
114101	MPC Cable Right	2M	2NC
114102	MPC Cable Right	5M	2NC
114103	MPC Cable Right	10M	2NC
114104	MPC Cable Right	QC-M12*	2NC
114105	MPC Cable Right	2M	2NC 1NO
114106	MPC Cable Right	5M	2NC 1NO
114107	MPC Cable Right	10M	2NC 1NO
114108	MPC Cable Right	QC-M12*	2NC 1NO
114117	MPC Cable Right	2M	3NC
114118	MPC Cable Right	5M	3NC
114119	MPC Cable Right	10M	3NC
114120	MPC Cable Right	QC-M12*	3NC
114109	MPC Cable Left	2M	2NC
114110	MPC Cable Left	5M	2NC
114111	MPC Cable Left	10M	2NC
114112	MPC Cable Left	QC-M12*	2NC
114113	MPC Cable Left	2M	2NC 1NO
114114	MPC Cable Left	5M	2NC 1NO
114115	MPC Cable Left	10M	2NC 1NO
114116	MPC Cable Left	QC-M12*	2NC 1NO
114121	MPC Cable Left	2M	3NC
114122	MPC Cable Left	5M	3NC
114123	MPC Cable Left	10M	3NC
114124	MPC Cable Left	QC-M12*	3NC
		* Other QC sizes available upon request	

Note: 2NC 1NO versions have 2NC Safety and 1NO Auxiliary Circuits
3NC versions have 2NC Safety and 1NC Auxiliary Circuits

Available without LED if required

EUROCODE - Coded Non Contact - Type: LPC

Coded Magnetic Actuation **Switching Tolerance up to 14mm**

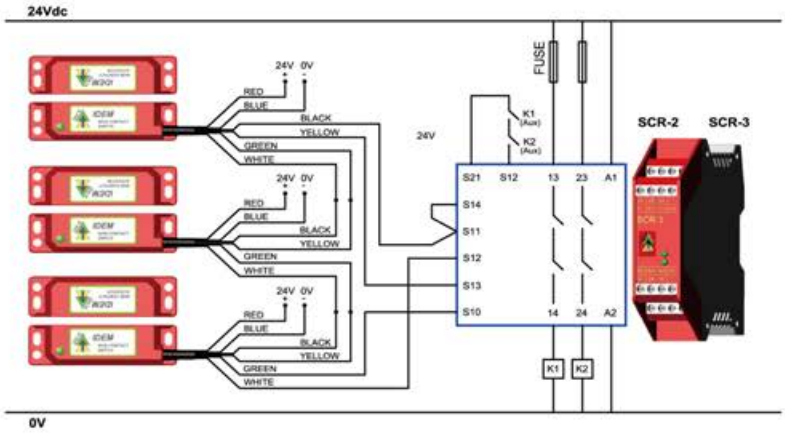
Specified to 80C but designed to work up to 100C
Will operate with most EN 954-1 Cat.4 Safety Relays

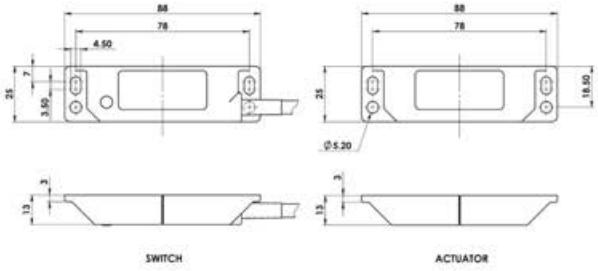
Popular European fitting suitable for all industry applications.
Can be high pressure hosed at high temperature - IP69K
Wide 14mm sensing - high tolerance to misalignment
LED indication
Up to: PLe ISO 13849-1 SIL 3 EN 62061 Cat 4 EN 954-1
2NC 1NO circuits - High switching life - no moving parts
Quick connect versions.
Magnet Holding versions for use with small guards

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

Connection example - coded switches

Three switches connected in series to an SCR-2 or SCR-3 to give
Dual Channel monitoring with auto start and contactor feedback check.





Sales Number	Type	Cable Length	Circuits
110001	Eurocode LPC	2M	2NC
110002	Eurocode LPC	5M	2NC
110003	Eurocode LPC	10M	2NC
110004	Eurocode LPC	QC-M12	2NC
110005	Eurocode LPC	2M	2NC 1NO
110006	Eurocode LPC	5M	2NC 1NO
110007	Eurocode LPC	10M	2NC 1NO
110008	Eurocode LPC	QC-M12	2NC 1NO
110070	Eurocode LPC	2M	3NC
110071	Eurocode LPC	5M	3NC
110072	Eurocode LPC	10M	3NC
110073	Eurocode LPC	QC-M12	3NC

For Magnetic Holding Versions add 10N to Part Number
Example:
LPC 2NC 1NO 5m. with Magnetic Hold Part 110006-10N

Note: 2NC 1NO versions have 2NC Safety and 1NO Auxiliary Circuits
3NC versions have 2NC Safety and 1NC Auxiliary Circuits

Available without LED if required

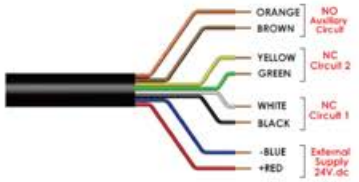
Standards	EN1088 IEC 60947-5-3 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508
Safety Classification and Reliability Data:	
Switching Reliability	3.3 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	2.52 x 10^{-8}
Proof Test Interval (Life)	47 years
MTTFd	470 years
Safety Channel 1 NC	24V.dc 0.2 A Max. Rating
Safety Channel 2 NC	24V.dc 0.2 A Max. Rating
Safety Channel 3 NO	24V.dc 0.2 A Max. Rating
Minimum switched current	10V. dc 1mA
Dielectric withstand	250V.ac
Insulation Resistance	100 Mohms
Recommended setting gap	5mm
Switching Distance:	Sao 10mm Close
(Target to target)	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	UL approved polyester
Temperature Range	–25 +80C.
Enclosure Protection	IP69K IP67
Shock Resistance	IEC 68-2-27 11ms 30g
Vibration Resistance	IEC 68-2-6 10-55 Hz. 1mm
Cable Type	PVC 6 or 8 core 6mm O.D.
Mounting Bolts	2 x M4 Tightening torque 1.0 Nm
Mounting Position	Any

Magnetic Holding versions

At 1mm setting gap: 10N.
At 5mm setting gap: 5N.

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

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



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

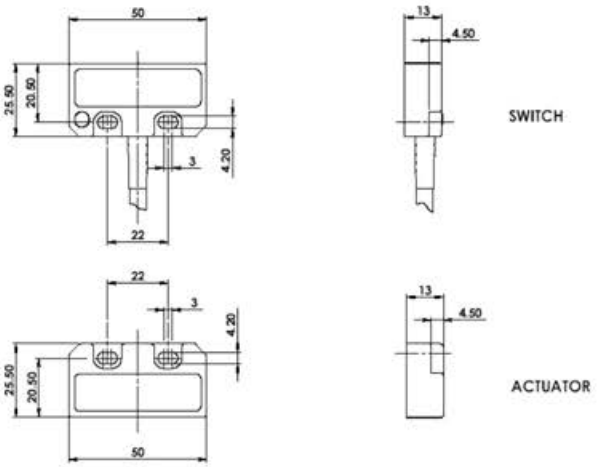
IDECODE - Coded Non Contact - Type: SPC

Coded Magnetic Actuation **Switching Tolerance up to 14mm**

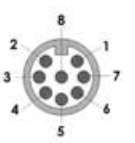
Will operate with most Safety Relays **Specified to 80C but designed to work up to 100C**

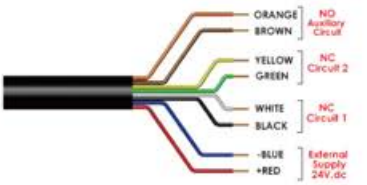
Universal fitting - established 22mm fixing footprint suitable for most general applications.
Withstands environments where high humidity or hose down is required.
Durable polyester housing.
Wide 14mm sensing and high tolerance to misalignment.
Up to: PLe ISO 13849-1 SIL 3 EN 62061 Cat 4 EN 954-1
2NC 1NO circuits - High switching life - no moving parts
Quick connect versions.

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

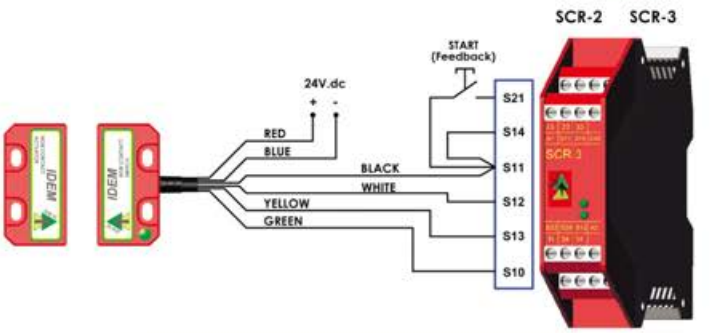


Quick Connect (QC) M12 8 way Male Plug (Pin view from switch)	Flying Lead Colours	Circuit (Actuator Present)	Output Types Solid State
8	Orange	Auxiliary NO or NC	200mA Max. 24Vdc
5	Brown	Auxiliary NO or NC	
4	Yellow	Safety NC2 +ve	200mA Max. 24Vdc
6	Green	Safety NC2 -ve	
7	Black	Safety NC1 +ve	200mA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





Standards	EN1088 IEC 60947-5-3 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508
Safety Classification and Reliability Data:	
Switching Reliability	3.3 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	2.52 x 10^{-8}
Proof Test Interval (Life)	47 years
MTTFd	470 years
Safety Channel 1 NC	24V.dc 0.2 A Max. Rating
Safety Channel 2 NC	24V.dc 0.2 A Max. Rating
Safety Channel 3 NO	24V.dc 0.2 A Max. Rating
Minimum switched current	10V. dc 1mA
Dielectric withstand	250V.ac
Insulation Resistance	100 Mohms
Recommended setting gap	5mm
Switching Distance:	Sao 10mm Close
(Target to target)	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	UL approved polyester
Temperature Range	–25 +80C.
Enclosure Protection	IP69K IP67
Shock Resistance	IEC 68-2-27 11ms 30g
Vibration Resistance	IEC 68-2-6 10-55 Hz. 1mm
Cable Type	PVC 6 or 8 core 6mm O.D.
Mounting Bolts	2 x M4 Tightening torque 1.0 Nm
Mounting Position	Any



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

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

Sales Number	Type	Cable Length	Circuits
111001	Idecode SPC	2M	2NC
111002	Idecode SPC	5M	2NC
111003	Idecode SPC	10M	2NC
111004	Idecode SPC	QC-M12	2NC
111005	Idecode SPC	2M	2NC 1NO
111006	Idecode SPC	5M	2NC 1NO
111007	Idecode SPC	10M	2NC 1NO
111008	Idecode SPC	QC-M12	2NC 1NO
111105	Idecode SPC	2M	3NC
111106	Idecode SPC	5M	3NC
111107	Idecode SPC	10M	3NC
111108	Idecode SPC	QC-M12	3NC

Note: 2NC 1NO versions have 2NC Safety and 1NO Auxiliary Circuits
3NC versions have 2NC Safety and 1NC Auxiliary Circuits

Available without LED if required

IDECODE - Coded Non Contact - Type: CPC

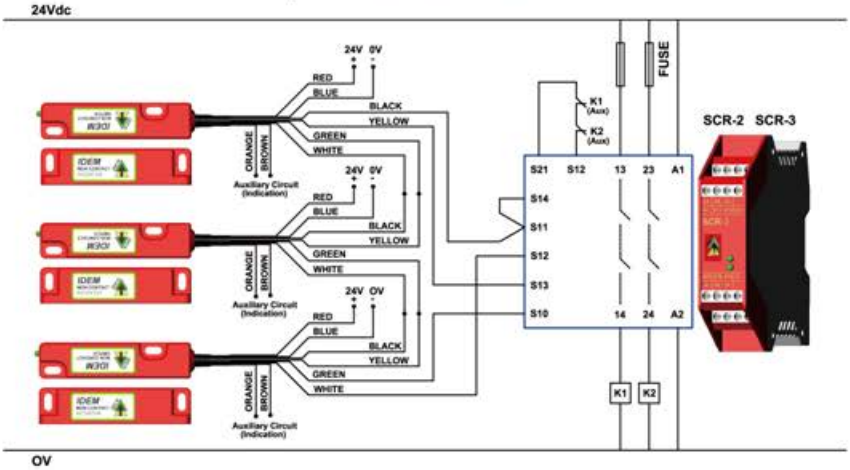
Coded Magnetic Actuation **Switching Tolerance up to 14mm**

Slim fitting suitable for all industry applications.
Easy to install within narrow frame structures.
Durable polyester housing.
Wide 14mm sensing and high tolerance to misalignment.
LED indication
Up to: PLe ISO 13849-1 SIL 3 EN 62061 Cat 4 EN 954-1
2NC 1NO circuits - High switching life - no moving parts
Quick connect versions.

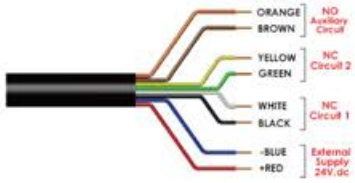
Specified to 80C but designed to work up to 100C.
Will operate with most Safety Relays

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

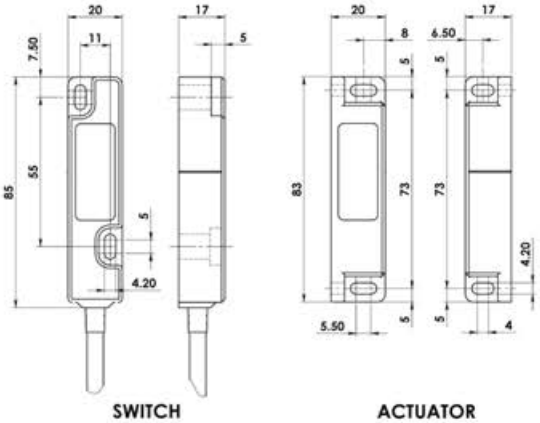
Connection example - coded switches



Three switches connected in series to an SCR - 2 or SCR - 3 to give Dual Channel monitoring with auto start and contactor feedback check. Optional auxiliary circuits provide for remote signalling from each switch.



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



SWITCH ACTUATOR

Standards	EN1088 IEC 60947-5-3 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508
Safety Classification and Reliability Data:	
Switching Reliability	3.3 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	2.52 x 10^{-8}
Proof Test Interval (Life)	47 years
MTTFd	470 years
Safety Channel 1 NC	24V.dc 0.2 A Max. Rating
Safety Channel 2 NC	24V.dc 0.2 A Max. Rating
Safety Channel 3 NO	24V.dc 0.2 A Max. Rating
Minimum switched current	10V. dc 1mA
Dielectric withstand	250V.ac
Insulation Resistance	100 Mohms
Recommended setting gap	5mm
Switching Distance:	Sao 10mm Close
(Target to target)	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	UL approved polyester
Temperature Range	–25 +80C.
Enclosure Protection	IP69K IP67
Shock Resistance	IEC 68-2-27 11ms 30g
Vibration Resistance	IEC 68-2-6 10-55 Hz. 1mm
Cable Type	PVC 6 or 8 core 6mm O.D.
Mounting Bolts	2 x M4 Tightening torque 1.0 Nm
Mounting Position	Any

Sales Number	Type	Cable Length	Circuits
115001	Idecode CPC	2M	2NC
115002	Idecode CPC	5M	2NC
115003	Idecode CPC	10M	2NC
115004	Idecode CPC	QC-M12	2NC
115005	Idecode CPC	2M	2NC 1NO
115006	Idecode CPC	5M	2NC 1NO
115007	Idecode CPC	10M	2NC 1NO
115008	Idecode CPC	QC-M12	2NC 1NO

Available without LED if required

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

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

IDECODE - Coded Non Contact - Type WPC

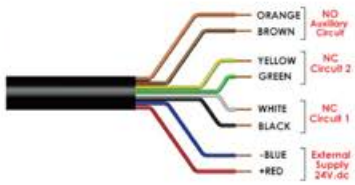
Coded Magnetic Actuation **Switching Tolerance up to 14mm**

Slim fitting suitable for all industry applications.
Wide 14mm sensing high tolerance to misalignment.
LED indication - no moving parts - survives shock and vibration
Up to: PLe ISO 13849-1 SIL 3 EN 62061 Cat 4 EN 954-1
2NC 1NO circuits - High switching life - no moving parts
Quick connect versions.

Specified to 80C but designed to work up to 100C.
Will operate with most Safety Relays

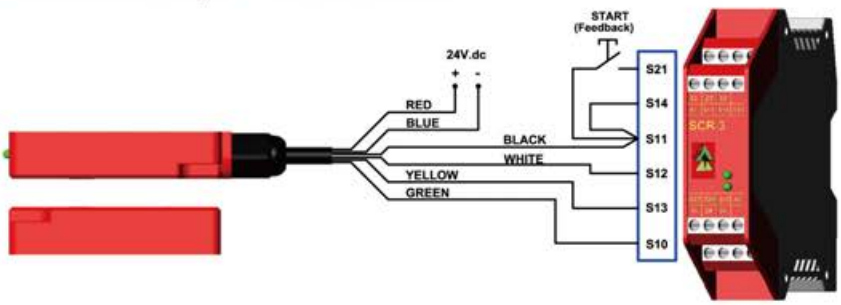
Quick Connect M12 versions fitted with 250mm (10") cable

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



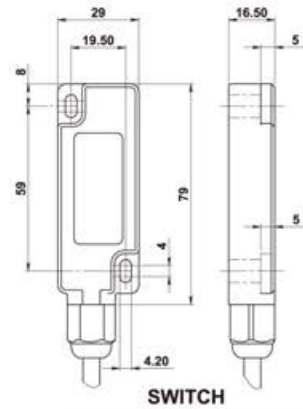
Connection example - coded switches

SCR-2 SCR-3

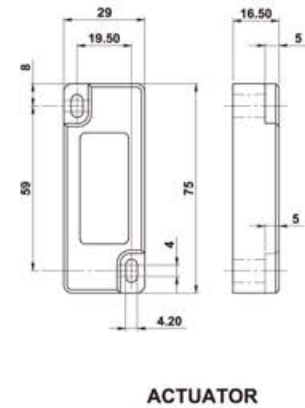


One Switch connected to an SCR-2 or SCR-3 to give Dual Channel monitoring with manual start and contactor feedback check.

Standards	EN1088 IEC 60947-5-3 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508
Safety Classification and Reliability Data:	
Switching Reliability	3.3 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	2.52 x 10^{-8}
Proof Test Interval (Life)	47 years
MTTFd	470 years
Safety Channel 1 NC	24V.dc 0.2 A Max. Rating
Safety Channel 2 NC	24V.dc 0.2 A Max. Rating
Safety Channel 3 NO	24V.dc 0.2 A Max. Rating
Minimum switched current	10V. dc 1mA
Dielectric withstand	250V.ac
Insulation Resistance	100 Mohms
Recommended setting gap	5mm
Switching Distance:	Sao 10mm Close
(Target to target)	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	UL approved polyester
Temperature Range	–25 +80C.
Enclosure Protection	IP69K IP67
Shock Resistance	IEC 68-2-27 11ms 30g
Vibration Resistance	IEC 68-2-6 10-55 Hz. 1mm
Cable Type	PVC 6 or 8 core 6mm O.D.
Mounting Bolts	2 x M4 Tightening torque 1.0 Nm
Mounting Position	Any



SWITCH



ACTUATOR

Sales Number	Type	Cable Length	Circuits
112013	Idecode WPC	2M	2NC
112014	Idecode WPC	5M	2NC
112015	Idecode WPC	10M	2NC
112016	Idecode WPC	QC-M12	2NC
112017	Idecode WPC	2M	2NC 1NO
112018	Idecode WPC	5M	2NC 1NO
112019	Idecode WPC	10M	2NC 1NO
112020	Idecode WPC	QC-M12	2NC 1NO

Available without LED if required

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

IDECODE Coded Non Contact Type: RPC

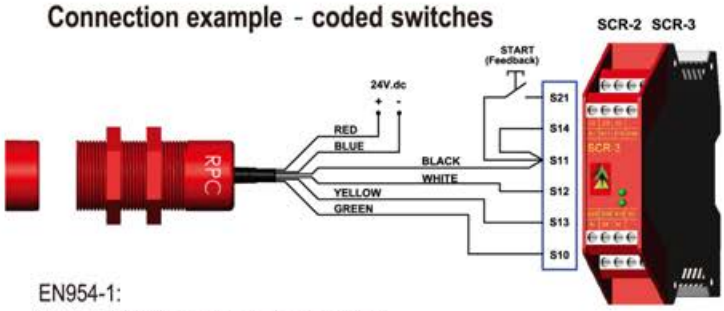
Coded Magnetic Actuation **Switching Tolerance up to 10mm**

Cylindrical fitting suitable for all industry applications.
Easy to install - M30 threaded body - easy to set
Wide 10mm sensing
Robust, suitable for harsh environments
Can be flush mounted
LED indication
Up to: PLe ISO 13849-1 SIL 3 EN 62061 Cat 4 EN 954-1
2NC 1NO circuits - High switching life - no moving parts
Quick connect versions.

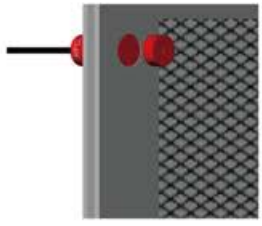
Specified to 80C but designed to work up to 100C.
Will operate with most Safety Relays

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

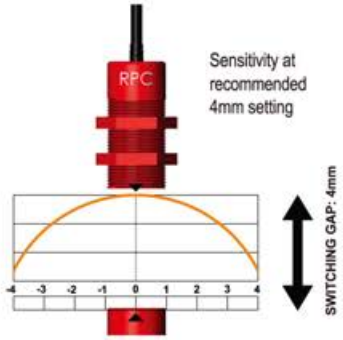
Connection example - coded switches

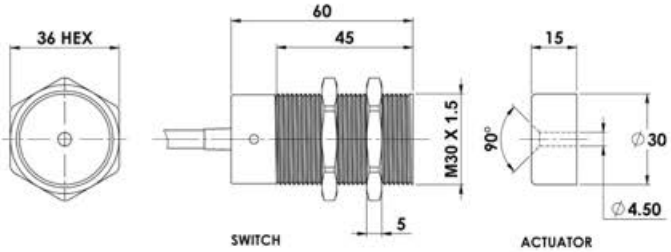


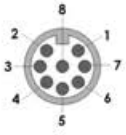
EN954-1:
One switch to one Safety Relay - Cat.4
Multiple switches to one Safety Relay - Cat.3.

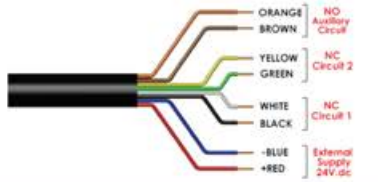


Can be flush mounted









Standards	EN1088 IEC 60947-5-3 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508
Safety Classification and Reliability Data:	
Switching Reliability	3.3 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PL e depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	2.52 x 10^{-8}
Proof Test Interval (Life)	47 years
MTTFd	470 years
Safety Channel 1 NC	24V.dc 0.2 A Max. Rating
Safety Channel 2 NC	24V.dc 0.2 A Max. Rating
Safety Channel 3 NO	24V.dc 0.2 A Max. Rating
Minimum switched current	10V. dc 1mA
Dielectric withstand	250V.ac
Insulation Resistance	100 Mohms
Recommended setting gap	5mm
Switching Distance:	Sao 8mm Close
(Target to target)	Sar 12mm 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	UL approved polyester
Temperature Range	–25 +80C.
Enclosure Protection	IP69K IP67
Shock Resistance	IEC 68-2-27 11ms 30g
Vibration Resistance	IEC 68-2-6 10-55 Hz. 1mm
Cable Type	PVC 6 or 8 core 6mm O.D.
Mounting Position	Any

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

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

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

Sales Number	Type	Cable Length	Circuits
116001	Idecode RPC	2M	2NC
116002	Idecode RPC	5M	2NC
116003	Idecode RPC	10M	2NC
116004	Idecode RPC	QC-M12	2NC
116005	Idecode RPC	2M	2NC 1NO
116006	Idecode RPC	5M	2NC 1NO
116007	Idecode RPC	10M	2NC 1NO
116008	Idecode RPC	QC-M12	2NC 1NO
116105	Idecode RPC	2M	3NC
116106	Idecode RPC	5M	3NC
116107	Idecode RPC	10M	3NC
116108	Idecode RPC	QC-M12	3NC

Note: 2NC 1NO versions have 2NC Safety and 1NO Auxiliary Circuits
3NC versions have 2NC Safety and 1NC Auxiliary Circuits

Available without LED if required

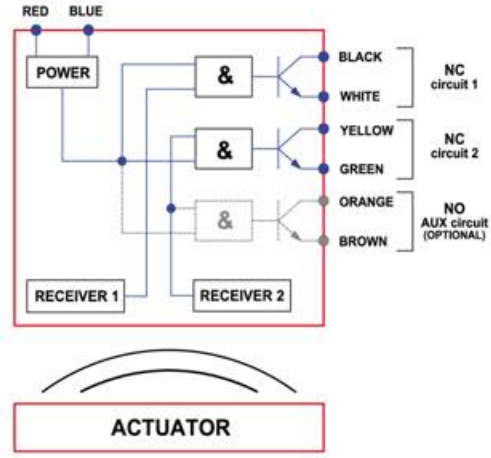
Coded Non Contact - Type: KOBRACODE - KPC

Coded Magnetic Actuation **Switching Tolerance up to 10mm** **Plastic Housing**

Will operate with most Safety Relays **Front and End Actuation**

Front actuation

End Actuation



Application:

IDEM KPC Coded Non Contact switches are designed to interlock hinge, sliding or removal guard doors.
They have an industry standard fixing and are specifically advantageous when :

a) severe guard alignment exists using traditional tongue type versions
b) long mechanical life is required (no moving or touching parts)

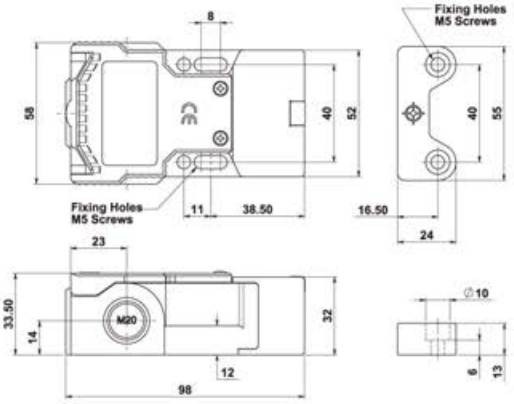
When used in combination with Dual Channel Safety Relays they can be used to provide up to:
PLe ISO 13849-1 SIL 3 EN 62061 Cat.4 EN 954-1

Sensing principle:

Features:

Industry housing shape 52mm wide 98mm long 40mm fixing
2NC 1NO semiconductor outputs for connection to safety relay
Visual LED indication of switch status
Fully encapsulated sealing and pre - wired 2m., 5m., or 10m. cable
M12 8 way Quick connect version - flying lead 150mm

Pre-wired versions – fully encapsulated



Standards	EN1088 IEC 60947-5-3 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508
Safety Classification and Reliability Data:	
Switching Reliability	3.3 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	2.52 x 10^{-8}
Proof Test Interval (Life)	47 years
MTTFd	470 years
Safety Channel 1 NC	24V.dc 0.2 A Max. Rating
Safety Channel 2 NC	24V.dc 0.2 A Max. Rating
Safety Channel 3 NO	24V.dc 0.2 A Max. Rating
Minimum switched current	10V. dc 1mA
Dielectric withstand	250V.ac
Insulation Resistance	100 Mohms
Recommended setting gap	5mm
Switching Distance:	Sao 8mm Close
(Target to target)	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	UL approved polyester
Temperature Range	–25 +80C.
Enclosure Protection	IP67 (NEMA 6)
Shock Resistance	IEC 68-2-27 11ms 30g
Vibration Resistance	IEC 68-2-6 10-55 Hz. 1mm
Cable Type	PVC 8 core 6mm O.D.
Mounting Bolts	2 x M5 Tightening torque 1.0 Nm
Mounting Position	Any

Sales Number	Type	Conduit or cable exit	Circuits
120001	Idecode KPC	Pre-wired 2m. End	2NC 1NO
120002	Idecode KPC	Pre-wired 5m. End	2NC 1NO
120003	Idecode KPC	Pre-wired 10m. End	2NC 1NO
120004	Idecode KPC	Pre-wired 2m. Left	2NC 1NO
120005	Idecode KPC	Pre-wired 5m. Left	2NC 1NO
120006	Idecode KPC	Pre-wired 10m. Left	2NC 1NO
120007	Idecode KPC	Pre-wired 2m. Right	2NC 1NO
120008	Idecode KPC	Pre-wired 5m. Right	2NC 1NO
120009	Idecode KPC	Pre-wired 10m. Right	2NC 1NO
120012	Idecode KPC	QC M12 8 way 150mm End	2NC 1NO

HYGIECODE - Coded Non Contact - Type: MMC-H

Coded Magnetic Actuation **Switching Tolerance up to 10mm**

Compact yet robust fitting suitable for all small guard applications.
Through hole fixing to enable front mounting
No food trap areas
Suitable for CIP SIP cleaning - Food Contact
or Splash Zones EHEDG guideline
LED indication.
Cost effective interlock solution.
Wide sensing at 10mm.
Can be mounted unobtrusively in channels or behind doors - left or right cable exit
UP to: PLe ISO 13849-1 SIL 3 EN 62061 Cat. 4 EN 954-1
2NC 1NO circuits - High switching life - no moving parts

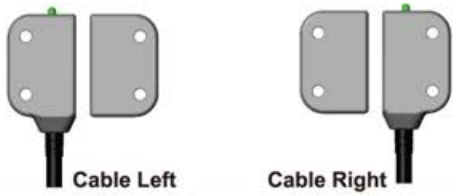
Specified to 105C but designed to work up to 125C.

Will operate with most Safety Relays

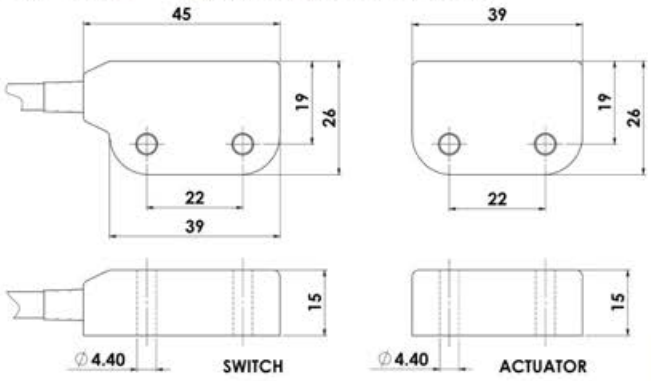
Stainless Steel Housing

Tested IP69K (high pressure hosing with detergent at 80C. and 100psi)

Left or Right cable exit available



Cable Left **Cable Right**



Standards	EN1088 IEC 60947-5-3 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508

Safety Classification and Reliability Data:

Switching Reliability	3.3 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	2.52 x 10^{-8}
Proof Test Interval (Life)	47 years
MTTFd	470 years
Safety Channel 1 NC	24V.dc 0.2 A Max. Rating
Safety Channel 2 NC	24V.dc 0.2 A Max. Rating
Safety Channel 3 NO	24V.dc 0.2 A Max. Rating
Minimum switched current	10V. dc 1mA
Dielectric withstand	250V.ac
Insulation Resistance	100 Mohms
Recommended setting gap	5mm
Switching Distance:	Sao 8mm Close
(Target to target)	Sar 12mm 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 (Ra4)
Temperature Range	–25 +105C.
Enclosure Protection	IP69K IP67
Shock Resistance	IEC 68-2-27 11ms 30g
Vibration Resistance	IEC 68-2-6 10-55 Hz. 1mm
Cable Type	PVC 6 or 8 core 6mm O.D.
Mounting Bolts	2 x M4 Tightening torque 1.0 Nm
Mounting Position	Any

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

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

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

Sales Number	Type	Cable Length	Circuits
131101	MMC-H Cable Right	2M	2NC
131102	MMC-H Cable Right	5M	2NC
131103	MMC-H Cable Right	10M	2NC
131104	MMC-H Cable Right	QC-M12*	2NC
131105	MMC-H Cable Right	2M	2NC 1NO
131106	MMC-H Cable Right	5M	2NC 1NO
131107	MMC-H Cable Right	10M	2NC 1NO
131108	MMC-H Cable Right	QC-M12*	2NC 1NO
131109	MMC-H Cable Right	2M	3NC
131110	MMC-H Cable Right	5M	3NC
131111	MMC-H Cable Right	10M	3NC
131112	MMC-H Cable Right	QC-M12*	3NC
131113	MMC-H Cable Left	2M	2NC
131114	MMC-H Cable Left	5M	2NC
131115	MMC-H Cable Left	10M	2NC
131116	MMC-H Cable Left	QC-M12*	2NC
131117	MMC-H Cable Left	2M	2NC 1NO
131118	MMC-H Cable Left	5M	2NC 1NO
131119	MMC-H Cable Left	10M	2NC 1NO
131120	MMC-H Cable Left	QC-M12*	2NC 1NO
131121	MMC-H Cable Left	2M	3NC
131122	MMC-H Cable Left	5M	3NC
131123	MMC-H Cable Left	10M	3NC
131124	MMC-H Cable Left	QC-M12*	3NC
		* Other QC sizes available upon request	

Note: 2NC 1NO versions have 2NC Safety and 1NO Auxiliary Circuits
3NC versions have 2NC Safety and 1NC Auxiliary Circuits

Available without LED if required

HYGIECODE - Coded Non Contact - Type: SMC

Coded Magnetic Actuation **Switching Tolerance up to 14mm**

Will operate with most Safety Relays

Specified to 105C but designed to work up to 125C.

Robust Stainless Steel 316 enclosure designed to survive the tough environments of Food and Pharmaceutical applications.

LED indication. Stainless Steel 316 Mirror polish finish (Ra4).

Survives high pressure hosing at high temperature.

High temperature specification 105C.

Wide 14mm sensing and high tolerance to misalignment.

Universal fitting - established 22mm fixing footprint suitable for most general applications.

Quick connect versions.

Suitable for CIP SIP cleaning - Food Splash zones EHEDG guidelines

Up to: PLe ISO 13849-1 SIL 3 EN 62061 Cat 4 EN 954-1

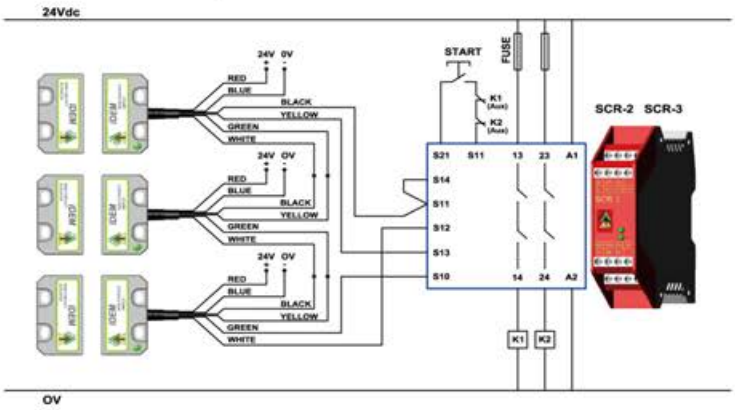
2NC 1NO circuits - High switching life - no moving parts

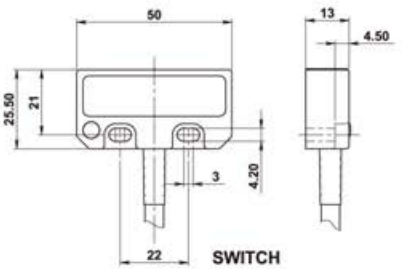
Stainless Steel Housing

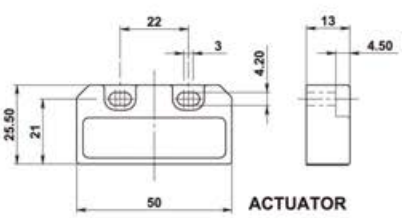
Tested IP69K (high pressure hosing with detergent at 80C. and 100psi)

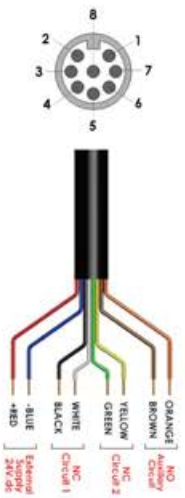
Quick Connect M12 versions fitted with 250mm (10") cable

Connection example - coded switches









Standards	EN1088 IEC 60947-5-3 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508
Safety Classification and Reliability Data:	
Switching Reliability	3.3 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	2.52 x 10^{-8}
Proof Test Interval (Life)	47 years
MTTFd	470 years
Safety Channel 1 NC	24V.dc 0.2 A Max. Rating
Safety Channel 2 NC	24V.dc 0.2 A Max. Rating
Safety Channel 3 NO	24V.dc 0.2 A Max. Rating
Minimum switched current	10V. dc 1mA
Dielectric withstand	250V.ac
Insulation Resistance	100 Mohms
Recommended setting gap	5mm
Switching Distance:	Sao 10mm Close
(Target to target)	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 (Ra4)
Temperature Range	–25 +105C.
Enclosure Protection	IP69K IP67
Shock Resistance	IEC 68-2-27 11ms 30g
Vibration Resistance	IEC 68-2-6 10-55 Hz. 1mm
Cable Type	PVC 6 or 8 core 6mm O.D.
Mounting Bolts	2 x M4 Tightening torque 1.0 Nm
Mounting Position	Any

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

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

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

Sales Number	Type	Cable Length	Circuits
139001	Hygiecode SMC	2M	2NC
139002	Hygiecode SMC	5M	2NC
139003	Hygiecode SMC	10M	2NC
139004	Hygiecode SMC	QC-M12	2NC
139005	Hygiecode SMC	2M	2NC 1NO
139006	Hygiecode SMC	5M	2NC 1NO
139007	Hygiecode SMC	10M	2NC 1NO
139008	Hygiecode SMC	QC-M12	2NC 1NO
139105	Hygiecode SMC	2M	3NC
139106	Hygiecode SMC	5M	3NC
139107	Hygiecode SMC	10M	3NC
139108	Hygiecode SMC	QC-M12	3NC

Note: 2NC 1NO versions have 2NC Safety and 1NO Auxiliary Circuits
3NC versions have 2NC Safety and 1NC Auxiliary Circuits

Available without LED if required

HYGIECODE - Coded Non Contact - Type: SMC-F

Coded Magnetic Actuation **Switching Tolerance up to 14mm**

Stainless Steel 316 housing **IP69K** **Specified to 105C but designed to work up to 125C.**

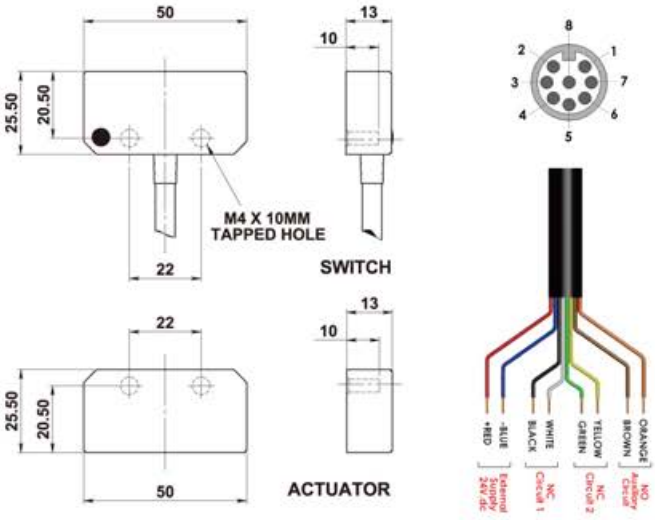
Specifically designed for Food Processing applications - Stainless Steel 316 Mirror polished finish (Ra4).
Suitable for CIP and SIP cleaning - mounting holes are at the rear - no food traps
Universal housing - 22mm fixing hole centre - 50mm wide body
Rear fixing 2 x M4 tapped holes
Can be high pressure hosed at high temperature - IP69K
Wide 14mm sensing high tolerance to misalignment.
LED indication
Up to: PLe ISO 13849-1 SIL 3 EN 62061 Cat 4 EN 954-1
2NC 1NO circuits - High switching life - no moving parts

No Food Trap Housing -
Rear Mounting Holes

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

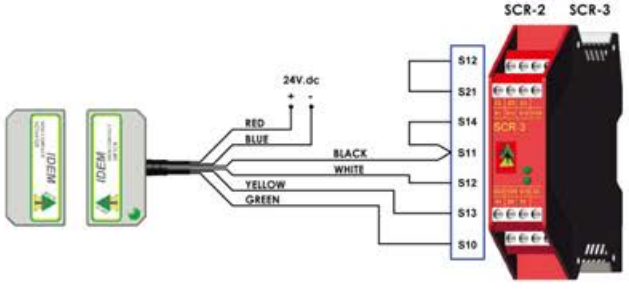
Stainless Steel Housing

Tested IP69K (high pressure hosing with detergent at 80C. and 100psi)



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

Standards	EN1088 IEC 60947-5-3 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508
Safety Classification and Reliability Data:	
Switching Reliability	3.3 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	2.52 x 10^{-8}
Proof Test Interval (Life)	47 years
MTTFd	470 years
Safety Channel 1 NC	24V.dc 0.2 A Max. Rating
Safety Channel 2 NC	24V.dc 0.2 A Max. Rating
Safety Channel 3 NO	24V.dc 0.2 A Max. Rating
Minimum switched current	10V. dc 1mA
Dielectric withstand	250V.ac
Insulation Resistance	100 Mohms
Recommended setting gap	5mm
Switching Distance:	Sao 10mm Close
(Target to target)	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 (Ra4)
Temperature Range	–25 +105C.
Enclosure Protection	IP69K IP67
Shock Resistance	IEC 68-2-27 11ms 30g
Vibration Resistance	IEC 68-2-6 10-55 Hz. 1mm
Cable Type	PVC 6 or 8 core 6mm O.D.
Mounting Bolts	2 x M4 Tightening torque 1.0 Nm
Mounting Position	Any



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

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

Sales Number	Type	Cable Length	Circuits
137001	Hygiecode SMC-F	2M	2NC
137002	Hygiecode SMC-F	5M	2NC
137003	Hygiecode SMC-F	10M	2NC
137004	Hygiecode SMC-F	QC-M12	2NC
137005	Hygiecode SMC-F	2M	2NC 1NO
137006	Hygiecode SMC-F	5M	2NC 1NO
137007	Hygiecode SMC-F	10M	2NC 1NO
137008	Hygiecode SMC-F	QC-M12	2NC 1NO
137105	Hygiecode SMC-F	2M	3NC
137106	Hygiecode SMC-F	5M	3NC
137107	Hygiecode SMC-F	10M	3NC
137108	Hygiecode SMC-F	QC-M12	3NC

Note: 2NC 1NO versions have 2NC Safety and 1NO Auxiliary Circuits
3NC versions have 2NC Safety and 1NC Auxiliary Circuits

Available without LED if required

HYGIECODE - Coded Non Contact - Type: SMC-H

Coded Magnetic Actuation **Switching Tolerance up to 14mm**

Will operate with most Safety Relays **Specified to 105C but designed to work up to 125C.**

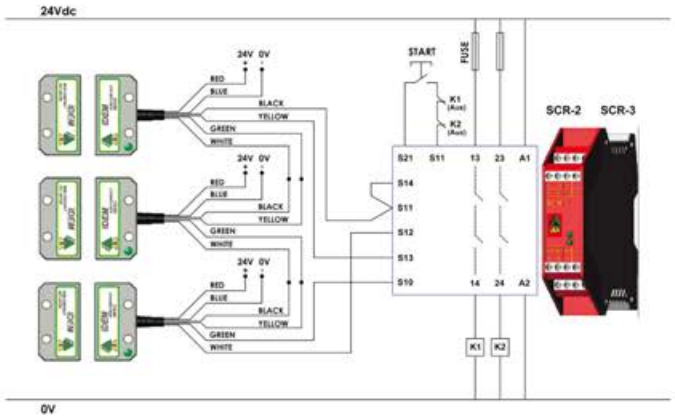
Robust Stainless Steel 316 enclosure designed to survive Food and Pharmaceutical applications.
Through Hole Fixing to enable front mounting by hexagon head bolts - no food trap areas
Suitable for CIP SIP cleaning - Food Contact or Splash zones EHEDG guidelines
LED indication. Stainless Steel 316 Mirror polish finish (Ra4).
Survives high pressure hosing at high temperature.
High temperature specification 105C.
Wide 14mm sensing and high tolerance to misalignment.
Universal fitting - established 22mm fixing footprint suitable for most general applications.
Up to: PLe ISO 13849-1 SIL 3 EN 62061 Cat 4 EN 954-1
2NC 1NO circuits - High switching life - no moving parts
Quick connect versions.

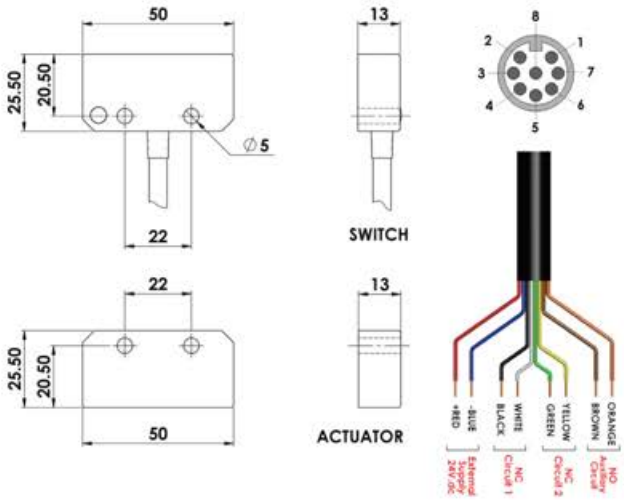
Stainless Steel Housing

use Hexagon Head Bolts for ease of cleaning.

Tested IP69K (high pressure hosing with detergent at 80C. and 100psi)

Connection example - coded switches





Standards	EN1088 IEC 60947-5-3 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508
Safety Classification and Reliability Data:	
Switching Reliability	3.3 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	2.52 x 10^{-8}
Proof Test Interval (Life)	47 years
MTTFd	470 years
Safety Channel 1 NC	24V.dc 0.2 A Max. Rating
Safety Channel 2 NC	24V.dc 0.2 A Max. Rating
Safety Channel 3 NO	24V.dc 0.2 A Max. Rating
Minimum switched current	10V. dc 1mA
Dielectric withstand	250V.ac
Insulation Resistance	100 Mohms
Recommended setting gap	5mm
Switching Distance:	Sao 10mm Close
(Target to target)	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 (Ra4)
Temperature Range	–25 +105C.
Enclosure Protection	IP69K IP67
Shock Resistance	IEC 68-2-27 11ms 30g
Vibration Resistance	IEC 68-2-6 10-55 Hz. 1mm
Cable Type	PVC 6 or 8 core 6mm O.D.
Mounting Bolts	2 x M4 Tightening torque 1.0 Nm
Mounting Position	Any

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

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

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

Sales Number	Type	Cable Length	Circuits
132001	Hygiecode SMC-H	2M	2NC
132002	Hygiecode SMC-H	5M	2NC
132003	Hygiecode SMC-H	10M	2NC
132004	Hygiecode SMC-H	QC-M12	2NC
132005	Hygiecode SMC-H	2M	2NC 1NO
132006	Hygiecode SMC-H	5M	2NC 1NO
132007	Hygiecode SMC-H	10M	2NC 1NO
132008	Hygiecode SMC-H	QC-M12	2NC 1NO
132105	Hygiecode SMC-H	2M	3NC
132106	Hygiecode SMC-H	5M	3NC
132107	Hygiecode SMC-H	10M	3NC
132108	Hygiecode SMC-H	QC-M12	3NC

Note: 2NC 1NO versions have 2NC Safety and 1NO Auxiliary Circuits
3NC versions have 2NC Safety and 1NC Auxiliary Circuits

Available without LED if required

HYGIECODE - Coded Non Contact - Type: LMC

Coded Magnetic Actuation **Switching Tolerance up to 14mm**

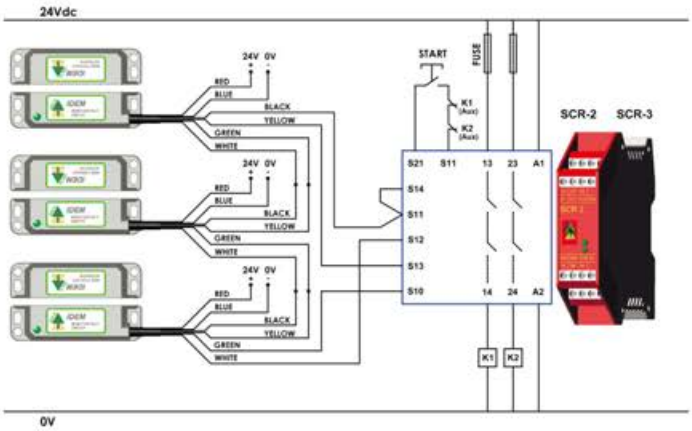
Specifically designed for Food Processing applications - Stainless Steel 316 Mirror polished finish (Ra4).
Suitable for CIP cleaning - Food Splash zones EHEDG guidelines
Wide 14mm sensing high tolerance to misalignment.
LED indication
Quick connect versions.
Magnetic Holding Versions for use with small guards
Up to: PLe ISO 13849-1 SIL 3 EN 62061 Cat 4 EN 954-1
2NC 1NO circuits - High switching life - no moving parts

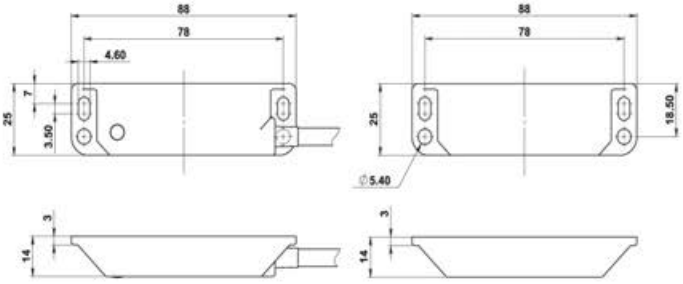
Specified to 105C
but designed to work up to 125C.
Will operate with most EN 954-1
Cat.4 Safety Relays

Stainless Steel Housing

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

Tested IP69K (high pressure hosing with detergent at 80C. and 100psi)





SWITCH ACTUATOR

Three 2NC version switches connected in series to an SCR-2 or SCR-3 to give Dual Channel monitoring with manual start and contactor feedback check.

Standards	EN1088 IEC 60947-5-3 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508
Safety Classification and Reliability Data:	
Switching Reliability	3.3 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	2.52 x 10^{-8}
Proof Test Interval (Life)	47 years
MTTFd	470 years
Safety Channel 1 NC	24V.dc 0.2 A Max. Rating
Safety Channel 2 NC	24V.dc 0.2 A Max. Rating
Safety Channel 3 NO	24V.dc 0.2 A Max. Rating
Minimum switched current	10V. dc 1mA
Dielectric withstand	250V.ac
Insulation Resistance	100 Mohms
Recommended setting gap	5mm
Switching Distance:	Sao 10mm Close
(Target to target)	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 (Ra4)
Temperature Range	–25 +105C.
Enclosure Protection	IP69K IP67
Shock Resistance	IEC 68-2-27 11ms 30g
Vibration Resistance	IEC 68-2-6 10-55 Hz. 1mm
Cable Type	PVC 6 or 8 core 6mm O.D.
Mounting Bolts	2 x M4 Tightening torque 1.0 Nm
Mounting Position	Any

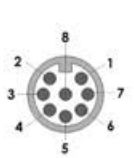
Magnetic Holding versions

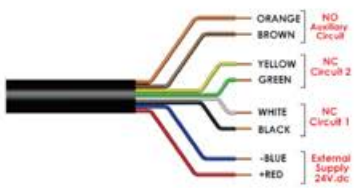
At 1mm setting gap: 10N.
At 5mm setting gap: 5N.

Sales Number	Type	Cable Length	Circuits
133001	Hygiecode LMC	2M	2NC
133002	Hygiecode LMC	5M	2NC
133003	Hygiecode LMC	10M	2NC
133004	Hygiecode LMC	QC-M12	2NC
133005	Hygiecode LMC	2M	2NC 1NO
133006	Hygiecode LMC	5M	2NC 1NO
133007	Hygiecode LMC	10M	2NC 1NO
133008	Hygiecode LMC	QC-M12	2NC 1NO
133017	Hygiecode LMC	2M	3NC
133018	Hygiecode LMC	5M	3NC
133019	Hygiecode LMC	10M	3NC
133020	Hygiecode LMC	QC-M12	3NC

For Magnetic Holding Versions add 10N to Part Number
Example: LMC 2NC 10m. with Magnetic Hold Part 133003-10N

Note: 2NC 1NO versions have 2NC Safety and 1NO Auxiliary Circuits
3NC versions have 2NC Safety and 1NC Auxiliary Circuits





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

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

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

HYGIECODE – Coded Non Contact – Type: CMC

Coded Magnetic Actuation **Switching Tolerance up to 14mm**

Will operate with most Safety Relays **IP69K**

Specified to 105C
but designed to work up to 125C.

Specifically designed for Food Processing applications - Stainless Steel 316 Mirror polished finish (Ra4).

Suitable for CIP cleaning

Industry standard slim 20mm wide housing - can be fitted in narrow channels

Can be high pressure hosed at high temperature - IP69K

Wide 14mm sensing high tolerance to misalignment.

