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- SAFETY INTERLOCKS

For additional information and our complete product line of non-contact interlocks please visit our website at www.tapeswitch.com or call our sales team at 1-800-234-8273.

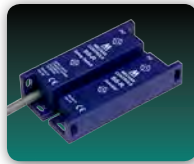


F-SERIES ELECTRONIC SAFETY SYSTEM

This uniquely flexible, DIN rail mounting safety control unit is capable of monitoring up to 30 safety switches. The electronic non-contact safety switches are easy to install and tolerant to misalignment and guard wear. Together, they provide a system that can be used in harsh environments or where long term reliability is required.

pg. 3 - 6

The F-SERIES safety system is approved to EN-954-1 Category 4 by TUV.



SSS ELECTRONIC SAFETY SWITCHES

The SSS is a tamper-proof, standalone safety switch that can be used to switch relays, contactors or safety relays directly. Only a Mechan actuator will operate the the SSS switch correctly. By removing the need for a separate control unit, we have made it possible to use our top of the line electronic switching technology in a smaller, simpler safety system. With the SSS you get the reliability of Mechan electronic safety systems along with the ease of installation of a standard magnetic safety switch, like the MAGNASAFE.

pg. 6 - 7



ISIS MAGNETIC SAFETY SYSTEM

The coded magnetic switches have a minimum 6 mm switching distance and an IP67 protection. With a simple 2-wire connection to the switches, the ISIS control unit can detect both open and short circuit faults when they occur, giving immediate indication and moving the control unit to a safe state. This eliminates the possibility of faults accumulating without being detected and improves safety. The ISIS-4 control unit monitors up to 4 ISIS safety switches and doubles as a safety relay saving cost and panel space. The ISIS-2 can monitor up to 2 switches or monitor up to 30 using the ISIS-E Extender module which is DIN rail mountable.

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The ISIS safety system is approved to EN-954-1 Category 3 by TUV.



MAGNASAFE MAGNETIC SAFETY SWITCHES

MAGNASAFE is a complete range of non-contact magnetically operated switches for use in safety applications.

Pg. 10 - 12

Constructed using special, heavy duty reed switches, encapsulated into ABS housings and protected with internal fuses, these switches can safely perform up to 1,000,000 operations at full load.

Non-contact switches are easy to fit and the 10 mm + switching distance ensures tolerance to misalignment and gate wear. They are ideal for wet, dusty, oily environments and in areas where hygiene is important.



HE-SERIES SAFETY SWITCHES

The HE-Series non-contact safety switch interlock systems are the latest coded magnetic non-contact switches featuring fully encapsulated solid state, single point switching for single or multi-gate machine guarding a CAT 4, SIL 3 PLe safety performance level for up to 30 guards.

Pg. 13 - 14

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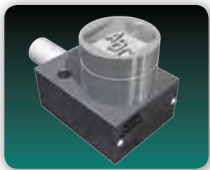
For additional information and our complete product line of trapped key interlocks please visit our website at www.tapeswitch.com or call our sales team at 1-800-234-8273.



pg. 15

CONTROL POWER ISOLATION INTERLOCKS

Key driven electrical switches suitable for isolation or switching of current.



pg. 16

MECHANICAL BOLT INTERLOCKS

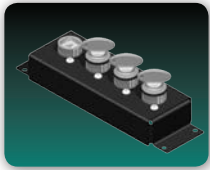
Bolt interlocks are widely used for the interlocking of switchgear. The bolt is often used for the physical blocking of levers or rotary switches via a cam mechanism.



pg. 17

TIME DELAY & MOTION SENSING UNITS

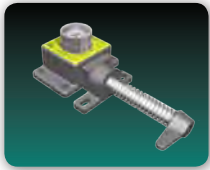
Used when motor driven machinery and other systems with run down times do not provide a safe area at the instant of power isolation.