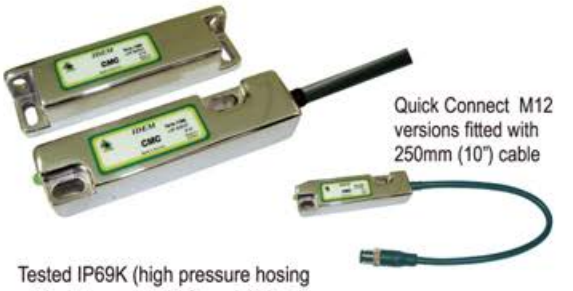
LED indication

Suitable for CIP SIP cleaning - Food Splash zones EHEDG guidelines

Up to: PLe ISO 13849-1 SIL 3 EN 62061 Cat 4 EN 954-1

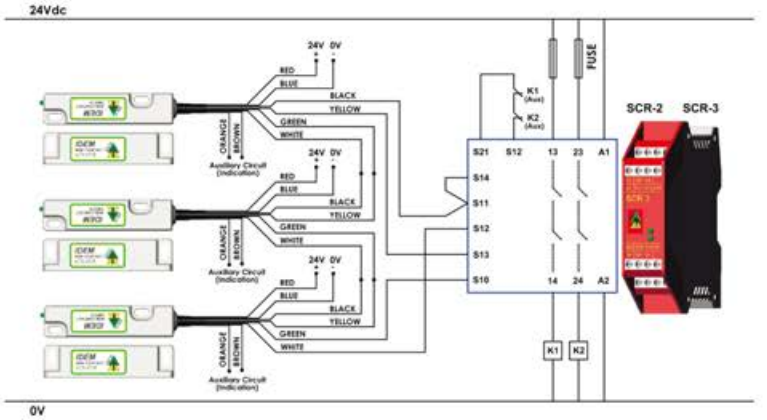
2NC 1NO circuits - High switching life - no moving parts

Stainless Steel Housing

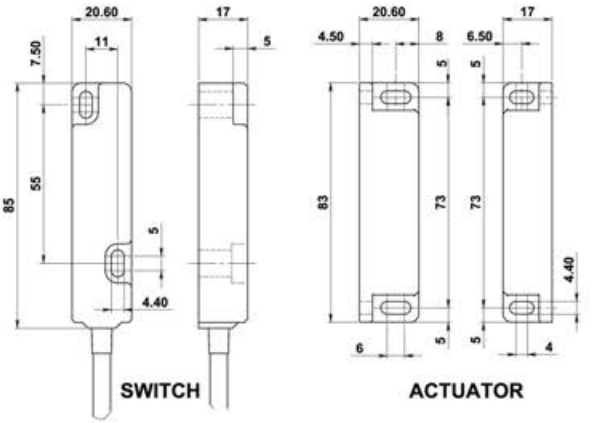


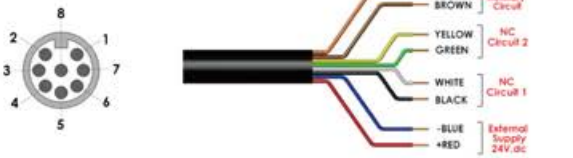
Quick Connect M12 versions fitted with 250mm (10") cable

Tested IP69K (high pressure hosing with detergent at 80C. and 100psi)



Three switches connected in series to an SCR-2 or SCR-3 to give Dual Channel monitoring with auto start and contactor feedback check. Optional auxiliary circuits provide for remote signalling from each switch.





Standards	EN1088 IEC 60947-5-3 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508
Safety Classification and Reliability Data:	
Switching Reliability	3.3 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	2.52 x 10^{-8}
Proof Test Interval (Life)	47 years
MTTFd	470 years
Safety Channel 1 NC	24V.dc 0.2 A Max. Rating
Safety Channel 2 NC	24V.dc 0.2 A Max. Rating
Safety Channel 3 NO	24V.dc 0.2 A Max. Rating
Minimum switched current	10V. dc 1mA
Dielectric withstand	250V.ac
Insulation Resistance	100 Mohms
Recommended setting gap	5mm
Switching Distance:	Sao 10mm Close
(Target to target)	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 (Ra4)
Temperature Range	–25 +105C.
Enclosure Protection	IP69K IP67
Shock Resistance	IEC 68-2-27 11ms 30g
Vibration Resistance	IEC 68-2-6 10-55 Hz. 1mm
Cable Type	PVC 6 or 8 core 6mm O.D.
Mounting Bolts	2 x M4 Tightening torque 1.0 Nm
Mounting Position	Any

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

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

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

Sales Number	Type	Cable Length	Circuits
138001	Hygiecode CMC	2M	2NC
138002	Hygiecode CMC	5M	2NC
138003	Hygiecode CMC	10M	2NC
138004	Hygiecode CMC	QC-M12	2NC
138005	Hygiecode CMC	2M	2NC 1NO
138006	Hygiecode CMC	5M	2NC 1NO
138007	Hygiecode CMC	10M	2NC 1NO
138008	Hygiecode CMC	QC-M12	2NC 1NO
138105	Hygiecode CMC	2M	3NC
138106	Hygiecode CMC	5M	3NC
138107	Hygiecode CMC	10M	3NC
138108	Hygiecode CMC	QC-M12	3NC

Note: 2NC 1NO versions have 2NC Safety and 1NO Auxiliary Circuits
3NC versions have 2NC Safety and 1NC Auxiliary Circuits

Available without LED if required

HYGIECODE - Coded Non Contact - Type: CMC-F

Coded Magnetic Actuation **Switching Tolerance up to 14mm**

Stainless Steel 316 housing **IP69K**

Specified to 105C, but designed to work up to 125C
Will operate with most Safety Relays

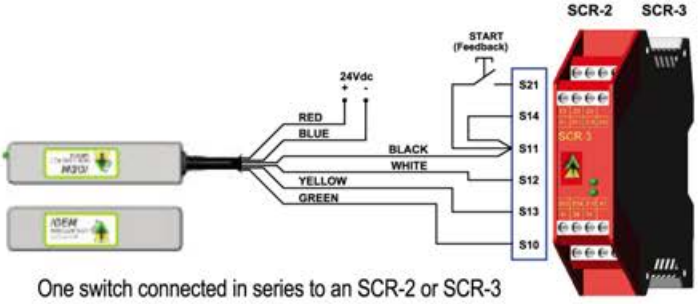
Specifically designed for Food Processing applications - Stainless Steel 316 Mirror polished finish (Ra4).
Suitable for CIP SIP cleaning - mounting holes are at the rear - no food traps
Suitable for Food contact zones - EHEDG guidelines
Slim fixing - can be fitted in narrow channels
Can be high pressure hosed at high temperature - IP69K
Wide 14mm sensing high tolerance to misalignment.
LED indication
Up to: PLe ISO 13849-1 SIL 3 EN 62061 Cat 4 EN 954-1
2NC 1NO circuits - High switching life - no moving parts

Stainless Steel Housing

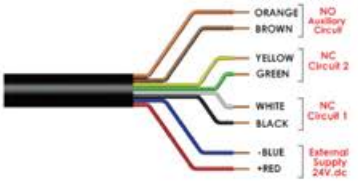
No Food Trap Housing –
Rear Mounting Holes

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

Tested IP69K (high pressure hosing with detergent at 80C. and 100psi)



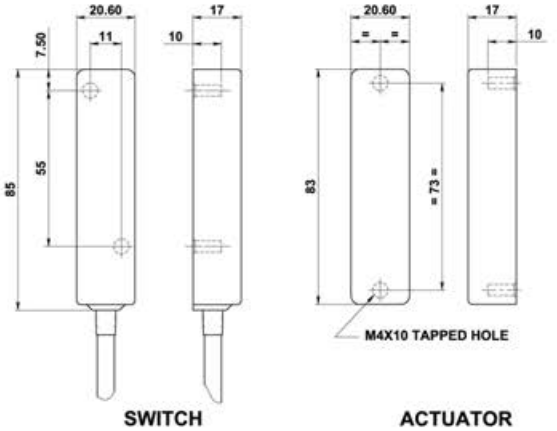
One switch connected in series to an SCR-2 or SCR-3 to give Dual Channel monitoring with manual start.



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

Standards	EN1088 IEC 60947-5-3 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508
Safety Classification and Reliability Data:	
Switching Reliability	3.3 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	2.52 x 10^{-8}
Proof Test Interval (Life)	47 years
MTTFd	470 years
Safety Channel 1 NC	24V.dc 0.2 A Max. Rating
Safety Channel 2 NC	24V.dc 0.2 A Max. Rating
Safety Channel 3 NO	24V.dc 0.2 A Max. Rating
Minimum switched current	10V. dc 1mA
Dielectric withstand	250V.ac
Insulation Resistance	100 Mohms
Recommended setting gap	5mm
Switching Distance:	Sao 10mm Close
(Target to target)	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 (Ra4)
Temperature Range	–25 +105C.
Enclosure Protection	IP69K IP67
Shock Resistance	IEC 68-2-27 11ms 30g
Vibration Resistance	IEC 68-2-6 10-55 Hz. 1mm
Cable Type	PVC 6 or 8 core 6mm O.D.
Mounting Bolts	2 x M4 Tightening torque 1.0 Nm
Mounting Position	Any

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



SWITCH **ACTUATOR**

Sales Number	Type	Cable Length	Circuits
135001	Hygiecode CMC-F	2M	2NC
135002	Hygiecode CMC-F	5M	2NC
135003	Hygiecode CMC-F	10M	2NC
135004	Hygiecode CMC-F	QC-M12	2NC
135005	Hygiecode CMC-F	2M	2NC 1NO
135006	Hygiecode CMC-F	5M	2NC 1NO
135007	Hygiecode CMC-F	10M	2NC 1NO
135008	Hygiecode CMC-F	QC-M12	2NC 1NO
135105	Hygiecode CMC-F	2M	3NC
135106	Hygiecode CMC-F	5M	3NC
135107	Hygiecode CMC-F	10M	3NC
135108	Hygiecode CMC-F	QC-M12	3NC

Note: 2NC 1NO versions have 2NC Safety and 1NO Auxiliary Circuits
3NC versions have 2NC Safety and 1NC Auxiliary Circuits

Available without LED if required

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

HYGIECODE - Coded Non Contact - Type WMC

Coded Magnetic Actuation **Switching Tolerance up to 14mm**

Will operate with most Safety Relays

Specified to 105C
but designed to work up to 125C.

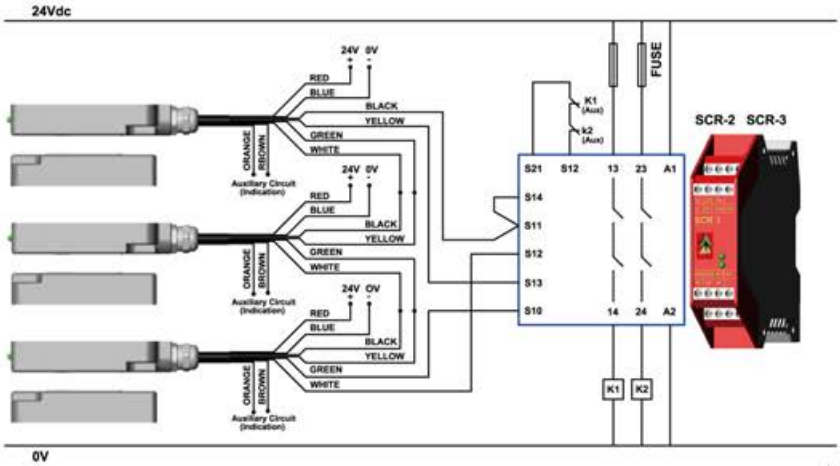
Stainless Steel Housing

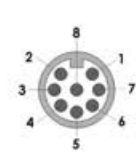
Specifically designed for Food Processing applications - Stainless Steel 316 Mirror polished (Ra4)
Robust 32mm wide housing - no moving parts - survives shock and vibration
Can be high pressure hosed at high temperature - IP69K
Wide 14mm sensing high tolerance to misalignment.
LED indication
Suitable for CIP SIP cleaning food Splash zones EHEDG guidelines
Up to: PLe ISO 13849-1 SIL 3 EN 62061 Cat 4 EN 954-1
2NC 1NO circuits - High switching life - no moving parts

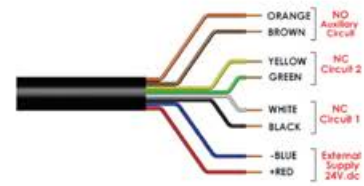
Quick Connect M12 versions fitted with 250mm (10") cable

Tested IP69K (high pressure hosing with detergent at 80C. and 100psi)

Connection example – coded switches

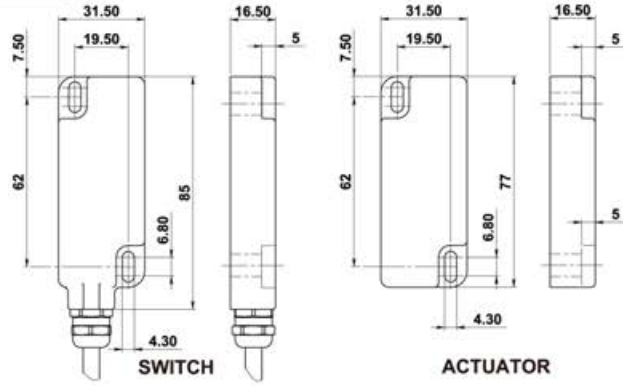






Three switches connected in series to an SCR-2 or SCR-3 to give Dual Channel monitoring with auto start and contactor feedback check. Optional auxiliary circuits provide for remote signalling from each switch.

Standards	EN1088 IEC 60947-5-3 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508
Safety Classification and Reliability Data:	
Switching Reliability	3.3 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	2.52 x 10^{-8}
Proof Test Interval (Life)	47 years
MTTFd	470 years
Safety Channel 1 NC	24V.dc 0.2 A Max. Rating
Safety Channel 2 NC	24V.dc 0.2 A Max. Rating
Safety Channel 3 NO	24V.dc 0.2 A Max. Rating
Minimum switched current	10V. dc 1mA
Dielectric withstand	250V.ac
Insulation Resistance	100 Mohms
Recommended setting gap	5mm
Switching Distance:	Sao 10mm Close
(Target to target)	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 (Ra4)
Temperature Range	–25 +105C.
Enclosure Protection	IP69K (NEMA PW12) IP67 (NEMA 6)
Shock Resistance	IEC 68-2-27 11ms 30g
Vibration Resistance	IEC 68-2-6 10-55 Hz. 1mm
Cable Type	PVC 6 or 8 core 6mm O.D.
Mounting Bolts	2 x M4 Tightening torque 1.0 Nm
Mounting Position	Any



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

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

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

Sales Number	Type	Cable Length	Circuits
136013	Hygiecode WMC	2M	2NC
136014	Hygiecode WMC	5M	2NC
136015	Hygiecode WMC	10M	2NC
136016	Hygiecode WMC	QC-M12	2NC
136017	Hygiecode WMC	2M	2NC 1NO
136018	Hygiecode WMC	5M	2NC 1NO
136019	Hygiecode WMC	10M	2NC 1NO
136020	Hygiecode WMC	QC-M12	2NC 1NO

Available without LED if required

HYGIECODE - Coded Non Contact - Type: RMC

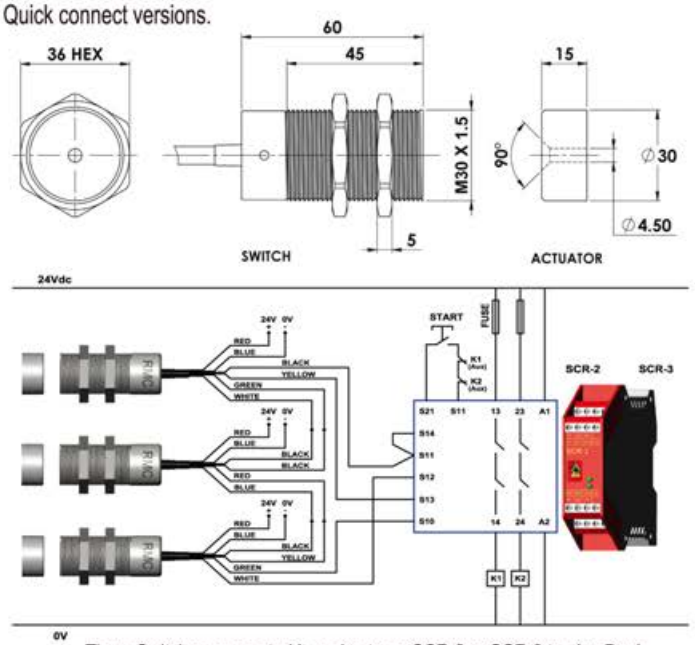
Coded Magnetic Actuation **Switching Tolerance up to 10mm**

Cylindrical fitting suitable for all industry applications.
Easy to install - M30 threaded body - easy to set
Wide 10mm sensing - low hysterisis - no moving parts
Suitable to be harsh environments of Food processing and packaging
Can be flush mounted - solid stainless steel 316 housing
LED indication Stainless Steel 316
Up to: PLe ISO 13849-1 SIL 3 EN 62061 Cat 4 EN 954-1
2NC 1NO circuits
Quick connect versions.

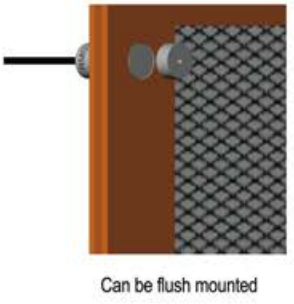
Specified to 105C, but designed to work up to 125C
Will operate with most Safety Relays

Stainless Steel Housing

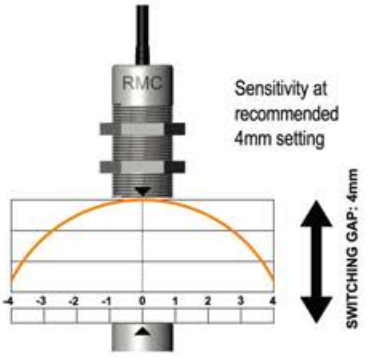
Tested IP69K (high pressure hosing with detergent at 80C. and 100psi)

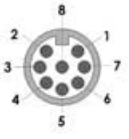


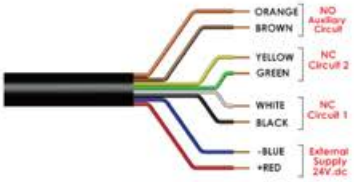
Three Switches connected in series to an SCR-2 or SCR-3 to give Dual Channel Guard monitoring manual start and contactor feedback check.



Can be flush mounted







Standards	EN1088 IEC 60947-5-3 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508
Safety Classification and Reliability Data:	
Switching Reliability	3.3 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	2.52 x 10^{-8}
Proof Test Interval (Life)	47 years
MTTFd	470 years
Safety Channel 1 NC	24V.dc 0.2 A Max. Rating
Safety Channel 2 NC	24V.dc 0.2 A Max. Rating
Safety Channel 3 NO	24V.dc 0.2 A Max. Rating
Minimum switched current	10V. dc 1mA
Dielectric withstand	250V.ac
Insulation Resistance	100 Mohms
Recommended setting gap	5mm
Switching Distance:	Sao 8mm Close
(Target to target)	Sar 12mm 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 (Ra4)
Temperature Range	–25 +105C.
Enclosure Protection	IP69K IP67
Shock Resistance	IEC 68-2-27 11ms 30g
Vibration Resistance	IEC 68-2-6 10-55 Hz. 1mm
Cable Type	PVC 6 or 8 core 6mm O.D.
Mounting Bolts	2 x M4 Tightening torque 1.0 Nm
Mounting Position	Any

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

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

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

Sales Number	Type	Cable Length	Circuits
134001	Hygiecode RMC	2M	2NC
134002	Hygiecode RMC	5M	2NC
134003	Hygiecode RMC	10M	2NC
134004	Hygiecode RMC	QC-M12	2NC
134005	Hygiecode RMC	2M	2NC 1NO
134006	Hygiecode RMC	5M	2NC 1NO
134007	Hygiecode RMC	10M	2NC 1NO
134008	Hygiecode RMC	QC-M12	2NC 1NO
134105	Hygiecode RMC	2M	3NC
134106	Hygiecode RMC	5M	3NC
134107	Hygiecode RMC	10M	3NC
134108	Hygiecode RMC	QC-M12	3NC

Note: 2NC 1NO versions have 2NC Safety and 1NO Auxiliary Circuits
3NC versions have 2NC Safety and 1NC Auxiliary Circuits

Available without LED if required

Magnetic Non Contact Safety Interlock Switches

Operation:

All IDEM Magnetic Non Contact Safety Switches are designed to conform to IEC 60947-5-3 and be used as directed by ISO12100, ISO14121 and EN 60204-1.

They have magnetic sensing which provides a wide (>12mm) sensing distance and provides a high tolerance to misalignment after sensing.

They can operate from 4 directions even in extreme environments of temperature and moisture.

They have volt free high power switching capability (either 1A. or 2A. ac/dc) and can be used independently to switch low risk applications, or connect to a Safety Relay to provide higher safety levels.

Application:

IDEM magnetic Non Contact switches are designed to interlock hinged, sliding or removal guard doors.

They are specifically advantageous when :

a) poor guard alignment exists and a wide tolerance to misalignment is required
b) high hygiene is required e.g. food industry hose down
c) high switching capacity is required

When used in combination with Dual Channel Safety Relays they can be used to provide up to: PLe / Category 4 to ISO 13849-1

Features:

Magnetic High Power Switching up to 230V.ac 2A.
Dual channel safety output 2NC (1NO auxiliary optional)
Wide switching distance up to 12mm
High tolerance to guard misalignment
Enclosure Protected to IP67 or IP69K
Conformance to IEC 60947-5-3 PDF-S PDF-D

Choice of miniature, compact, wide or barrel type housings.
Choice of high specification plastic or Stainless Steel 316 (Food Industry Compatible)
High temperature stability up to 80C.(Plastic) and 105C. (Stainless Steel)
Resistance to many organic and inorganic chemicals
Resistant to high temperature hosing and detergent washdown
Volt free contacts – up to 230V.ac 2A. and 24V.dc 2A. (Internally Fused)

Plastic versions:

The Plastic **Idemag** range have been developed for non-contact guard door interlocking in the applications of general factory automation, packaging and some food processing industries.

Supplied with Screw Cap prevent contamination from deposits.

MPR

Miniature industry standard design. 22mm fixing centres, available with Left or Right cable exit.

SPR

Universal 22mm fixing centres.

LPR

European industry standard fitting. End cable exit.

WPR

Industry standard wide fitting. Front face actuation for large guards.

CPR

Compact slim fitting housing - suitable for fitting to applications where space is limited.

RPR

M30 threaded body – easy to mount

Magnetic Non Contact Safety Interlock Switches

Stainless Steel 316 versions:

The Stainless Steel 316 **Hygiemag** range have been developed for non-contact guard door interlocking in the application for Food Processing, Pharmaceutical, Packaging and Chemical Industries.

Stainless Steel 316
Suitable for CIP and SIP cleaning
Can be high pressure hosed at high temperature - IP69K
Wide 12mm sensing high tolerance to misalignment
Designed in accordance with EHEDG guidelines for hygienic design (EHEDG European Hygienic Engineering & Design Group)

The housing designs, surface finish and styling means they can be used in almost any environments subject to high levels of cleaning following contamination from foreign particles.

They are offered with various types of mounting styles to cover different levels of food contact (as described by the EHEDG).

- Direct contact zone - The switch mounting is designed according to EHEDG hygienic guidelines and also fulfils the requirements of the splash zone
- Splash zone - The switch must be easy to clean and withstand the CIP and SIP cleaning processes found in the food industry (tested IP69K).

Mirror polished finish – Ra4
Suitable for CIP and SIP cleaning
Can be high pressure hosed at high temperature - IP69K
Can be mounted on steel structures
Designed in accordance with EHEDG guidelines for hygienic design (EHEDG European Hygienic Engineering & Design Group)

SMR

Universal 22mm fixing centres - suitable for food splash zones.

CMR

Compact slim fitting housing - suitable for food splash zones. Can be fitted to applications where space is restricted.

LMR

European industry standard fitting - suitable for food splash zones.

WMR

Industry standard wide fitting - suitable for food splash zones. Front face actuation.

SMR-F

Universal 22mm fixing centres.
Rear fixing - M4 tapped holes at rear of housing.
Suitable for food contact zones.

CMR-F

Compact slim fitting housing .
Rear fixing - M4 tapped holes at rear of housing.
Suitable for food contact zones.

RMR

M30 thread -suitable for some food contact zones.

SMR-H

Universal 22mm fixing centres.
Through hole fixing – M4 clearance holes for front mounting by hexagon head bolts.
Suitable for food splash or contact zones.

For SMR-H and MMR-H use Hexagon Head Bolts for ease of cleaning.

MMR-H

Miniature industry standard design. 22mm fixing centres with through hole mounting on M4 clearance for front mounting by hexagon head bolts. Suitable for food splash or contact zones.

They are tested to ingress protection degree IP69K (high pressure hosing with detergent at 80C. and 100psi).

IDEMAG - Magnetic Non Contact - Type: MPR

Magnetic Actuation **Switching Tolerance up to 12mm**

Will operate with most Safety Relays

Compact yet robust fitting suitable for all small guard applications.

Can be mounted unobtrusively in channels or behind doors – left or right cable exit

Hygienic screw cap covers ensure suitability for Food Processing washdown.

Cost effective interlock solution.

Wide sensing at 12mm and high tolerance to misalignment.

High current switching capability to 0.5A.

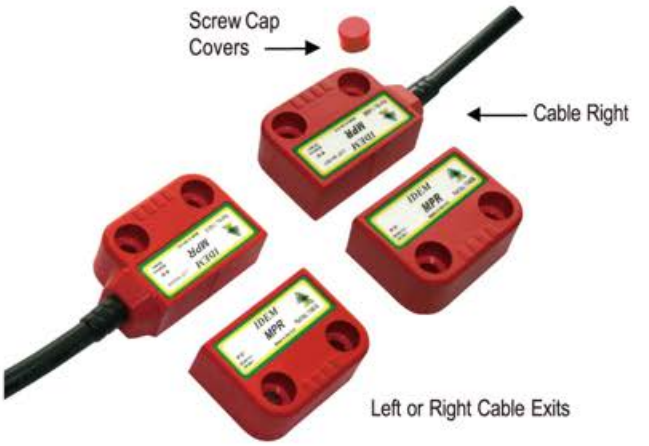
Up to: PLe ISO 13849 1 SIL 3 EN 62061 Cat.4 EN 954 1

2NC 1NO circuits

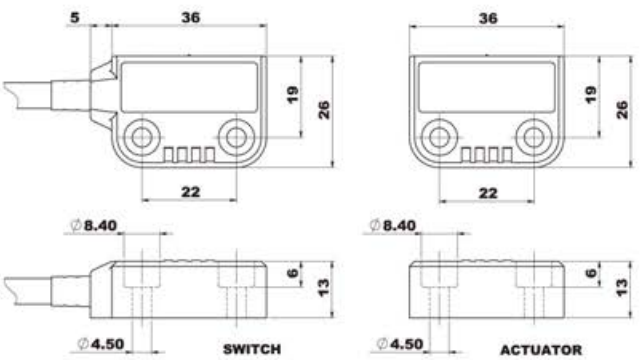
Quick connect versions M12 - 8 way or M8 - 4 way

Specified to 80C
but designed to work up to 100C.

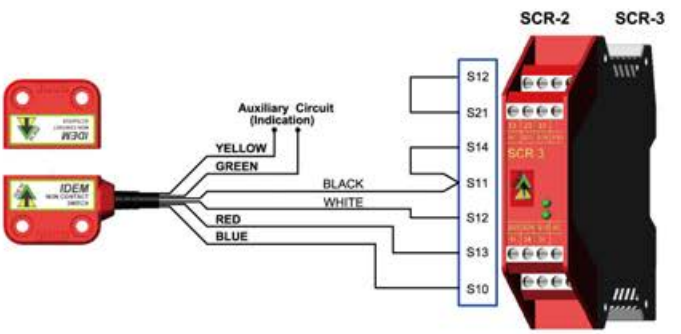
Plastic Housing



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



Connection example – magnetic switches



Standards	EN1088 IEC 60947-5-3 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508
Safety Classification and Reliability Data:	
Mechanical Reliability B10d	3.3 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	2.52 x 10^{-8}
Proof Test Interval (Life)	47 years
MTTFd	470 years
Medium Duty Safety Channel 1 NC	Voltage free : 250V.ac 0.5 A Max. Rating
Safety Channel 2 NC	Voltage free : 250V.ac 0.5 A Max. Rating
Safety Channel 3 NO	Voltage free : 24V.dc 0.2 A Max. Rating
Fuse	Internal 1.0 A. (F) External 0.4 A (F) (User)
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
Switching Distance:	Sao 10mm Close
(Target to target)	Sar 22mm 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	UL approved polyester
Temperature Range	–25 +80C.
Enclosure Protection	IP69K (NEMA PW12) IP67 (NEMA 6)
Shock Resistance	IEC 68-2-27 11ms 30g
Vibration Resistance	IEC 68-2-6 10-55 Hz. 1mm
Cable Type	PVC 6 core 6mm O.D.
Mounting Bolts	2 x M4 Tightening torque 1.0 Nm
Mounting Position	Any

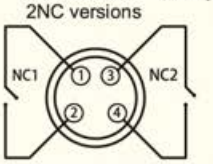
For all IDEM switches the NC circuits are closed when the guard is closed and the actuator present

Sales Number	Type	Cable Length	Circuits
114001	MPR Cable Right	2M	2NC
114002	MPR Cable Right	5M	2NC
114003	MPR Cable Right	10M	2NC
114004	MPR Cable Right	QC-M12	2NC
114005	MPR Cable Right	2M	2NC 1NO
114006	MPR Cable Right	5M	2NC 1NO
114007	MPR Cable Right	10M	2NC 1NO
114008	MPR Cable Right	QC-M12	2NC 1NO
114009	MPR Cable Left	2M	2NC
114010	MPR Cable Left	5M	2NC
114011	MPR Cable Left	10M	2NC
114012	MPR Cable Left	QC-M12	2NC
114013	MPR Cable Left	2M	2NC 1NO
114014	MPR Cable Left	5M	2NC 1NO
114015	MPR Cable Left	10M	2NC 1NO
114016	MPR Cable Left	QC-M12	2NC 1NO

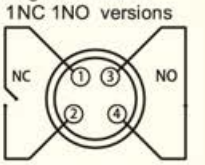
Alternative QC version

M8 Connector Right

M8 Universal 2NC versions



4 way integral connector 1NC 1NO versions



114020	MPR Connector Right	QC M8 2NC	Close 10mm Open 20mm
114021	MPR Connector Left	QC M8 2NC	Close 10mm Open 20mm
114022	MPR Connector Right	QC M8 1NC 1NO	Close 10mm Open 20mm
114023	MPR Connector Left	QC M8 1NC 1NO	Close 10mm Open 20mm
114024	MPR Connector Right	QC M8 2NC	Close 4mm Open 10mm
114025	MPR Connector Left	QC M8 2NC	Close 4mm Open 10mm
114026	MPR Connector Right	QC M8 1NC 1NO	Close 4mm Open 10mm
114027	MPR Connector Left	QC M8 1NC 1NO	Close 4mm Open 10mm

IDEMAG - Magnetic Non Contact - Type: SPR

Magnetic Actuation - Power series

Medium Duty versions 230V.ac / 24V.dc 1A.

Switching Tolerance up to 12mm

Specified to 80C but designed to work up to 100C.

Will operate with most Safety Relays

Universal fitting - established 22mm fixing footprint suitable for most general applications.

Can be high pressure hosed at high temperature - IP69K.

Withstands environments where high humidity or hose down is required.

Durable polyester housing.

Wide 12mm sensing – high tolerance to misalignment.

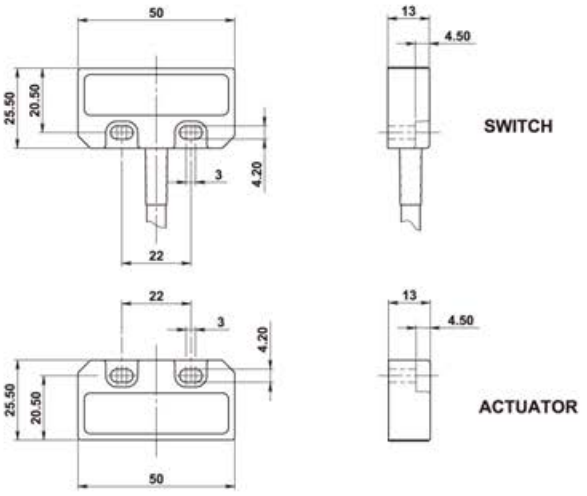
Long life high switching capability to 1A.

Up to: PLe ISO 13849-1 SIL 3 EN 62061 Cat.4 EN 954-1

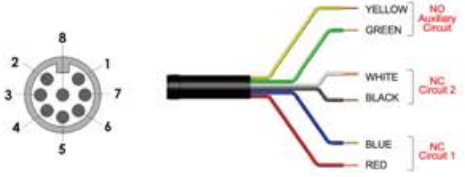
2NC 1NO circuits

Quick connect versions

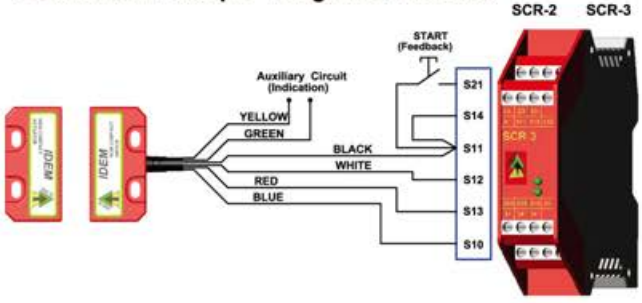
Quick Connect M12 versions fitted with 250mm (10") cable



Quick Connect (QC) M12 8 Way Male Plug Pin view from switch	Standard Lead Colour	Circuit (Actuator Present)
4	Yellow	NO
6	Green	NO
7	Black	NC2
1	White	NC2
2	Red	NC1
3	Blue	NC1



Connection example - magnetic switches



Single switch connected to an SCR-2 or SCR-3 to give Dual Channel monitoring with Manual Start. Optional auxiliary circuit provides for remote signalling from switch.

Standards	EN1088 IEC 60947-5-3 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508
Safety Classification and Reliability Data:	
Mechanical Reliability B10d	3.3 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	2.52 x 10^{-8}
Proof Test Interval (Life)	47 years
MTTFd	470 years
Safety Channel 1 NC	Voltage free : 250V.ac 1.0 A Max. Rating
Safety Channel 2 NC	Voltage free : 250V.ac 1.0 A Max. Rating
Safety Channel 3 NO	Voltage free : 24V.dc 0.2 A Max. Rating
Fuse	Internal 1.0 A. (F) External 0.8A (F) (User)
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
Switching Distance:	Sao 10mm Close
(Target to target)	Sar 22mm 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	UL approved polyester
Temperature Range	– 25 +80C.
Enclosure Protection	IP69K (NEMA PW12) IP67 (NEMA 6)
Shock Resistance	IEC 68-2-27 11ms 30g
Vibration Resistance	IEC 68-2-6 10-55 Hz. 1mm
Cable Type	PVC 6 core 6mm O.D.
Mounting Bolts	2 x M4 Tightening torque 1.0 Nm
Mounting Position	Any

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

Sales Number	Type	Cable Length	Circuits
111009	Idemag SPR	2M	2NC
111010	Idemag SPR	5M	2NC
111011	Idemag SPR	10M	2NC
111012	Idemag SPR	QC-M12	2NC
111013	Idemag SPR	2M	2NC 1NO
111014	Idemag SPR	5M	2NC 1NO
111015	Idemag SPR	10M	2NC 1NO
111016	Idemag SPR	QC-M12	2NC 1NO

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

111300	Plastic 8mm Spacers for use when mounted on Ferrous Materials.	(1 X Switch 1 X Actuator)

EUROMAG - Magnetic Non Contact - Type: LPR

Magnetic Actuation - Power series

Switching Tolerance up to 12mm

Medium Duty versions **230V.ac / 24V.dc 1A.**

Popular European fitting suitable for all industry applications.

Wide 12mm sensing – high tolerance to misalignment

Narrow fitting for flush mounting

Long Life High Power switching capability up to 1A.

Up to: PLe ISO 13849-1 SIL 3 EN 62061 Cat.4 EN 954-1

2NC + 1NO circuits

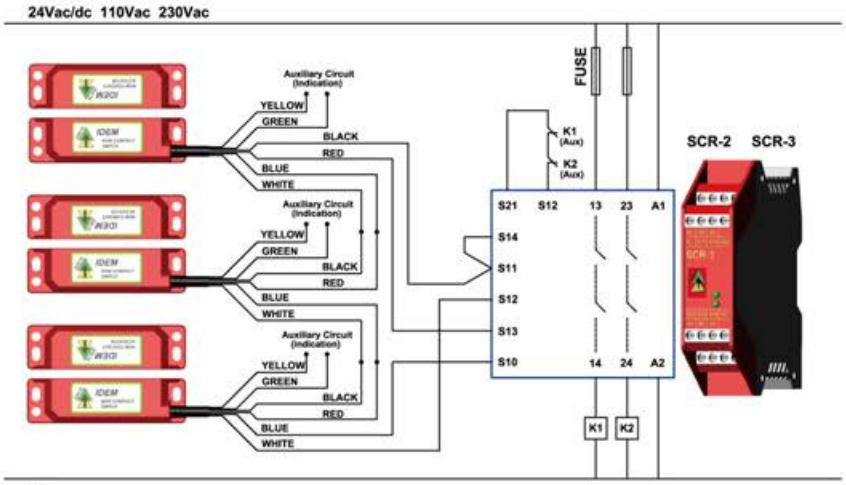
Quick connect versions

Specified to 80C but designed to work up to 100C.

Will operate with most Safety Relays

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

Connection example - magnetic switches

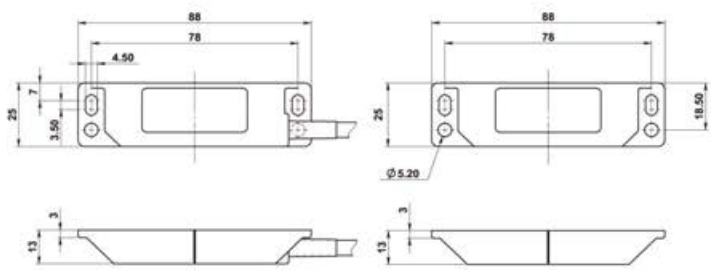


Three switches connected in series to an SCR-2 or SCR-3 to give Dual Channel monitoring with auto start and contactor feedback check. Optional auxiliary circuits provide for remote signalling from each switch.

Quick Connect (QC) M12 8 Way Male Plug Pin view from switch	Standard Lead Colour	Circuit (Actuator Present)
4	Yellow	NO
6	Green	NO
7	Black	NC2
1	White	NC2
2	Red	NC1
3	Blue	NC1

Standard M12 8 Way versions
Pin View from Switch

Standards	EN1088 IEC 60947-5-3 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508
Safety Classification and Reliability Data:	
Mechanical Reliability B10d	3.3 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	2.52 x 10^{-8}
Proof Test Interval (Life)	47 years
MTTFd	470 years
Medium Duty Safety Channel 1 NC	Voltage free : 250V.ac 1.0 A Max. Rating
Safety Channel 2 NC	Voltage free : 250V.ac 1.0 A Max. Rating
Safety Channel 3 NO	Voltage free : 24V.dc 0.2 A Max. Rating
Fuse	Internal 1.0 A. (F) External 0.8A (F) (User)
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
Switching Distance:	Sao 10mm Close
(Target to target)	Sar 22mm 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	UL approved polyester
Temperature Range	–25 +80C.
Enclosure Protection	IP69K (NEMA PW12) IP67 (NEMA 6)
Shock Resistance	IEC 68-2-27 11ms 30g
Vibration Resistance	IEC 68-2-6 10-55 Hz. 1mm
Cable Type	PVC 6 core 6mm O.D.
Mounting Bolts	2 x M4 Tightening torque 1.0 Nm
Mounting Position	Any



NC1 Pins 1 and 2
NC2 Pins 3 and 4

M12 4 Way versions
Asi compatible Pin out
Pin view from switch

Sales Number	Type	Cable Length	Circuits
110009	Euromag LPR	2M	2NC
110010	Euromag LPR	5M	2NC
110011	Euromag LPR	10M	2NC
110012	Euromag LPR	QC-M12	2NC
110013	Euromag LPR	2M	2NC 1NO
110014	Euromag LPR	5M	2NC 1NO
110015	Euromag LPR	10M	2NC 1NO
110016	Euromag LPR	QC-M12	2NC 1NO
110021	Euromag LPR	2M	1NC 1NO
110022	Euromag LPR	5M	1NC 1NO
110023	Euromag LPR	10M	1NC 1NO
110024	Euromag LPR	QC-M12 4 Way	2NC

110300	Plastic 8mm Spacers for use when mounted on Ferrous Materials.	(1 X Switch 1 X Actuator)

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

EUROMAG Non Contact Magnetic Switches - Type LPR (with Integral LED)

2NC circuits for connection to safety relays to achieve up to PLe / Category 4 to ISO 13849-1

Integral LED indication of sensing position.

Choice of LED versions:

Green – on when guard is closed

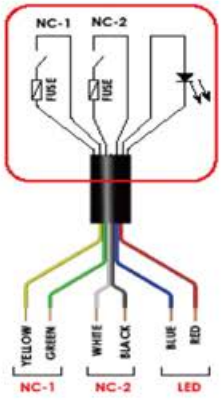
Red – on when guard is open

Popular European fitting suitable for all industry applications, narrow fitting for flush mounting

Wide 10mm sensing – high tolerance to misalignment

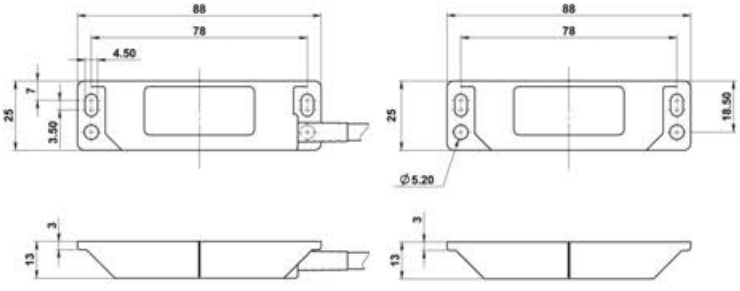
Long Life High Power switching capability up to 1A.

M12 Quick connect versions



Note: The LED does not indicate the status of the NC Safety Contacts, but indicates that the actuator is aligned to give optimum performance.

Standards	EN1088 IEC 60947-5-3 EN 60204-1 EN 954-1 UL508
Safety Channels NC1 and NC2	Voltage free : 250V.ac 1.0 A Max.
Fuses (NC Circuits)	Fuse externally 0.8A (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
LED supply voltage	24V.dc +/- 10%
NC Switching Distance:	Sao 10mm Close
(Target to target)	Sar 22mm Open
LED (Green)	Typical: 8mm ON 15mm OFF
LED (Red)	Typical: 8mm OFF 15mm ON
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	Red Polyester
Temperature Range	–25 / 80C.
Enclosure Protection	IP67
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	1,000,000 switchings De-rating Safety Factor 2 Tested to 2,000,000 cycles at 24V. 0.2A
Cable Type	PVC 6 core 6mm O.D. Max.
Mounting Bolts	2 x M4 Tightening torque 1.0 Nm



SWITCH ACTUATOR

Quick Connect (QC) M12 8 Way Male Plug Pin view from switch	Standard Lead Colour	Circuit (Actuator Present)
4	Yellow	NC 2
6	Green	NC 2
7	Black	NC 1
1	White	NC 1
2	Red	Supply + 24Vdc
3	Blue	Supply 0Vdc

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

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

110300	Plastic 8mm Spacers for use when mounted on Ferrous Materials.	(1 X Switch 1 X Actuator)

Operating direction for optimum performance

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

LED colour and status	Sales Number	Type	Cable Length	Output Circuits
LED Green (illuminated when guard is closed)	110101	Euromag LPR (with LED)	2M	2NC
	110102	Euromag LPR (with LED)	5M	2NC
	110103	Euromag LPR (with LED)	10M	2NC
	110104	Euromag LPR (with LED)	QC-M12	2NC
LED Red (illuminated when guard is open)	110105	Euromag LPR (with LED)	2M	2NC
	110106	Euromag LPR (with LED)	5M	2NC
	110107	Euromag LPR (with LED)	10M	2NC
	110108	Euromag LPR (with LED)	QC-M12	2NC

IDEMAG - Magnetic Non Contact - Type: CPR

Magnetic Actuation – Power series

Switching Tolerance up to 12mm

Heavy Duty 230V.ac / 24V.dc 2.0A. or Medium Duty version 1.0A.

Can be high pressure hosed at high temperature - **IP69K**

Slim fitting suitable for all industry applications.

Easy to install within narrow frame structures.

Operates from 2 sides for ease of application.

Wide 12mm sensing high tolerance to misalignment.

High switching capability - Medium Duty 1A. Heavy Duty 2A.

Up to: PLe ISO 13849-1 SIL 3 EN 62061 Cat.4 EN 954-1

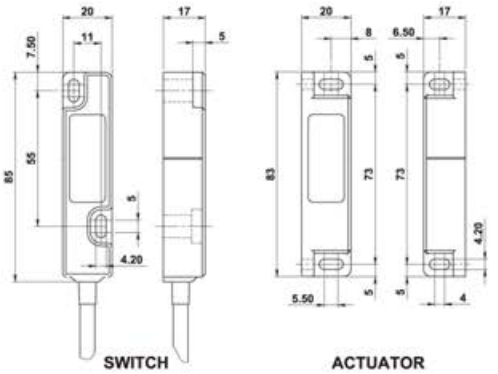
2NC + 1NO circuits

Quick connect versions

Specified to 80C but designed to work up to 100C.

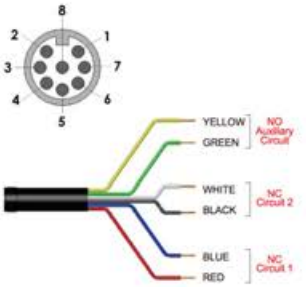
Will operate with most Safety Relays

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

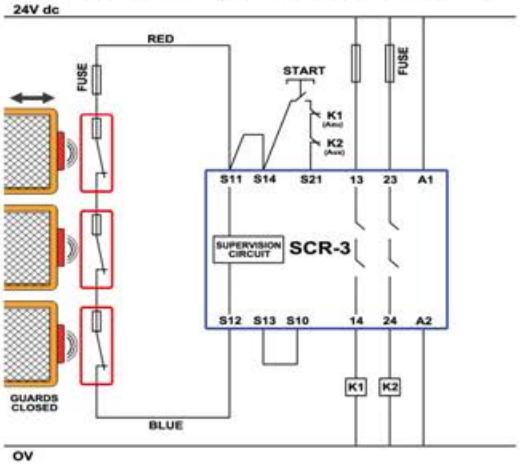


Standards	EN1088 IEC 60947-5-3 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508	
Safety Classification and Reliability Data:		
Mechanical Reliability B10d	3.3 x 10^6 operations at 100mA load	
EN 954-1	up to Category 4 with Safety Relay	
ISO 13849-1	up to PLe depending upon system architecture	
EN 62061	up to SIL3 depending upon system architecture	
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days	
PFHd	2.52 x 10^{-8}	
Proof Test Interval (Life)	47 years	
MTTFd	470 years	
Heavy Duty Safety Channel 1	NC	Voltage free : 250V.ac 2.0 A Max. Rating
Safety Channel 2	NC	Voltage free : 250V.ac 2.0 A Max. Rating
Safety Channel 3	NO	Voltage free : 24V.dc 0.2 A Max. Rating
Fuse		Internal 2.0 A. (F) External 1.6A (F) (User)
Medium Duty Safety Channel 1	NC	Voltage free : 250V.ac 1.0 A Max. Rating
Safety Channel 2	NC	Voltage free : 250V.ac 1.0 A Max. Rating
Safety Channel 3	NO	Voltage free : 24V.dc 0.2 A Max. Rating
Fuse		Internal 1.0 A. (F) External 0.8A (F) (User)
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
Switching Distance:		Sao 10mm Close
(Target to target)		Sar 22mm 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		UL approved Polyester
Temperature Range		–25 +80C.
Enclosure Protection		IP69K (NEMA PW12) IP67 (NEMA 6)
Shock Resistance		IEC 68-2-27 11ms 30g
Vibration Resistance		IEC 68-2-6 10-55 Hz. 1mm
Cable Type		PVC 6 core 6mm O.D.
Mounting Bolts		2 x M4 Tightening torque 1.0 Nm
Mounting Position		Any

Quick Connect (QC) M12 8 Way Male Plug Pin view from switch	Standard Lead Colour	Circuit (Actuator Present)
4	Yellow	NO
6	Green	NO
7	Black	NC2
1	White	NC2
2	Red	NC1
3	Blue	NC1



Connection example – magnetic switches



Three switches connected in series to an SCR-2 or SCR-3 to give Single Channel Guard monitoring but with monitored manual start and contactor feedback check. Allows minimal wiring but higher current switching to K1 and K2 contactors.

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

Sales Number	Type	Cable Length	Circuits	NC Duty
113001	Idemag CPR	2M	2NC	Medium 1A
113002	Idemag CPR	5M	2NC	Medium 1A
113003	Idemag CPR	10M	2NC	Medium 1A
113004	Idemag CPR	QC-M12	2NC	Medium 1A
113005	Idemag CPR	2M	2NC 1NO	Medium 1A
113006	Idemag CPR	5M	2NC 1NO	Medium 1A
113007	Idemag CPR	10M	2NC 1NO	Medium 1A
113008	Idemag CPR	QC-M12	2NC 1NO	Medium 1A
113009	Idemag CPR	2M	1NC	Heavy 2A
113010	Idemag CPR	5M	1NC	Heavy 2A
113011	Idemag CPR	10M	1NC	Heavy 2A
113012	Idemag CPR	QC-M12	1NC	Heavy 2A
113013	Idemag CPR	2M	1NC 1NO	Heavy 2A
113014	Idemag CPR	5M	1NC 1NO	Heavy 2A
113015	Idemag CPR	10M	1NC 1NO	Heavy 2A
113016	Idemag CPR	QC-M12	1NC 1NO	Heavy 2A

113300	Plastic 8mm Spacers for use when mounted on Ferrous Materials.	(1 X Switch 1 X Actuator)

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

IDEMAG - Magnetic Non Contact - Type: WPR

Magnetic Actuation - Power series

Heavy Duty 230V.ac / 24V.dc 2.0A.

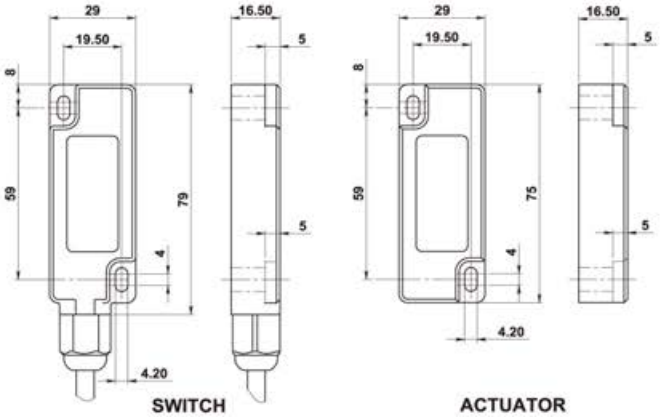
Switching Tolerance up to 12mm

Robust wide fitting suitable for all industry applications.
Can be high pressure hosed at high temperature - **IP69K**
Wide 12mm sensing high tolerance to misalignment.
High switching capability - Heavy Duty 2A.
Up to: PLe ISO 13849-1 SIL 3 EN 62061 Cat.4 EN 954-1

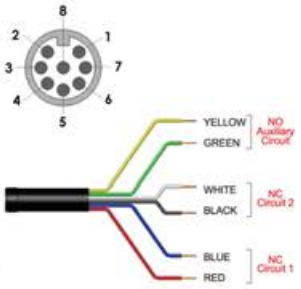
Specified to 80C but designed to work up to 100C.

Will operate with most Safety Relays

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

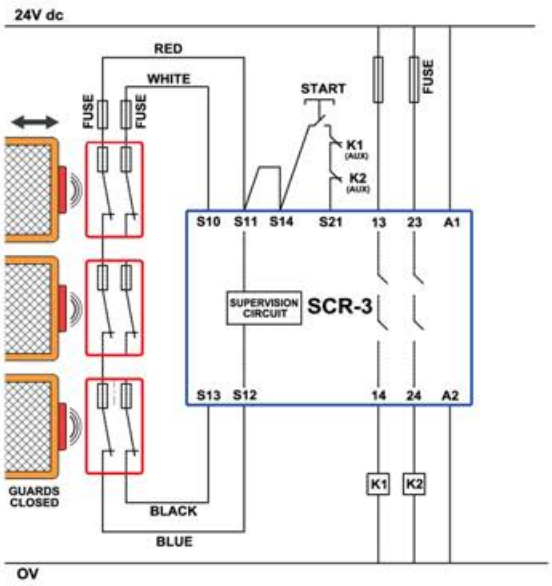


Quick Connect (QC) M12 8 Way Male Plug Pin view from switch	Standard Lead Colour	Circuit (Actuator Present)
4	Yellow	NO
6	Green	NO
7	Black	NC2
1	White	NC2
2	Red	NC1
3	Blue	NC1



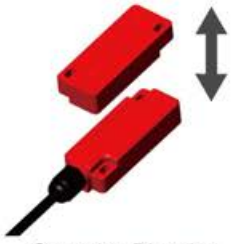
Standards	EN1088 IEC 60947-5-3 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508
Safety Classification and Reliability Data:	
Mechanical Reliability B10d	3.3 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	2.52 x 10^{-8}
Proof Test Interval (Life)	47 years
MTTFd	470 years
Heavy Duty Safety Channel 1 NC	Voltage free : 250V.ac 2.0 A Max. Rating
Safety Channel 2 NC	Voltage free : 250V.ac 2.0 A Max. Rating
Safety Channel 3 NO	Voltage free : 24V.dc 0.2 A Max. Rating
Heavy Duty Fuse	Internal 2.0 A. (F) External 1.6 A.(F) (User)
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
Switching Distance:	Sao 10mm Close
(Target to target)	Sar 22mm 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	UL approved polyester
Temperature Range	–25 +80C.
Enclosure Protection	IP69K (NEMA PW12) IP67 (NEMA 6)
Shock Resistance	IEC 68-2-27 11ms 30g
Vibration Resistance	IEC 68-2-6 10-55 Hz. 1mm
Cable Type	PVC 6 core 6mm O.D.
Mounting Bolts	2 x M4 Tightening torque 1.0 Nm
Mounting Position	Any

Connection example - magnetic switches



Three switches connected in series to an SCR-2 or SCR-3 to give Dual Channel Guard monitoring but with monitored manual start and contactor feedback check.