pg. 18 - 20

KEY EXCHANGE UNITS

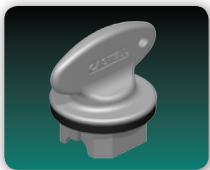
Key exchange units provide additional keys for when there are a greater number of access locks than number of keys from power isolation.



pg. 21 - 24

ACCESS INTERLOCKS

Access interlocks provide a trapped key method of obtaining access to numerous types of doors, hatches and panels.



pg. 25

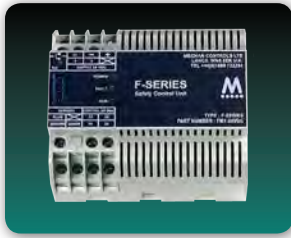
KEYS AND CAP

Keys and dust caps for different application functions and environments.

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F-SERIES ELECTRONIC SAFETY SYSTEM



F-SERIES SAFETY CONTROL UNIT

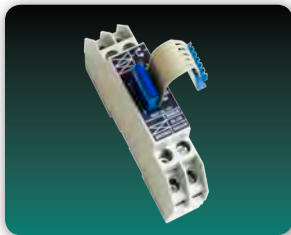
The FM1 is the master control module for all F-Series safety systems. It contains a regulated power supply, 2 safety contact outputs (PGC), external/internal relay monitoring circuit, system indication, along with the input for one safety switch sensor, and its indication outputs.

The FM1 and one safety switch sensor are all that is required for a system monitoring one guard. Simply clip the FM1 into a suitable control cabinet, fit the safety switch sensor to the guard and connect the supply and the volt free control contacts.

For larger systems use the FX1 & FX2 Extender units with the FM1.

General Specifications

Control Category	EN 954 Category 4, SIL 3, PLe
Power Consumption	100 mA / 6 VA
Supply Voltage	24 VDC, 24 VAC, 110 VAC and 230 VAC
Output Safety Contacts	2 x N/O
Safety Contact Switching	2 A @ 230 VAC or 30 VDC
Safety Switch Inputs	1; Use FX1 & FX2 to build larger systems.
Indication	Power, run & fault LED's; gate status LED & volt free contacts
Dimensions	105 x 90 x 59 mm
Mounting	35 mm DIN rail
IP Rating	Housing IP40; terminals IP20
Features	External fault monitoring circuit, manual monitored reset
Approvals	TUV Category 4 & CE



F-SERIES FX1 & FX2 EXTENDER MODULE

The FX1 and FX2 are 17.5 mm wide extender modules that clip onto 35 mm DIN rail. Connecting via a 6-way strap to the control module, the FX1 adds 1 safety switch and the FX2 adds 2 safety switch inputs to the safety control unit.

Each safety switch input has a LED and volt free contact indicator output.

General Specifications

Control Category	EN 954 Category 4, SIL 3, PLe
Safety Switch Inputs	1 (FX1), 2 (FX2)
Power Consumption	40 mA
Indication	2 x gate status LED's + volt free contacts
Dimensions	17.5 x 90 x 58 mm
Mounting	35 mm DIN rail
IP Rating	Housing IP40; terminals IP20
Approvals	TUV Category 4, CE

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F-SERIES ELECTRONIC SAFETY SYSTEM



F-SERIES FMA SAFETY SWITCH

The F-TYPE safety switches are a fully electronic, completely encapsulated, fail-safe switches designed to work in harsh conditions. This electronic safety switch is designed for use with the F-Series safety control units and provides not only long term reliability, but also a consistent switching distance (10 mm +/- 0.5). This makes the F-TYPE safety switch quick to install, tolerant to misalignment, and capable of providing years of trouble free operation.

The dynamic signaling techniques continuously monitor each safety switch. Damage to the safety switch cable or the switch itself will result in the safety control unit going into a safe state. Indication at the control unit will speed up any fault diagnosis.

The robust design, ABS housing with completely encapsulated electronics and cable entry, provides for a safety switch that can withstand harsh environments. High pressure hose cleaning, wash-down procedures, dust or machine oil and metal waste particles have little or no effect on the F-TYPE safety switches. The 6 mm pre-drilled fixing holes through the body of the switch make for easy fitting and exceptional physical strength.