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



Operating Direction

Sales Number	Type	Cable Length	Circuits
112001	Idemag WPR	2M	2NC
112002	Idemag WPR	5M	2NC
112003	Idemag WPR	10M	2NC
112004	Idemag WPR	QC-M12	2NC
112005	Idemag WPR	2M	2NC 1NO
112006	Idemag WPR	5M	2NC 1NO
112007	Idemag WPR	10M	2NC 1NO
112008	Idemag WPR	QC-M12	2NC 1NO
112009	Idemag WPR	2M	1NC 1NO
112010	Idemag WPR	5M	1NC 1NO
112011	Idemag WPR	10M	1NC 1NO
112012	Idemag WPR	QC-M12	1NC 1NO

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

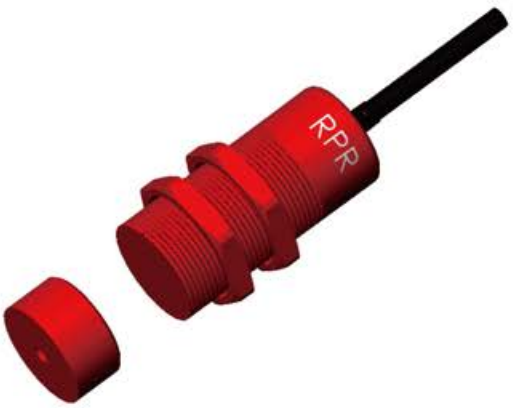
IDEMAG Magnetic Non Contact - Type: RPR (Plastic)

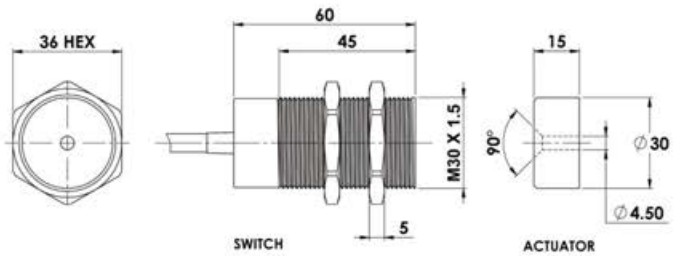
Magnetic Actuation **Switching Tolerance up to 10mm**

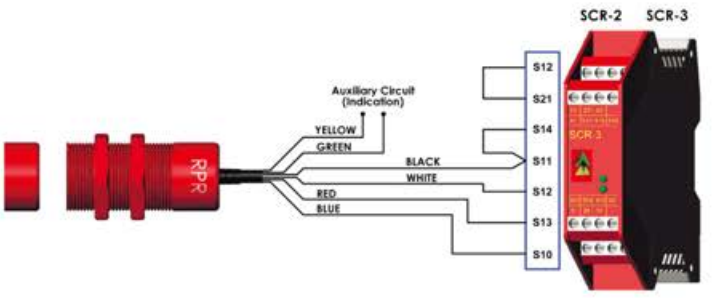
Cylindrical fitting suitable for all industry applications.
Easy to install - M30 threaded body - easy to set
Wide 10mm sensing
Suitable for the harsh environments of Food processing and packaging
Red Polyester housing
UP to: PLe ISO 13849-1 SIL3 EN 62061 Cat. 4 EN 954-1
2NC 1NO circuits
Quick connect versions.

Will operate with most Safety Relays

RPR - Plastic Housing

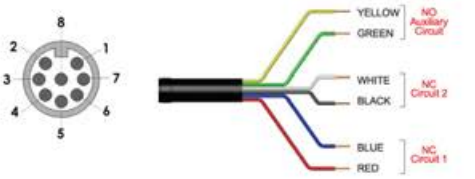




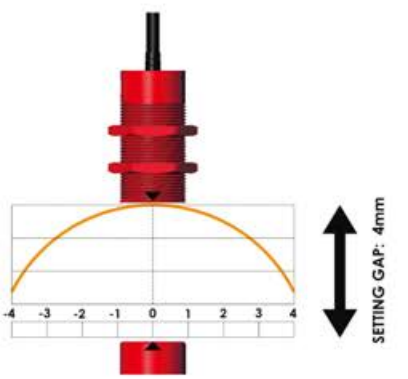


One Switch connected to an SCR-2 or SCR-3 to give Dual Channel Guard monitoring auto start.

Quick Connect (QC) M12 8 Way Male Plug Pin view from switch	Standard Lead Colour	Circuit (Actuator Present)
4	Yellow	NO
6	Green	NO
7	Black	NC2
1	White	NC2
2	Red	NC1
3	Blue	NC1



Standards	EN1088 IEC 60947-5-3 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508
Safety Classification and Reliability Data:	
Switching Reliability	3.3 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	2.52 x 10^{-8}
Proof Test Interval (Life)	47 years
MTTFd	470 years
Safety Channel 1 NC	24V.dc 0.5 A Max. Rating
Safety Channel 2 NC	24V.dc 0.5 A Max. Rating
Safety Channel 3 NO	24V.dc 0.2 A Max. Rating
Minimum switched current	10V. dc 1mA
Dielectric withstand	250V.ac
Insulation Resistance	100 Mohms
Recommended setting gap	5mm
Switching Distance:	Sao 10mm Close
(Target to target)	Sar 20mm Open
Tolerance to misalignment	4mm in any direction from 4mm setting gap
Switching frequency	1.0 Hz maximum
Approach speed	200mm/m. to 1000mm/s.
Body Material	UL approved polyester
Temperature Range	-25 / 80C
Enclosure Protection	IP69K IP67
Shock Resistance	IEC 68-2-27 11ms 30g
Vibration Resistance	IEC 68-2-6 10-55 Hz. 1mm
Cable Type	PVC 6 core 6mm O.D.
Mounting Position	Any



Sales Number	Type	Cable Length	Circuits
116009	Idemag RPR Plastic	2M	2NC
116010	Idemag RPR Plastic	5M	2NC
116011	Idemag RPR Plastic	10M	2NC
116012	Idemag RPR Plastic	QC-M12	2NC
116013	Idemag RPR Plastic	2M	2NC 1NO
116014	Idemag RPR Plastic	5M	2NC 1NO
116015	Idemag RPR Plastic	10M	2NC 1NO
116016	Idemag RPR Plastic	QC-M12	2NC 1NO

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

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

HYGIEMAG - MAGNETIC Non Contact - Type: MMR-H

Coded Magnetic Actuation **Switching Tolerance up to 10mm**

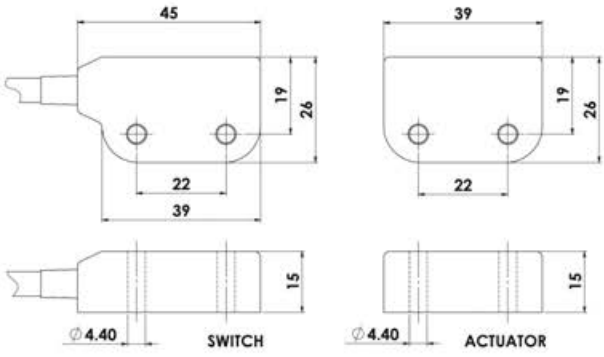
Compact yet robust fitting suitable for all small guard applications.
Through hole fixing to enable front mounting no food trap areas
Suitable for CIP SIP cleaning - Food Contact or Splash Zones EHEDG guidelines
Cost effective interlock solution.
Wide sensing at 10mm.
Can be mounted unobtrusively in channels or behind doors - left or right cable exit
UP to: PLe ISO 13849-1 SIL 3 EN 62061 Cat. 4 EN 954-1
2NC 1NO circuits

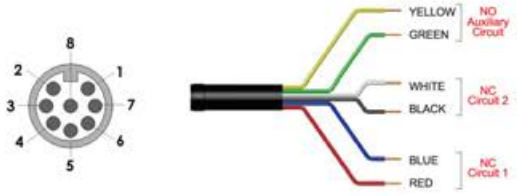
Specified to 105C but designed to work up to 125C.

Will operate with most Safety Relays

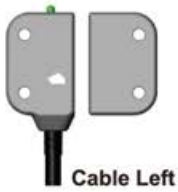
Stainless Steel Housing

Left or Right cable exit available

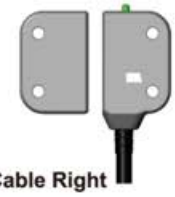




Quick Connect (QC) M12 8 Way Male Plug Pin view from switch	Standard Lead Colour	Circuit (Actuator Present)
4	Yellow	NO
6	Green	NO
7	Black	NC2
1	White	NC2
2	Red	NC1
3	Blue	NC1



Cable Left



Cable Right

Standards	EN1088 IEC 60947-5-3 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508
Safety Classification and Reliability Data:	
Switching Reliability	3.3 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	2.52 x 10^{-8}
Proof Test Interval (Life)	47 years
MTTFd	470 years
Safety Channel 1 NC	24V.dc 0.5 A Max. Rating
Safety Channel 2 NC	24V.dc 0.5 A Max. Rating
Safety Channel 3 NO	24V.dc 0.2 A Max. Rating
Minimum switched current	10V. dc 1mA
Dielectric withstand	250V.ac
Insulation Resistance	100 Mohms
Recommended setting gap	5mm
Switching Distance:	Sao 10mm Close
(Target to target)	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 (Ra4)
Temperature Range	–25 +105C.
Enclosure Protection	IP69K IP67
Shock Resistance	IEC 68-2-27 11ms 30g
Vibration Resistance	IEC 68-2-6 10-55 Hz. 1mm
Cable Type	PVC 6 core 6mm O.D.
Mounting Bolts	2 x M4 Tightening torque 1.0 Nm
Mounting Position	Any

Sales Number	Type	Cable Length	Circuits
131001	MMR-H Cable Right	2M	2NC
131002	MMR-H Cable Right	5M	2NC
131003	MMR-H Cable Right	10M	2NC
131004	MMR-H Cable Right	QC-M12	2NC
131005	MMR-H Cable Right	2M	2NC 1NO
131006	MMR-H Cable Right	5M	2NC 1NO
131007	MMR-H Cable Right	10M	2NC 1NO
131008	MMR-H Cable Right	QC-M12	2NC 1NO
131009	MMR-H Cable Left	2M	2NC
131010	MMR-H Cable Left	5M	2NC
131011	MMR-H Cable Left	10M	2NC
131012	MMR-H Cable Left	QC-M12	2NC
131013	MMR-H Cable Left	2M	2NC 1NO
131014	MMR-H Cable Left	5M	2NC 1NO
131015	MMR-H Cable Left	10M	2NC 1NO
131016	MMR-H Cable Left	QC-M12	2NC 1NO

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

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

HYGIEMAG - Magnetic Non Contact - Type: SMR

Magnetic Actuation - Power series 230V.ac 1.0A. / 24V.dc 1.0A. IP69K

Specified to 105C but designed to work up to 125C.

Will operate with most Safety Relays

Switching Tolerance up to 12mm

Specifically designed for Food Processing applications - Stainless Steel 316 Mirror polished finish (Ra4).

Suitable for CIP SIP cleaning - Food Splash Zones EHEDG guidelines

Universal Housing - 22mm fixing hole centre - 50mm wide body

Can be high pressure hosed at high temperature - IP69K

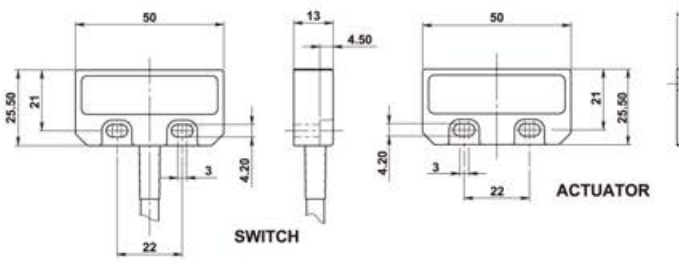
Wide 12mm sensing high tolerance to misalignment

High switching capability - up to 1A.

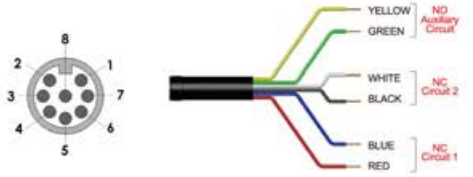
Up to : PLe ISO 13849-1 SIL 3 EN 62061 Cat. 4 EN 954-1

Quick connect versions

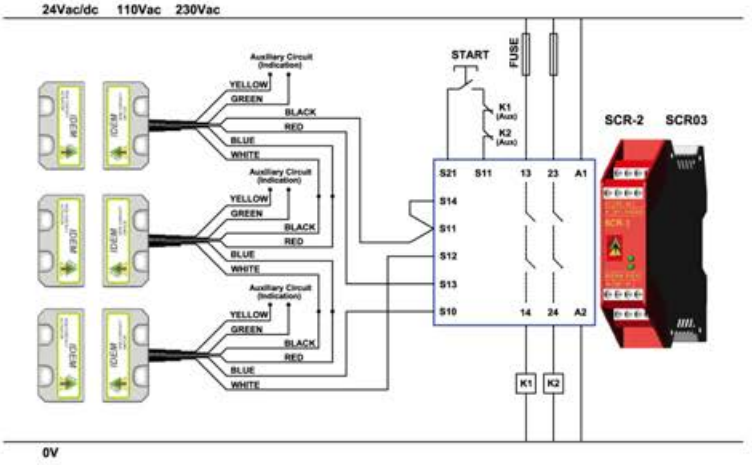
Stainless Steel Housing



Quick Connect (QC) M12 8 Way Male Plug Pin view from switch	Standard Lead Colour	Circuit (Actuator Present)
4	Yellow	NO
6	Green	NO
7	Black	NC2
1	White	NC2
2	Red	NC1
3	Blue	NC1



Connection example - magnetic switches



Three switches connected to an SCR-2 or SCR-3 to give Dual Channel Guard monitoring but with monitored manual start and contactor feedback check. Auxiliary circuits provide remote signalling from each switch.

Standards	EN1088 IEC 60947-5-3 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508
Safety Classification and Reliability Data:	
Mechanical Reliability B10d	3.3 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	2.52 x 10^{-8}
Proof Test Interval (Life)	47 years
MTTFd	470 years
Safety Channel 1 NC	Voltage free : 250V.ac 1.0 A Max. Rating
Safety Channel 2 NC	Voltage free : 250V.ac 1.0 A Max. Rating
Safety Channel 3 NO	Voltage free : 24V.dc 0.2 A Max. Rating
Fuse	Internal 1.0 A. (F) External 0.8A (F) (User)
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
Switching Distance:	Sao 10mm Close
(Target to target)	Sar 22mm 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 (Ra4)
Temperature Range	–25 +105C.
Enclosure Protection	IP69K (NEMA PW12) IP67 (NEMA 6)
Shock Resistance	IEC 68-2-27 11ms 30g
Vibration Resistance	IEC 68-2-6 10-55 Hz. 1mm
Cable Type	PVC 6 core 6mm O.D.
Mounting Bolts	2 x M4 Tightening torque 1.0 Nm
Mounting Position	Any

Sales Number	Type	Cable Length	Circuits
139009	Hygiemag SMR	2M	2NC
139010	Hygiemag SMR	5M	2NC
139011	Hygiemag SMR	10M	2NC
139012	Hygiemag SMR	QC-M12	2NC
139013	Hygiemag SMR	2M	2NC 1NO
139014	Hygiemag SMR	5M	2NC 1NO
139015	Hygiemag SMR	10M	2NC 1NO
139016	Hygiemag SMR	QC-M12	2NC 1NO
139017	Hygiemag SMR	2M	1NC
139018	Hygiemag SMR	5M	1NC
139019	Hygiemag SMR	10M	1NC
139020	Hygiemag SMR	QC-M12	1NC
139021	Hygiemag SMR	2M	1NC 1NO
139022	Hygiemag SMR	5M	1NC 1NO
139023	Hygiemag SMR	10M	1NC 1NO
139024	Hygiemag SMR	QC-M12	1NC 1NO

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

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

HYGIEMAG - Magnetic Non Contact - Type: SMR-H

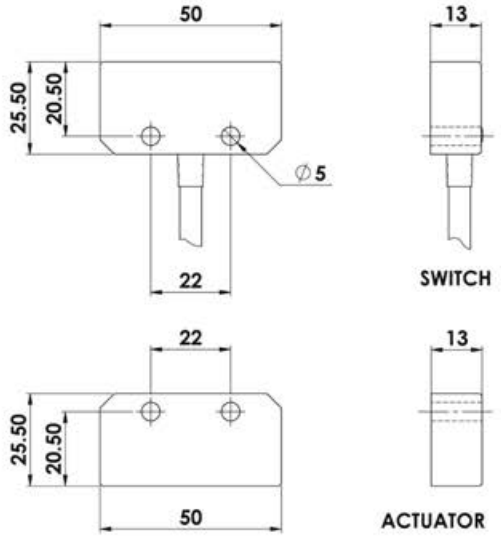
Magnetic Actuation **Switching Tolerance up to 12mm**

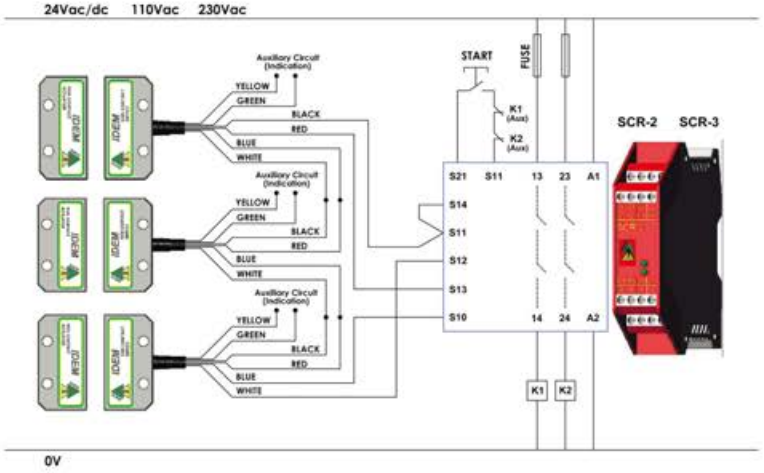
Will operate with most Safety Relays **Specified to 105C but designed to work up to 125C.**

Robust Stainless Steel 316 enclosure designed to survive Food and Pharmaceutical applications.
Mirror polished finish (Ra4).
Through Hole Fixing to enable front mounting by hexagon head bolts - no food trap areas.
Suitable for CIP SIP cleaning - Food Contact or splash Zones EHEDG guidelines
Universal Housing - 22mm fixing hole centre - 50mm wide body
Survives high pressure hosing at high temperature - IP69K
Wide 12mm sensing high tolerance to misalignment
Universal fitting - established 22mm fixing footprint suitable for most general applications.
Up to : PLe ISO 13849-1 SIL 3 EN 62061 Cat. 4 EN 954-1
2NC 1NC circuits
Quick connect versions

Stainless Steel Housing

Use Hexagon Head Bolts for ease of cleaning.

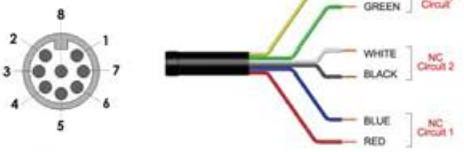




Standards	EN1088 IEC 60947-5-3 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508
Safety Classification and Reliability Data:	
Mechanical Reliability B10d	3.3 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	2.52 x 10^{-8}
Proof Test Interval (Life)	47 years
MTTFd	470 years
Safety Channel 1 NC	Voltage free : 250V.ac 1.0 A Max. Rating
Safety Channel 2 NC	Voltage free : 250V.ac 1.0 A Max. Rating
Safety Channel 3 NO	Voltage free : 24V.dc 0.2 A Max. Rating
Fuse	Internal 1.0 A. (F) External 0.8A (F) (User)
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
Switching Distance:	Sao 10mm Close
(Target to target)	Sar 22mm 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 (Ra4)
Temperature Range	–25 +105C.
Enclosure Protection	IP69K IP67
Shock Resistance	IEC 68-2-27 11ms 30g
Vibration Resistance	IEC 68-2-6 10-55 Hz. 1mm
Cable Type	PVC 6 core 6mm O.D.
Mounting Bolts	2 x M4 Tightening torque 1.0 Nm
Mounting Position	Any

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

Quick Connect (QC) M12 8 Way Male Plug Pin view from switch	Standard Lead Colour	Circuit (Actuator Present)
4	Yellow	NO
6	Green	NO
7	Black	NC2
1	White	NC2
2	Red	NC1
3	Blue	NC1



Sales Number	Type	Cable Length	Circuits
132009	Hygiemag SMR-H	2M	2NC
132010	Hygiemag SMR-H	5M	2NC
132011	Hygiemag SMR-H	10M	2NC
132012	Hygiemag SMR-H	QC-M12	2NC
132013	Hygiemag SMR-H	2M	2NC 1NO
132014	Hygiemag SMR-H	5M	2NC 1NO
132015	Hygiemag SMR-H	10M	2NC 1NO
132016	Hygiemag SMR-H	QC-M12	2NC 1NO

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

HYGIEMAG - Magnetic Non Contact - Type: SMR-F

Magnetic Actuation - Power series **Medium Duty 230V.ac 1.0A. / 24V.dc 1.0A.**

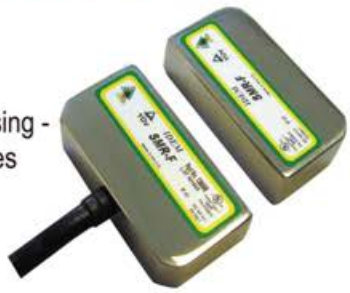
Switching Tolerance up to 12mm **IP69K**

Temperatures up to 105C.

Specified to 105C but designed to work up to 125C.
Will operate with most Safety Relays

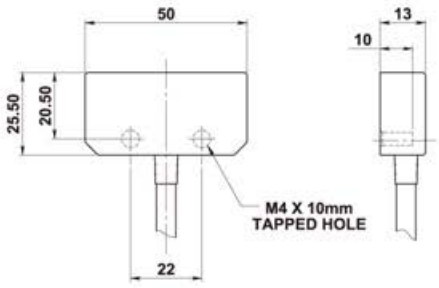
Specifically designed for Food Processing applications - Stainless Steel 316 Mirror polished finish (Ra4).
Suitable for CIP SIP cleaning - mounting holes are at the rear - no food traps
Suitable for Food Contact Zones - EHEDG guidelines
Universal Housing - 22mm fixing hole centre - 50mm wide body
Can be high pressure hosed at high temperature - IP69K
Wide 12mm sensing high tolerance to misalignment
High switching capability - up to 1A.
Up to : PLe ISO 13849-1 SIL 3 EN 62061 Cat. 4 EN 954-1
2NC + 1NC circuits
Quick connect versions

No Food Trap Housing - Rear Mounting Holes

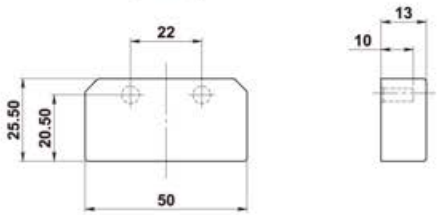


Quick Connect M12 versions fitted with 250mm (10") cable

Stainless Steel Housing

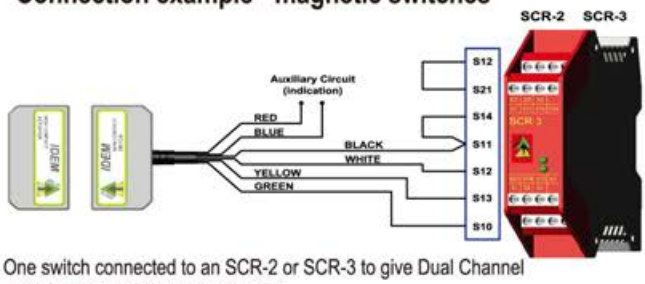


SWITCH



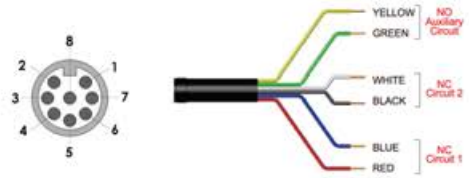
ACTUATOR

Connection example - magnetic switches



One switch connected to an SCR-2 or SCR-3 to give Dual Channel guard monitoring but with auto start

Quick Connect (QC) M12 8 Way Male Plug Pin view from switch	Standard Lead Colour	Circuit (Actuator Present)
4	Yellow	NO
6	Green	NO
7	Black	NC2
1	White	NC2
2	Red	NC1
3	Blue	NC1



Standards	EN1088 IEC 60947-5-3 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508
Safety Classification and Reliability Data:	
Mechanical Reliability B10d	3.3 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	2.52 x 10^{-8}
Proof Test Interval (Life)	47 years
MTTFd	470 years
Safety Channel 1 NC	Voltage free : 250V.ac 1.0 A Max. Rating
Safety Channel 2 NC	Voltage free : 250V.ac 1.0 A Max. Rating
Safety Channel 3 NO	Voltage free : 24V.dc 0.2 A Max. Rating
Fuse	Internal 1.0 A. (F) External 0.8A (F) (User)
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
Switching Distance:	Sao 10mm Close
(Target to target)	Sar 22mm 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 (Ra4)
Temperature Range	–25 +105C.
Enclosure Protection	IP69K (NEMA PW12) IP67 (NEMA 6)
Shock Resistance	IEC 68-2-27 11ms 30g
Vibration Resistance	IEC 68-2-6 10-55 Hz. 1mm
Cable Type	PVC 6 core 6mm O.D.
Mounting Bolts	2 x M4 Tightening torque 1.0 Nm
Mounting Position	Any

Sales Number	Type	Cable Length	Circuits
137009	Hygiemag SMR-F	2M	2NC
137010	Hygiemag SMR-F	5M	2NC
137011	Hygiemag SMR-F	10M	2NC
137012	Hygiemag SMR-F	QC-M12	2NC
137013	Hygiemag SMR-F	2M	2NC 1NO
137014	Hygiemag SMR-F	5M	2NC 1NO
137015	Hygiemag SMR-F	10M	2NC 1NO
137016	Hygiemag SMR-F	QC-M12	2NC 1NO
137017	Hygiemag SMR-F	2M	1NC
137018	Hygiemag SMR-F	5M	1NC
137019	Hygiemag SMR-F	10M	1NC
137020	Hygiemag SMR-F	QC-M12	1NC
137021	Hygiemag SMR-F	2M	1NC 1NO
137022	Hygiemag SMR-F	5M	1NC 1NO
137023	Hygiemag SMR-F	10M	1NC 1NO
137024	Hygiemag SMR-F	QC-M12	1NC 1NO

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

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

HYGIEMAG - Magnetic Non Contact - Type: LMR

Magnetic Actuation - Power series

Medium Duty versions 230V.ac / 24V.dc 1A.

Switching Tolerance up to 12mm

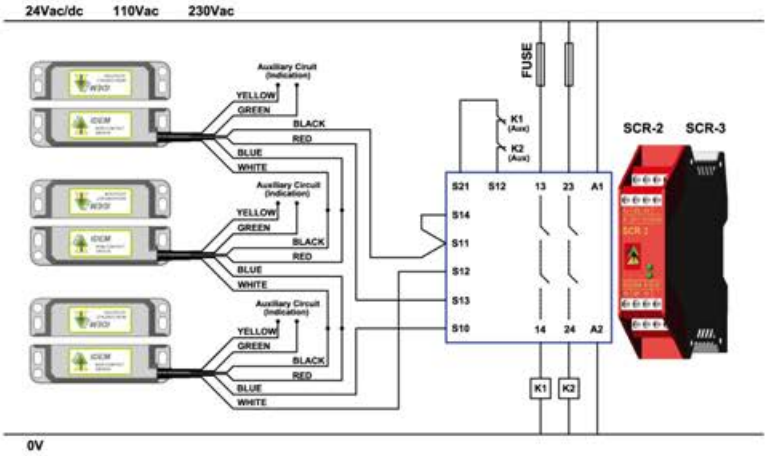
Specified to 105C but designed to work up to 125C.
Will operate with most Safety Relays

Specially designed for Food Processing applications - Stainless Steel 316 Mirror polished finish (Ra4).
Suitable for CIP SIP cleaning - Food splash Zones EHEDG guidelines - IP69K
Popular European fitting suitable for all industry applications.
Wide 12mm sensing - high tolerance to misalignment
Narrow fitting for flush mounting and high temperature hosing
Long Life High Power switching capability up to 1A.
Up to : PLe ISO 13849-1 SIL 3 EN 62061 Cat. 4 EN 954-1
2NC + 1NC circuits
Quick connect versions

Stainless Steel Housing

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

Connection example – magnetic switches

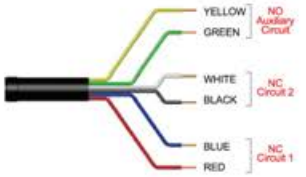


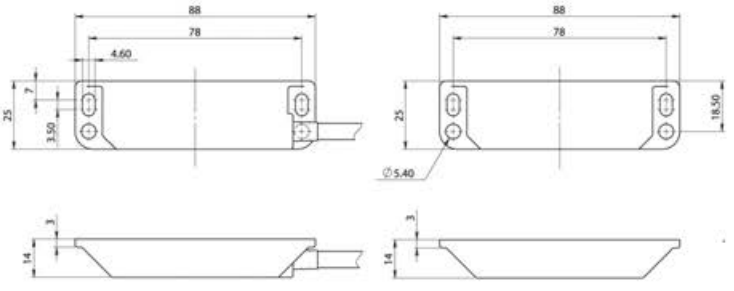
Three switches connected in series to an SCR-2 or SCR-3 to give Dual Channel monitoring with auto start and contactor feedback check. Optional auxiliary circuits provide for remote signalling from each switch.

Standards	EN1088 IEC 60947-5-3 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508
Safety Classification and Reliability Data:	
Mechanical Reliability B10d	3.3 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	2.52 x 10^{-8}
Proof Test Interval (Life)	47 years
MTTFd	470 years
Medium Duty Safety Channel 1 NC	Voltage free : 250V.ac 1.0 A Max. Rating
Safety Channel 2 NC	Voltage free : 250V.ac 1.0 A Max. Rating
Safety Channel 3 NO	Voltage free : 24V.dc 0.2 A Max. Rating
Medium Duty Fuse	Internal 1.0 A. (F) External 0.8A (F) (User)
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
Switching Distance:	Sao 10mm Close
(Target to target)	Sar 22mm 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 (Ra4).
Temperature Range	–25 +105C.
Enclosure Protection	IP69K (NEMA PW12) IP67 (NEMA 6)
Shock Resistance	IEC 68-2-27 11ms 30g
Vibration Resistance	IEC 68-2-6 10-55 Hz. 1mm
Cable Type	PVC 6 core 6mm O.D.
Mounting Bolts	2 x M4 Tightening torque 1.0 Nm
Mounting Position	Any

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

Quick Connect (QC) M12 8 Way Male Plug Pin view from switch	Standard Lead Colour	Circuit (Actuator Present)
4	Yellow	NO
6	Green	NO
7	Black	NC2
1	White	NC2
2	Red	NC1
3	Blue	NC1





Sales Number	Type	Cable Length	Circuits
133009	Hygiemag LMR	2M	2NC
133010	Hygiemag LMR	5M	2NC
133011	Hygiemag LMR	10M	2NC
133012	Hygiemag LMR	QC-M12	2NC
133013	Hygiemag LMR	2M	2NC 1NO
133014	Hygiemag LMR	5M	2NC 1NO
133015	Hygiemag LMR	10M	2NC 1NO
133016	Hygiemag LMR	QC-M12	2NC 1NO

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

HYGIEMAG Non Contact Magnetic Switches - Type LMR (with Integral LED)

2NC circuits for connection to safety relays to achieve up to PLe / Category 4 to ISO 13849-1

Integral LED indication of sensing position.

Choice of LED versions:

Green – on when guard is closed

Red – on when guard is open

Stainless Steel 316 Housing – IP69K suitable for high pressure hosing

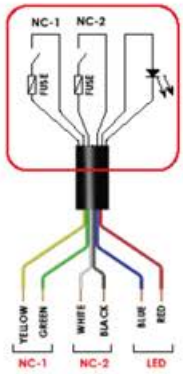
European style narrow fitting for flush mounting

Wide 10mm sensing – high tolerance to misalignment

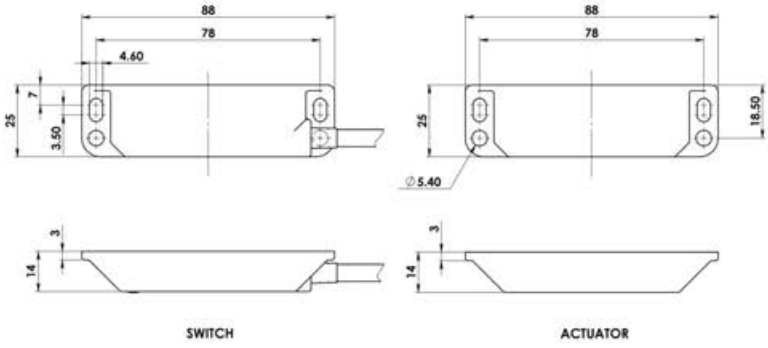
Long Life High Power switching capability up to 1A.

M12 Quick connect versions

Stainless Steel Housing



Note: The LED does not indicate the status of the NC Safety Contacts, but indicates that the actuator is aligned to give optimum performance.



Standards	EN1088 IEC 60947-5-3 EN 60204-1 EN 954-1 UL508 ISO13849-1
Safety Channels NC1 and NC2	Voltage free : 250V.ac 1.0 A Max.
Fuses (NC Circuits)	Fuse externally 0.8A (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
LED supply voltage	24V.dc +/- 10%
NC Switching Distance:	Sao 10mm Close
(Target to target)	Sar 22mm Open
LED (Green)	Typical: 8mm ON 15mm OFF
LED (Red)	Typical: 8mm OFF 15mm ON
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
Temperature Range	–25 / 105C.
Enclosure Protection	IP67 / IP69K
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	1,000,000 switchings
	De-rating Safety Factor 2
	Tested to 2,000,000 cycles at 24V. 0.2A
Cable Type	PVC 6 core 6mm O.D. Max.
Mounting Bolts	2 x M4 Tightening torque 1.0 Nm

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

Quick Connect (QC) M12 8 Way Male Plug Pin view from switch	Standard Lead Colour	Circuit (Actuator Present)
4	Yellow	NC 2
6	Green	NC 2
7	Black	NC 1
1	White	NC 1
2	Red	Supply + 24Vdc
3	Blue	Supply 0Vdc

Operating direction for optimum performance

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

LED colour and status	Sales Number	Type	Cable Length	Output Circuits
LED Green (illuminated when guard is closed)	133120	Hygiemag LMR (with LED)	2M	2NC
	133121	Hygiemag LMR (with LED)	5M	2NC
	133122	Hygiemag LMR (with LED)	10M	2NC
	133123	Hygiemag LMR (with LED)	QC-M12	2NC
LED Red (illuminated when guard is open)	133124	Hygiemag LMR (with LED)	2M	2NC
	133125	Hygiemag LMR (with LED)	5M	2NC
	133126	Hygiemag LMR (with LED)	10M	2NC
	133127	Hygiemag LMR (with LED)	QC-M12	2NC

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

HYGIEMAG - Magnetic Non Contact - Type: CMR

Magnetic Actuation - Power series **Switching Tolerance up to 12mm**

Heavy Duty 230V.ac / 24V.dc 2.0A. **IP69K**

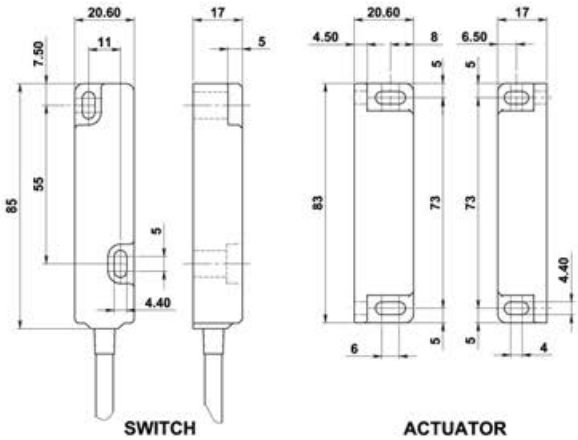
Medium Duty version 1.0A.

Specified to 105C but designed to work up to 125C.
Will operate with most Safety Relays

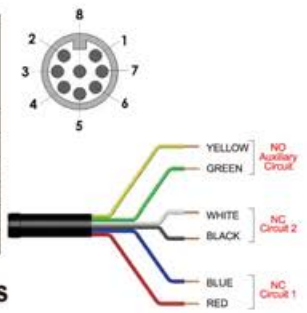
Specifically designed for Food Processing applications - Stainless Steel 316 Mirror polished finish (Ra4).
Suitable for CIP SIP cleaning - Food Splash Zones EHEDG guidelines
Slim 20mm wide housing - can be fitted into narrow channels
Wide 12mm sensing high tolerance to misalignment
High switching capability - up to 2A.
Up to: PLe ISO 13849-1 SIL 3 EN 62061 Cat.4 EN954-1

Stainless Steel Housing

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

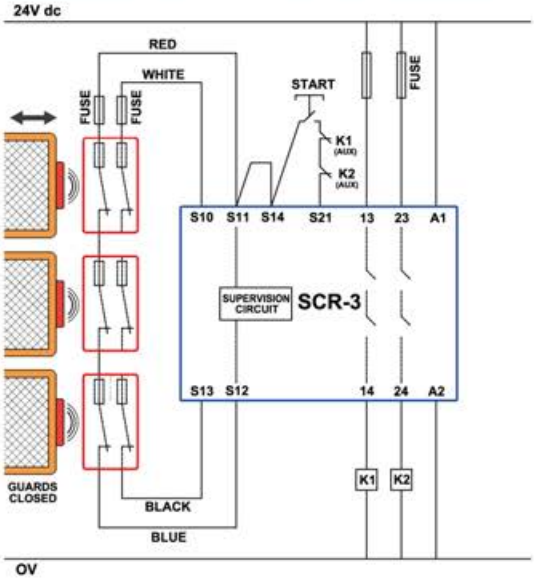


Quick Connect (QC) M12 8 Way Male Plug Pin view from switch	Standard Lead Colour	Circuit (Actuator Present)
4	Yellow	NO
6	Green	NO
7	Black	NC2
1	White	NC2
2	Red	NC1
3	Blue	NC1



Standards	EN1088 IEC 60947-5-3 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508
Safety Classification and Reliability Data:	
Mechanical Reliability B10d	3.3 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	2.52 x 10^{-8}
Proof Test Interval (Life)	47 years
MTTFd	470 years
Heavy Duty Safety Channel 1 NC	Voltage free : 250V.ac 2.0 A Max. Rating
Safety Channel 2 NC	Voltage free : 250V.ac 2.0 A Max. Rating
Safety Channel 3 NO	Voltage free : 24V.dc 0.2 A Max. Rating
Fuse	Internal 2.0 A. (F) External 1.6A (F)
Medium Duty Safety Channel 1 NC	Voltage free : 250V.ac 1.0 A Max. Rating
Safety Channel 2 NC	Voltage free : 250V.ac 1.0 A Max. Rating
Safety Channel 3 NO	Voltage free : 24V.dc 0.2 A Max. Rating
Fuse	Internal 1.0 A. (F) External 0.8A (F) (User)
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
Switching Distance:	Sao 10mm Close
(Target to target)	Sar 22mm 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 (Ra4)
Temperature Range	–25 +105C.
Enclosure Protection	IP69K (NEMA PW12) IP67 (NEMA 6)
Shock Resistance	IEC 68-2-27 11ms 30g
Vibration Resistance	IEC 68-2-6 10-55 Hz. 1mm
Cable Type	PVC 6 core 6mm O.D.
Mounting Bolts	2 x M4 Tightening torque 1.0 Nm
Mounting Position	Any

Connection example – magnetic switches



Three switches connected in series to an SCR-2 or SCR-3 to give Dual Channel Guard monitoring but with monitored manual start and contactor feedback check.

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

Sales Number	Type	Cable Length	Circuits	NC Duty
138017	Hygiemag CMR	2M	2NC	Medium 1A
138018	Hygiemag CMR	5M	2NC	Medium 1A
138019	Hygiemag CMR	10M	2NC	Medium 1A
138020	Hygiemag CMR	QC-M12	2NC	Medium 1A
138021	Hygiemag CMR	2M	2NC 1NO	Medium 1A
138022	Hygiemag CMR	5M	2NC 1NO	Medium 1A
138023	Hygiemag CMR	10M	2NC 1NO	Medium 1A
138024	Hygiemag CMR	QC-M12	2NC 1NO	Medium 1A
138025	Hygiemag CMR	2M	1NC	Heavy 2A
138026	Hygiemag CMR	5M	1NC	Heavy 2A
138027	Hygiemag CMR	10M	1NC	Heavy 2A
138028	Hygiemag CMR	QC-M12	1NC	Heavy 2A
138029	Hygiemag CMR	2M	1NC 1NO	Heavy 2A
138030	Hygiemag CMR	5M	1NC 1NO	Heavy 2A
138031	Hygiemag CMR	10M	1NC 1NO	Heavy 2A
138032	Hygiemag CMR	QC-M12	1NC 1NO	Heavy 2A

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

HYGIEMAG - Magnetic Non Contact - Type: CMR-F

Magnetic Actuation - Power series **No Food Trap Housing Rear Mounting Holes**

Switching Tolerance up to 12mm **IP69K**

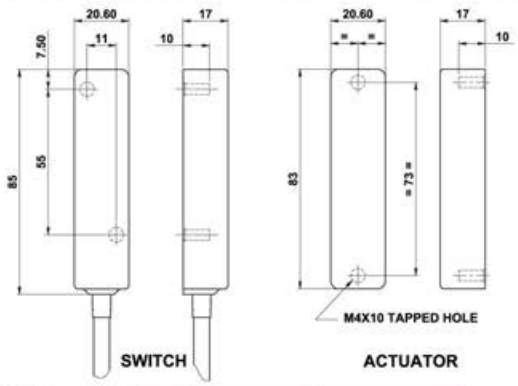
Heavy Duty 230V.ac / 24V.dc 2.0A.

Medium Duty version 1.0A.

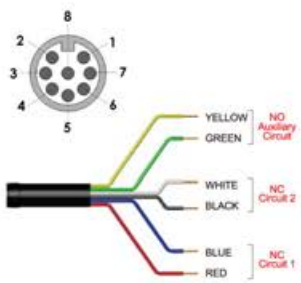
Specified to 105C but designed to work up to 125C.
Will operate with most Safety Relays

Stainless Steel Housing

Specially designed for Food Processing applications- Stainless Steel 316 Mirror polished finish (Ra4).
Suitable for CIP SIP cleaning - mounting holes are at the rear - no food traps
Suitable for Food Contact Zones - EHEDG guidelines
Industry standard fixings - can be high pressure hosed at high temperature
Wide 12mm sensing high tolerance to misalignment
High switching capability - up to 2A.
Up to : PLe ISO 13849-1 SIL 3 EN 62061 Cat. 4 EN 954-1

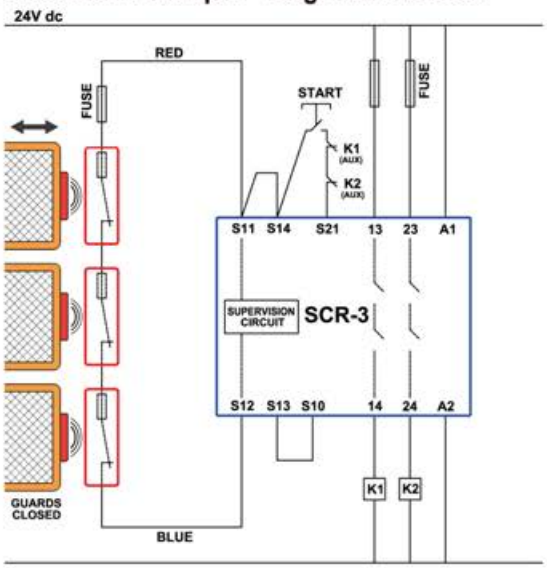


Quick Connect (QC) M12 8 Way Male Plug Pin view from switch	Standard Lead Colour	Circuit (Actuator Present)
4	Yellow	NO
6	Green	NO
7	Black	NC2
1	White	NC2
2	Red	NC1
3	Blue	NC1



Standards	EN1088 IEC 60947-5-3 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508
Safety Classification and Reliability Data:	
Mechanical Reliability B10d	3.3 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	2.52 x 10^{-8}
Proof Test Interval (Life)	47 years
MTTFd	470 years
Heavy Duty Safety Channel 1 NC	Voltage free : 250V.ac 2.0 A Max. Rating
Safety Channel 2 NC	Voltage free : 250V.ac 2.0 A Max. Rating
Safety Channel 3 NO	Voltage free : 24V.dc 0.2 A Max. Rating
Fuse	Internal 2.0 A. (F) External 1.6A (F)
Medium Duty Safety Channel 1 NC	Voltage free : 250V.ac 1.0 A Max. Rating
Safety Channel 2 NC	Voltage free : 250V.ac 1.0 A Max. Rating
Safety Channel 3 NO	Voltage free : 24V.dc 0.2 A Max. Rating
Fuse	Internal 1.0 A. (F) External 0.8A (F) (User)
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
Switching Distance:	Sao 10mm Close
(Target to target)	Sar 22mm 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 (Ra4)
Temperature Range	–25 +105C.
Enclosure Protection	IP69K (NEMA PW12) IP67 (NEMA 6)
Shock Resistance	IEC 68-2-27 11ms 30g
Vibration Resistance	IEC 68-2-6 10-55 Hz. 1mm
Cable Type	PVC 6 core 6mm O.D.
Mounting Bolts	2 x M4 Tightening torque 1.0 Nm
Mounting Position	Any

Connection example – magnetic switches



Three switches connected in series to an SCR-2 or SCR-3 to give Single Channel Guard monitoring but with monitored manual start and contactor feedback check. Allows minimal wiring but higher current switching to K1 and K2 contactors.

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

Sales Number	Type	Cable Length	Circuits	NC Duty
135017	Hygiemag CMR-F	2M	2NC	Medium 1A
135018	Hygiemag CMR-F	5M	2NC	Medium 1A
135019	Hygiemag CMR-F	10M	2NC	Medium 1A
135020	Hygiemag CMR-F	QC-M12	2NC	Medium 1A
135021	Hygiemag CMR-F	2M	2NC 1NO	Medium 1A
135022	Hygiemag CMR-F	5M	2NC 1NO	Medium 1A
135023	Hygiemag CMR-F	10M	2NC 1NO	Medium 1A
135024	Hygiemag CMR-F	QC-M12	2NC 1NO	Medium 1A
135025	Hygiemag CMR-F	2M	1NC	Heavy 2A
135026	Hygiemag CMR-F	5M	1NC	Heavy 2A
135027	Hygiemag CMR-F	10M	1NC	Heavy 2A
135028	Hygiemag CMR-F	QC-M12	1NC	Heavy 2A
135029	Hygiemag CMR-F	2M	1NC 1NO	Heavy 2A
135030	Hygiemag CMR-F	5M	1NC 1NO	Heavy 2A
135031	Hygiemag CMR-F	10M	1NC 1NO	Heavy 2A
135032	Hygiemag CMR-F	QC-M12	1NC 1NO	Heavy 2A

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

HYGIEMAG - Magnetic Non Contact - Type: WMR

Magnetic Actuation - Power series

Heavy Duty 230V.ac / 24V.dc 2.0A.

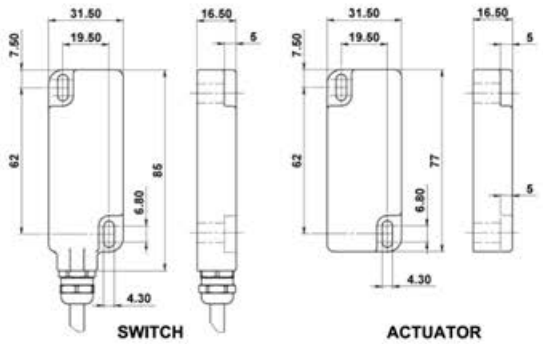
Switching Tolerance up to 12mm IP69K

Specified to 105C but designed to work up to 125C.
Will operate with most Safety Relays

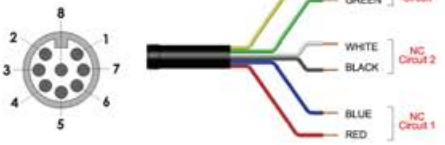
Specially designed for Food Processing applications- Stainless Steel 316 Mirror polished finish (Ra4).
Suitable for CIP SIP cleaning - Food splash Zones EHEDG guidelines
Industry standard fixings - can be high pressure hosed at high temperature - IP69K
Wide 12mm sensing high tolerance to misalignment
High switching capability - Heavy Duty 2A.
Up to : PLe ISO 13849-1 SIL 3 EN 62061 Cat. 4 EN 954-1

Stainless Steel Housing

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

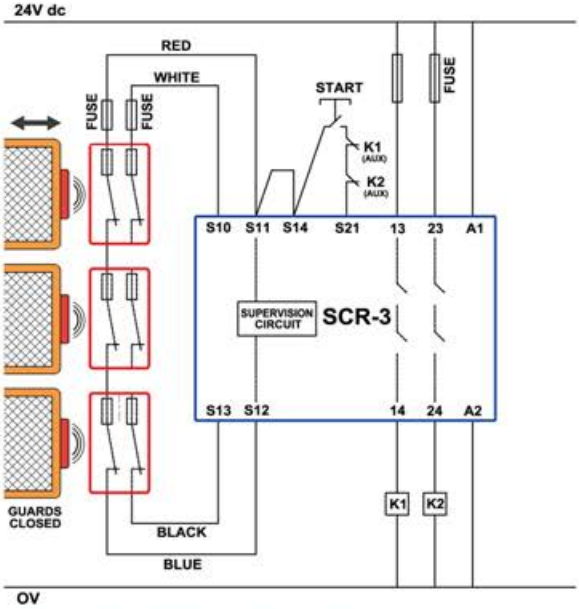


Quick Connect (QC) M12 8 Way Male Plug Pin view from switch	Standard Lead Colour	Circuit (Actuator Present)
4	Yellow	NO
6	Green	NO
7	Black	NC2
1	White	NC2
2	Red	NC1
3	Blue	NC1



Operating Direction

	Standards	EN1088 IEC 60947-5-3 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508
	Safety Classification and Reliability Data:	
	Mechanical Reliability B10d	3.3 x 10^6 operations at 100mA load
	EN 954-1	up to Category 4 with Safety Relay
	ISO 13849-1	up to PLe depending upon system architecture
	EN 62061	up to SIL3 depending upon system architecture
	Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
	PFHd	2.52 x 10^{-8}
	Proof Test Interval (Life)	47 years
	MTTFd	470 years
Heavy Duty	Safety Channel 1 NC	Voltage free : 250V.ac 2.0 A Max. Rating
	Safety Channel 2 NC	Voltage free : 250V.ac 2.0 A Max. Rating
	Safety Channel 3 NO	Voltage free : 24V.dc 0.2 A Max. Rating
	Heavy Duty Fuse	Internal 2.0 A. (F) External 1.6 A.(F) (User)
	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
	Switching Distance:	Sao 10mm Close
	(Target to target)	Sar 22mm 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 (Ra4).
	Temperature Range	–25 +105C.
	Enclosure Protection	IP69K (NEMA PW12) IP67 (NEMA 6)
	Shock Resistance	IEC 68-2-27 11ms 30g
	Vibration Resistance	IEC 68-2-6 10-55 Hz. 1mm
	Cable Type	PVC 6 core 6mm O.D.
	Mounting Bolts	2 x M4 Tightening torque 1.0 Nm
	Mounting Position	Any



Three switches connected in series to an SCR-2 or SCR-3 to give Dual Channel Guard monitoring but with monitored manual start and contactor feedback check.

Sales Number	Type	Cable Length	Circuits
136001	Hygiemag WMR	2M	2NC
136002	Hygiemag WMR	5M	2NC
136003	Hygiemag WMR	10M	2NC
136004	Hygiemag WMR	QC-M12	2NC
136005	Hygiemag WMR	2M	2NC 1NO
136006	Hygiemag WMR	5M	2NC 1NO
136007	Hygiemag WMR	10M	2NC 1NO
136008	Hygiemag WMR	QC-M12	2NC 1NO
136009	Hygiemag WMR	2M	1NC 1NO
136010	Hygiemag WMR	5M	1NC 1NO
136011	Hygiemag WMR	10M	1NC 1NO
136012	Hygiemag WMR	QC-M12	1NC 1NO

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

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

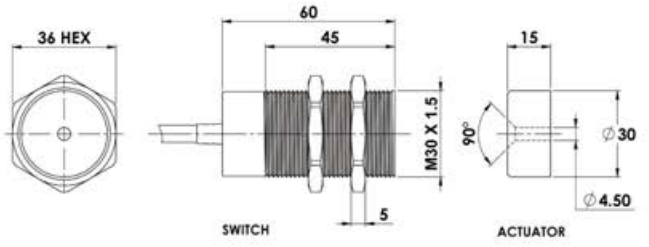
HYGIEMAG - Code Non Contact - Type: RMR

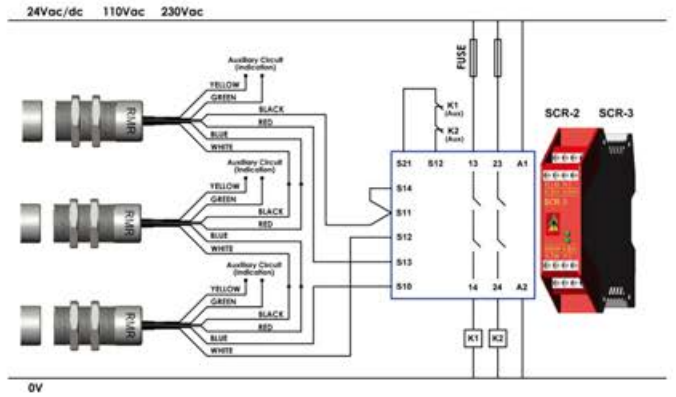
Magnetic Actuation **Switching Tolerance up to 10mm**

Cylindrical fitting suitable for all industry applications.
Easy to install - M30 threaded body - easy to set
Wide 10mm sensing
Suitable for the harsh environments of Food processing and packaging
Stainless Steel 316 housing
UP to: PLe ISO 13849-1 SIL3 EN 62061 Cat. 4 EN 954-1
2NC 1NO circuits
Quick connect versions.