General Specifications

Operation	Electronic
Max. Switches Per System	30
Switching Distance	8 - 10 mm
Construction	ABS, resin filled
IP Rating	IP67
Cable Lengths	5, 10 and 15 M (Max 100 M)
Cable Protection	Anaconda
Features	Rugged construction, reliable in harsh environments
Approvals	TUV Category 4, CE



F-SERIES FMG SAFETY SWITCH

The F-TYPE safety switches are a fully electronic, completely encapsulated, fail-safe switches designed to work in harsh conditions. This electronic safety switch is designed for use with the safety control units and provides not only long term reliability, but also a consistent switching distance (10 mm +/- 0.5). This makes the F-TYPE safety switch quick to install, tolerant to misalignment, and capable of providing years of trouble free operation.

The dynamic signaling techniques continuously monitors each safety switch. Damage to the safety switch cable or the switch itself will result in the safety control unit going into a safe state. Indication at the control unit will speed up any fault diagnosis.

The robust design, ABS housing with a completely encapsulated electronics and cable entry, provides for a safety switch that can withstand harsh environments. High pressure hose cleaning, wash-down procedures, dust or machine oil and metal waste particles have little or no effect on the F-TYPE safety switches. The 6 mm pre-drilled fixing holes through the body of the switch make for easy fitting and exceptional physical strength.

General Specifications

Operation	Electronic
Max. Switches Per System	30
Switching Distance	8 - 10 mm
Construction	ABS, resin filled
IP Rating	IP67
Cable Lengths	5, 10 and 15 M (Max 100 M)
Cable Protection	Cord grip, 20 mm
Features	Rugged construction, reliable in harsh environments
Approvals	TUV Category 4, CE

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F-SERIES ELECTRONIC SAFETY SYSTEM



F-SERIES FMT SAFETY SWITCH

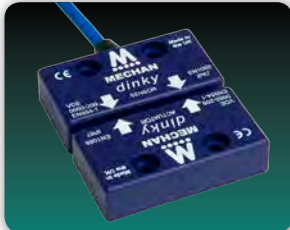
The F-TYPE safety switches are a fully electronic, completely encapsulated, fail-safe switches designed to work in harsh conditions. This electronic safety switch is designed for use with the F-Series safety control units and provides not only long term reliability, but also a consistent switching distance (10 mm +/- 0.5). This makes the F-TYPE safety switch quick to install, tolerant to misalignment, and capable of providing years of trouble free operation.

The dynamic signaling techniques continuously monitor each safety switch. Damage to the safety switch cable or the switch itself will result in the safety control unit going into a safe state. Indication at the control unit will speed up any fault diagnosis.

The robust design, ABS housing with completely encapsulated electronics and cable entry, provides for a safety switch that can withstand harsh environments. High pressure hose cleaning, wash-down procedures, dust or machine oil and metal waste particles have little or no effect on the F-TYPE safety switches. The 6 mm pre-drilled fixing holes through the body of the switch make for easy fitting and exceptional physical strength.

General Specifications

Operation	Electronic
Max. Switches Per System	30
Switching Distance	8 - 10 mm
Construction	ABS, resin filled
IP Rating	IP67
Cable Lengths	5, 10 and 15 M (Max 100 M)
Cable Protection	20 mm thread, male brass gland
Features	Rugged construction, reliable in harsh environments
Approvals	TUV Category 4, CE



F-SERIES DINKY SAFETY SWITCH

The DINKY safety switch was designed for harsh environments due to the electronic switching encapsulated into an ABS housing. It is resistant to water, hot hosing, dust, oil etc. and the small size makes it easy to hide or to use on very small access points. The 8 - 10 mm switching distance means they are tolerant to misalignment and guard wear over a long operational life-span.

This version has the added advantage of a M8 quick disconnect cable with 5 or 15 M cables.

General Specifications

Operation	Electronic
Max. Switches Per System	30
Switching Distance	8 - 10 mm
Construction	ABS, resin filled
IP Rating	IP67
Cable Length	5, 10 and 15 M (Max 100 M)
Features	Compact switch, 10 mm switching, suitable for hinged, lift off or sliding guards
Approvals	TUV Category 4, CE

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F-SERIES ELECTRONIC SAFETY SYSTEM



F-SERIES BMR SAFETY SWITCH

The B-TYPE safety switches have all the advantages of the F-TYPE safety switches built into a smaller ABS housing.

The same electronic switching provides not only long term reliability but also keeps the excellent switching distance (10 mm +/- 0.5), making the B-TYPE safety switch just as easy to install, tolerant to misalignment, and capable of providing years of trouble free operation

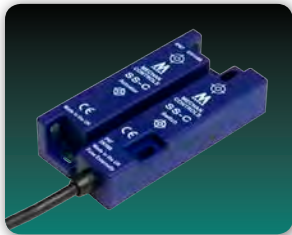
The smaller ABS housing makes the B-TYPE safety switches suitable for light-weight guarding such as Perspex and Makralon. However, using the same construction techniques as the F-TYPE, these safety switches can withstand high pressure cleaning, wash-down environments, dust or machine oil and metal waste particles. Two pre-drilled fixing holes, through the body of the switch, make for a really tough, small, safety switch.

Like the F-TYPE's unique dynamic signaling techniques continuously monitor each switch. Any damage to the safety switch cable or the switch itself will result in the system going into a safe state and fault indication at the control unit.

General Specifications

Operation	Electronic
Max. Switches Per System	30
Switching Distance	8 - 10 mm
Construction	ABS, resin filled
IP Rating	IP67
Cable Lengths	5, 10 and 15 M (Max 100 M)
Cable Protection	20 mm thread, male brass gland
Features	Compact size, precise switching, robust, suits smaller guards
Approvals	TUV Category 4, CE

SSS ELECTRONIC SAFETY SWITCHES



SS-C ELECTRONIC SAFETY SWITCH

The SS-C safety switches are electronic, non-contact safety switches. The unique electronic switching provides additional security and a single switching point leading to a more reliable and secure long term safety switching solution.

The SS-C switch is pre-wired with 5 or 10 M of cable and has a dual color indicator LED to clearly show the guard status. The SS-C is fully encapsulated it is IP67 rated and is suitable for use in wet, wash-down or dusty areas. Its slim-lined package and 10 mm switching distance makes the SS-C easy to fit to most guarding systems. With 1 x N/O and 1 x N/C contact the SS-C is ideal for use with many of the new 'low inrush' current safety relays.

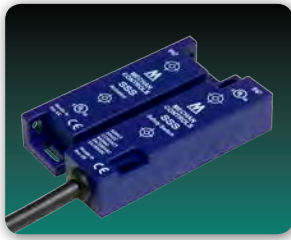
General Specifications

Power Supply	24 VDC
Power Consumption	2 VA
Safety Contacts/Rating	1 N/O, (110 VAC / 500 mA)
Auxiliary Contact/Rating	1 N/C, (110 VAC / 500 mA)
Operating Temperature	-10 to 55°C
Housing	ABS case, blue, resin filled
Environmental Protection	IP67
Mounting	Target to target
Switching Distance	9 mm ON, 10 mm OFF
Indication	Dual color LED; red open, green closed
Approval	UL Approved 508 industrial control equipment

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SSS ELECTRONIC SAFETY SWITCHES



SSS ELECTRONIC SAFETY SWITCH

The SSS is a tamper-proof, stand-alone safety switch that can be used to switch relays, contactors, or safety relays directly. Only a SSS actuator will operate the SSS switch correctly.