Will operate with most Safety Relays

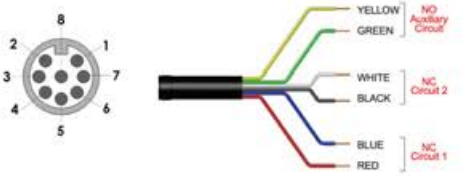
RMR - S/Steel Housing

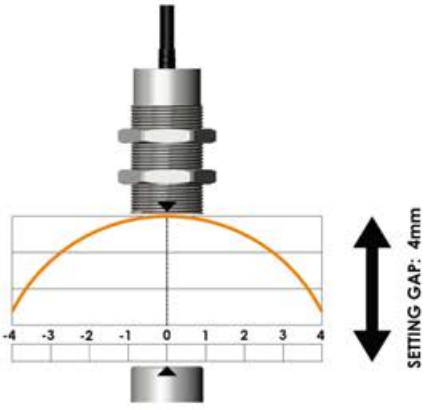




Three Switches connected in series to an SCR-2 or SCR-3 to give Dual Channel Guard monitoring auto start and contactor feedback check.

Quick Connect (QC) M12 8 Way Male Plug Pin view from switch	Standard Lead Colour	Circuit (Actuator Present)
4	Yellow	NO
6	Green	NO
7	Black	NC2
1	White	NC2
2	Red	NC1
3	Blue	NC1





Standards	EN1088 IEC 60947-5-3 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508
Safety Classification and Reliability Data:	
Switching Reliability	3.3 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	2.52 x 10^{-8}
Proof Test Interval (Life)	47 years
MTTFd	470 years
Safety Channel 1 NC	24V.dc 0.5 A Max. Rating
Safety Channel 2 NC	24V.dc 0.5 A Max. Rating
Safety Channel 3 NO	24V.dc 0.2 A Max. Rating
Minimum switched current	10V. dc 1mA
Dielectric withstand	250V.ac
Insulation Resistance	100 Mohms
Recommended setting gap	5mm
Switching Distance:	Sao 10mm Close
(Target to target)	Sar 20mm Open
Tolerance to misalignment	4mm in any direction from 4mm setting gap
Switching frequency	1.0 Hz maximum
Approach speed	200mm/m. to 1000mm/s.
Body Material	Stainless Steel 316
Temperature Range	-25 / 105C
Enclosure Protection	IP69K IP67
Shock Resistance	IEC 68-2-27 11ms 30g
Vibration Resistance	IEC 68-2-6 10-55 Hz. 1mm
Cable Type	PVC 6 core 6mm O.D.
Mounting Position	Any

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

Sales Number	Type	Cable Length	Circuits
134009	Hygiemag RMR S/Steel 316	2M	2NC
134010	Hygiemag RMR S/Steel 316	5M	2NC
134011	Hygiemag RMR S/Steel 316	10M	2NC
134012	Hygiemag RMR S/Steel 316	QC-M12	2NC
134013	Hygiemag RMR S/Steel 316	2M	2NC 1NO
134014	Hygiemag RMR S/Steel 316	5M	2NC 1NO
134015	Hygiemag RMR S/Steel 316	10M	2NC 1NO
134016	Hygiemag RMR S/Steel 316	QC-M12	2NC 1NO

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

Stand Alone Coded Non Contact Switches - Types: PSA-MSA

The PSA and MSA Non Contact Coded switches have been developed as a stand alone mountable device to provide a high level of fault detection and functional safety.

They can be mounted to guard doors to provide and maintain a high level of functional safety without the need to connect to external safety evaluators.

They have their own internal monitoring system and use force guided mechanical contacts and will maintain PLe / Category 4 (ISO13849-1) even with switches connected in series.

They are offered in high specification plastic housings or stainless steel housings and can be used in almost any environments including high pressure cleaning following contamination from foreign particles. The housings are compact and easy to fit on less than 40mm frame sections.

The PSA (Plastic) and the MSA (Stainless Steel 316) both have IP69K ingress protection and are suitable for most detergent washdown applications. The MSA Stainless Steel 316 version has a mirror polished (Ra4) surface finish and is suitable for CIP and SIP process applications.

Dual Actuator versions are available for use with "double door" guards

The typical sensing distance "on" is 12mm with wide tolerance to guard misalignment after setting.

Tested to ingress protection degree IP69K (high pressure hosing with detergent at 80C and 100psi)

Safety Reliability ISO13849-1 PLe Cat4

All standalone switches employ 2 Force Guided Mechanical Relays and incorporate internal checking to ensure both relays are operational after each safety demand If one relay fails to open or becomes inoperative the switch will lock out safe Switches can be connected in series to maintain PLe / Cat 4 to ISO13849-1.

Main user benefits

1) A standalone mountable device able to provide interlocking control without the need for special additional controllers.
2) Feedback circuit check option is included for use when incorporating reset buttons and external contactor feedback checks.
3) Maintains PLe Cat.4 by internally checking the internal mechanical relays at each safety demand.
4) Connect up to 20 switches in series.
5) Ability to connect other switches and E Stops in series.
6) Output contacts will switch up to 230V. ac 3A .

Functional Specification:

High Functional Safety to ISO 13849-1 - up to PLe / Cat 4 to ISO13849-1.

Coded actuation to provide high tamperproof interlock security on Guard Doors.

2 Diagnostic LED"s:

LED1 Green - Indication of Safety Circuits Closed (Guard Closed, Actuator present, Feedback Circuit checked)
LED2 Yellow - Indication of Safety Circuits Open (Actuator removed)

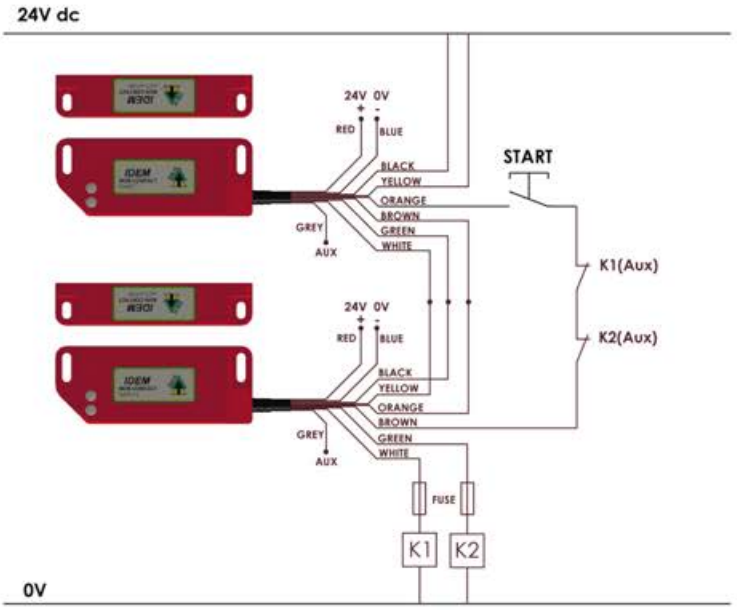
Safety Outputs short circuit protected

1 Auxiliary circuit for indication of door open

M12 Male 8 way connector versions available (Flying Lead 250mm (10 inches)) and also optional series pluggable connectors.

Stand Alone Coded Non Contact Switches - Types: PSA-MSA

Connection example : Switches in series PLe Cat.4



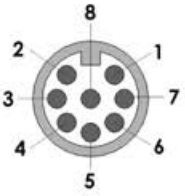
Two switches connected in series to give dual circuit safety outputs to machine contactors.

Safety Circuit 1 (Black/White) utilises internally checked force guided relay contacts and is connected in series with the corresponding Safety Circuit 2 (Yellow/Green) of the next switch.

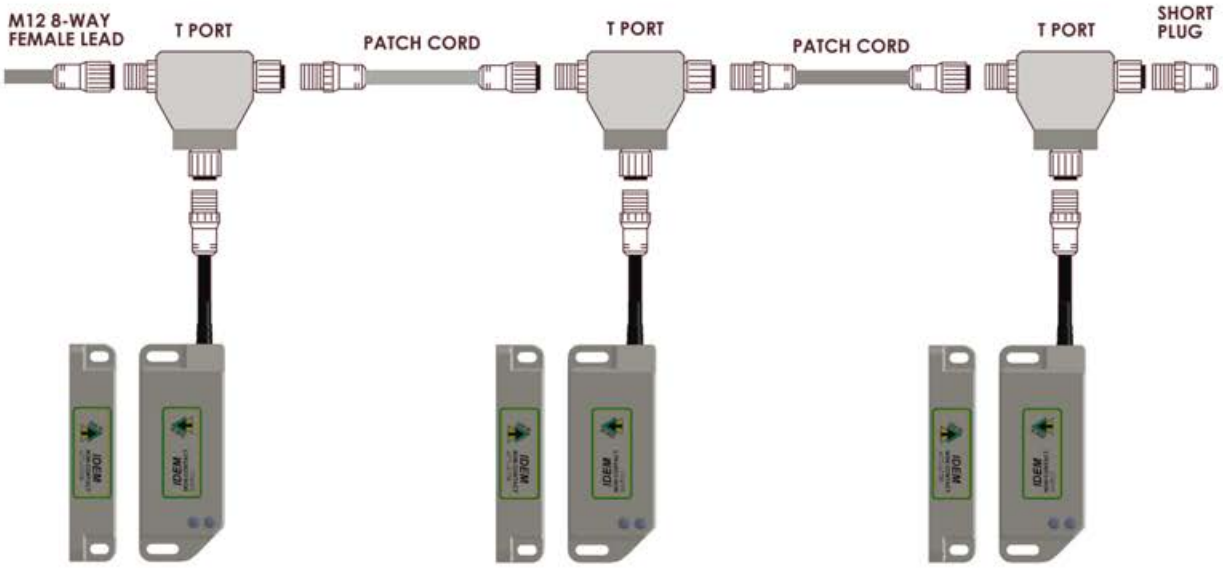
Allows minimal wiring and higher current switching to K1 and K2 contactors.

A manual start and contactor feedback check is achieved by connecting K1(Aux) and K2(Aux) feedback contacts and momentary start button through the orange and brown feedback check.

Quick Connect (QC) Flying Lead 250mm M12 8 way Male Plug	Flying Lead Colours	Circuit	
2	Red	Supply +24V.dc	24Vdc +/- 10%
3	Blue	Supply 0V.dc	
1	White	Safety Output 1 (Force guided relay)	AC15 250V.ac 3A.
7	Black	Safety Output 1 (Force guided relay)	DC13 24V.dc 3A.
4	Yellow	Safety Output 2	AC15 250V.ac 3A.
6	Green	Safety Output 2	DC13 24V.dc 3A.
8	Brown	Reset / Check Circuit - Output	
Not used	Orange	Reset / Check Circuit - Manual start	
5	Pink	Reset / Check Circuit - Auto start	
Not used	Grey	Auxiliary Feed	Electronic +24V. dc 0.2A.



Pluggable system: M12 8 Way Micro connectors



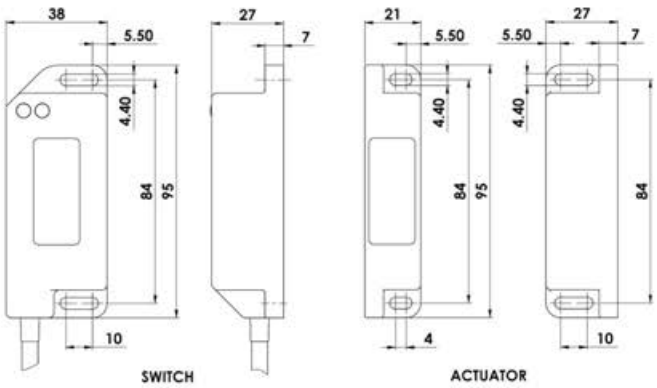
Three switches connected in series to give dual circuit safety outputs to machine contactors.

System Parts:

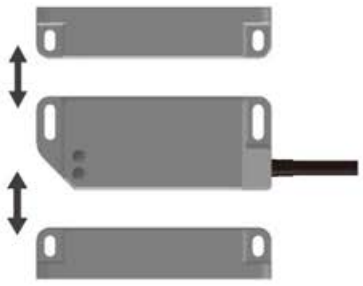
3 x MSA or PSA with M12 Flying Lead Connectors
2 x Patch Cord (either 2m. 5m. or 10m.)
3 x T Port
1 x End short plug
1 x M12 Female Lead

140101	M12 8 Way Female QC Lead	5m.
140102	M12 8 Way Female QC Lead	10m.
140201	Patch Cord M12 Male to Female	2m.
140202	Patch Cord M12 Male to Female	5m.
140203	Patch Cord M12 Male to Female	10m.
140204	T Port	
140205	Short Plug	

Stand Alone Coded Non Contact Switches - Types: PSA-MSA

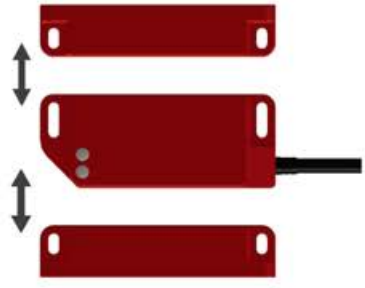


Standards	EN1088 IEC 60947-5-3 IEC 60947-5-1 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508
Safety Classification and Reliability Data:	
Switching Reliability	3.3 x 10^6 operations at 100mA load 1x10^5 operations at full load 3A
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	2.52 x 10^{-8}
Proof Test Interval (Life)	47 years
MTTFd	470 years
Power Supply	24V.dc +/- 10% (Consumption 100mA max.)
Safety Output Maximum Rating	24V.dc 3A.
Auxiliary Output Maximum Rating	24V.dc 0.5A
Dielectric withstand	250V.ac
Insulation Resistance	100 Mohms
Recommended setting gap	5mm
Switching Distance:	Sao 10mm Close
(Target to target)	Sar 15mm Open
Tolerance to misalignment	5mm in any direction from 5mm setting gap
Approach speed	200mm/m. to 1000mm/s.
Body Material	PSA High Specification Polyester MSA Stainless Steel 316
Temperature Range	–25 / 45C.
Shock Resistance	IEC 68-2-27 11ms 30g
Vibration Resistance	IEC 68-2-6 10-55 Hz. 1mm
Enclosure Protection	IP69K / IP67
Cable Type	PVC 10core 7mm O.D.
Mounting Bolts	2 x M4



Sales Number	Single Actuator Sensing	Body Material	Cable Length
130001	MSA	S/Steel 316	2M
130002	MSA	S/Steel 316	5M
130003	MSA	S/Steel 316	10M
130004	MSA	S/Steel 316	QC-M12

Sales Number	Dual Actuator Sensing (both actuators are required to be present to close the safety contacts)	Body Material	Cable Length
130101	MSA-D	S/Steel 316	2M
130102	MSA-D	S/Steel 316	5M
130103	MSA-D	S/Steel 316	10M
130104	MSA-D	S/Steel 316	QC-M12



Sales Number	Single Actuator Sensing	Body Material	Cable Length
117001	PSA	Plastic	2M
117002	PSA	Plastic	5M
117003	PSA	Plastic	10M
117004	PSA	Plastic	QC-M12

Sales Number	Dual Actuator Sensing (both actuators are required to be present to close the safety contacts)	Body Material	Cable Length
117101	PSA-D	Plastic	2M
117102	PSA-D	Plastic	5M
117103	PSA-D	Plastic	10M
117104	PSA-D	Plastic	QC-M12

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

130200	MSA Replacement Actuator
117200	PSA Replacement Actuator

RFID Coded Non Contact Switches - Types LP-RFID and SP-RFID

The LP-RFID and SP-RFID Non Contact Coded 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 / Category 4 to ISO13849-1.

They are offered in high specification plastic housings and can be used in almost any environments including high pressure cleaning following contamination from foreign particles.

They 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 LP-RFID and SP-RFID are available in 2 types either coded by series or uniquely coded.

Type 1 LP-RFID-M or SP-RFID-M **Master code** – by series (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 LP-RFID-U or SP-RFID-U **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

1) RFID provides high degree of anti-tamper - virtually impossible to override
2) Unique RFID or series coding RFID available - depending upon user's risk assessment.
3) Able to connect to most popular Safety Relays to achieve up to PLe and Category 4 for ISO13849-1.
4) Connect up to 20 switches in series.
5) Ability to connect other switches and E Stops in series.

LP-RFID-U (Uniquely Coded)
LP-RFID-M (Master Coded by series)

SP-RFID-U (Uniquely Coded)
SP-RFID-M (Master Coded by series)

Functional Specification:

High Functional Safety to ISO 13849-1 – connects to most Safety Relays to maintain PLe Cat.4.

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

Diagnostic LED:

LED Green – Indication of Safety Circuits closed

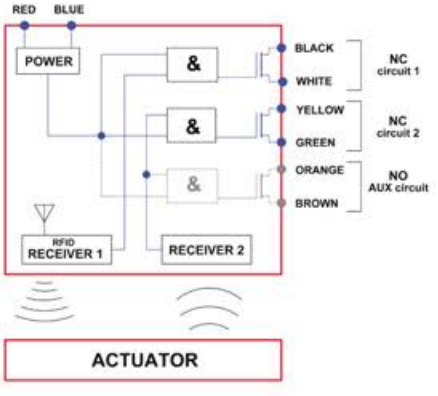
2NC Safety Outputs short circuit protected

1NO Auxiliary Output for indication of door open

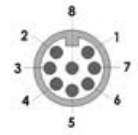
No moving parts – high switch life and resistance to Shock and Vibration

M12 Male 8 way connector versions available (Flying Lead 250mm (10 inches))

Principle:



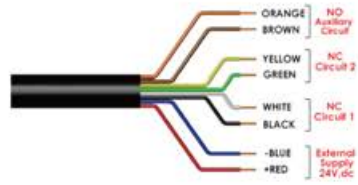
RFID Coded Non Contact Switches - Types LP-RFID and SP-RFID



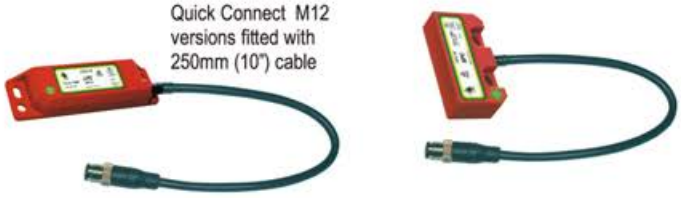
Pin view from switch

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

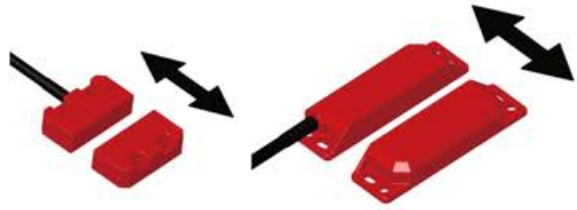
For all IDEM switches the NC circuits are closed when the guard is closed and the actuator present.



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



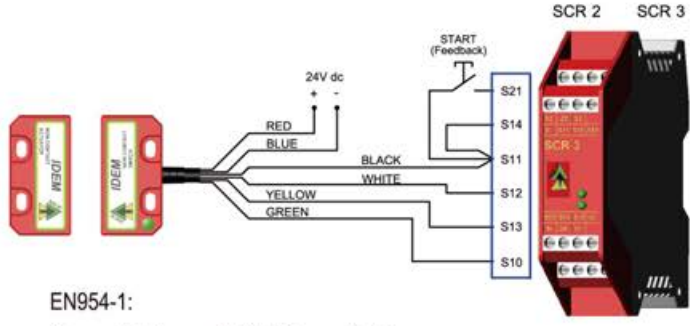
Operating directions



Standards EN1088 IEC 60947-5-3 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508

Safety Classification and Reliability Data:

Switching Reliability	3.3 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	2.52 x 10^{-8}
Proof Test Interval (Life)	47 years
MTTFd	470 years
Maximum Rating	24V.dc 0.2 A Max. Rating
Minimum switched current	10V. dc 1mA
Dielectric withstand	250V.ac
Insulation Resistance	100 Mohms
Recommended setting gap	5mm
Switching Distance:	Sao 10mm Close
(Target to target)	Sar 20mm Open
Tolerance to misalignment	5mm in any direction from 5mm setting gap
Approach speed	200mm/m. to 1000mm/s.
Body Material	UL Approved Polyester
Temperature Range	–25 / 105C.
Shock Resistance	IEC 68-2-27 11ms 30g
Vibration Resistance	IEC 68-2-6 10-55 Hz. 1mm
Enclosure Protection	IP69K IP67
Cable Type	PVC 8 core 6mm O.D.
Mounting Bolts	2 x M4



EN954-1:

One switch to one Safety Relay - Cat 4
Multiple switches to one Safety Relay - Cat.3.

Single switch connected to an SCR-2 or SCR-3 to give Dual Channel monitoring with Manual Start.

Sales Number	UNIQUELY CODED (every switch unique activation)	Cable Length
404001	LP-RFID-U	2M
404002	LP-RFID-U	5M
404003	LP-RFID-U	10M
404004	LP-RFID-U	QC-M12
404200	Replacement Actuator (re-teach)	

Sales Number	MASTER CODED (same code every switch)	Cable Length
404101	LP-RFID-M	2M
404102	LP-RFID-M	5M
404103	LP-RFID-M	10M
404104	LP-RFID-M	QC-M12
404201	Replacement Actuator Master	

Sales Number	UNIQUELY CODED (every switch unique activation)	Cable Length
405001	SP-RFID-U	2M
405002	SP-RFID-U	5M
405003	SP-RFID-U	10M
405004	SP-RFID-U	QC-M12
405200	Replacement Actuator (re-teach)	

Sales Number	MASTER CODED (same code every switch)	Cable Length
405101	SP-RFID-M	2M
405102	SP-RFID-M	5M
405103	SP-RFID-M	10M
405104	SP-RFID-M	QC-M12
405201	Replacement Actuator Master	

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

SENSATUS - RFID Coded Non Contact Switches with Auto Test

The SENSATUS 'Intelligent Series' Non Contact Coded switches have been developed to provide and maintain a high level of functional safety whilst providing tamperproof RFID coded activation.

They will connect to most popular standard Safety Relays to maintain a PLe / Category 4 Safety Level even with switches connected in series.

They are offered in high specification plastic housings and can be used in almost any environments including high pressure cleaning following contamination from foreign particles.

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

They have easy to understand LED diagnostic functions and provide auxiliary outputs for extra diagnostic signals to PLC's or computers.

The typical sensing distance 'on' is 12mm with wide tolerance to guard misalignment after setting.

LP-SEN Types

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

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

RP-SEN Types

The SENSATUS switches are available in 2 Versions:

Version 1 Type M Master code – by series (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.

Version 2 Type U 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.

Safety Reliability ISO13849-1 PLe Cat.4

Switches employ 2 microprocessors and uses IDEM's intelligent system to check all switches at each safety demand.

Main user benefits

1) RFID provides high degree of anti-tamper - virtually impossible to override
2) Unique RFID or series coding RFID available - depending upon user's risk assessment.
3) Able to connect to most popular Safety Relays without the need for special controllers.
4) Maintains PLe Cat.4 by IDEM's technique at each Safety Demand.
5) Connect up to 20 switches in series.
6) Ability to connect other switches and E Stops in series.

Functional Specification:

High Functional Safety to ISO 13849-1 - connects to most Safety Relays to maintain PLe Cat.4.

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

2 Diagnostic LED's giving three diagnostic conditions:

LED1 Green - Indication of closed Safety Outputs
LED2 Yellow - Self check passed
LED2 Red - Fault

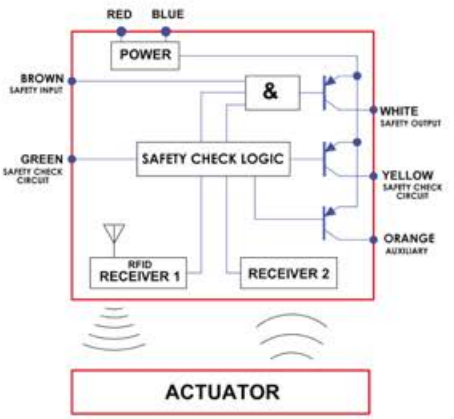
Safety Outputs short circuit protected

No moving parts – high switch life and resistance to Shock and Vibration

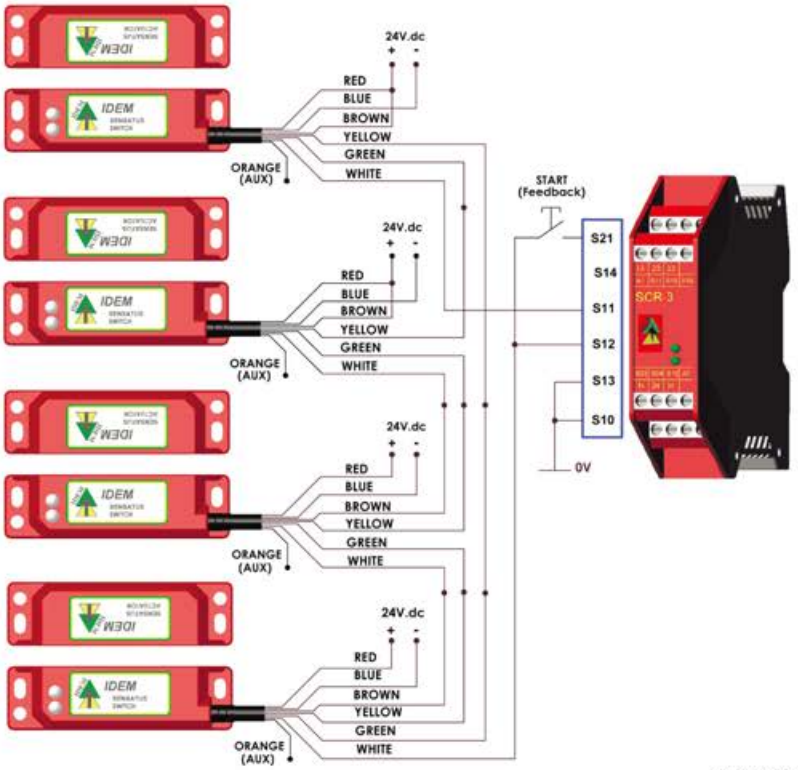
1 Auxiliary circuit for indication of door open

M12 Male 8 way connector versions available (Flying Lead 250mm (10 inches))

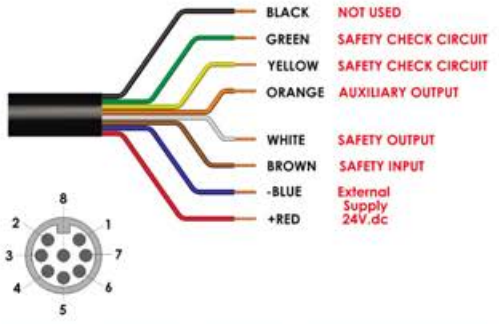
Principle:



SENSATUS - RFID Coded Non Contact Switches with Auto Test



Switches connected in series to SCR-3 Safety Relay



Quick Connect (QC) Flying Lead 250mm M12 8 way Male Plug (Pin view from switch)	Flying Lead Colours	Circuit
2	Red	Supply +24V.dc
3	Blue	Supply 0V.dc
7	Brown	Safety Input
1	White	Safety Output
8	Orange	Auxiliary Output
4	Yellow	Safety Check Circuit
6	Green	Safety Check Circuit
5	Black	Not used

Standards	EN1088 IEC 60947-5-3 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508
Safety Classification and Reliability Data:	
Switching Reliability	3.3 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	2.52 x 10^{-8}
Proof Test Interval (Life)	47 years
MTTFd	470 years
Safety Output Maximum Rating	24V.dc 0.3 A
Auxiliary Output Maximum Rating	24V.dc 0.3 A
Dielectric withstand	250V.ac
Insulation Resistance	100 Mohms
Recommended setting gap	5mm
Switching Distance:	Sao 10mm Close
(Target to target)	Sar 20mm Open
Tolerance to misalignment	5mm in any direction from 5mm setting gap
Approach speed	200mm/m. to 1000mm/s.
Body Material	High Specification Polyester
Temperature Range	–25 / 65C.
Shock Resistance	IEC 68-2-27 11ms 30g
Vibration Resistance	IEC 68-2-6 10-55 Hz. 1mm
Enclosure Protection	IP69K IP67
Cable Type	PVC 8 core
Mounting Bolts	2 x M4

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

Sales Number	MASTER CODED (same code every switch)	Cable Length
402001	Sensatus LP-SEN-M	2M
402002	Sensatus LP-SEN-M	5M
402003	Sensatus LP-SEN-M	10M
402004	Sensatus LP-SEN-M	QC-M12
402200	Replacement Actuator Master	

Sales Number	UNIQUELY CODED (every switch unique activation)	Cable Length
402101	Sensatus LP-SEN-U	2M
402102	Sensatus LP-SEN-U	5M
402103	Sensatus LP-SEN-U	10M
402104	Sensatus LP-SEN-U	QC-M12
402201	Replacement Actuator (re-teach)	

Sales Number	MASTER CODED (same code every switch)	Cable Length
403001	Sensatus RP-SEN-M	2M
403002	Sensatus RP-SEN-M	5M
403003	Sensatus RP-SEN-M	10M
403004	Sensatus RP-SEN-M	QC-M12
403200	Replacement Actuator Master	

Sales Number	UNIQUELY CODED (every switch unique activation)	Cable Length
403101	Sensatus RP-SEN-U	2M
403102	Sensatus RP-SEN-U	5M
403103	Sensatus RP-SEN-U	10M
403104	Sensatus RP-SEN-U	QC-M12
403201	Replacement Actuator (re-teach)	

Safety Relays

Function:

The SCR range of Safety Relays are designed in accordance with EN 60204-1 for safety circuits and they may be used in conjunction with Mechanical Interlock Guard Switches, Emergency Stop Switches, Non Contact Guard Switches or Light Curtains to achieve redundant monitoring and fault checking up to PLe ISO13849-1 Category 4.
When dual circuit monitoring is used they can check the switch contacts for correct opening and re-closing, monitor for wiring short circuits and can be configured to check for correct opening of external machine contactors. For applications requiring time controlled delay after opening of the guard switch, versions with time delayed output contacts are available (variable 0 to 30 seconds).

Features:

Dual force guided relay output contacts – internally monitored – high current outputs up to 8A.
Up to PLe Category 4 to ISO13849-1 (EN954-1) and SILCL 3 EN62061
Single or Dual Channel input – LED indication of input status
Feedback loop for monitoring contactors Short circuit and earth fault monitoring
DIN Rail Mounting – either 22mm or 44mm wide housings
Automatic or Manual Start

Standard Safety Relays

SCR-1

2 Safety Output Contacts
24V ac/dc supply

SCR-2

2 Safety Output Contacts
24V ac/dc supply

SCR-3

3 Safety Output Contacts
1 Auxiliary Output Contact
Choice of 24Vac/dc, 110Vac or 230Vac supply (by part number)

SCR-7

7 Safety Output Contacts
4 Auxiliary Output Contact
2 Auxiliary Transistor Outputs
24Vac/dc supply

Safety Relays with time delayed contacts

SCR-4-TD-1

1 Delayed Safety Output Contact (Variable 0-30s.)
3 Instant Safety Output Contacts
24Vac/dc supply

SCR4-TD-2

2 Delayed Safety Output Contacts (Variable 0-30s.)
2 Instant Safety Output Contacts
24Vac/dc supply

SCR4-TD-3

3 Delayed Safety Output Contacts (Variable 0-30s.)
1 Instant Safety Output Contact
24Vac/dc supply

Expansion Modules for use with Standard Relays

SEU-1

3 Safety Output Contacts
1 Auxiliary Output Contact
Choice of 24Vac/dc, 110Vac or 230Vac supply (by part number)

SEU-TD-1

3 Delayed Safety Output Contacts
1 Delayed Auxiliary Output Contact
Choice of 24Vac/dc, 110Vac or 230Vac supply (by part number)

2 Hand Control Relays

SCR-2H

2 Safety Output Contacts
Choice of 24Vac/dc, 110Vac or 230Vac supply (by part number)
Complies with EN574, Type IIIC and is intended for use with 2 hand palm buttons.

Safety Relays - SCR-1

SCR-1 Emergency Stop Relay 2NC Outputs

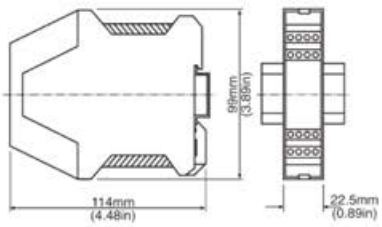
The SCR-1 is a low cost all purpose Safety Relay that ensures the quick and safe deactivation of the moving parts of a machine in case of danger. Internal fault monitoring takes place during restart via the start button.

Applications include single and dual channel emergency stop circuits or dual channel safety guard monitoring using Tongue switches.

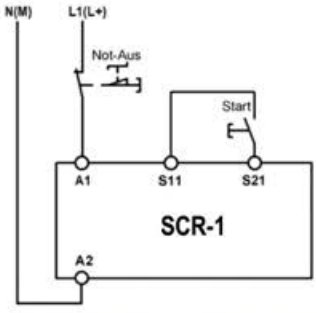
Features:

2 safe, redundant safety output contacts

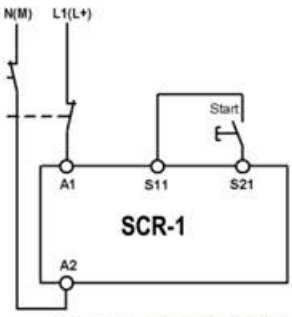
Standards: EN 60204-1, EN954-1, ISO13849-1, EN62061
Up to Category 3 to EN 954-1
Up to PLd to ISO13849-1 SILCL 2 EN62061
Single or Dual Channel input – LED indication of input status
Redundancy and cycle monitoring
Feedback loop for monitoring contactors or expansion modules
22mm Din Rail Mounting



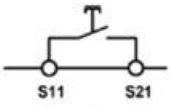
Applications:



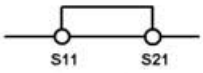
Single channel Interlocking to PLc ISO13849-1 and Cat.1.



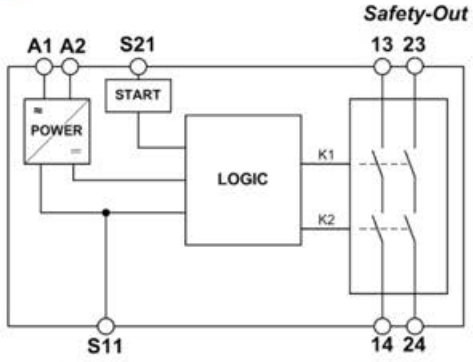
Dual channel Interlocking to PLd ISO13849-1 Cat.3.



Manual start.

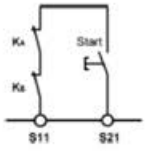


Automatic start.



Block diagram and electrical connection

A1 A2	Power
S11	24V.dc control voltage
S21	Control line
13-14	Safety Output Contact 1
23-24	Safety Output Contact 2



Feedback circuit.

The feedback circuit monitors machine contactors or expansion modules.

SCR-1	
Standards	EN60204-1, EN 292, EN 418, EN60204-1 EN 954-1, ISO13849-1, EN 1088 EN62061
Monitored Safety Inputs Circuits	2 NC or 1NC
Safety Switching Outputs	2 NC positively guided
Operating voltage	AC/DC24V 3VA approx.
Supply deviation	+ / - 10%
Control voltage at S11	24V.dc
Control current S11 to S14	40mA approx.
Monitored Reset Circuit loop	Auto or Monitored Manual Reset
Maximum line conductor cross section	2.5 sq.mm
Maximum length of control line	1000m. with 0.75 Sq.mm
Contact material	AgNi
Indication - Green	LED 1 internal relay K1 energised LED 2 internal relay K2 energised LED 1 and 2 OSSD closed
Contact service life	Mechanical 1 x 10^7 Electrical 1 x 10^5
Safety Contact breaking capacity	AC 250V, 1500VA, 6A. ohmic 230V, 4A for AC15 DC 24V, 30W, 1.25A. ohmic 24V, 30W, 2.0A for DC-13
External Fuse protection – Safety outputs	4A slow blow or 6A quick blow
Minimum voltage and current	24V, 20mA dc
Response time on output opening	90 ms
Rated insulation voltage	250V
Degree of protection	IP20
Rated impulse withstand voltage	4 kV
Operating temperature	-15°C to +40°C
IP Protection IEC529	Terminals IP20
Mounting	35mm DIN rail
Weight	0·23kg approx.

Safety Classification and Reliability Data: The specified PL or SILCL were determined under worst case conditions:

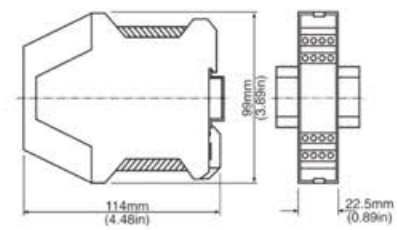
ISO 13849-1:	
Performance level	d
Category (ISO13849-1 / EN 954-1)	3
MTTFd	848 years
DC (avg.)	96.6%
Proof Test Interval (Life)	20 years
Safety Data Annual usage	365 days per year 24 hours per day Test cycle 3600 seconds / cycle Full Load AC15

EN 62061:	
SILCL	2
Proof Test Interval (Life)	20 years
Hardware fault tolerance	1
DC (avg.)	96.6%
Safe Failure Fraction SFF	99.6%
PFHd	2.70 x 10^{-11}

Sales Number	Type	Supply Voltage	EN 954-1 Category	Switch Input Circuits	Output Contacts
180009	SCR-1	24V.ac/dc	Up to Cat.3	2 NC	2NC

Safety Relays - SCR-2

SCR-2 Safety Monitoring Relay 2NC Outputs



The SCR-2 is an all purpose Safety Monitoring Relay that ensures the quick and safe deactivation of the moving parts of a machine in case of danger.

Applications include single and dual channel emergency stop circuits or dual channel safety guard monitoring using Tongue switches or Non Contact Switches.

Features:

2 Force guided safety output contacts

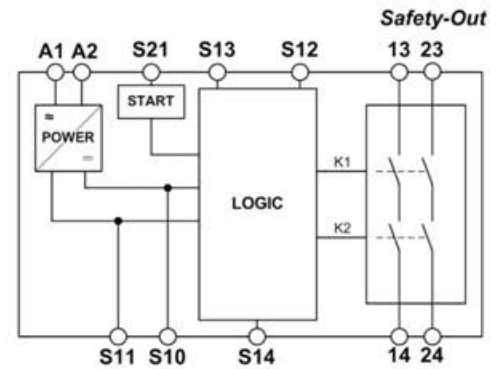
Standards: EN 60204-1, EN954-1, ISO13849-1, EN62061
Stop Category: 0
Up to Category 4 to EN 954-1
Up to PLe to ISO13849-1
SILCL 3 EN62061
Single or Dual Channel input – LED indication of input status
Redundancy and cycle monitoring
Feedback loop for monitoring contactors or expansion modules
Short circuit and earth fault monitoring
22mm Din Rail Mounting

Function:

The SCR-2 is designed in accordance with EN 60204-1 for safety circuits and they may be applied for up to PLe ISO13849-1 or Cat.4 EN954-1.

The internal logic system closes the relay safety outputs when the start button is pressed.

If the control lines are opened by operation of a Safety Switch or E Stop button then the safety output contacts are opened and safely switch off the supply to the machine. It is ensured that a single fault does not lead to the loss of the safety function and that cyclic monitoring means that any fault is detected no later than the next start up.



Block diagram and electrical connection

A1 A2	Power
S11	24V.dc control voltage
S10 S13 S14 S12	Control lines
S21	Start Control Line
13-14	Safety Output Contact 1
23-24	Safety Output Contact 2

	SCR-2
Standards	EN60204-1, EN 292, EN 418, EN60204-1 EN 954-1, ISO13849-1, EN 1088 EN62061
Monitored Safety Inputs Circuits	2 NC or 1NC
Safety Switching Outputs	2 NC positively guided
Operating voltage	AC/DC 24V
Supply deviation	+ / - 10%
Control voltage at S11	24V.dc
Control current S11 to S14	40mA approx.
Monitored Reset Circuit loop	Auto or Monitored Manual Reset
Maximum line conductor cross section	2.5 sq.mm
Maximum length of control line	1000m. with 0.75 Sq.mm
Contact material	AgNi
Indication - Green	LED 1 internal relay K1 energised LED 2 internal relay K2 energised LED 1 and 2 OSSD closed
Contact service life	Mechanical 1 x 10^7 Electrical 1 x 10^5
Safety Contact breaking capacity	AC 250V, 1500VA, 6A. ohmic 230V, 4A for AC15 DC 24V, 30W, 1.25A. ohmic 24V, 30W, 2.0A for DC-13
External Fuse protection – Safety outputs	4A slow blow or 6A quick blow
Minimum voltage and current	24V, 20mA dc
Response time on output opening	90 ms
Rated insulation voltage	250V
Degree of protection	IP20
Rated impulse withstand voltage	4 kV
Operating temperature	-15°C +40°C
IP Protection IEC529	Terminals IP20
Mounting	35mm DIN rail
Weight	0·23kg approx.

Safety Classification and Reliability Data:	The specified PL or SILCL were determined under worst case conditions:
ISO 13849-1:	
Performance level	e
Category (ISO13849-1 / EN 954-1)	4
MTTFd	848 years
DC (avg.)	99%
Proof Test Interval (Life)	20 years
Safety Data Annual usage	365 days per year 24 hours per day Test cycle 3600 seconds / cycle Full Load AC15
EN 62061:	
SILCL	3
Proof Test Interval (Life)	20 years
Hardware fault tolerance	1
DC (avg.)	99%
Safe Failure Fraction SFF	99.6%
PFHd	2.70 x 10^{-11}

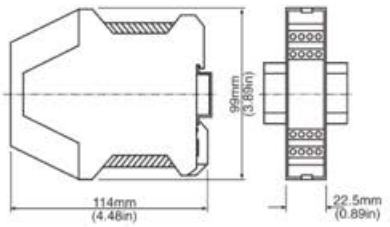
Sales Number	Type	Terminal Type	Supply Voltage	Switch Input Circuits	Output Contacts
180001	SCR-2	Standard Screw Terminals	24V.ac/dc	2 NC	2NC
180001-P	SCR-2	Pluggable Screw Terminals	24V.ac/dc	2 NC	2NC

Safety Relays - SCR-3

SCR-3 Safety Monitoring Relays 3NC 1NO Outputs

The SCR-3 is an all purpose Safety Monitoring Relay that ensures the quick and safe deactivation of the moving parts of a machine in case of danger.

Applications include single and dual channel emergency stop circuits or dual channel safety guard monitoring using Tongue switches or Non Contact Switches.



Features:

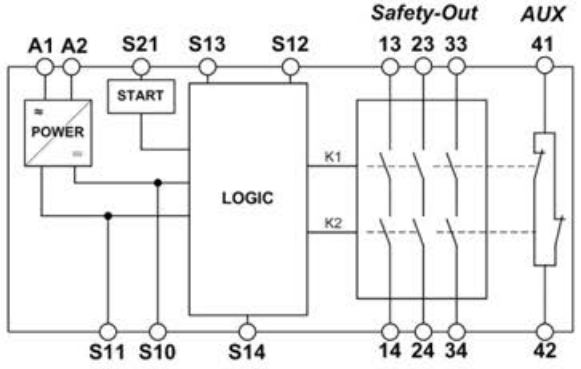
3 Force guided safety output contacts
1 Auxiliary output contact
Standards: EN 60204-1, EN954-1, ISO13849-1, EN62061
Stop Category: 0
Up to Category 4 to EN 954-1
Up to PLe to ISO13849-1
SILCL 3 EN62061
Single or Dual Channel input – LED indication of input status
Redundancy and cycle monitoring
Feedback loop for monitoring contactors or expansion modules
Short circuit and earth fault monitoring
22mm Din Rail Mounting
Choice of 24Vac/dc, 110Vac or 230Vac supply (by part number)

Function:

The SCR-3 is designed in accordance with EN 60204-1 for safety circuits and they may be applied for up to PLe ISO13849-1 or Cat.4 EN954-1.

The internal logic system closes the relay safety outputs when the start button is pressed.

If the control lines are opened by operation of a Safety Switch or E Stop button then the safety output contacts are opened and safely switch off the supply to the machine. It is ensured that a single fault does not lead to the loss of the safety function and that cyclic monitoring means that any fault is detected no later than the next start up.



Block diagram and electrical connection

A1 A2	Power
S11	24V.dc control voltage
S10	Control line
S21	Start Control Line
S13 S14 S12	Control Lines
13-14	Safety Output Contact 1
23-24	Safety Output Contact 2
33-34	Safety Output Contact 3
41 42	Auxiliary Output Contact

SCR-3	
Standards	EN60204-1, EN 292, EN 418, EN60204-1 EN 954-1, ISO13849-1, EN 1088 EN62061
Monitored Safety Inputs Circuits	2 NC or 1NC from Safety Switches
Safety Switching Outputs	3 NC positively guided
Auxiliary outputs	1 NO
Operating voltage	AC230V AC110V AC/DC24V by part number
Supply deviation	+ / - 10%
Control voltage at S11	24V.dc
Control current S11 to S14	40mA approx.
Monitored Reset Circuit loop	Auto or Monitored Manual Reset
Maximum line conductor cross section	2.5 sq.mm
Maximum length of control line	1000m. with 0.75 Sq.mm
Contact material	AgNi
Indication - Green	LED 1 internal relay K1 energised LED 2 internal relay K2 energised LED 1 and 2 OSSD closed
Contact service life	Mechanical 1 x 10^7 Electrical 1 x 10^5
Safety Contact breaking capacity	AC 250V, 2000VA, 8A. ohmic 230V, 3A for AC15 DC 24V, 48W, 2.0A. DC13 (Max. total Current 15A.).
Auxiliary Contact breaking capacity	AC 250V, 500VA, 2A. DC 50V. 30W. 1.25A. ohmic
External Fuse protection – Safety outputs	4A slow blow or 6A quick blow
Minimum voltage and current	24V, 20mA dc
Response time on output opening	90 ms
Rated insulation voltage	250V
Degree of protection	IP20
Rated impulse withstand voltage	4 kV
Operating temperature	-15°C +40°C.
IP Protection IEC529	Terminals IP20
Mounting	35mm DIN rail
Weight	0·23kg approx.

Safety Classification and Reliability Data:	The specified PL or SILCL were determined under worst case conditions:
ISO 13849-1:	
Performance level	e
Category (ISO13849-1 / EN 954-1)	4
MTTFd	567 years
DC (avg.)	99%
Proof Test Interval (Life)	20 years
Safety Data Annual usage	365 days per year 24 hours per day Test cycle 3600 seconds / cycle Full Load AC15
EN 62061:	
SILCL	3
Proof Test Interval (Life)	20 years
Hardware fault tolerance	1
DC (avg.)	99%
Safe Failure Fraction SFF	99.6%
PFHd	4.10 x 10^{-11}

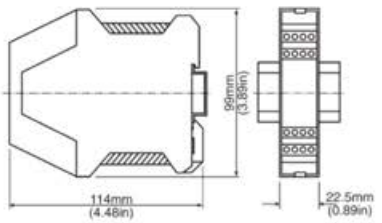
Sales Number	Type	Terminal Type	Supply Voltage	Switch Input Circuits	Output Contacts
180002	SCR-3	Standard Screw Terminals	24V.ac/dc	2 NC	3NC 1NO
180003	SCR-3		230V.ac	2 NC	3NC 1NO
180004	SCR-3		110V.ac	2 NC	3NC 1NO
180002-P	SCR-3	Pluggable Screw Terminals	24V.ac/dc	2 NC	3NC 1NO
180003-P	SCR-3		230V.ac	2 NC	3NC 1NO
180004-P	SCR-3		110V.ac	2 NC	3NC 1NO

Safety Relays with combined Time Delay SCR-4 -TD

SCR-4-TD Safety Monitoring Relays

The SCR-4-TD are all purpose Safety Monitoring Relays that combine time delayed and non time delayed contacts in a compact 22.5mm housing.

This permits dangerous components of a system to be switched off quickly and safely, whilst at the same time other circuits still be supplied with voltage for up to 30 seconds (adjusted on the SCR-4-TD by a potentiometer).



Features:

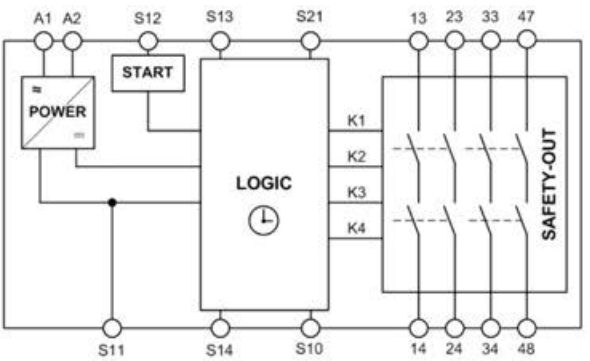
Force guided safety output contacts – available in 3 variants

Standards: EN 60204-1, EN954-1, ISO13849-1, EN62061
Stop Category: 0 (non time delayed) 1 (time delayed)
Up to Category 4 to EN 954-1
Up to PLe to ISO13849-1 SILCL 3 EN62061
Single or Dual Channel input – LED indication of input status
Redundancy and cycle monitoring
Feedback loop for monitoring contactors or expansion modules
Short circuit and earth fault monitoring
22mm Din Rail Mounting

Function:

If the application requires time delayed opening of a safety circuit following activation of the stop signal then the SCR-4-TD range will provide combination of instant and variable delayed contacts.

This may be useful for applications that rely on PLC control to provide an initial controlled shutdown but ultimately requires a delayed opening of a safety circuit.

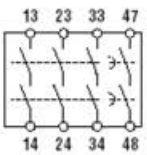


Block diagram and electrical connection SCR-4-TD-1

A1 A2	Power
S11	24V.dc control voltage
S10 S13 S14 S21	Control lines
S12	Start Control Line

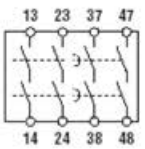
Variants:

SCR-4-TD-1



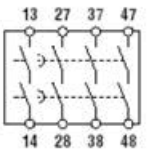
Instant 3NC
Delayed 1NC

SCR-4-TD-2



Instant 2NC
Delayed 2NC

SCR-4-TD-3



Instant 1NC
Delayed 3NC

	SCR-4-TD
Standards	EN60204-1, EN 292, EN 418, EN60204-1 EN 954-1, ISO13849-1, EN 1088 EN62061
Monitored Safety Inputs Circuits	2 NC or 1NC
Safety Switching Outputs	4 NC
Delayed time	1-30 seconds continuously adjustable
Operating voltage	AC/DC24V
Supply deviation	+ / - 10%
Control voltage at S11	24V.dc
Control current S11 to S14	190mA approx.
Monitored Reset Circuit loop	Auto or Monitored Manual Reset
Maximum line conductor cross section	2.5 sq.mm
Maximum length of control line	1000m. with 0.75 Sq.mm
Contact material	AgNi
Indication - Green	LED 1 internal relay K1 energised LED 2 internal relay K2 energised LED 1 and 2 OSSD closed
Contact service life	Mechanical 1 x 10^7 Electrical 1 x 10^5
Safety Contact breaking capacity	AC 250V, 1500VA, 6A. ohmic 230V, 4A for AC15 DC 24V, 30W, 1.25A. ohmic 24V, 30W, 2.0A for DC-13
External Fuse protection – Safety outputs	4A slow blow or 6A quick blow
Minimum voltage and current	24V, 20mA dc
Response time on output opening	90 ms
Rated insulation voltage	250V
Degree of protection	IP20
Rated impulse withstand voltage	4 kV
Operating temperature	-15°C +40°C.
IP Protection IEC529	Terminals IP20
Mounting	35mm DIN rail
Weight	0·25kg approx.

Safety Classification and Reliability Data:	The specified PL or SILCL were determined under worst case conditions:
ISO 13849-1:	
Performance level	e
Category (ISO13849-1 / EN 954-1)	4 Non delayed 3 Delayed
MTTFd	73.36 years
DC (avg.)	99% Non delayed 90% Delayed
Proof Test Interval (Life)	10 years
Safety Data Annual usage	261 days per year 16 hours per day Test cycle 180 seconds Low Load AC1
EN 62061:	
SILCL	3 Non delayed
Proof Test Interval (Life)	20 years
Hardware fault tolerance	1
DC (avg.)	99% Non delayed 90% Delayed
Safe Failure Fraction SFF	96.44%
PFHd Non delayed	5.59 x 10^{-8}
PFHd Delayed	6.85 x 10^{-8}

Sales Number	Type		Supply Voltage	Switch Input Contacts	Instant Output Contacts	Delayed Output Contacts
180005	SCR-4-TD-1	Standard Screw Terminals	24V.ac/dc	2NC	3NC	1NC
180006	SCR-4-TD-2		24V.ac/dc	2NC	2NC	2NC
180007	SCR-4-TD-3		24V.ac/dc	2NC	1NC	3NC
180005-P	SCR-4-TD-1	Pluggable Screw Terminals	24V.ac/dc	2NC	3NC	1NC
180006-P	SCR-4-TD-2		24V.ac/dc	2NC	2NC	2NC
180007-P	SCR-4-TD-3		24V.ac/dc	2NC	1NC	3NC

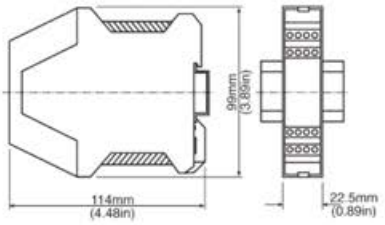
SEU-1 Expansion Module - for use with SCR-2 and SCR-3

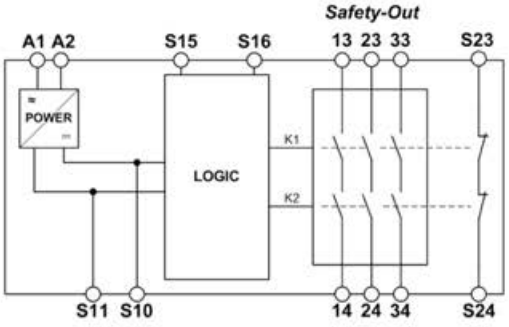
SEU-1 Safety Expansion Relay offering 3NC Outputs

The SEU-1 is an expansion unit which offers 3 additional NC Safety Output Contacts.
An existing system using SCR-2 or SCR-3 can be expanded modularly.
The safety actuation is achieved from the basic SCR-2 or SCR-3 relay.

Features:

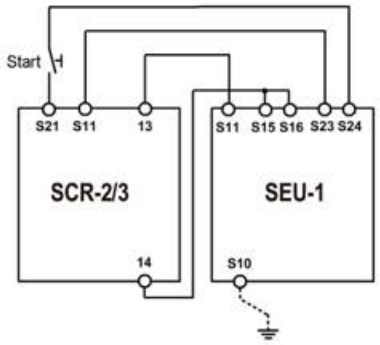
3NC relay outputs
1NO auxiliary contact – (fault monitoring)
Standards: EN 60204-1, EN954-1, ISO13849-1, EN62061
Stop Category : 1
Up to Category : 4 EN 954-1
Up to : PLe ISO13849-1
Force Guided Contacts : 3
Fault Monitoring by basic SCR device.



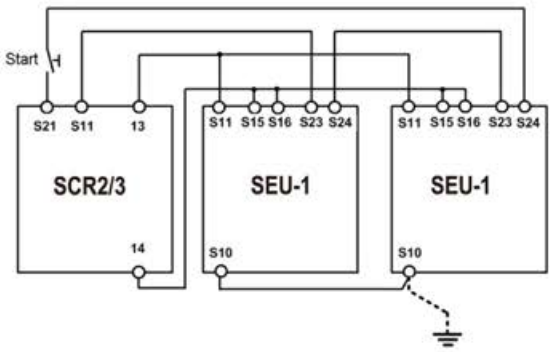


Block diagram and electrical connection SEU-1

A1 A2	Power
S11	24V.dc control voltage
S10 S15 S16	Control lines
S23 S24	Fault monitoring
13-14	Safety Contact 1
23-24	Safety Contact 2
33-34	Safety Contact 3



Connection of an SEU-1 to a basic device SCR-2 or SCR-3.



Connection of several SEU-1 to a basic device SCR-2 or SCR-3.

	SEU-1
Standards	EN60204-1, EN 292, EN 418, EN60204-1 EN 954-1, ISO13849-1, EN 1088 EN62061
Safety Switching Outputs	3 NC
Auxiliary Contact	1 NO
Operating voltage	AC/DC24V AC110V AC230V by part number
Supply deviation	+ / - 10%
Control voltage at S11	24V.dc
Control current S11 to S14	40mA approx.
Maximum line conductor cross section	2.5 sq.mm
Maximum length of control line	1000m. with 0.75 Sq.mm
Contact material	AgNi
Indication - Green	LED 1 and 2 OSSD closed
Contact service life	Mechanical 1 x 10^7 Electrical 1 x 10^5
Safety Contact breaking capacity	AC 250V, 1500VA, 6A. ohmic 230V, 4A for AC15 DC 24V, 30W, 1.25A. ohmic 24V, 30W, 2.0A for DC-13
External Fuse protection – Safety outputs	4A slow blow or 6A quick blow
Minimum voltage and current	24V, 20mA dc
Rated insulation voltage	250V
Degree of protection	IP20
Rated impulse withstand voltage	4 kV
Operating temperature	-15°C +40°C
IP Protection IEC529	Terminals IP20
Mounting	35mm DIN rail
Weight	0·25kg approx.

Safety Classification and Reliability Data: The specified PL or SILCL were determined under worst case conditions:

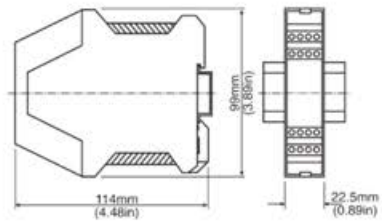
ISO 13849-1:	
Performance level	e
Category (ISO13849-1 / EN 954-1)	4
MTTFd	567 years
DC (avg.)	99%
Proof Test Interval (Life)	20 years
Safety Data Annual usage	365 days per year 24 hours per day 3600 seconds/ cycle Full Load AC15
EN 62061:	
SILCL	3
Proof Test Interval (Life)	20 years
Hardware fault tolerance	1
DC (avg.)	99%
Safe Failure Fraction SFF	99.6%
PFHd	4.10 x 10^{-8}

Sales Number	Type	Terminal Type	Supply Voltage	Output Contacts	Auxiliary Output Contacts
180010	SEU-1	Standard Screw Terminals	24V.ac/dc	3NC	1NO
180011	SEU-1		110V.ac	3NC	1NO
180012	SEU-1		230V.ac	3NC	1NO
180010-P	SEU-1	Pluggable Screw Terminals	24V.ac/dc	3NC	1NO
180011-P	SEU-1		110V.ac	3NC	1NO
180012-P	SEU-1		230V.ac	3NC	1NO

SEU-TD-1 Expansion Module with Time Delay - for use with SCR-2 and SCR-3

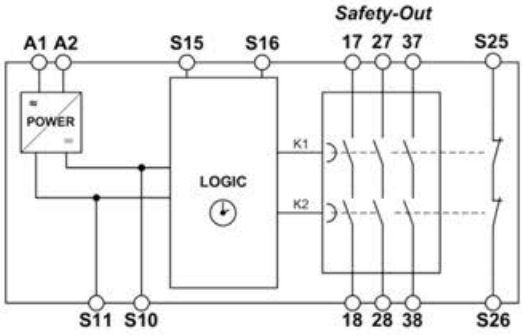
SEU-TD-1 Safety Expansion Relay offering delayed outputs

The SEU-TD-1 is an expansion unit which can be used with an existing system using SCR-2 or SCR-3 to allow delayed shutdown or timing to a safety application. Time Delay is variable 1-30s.
The safety actuation is achieved from the basic SCR-2 or SCR-3 relay.



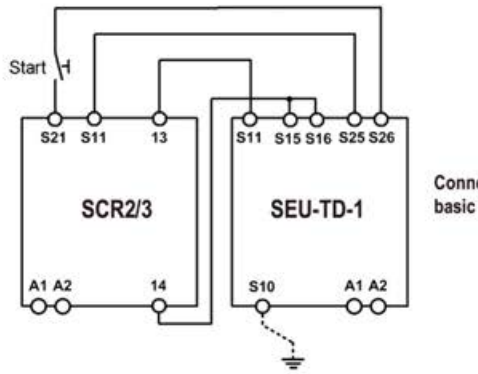
Features:

3NC relay outputs
1NO auxiliary contact
Standards: EN 60204-1, EN954-1, ISO13849-1, EN62061
Stop Category : 1
Up to Category : 3 EN 954-1
Up to : PLd ISO13849-1
Force Guided Contacts : 3
Fault Monitoring by basic SCR device.

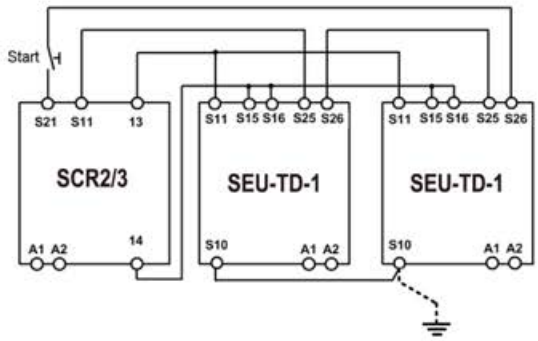


Block diagram and electrical connection SEU-TD-1

A1 A2	Power
S11	24V.dc control voltage
S10 S15 S16	Control lines
S25 S26	Fault monitoring
17-18	Safety Contact 1
27-28	Safety Contact 2
37-38	Safety Contact 3



Connection of an SEU-TD-1 to a basic device SCR-2 or SCR-3.



Connection of several SEU-TD-1 to a basic device SCR-2 or SCR-3.

	SEU-TD-1
Standards	EN60204-1, EN 292, EN 418, EN60204-1 EN 954-1, ISO13849-1, EN 1088 EN62061
Safety Switching Outputs	3 NC 1-30 seconds continuously adjustable
Auxiliary contact	1 NO monitoring contact for basic device
Operating voltage	AC/DC24V AC110V AC230V by part number
Supply deviation	+ / - 10%
Control voltage at S11	24V.dc
Control current S11 to S14	40mA approx.
Monitored Reset Circuit loop	Auto or Monitored Manual Reset
Maximum line conductor cross section	2.5 sq.mm
Maximum length of control line	1000m. with 0.75 Sq.mm
Contact material	AgNi
Indication - Green	LED 1 iand LED2 OSSD closed
Contact service life	Mechanical 1 x 10^7 Electrical 1 x 10^5
Safety Contact breaking capacity	AC 250V, 1500VA, 6A. ohmic 230V, 4A for AC15 DC 24V, 30W, 1.25A. ohmic 24V, 30W, 2.0A for DC-13
External Fuse protection – Safety outputs	4A slow blow or 6A quick blow
Minimum voltage and current	24V, 20mA dc
Rated insulation voltage	250V
Degree of protection	IP20
Rated impulse withstand voltage	4 kV
Operating temperature	-15°C +40°C
IP Protection IEC529	Terminals IP20
Mounting	35mm DIN rail
Weight	0·25kg approx.

Safety Classification and Reliability Data:	The specified PL or SILCL were determined under worst case conditions:
ISO 13849-1:	
Performance level	d
Category (ISO13849-1 / EN 954-1)	3
MTTFd	487 years
DC (avg.)	92.1%
Proof Test Interval (Life)	20 years
Safety Data Annual usage	365 days per year 24 hours per day 3600 seconds / cycle Full Load AC1
EN 62061:	
SILCL	2
Proof Test Interval (Life)	20 years
Hardware fault tolerance	1
DC (avg.)	92.1%
Safe Failure Fraction SFF	94%
PFHd	3.68 x 10^{-10}

Sales Number	Type	Terminal Type	Supply Voltage	Delayed Output Contacts
180015	SEU-TD-1	Standard Screw Terminals	24V.ac/dc	3NC 1NO
180016	SEU-TD-1		110V.ac	3NC 1NO
180017	SEU-TD-1		230V.ac	3NC 1NO
180015-P	SEU-TD-1	Pluggable Screw Terminals	24V.ac/dc	3NC 1NO
180016-P	SEU-TD-1		110V.ac	3NC 1NO
180017-P	SEU-TD-1		230V.ac	3NC 1NO

2 Hand Safety Relay SCR-2H

SCR-2H 2 Hand Control Safety Monitoring Relay

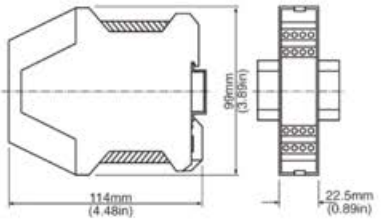
The SCR-2H is a compact, universal 2 hand control safety relay.

It complies with EN574, Type IIIC and is intended for use in safety circuits designed in accordance with EN60204-1.

Features:

2 Force guided safety output contacts

Standards: EN 574, EN 60204-1, EN954-1, ISO13849-1, EN62061
Stop Category: 0
Up to Category 4 EN954-1 and IIIC EN574
Up to PLe ISO13849-1 SILCL 3 EN62061
Redundancy and cycle monitoring
Short circuit monitoring
22mm Din Rail Mounting



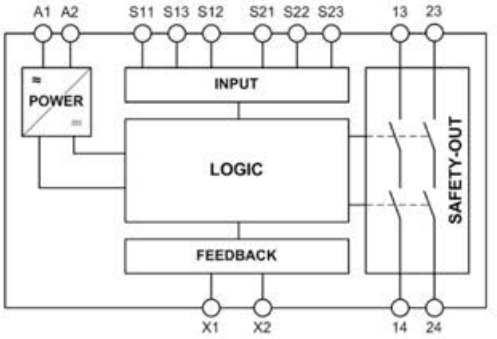
Principle of operation:

The SCR-2H is suitable for connection of two hand buttons with one normally closed contact and one normally open contact.
When the operating voltage is applied to A1 and A2 and the feedback loop X1 and X2 is closed the SCR-2H is ready for use.
The output contacts only close when the 2 hand buttons T1 and T2 are operated simultaneously (within 0.5s.). The output contacts do not close if only one button is operated or the feedback loop is open. Short or open circuits are detected. In order to trigger a new operation both buttons must have been released and the feedback loop closed.

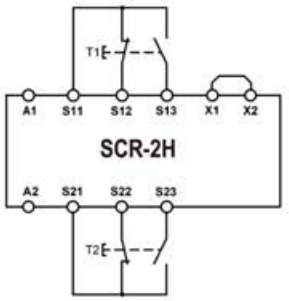
It is important to arrange the buttons such that accidental operation or easy bypass cannot be achieved, and in accordance with EN574 and EN999.

EN574 – the buttons must be arranged such that operation of both buttons using one hand is prevented i.e. a minimum distance apart of 260mm but also so as to prevent actuation by other parts of the body (forearm, elbow, hip etc.).

EN999 – It is necessary to maintain a minimum distance between the 2 hand buttons and the hazard on the machine.



Block diagram and electrical connection



	SCR-2H
Standards	EN60204-1, EN60204-1, EN54-1, ISO13849-1, EN 574 , EN62061
Safety Switching Outputs	2 NC positively guided
Operating voltage	AC230V AC110V AC/DC24V by part number
Supply deviation	+ / - 10%
Control voltage at S12-S13	24V.dc
Control current to buttons	20mA approx.
Release time for the NC contacts after release of buttons	<20ms
Synchronisation time	< 0.5s.
Maximum line conductor cross section	2.5 sq.mm
Maximum length of control line	1000m. with 0.75 Sq.mm
Contact material	AgNi
Indication - Green	LED 1 internal relay K1 energised LED 2 internal relay K2 energised LED 1 and 2 OSSD closed
Contact service life	Mechanical 1 x 10^7 Electrical 1 x 10^5
Safety Contact breaking capacity	AC 250V, 1500VA, 6A. ohmic 230V, 4A for AC15 DC 24V, 30W, 1.25A. ohmic 24V, 30W, 2.0A for DC-13
External Fuse protection – Safety outputs	4A slow blow or 6A quick blow
Minimum voltage and current	24V, 20mA dc
Rated insulation voltage	250V
Degree of protection	IP20
Rated impulse withstand voltage	4 kV
Operating temperature	-15°C +40°C
IP Protection IEC529	Terminals IP20
Mounting	35mm DIN rail
Weight	0·23kg approx.

Safety Classification and Reliability Data:	The specified PL or SILCL were determined under worst case conditions:
ISO 13849-1:	
Performance level	e
Category (ISO13849-1 / EN 954-1)	4
MTTFd	96.6 years
DC (avg.)	99%
Proof Test Interval (Life)	10 years
Safety Data Annual usage	261 days per year 16 hours per day 7.6 seconds / cycle Low Load AC1
EN 62061:	
SILCL	3
Proof Test Interval (Life)	10 years
Hardware fault tolerance	1
DC (avg.)	99%
Safe Failure Fraction SFF	99.8%
PFHd	2.56 x 10^{-08}

Sales Number	Type	Terminal Type	Supply Voltage	Output Contacts
180030	SCR-2H	Standard Screw Terminals	24V.ac/dc	2NC
180031	SCR-2H		230V.ac	2NC
180032	SCR-2H		110V.ac	2NC
180030-P	SCR-2H	Pluggable Screw Terminals	24V.ac/dc	2NC
180031-P	SCR-2H		230V.ac	2NC
180032-P	SCR-2H		110V.ac	2NC

Safety Relays - SCR-7

SCR-7 **Safety Monitoring Relay** **7NC Relay Outputs** **4NO Auxiliary Relay Outputs**

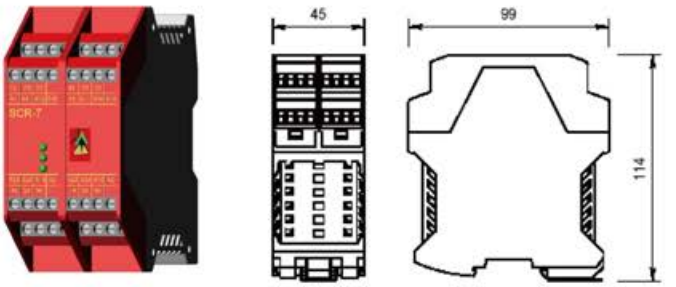
2 Auxiliary Transistor Outputs

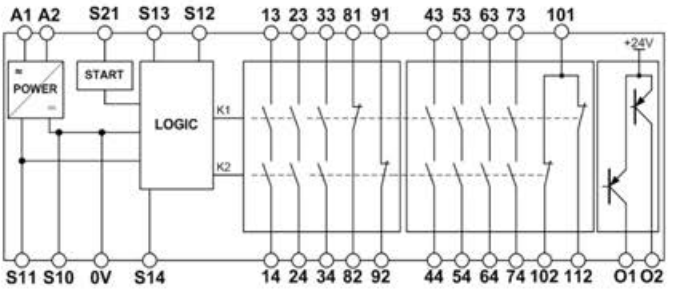
The SCR-7 is an all purpose Safety Monitoring Relay with seven relay outputs that ensure the quick and safe deactivation of the moving parts of a machine in case of danger.

Applications include single and dual channel emergency stop circuits or dual channel safety guard monitoring using Tongue switches or Non Contact Switches.

Features:

7 Force guided safety output contacts
4 Auxiliary output contacts
2 Auxiliary transistor outputs
Standards: EN 60204-1, EN954-1, ISO13849-1, EN62061
Stop Category: 0
Up to Category 4 to EN 954-1
Up to PLe to ISO13849-1
SILCL 3 EN62061
Single or Dual Channel input – LED indication of input status
Redundancy and cycle monitoring
Feedback loop for monitoring contactors
Short circuit and earth fault monitoring
22mm Din Rail Mounting





Block diagram and electrical connection

A1 A2	Power
S11	24V.dc control voltage
S21	Start Control Line
S10 S13 S14 S21	Control Lines
13-14	Safety Output Contact 1
23-24	Safety Output Contact 2
33-34	Safety Output Contact 3
43-44	Safety Output Contact 4
53-54	Safety Output Contact 5
63-64	Safety Output Contact 6
73-74	Safety Output Contact 7
81-82	Auxiliary Output Contact
91-92	Auxiliary Output Contact
101-102	Auxiliary Output Contact
101-112	Auxiliary Output Contact
O1 O2	Auxiliary Outputs (Transistor)
0V.	Reference common O1 O2

Function:

The SCR-7 is designed in accordance with EN 60204-1 for safety circuits and they may be applied for up to PLe ISO13849-1 or Cat.4 EN954-1.

The internal logic system closes the relay safety outputs when the start button is pressed.

If the control lines are opened by operation of a Safety Switch or E Stop button then the safety output contacts are opened and safely switch off the supply to the machine. It is ensured that a single fault does not lead to the loss of the safety function and that cyclic monitoring means that any fault is detected no later than the next start up.

	SCR-7
Standards	EN60204-1, EN 292, EN 418, EN60204-1 EN 954-1, ISO13849-1, EN 1088 EN62061
Monitored Safety Inputs Circuits	2 NC or 1NC from Safety Switches
Safety Switching Outputs	7 NC positively guided
Auxiliary outputs	4 NO
Auxiliary transistor outputs O1 O2	24V dc 30mA (overcurrent protection)
Operating voltage	AC/DC24V + / - 10%
Control voltage at S11	24V.dc
Control current S11 to S14	250mA approx.
Monitored Reset Circuit loop	Auto or Monitored Manual Reset
Maximum line conductor cross section	2.5 sq.mm
Maximum length of control line	2 x 500m. with 0.75 Sq.mm
Contact material	$AgSnO_2$
Indication - Green	PWR Power ON LED 1 internal relay K1 energised LED 2 internal relay K2 energised
Contact service life	Mechanical 1 x 10^7 Electrical 1 x 10^5
Safety Contact breaking capacity	AC 250V, 2000VA, 8A. ohmic 230V, 3A for AC15 DC 24V, 3.0A. DC13 (Max. total Current 20A.).
Auxiliary Contact breaking capacity	AC 250V, 500VA, 8A. ohmic
External Fuse protection – Safety outputs	6A slow blow or 8A quick blow
Minimum voltage and current	24V, 20mA dc
Response time on output opening	90 ms
Rated insulation voltage	250V
Degree of protection	IP20
Rated impulse withstand voltage	4 kV
Operating temperature	-15°C to +40°C
IP Protection IEC529	Terminals IP20
Mounting	35mm DIN rail
Weight	0·35kg approx.

Safety Classification and Reliability Data: The specified PL or SILCL were determined under worst case conditions:

ISO 13849-1:	
Performance level	e
Category (ISO13849-1 / EN 954-1)	4
MTTFd	96 years
DC (avg.)	99%
Proof Test Interval (Life)	20 years
Safety Data Annual usage	365 days per year 24 hours per day Test cycle 3600 seconds / cycle Full Load AC15
EN 62061:	
SILCL	3
Proof Test Interval (Life)	20 years
Hardware fault tolerance	1
DC (avg.)	99%
Safe Failure Fraction SFF	99.5%
PFHd	2.64 x 10^{-11}

Sales Number	Type	Terminal Type	Switch Input Circuits	Output Contacts
180040	SCR-7	Standard Screw Terminals	2NC	7NC 4NO
180040-P	SCR-7	Pluggable Screw Terminals	2NC	7NC 4NO

Application information - Safety Relays

Application:

Depending upon the risk assessment for the application the SCR range can be configured to achieve up to performance level PLe and Category 4 according to ISO13849-1. The devices must be wired in accordance with the examples shown in Figures 1 to 11.

Commissioning: (See examples Fig. 1 to 5 (SCR-3 shown)).

Commissioning must be carried out by competent personnel and in accordance with the installation instructions.

1. Connection of E Stop or Interlock switch contacts can be made to achieve the required Performance Level (PL) according to Fig. 1 to 5.
2. The Start circuit can be connected either for Manual Start (Fig.6) or Automatic Start (Fig.7). Note – if Automatic start is selected the safety output contacts will close immediately after the power supply is connected.
3. The Feedback loop can be used to monitor external contactors or expansion modules (see Fig.8 to 9). If Monitored Manual Start is chosen the Start button must close and then open before start up will occur.
4. Connect the power supply to terminals A1 and A2 (Fig.10) and only in the de-energised state.
5. In Automatic start the relay will energise and the safety contacts will close immediately if the E Stop or Interlock switches are closed and the feedback loop is checked closed. In Manual start it is always necessary to press the start button to close the safety contacts. With the safety outputs closed both LED's (K1 and K2) will be illuminated on the safety relay.
6. The STOP function is achieved by opening any E Stop or Interlock switch circuit. The safety contacts open instantly (unless Timed Delay modules are used).

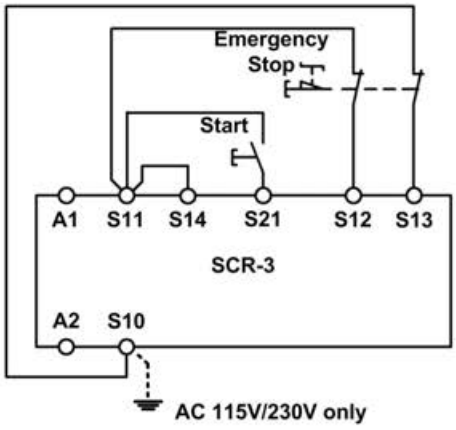


Fig.1

Fig.1. Dual Channel E Stop with Short Circuit monitoring and Earth Fault Monitoring up to PLe Category 4 to ISO13849-1.

To activate the cross short circuit monitoring, S11 and S14 must be connected. The NC contacts from the GLS E Stop have to be looped into lines S11-S12 and S10-S13. The start button connects S11 to S21.
To activate the detection of earth faults, S10 needs to be connected to earth. After connecting the power supply to A1 and A2, the safety output contacts can be actuated by the start button.

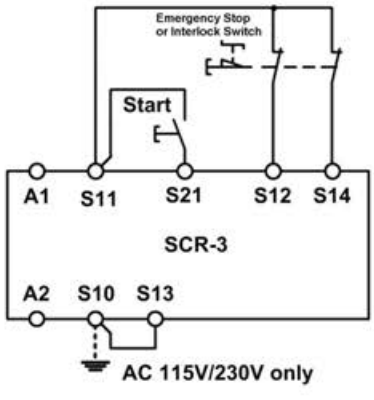


Fig.2

Fig.2. Dual Channel Interlocking with Earth Fault monitoring up to PLd Category 3 to ISO13849-1.

This application allows to reduce the wiring to the E Stop button by one line, but the cross short circuit monitoring is disabled. The terminals S10 and S13 are connected, the NC contacts from the interlock switch is looped into lines S11-S12 and S11-S14. The start button connects S11 to S21.
To activate the detection of earth faults, S10 needs to be connected to earth.
After connecting the power supply to A1 and A2, the safety output contacts can be actuated by the start button.

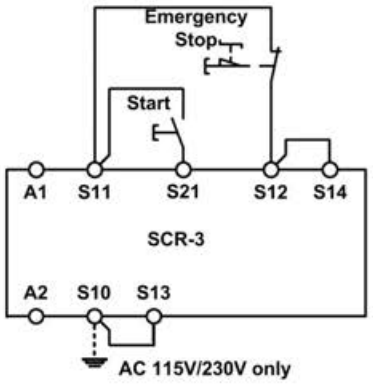


Fig.3

Fig.3. Single channel Emergency Stop up to PLc Category 1 to ISO13849-1.

If the risk assessment permits the relays may be operated as an Emergency Stop relay with a single channel push button.
For this purpose, S10 and S13 as well as S12 and S14 must be connected. The NC single channel E Stop is looped into line S11-S12/S14.
The earth fault monitoring is operated if S10 is connected to earth.

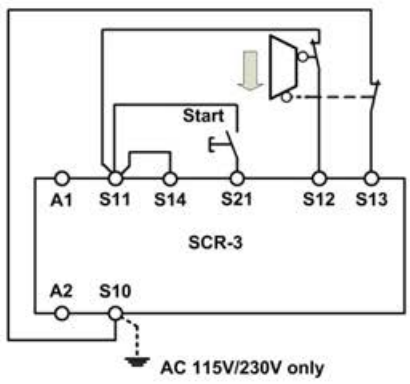


Fig.4

Fig.4. Dual channel Interlocking with Short Circuit monitoring and Earth Fault Monitoring up to PLe Category 4 to ISO13849-1.

This application conforms to dual channel safety guard applications. The Safety Interlock switches must have dual channel redundant circuits.

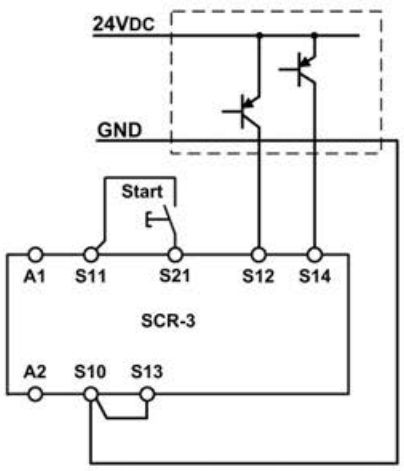


Fig.5

Fig.5. Dual channel Emergency Stop with PNP outputs / OSSD outputs with short circuit monitoring up to PLe Category 4 to ISO13849-1.

This application is used when electronic outputs are available e.g. Safety Light Curtains.

Note: In order to activate the earth fault monitoring on 24V. versions, the Earth must only be connected to the power supply in accordance with EN60204-1.

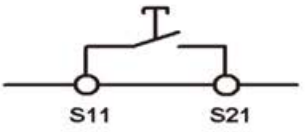


Fig.6

Fig.6 Monitored manual start.

It is monitored that the start button has been opened before the switch contacts have been closed.
(Providing supply voltage has not been interrupted).

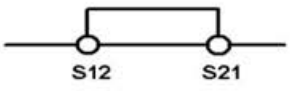


Fig.7

Fig.7 Automatic start.

Automatic start e.g. Safety guard application.
Max. allowable time difference when closing interlock switches:
S12 before S13 300ms
S13 before S12 infinite

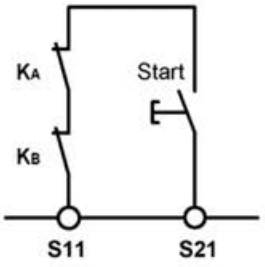


Fig.8

Fig.8 Feedback circuit – Monitored Manual Start.

The feedback circuit monitors machine contactors which are connected to the relay. KA and KB are the force guided contacts of the connected contactors.
After each stop command, it is monitored that the start button was opened before the switch contacts re-close.
(Note: the operating voltage must not have been interrupted).

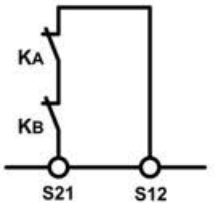


Fig.9

Fig.9 Feedback circuit – Monitored Manual Start.

The feedback circuit monitors machine contactors which are connected to the relay. KA and KB are the monitoring contacts of the connected contactors.
It can also be used to monitor expansion modules.

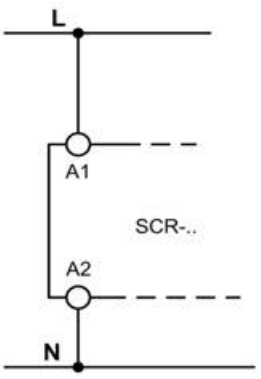


Fig.10 Power Supply.

The power is always connected to A1 and A2. Always observe local regulations and technical requirements shown on the relay datasheet.

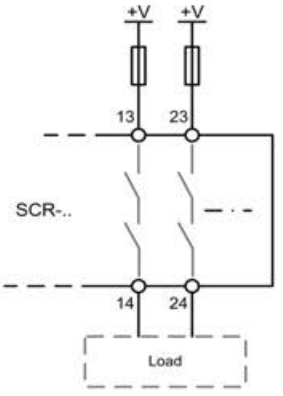


Fig.11 Connecting Output Loads.

Always observe local regulations and fuse externally to the technical requirements shown on the relay datasheet.
Never exceed rated total current or ambient temperature.

Modus - Plug and Expand Safety Control Modules for Safety Switches

Expandable Safety Modules for use with Interlock Switches and Rope Switches

- Pluggable and expandable Modules - 35mm rail pluggable system
- Satisfy up to EN 954-1 Cat.4
- SIL 3 EN61508
- Up to PLe ISO13849-1
- Dual channel NC inputs for use with all Safety Interlock Switches
- Compact 22mm enclosures - DIN rail mounting
- Add Switch Input Modules easily – no programming
- Add Output Switching Modules easily – no programming
- Manage Machine Stop hierarchy by grouping inputs
- High operational life
- Monitored or Auto reset
- LED diagnostics
- Time delayed output Module

For monitoring an installation by PC,PLC or Text Display, an RS485 interface is integrated within the Modus system.

The MODUS 'Plug and Expand' relay system is ideal for the prevention of dangerous states at small, medium and large installations.

For these applications you often have to consider various requirements and tasks regarding the safety function. If several emergency stop or interlock switches simultaneously have to be supervised some parts of the machine may have to stop immediately while others have to stop with delay. In a few cases of danger you have to stop only one part of the installation while the other functions can continue.

The solution for all these applications is MODUS, the modular Plug & Play Safety System.

The Master Module itself is a complete safety monitoring relay with 2 dual-channel input contacts and 3 force guided safety output contacts, like a traditional Safety Relay.

Later individual expansion is possible at anytime by adding (plugging) either additional input modules (for connection of extra switches) or additional output modules (for the addition of output switching circuits).

Modus grows according to your installation - just insert a new input or output module and the installation runs.

The system is self-configuring with no programming and the highest safety category PLe ISO13849-1 and SIL3 EN61508 is maintained at all times.

Input Modules can be grouped to enable designated sub-sections of the machine safety function to be shut off e.g.

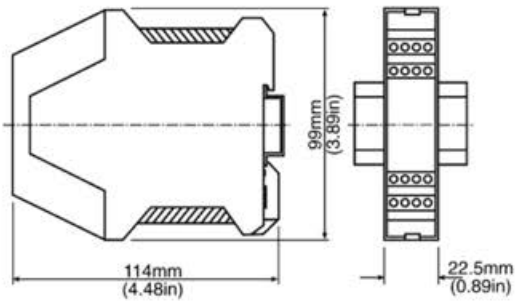
Group 1	E-Stops (Rope switches)	Power off all Drives
Group 2	Tongue switches	Power off Drives in Group 2 Guard area only
Group 3	Non Contact switches	Power off Drives in Group 3 Guard area only

The modules communicate with each other via a bus connection within the 35mm DIN-rail.

The system can be integrated with a PLC or Computer by a serial communication interface which offers perfect diagnostic and fault detection.

All you have to learn:

1. Plug switch input modules to the left of the Base module.
2. Plug relay output modules to the right of the Base module.
3. If desired specify the end of a group with connection cable.
4. Configuration is automatic.

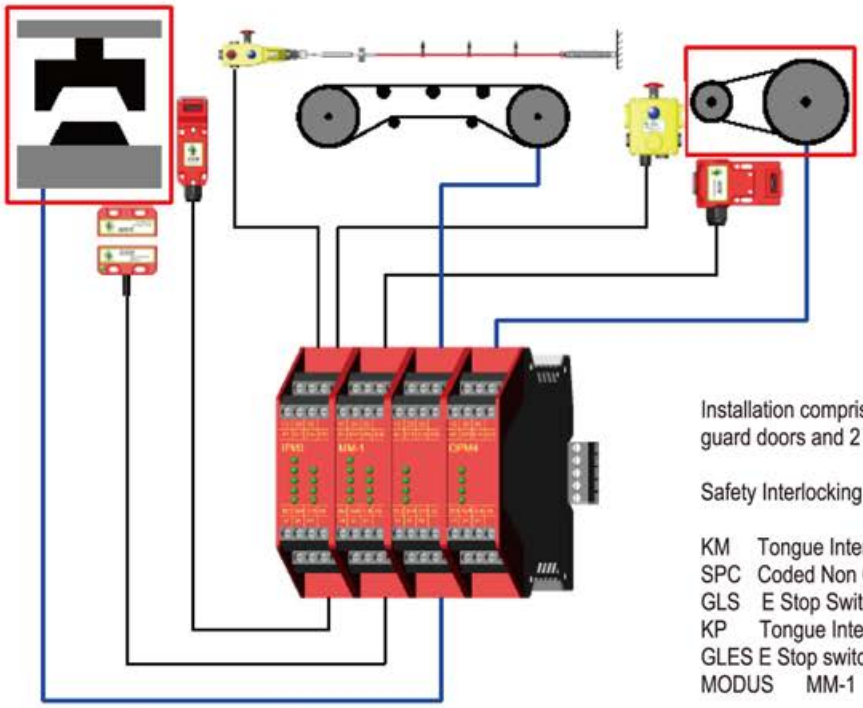


Modus - Plug and Expand Safety Control Modules for Safety Switches

Applications: Expandable Safety Modules for use with Interlock Switches and Rope Switches

A. Monitoring of 3 guard doors and 2 emergency stop buttons, interruption of 3 drives.

Press with 2 Guard Doors	Conveyor	Motor with 1 Guard Door
KM Tongue Switch SPC Coded Non Contact Switch	GLS Rope - E Stop Switch	GLES – E Stop Switch KP Tongue Switch

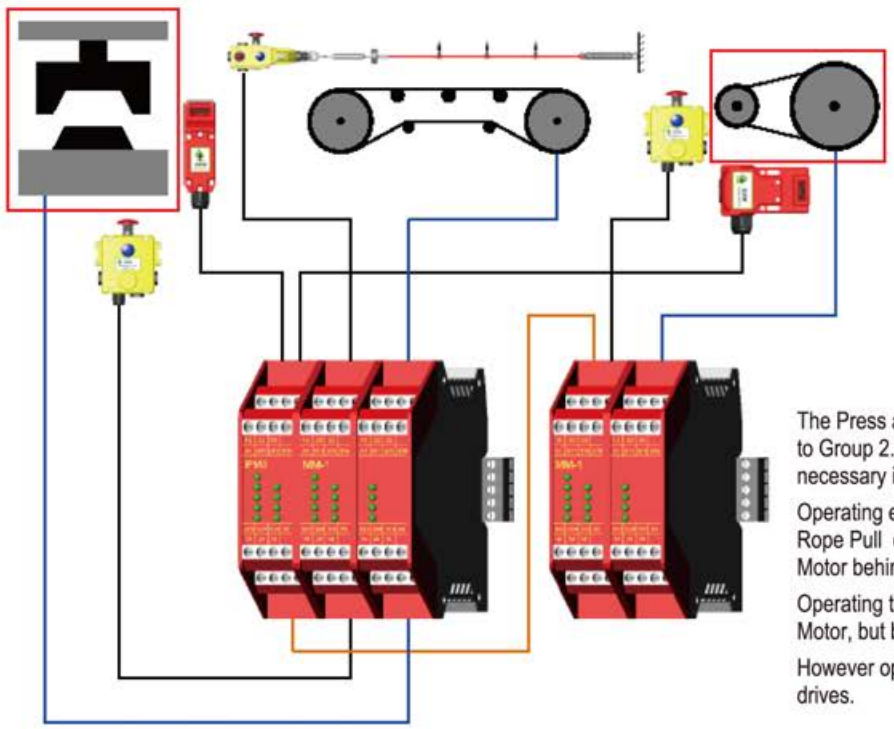


Installation comprising of a Press, Conveyor and Motor is protected by 3 guard doors and 2 Emergency Stop devices.

Safety Interlocking and E Stop functions are provided by:

KM Tongue Interlock Switch
SPC Coded Non Contact Interlock Switch
GLS E Stop Switch
KP Tongue Interlock Switch
GLES E Stop switch
MODUS MM-1 IPM3 OPM4

B. Monitoring of 2 guard doors and 3 emergency stop buttons, interruption of 3 drives, grouping in 2 groups with higher-level stop switch



DRIVE OUTPUT
SWITCH INPUT
GROUP CONNECTION

The Press and the Conveyor belong to Group 1 and the Motor to Group 2. Each Group has its own basic module, to which the necessary input and output modules are adjoined.

Operating either the E Stop on the Press or the Conveyor Rope Pull causes the stop of the drives of Group 1, while the Motor behind the right guard door will still be running

Operating the E Stop on the Motor will cause stopping of the Motor, but both drives of Group 1 will still be running.

However opening either door interlock switch will stop all drives.

Modus - Plug and Expand Safety Control Modules for Safety Switches

Expandable Safety Modules for use with Interlock Switches and Rope Switches

MM-1 Basic Module

Basic unit with 2 Dual Channel Safety Inputs for connection of switches, 3NC Safety Outputs and signal and communication functions.
Extendable with all MODUS modules.

Safety Category 4
2NC Safety Inputs (Dual NC/NC)
3 Relay Outputs
6 Semi-conductor Monitoring Outputs
Short circuit and earth fault monitoring
Diagnostic LED's
Manual or Automatic activation
RS 485 interface

Operating Voltage: 24V.dc +/- 10%
Relay Outputs : 250V.ac 8A. AC12
24V.dc 3A. DC13

IPM2G Input Module

Standard input module with 2 Dual Channel Safety Inputs for connection of switches, 2 monitoring outputs, diagnostic LED's and MODUS bus connection.
Outputs for establishing Safety Groups.

Safety Category 4
2NC Safety Inputs (Dual NC/NC)
2 Semi-conductor Monitoring Outputs
Short circuit and earth fault monitoring
Diagnostic LED's
Output Group Connection
Only in combination with Basic Module MM-1
MODUS Bus connection

IPM3 Input Module

Input module with 3 Dual Channel Safety Inputs for connection of switches, 3 monitoring outputs and diagnostic LED's.

Safety Category 4
3NC Safety Inputs (Dual NC/NC)
3 Semi-conductor Monitoring Outputs
Short circuit and earth fault monitoring
Diagnostic LED's
Only in combination with Basic Module MM-1
MODUS Bus connection

OPM4 Output Module

Standard output module with 3NC 1NO Safety Relay Outputs.
Only in combination with Basic Module MM-1
MODUS Bus connection

Stop Category : 0
Safety Category: 4
3NC 1NO Relay Outputs
Diagnostic LED's

Relay Outputs : 250V.ac 8A. AC12
24V.dc 3A. DC13

OPM4D Output Module

Output module with 4 Delayed Safety Relay 2
1 Semi-conductor Monitoring Output
Only in combination with Basic Module MM-1
MODUS Bus connection

Stop Category : 1
Safety Category: 4
4NC RelayOutputs – Delayed – variable 1-30s,
Diagnostic LED's

Relay Outputs : 250V.ac 8A. AC12
24V.dc 3A. DC13

Sales Number	Type	Supply Voltage
Basic Module		
181001	MM-1	24V.dc
Input Modules		
181002	IPM2G	MODUS
181003	IPM3	MODUS
Ouput Modules		
181010	OPM4	MODUS
181011	OPM4D	MODUS

MODUS is still growing for details contact sales@idemsafety.com

Guardian Line Series - Grab Wire Safety Rope Switches

Up to 250m.

Heavy Duty Dual Head - Type : GLHD

Heavy Duty Dual Head - Type : GLHD-SS

Up to 125m.

Heavy Duty Single Head - Types : GLHL - GLHR

Up to 100m.

General Duty
Type : GLS-SS (Stainless Steel)

Up to 80m.

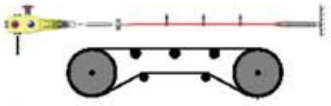
General Duty
Type : GLS

Up to 50m.

Mini Duty
Type : GLM

Application:

Safety Rope Emergency Stop switches are mounted on machines and sections of plant conveyors which cannot be protected by guards. In contrast to traditional mushroom head type Emergency Stop buttons, Safety Rope Switches can initiate the emergency command from any point along the installed rope length.
In combination with any dual channel safety monitoring controllers IDEM Safety Rope Systems can be used as emergency stop devices and monitored for up to Category 4 / PLe to ISO 13849.



Operation:

All IDEM Safety Rope Emergency stop switches conform to European Standard ISO13850 (EN418) and IEC 60947-5-5. They have a positive mechanical linkage between the switch contacts and the wire rope as per IEC 60947-5-1. The emergency stop switches are brought into the operational condition by pre-tensioning the rope by use of a tensioner / gripper device which clamps the rope and then hooks to the switch eyebolts. Correct tension can be observed by viewing the tension indicator on the switch housing. Once tensioned the switch contact blocks can be set to the operational condition (safety contacts closed, auxiliary contacts open) by pressing a blue reset button on the switch cover.
All of the Safety Rope Switches have wire-breakage monitoring. On pulling or breakage (tension loss) of the rope, the safety contacts are positively opened and the auxiliary contacts are closed. The switches are mechanically latched and can then only be returned to the operational condition by pressing the reset button as required by EN418, (ISO 13850).

Features:

LED visual indication of Rope status: Steady Green – Machine running
Steady or Flashing Red – Machine stopped.

Rugged die-cast metal body - Yellow colour

Stainless Steel 316 Housings are available (GLS-SS, GLH-SS) – ideal for Food Industry

All internal and external screws are Stainless Steel

Enclosure protected to IP67 - washdown suitable (IP69K on Stainless Steel Versions)

Easy to wire – up to 4 conduit entries

A patented Tensioner / Gripper accessory is available in Stainless Steel to provide rapid installation significantly reducing installation connection to the switch eyebolts and prevents frequent re-tensioning or maintenance caused by cable tension loss, therefore reducing machine down time.

Screw fitting mushroom type E Stop Button

Using Safety Rope Switches

Use of Safety Rope Switches.

IDEM Guardian Line switches are designed to be mounted on machines and sections of conveyors which cannot be protected by guards. In contrast to traditional mushroom head type Emergency Stop buttons, Safety Rope Switches can initiate the emergency command from any point along the installed rope length and provide robust Emergency Stop Rope Pull protection for exposed conveyors or machines.

In combination with a dual channel safety monitoring relay IDEM Safety Rope Systems can be used as emergency stop devices monitored for up to Category 4 to EN 954-1 or PLe ISO13849-1. All IDEM Safety Rope Emergency stop switches conform to ISO13850 and IEC 60947-5-5. They have a positive mechanical linkage between the switch contacts and the wire rope. The switches have wire-breakage monitoring.

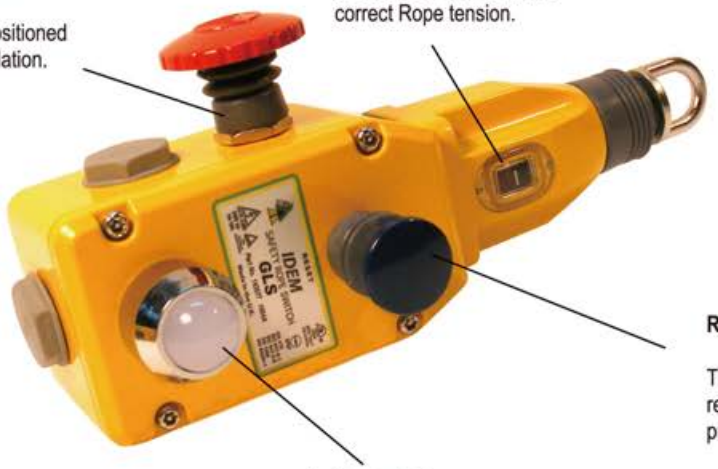
On pulling the rope the safety contacts are positively opened and the auxiliary contacts are closed. The switches are mechanically latched and can then only be returned to the operational condition by pressing the blue reset button as required by ISO13950.
An optional 2 colour LED indicator is available to enable switch status to be viewed from a distance.

Mushroom Type Emergency Stop Button.

Can be installed or repositioned Left or Right after installation.

Tension Indicator.

Ensures the system is easy to set up and maintain the correct Rope tension.



Reset Button.

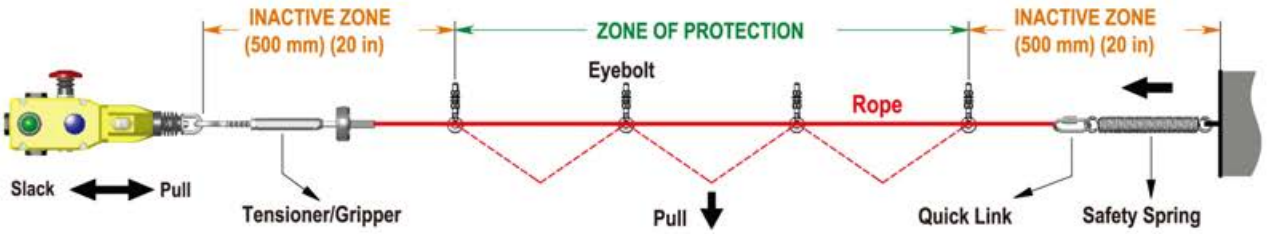
The Blue Button must be pushed to reset the switch following activation by pulling or slackening of the Rope.

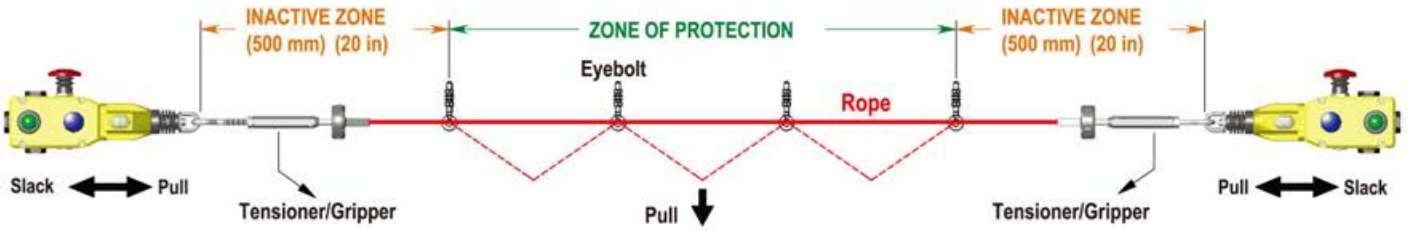
Indicator LED.

Can be wired to flash Red in the event of the Rope being pulled – switch activated, or illuminate steady Green to indicate a reset switch in Machine 'Run' state. Visible from long distances.

System set up:

Rope support eyebolts must be fitted at 2.5 m. min. to 3m. maximum intervals along all rope lengths between switches. The rope must be supported no more than 500mm from the switch eyebolt or Safety Spring (if used). It is important that this first 500mm is not used as part of the active protection coverage. When using one switch the rope must be anchored at the other end using a Safety Spring. When using a Safety Spring a maximum of one corner pulley only may be used to ensure complete lengths of rope are visible to either the switch or the spring anchorage.





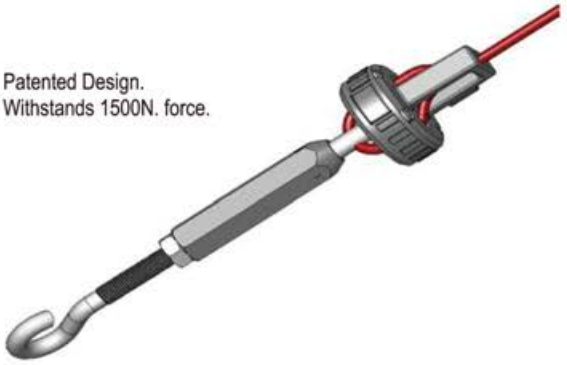
Using Safety Rope Switches

Reliable Connectivity:

Tensioning of rope is achieved by the use of IDEM's new patented Tensioner / Gripper accessory.
Traditional turnbuckle and clamp systems are difficult to tension and adjust and frequent re-tensioning or maintenance is normally required of either the turnbuckle or the clamps. Viewing of the switch tension window is difficult.

For greater reliability and ease of installation the Tensioner / Gripper accessory significantly reduces the installation time by offering an eyehook and tensioner thimble and high strength gripper in one assembly to enable rapid connection to the switch eyebolts and fast and accurate tensioning of the Rope. By being in close proximity to the switch viewing window systems can be easily tensioned accurately and quickly. The double clamp mechanism prevents rope slippage and significantly reduces machine 'down time' which can occur with traditional turnbuckle systems.

Patented Design.
Withstands 1500N. force.

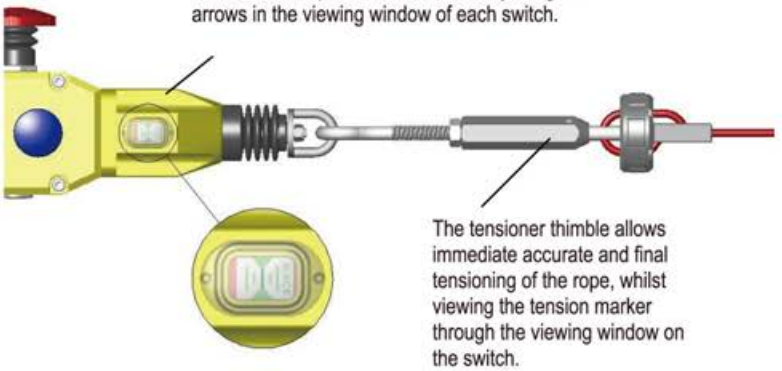


The end of the safety rope is fed through a central hole in a cone shaped guide which protrudes from the main housing.

After being fed through the guide hole the rope enters the main housing by going through a feed hole and then is looped back through 180 degrees and is fed through a second feed hole on the opposite side of the mechanism.

The rope is then pulled for maximum tension and is locked in position by a locking bar inside the main housing which is moved by turning an Allen type locking bolt.

Tension to mid position as indicated by the green arrows in the viewing window of each switch.



The tensioner thimble allows immediate accurate and final tensioning of the rope, whilst viewing the tension marker through the viewing window on the switch.

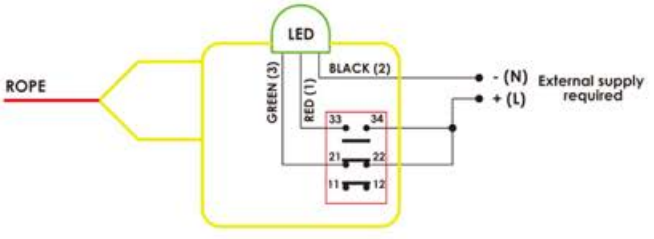
For systems up to 50m. a Quick Link termination is provided for easy connection to either a Safety Spring or Switch eyebolt.

(Note for systems above 50m. a Tensioner / Gripper is required each side).

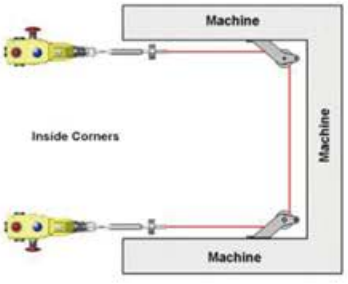
Navigating Corners:

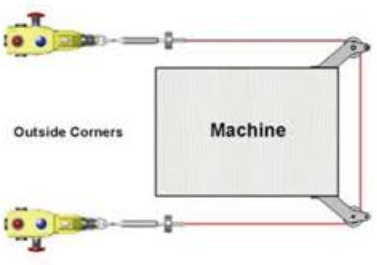
Because of the added friction on the eyebolts and rope when navigating corners, IDEM's unique 'universal' pulley can be used to navigate inside or outside corners without causing damage to the rope. They are Stainless Steel and can be rigidly mounted.

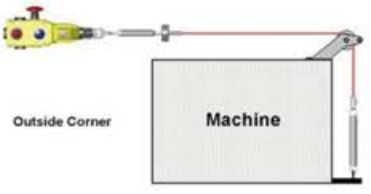
WIRING DIAGRAM FOR LED



Examples of using the Universal Pulley:



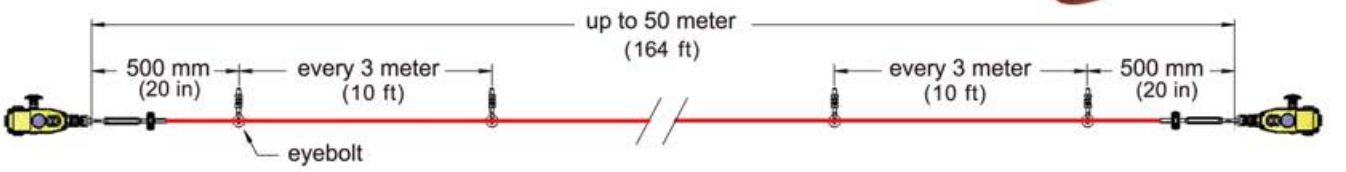


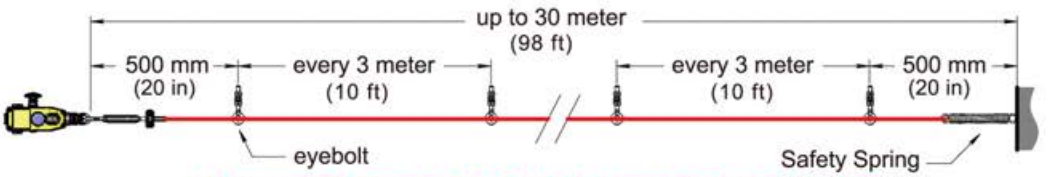


Guardian Line Mini Duty - Type: GLM

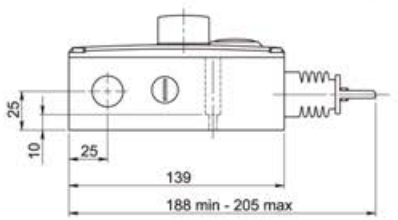
Protection up to 50 meters

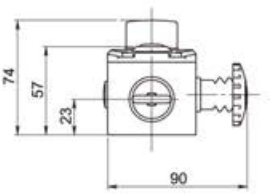
The GLM is a compact yet robust die-cast Mini Duty Safety Rope Pull switch designed to protect short conveyor lengths where protection is required up to 50m. using two switches or up to 30m. using a single switch.
They provide reliable, cost effective safety solutions for conveyor systems and can be enhanced by adding external mushroom type E Stop at the switch or bi-colour LED available to show switch status from a distance.
They have a choice of 3 or 4 pole contacts to ensure flexibility with all modern control applications.
Rugged integral sealing bellows means they can be high pressure hosed.