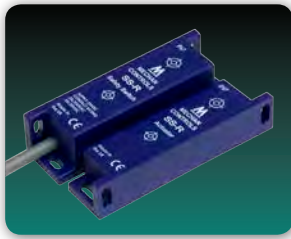
By removing the need for a separate control unit, we have made it possible to use our top of the line electronic switching technology in smaller, simpler safety systems. With the SSS you get the reliability of the electronic safety system with the ease of installation of a standard magnetic switch, like the MAGNASAFE.

Suitable for single or dual channel circuits, the SSS safety switch has 2 volt free contact outputs (2 N/O or 1 N/O + 1 N/C). The fixed switch also has an LED, giving true indication.

When the moving part of the switch (actuator) is brought within the operating range of the fixed switch, (8 mm target to target), a dynamic signal is generated in the actuator and transmitted to the switch. The N/O contact(s) in the switch will close and the N/C contact will open.

General Specifications

Power Supply	24 VDC
Power Consumption	2 VA
Safety Contacts / Rating	1 or 2 N/O, 2A/230 VAC, 2A/30 VDC
Auxiliary Contact / Rating	Up to 1 N/C, 2A/230 VAC, 2A/30 VDC
Operating Temperature	-10 to 55°C
Housing	ABS case, blue, resin filled
Environmental Protection	IP67
Mounting	Target to target
Switching Distance	7 On , 12 Off
Indication	Output LED green
Approval	UL 508 industrial control equipment



SS-R ELECTRONIC SAFETY SWITCH

The SS-R Safety switches are electronic, non-contact safety switches. The unique electronic switching provides additional security and a single switching point leading to a more reliable and secure long term safety switching solution.

The SS-R switch is pre-wired with 5 or 10 M of cable, has a dual color LED and an additional volt free contact for indication to clearly show the guard status. The SS-R is fully encapsulated to IP67 and is suitable for use in wet , wash-down or dusty areas. Its slim-lined package and 10 mm switching distance makes the SS-C easy to fit to most guarding systems. With 2 x N/O and 1 x N/C contact the SS-R is ideal for use with most safety relays where category 3 or 4 performance is required for a safety application.

General Specifications

Power Supply	24 VDC
Power Consumption	2 VA
Safety Contacts / Rating	2 N/O, 2 A/230 VAC, 2 A/30 VDC
Auxiliary Contact / Rating	1 N/C, 2 A/230 VAC, 2 A/30 VDC
Operating Temperature	-10 to 55°C
Housing	ABS case, blue, resin filled
Environmental Protection	IP67
Mounting	Target to target
Switching Distance	7 mm ON, 12 mm OFF
Indication	Dual color LED; red open, green closed
Approval	UL 508 industrial control equipment

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ISIS MAGNETIC SAFETY SYSTEM



ISIS-4 SAFETY CONTROL UNIT

The ISIS-4 Safety Control Unit can monitor up to 4 ISIS safety switches. It has an easy to install, 35 mm DIN rail mountable housing provides 2 x safety and 1 x auxiliary output contacts (4 A / 230 VAC). Indicator LED's in the ISIS-4 lid show the number of gates that have been selected, gate status, power and run.

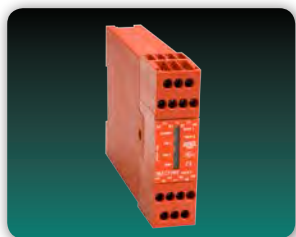
A DIP switch located beneath the lid is used to select the number of active safety switches (Note: The selector switch and number of safety switches must match or the control unit will not operate.)

The coded magnetic safety switches provide a reliable, tamper resistant, and cost effective method of monitoring machinery guarding where regular access is required.

Approved by TUV to Category 3, the ISIS safety system is suitable for many applications including packing machinery and food processing environments.