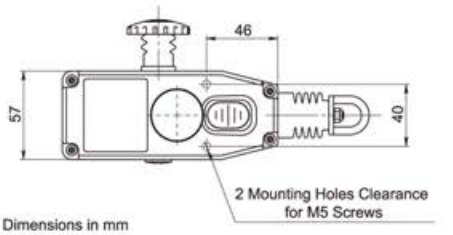




It is recommended when using a Safety Spring that a maximum of one corner pulley is used.







All Dimensions in mm

Sales Number	Conduit	Contacts	Fittings
143001	M20	2NC 1NO	
143002	1/2" NPT	2NC 1NO	
143003	M20	3NC	
143004	1/2" NPT	3NC	
143005	M20	2NC 1NO	E Stop
143006	1/2" NPT	2NC 1NO	E Stop
143007	M20	3NC	E Stop
143008	1/2" NPT	3NC	E Stop
143050	M20	3NC 1NO	
143051	1/2" NPT	3NC 1NO	
143052	M20	2NC 2NO	
143053	1/2" NPT	2NC 2NO	
143054	M20	4NC	
143055	1/2" NPT	4NC	
143056	M20	3NC 1NO	E Stop
143057	1/2" NPT	3NC 1NO	E Stop
143058	M20	2NC 2NO	E Stop
143059	1/2" NPT	2NC 2NO	E Stop
143060	M20	4NC	E Stop
143061	1/2" NPT	4NC	E Stop
143062	M20	3NC 1NO	LED
143063	1/2" NPT	3NC 1NO	LED
143064	M20	2NC 2NO	LED
143065	1/2" NPT	2NC 2NO	LED
143066	M20	3NC 1NO	E Stop & LED
143067	1/2" NPT	3NC 1NO	E Stop & LED
143068	M20	2NC 2NO	E Stop & LED
143069	1/2" NPT	2NC 2NO	E Stop & LED
143009	Replacement Lid		
143010	Replacement Lid / LED		LED
For LED models add voltage code to Sales Number			
Steady Green / Flashing Red A - 24Vdc B - 110Vac C - 230V.ac			
Steady Green / Steady Red AS-24Vdc BS-110Vac CS-230V.ac			

Gold Plated Contacts available for low power circuits (5V. 5mA).
Add GC to Part Number e.g. 143001-GC

Standards:	IEC 60947-5-1 IEC 60947-5-5 EN954-1 EN62061 UL508 ISO13850 ISO13849-1
Safety Classification and Reliability Data:	
Mechanical Reliability B10d	1.5 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	<1.0 x 10^{-7}
Proof Test Interval (Life)	21 years
MTTFd	214 years
Enclosure Material	Die Cast Painted Yellow
IP Rating	IP67 (NEMA 6)
Rope Span	up to 50m.
Rope Tension device	IDEM Tensioner / Gripper – Quick Fixing
Rope Type:	4.0 mm Outside Dia. Steel inner – PVC sheath
Mounting	4 x M5
Mounting position	Any
Conduit entries	3 x M20 or 3 x ½ " NPT by part number
Torque settings	Mounting M5 4.0 Nm Lid T20 Torx M4 1.5 Nm Terminals 1.0 Nm
Ambient Temperature	-25C +80C.
Vibration resistance	10-500Hz 0.35mm
Shock resistance	15g 11ms
Tension Force (typical mid setting)	130N.
Typical Operating Force (Rope pulled)	< 125N. < 300mm Deflection
Weight	700g.
Contact type	IEC 947-5-1 Double break Type Zb Snap Action up to 4NC (positive break) 2NO (Auxiliary)
Termination	Clamp up to 2.5 sq. mm conductors
Rating	Utilisation Category : AC15 A300
Operational Rating	240V. 3A.
Thermal Current (Ith)	10A.
Rated Insulation Voltage (Ui)	500V.
Withstand Voltage (Uimp)	2500V.
Short Circuit Overload Protection	Fuse Externally 10A. (FF)

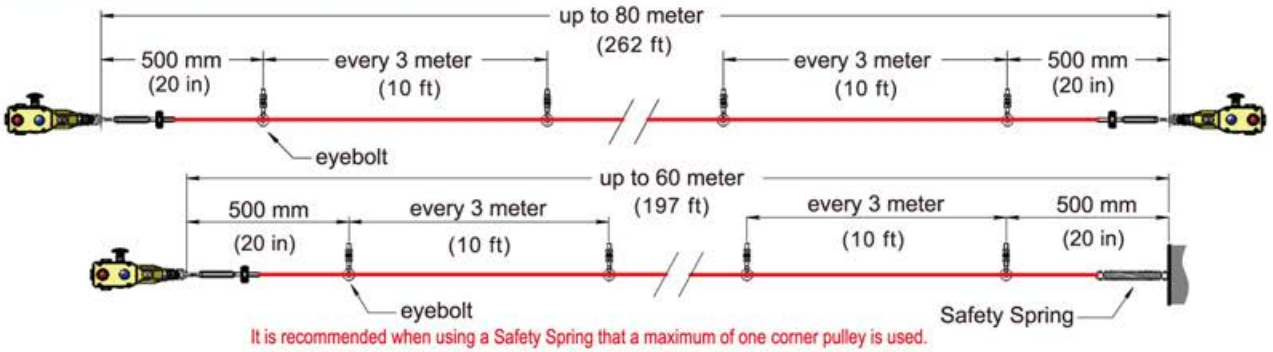
For all IDEM Rope Switches the normally closed (NC) circuits are closed when the system is tensioned correctly and the switch has been reset.

Guardian Line Standard Duty - Type: GLS

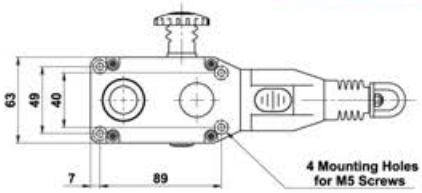
Protection up to 80 meters

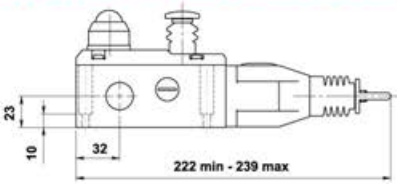
The GLS is a General Duty robust die-cast Safety Rope Pull switch designed to protect conveyor lengths where protection is required up to 80m. using two switches or up to 60m. using a single switch.
They provide a reliable general purpose safety solution for conveyors and offer a choice of fittings depending upon the application.
They can be supplied with a mushroom type Emergency Stop button which can be fitted to the side of the switch to offer an extra traditional Emergency Stop function close to the switch, or can be fitted later after installation without any extra wiring.
A bi-colour LED is available to show switch status from a distance and they have a choice of 3 pole, 4 pole or Explosion Proof contact blocks to ensure flexibility with all modern control applications.
Rugged integral sealing bellows means they can be high pressure hosed and the choice of materials makes them suitable for inside or outside use.

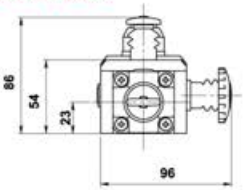
GLS-FZ: special low temperature version - 40C. available.



It is recommended when using a Safety Spring that a maximum of one corner pulley is used.







Pre-wired Ex versions
(See Explosion proof section)

Standards:	IEC 60947-5-1 IEC 60947-5-5 EN954-1 EN62061 UL508 ISO13850 ISO13849-1
Safety Classification and Reliability Data:	
Mechanical Reliability B10d	1.5 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	<1.0 x 10^{-7}
Proof Test Interval (Life)	21 years
MTTFd	214 years
Enclosure / Cover	Die-Cast – Painted Yellow
IP Rating	IP67 (NEMA 6)
Rope Spans	Up to 80m.
Rope Tension device	IDEM Tensioner / Gripper – Quick Fixing
Rope Type:	4.0 mm Outside Dia. Steel inner – PVC sheath
Mounting	4 x M5
Mounting position	Any
Conduit entries	3 x M20 or 3 x ½ " NPT by part number
Torque settings	Mounting M5 4.0 Nm Lid T20 Torx M4 1.5 Nm Terminals 1.0 Nm
Ambient Temperature	-25C +80 C.
Vibration resistance	10-500Hz 0.35mm
Shock resistance	15g 11ms
Tension Force (typical mid setting)	130N.
Typical Operating Force (Rope pulled)	< 125N. < 300mm Deflection
Weight	820 g.
Contact type	IEC 947-5-1 Double break Type Zb Snap Action up to 4NC (positive break) 2NO (Auxiliary)
Contact Material	Silver
Termination	Clamp up to 2.5 sq. mm conductors
Rating	Utilisation Category : AC15
Operational Rating	240V. 3A.
Thermal Current (Ith)	10A.
Rated Insulation Voltage (Ui)	500V.
Withstand Voltage (Uimp)	2500V.
Short Circuit Overload Protection	Fuse Externally 10A. (FF)

For all IDEM Rope Switches the normally closed (NC) circuits are closed when the system is tensioned correctly and the switch has been reset.

Sales Number	Conduit	Contacts	Fittings
142001	3 x M20	2NC 1NO	
142002	3 x 1/2" NPT	2NC 1NO	
142005	3 x M20	2NC 1NO	LED
142006	3 x 1/2" NPT	2NC 1NO	LED
142009	3 x M20	2NC 1NO	E-Stop
142010	3 x 1/2" NPT	2NC 1NO	E-Stop
142017	3 x M20	2NC 1NO	E-Stop & LED
142018	3 x 1/2" NPT	2NC 1NO	E-Stop & LED
142050	3 x M20	3NC 1NO	
142051	3 x 1/2" NPT	3NC 1NO	
142052	3 x M20	2NC 2NO	
142053	3 x 1/2" NPT	2NC 2NO	
142054	3 x M20	4NC	
142055	3 x 1/2" NPT	4NC	
142056	3 x M20	3NC 1NO	LED
142057	3 x 1/2" NPT	3NC 1NO	LED
142058	3 x M20	2NC 2NO	LED
142059	3 x 1/2" NPT	2NC 2NO	LED
142060	3 x M20	4NC	LED
142061	3 x 1/2" NPT	4NC	LED
142062	3 x M20	3NC 1NO	E-Stop
142063	3 x 1/2" NPT	3NC 1NO	E-Stop
142064	3 x M20	2NC 2NO	E-Stop
142065	3 x 1/2" NPT	2NC 2NO	E-Stop
142066	3 x M20	4NC	E-Stop
142067	3 x 1/2" NPT	4NC	E-Stop
142074	3 x M20	3NC 1NO	E-Stop & LED
142075	3 x 1/2" NPT	3NC 1NO	E-Stop & LED
142076	3 x M20	2NC 2NO	E-Stop & LED
142077	3 x 1/2" NPT	2NC 2NO	E-Stop & LED
142078	3 x M20	4NC	E-Stop & LED
142079	3 x 1/2" NPT	4NC	E-Stop & LED
142026	Replacement Lid		
142027	Replacement Lid with LED		LED
For LED models add voltage code to Sales Number			
Steady Green / Flashing Red A - 24Vdc B - 110Vac C - 230V.ac			
Steady Green / Steady Red AS-24Vdc BS-110Vac CS-230V.ac			

Gold Plated Contacts available for low power circuits (5V. 5mA).
Add GC to Part Number e.g. 142001-GC

Guardian Line Standard Duty - Type: GLS - SS

Protection up to 100 meters

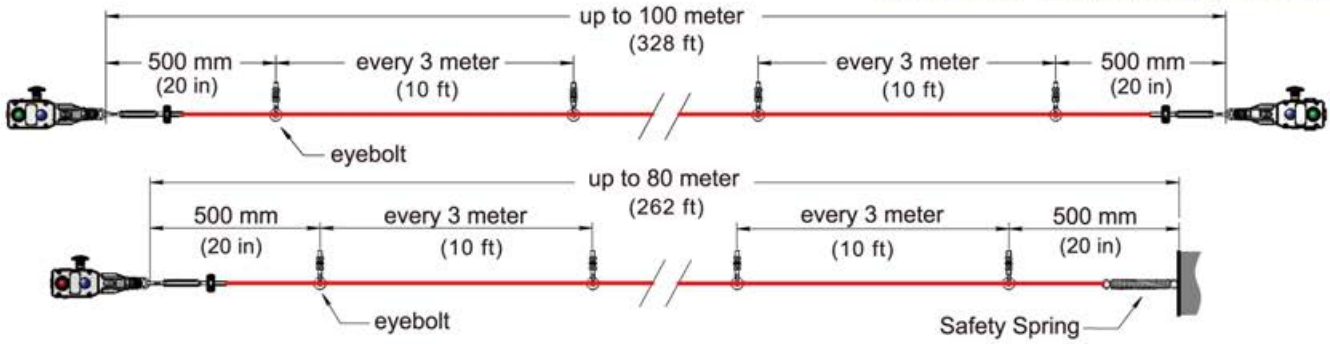
The GLS-SS is a General Duty Safety Rope Pull switch designed to protect long conveyor lengths up to 100m. The Stainless Steel 316 housings are designed specifically to withstand the tough environments found in the Food and Pharmaceutical industries. The fixing holes are under the cover of the switch to prevent food trap areas. They are all purpose switches and will survive chemical and detergent washdown by providing all stainless steel parts and robust IP67 and IP69K sealing by using integral bellows and gaskets.

An easily seen bi-colour LED is available to show switch status from a distance and they have a choice of 3 pole, 4 pole or Explosion Proof contact blocks to ensure flexibility with all modern control applications.

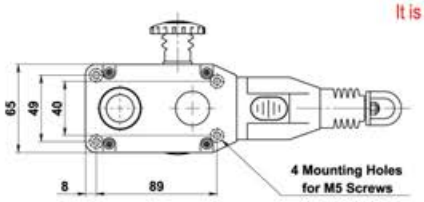
Shorter rope spans up to 80m. can be achieved by using just one switch therefore making a cost effective solution and also reducing electrical wiring runs.

Stainless Steel

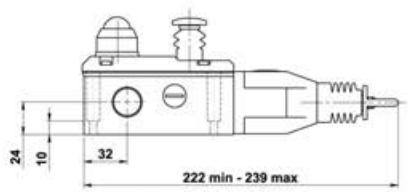
Low Temperature -40C.versions available GLS-SS-FZ

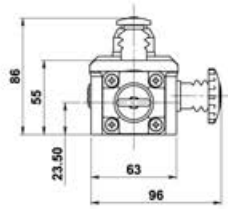


It is recommended when using a Safety Spring that a maximum of one corner pulley is used.



Pre-wired Ex versions
(See Explosion proof section)





All Dimensions in mm

Sales Number	Conduit	Contacts	Fittings
144001	3 x M20	3NC 1NO	
144002	3 x 1/2" NPT	3NC 1NO	
144003	3 x M20	2NC 2NO	
144004	3 x 1/2" NPT	2NC 2NO	
144005	3 x M20	4NC	
144006	3 x 1/2" NPT	4NC	
144007	3 x M20	3NC 1NO	LED
144008	3 x 1/2" NPT	3NC 1NO	LED
144009	3 x M20	2NC 2NO	LED
144010	3 x 1/2" NPT	2NC 2NO	LED
144011	3 x M20	4NC	LED
144012	3 x 1/2" NPT	4NC	LED
144013	3 x M20	3NC 1NO	E-Stop
144014	3 x 1/2" NPT	3NC 1NO	E-Stop
144015	3 x M20	2NC 2NO	E-Stop
144016	3 x 1/2" NPT	2NC 2NO	E-Stop
144017	3 x M20	4NC	E-Stop
144018	3 x 1/2" NPT	4NC	E-Stop
144019	3 x M20	3NC 1NO	E-Stop & LED
144020	3 x 1/2" NPT	3NC 1NO	E-Stop & LED
144021	3 x M20	2NC 2NO	E-Stop & LED
144022	3 x 1/2" NPT	2NC 2NO	E-Stop & LED
144023	3 x M20	4NC	E-Stop & LED
144024	3 x 1/2" NPT	4NC	E-Stop & LED
144040	Replacement Lid		
144041	Replacement Lid / LED		LED
For LED models add voltage code to Sales Number			
Steady Green / Flashing Red A - 24Vdc B - 110Vac C - 230V.ac			
Steady Green / Steady Red AS-24Vdc BS-110Vac CS-230V.ac			

Gold Plated Contacts available for low power circuits (5V. 5mA).
Add GC to Part Number e.g. 144001-GC

Standards:	IEC 60947-5-1 IEC 60947-5-5 EN954-1 EN62061 UL508 ISO13850 ISO13849-1
Safety Classification and Reliability Data:	
Mechanical Reliability B10d	1.5 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	<1.0 x 10^{-7}
Proof Test Interval (Life)	21 years
MTTFd	214 years
Enclosure / Cover	Stainless Steel 316
External Parts	Stainless Steel
IP Rating	IP69K (NEMA PW12) IP67 (NEMA 6)
Rope Spans	100m.
Rope Tension device	IDEM Tensioner / Gripper – Quick Fixing
Rope Type:	4.0 mm Outside Dia. Steel inner – PVC sheath
Mounting	4 x M5
Mounting position	Any
Conduit entries	3 x M20 or 3 x ½ " NPT by part number
Torque settings	Mounting M5 4.0 Nm Lid T20 Torx M4 1.5 Nm Terminals 1.0 Nm
Ambient Temperature	-25C +80 C. (100C. Cleaning)
Vibration resistance	10-500Hz 0.35mm
Shock resistance	15g 11ms
Tension Force (typical mid setting)	130N.
Typical Operating Force (Rope pulled)	< 125N. < 300mm Deflection
Weight	1750 g.
Contact type	IEC 947-5-1 Double break Type Zb Snap Action up to 4NC (positive break) 2NO (Auxiliary)
Contact Material	Silver
Termination	Clamp up to 2.5 sq. mm conductors
Rating	Utilisation Category : AC15 A300
Operational Rating	240V. 3A.
Thermal Current (Ith)	10A.
Rated Insulation Voltage (Ui)	500V.
Withstand Voltage (Uimp)	2500V.
Short Circuit Overload Protection	Fuse Externally 10A. (FF)

It is recommended to use our stainless steel gland with this switch

Gland		stainless steel 316
M20	140120	
1/2"NPT	140121	

For all IDEM Rope Switches the normally closed (NC) circuits are closed when the system is tensioned correctly and the switch has been reset.

Grab Wire Auto Reset Trip Switch- Type: GLS-AR

Rope Pull operated
Auto reset – stop switch

Grab Wire Auto-Reset Rope switches are mounted on machines and sections of plant conveyors to initiate a momentary control signal command from any point along the installed rope length.

Pulling the rope causes instant tripping of the control circuit contacts.
Ideal for normal stop circuits where manual resetting of the switch is not required. This switch cannot be used in safety applications, it is only to be used for indication.

Explosion proof version – Zones 1,2,21,22

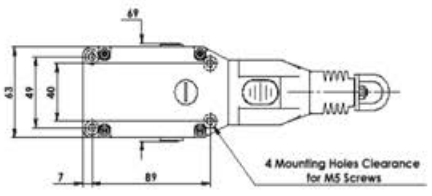
Application:

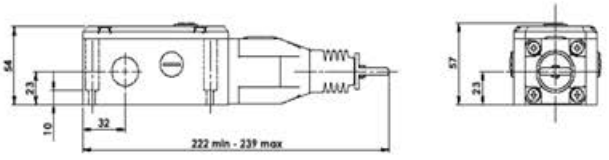
The switches have a positive mechanical linkage between the switch contacts and the wire rope as per IEC 60947-5-1. The switches are brought into the operational condition by pre-tensioning the rope by use of a tensioner device which clamps the rope and then hooks to the switch eyebolts. Correct tension can be observed by viewing the tension indicator on the switch housing. Once tensioned the switch contact blocks are set to the operational condition i.e. Signal contacts Closed – Auxiliary contacts open.

All of the switches have wire-breakage monitoring. On pulling or breakage (tension loss) of the rope, the normally closed Signal contacts are opened and the Auxiliary contacts are closed. The switches will be returned to the operational condition as soon as the rope returns to the set position.

Standards:	IEC 60947-5-1 IEC 60947-5-5 EN954-1 EN62061 UL508 ISO13849-1
Safety Classification and Reliability Data:	
Mechanical Reliability B10d	1.5 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	<1.0 x 10^{-7}
Proof Test Interval (Life)	21 years
MTTFd	214 years
ATEX Classification	Exd IIC T6 (-20⩽Ta⩽+60C) Gb Ex tb IIIC T85C (-20⩽Ta⩽+60C) Db
Rated Voltage	250V a.c
Rated Current	4A a.c
Cable length	3m.

Mechanical Features:	
Enclosure / Cover	Die-Cast – Painted Yellow
IP Rating	IP67
Rope Span	80m.
Rope Tension device	IDEM Tensioner / Gripper – Quick Fixing
Rope Type:	4.0 mm Outside Dia. Steel inner – PVC sheath
Mounting	4 x M5
Mounting position	Any
Conduit entries	3 x M20 or 3 x ½ " NPT by part number
Torque settings	Mounting M5 4.0 Nm Lid T20 Torx M4 1.5 Nm Terminals 1.0 Nm
Ambient Temperature	-25C +80 C.
Vibration resistance	10-500Hz 0.35mm
Shock resistance	15g 11ms
Tension Force (typical mid setting)	130N.
Typical Operating Force (Rope pulled)	< 125N. < 300mm Deflection
Mechanical Life	1,000,000 operations
Approx. Weight	820 g.
Electrical Features:	
Contact type	IEC 947-5-1 Double break Type Zb Snap Action up to 2NC + 1NO (Auxiliary)
Contact Material	Silver
Termination	Clamp up to 2.5 sq. mm conductors
Rating	Utilisation Category : AC15
Operational Rating	240V. 3A.
Thermal Current (Ith)	10A.
Rated Insulation Voltage (Ui)	500V.
Withstand Voltage (Uimp)	2500V.
Short Circuit Overload Protection	Fuse Externally 10A. (FF)





Sales Number	Type	Conduit	Contacts	Fittings
142498	GLS-AR	3 x M20	2NC 1NO	
142499	GLS-AR	3 x 1/2" NPT	2NC 1NO	
142496	GLS-AR	EX	1NC 1NO	Pre-wired 3m.
142497	GLS-AR	EX	2NC	Pre-wired 3m.

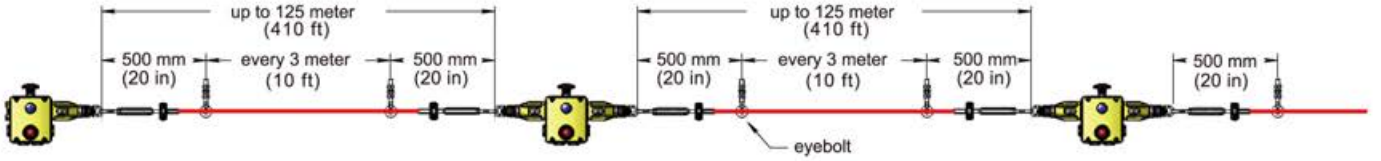
Gold Plated Contacts available for low power circuits (5V. 5mA).
Add GC to Part Number e.g. 142498-GC

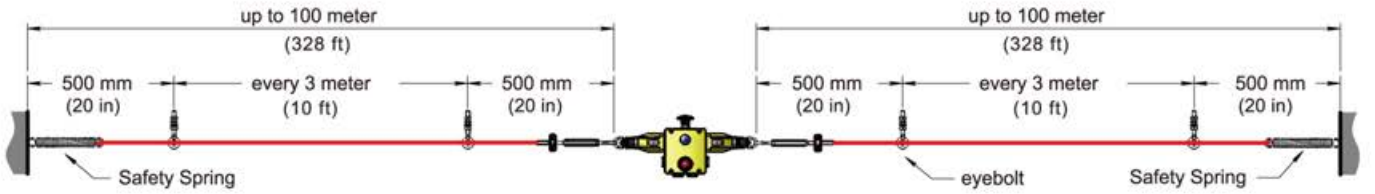
Guardian Line Heavy Duty - Type: GLHD

Protection up to 250 meters

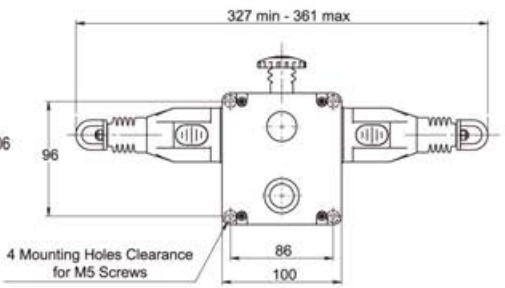
The GLHD is a Heavy Duty Safety Rope Pull switch designed to protect long conveyor lengths. The die-cast housings are robust to survive indoor or outdoor use including washdown (IP67 rating).
Lengths over 2 Km can be achieved with less than 20 switches.
A bi-colour LED ensures switch status can be seen easily from a distance. They have 4NC 2NO contacts to ensure flexibility with all modern control applications and optional Explosion Proof contact blocks are available.
Shorter rope spans up to 200m. can be achieved by using just one switch therefore making a cost effective solution and also reducing electrical wiring runs.

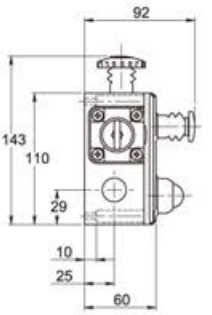
Low Temperature - 40C. versions available GLHD-FZ

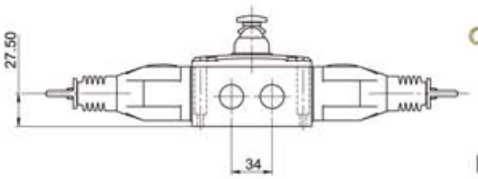




It is recommended when using a Safety Spring that a maximum of one corner pulley is used.







Pre-wired Ex versions
(See Explosion proof section)

Standards:	IEC 60947-5-1 IEC 60947-5-5 EN954-1 EN6206 UL508 ISO13850 ISO13849-1
Safety Classification and Reliability Data:	
Mechanical Reliability B10d	1.5 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	<1.0 x 10^{-7}
Proof Test Interval (Life)	21 years
MTTFd	214 years
Enclosure / Cover	Die-Cast – Painted Yellow
IP Rating	IP67 (NEMA 6)
Rope Spans	Dual Head 250m.
Rope Tension device	IDEM Tensioner / Gripper – Quick Fixing
Rope Type:	4.0 mm Outside Dia. Steel inner – PVC sheath
Mounting	4 x M5
Mounting position	Any
Conduit entries	4 x M20 or 4 x ½ " NPT by part number
Torque settings	Mounting M5 4.0 Nm Lid T20 Torx M4 1.5 Nm Terminals 1.0 Nm
Ambient Temperature	-25C +80 C.
Vibration resistance	10-500Hz 0.35mm
Shock resistance	15g 11ms
Tension Force (typical mid setting)	130N.
Typical Operating Force (Rope pulled)	< 125N. < 300mm Deflection
Mechanical Life	1,000,000 operations
Weight	1320 g.
Contact type	IEC 947-5-1 Double break Type Zb Snap Action up to 4NC (positive break) 2NO (Auxiliary)
Contact Material	Silver
Termination	Clamp up to 2.5 sq. mm conductors
Rating	Utilisation Category : AC15 A300
Operational Rating	240V. 3A.
Thermal Current (Ith)	10A.
Rated Insulation Voltage (Ui)	500V.
Withstand Voltage (Uimp)	2500V.
Short Circuit Overload Protection	Fuse Externally 10A. (FF)

For all IDEM Rope Switches the normally closed (NC) circuits are closed when the system is tensioned correctly and the switch has been reset.

Sales Number	Type	Conduit	Contacts	Fittings
141001	GLHD	4 x M20	4NC 2NO	LED E Stop
141002	GLHD	4 x 1/2" NPT	4NC 2NO	LED E Stop
141029	GLHD	4 x M20	4NC 2NO	LED
141030	GLHD	4 x 1/2" NPT	4NC 2NO	LED
141039	GLHD	4 x M20	4NC 2NO	E Stop
141040	GLHD	4 x 1/2" NPT	4NC 2NO	E Stop
141041	GLHD	4 x M20	4NC 2NO	
141042	GLHD	4 x 1/2" NPT	4NC 2NO	
141012	GLHD	Replacement Lid		
141013	GLHD	Replacement Lid with LED		
For LED models add voltage code to Sales Number				
Steady Green / Flashing Red A - 24Vdc B - 110Vac C - 230V.ac				
Steady Green / Steady Red AS-24Vdc BS-110Vac CS-230V.ac				

Gold Plated Contacts available for low power circuits (5V. 5mA).
Add GC to Part Number e.g. 141001-A-GC

Guardian Line Heavy Duty - Type: GLHL - GLHR

Protection up to 125 meters

The GLHL/R is a robust die-cast Heavy Duty Safety Rope Pull switch designed to protect long conveyor lengths where protection is required up to 125m. using two switches or up to 100m. using a single switch.

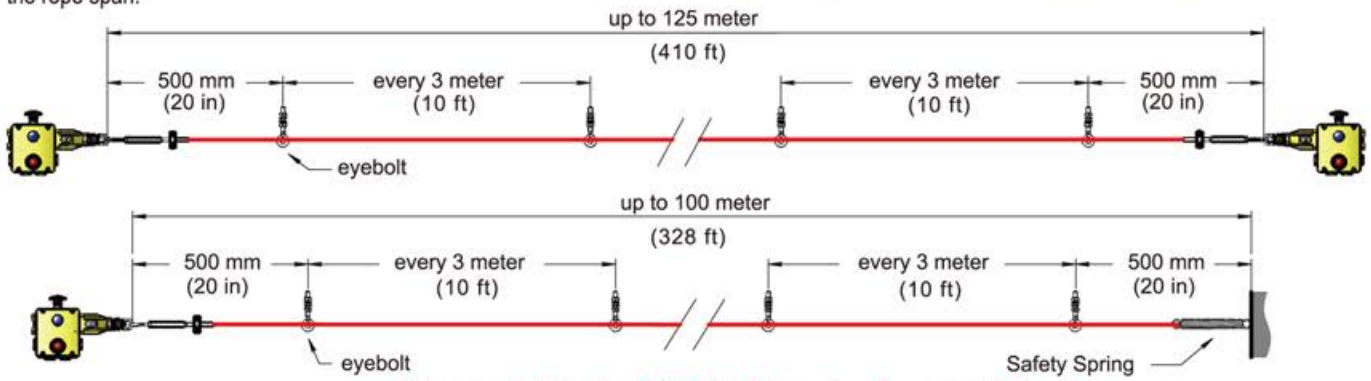
The die-cast housings are robust to survive indoor or outdoor use.

A bi-colour LED ensures switch status can be seen easily from a distance. They have 4NC 2NO contacts to ensure flexibility with all modern control applications and optional Explosion Proof contact blocks are available.

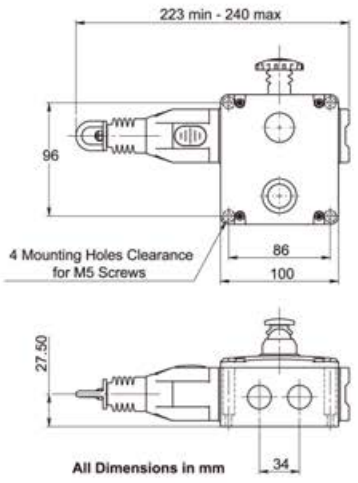
They can be used to complement the GLHD versions at each end of the rope span.

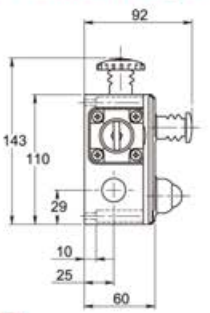
GLHL Left Hand GLHR Right Hand

Low Temperature -40C.versions available GLHL-FZ & GLHR-FZ



It is recommended when using a Safety Spring that a maximum of one corner pulley is used.





Pre-wired Ex versions
(See Explosion proof section)

Sales Number	Type	Conduit	Contacts	Fittings
141005	GLHL	4 x M20	4NC 2NO	LED E Stop
141006	GLHL	4 x 1/2" NPT	4NC 2NO	LED E Stop
141053	GLHL	4 x M20	4NC 2NO	LED
141055	GLHL	4 x 1/2" NPT	4NC 2NO	LED
141051	GLHL	4 x M20	4NC 2NO	E Stop
141035	GLHL	4 x 1/2" NPT	4NC 2NO	E Stop
141037	GLHL	4 x M20	4NC 2NO	
141057	GLHL	4 x 1/2" NPT	4NC 2NO	
141009	GLHR	4 x M20	4NC 2NO	LED E Stop
141010	GLHR	4 x 1/2" NPT	4NC 2NO	LED E Stop
141054	GLHR	4 x M20	4NC 2NO	LED
141056	GLHR	4 x 1/2" NPT	4NC 2NO	LED
141052	GLHR	4 x M20	4NC 2NO	E Stop
141036	GLHR	4 x 1/2" NPT	4NC 2NO	E Stop
141038	GLHR	4 x M20	4NC 2NO	
141058	GLHR	4 x 1/2" NPT	4NC 2NO	
141012	GLH	Replacement Lid		
141013	GLH	Replacement Lid / LED		
For LED models add voltage code to Sales Number				
Steady Green / Flashing Red A - 24Vdc B - 110Vac C - 230V.ac				
Steady Green / Steady Red AS-24Vdc BS-110Vac CS-230V.ac				

Gold Plated Contacts available for low power circuits (5V. 5mA). Add GC to Part Number e.g. 141005-A-GC

Standards:	IEC 60947-5-1 IEC 60947-5-5 EN954-1 EN62061 UL508 ISO13850 ISO13849-1
Safety Classification and Reliability Data:	
Mechanical Reliability B10d	1.5 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	<1.0 x 10^{-7}
Proof Test Interval (Life)	21 years
MTTFd	214 years
Enclosure / Cover	Die-Cast – Painted Yellow
IP Rating	IP67
Rope Spans	125m.
Rope Tension device	IDEM Tensioner / Gripper – Quick Fixing
Rope Type:	4.0 mm Outside Dia. Steel inner – PVC sheath
Mounting	4 x M5
Mounting position	Any
Conduit entries	4 x M20 or 4 x ½ " NPT by part number
Torque settings	Mounting M5 4.0 Nm Lid T20 Torx M4 1.5 Nm Terminals 1.0 Nm
Ambient Temperature	-25C +80 C.
Vibration resistance	10-500Hz 0.35mm
Shock resistance	15g 11ms
Tension Force (typical mid setting)	130N.
Typical Operating Force (Rope pulled)	< 125N. < 300mm Deflection
Weight	1320 g.
Contact type	IEC 947-5-1 Double break Type Zb Snap Action up to 4NC (positive break) 2NO (Auxiliary)
Contact Material	Silver
Termination	Clamp up to 2.5 sq. mm conductors
Rating	Utilisation Category : AC15 A300
Operational Rating	240V. 3A.
Thermal Current (Ith)	10A.
Rated Insulation Voltage (Ui)	500V.
Withstand Voltage (Uimp)	2500V.
Short Circuit Overload Protection	Fuse Externally 10A. (FF)

For all IDEM Rope Switches the normally closed (NC) circuits are closed when the system is tensioned correctly and the switch has been reset.

Guardian Line Heavy Duty - Type: GLHD-SS Stainless Steel

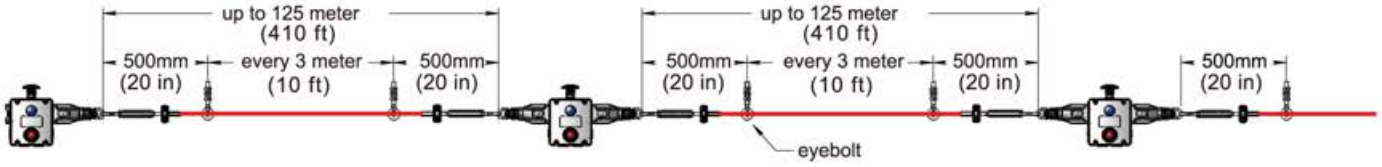
Protection up to 250 meters

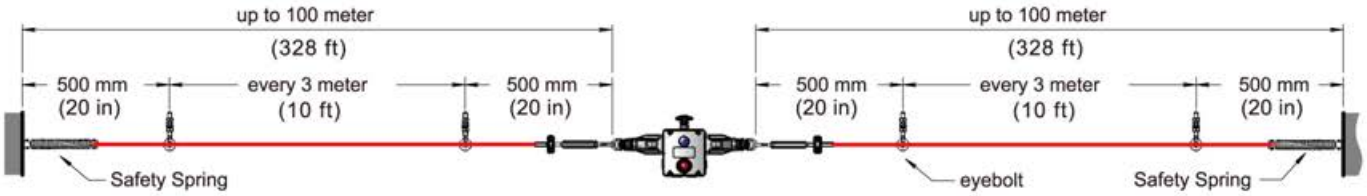
The GLHD-SS is a Heavy Duty Safety Rope Pull switch designed to protect long conveyor lengths up to 250m. The Stainless Steel 316 housings are designed specifically to withstand the tough environments found in the Food and Pharmaceutical industries. They will survive chemical and detergent washdown by providing all stainless steel parts and robust IP67 and IP69K sealing by using integral bellows and gaskets.

A bi-colour LED ensures switch status can be seen easily from a distance. They have 4NC 2NO contacts to ensure flexibility with all modern control applications and optional Explosion Proof contact blocks are available.

Shorter rope spans up to 200m. can be achieved by using just one switch therefore making a cost effective solution and also reducing electrical wiring runs.

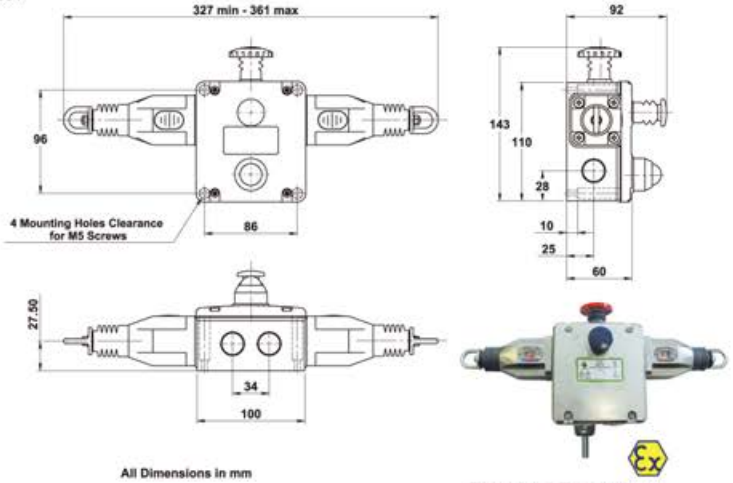
Low Temperature - 40C. versions available GLHD-SS-FZ





It is recommended when using a Safety Spring that a maximum of one corner pulley is used.

Standards:	IEC 60947-5-1 IEC 60947-5-5 EN954-1 EN62061 UL508 ISO13850 ISO13849-1
Safety Classification and Reliability Data:	
Mechanical Reliability B10d	1.5 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	< 1.0 x 10^{-7}
Proof Test Interval (Life)	21 years
MTTFd	214 years
Enclosure / Cover	Stainless Steel 316
External Parts	Stainless Steel
IP Rating	IP69K (NEMA PW12) IP67 (NEMA 6)
Rope Spans	Dual Head 250m.
Rope Tension device	IDEM Tensioner / Gripper – Quick Fixing
Rope Type:	4.0 mm Outside Dia. Steel inner – PVC sheath
Mounting	4 x M5
Mounting position	Any
Conduit entries	4 x M20 or 4 x ½ " NPT by part number
Torque settings	Mounting M5 4.0 Nm Lid T20 Torx M4 1.5 Nm Terminals 1.0 Nm
Ambient Temperature	-25C +80 C. (Cleaning 100C.)
Vibration resistance	10-500Hz 0.35mm
Shock resistance	15g 11ms
Tension Force (typical mid setting)	130N.
Typical Operating Force (Rope pulled)	< 125N. < 300mm Deflection
Weight	2000 g.
Contact type	IEC 947-5-1 Double break Type Zb Snap Action up to 4NC (positive break) 2NO (Auxiliary)
Contact Material	Silver
Termination	Clamp up to 2.5 sq. mm conductors
Rating	Utilisation Category : AC15 A300
Operational Rating	240V. 3A.
Thermal Current (Ith)	10A.
Rated Insulation Voltage (Ui)	500V.
Withstand Voltage (Uimp)	2500V.
Short Circuit Overload Protection	Fuse Externally 10A. (FF)



Pre-wired Ex versions
(See Explosion proof section)

It is recommended to use our stainless steel gland with this switch

Gland		stainless steel 316
M20	140120	
1/2"NPT	140121	

For all IDEM Rope Switches the normally closed (NC) circuits are closed when the system is tensioned correctly and the switch has been reset.

Sales Number	Type	Conduit	Contacts	Fittings
145001	GLHD-SS	4 x M20	4NC 2NO	LED E Stop
145002	GLHD-SS	4 x 1/2" NPT	4NC 2NO	LED E Stop
145029	GLHD-SS	4 x M20	4NC 2NO	LED
145030	GLHD-SS	4 x 1/2" NPT	4NC 2NO	LED
145023	GLHD-SS	4 x M20	4NC 2NO	E Stop
145024	GLHD-SS	4 x 1/2" NPT	4NC 2NO	E Stop
145025	GLHD-SS	4 x M20	4NC 2NO	
145026	GLHD-SS	4 x 1/2" NPT	4NC 2NO	
145012	GLH-SS	Replacement Lid		
145013	GLH-SS	Replacement Lid with LED		
For LED models add voltage code to Sales Number				
Steady Green / Flashing Red A - 24Vdc B - 110Vac C - 230V.ac				
Steady Green / Steady Red AS-24Vdc BS-110Vac CS-230V.ac				

Gold Plated Contacts available for low power circuits (5V. 5mA). Add GC to Part Number e.g. 145001-A-GC

Guardian Line Heavy Duty - Type: GLHL-SS & GLHR-SS

Protection up to 125 meters

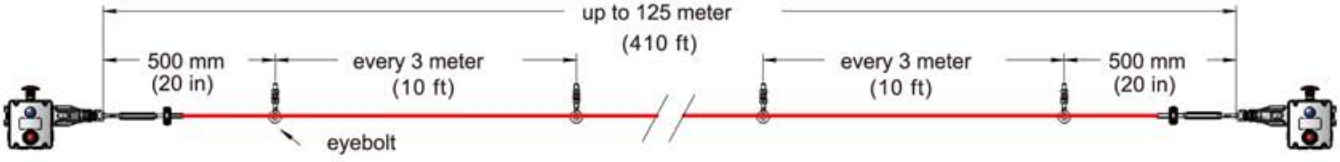
The GLHL/R-SS is a robust Heavy Duty Safety Rope Pull switch designed to protect long conveyor lengths where protection is required up to 125m. using two switches or up to 100m. using a single switch.

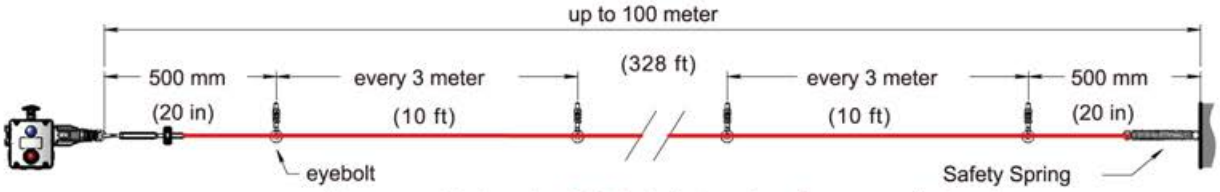
The Stainless Steel 316 housings are designed specifically to withstand the tough environments found in the Food and Pharmaceutical industries. They will survive chemical and detergent washdown by providing all stainless steel parts and robust IP67 and IP69K sealing by using integral bellows and gaskets.

They can be used to complement the GLHD-SS versions at each end of the rope span.

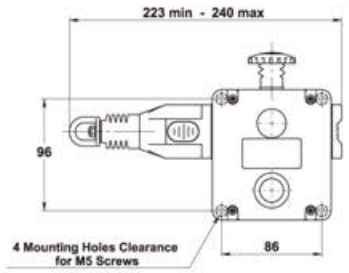
GLHL-SS Left Hand GLHR-SS Right Hand

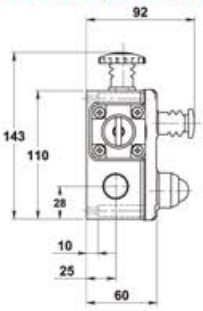
Low Temperature -40C.versions available GLHL-SS-FZ & GLHR-SS-FZ

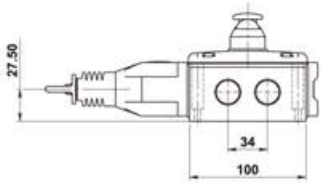




It is recommended when using a Safety Spring that a maximum of one corner pulley is used.







All Dimensions in mm

Pre-wired Ex versions
(See Explosion proof section)

Sales Number	Type	Conduit	Contacts	Fittings
145005	GLHL-SS	4 x M20	4NC 2NO	LED E Stop
145006	GLHL-SS	4 x 1/2" NPT	4NC 2NO	LED E Stop
145053	GLHL-SS	4 x M20	4NC 2NO	LED
145055	GLHL-SS	4 x 1/2" NPT	4NC 2NO	LED
145051	GLHL-SS	4 x M20	4NC 2NO	E Stop
145035	GLHL-SS	4 x 1/2" NPT	4NC 2NO	E Stop
145037	GLHL-SS	4 x M20	4NC 2NO	
145057	GLHL-SS	4 x 1/2" NPT	4NC 2NO	
145009	GLHR-SS	4 x M20	4NC 2NO	LED E Stop
145010	GLHR-SS	4 x 1/2" NPT	4NC 2NO	LED E Stop
145054	GLHR-SS	4 x M20	4NC 2NO	LED
145056	GLHR-SS	4 x 1/2" NPT	4NC 2NO	LED
145052	GLHR-SS	4 x M20	4NC 2NO	E Stop
145036	GLHR-SS	4 x 1/2" NPT	4NC 2NO	E Stop
145038	GLHR-SS	4 x M20	4NC 2NO	
145058	GLHR-SS	4 x 1/2" NPT	4NC 2NO	
145012	GLH-SS	Replacement Lid		
145013	GLH-SS	Replacement Lid / LED		
For LED models add voltage code to Sales Number				
Steady Green / Flashing Red A - 24Vdc B - 110Vac C - 230V.ac				
Steady Green / Steady Red AS-24Vdc BS-110Vac CS-230V.ac				

Gold Plated Contacts available for low power circuits (5V. 5mA). Add GC to Part Number e.g. 145005-A-GC

Standards:	IEC 60947-5-1 IEC 60947-5-5 EN954-1 EN62061 UL508 ISO13850 ISO13849-1
Safety Classification and Reliability Data:	
Mechanical Reliability B10d	1.5 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	< 1.0 x 10^{-7}
Proof Test Interval (Life)	21 years
MTTFd	214 years
Enclosure / Cover	Stainless Steel 316
External Parts	Stainless Steel
IP Rating	IP69K (NEMA PW12) IP67 (NEMA 6)
Rope Spans	125m.
Rope Tension device	IDEM Tensioner / Gripper – Quick Fixing
Rope Type:	4.0 mm Outside Dia. Steel inner – PVC sheath
Mounting	4 x M5
Mounting position	Any
Conduit entries	4 x M20 or 4 x ½ " NPT by part number
Torque settings	Mounting M5 4.0 Nm Lid T20 Torx M4 1.5 Nm Terminals 1.0 Nm
Ambient Temperature	-25C +80 C. (100C. cleaning)
Vibration resistance	10-500Hz 0.35mm
Shock resistance	15g 11ms
Tension Force (typical mid setting)	130N.
Typical Operating Force (Rope pulled)	< 125N. < 300mm Deflection
Weight	1320 g.
Contact type	IEC 947-5-1 Double break Type Zb Snap Action up to 4NC (positive break) 2NO (Auxiliary)
Contact Material	Silver
Termination	Clamp up to 2.5 sq. mm conductors
Rating	Utilisation Category : AC15 A300
Operational Rating	240V. 3A.
Thermal Current (Ith)	10A.
Rated Insulation Voltage (Ui)	500V.
Withstand Voltage (Uimp)	2500V.
Short Circuit Overload Protection	Fuse Externally 10A. (FF)

It is recommended to use our stainless steel gland with this switch

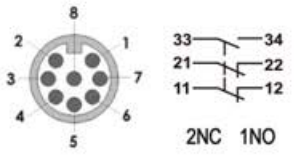
Gland		stainless steel 316
M20	140120	
1/2"NPT	140121	

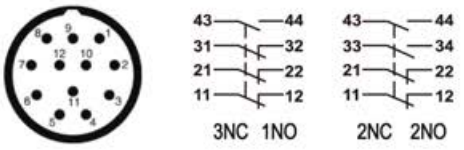
For all IDEM Rope Switches the normally closed (NC) circuits are closed when the system is tensioned correctly and the switch has been reset.

Safety Rope Pull Switches - Quick Connect Versions

Quick connect details for switches without LED indication

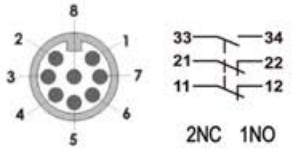
GLM / GLS

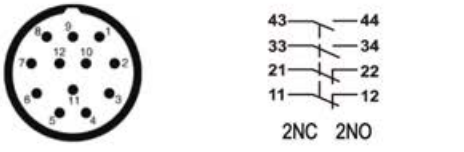




Quick Connect (QC) M12 8 Way Male (on Flying Lead 250mm (10 inches) Pin view from switch	GLM / GLS without LED Switch Circuit	Quick Connect (QC) M23 12 Way Male (Connector Length 26mm) Pin view from switch
8 5	11 / 12 NC	1 3
4 6	21 / 22 NC	4 6
1 7	31 / 32 NC or 33 / 34 NO	7 8
	43 / 44 NO	9 10
3	Earth	12
Sales Numbers: GLM with E Stop 143005-QCM12 GLM 143001-QCM12 GLS with E Stop 142009-QCM12 GLS 142001-QCM12		Sales Numbers: GLM with E Stop 3NC 1NO 143056-QCM23 GLM with E Stop 2NC 2NO 143058-QCM23 GLM 3NC 1NO 143050-QCM23 GLM 2NC 2NO 143052-QCM23 GLS with E Stop 3NC 1NO 142062-QCM23 GLS with E Stop 2NC 2NO 142064-QCM23 GLS 3NC 1NO 142050-QCM23 GLS 2NC 2NO 142052-QCM23

GLHD / GLHL / GLHR





Quick Connect (QC) M12 8 Way Male (on Flying Lead 250mm (10 inches) Pin view from switch	GLHD or GLHL/R without LED Switch Circuit	Quick Connect (QC) M23 12 Way Male (Connector Length 26mm) Pin view from switch
8 5	11 / 12 NC	1 3
4 6	21 / 22 NC	4 6
1 7	33 / 34 NO	7 8
	43 / 44 NO	9 10
3	Earth	12
Sales Numbers: GLHD with E Stop 141039-QCM12 GLHL with E Stop 141051-QCM12 GLHR with E Stop 141052-QCM12 GLHD 141041-QCM12 GLHL 141037-QCM12 GLHR 141038-QCM12		Sales Numbers: GLHD with E Stop 141039-QCM23 GLHL with E Stop 141051-QCM23 GLHR with E Stop 141052-QCM23 GLHD 141041-QCM23 GLHL 141037-QCM23 GLHR 141038-QCM23

Female QC Leads	Length	Sales Number
M12 8 Way	5m. (15Ft.)	140101
M12 8 Way	10m. (30Ft.)	140102
M23 12 Way	5m. (15Ft.)	140143
M23 12 Way	10m. (30Ft.)	140144

For all IDEM Rope Switches the normally closed (NC) circuits are closed when the system is tensioned correctly and the switch has been reset.

Accessories - Guardian Line Rope Switches

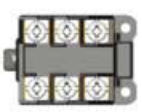
Sales Number Galvanised	Sales Number Stainless Steel	Description	Rope	Eyebolts	Tensioner / Gripper	Allen Key
140001	140010	5M Rope Kit	5M. QL	3	1	1
140002	140011	10M Rope Kit	10M. QL	5	1	1
140003	140012	15M Rope Kit	15M. QL	7	1	1
140004	140013	20M Rope Kit	20M. QL	9	1	1
140005	140014	30M Rope Kit	30M. QL	12	1	1
140006	140015	50M Rope Kit	50M. QL	20	1	1
140007	140016	80M Rope Kit	80M.	30	2	1
140008	140017	100M Rope Kit	100M.	37	2	1
140009	140018	126M Rope Kit	126M.	45	2	1
140033		Rope only 5M				
140034		Rope only10M				
140036		Rope only 20M				
140037		Rope only 30M				
140038		Rope only 50M				
140039		Rope only 80M				
140040		Rope only 100M				
140041		Rope only 126M				
140068		Rope only 500M Drum				
140019		Rope Tensioner / Gripper Stainless Steel				
140020		Rope Tensioner / Gripper Galvanised Steel				
		77mm Long 40mm High Fixing Hole centres 20mm				
140021		Universal Pulley (Inside and Outside Corners) Stainless Steel				
140064		Universal Pulley (Inside and Outside Corners) Galvanised				
		84mm Long Thread length 51mm M8 x 1.25				
140045		Eyebolt Stainless Steel (8 pack)				
140046		Eyebolt Galvanised (8 pack)				
140042		LED Green / Flashing Red 24V.dc.				
140065		LED Green / Flashing Red 110V.ac.				
140069		LED Green / Flashing Red 230V.ac.				
		220mm Long				
140043		Safety Spring Stainless Steel				
140044		E-Stop Mechanism				
140059		Screwdriver Anti-Tamper T20				

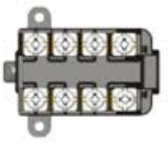
Tensioner / Gripper Assembly
Allen Key 4mm
Quick Link (QL)
For up to 50m. spans, one rope end is terminated with a thimble and permanent clamp. For over 50m. spans, 2 Tensioner / Gripper assemblies are supplied (no Quick Link).