General Specifications

Control Category	EN 954 Category 3, SIL 3, PLe
Supply Voltage	24 VAC/DC, 110 VAC, 230 VAC
Power Consumption	6 VA
Output Contacts	2 x N/O safety contacts 1 x N/C auxiliary contact
Safety Contact Switching	4 A @ 230 VAC or 30 VDC
Safety Switch Inputs	4, (use ISIS-E to add more inputs)
E'stop Input	Dual channel, cross monitored
Mounting	35 mm DIN rail
IP Rating	Housing IP40, terminal IP20
Indication	Guard selected and status indication. auxiliary output contact
Features	E'stop and safety switch control in one unit.
Approval	TUV Category 3, UL 508 industrial control equipment, CE



ISIS-2 SAFETY CONTROL UNIT

The ISIS-2 control unit can monitor up to 2 ISIS safety switches and is housed in a streamlined (22.5 mm), DIN rail mountable housing.

This single unit can accept either 24 VAC or DC supply, and provides 2 x safety and 1 x auxiliary output contacts (4 A / 230 VAC). Indicator LED's in the ISIS-2 lid show power, run and gate status. Like the ISIS-4, a DIP switch located beneath the lid selects the number of active safety switches (Note: The selector switch and number of safety switches must match

or the control unit will not operate.)

General Specifications

Control Category	EN 954 Category 3, SIL 3, PLe
Supply Voltage	24 VAC/DC
Power Consumption	3 VA
Output Contacts	2 x N/O safety contacts 1 x N/C auxiliary contact
Safety Contact Switching	4 A @ 230 VAC or 30 VDC
Safety Switch Inputs	2, (use ISIS-E to add more inputs)
Mounting	35 mm DIN rail
IP Rating	Housing IP40, terminal IP20
Indication	Guard selected and status indication. auxiliary output contact
Features	Slim-line Category 3 control unit. Simple 2-wire connection to safety switches
Approval	TUV Category 3, UL 508 industrial control equipment, CE

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ISIS MAGNETIC SAFETY SYSTEM



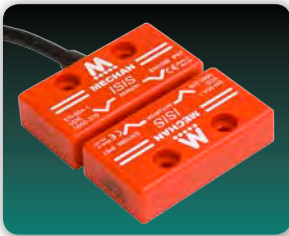
ISIS EXTENDER MODULE

The ISIS-E Extender module adds 5 safety switch inputs to an ISIS control unit (ISIS-2 or ISIS-4). Multiple ISIS-E extender modules can be connected together into one system, making it possible to monitor a large number of machine guards or to add gates to an existing system at a later date.

The ISIS-E requires 24 VAC/DC supply and a simple 2-wire connection from the ISIS-E to any active ISIS safety switch input. LED indication is available for all gate switches showing guard status.

General Specifications

Control Category	EN 954 Category 3, SIL 3, PLe
Supply Voltage	24 VAC/DC
Power Consumption	3 VA
Safety Switch Inputs	5 (can build systems to 30 gates, need a main ISIS-2 or ISIS-4 control unit)
Mounting	35 mm DIN rail
IP Rating	Housing IP40, terminals IP20
Indication	Guard selected and status indication
Features	Simple 2-wire connection to switches and main unit
Approval	TUV Category 3, UL 508 industrial control equipment, CE



ISIS SAFETY SWITCH

The ISIS safety switches are suitable to use in most machine guarding applications. Based on 'coded magnet' technology they are easy to install, reliable in operation and difficult to defeat.

A major advantage of the ISIS system is the ease of connecting the safety switches. Unlike most systems that require 6 or 7 connections to each switch to achieve category 3 and above, the ISIS requires only a simple 2-wire connection. Each switch is monitored individually and short or open circuits are detected immediately, not waiting for the next demand on the safety system.

The ISIS safety switches are compact, robust and ideal for use on hinged, sliding, or lift-off machine guards. As the switches are fully encapsulated in an ABS housing, they can be placed in 'high pressure wash-down' or dusty areas.

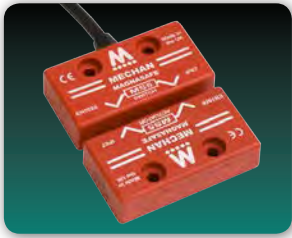
The 8 mm switching distance makes installation easy and simple, (the initial alignment is less critical than for mechanical switches). It also means they are tolerant to guard vibration and misalignment, making them very reliable over long periods of time.