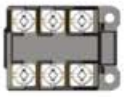
Screwdriver Anti-Tamper T20

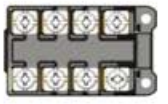
Accessories - Contact Blocks and Fittings

	Rope switches GLM GLS GLH and Emergency Switches
140057	3 pole Contact Block 2NC 1NO (End fixing and tip)
140058	3 pole Contact Block 3NC (End fixing and tip)
140061	4 pole Contact Block 2NC 2NO (Side fixing and tip)
140062	4 pole Contact Block 3NC 1NO (Side fixing and tip)
140063	4 pole Contact Block 4NC (Side fixing and tip)
	Tongue and Hinge switches - IDIS, K-15, KP, K-SS ,KM, KM-SS, LSPS
140112	3 pole Contact Block 2NC 1NO (End fixing without tip)
140113	3 pole Contact Block 3NC (End fixing without tip)
140114	4 pole Contact Block 2NC 2NO (End fixing without tip)
140115	4 pole Contact Block 3NC 1NO (End fixing without tip)
140116	4 pole Contact Block 4NC (End fixing without tip)





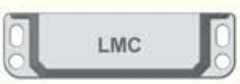




Glands and Plugs

Plastic Sales Number		Stainless Steel 316 Sales Number	
140050	M20 to ½" NPT adaptor	M12x1.75 conduit plug	140122
140051	½"NPT conduit plug	½"NPT conduit plug	140117
140052	M20x1.5 conduit plug	M20x1.5 conduit plug	140118
140053	½"NPT Gland	½"NPT Gland	140121
140054	M20x1.5 Gland	M20x1.5 Gland	140120
140056	M12x1.5 Gland	M12x1.5 Gland	140119

Accessories - Actuators

Sales Number	Sales Number	Sales Number
114200 MPC Coded Actuator 	114201 MPR Magnetic Actuator 	 140103 IDIS-1 Angled Actuator
111200 SPC Coded Actuator 	111201 SPR Magnetic Actuator 	 140104 IDIS-1 Flat Actuator
139200 SMC Coded Actuator  137200 SMC-F Coded Actuator 	139201 SMR Magnetic Actuator  137201 SMR-F Magnetic Actuator 	 140105 IDIS-1 Plastic Flexible Actuator
110200 LPC Coded Actuator 	110201 LPR Magnetic Actuator 	 140106 KP K-15 (Plastic Heads) Standard Actuator
133200 LMC Coded Actuator 	133201 LMR Magnetic Actuator 	 140107 KP-SS K15-SS KLP KLM KM KL3-SS KM-SS K-SS KL1-P KL1-SS Standard Actuator
116200 RPC Coded Actuator 	134200 RMC Coded Actuator 	 140108 KL1-P KL1-SS K-15 KP KM KM-SS K-SS KLP KLM KL3-SS Flat Actuator
112200 WPC Coded Actuator 	112201 WPR Magnetic Actuator 	 140109 K-15 KP KM Plastic Flexible Actuator
136200 WMC Coded actuator 	136201 WMR Magnetic Actuator 	 140110 KL1-P K-15 KP KM KLP KLM Heavy Flexible Actuator
115200 CPC Coded Actuator 	113200 CPR Magnetic Actuator 	 140111 KM-SS K-SS KL1-SS KL3-SS Stainless Steel Heavy Flexible Actuator
138200 CMC Coded Actuator 	138201 CMR Magnetic Actuator 	Non Contact switches Screw Pack-140124 4 x M4 x 20mm T20 Torx / washer 
135200 CMC-F Coded Actuator 	135201 CMR-F Magnetic Actuator 	Manual Release Key - 140123 Stainless Steel KL3-SS 

IdeSafe Bus System - 2 Wire Safety Communication for Rope Switches

2 Wire Safety System for use with Rope Switches covering long lengths

The IdeSafe Bus system allows GLH switches to be connected in series to protect long conveyor lengths over 5km whilst maintaining diagnostics and safety integrity.

Each switch contains an address programmable module to give individual diagnostics of the switch status and is readable at the control cabinet .

Open circuits are detected.

The whole system is connected in series by a simple 2 wire connection system from switch to switch making wiring easy.

Safety integrity is maintained throughout via positively opened switch contacts connecting to the transmission bus to maintance PLe to ISO 13849-1 SIL3 to EN62061 and Category 4 to EN954-1.

Communication Capabilities – can be interfaced to most Text Displays, Touchscreens, PLC's and PC's via the gateways for Modbus and Profibus.

Up to 63 switches will connect to one 'Bus'.

High flexibility - It is easy to expand the system step-by-step by installing additional safety input modules.

Basic elements required: Master Module, Safety Receiver and Rope Switches with Input Modules

Target Applications – Rope Pull Systems up to 5km:

Long bulk material conveyors:

Tunnels Mines
Power Plants
Airport systems
Cranes
Elevators

Cement factories
Harbours
Postal systems
Automatic door systems
Petro-Chemical plants

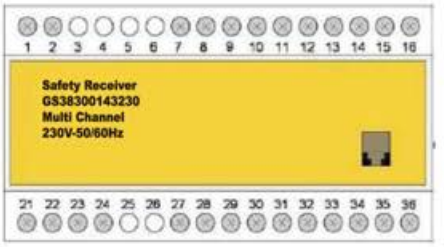
Quarries
Conveyors used in sorting systems
Automated Logistic Systems

IdeSafe Bus System - 2 Wire Safety Communication for Rope Switches

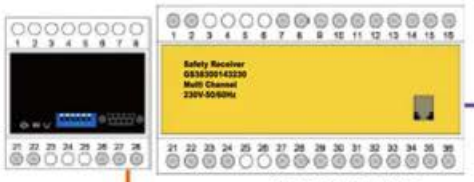
2 Wire Bus System for use with Rope Switches

Programmable 2 wire Safety Bus system
Satisfies highest safety levels using a 2 wire connection bus
DIN rail mounting
Monitored or Auto reset
High Flexibility – easy to expand the system
Communication capabilities – can be interfaced to most Text displays
Profibus connection Module available for Diagnostic connection to PLC

Master Module



Safety Receiver (and Safety Relay module)



Safety Relay Module

Optional PROFIBUS INTERFACE allows for monitoring of the system e.g. using a PLC

Master Module

2 wire connection only

Input Module
Input Module
Input Module

Input Modules are address programmable and are incorporated within switches

The Safety Relay will open the contacts if it does not receive a valid "input contact closed" signal from all the input modules which it has been configured to monitor.

Diagnostic information via PLC, PC or Text Display

Up to 63 Safety signals (switches) on one Ide Safe bus

EN 954-1 Cat.4 EN61508 SIL3 TUV Approved

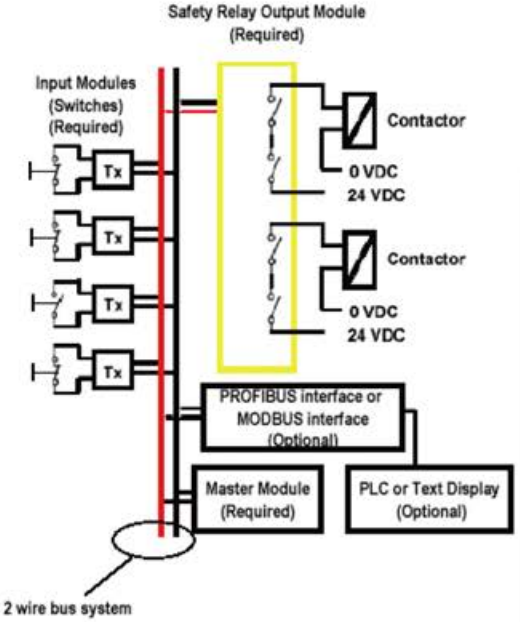
Input modules are incorporated within Safety Switches

Profibus Interface

Accessories

ModBusGateway

Text Display



Sales Number	Type	Supply Voltage
182001	Master Module – Channel Generator	24V.dc
182002	Master Module – Channel Generator	110V/ 230V.ac
182003	Safety Relay Module (Receiver)	110V/ 230V.ac
182004	ModBus Gateway Text Display Interface	
182005	Text Display	
182006	ProfiBus Interface	110V/ 230V.ac
182007	Programming Module / Interface	
	Switches with Address Modules	
182101	GLHD Rope switch M20	Die Cast - PaintedYellow
182102	GLHD Rope switch ½" NPT	Die Cast - PaintedYellow
182103	GLHL Rope switch M20	Die Cast - PaintedYellow
182104	GLHL Rope switch ½" NPT	Die Cast - PaintedYellow
182105	GLHR Rope switch M20	Die Cast - PaintedYellow
182106	GLHR Rope switch ½" NPT	Die Cast - PaintedYellow
182107	GLHD-SS Rope switch M20	Stainless Steel 316
182108	GLHD-SS Rope switch ½" NPT	Stainless Steel 316
182109	GLHL-SS Rope switch M20	Stainless Steel 316
182110	GLHL-SS Rope switch ½" NPT	Stainless Steel 316
182111	GLHR-SS Rope switch M20	Stainless Steel 316
182112	GLHR-SS Rope switch ½" NPT	Stainless Steel 316

IdeSafe Bus System - 2 Wire Safety Communication for Rope Switches

2 Wire Bus System for use with Rope Switches

Description:

Bus powered Address 'modules' are integrally fitted within the Rope Switch housings and protected IP67.

They monitor the positively operated switch contacts to provide a 2 wire (channel) safety signal output which is monitored by the Safety Receiver Relay. The 'safe state' signal is transmitted continuously by each switch to the Safety Relay as long as the switch contacts are closed and the module self check is positive. Short circuit and open circuit faults are detected along the 2 wire continuous connection.

Mode of operation:

The Safety Receiver is used to monitor the NC positively operated switch contacts. The status of the switch contact is continuously transmitted on the IdeSafe Bus using a dynamic signalling principle over two channels (wires). A Master Module (Channel Generator) is always used in conjunction with a Safety Receiver and can monitor up to 63 modules (switches) all connected to the same IdeBus.
If one or more modules fail to send the 'safe state' signal then the Safety Receiver contacts will release and open.

Addressing:

For addressing each module (switch) the hand held Programming Module is used to assign 3 pieces of information which identifies the individual address of the module (switch) – the Synchronisation Channel, Safety Transmit 1 and Safety Transmit 2.
(Refer to operating manual for the Programming Module). The Synchronisation Channel is used by the Safety Receiver to send out a synchronisation signal to each input module on the IdeBus, therefore all modules and the Safety Receiver must be coded for the same synchronisation channel. Each module must be coded for a unique channel pair not used by any other switch.

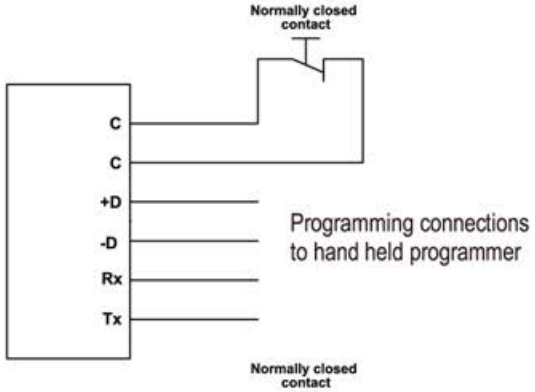
The Safety Transmit 1 and Safety Transmit 2 channels are used by each module to transmit the switch status in such a dynamic way ensuring redundancy, diversity and continuous updating.

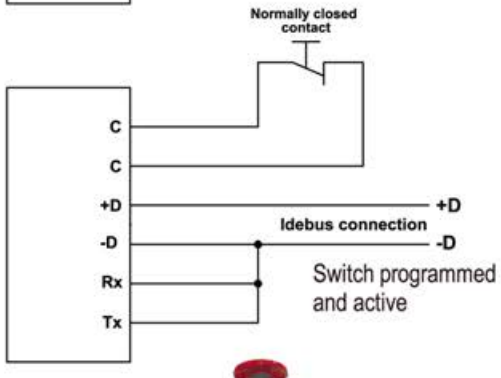
Terminal Connections inside switch:

C - Switch contact – positive break (internally pre-wired)
C - Switch contact – positive break (internally pre-wired)

+D - Idebus line - external connection
-D - Idebus line – external connection

Rx – Connection for programming only – otherwise common with -D and Tx
Tx – Connection for programming only – otherwise common with -D and Rx





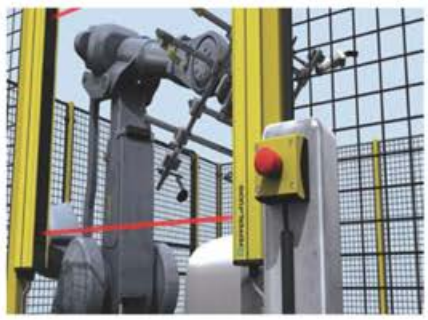
Standards	IEC61508 EN954-1
Supply	from Master Module
Current consumption	1.0mA
Connection Cable type	Any 2 core or twisted pair
Open loop voltage	2.5V.dc
Short circuit current	100 microamp
Dielectric voltage	None
Power ON delay	< 5s.
Degree of protection	IP67
Operating temperature	-25 +50C.
Humidity (non condensing)	20 – 80%

	Safety Receiver (Relay output)
Power Supply 230V ac or 115V.ac	+ / - 10%
Output Contact Switching Voltage	250V.ac/dc
Switching Capacity	6A. AC-1 at 230V 3A. AC-15 at 230V 5A. DC-13 at 24V.
Status Outputs	1 PNP transistor output 30V.dc 5mA max.
5 Status LED's	Green -Power Yellow - Idebus status positive Red- Relay Status Red- Manual Start Ready All flashing – configuration mode
Response time closed	600 ms
Response time open	300 ms

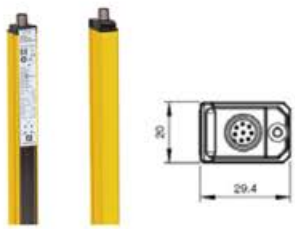
GLHD fitted with IdeBUS Module

SAFETY LIGHT CURTAINS

Safety Light Curtains offer the user maximum accessibility to a machine or production line by removing the requirement for mechanical guarding. Manufacturing processes that require repeat operator access to the dangerous area can be performed quickly and with the minimum of interruption to production flow. Presses of all sizes are particularly well suited to guarding by light curtains since the high level of throughput requires the minimum of interruption when inserting and removing product. Fork lift truck access to conveyor lines is also an ideal application allowing fast and efficient access whilst maintaining a high level of safety integrity. Safety Light Grids offer a cost efficient way to protect the perimeter of a machine over a longer distance, and give the operators the flexibility to access the line where necessary without the need to remove guarding.

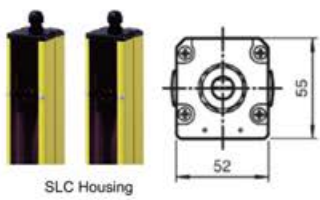


Slim Line Safety Light Curtains *SLCS*
The exceptionally small footprint of the slim line series enables the light curtain to be positioned unobtrusively allowing the machine designer greater freedom to consider the machine function and maximum efficiency of the operator. Additionally the supporting structure can be lighter. Despite it's small size the slim line series does not require an external controller, and is a true "two-box" system. When used with the quick clip mounting brackets and the plug connectors the slim line series can be fitted in minutes.



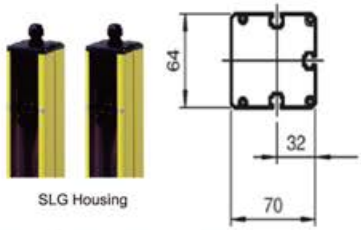
SLCS Housing

Safety Light Curtains *SLC*
The robust housing of the classic series offers machine designers a proven solution. The extruded aluminium housing coupled with the mounting brackets give a sturdy mounting arrangement suitable for areas where occasional vibration or knocks may occur.



SLC Housing

Safety Light Grids *SLG*
Safety Light Grids offer a low cost solution for perimeter protection ideally suited to palletiser and fork truck access points, the 2, 3 or 4 beam guards are both robust and easily visible. Available with integrated muting options and without the need for an external controller the safety grids offer a very neat 2-box solution.



SLG Housing

Resolution: Detection capability indicates the minimum size object that the curtain will detect:

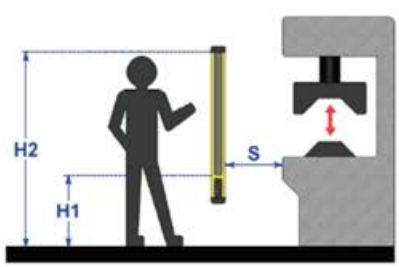
- Finger (14 mm resolution) – SLCS-F, SLC-F
- Hand (30 mm resolution) – SLCS-H, SLC-H
- Body (60 or 90 mm resolution) – SLCS-B, SLC-B
- Pedestrian (2,3 or 4 beam systems) – SLGC, SLGM

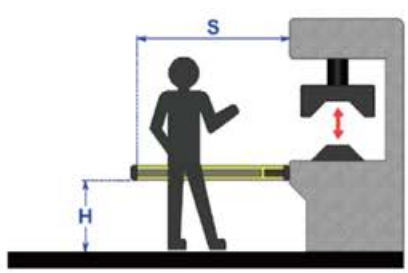
Positioning: The Safety Distance is the minimum distance that must be maintained between the safety sensor and the hazardous part of the machine in order to stop the machine before someone or something reaches it. A full risk assessment should always be carried out prior to installing a SLC.

The Safety Distance S can be calculated using the equation method provided by the standard EN999 (ISO 14120).

Vertical curtain: $S = (K \times T) + 8 \times (R-14)$ where

S is the minimum safety distance in mm from the hazardous part of the machine to the detection point of the safety sensor.
K is the approach speed of the body or parts of the body in mm/sec. (2000mm/s for calculated value of S<501mm or 1600mm/s for S>500mm)
T is the overall stopping performance in seconds, sum of safety sensor response time and machine response time
R is the resolution of the SLC (mm).





SLIMLINE SAFETY LIGHT CURTAINS - Types SLCS-F/H/B

Ultra slim design with an exceptionally small 20mm x 30mm footprint

Suitable for unobtrusive mounting at access points

Type 2 SLCS-2 SIL2 to IEC61508

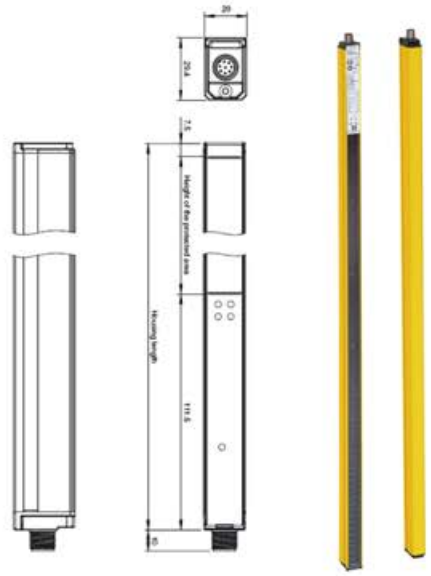
Type 4 SLCS-4 SIL3 to IEC61508

Fully self contained '2 box' system – no separate control unit required

No synchronisation cable required between emitter and receiver

Mounting is quick and easy with unique 'snap action' mounting bracket, flexible 3 sided mounting and M12 connectors

SLCS-F Finger protection
SLCS-H Hand Protection
SLCS-B Full Body protection



	SLCS-F	SLCS-H	SLCS-B60	SLCS-B90
Resolution	14mm	30mm	60mm	90mm
Angle of divergence	< 5 degrees			
Detection range	SLCS 2 - 0.2 to 8m / SLCS 4 – 0.4m to 8m			
Height of protected area	100 to 1200mm	100 to 2400mm	300 to 2400mm	300 to 2400mm
Outputs	2 independent failsafe PNP semiconductor outputs			
Operating voltage	24V.dc			
Response time	<55ms	<39ms	<24ms	<18ms
Manual / Auto start	Selectable			
Ambient temperature	-30C. to 60C.			
Enclosure protection	IP65			
Connection	M12 connectors: Transmitter 4-Pin, receiver 8-Pin			

Finger 14mm resolution Sales Number	Protected Height (mm)
SLCS-2/4F-100	100
SLCS-2/4F-200	200
SLCS-2/4F-300	300
SLCS-2/4F-400	400
SLCS-2/4F-500	500
SLCS-2/4F-600	600
SLCS-2/4F-700	700
SLCS-2/4F-800	800
SLCS-2/4F-900	900
SLCS-2/4F-1000	1000
SLCS-2/4F-1100	1100
SLCS-2/4F-1200	1200

Total Height is the Protected Height plus 150mm

Hand 30mm resolution Sales Number	Protected Height (mm)
SLCS-2/4H-100	100
SLCS-2/4H-200	200
SLCS-2/4H-300	300
SLCS-2/4H-400	400
SLCS-2/4H-500	500
SLCS-2/4H-600	600
SLCS-2/4H-800	800
SLCS-2/4H-1000	1000
SLCS-2/4H-1200	1200
SLCS-2/4H-1400	1400
SLCS-2/4H-1600	1600
SLCS-2/4H-1800	1800
SLCS-2/4H-2000	2000
SLCS-2/4H-2200	2200
SLCS-2/4H-2400	2400

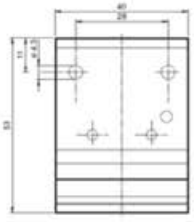
Body 60mm resolution Sales Number	Protected Height (mm)
SLCS-2/4B60-300	300
SLCS-2/4B60-600	600
SLCS-2/4B60-900	900
SLCS-2/4B60-1200	1200
SLCS-2/4B60-1500	1500
SLCS-2/4B60-1800	1800
SLCS-2/4B60-2100	2100
SLCS-2/4B60-2400	2400

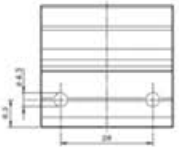
Body 90mm resolution Sales Number	Protected Height (mm)
SLCS-2/4B90-300	300
SLCS-2/4B90-600	600
SLCS-2/4B90-900	900
SLCS-2/4B90-1200	1200
SLCS-2/4B90-1500	1500
SLCS-2/4B90-1800	1800
SLCS-2/4B90-2100	2100
SLCS-2/4B90-2400	2400

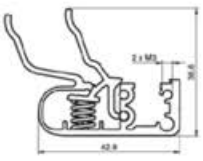
Ordering Examples: Finger Protection Category 2 300mm height 14mm resolution Part No. SLCS-2-F-300
Body protection Category 4 900mm height 60mm resolution Part No. SLCS-4-B60-900

Accessories

Mounting Bracket, Quick Clip (2 per pack) 4 are required to mount a set of light curtains	OMH-SLCT-01
Transmitter Cable 5m	V1-G-BK5M-PUR-UL
Receiver Cable 5m	V19-G-BK5M-PUR-UL
Transmitter Cable 10m	V1-G-BK10M-PUR-UL
Receiver Cable 10m	V19-G-BK10M-PUR-UL







SAFETY LIGHT CURTAINS - Types SLC-F SLC-H SLC-B

Rugged housing with a robust 52 x 55 mm profile

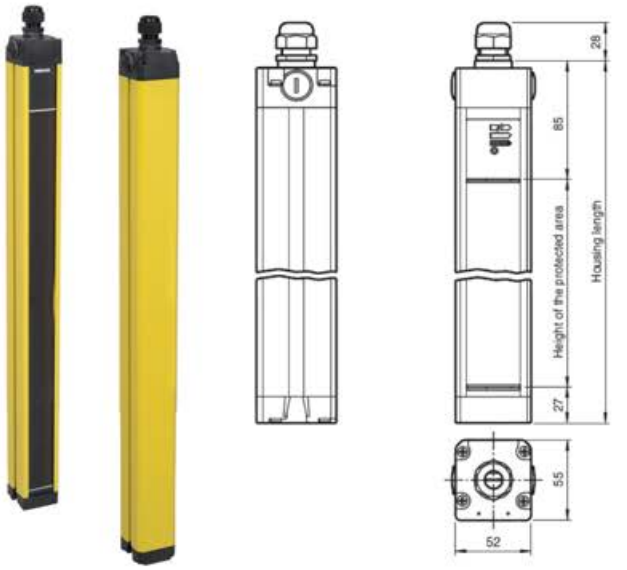
Quick and easy configuration using DIP switches

Glanded cable entry with terminal connection in end caps

Type 4: EN 954-1 Category 4 - a single failure will not lead to a loss of safety.
Cascadable

SLC-F	Finger protection	(14mm resolution)
SLC-H	Hand Protection	(30mm resolution)
SLC-B60	Full Body protection	(60mm resolution)
SLC-B90	Full Body protection	(90 mm resolution)

ATEX approval for Zone 2 and 22 (Optional)



	SLC-F	SLC-H	SLC-B60	SLC-B90
Resolution	14mm	30mm	60mm	90mm
Angle of divergence	< 5 degrees			
Detection range	0.2 to 5m.	0.2 to 15m.	0.2 to 5m.	
Height of protected area	150 to 1500mm			
Outputs	2 x PNP			
Operating voltage	24V.dc			
Response time	Max. 30ms			
Manual / Auto start	Selectable			
Ambient temperature	0C. to 55C.			
Enclosure protection	IP67			
Connection	Terminal			

Finger 14mm resolution Sales Number	Protected Height (mm)
SLC-F-4-150	150
SLC-F-4-300	300
SLC-F-4-450	450
SLC-F-4-600	600
SLC-F-4-750	750
SLC-F-4-900	900
SLC-F-4-1050	1050
SLC-F-4-1200	1200
SLC-F-4-1350	1350
SLC-F-4-1500	1500
SLC-F-4-1650	1650
SLC-F-4-1800	1800

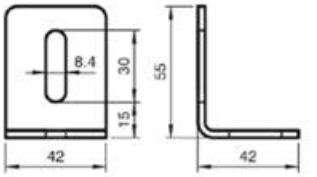
Hand 30mm resolution Sales Number	Protected Height (mm)
SLC-H-4-150	150
SLC-H-4-300	300
SLC-H-4-450	450
SLC-H-4-600	600
SLC-H-4-750	750
SLC-H-4-900	900
SLC-H-4-1050	1050
SLC-H-4-1200	1200
SLC-H-4-1350	1350
SLC-H-4-1500	1500
SLC-H-4-1650	1650
SLC-H-4-1800	1800

Body 60mm resolution Sales Number	Protected Height (mm)
SLC-B60-4 -150	150
SLC-B60-4 -300	300
SLC-B60-4 -450	450
SLC-B60-4 -600	600
SLC-B60-4 -750	750
SLC-B60-4 -900	900
SLC-B60-4 -1050	1050
SLC-B60-4 -1200	1200
SLC-B60-4 -1350	1350
SLC-B60-4 -1500	1500
SLC-B60-4 -1650	1650
SLC-B60-4 -1800	1800

Body 90mm resolution Sales Number	Protected Height (mm)
SLC-B90-4 -150	150
SLC-B90-4 -300	300
SLC-B90-4 -450	450
SLC-B90-4 -600	600
SLC-B90-4 -750	750
SLC-B90-4 -900	900
SLC-B90-4 -1050	1050
SLC-B90-4 -1200	1200
SLC-B90-4 -1350	1350
SLC-B90-4 -1500	1500
SLC-B90-4 -1650	1650
SLC-B90-4 -1800	1800

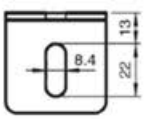
Accessories

	SLC-F/H/B
Mounting Bracket (1 bracket) 4 are required to mount a light curtain set	MS-SLC



Accessories

Mounting Bracket (1 per pack) 4 are required to mount a set of light grids	MS-SLP
Muting Sensor Kit (1 Set includes 2 sensors & 2 mounting brackets)	RLK-SET
Muting Sensor Cable (2 required for muting set)	V1S-G-2M-PUR



SAFETY LIGHT GRIDS - Types SLGC SLGM

Suitable for preventing pedestrian access in areas such as conveyor loading/unloading, palletisers, end of line access, fork lift truck access

Rugged housing with integrated control unit

Integrated muting option, no external controller required

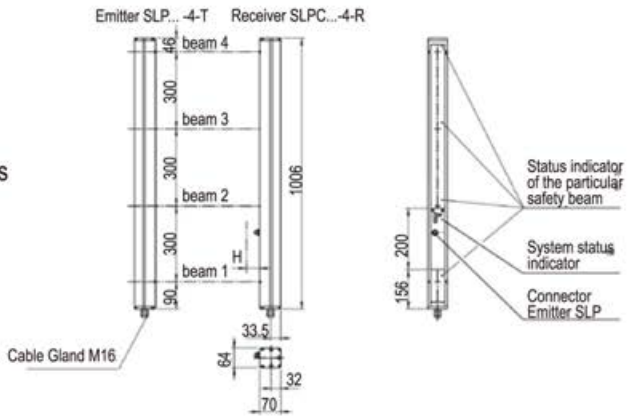
Muting Types SLGM: Parallel or sequential muting with time or safety beam limiting function.

Detection range up to 65m

Self monitoring (type 4 to IEC/EN 61496-1)

2, 3 or 4 beam

M12 connection on the front side for muting sensors

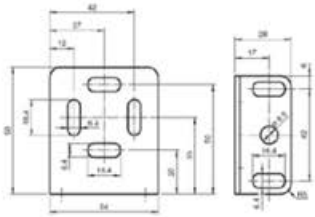


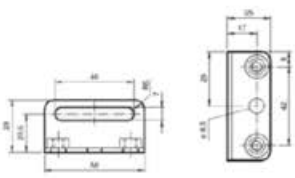
	SLGC-10 and SLGM-10	SLGC-30 and SLGM-30	SLGC-65 and SLGM-65
No.of beams	2, 3 or 4 depending upon height		
Beam spacing	500mm / 400mm / 300mm depending upon height		
Detection range	0.2 to 10m.	6 to 30m.	12 to 65m.
Angle of divergence	< 5 degrees		
Outputs	2 independent failsafe force guided NO/ PNP semiconductor outputs		
Response time	Max. 40ms.		
Manual / Auto start	Selectable		
Ambient temperature	0C. to 50C.		
Enclosure protection	IP65		
Connection	Terminal clamps with M16 gland		

Sales Number		No of Beams	Detection length	Protection Height	Pitch	Total Height
Without Muting	**With Muting**					
SLGC-10-2	SLGM-10-2	2	0.2 to 10m.	500	500	636
SLGC-10-3	SLGM-10-3	3	0.2 to 10m.	800	400	936
SLGC-10-4	SLGM-10-4	4	0.2 to 10m.	900	300	1036
SLGC-30-2	SLGM-30-2	2	6 to 30m.	500	500	636
SLGC-30-3	SLGM-30-3	3	6 to 30m.	800	400	936
SLGC-30-4	SLGM-30-4	4	6 to 30m.	900	300	1036
SLGC-65-2	SLGM-65-2	2	12 to 65m.	500	500	636
SLGC-65-3	SLGM-65-3	3	12 to 65m.	800	400	936
SLGC-65-4	SLGM-65-4	4	12 to 65m.	900	300	1036

Accessories

Mounting Bracket (1 per pack) 4 are required to mount a set of light grids	MS-SLP
Muting Sensor Kit (1 Set includes 2 sensors & 2 mounting brackets)	RLK-SET
Muting Sensor Cable (2 required for muting set)	V1S-G-2M-PUR





SAFETY SENSORS

For applications requiring a single beam for perimeter protection

Suitable for complex perimeter layouts

Space saving small housings for unobtrusive mounting

Connect to safe controller IDEBOX

Maximum Range	4m	10m	10m	30m
Type	LS40	LS-20	LS12	LS-29
Housing	Die Cast Aluminium (Painted Yellow)	Plastic -Terluran	Die-Cast zinc (Nickel Plated)	Plastic - ABS
Design	3 wire		2 wire	
Angle of divergence	< 5 degrees			
Number of beams	1			
Detection range	0.2 to 4m.	0.2 to 10m.	0.2 to 10m.	0.2 to 30m.
Outputs	Safebox			
Response time	Safebox 30ms			
Operating voltage	Power supply via Safebox			
Ambient temperature	-20C. to 60C.			
Connection	Connector M12 5 pin or flying lead 5 wire 2m. 5m. 10m.			

Description		Sales Number
LS12 2 metre cable 5 wire	Die-Cast zinc (Nickel Plated)	LS12-2M
LS12 5 metre cable 5 wire	Die-Cast zinc (Nickel Plated)	LS12-5M
LS12 10 metre cable 5 wire	Die-Cast zinc (Nickel Plated)	LS12-10M
LS12 M12 5 way Male	Die-Cast zinc (Nickel Plated)	LS12-QC
LS29 2 metre cable 5 wire	ABS	LS29-2M
LS29 5 metre cable 5 wire	ABS	LS29-5M
LS29 10 metre cable 5 wire	ABS	LS29-10M
LS29 M12 5 way Male	ABS	LS29-QC
LS20 2 metre cable 5 wire	Terluran	LS20-2M
LS20 5 metre cable 5 wire	Terluran	LS20-5M
LS20 10 metre cable 5 wire	Terluran	LS20-10M
LS20 M12 5 way Male	Terluran	LS20-QC
LS40 2 metre cable 5 wire	Aluminium	LS40-2M
LS40 5 metre cable 5 wire	Aluminium	LS40-5M
LS40 10 metre cable 5 wire	Aluminium	LS40-10M
LS40 M12 5 way Male	Aluminium	LS40-QC
M12 2m. Female Lead		LSQC-2M
M12 2m. Female Lead		LSQC-5M
M12 2m. Female Lead		LSQC-10M

IDE-BOX CONTROL UNITS FOR LIGHT CURTAINS AND SAFETY SENSORS

Control Units for use with Light Sensing Components
22mm wide modules plug into SB housing station

Self monitoring Type 4 (IEC61496) SIL3 to IEC61508

Light Curtains SLC SLCS SLGC SLGM
Light Sensors LS12 LS29 LS20 LS40

No programming required, configuration is by DIP switches on modules
Single or independent multiple zone guarding
No software knowledge required

Up to 4 components per module Self monitoring

Supports
Emergency Stop
Manual / Auto start
Muting Override

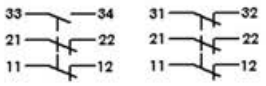
Module / Specification	SB-PR System Power Supply and Relay Outputs (always required)	SB-CP Input Module with micro controller	SB-XP Input Module with micro controller	SB-X Input Module
Inputs	1 system reset button 1 system start button 1 relay monitor 2 wire	Max. 4 channels For devices with: NC NO contacts	Max. 4 channels For devices with: PNP outputs NC NO contacts	Max. 4 channels For devices with: PNP outputs NC NO contacts
Connectable sensors		LS 12 LS29	SLC SLCS SLGC SLGM LS 20 LS40	SLC SLCS SLGC SLGM LS 20 LS40
Outputs	2 independent safety relay outputs 3 indicator LED's 1 RS422			
Response time	< 78ms			
Selectable functions	Restart Relay monitor			
Supply voltage	24V.dc	Internally via back plane of SB housing		
Connection	Removable screw type cage terminal			

Description		Sales Number
SB-PR	System Power Supply and relay outputs	SB-PR
SB-CP	Input Module with micro controller	SB-CP
SB-XP	Input Module with micro controller	SB-XP
SB-X	Input module	SB-X
SB Housing station 2	Accepts 2 modules (45.2mm wide)	SB-2
SB Housing station 3	Accepts 3 modules (67.8mm wide)	SB-3
SB Housing station 4	Accepts 4 modules (90.4mm wide)	SB-4
SB Housing station 5	Accepts 5 modules (113.0mm wide)	SB-5
SB Housing station 6	Accepts 6 modules (135.6mm wide)	SB-6
SB Housing station 7	Accepts 7 modules (158.2mm wide)	SB-7
SB Housing station 8	Accepts 8 modules (180.8mm wide)	SB-8
Cape for unused stations	Covers unused stations of the Safebox (22mm wide)	SB-CAPE

Standard Duty Emergency Stop Switches-Types: ES-P & ES-SS 3pole

IDEM Standard Duty Emergency Stop Switches are designed to provide robust Emergency Stop protection for exposed conveyors or machines.

3 pole contact blocks provide positively operated switch contacts.



2NC 1NO 3NC

Features:

Plastic bodies (IP67) or Stainless Steel 316 (IP69K)

Conformance to ISO 13850, IEC 60947-5-1 and IEC 60947-5-5

A special lid safety trip mechanism means that the safety contacts will open if the lid is removed.

Button protection shroud version with padlock holes for 'Lock off' in maintenance situations

Type ES-P (Plastic)

Knock out for plastic version

Type ES-SS (Stainless Steel)

Type ES-SS(P) (Stainless Steel)
with button protection shroud and padlock holes

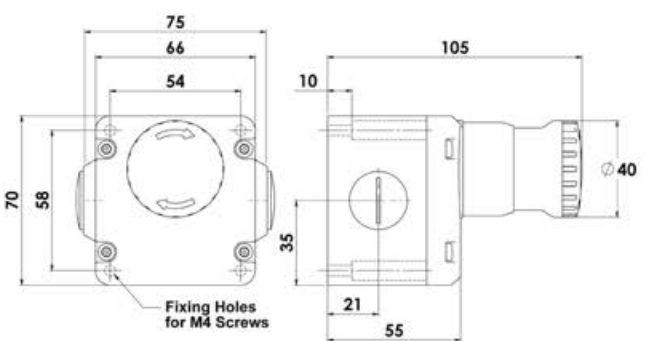
Sales Number	Type	Conduit Entry	Contacts
230001	ES-P	Knockout M20/1/2"NPT	2NC 1NO
230002	ES-P	Knockout M20/1/2"NPT	3NC

Sales Number	Type	Conduit Entry	Contacts
231001	ES-SS	M20	2NC 1NO
231002	ES-SS	½" NPT	2NC 1NO
231003	ES-SS	M20	3NC
231004	ES-SS	½" NPT	3NC

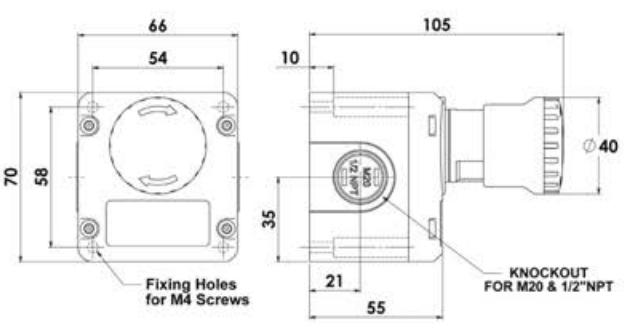
Sales Number	Type	Conduit Entry	Contacts
231005	ES-SS(P)	M20	2NC 1NO
231006	ES-SS(P)	½" NPT	2NC 1NO
231007	ES-SS(P)	M20	3NC
231008	ES-SS(P)	½" NPT	3NC

Gold Plated Contacts available for low power circuits (5V. 5mA).
Add GC to Part Number e.g. 230001-GC

Standards:	IEC 60947-5-1 IEC 60947-5-5 EN954-1 EN62061 UL508 ISO13850 ISO13849-1
Safety Classification and Reliability Data:	
Mechanical Reliability B10d	1.5 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	<1.0 x 10^{-7}
Proof Test Interval (Life)	21 years
MTTFd	214 years
Enclosure / Cover	Polyester or Stainless Steel 316
IP Rating	IP67 Plastic IP69K Stainless Steel
Mounting	4 x M4
Mounting position	Any
Conduit entries	2 x M20 or 2 x ½ " NPT by part number - Knock out for plastic version
Torque settings	Mounting M4 4.0 Nm Lid T20 Torx M4 1.5 Nm Terminals 1.0 Nm
Ambient Temperature	-25C +80 C.
Vibration resistance	10-500Hz 0.35mm
Shock resistance	15g 11ms
Weight	250g / 1000 g.
Contact type	IEC 947-5-1 Double break Type Zb Snap Action up to 3NC (positive break) 1NO (Auxiliary)
Contact Material	Silver
Termination	Clamp up to 2.5 sq. mm conductors
Rating	Utilisation Category : AC15
Operational Rating	240V. 3A.
Thermal Current (Ith)	10A.
Rated Insulation Voltage (Ui)	500V.
Withstand Voltage (Uimp)	2500V.
Short Circuit Overload Protection	Fuse Externally 10A. (FF)



TYPE: ES-SS(STAINLESS STEEL)



TYPE: ES-P

Standard Duty Emergency Stop Switches-Types: ESL-SS 4 pole & ATEX

IDEM Standard Duty Emergency Stop Switches are designed to provide robust Emergency Stop protection for exposed conveyors or machines.

Stainless Steel 316 housings (IP69K)

Conformance to ISO 13850, IEC 60947-5-1 and IEC 60947-5-5

A special lid safety trip mechanism means that the safety contacts will open if the lid is removed.

Button protection shroud version with Padlock holes for 'Lock off' during maintenance.

Optional 2 colour LED

Type ESL-SS(LP) (Stainless Steel) with 2 colour LED and protection shroud

Type ESL-SS (Stainless Steel)

Sales Number	Type	Conduit Entry	Contacts
232001	ESL-SS	M20	2NC 2NO
232002	ESL-SS	½" NPT	2NC 2NO
232003	ESL-SS	M20	3NC 1NO
232004	ESL-SS	½" NPT	3NC 1NO
232005	ESL-SS	M20	4NC
232006	ESL-SS	½" NPT	4NC
232007	ESL-SS	EX 3m.	1NC 1NO
232008	ESL-SS	EX 3m.	2NC
232029	ESL-SS	EX 3m.	2NC 2NO

Type ESL-SS(P) (Stainless Steel) with protection shroud and padlock holes

Sales Number	Type	Conduit Entry	Contacts
232009	ESL-SS(P)	M20	2NC 2NO
232010	ESL-SS(P)	½" NPT	2NC 2NO
232011	ESL-SS(P)	M20	3NC 1NO
232012	ESL-SS(P)	½" NPT	3NC 1NO
232013	ESL-SS(P)	M20	4NC
232014	ESL-SS(P)	½" NPT	4NC
232015	ESL-SS(P)	EX 3m.	1NC 1NO
232016	ESL-SS(P)	EX 3m.	2NC
232030	ESL-SS(P)	EX 3m.	2NC 2NO

Type ESL-SS(L) (Stainless Steel) with 2 colour LED

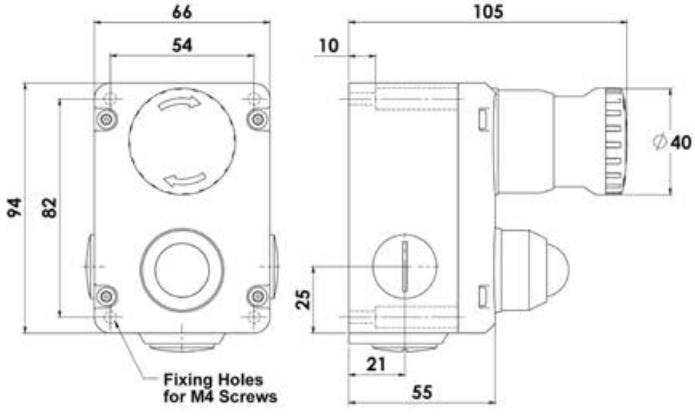
Sales Number	Type	Conduit Entry	Contacts
232017	ESL-SS(L)	M20	2NC 2NO
232018	ESL-SS(L)	½" NPT	2NC 2NO
232019	ESL-SS(L)	M20	3NC 1NO
232020	ESL-SS(L)	½" NPT	3NC 1NO
232021	ESL-SS(L)	M20	4NC
232022	ESL-SS(L)	½" NPT	4NC
232023	ESL-SS(LP)	M20	2NC 2NO
232024	ESL-SS(LP)	½" NPT	2NC 2NO
232025	ESL-SS(LP)	M20	3NC 1NO
232026	ESL-SS(LP)	½" NPT	3NC 1NO
232027	ESL-SS(LP)	M20	4NC
232028	ESL-SS(LP)	½" NPT	4NC
For LED models add voltage code to Sales Number			
Steady Green / Flashing Red A - 24Vdc B - 110Vac C - 230V.ac			
Steady Green / Steady Red AS-24Vdc BS-110Vac CS-230V.ac			

Gold Plated Contacts available for low power circuits (5V. 5mA).
Add GC to Part Number e.g. 232001-GC

Gold Plated Contacts available for low power circuits (5V. 5mA).
Add GC to Part Number e.g. 232017-GC

Standards:	IEC 60947-5-1 IEC 60947-5-5 EN954-1 EN62061 UL508 ISO13850 ISO13849-1
Safety Classification and Reliability Data:	
Mechanical Reliability B10d	1.5 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	<1.0 x 10^{-7}
Proof Test Interval (Life)	21 years
MTTFd	214 years
Enclosure / Cover	Stainless Steel 316
IP Rating	IP67 IP69K
Mounting	4 x M4
Mounting position	Any
Conduit entries	3 x M20 or 3 x ½ " NPT by part number
Torque settings	Mounting M4 4.0 Nm Lid T20 Torx M4 1.5 Nm Terminals 1.0 Nm
Ambient Temperature	-25C. 80 C.
Vibration resistance	10-500Hz 0.35mm
Shock resistance	15g 11ms
Weight	820 g.
Contact type	IEC 947-5-1 Double break Type Zb Snap Action up to 4NC (positive break) 2NO (Auxiliary)
Contact Material	Silver
Termination	Clamp up to 2.5 sq. mm conductors
Rating	Utilisation Category : AC15
Operational Rating	240V. 3A.
Thermal Current (Ith)	10A.
Rated Insulation Voltage (Ui)	500V.
Withstand Voltage (Uimp)	2500V.
Short Circuit Overload Protection	Fuse Externally 10A. (FF)

Classification Exd IIC T6 (-20⩽Ta⩽+60C) Gb
Ex tb IIIC T85C (-20⩽Ta⩽+60C) Db



Heavy Duty Emergency Stop - Type: GLES

Type : GLES

Type : GLES - SS

Explosion proof versions

Type : GLES - Ex

Type : GLES - SS - Ex

Features:

Heavy Duty rugged die-cast metal body - Yellow colour

Stainless Steel 316 versions available – Food Industry compatible

LED visual indication of status

All internal and external screws and fittings are Stainless Steel

Enclosure protected to IP67 - washdown suitable

Conformance to ISO13850, IEC 60947-5-1 and IEC 60947-5-5

Easy to wire – up to 4 conduit entries

IDEM Heavy Duty Emergency Stop Switches are designed to provide robust Emergency Stop protection for exposed conveyors or machines.

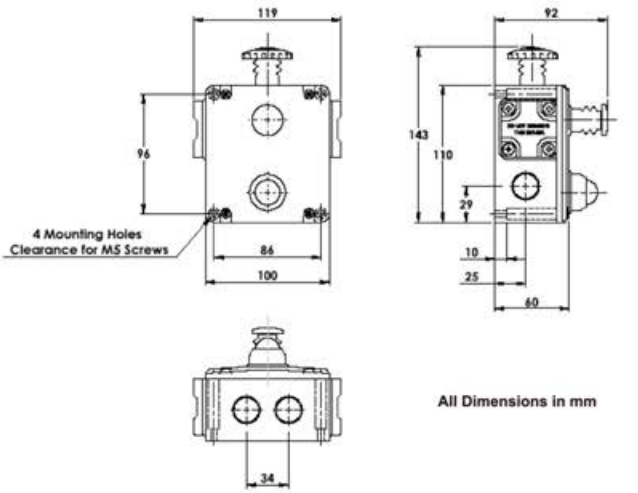
Visual indication is available to provide powerful indication of system and switch status from a distance, therefore enabling rapid resetting of the system.

Steady Green – Machine running
Flashing Red – Machine stopped.

Contact blocks provide up to 4 positively operated switch contacts. An optional Explosion proof ATEX certified contact block version is available for potentially explosive areas.

Standards:	IEC 60947-5-1 IEC 60947-5-5 EN954-1 EN62061 UL508 ISO13850 ISO13849-1
Safety Classification and Reliability Data:	
Mechanical Reliability B10d	1.5 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	<1.0 x 10^{-7}
Proof Test Interval (Life)	21 years
MTTFd	214 years
Enclosure / Cover	Die-Cast – Painted Yellow or Stainless Steel 316
IP Rating	IP67
Mounting	4 x M5
Mounting position	Any
Conduit entries	4 x M20 or 4 x ½ NPT by part number
Torque settings	Mounting M5 4.0 Nm Lid T20 Torx M4 1.5 Nm Terminals 1.0 Nm
Ambient Temperature	-25C +80 C.
Vibration resistance	10-500Hz 0.35mm
Shock resistance	15g 11ms
Weight	820 g.
Contact type	IEC 947-5-1 Double break Type Zb Snap Action up to 4NC (positive break) 2NO (Auxiliary)
Contact Material	Silver
Termination	Clamp up to 2.5 sq. mm conductors
Rating	Utilisation Category : AC15
Operational Rating	240V. 3A.
Thermal Current (Ith)	10A.
Rated Insulation Voltage (Ui)	500V.
Withstand Voltage (Uimp)	2500V.
Short Circuit Overload Protection	Fuse Externally 10A. (FF)

Classification Exd IIC T6 (-20⩽Ta⩽+60C) Gb
Ex tb IIIC T85C (-20⩽Ta⩽+60C) Db



All Dimensions in mm

Sales Number	Type	Conduit Entry	Contacts
146001	GLES	M20	4NC 2NO
146002	GLES	½" NPT	4NC 2NO
146003	GLES-Ex	3m. 4 core Ex	1NC 1NO
146004	GLES-Ex	3m. 8 core Ex	3NC 1NO
146005	GLES-Ex	3m. 4 core Ex	2NC
146006	GLES-Ex	3m. 8 core Ex	2NC 2NO
147001	GLES-SS	M20	4NC 2NO
147002	GLES-SS	½" NPT	4NC 2NO
147003	GLES-SS-Ex	3m. 4 core Ex	1NC 1NO
147004	GLES-SS-Ex	3m. 8 core Ex	3NC 1NO
147005	GLES-SS-Ex	3m. 4 core Ex	2NC
147006	GLES-SS-Ex	3m. 8 core Ex	2NC 2NO
* For LED models add voltage code to Sales Number A - 24Vdc , B -110Vac , C - 230V.ac (146001+24v LED =146001-A)			

Gold Plated Contacts available for low power circuits (5V. 5mA).
Add GC to Part Number e.g. 146001-A-GC

Application Information - Emergency Stop Switches

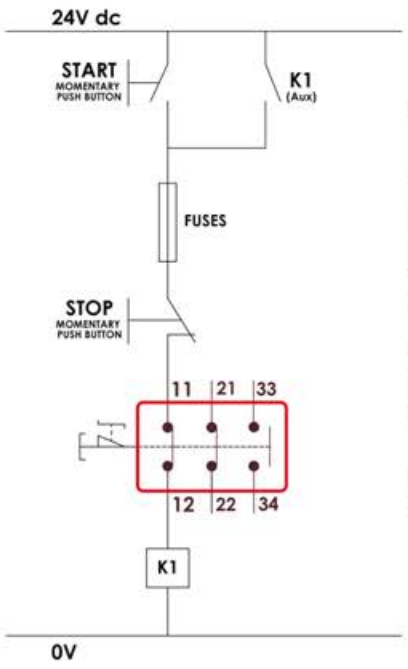


Fig.1. Single Channel E Stop and Stop / Start Circuit.

Used in applications with a lower risk, pressing the E Stop will stop the machine. The E Stop will latch and needs re-setting before the machine Start Button can be effective. Pressing the Start button will cause the machine contactor K1 to close and latch via it's own auxiliary contacts (K1 (Aux)).

No wiring cross monitoring, all wiring should be protected and the components chosen for correct durability and ratings.
Regular checks of the Safety Function is required.

PLb Cat.2 (ISO13849-1).
Stop Category 0 (EN60204-1).

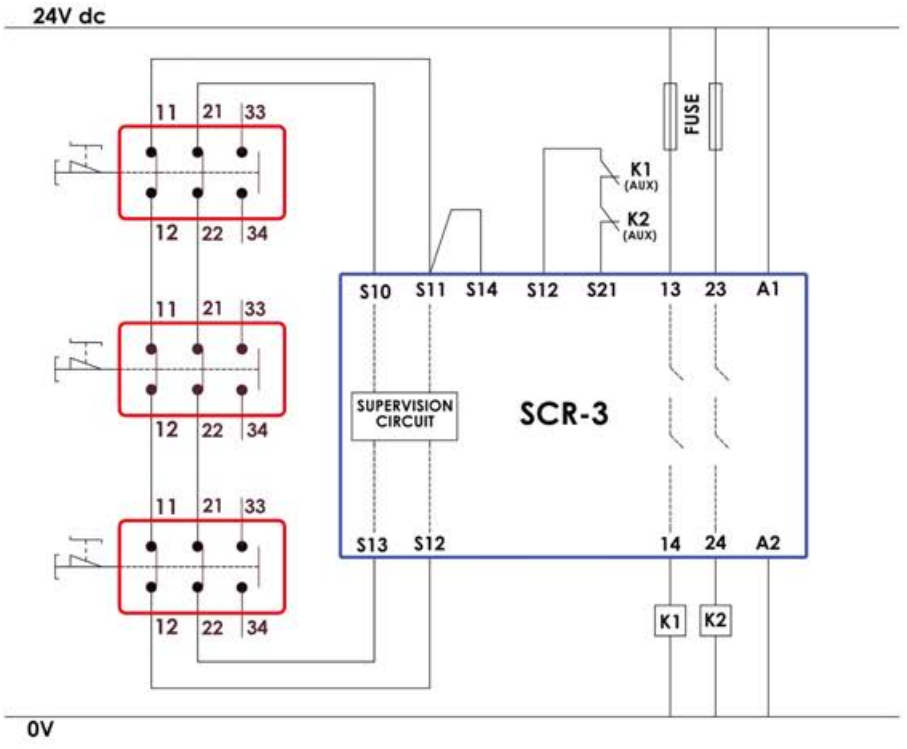


Fig.2. Dual Channel E Stops in series with wiring cross-monitoring and auto reset.

Multiple E-Stop switches connected dual circuit to a Safety Relay.

Generally used on machines with a medium risk.
Activating any E Stop Switch will open the outputs from contactors K1 and K2 and stop the machine. The E Stop switch will latch. Re-setting the E Stop switch will enable the machine contactors K1 and K2 to close providing the feedback circuit check from both contactors (K1 K2 Aux) is closed. Due to series wiring and multiple devices, not all contact or wiring faults will be detected before the next start up.
Regular checks of the Safety Function is required.

PLd Cat.3 (ISO13849-1).
Stop Category 0 (EN60204-1).

Application Information - Emergency Stop Switches

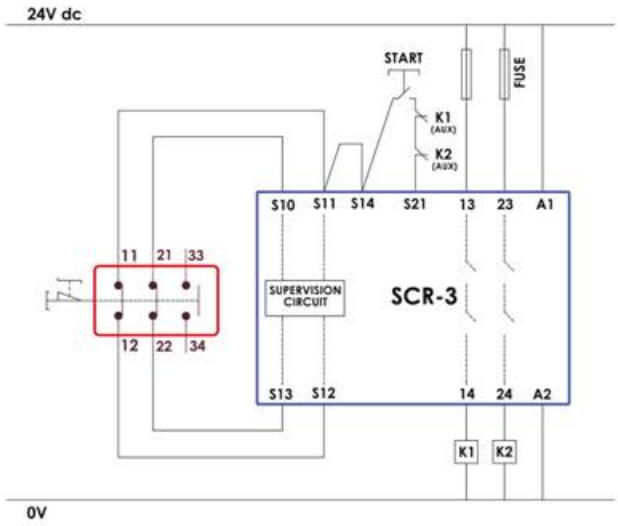


Fig.3. Dual Channel E Stop with cross-monitoring and external manual reset.

Single E-Stop switch connected dual circuit to a Safety Relay.

Generally used on machines with a high risk.
Activating the E Stop Switch will open contactors K1 and K2 and stop the machine.
The E Stop switch will latch and need re-setting before the Start Button can be effective.
Pressing the Start button will cause the machine contactors K1 and K2 to close providing the feedback circuit check from both contactors (K1 K2 Aux) is closed. A failure of one of the switching elements of the E Stop switch or wiring short circuit will be detected at least before the next start up.

PLe Cat.4 (ISO13849-1).
Stop Category 0 (EN60204-1).

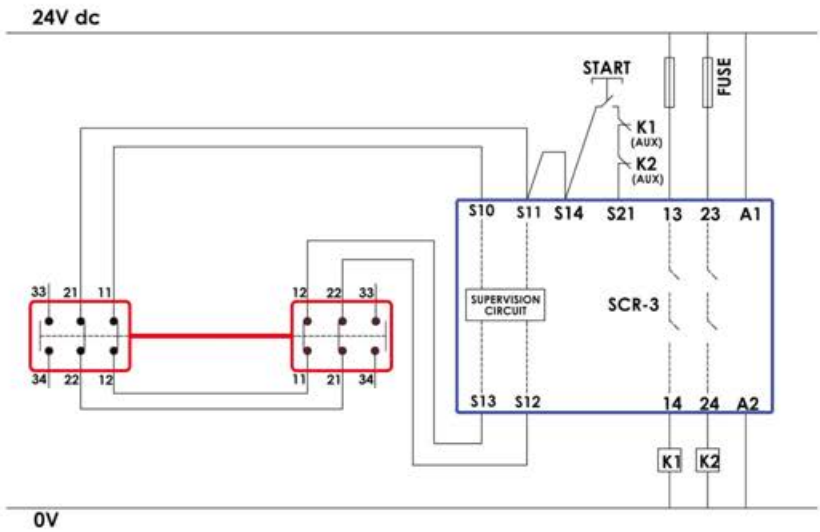


Fig.4. Dual Channel Rope Pull E Stop switches with wiring cross-monitoring and external manual reset.

Generally used on conveyor applications with a high risk.
Activating the Rope Pull Switch will open the Safety Relay outputs and stop the machine.
The Rope Pull Switches, (one or both), will latch and need re-setting before the Start Button can be effective.
Pressing the Start button will cause the machine contactors K1 and K2 to close providing the feedback circuit check from both contactors (K1 K2 Aux) is closed. A failure of one of the switching elements of the E Stop switch or wiring short circuit will be detected at least before the next start up.

PLe Cat.4 (ISO13849-1).
Stop Category 0 (EN60204-1).

Safety Limit Switches - Type: HLM HLM-SS EN 50041

Roller Plunger

HLM-SS-RP

HLM-RP

Short Roller Lever

HLM-SRL

HLM-SS-SRL

Pin Plunger

HLM-PP

HLM-SS-PP

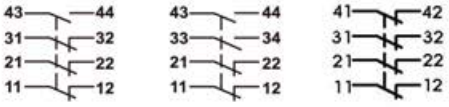
Features:

Heavy Duty Die Cast or Stainless Steel 316 Bodies
Industry Standard Mounting to EN 50041
Positive opening NC safety contact to IEC 60947-5-1
Choice of actuator heads Linear and Rotary
High Mechanical Life 5,000,000 cycles
HLM Die Cast Housing IP67
HLM-SS Stainless Steel IP69K

Applications:

IDEM Safety Limit switches are designed to be mounted for position sensing of moving applications e.g. guard doors, conveyors, machine beds, elevators. They are available with linear plungers, rotary levers or roller plungers and either slow or snap action contacts.

Contact blocks provide positively operated safety contacts to IEC 60947-5-1 with optional Explosion proof versions.



3NC 1NO 2NC 2NO 4NC

Quick Connect
Pin view from switch

Quick Connect (QC) M23 12 way Male (connector Length 26mm) (Pin view from switch)	Switch Circuit
1 3	11 / 12
4 6	21 / 22
7 8	33 / 34 or 31 / 32
9 10	41 / 42 or 43 / 44
12	Earth

Spring Lever

HLM-SL

HLM-SS-SL

Pre-Wired Explosion Proof

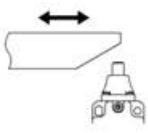
Exd IIC T6 (-20≤Ta≤+60C) Gb

Ex tb IIIC T85C (-20≤Ta≤+60C) Db

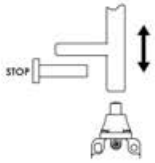
Operation:

Operation of the switches is achieved by a sliding actuation of the moving object to cause deflection of the switch plungers or levers.
For safety applications it is important that the moving object does not pass completely over the switch actuators so as to either cause damage to the actuator or allow it to return to its original position.

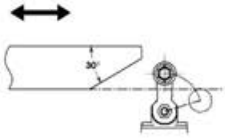
Incorrect



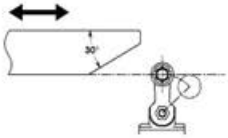
Correct



Incorrect



Correct

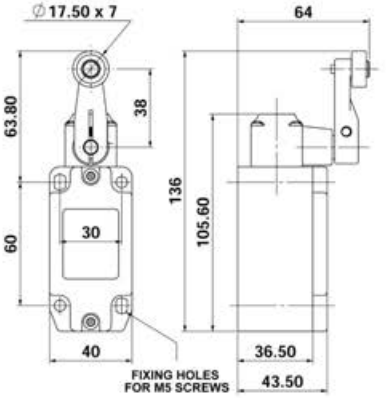


Technical Specification:

Conforming to standards	EN1088 IEC 60947-5-1 UL508 EN50041
Positive Opening Operation	NC Contacts
Utilization Category	AC15 A300 240V. 3A.
Min Current	5V, 5mA, DC
Thermal Current (Ith)	10A
Rated Insulation Voltage	300VAC
Rated Impulse Withstand Volt	2500VAC
Max. Switching Speed	250mm/s
Max. Switching Frequency	6,000 operation per hour

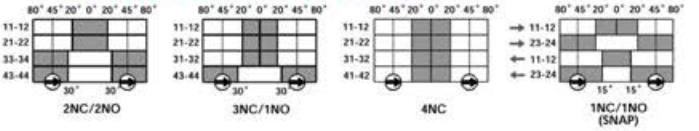
Case Material	HLM (Die Cast Painted Red) HLM-SS (Stainless Steel 316)
Enclosure Protection	HLM IP67 HLM-SS IP67 / IP69K
Operating Temperature	Min. -25°C Max 80°C
Mechanical Life Expectancy	5 x 10^6 Cycle min.
Electrical Life Expectancy at full load	100,000 Cycle min.
Vibration	IEC 68-2-6, 10-55Hz 0.35mm
Conductor size	1.5 sq.mm
Fixing	M5 Bolts

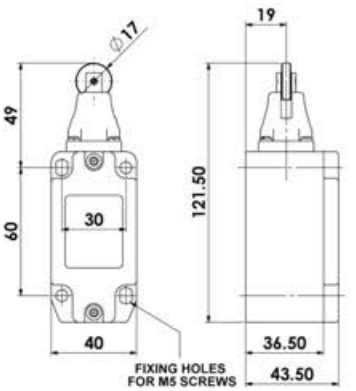
Safety Limit Switches - Type: HLM EN 50041



HLM Short Roller Lever	Sales Numbers		
	M20	½"NPT	QC M23
2NC 2NO	174001	174002	174003
3NC 1NO	174004	174005	174006
4NC	174007	174008	174009
1NC 1NO Snap	174010	174011	174012
1NC 1NO EX	174013	3m. 4 core Ex	
2NC EX	174014	3m. 4 core Ex	
2NC 2NO EX	174015	3m. 8 core Ex	

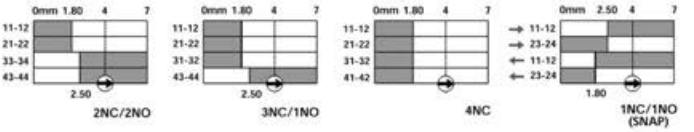
Gold Plated Contacts available for low power circuits (5V. 5mA).
Add GC to Part Number e.g. 174001-GC

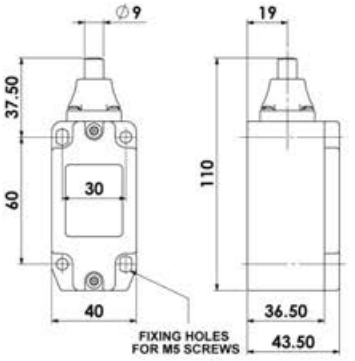




HLM Roller Plunger	Sales Numbers		
	M20	½"NPT	QC M12
2NC 2NO	174051	174052	174053
3NC 1NO	174054	174055	174056
4NC	174057	174058	174059
1NC 1NO Snap	174060	174061	174062
1NC 1NO EX	174063	3m. 4 core Ex	
2NC EX	174064	3m. 4 core Ex	
2NC 2NO EX	174065	3m. 4 core Ex	

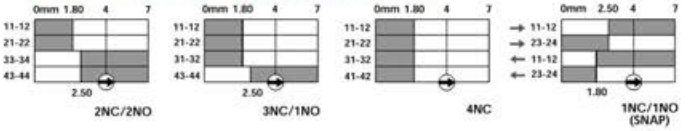
Gold Plated Contacts available for low power circuits (5V. 5mA).
Add GC to Part Number e.g. 174051-GC

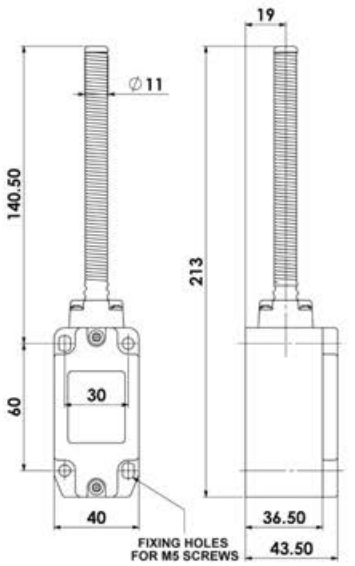




HLM Pin Plunger	Sales Numbers		
	M20	½"NPT	QC M12
2NC 2NO	174101	174102	174103
3NC 1NO	174104	174105	174106
4NC	174107	174108	174109
1NC 1NO Snap	174110	174111	174112
1NC 1NO EX	174113	3m. 4 core Ex	
2NC EX	174114	3m. 4 core Ex	
2NC 2NO EX	174115	3m. 8 core Ex	

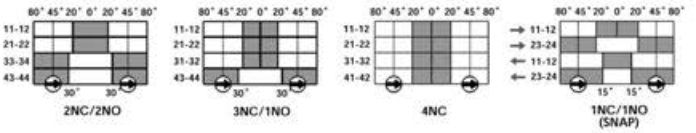
Gold Plated Contacts available for low power circuits (5V. 5mA).
Add GC to Part Number e.g. 174101-GC



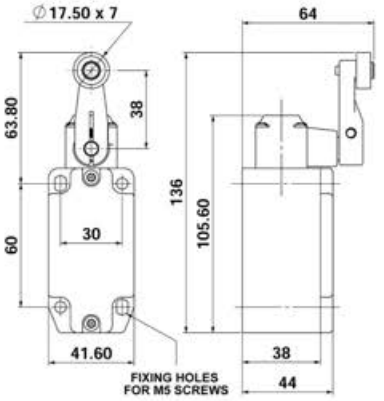


HLM Spring Lever	Sales Numbers		
	M20	½"NPT	QC M12
2NC 2NO	174151	174152	174153
3NC 1NO	174154	174155	174156
4NC	174157	174158	174159
1NC 1NO Snap	174160	174161	174162
1NC 1NO EX	174163	3m. 4 core Ex	
2NC EX	174164	3m. 4 core Ex	
2NC 2NO EX	174165	3m. 8 core Ex	

Gold Plated Contacts available for low power circuits (5V. 5mA).
Add GC to Part Number e.g. 174151-GC

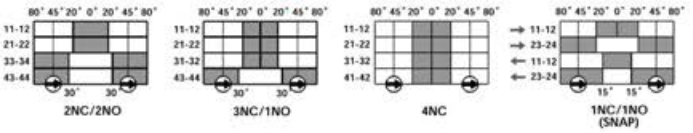


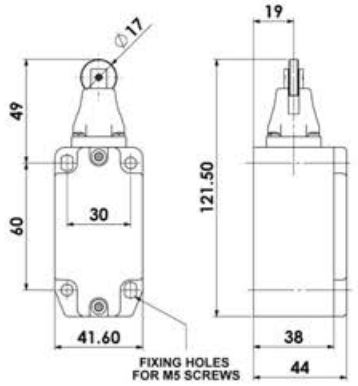
Safety Limit Switches - Type: HLM-SS EN 50041



HLM-SS Short Roller Lever	Sales Numbers		
	M20	½"NPT	QC M23
2NC 2NO	175001	175002	175003
3NC 1NO	175004	175005	175006
4NC	175007	175008	175009
1NC 1NO Snap	175010	175011	175012
1NC 1NO EX	175013	3m. 4 core Ex	
2NC EX	175014	3m. 4 core Ex	
2NC 2NO EX	175015	3m. 8 core Ex	

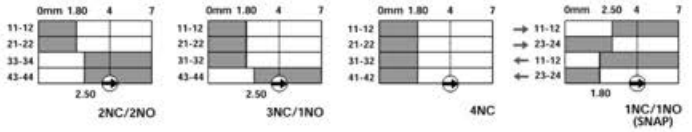
Gold Plated Contacts available for low power circuits (5V. 5mA).
Add GC to Part Number e.g. 175001-GC

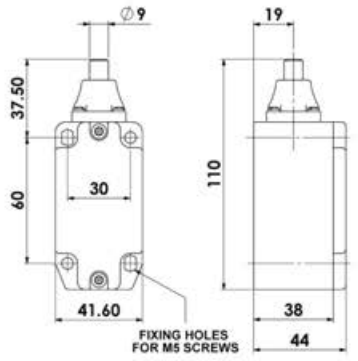




HLM-SS Roller Plunger	Sales Numbers		
	M20	½"NPT	QC M12
2NC 2NO	175051	175052	175053
3NC 1NO	175054	175055	175056
4NC	175057	175058	175059
1NC 1NO Snap	175060	175061	175062
1NC 1NO EX	175063	3m. 4 core Ex	
2NC EX	175064	3m. 4 core Ex	
2NC 2NO EX	175065	3m. 4 core Ex	

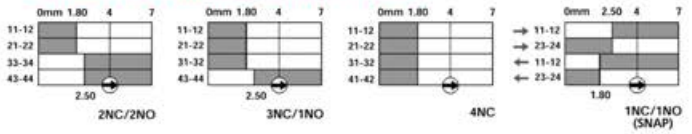
Gold Plated Contacts available for low power circuits (5V. 5mA).
Add GC to Part Number e.g. 175051-GC

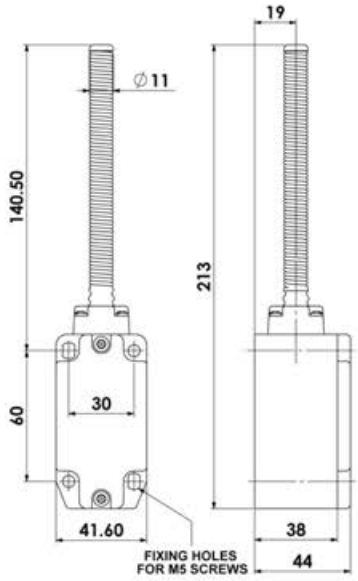




HLM-SS Pin Plunger	Sales Numbers		
	M20	½"NPT	QC M12
2NC 2NO	175101	175102	175103
3NC 1NO	175104	175105	175106
4NC	175107	175108	175109
1NC 1NO Snap	175110	175111	175112
1NC 1NO EX	175113	3m. 4 core Ex	
2NC EX	175114	3m. 4 core Ex	
2NC 2NO EX	175115	3m. 8 core Ex	

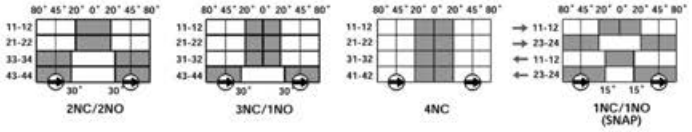
Gold Plated Contacts available for low power circuits (5V. 5mA).
Add GC to Part Number e.g. 175101-GC





HLM-SS Spring Lever	Sales Numbers		
	M20	½"NPT	QC M12
2NC 2NO	175151	175152	175153
3NC 1NO	175154	175155	175156
4NC	175157	175158	175159
1NC 1NO Snap	175160	175161	175162
1NC 1NO EX	175163	3m. 4 core Ex	
2NC EX	175164	3m. 4 core Ex	
2NC 2NO EX	175165	3m. 8 core Ex	

Gold Plated Contacts available for low power circuits (5V. 5mA).
Add GC to Part Number e.g. 175151-GC



Safety Limit Switches - Type LSPS EN 50047 - Plastic Body

Features:

Positive opening safety contacts to IEC 60947-5-1

Choice of 11 actuator heads Linear, Rotary and Flexible actions

High Mechanical Life - 10,000,000 cycles

Head position adjustment any of 4 positions

Enclosure Protected to IP 67 - washdown suitable

Conduit entries: M20 ½" NPT or Quick connect

Actuator types:

PP:	Pin plunger
RP:	Roller plunger
HL:	Hinge lever
LHL:	Long Hinge lever
RL :	Roller lever
ARL:	Adjustable Roller Lever
LRL:	Large Roller Lever
LA:	Lever Arm
CW:	Cats Whisker
PSL:	Plastic Spring Lever
SL:	Spring Lever

Conduit entry

M – M20
N – ½NPT
Q – Quick connect

Contacts

2NC 1NO
3NC
1NC 1NO Snap

Contact Blocks :

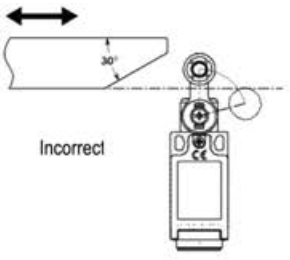
2NC	1NO	Slow break
3NC		Slow break
1NC	1NO	Snap action

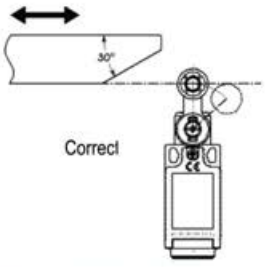
Application:

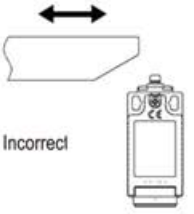
IDEM Safety Limit switches are designed to be mounted for position sensing of moving applications e.g. guard doors, conveyors, machine beds, elevators. They are available with linear plungers, rotary levers or roller plungers and either slow or snap action contacts.

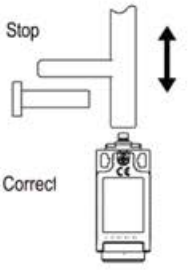
Operation:

Operation of the switches is achieved by a sliding actuation of the moving object to cause deflection of the switch plungers or levers.
For safety applications it is important that the moving object does not pass completely over the switch actuators so as to either cause damage to the the actuator or allow it to return to it's original position.

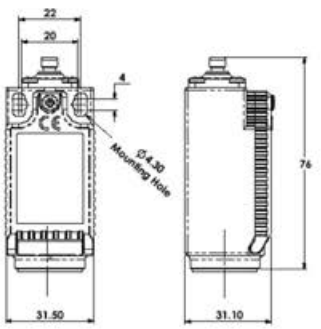






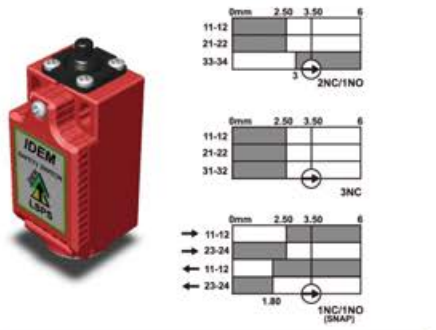


Standards	EN1088 IEC 60947-5-1 EN60204-1 ISO 13849-1 EN62061 EN 954-1 UL508
Safety Classification and Reliability Data:	
Mechanical Reliability B10d	2.5 x 10^6 operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	3.44 x 10^{-8}
Proof Test Interval (Life)	35 years
MTTFd	356 years
Utilization Category	AC15 A300 240V. 3A.
Thermal Current (Ith)	10A
Rated Insulation Voltage	300VAC
Rated Impulse Withstand Volt	2500VAC
Insulation Resistance	100MOmin.
Max. Switching Speed	250mm/s
Case Material	UL approved glass-filled polyester
Roller Material	Various Polymers
Enclosure Protection	IP67
Operating Temperature	Min. -25°C Max 80°C
Vibration	IEC 68-2-6, 10-55Hz 0.35mm, 1 octave/min
Conduit Entry	M20 or ½ NPT

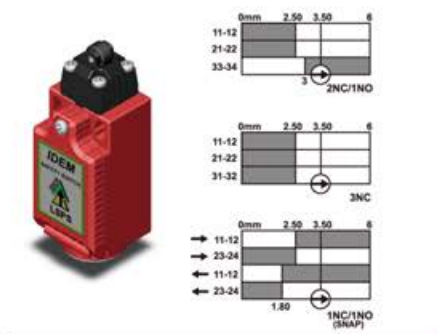


Outline fixing dimensions mm

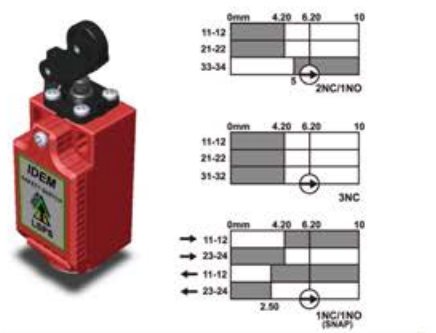
Safety Limit Switches - Type: LSPS EN 50047 - Plastic Body



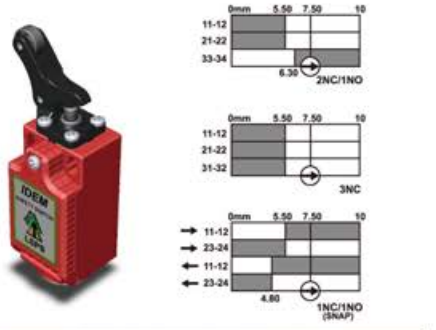
Sales Numbers	Pin Plunger		
Contacts	M20	½"NPT	QC
2NC 1NO	171001	171002	171003
3NC	171004	171005	171006
1NC 1NO Snap	171007	171008	171009



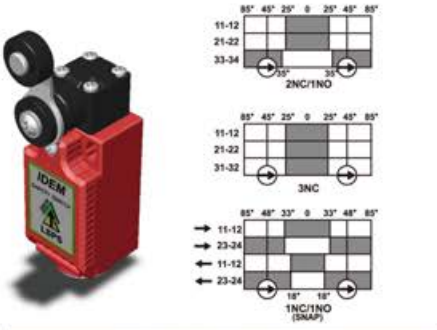
Sales Numbers	Roller Plunger		
Contacts	M20	½"NPT	QC
2NC 1NO	171010	171011	171012
3NC	171013	171014	171015
1NC 1NO Snap	171016	171017	171018



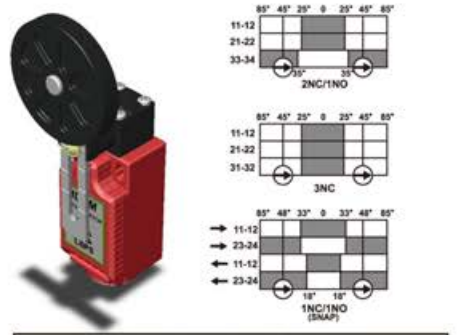
Sales Numbers	Hinge Lever		
Contacts	M20	½"NPT	QC
2NC 1NO	171019	171020	171021
3NC	171022	171023	171024
1NC 1NO Snap	171025	171026	171027



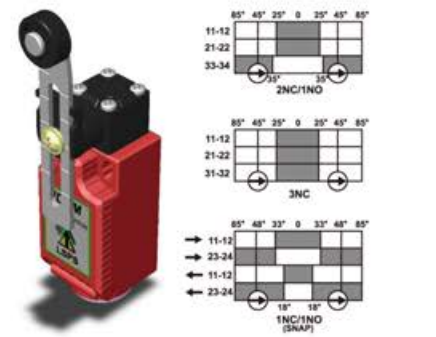
Sales Numbers	Long Hinge Lever		
Contacts	M20	½"NPT	QC
2NC 1NO	171028	171029	171030
3NC	171031	171032	171033
1NC 1NO Snap	171034	171035	171036



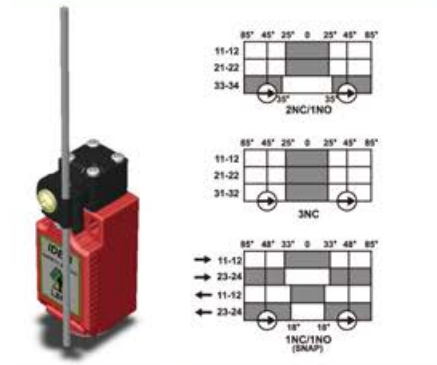
Sales Numbers	Roller Lever		
Contacts	M20	½"NPT	QC
2NC 1NO	171037	171038	171039
3NC	171040	171041	171042
1NC 1NO Snap	171043	171044	171045



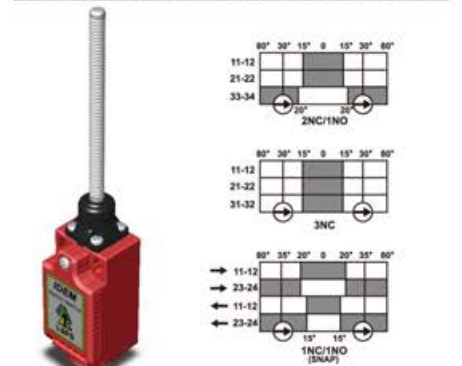
Sales Numbers	Large Roller Lever		
Contacts	M20	½"NPT	QC
2NC 1NO	171046	171047	171048
3NC	171049	171050	171051
1NC 1NO Snap	171052	171053	171054



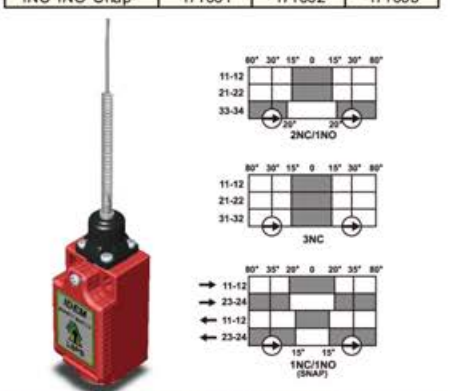
Sales Numbers	Adjustable Roller Lever		
Contacts	M20	½"NPT	QC
2NC 1NO	171055	171056	171057
3NC	171058	171059	171060
1NC 1NO Snap	171061	171062	171063



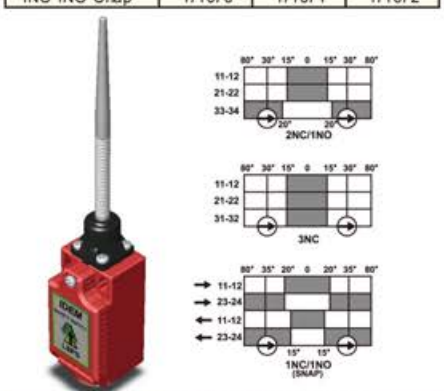
Sales Numbers	Lever Arm		
Contacts	M20	½"NPT	QC
2NC 1NO	171064	171065	171066
3NC	171067	171068	171069
1NC 1NO Snap	171070	171071	171072



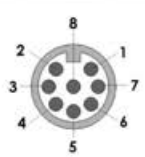
Sales Numbers	Spring Lever		
Contacts	M20	½"NPT	QC
2NC 1NO	171091	171092	171093
3NC	171094	171095	171096
1NC 1NO Snap	171097	171098	171099



Sales Numbers	Cats Whisker		
Contacts	M20	½"NPT	QC
2NC 1NO	171073	171074	171075
3NC	171076	171077	171078
1NC 1NO Snap	171079	171080	171081



Sales Numbers	Plastic Spring Lever		
Contacts	M20	½"NPT	QC
2NC 1NO	171082	171083	171084
3NC	171085	171086	171087
1NC 1NO Snap	171088	171089	171090



Switch Circuit	Quick Connect (QC) M12 8 Way Male (on Flying Lead 250mm) Pin view from switch
11 / 12	1 7
21 / 22	6 5
33 / 34 or 31 / 32	4 3

Gold Plated Contacts available for low power circuits (5V. 5mA).
Add GC to Part Number e.g. 171001-GC

Safety Limit Switches EN 50047 Plastic Body with Reset – Type: LSPS-R

Features:

Lockable head mechanism

Requires manual reset after the lock is engaged

Positive opening safety contacts to IEC 60947-5-1

Choice of 8 actuator heads Linear or Rotary actions

Head position adjustment any of 4 positions

Enclosure Protected to IP 67 - washdown suitable

Conduit entries: M20 ½" NPT or Quick connect

Actuator types:

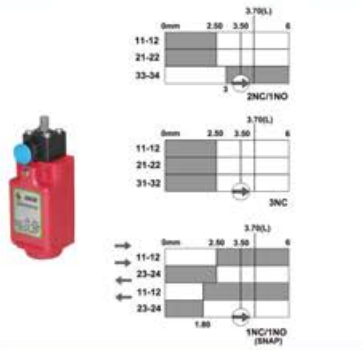
PP-R: Pin plunger
RP-R: Roller plunger
HL-R: Hinge lever
LHL-R: Long Hinge lever
RL-R : Roller lever
ARL-R: Adjustable Roller Lever
LRL-R: Large Roller Lever
LA-R: Lever Arm

Conduit entry

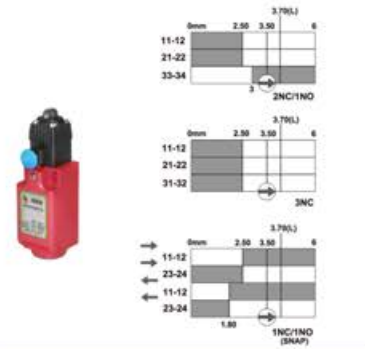
M – M20
N – ½" NPT
Q – Quick connect

Contact Blocks :

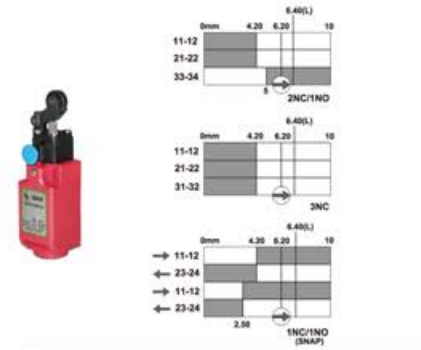
2NC 1NO Slow break
3NC Slow break
1NC 1NO Snap action



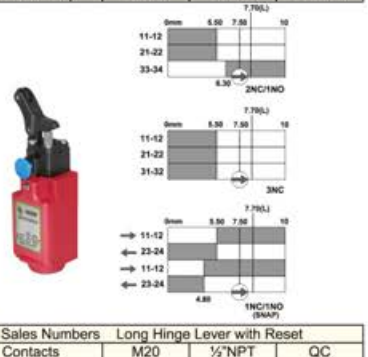
Sales Numbers Pin Plunger with Reset			
Contacts	M20	½"NPT	QC
2NC 1NO	173001	173002	173003
3NC	173004	173005	173006
1NC 1NO Snap	173007	173008	173009



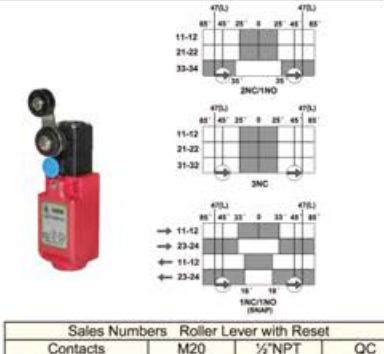
Sales Numbers Roller Plunger with Reset			
Contacts	M20	½"NPT	QC
2NC 1NO	173010	173011	173012
3NC	173013	173014	173015
1NC 1NO Snap	173016	173017	173018



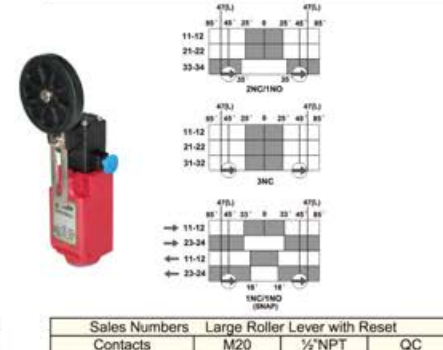
Sales Numbers Hinge Lever with reset			
Contacts	M20	½"NPT	QC
2NC 1NO	173019	173020	173021
3NC	173022	173023	173024
1NC 1NO Snap	173025	173026	173027



Sales Numbers Long Hinge Lever with Reset			
Contacts	M20	½"NPT	QC
2NC 1NO	173028	173029	173030
3NC	173031	173032	173033
1NC 1NO Snap	173034	173035	173036



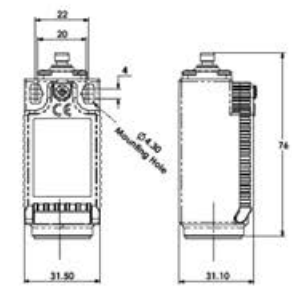
Sales Numbers Roller Lever with Reset			
Contacts	M20	½"NPT	QC
2NC 1NO	173037	173038	173039
3NC	173040	173041	173042
1NC 1NO Snap	173043	173044	173045



Sales Numbers Large Roller Lever with Reset			
Contacts	M20	½"NPT	QC
2NC 1NO	173046	173047	173048
3NC	173049	173050	173051
1NC 1NO Snap	173052	173053	173054

Sales Numbers Adjustable Roller Lever with Reset			
Contacts	M20	½"NPT	QC
2NC 1NO	173055	173056	173057
3NC	173058	173059	173060
1NC 1NO Snap	173061	173062	173063

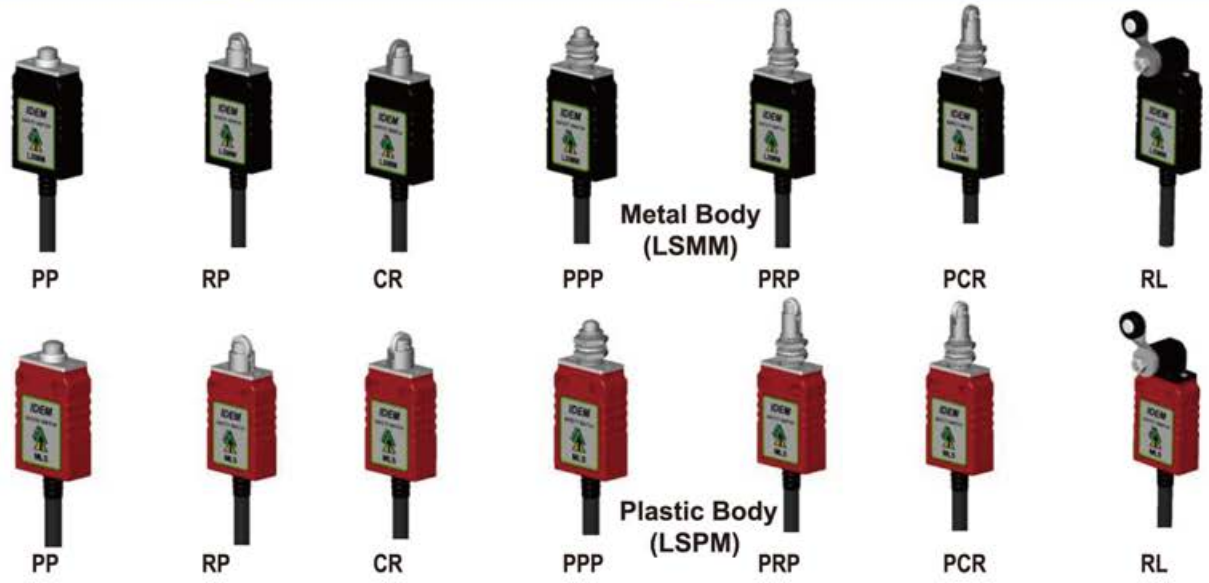
Sales Numbers Lever Arm with Reset			
Contacts	M20	½"NPT	QC
2NC 1NO	173064	173065	173066
3NC	173067	173068	173069
1NC 1NO Snap	173070	173071	173072



Outline fixing dimensions mm

Technical specification as LSPS

Safety Limit Switches - Type: LSMM - LSPM



Features:

Standard Duty Plastic body - red colour

Heavy Duty Die Cast Metal Bodies - red colour

Positive opening NC safety contacts to IEC 60947-5-1

Unique 3 pole positively operated contacts

Choice of 7 actuator heads Linear and Rotary

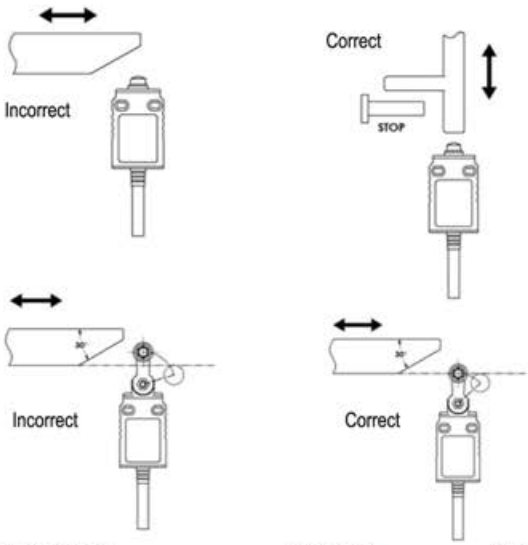
High Mechanical Life 5,000,000 cycles

Side or End cable exit

Enclosure Protected to IP67 - wash down suitable

Wide operating temperature -25C to 80C.

Contact Blocks : 2NC 1NO Slow break
1NC 1NO Snap action



Application:

IDEM Safety Limit switches are designed to be mounted for position sensing of moving applications e.g. guard doors, conveyors, machine beds, elevators. They are available with linear plungers, rotary levers or roller plungers and either slow or snap action contacts.

Actuator types:

PP: Pin plunger
RP: Roller plunger
CR: Cross Roller Plunger
RL: Roller Lever
PPP : Panel Mount Pin Plunger
PRP: Panel Mount Roller Plunger
PCR: Panel Mount Cross Roller Plunger

Cable exit:

S- Side exit
E- End exit

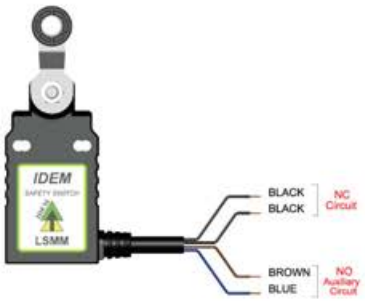
Contacts:

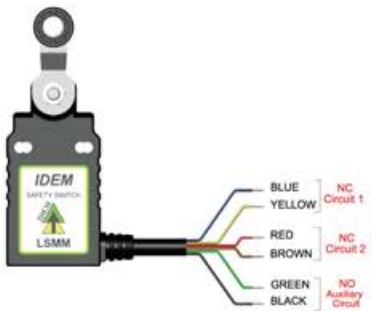
2NC 1NO
1NC 1NO Snap

Operation:

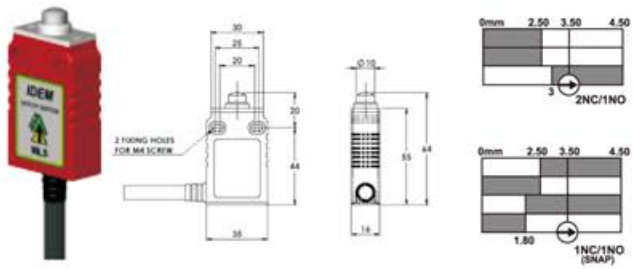
Operation of the switches is achieved by a sliding actuation of the moving object to cause deflection of the switch plungers or levers. For safety applications it is important that the moving object does not pass completely over the switch actuators so as to either cause damage to the actuator or allow it to return to it's original position.

Standards	EN1088 IEC 60947-5-1 UL508
Approvals	cULus TUV
Utilization Category	AC15 A300 240V. 3A.
Thermal Current (Ith)	10A
Rated Insulation Voltage	300VAC
Rated Impulse Withstand Volt	2500VAC
Insulation Resistance	100MΩmin.
Max. Switching Speed	250mm/s
Max. Switching Frequency	6,000 operation per hour
Case Material	Die Cast Metal or Plastic
Roller Material	Various Polymers
Enclosure Protection	IP67
Operating Temperature	Min. -25°C Max 80°C
Mechanical Life Expectancy	5,000,000
Vibration	IEC 68-2-6, 10-55Hz 0.35mm, 1 octave/min
Conductor size	1.5 sq.mm 4 Core or 6 Core
Cable OD	8mm max.
Fixing	2 x M4
Cable Length	2 Meter

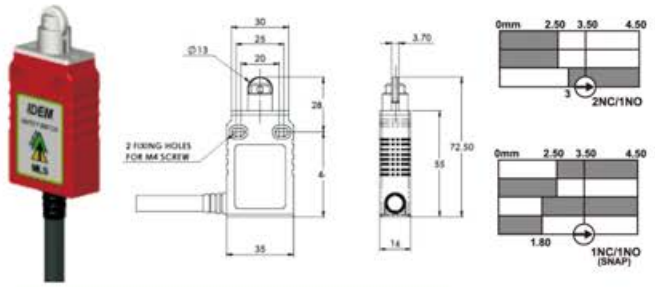




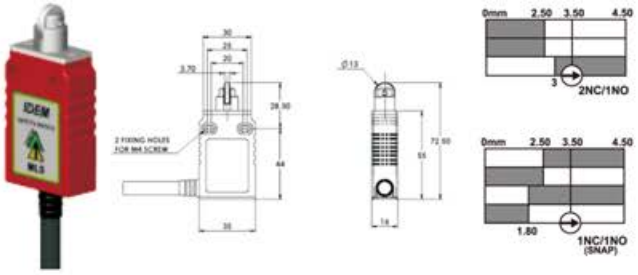
Safety Limit Switches - Type: LSPM - Plastic Body



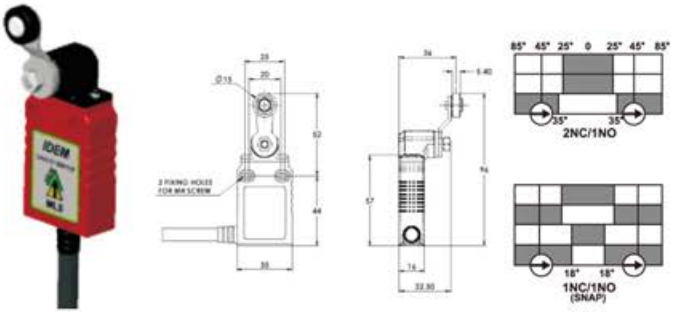
Pin Plunger Sales Numbers		
Contacts	Cable Side Exit	Cable End Exit
2NC 1NO	170001	170003
1NC 1NO Snap	170002	170004



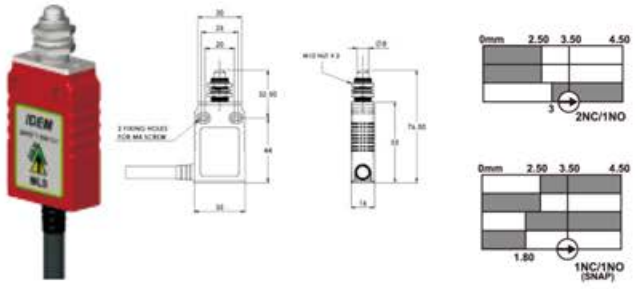
Roller Plunger Sales Numbers		
Contacts	Cable Side Exit	Cable End Exit
2NC 1NO	170005	170007
1NC 1NO Snap	170006	170008



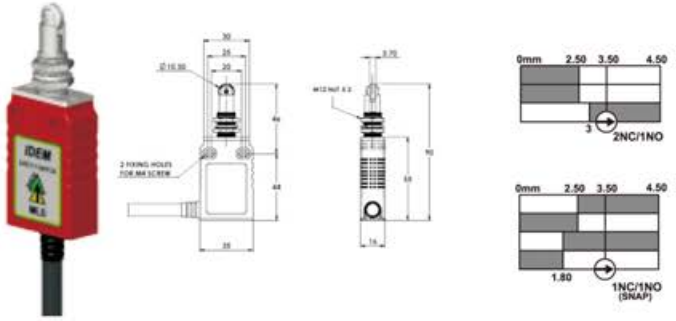
Cross Roller Plunger Sales Numbers		
Contacts	Cable Side Exit	Cable End Exit
2NC 1NO	170009	170010
1NC 1NO Snap	170011	170012



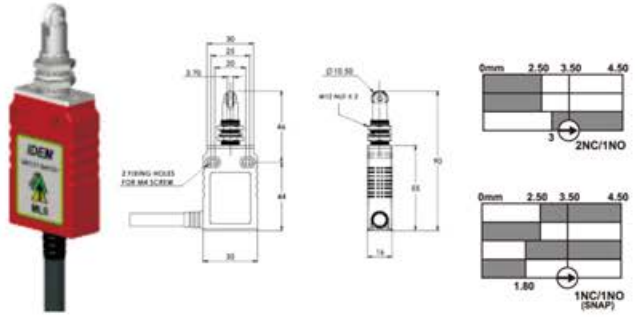
Roller Lever Sales Numbers		
Contacts	Cable Side Exit	Cable End Exit
2NC 1NO	170013	170014
1NC 1NO Snap	170015	170016



Panel Mount Pin Plunger Sales Numbers		
Contacts	Cable Side Exit	Cable End Exit
2NC 1NO	170017	170018
1NC 1NO Snap	170019	170020

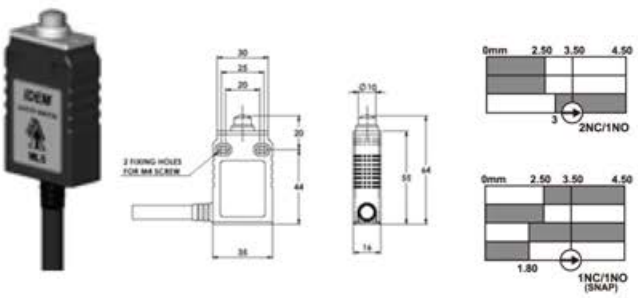


Panel Mount Roller Plunger Sales Numbers		
Contacts	Cable Side Exit	Cable End Exit
2NC 1NO	170021	170022
1NC 1NO Snap	170023	170024

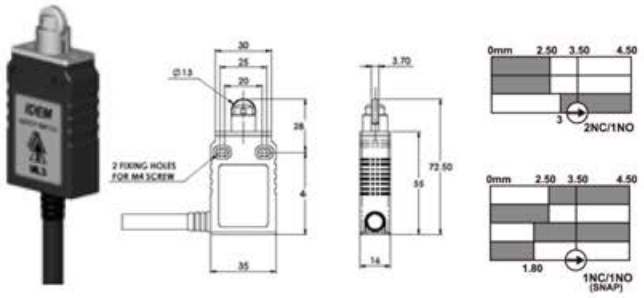


Panel Mount Cross Roller Plunger Sales Numbers		
Contacts	Cable Side Exit	Cable End Exit
2NC 1NO	170025	170026
1NC 1NO Snap	170027	170028

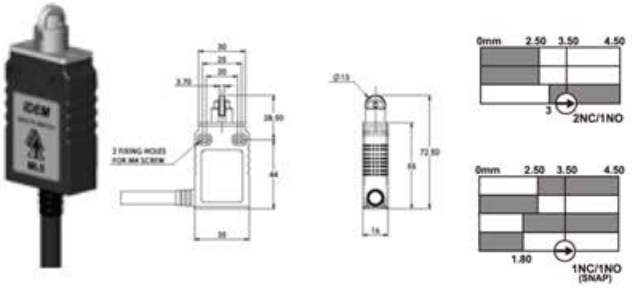
Safety Limit Switches - Type: LSMM - Metal Body



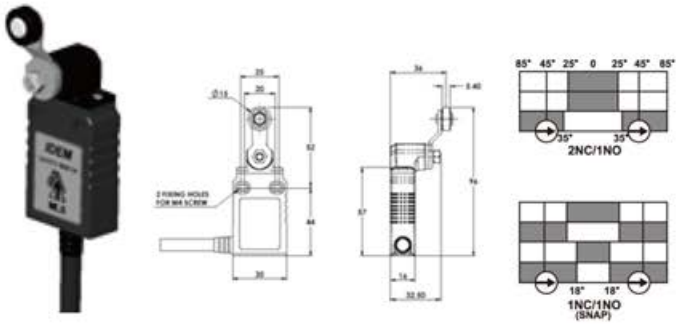
Pin Plunger Sales Numbers		
Contacts	Cable Side Exit	Cable End Exit
2NC 1NO	172001	172003
1NC 1NO Snap	172002	172004



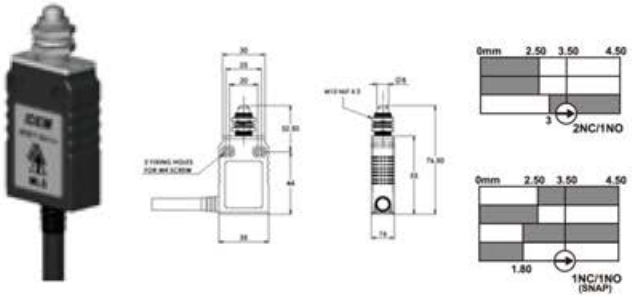
Roller Plunger Sales Numbers		
Contacts	Cable Side Exit	Cable End Exit
2NC 1NO	172005	172007
1NC 1NO Snap	172006	172008



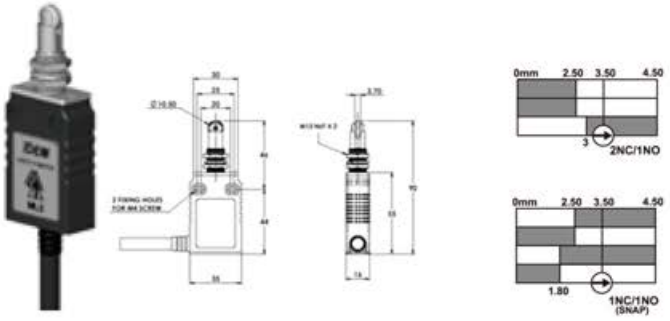
Cross Roller Plunger Sales Numbers		
Contacts	Cable Side Exit	Cable End Exit
2NC 1NO	172009	172010
1NC 1NO Snap	172011	172012



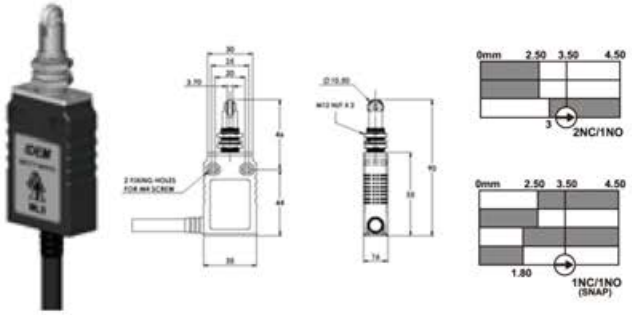
Roller Lever Sales Numbers		
Contacts	Cable Side Exit	Cable End Exit
2NC 1NO	172013	172014
1NC 1NO Snap	172015	172016



Panel Mount Pin Plunger Sales Numbers		
Contacts	Cable Side Exit	Cable End Exit
2NC 1NO	172017	172018
1NC 1NO Snap	172019	172020



Panel Mount Roller Plunger Sales Numbers		
Contacts	Cable Side Exit	Cable End Exit
2NC 1NO	172021	172022
1NC 1NO Snap	172023	172024



Panel Mount Cross Roller Plunger Sales Numbers		
Contacts	Cable Side Exit	Cable End Exit
2NC 1NO	172025	172026
1NC 1NO Snap	172027	172028

IDEM 's policy of providing innovative next generation products has led to the creation of four IECEx / ATEX product development programmes to generate high specification Explosion Proof switches for use in the Oil, Gas, Petro-Chemical and Mining industries. They satisfy the latest standards and combine conformance to the latest International IECEx and ATEX standards.

The range offers Rope Pull switches for conveyors, Emergency Stop, Mechanical and Non Contact Interlocks for general guarding inside hazardous areas. In addition to EX Approvals they can be used to satisfy the latest functional safety requirements for machines (ISO13849-1).

The range covers Zones 1, 2, 21, 22 with Zone 0 available for special applications including Mining.

Third party Certified in the U.K.

For latest additions visit: www.idemsafety.com

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