General Specifications

Operation	Coded magnetic
Max. Switches Per System	30
Switching Distance	8 mm
Construction	316 grade stainless steel or ABS, resin filled
IP Rating	IP67
Cable Lengths	3, 5, 10 and 15 M (Max 100 M)
Features	Single point switching gives reliable starting and reliable operation
Approvals	TUV Category 3, UL 508 industrial control equipment, CE, EMC tested

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MAGNASAFE MAGNETIC SAFETY SWITCHES



MS5 SAFETY SWITCH

The MS5 is a low cost, compact, IP67 safety switch, with 2 safety contacts and 1 indicator contact, the MS5 is suitable for use with most modern, low in-rush current safety relays. Easy to install, and ideal where space is limited on small light weight guards, The design of the MS5 with fixing centers through the body of the switch, make it a tough safety switch, which can withstand regular use in harsh conditions.

Available for DC switching, the MS5 is easy to integrate into most safety applications. Being a non-contact safety switch, it has no mechanical parts to wear or break and will provide a long term reliable solution to safety switch problems.

General Specifications

Operation	Magnetic
Contacts	2 safety, 1 auxiliary
Contact Options	MS5-21 2 N/O + 1 N/C
Operating Distance	6 mm ON, 17 mm OFF
Contact Rating	300 mA, 24 VDC
Operating Temperature	-10 to 55°C
Construction	ABS or 316 grade stainless steel, resin filled
IP Rating	IP67
Mounting	Target to target
Cable Lengths/Connector	Standard: 3, 5 and 10 M, longer available to order Quick disconnect : M12, 6 pole connector. Cables 5 or 15 M script
Features	Non-contact safety switching, tolerant to misalignment No mechanical wear
Approvals	UL 508 industrial control equipment, CE, EMC tested



MS6 SAFETY SWITCH

The MS6 is our new SLIM-LINE IP67 rated safety switch. With up to 2 safety contacts and 1 indicator contact in a small footprint, it is capable of switching most safety relays, the MS6 is ideal for non-contact safety applications.

Available in both AC or DC switching versions, the MS6 is easy to integrate and being non-contact, it has no mechanical parts to wear or break and will provide a long term reliable solution to safety switch problems.

General Specifications

Operation	Magnetic
Contacts	Max. 2 safety, 1 auxiliary
Contact Options	MS6-21 2 N/O + 1 N/C, MS6-20 2 N/O, MS6-11 1 N/O + 1 N/C, MS6 1 N/O
Operating Distance	10 mm ON, 30 mm OFF
Safety Contact Rating	AC = 2 A, DC = 1 A
Operating Temperature	-10 to 55°C
Construction	ABS or 316 grade stainless steel, resin filled
IP Rating	IP67
Mounting	Target to target
Cable Lengths/Connector	Standard: 3 and 6 M, longer available to order Quick disconnect : M12, 3, 4 or 6 pole (dependent on contacts)
Features	Suitable for wet / wash-down areas Non-contact safety switching, tolerant to misalignment
Approvals	UL 508 industrial control equipment, CE, EMC tested

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MAGNASAFE MAGNETIC SAFETY SWITCHES



MS7 SAFETY SWITCH

The new MS7 adds an additional level of security. The coded magnetic operation of the MS7 is even more robust and secure for non-contact safety switch applications. It is fully sealed to IP67, and has a 10 mm switching distance, is easy to install, and ideal for food processing packaging applications.

General Specifications

Operation	Coded magnetic
Contacts	2 N/O + 1 N/C
Operating Distance	7 mm ON, 12 mm OFF
Contact Rating	300 mA, 24 VDC
Operating Temperature	-10 to 55°C
Construction	Red ABS, resin filled
IP Rating	IP67
Cable Lengths	3 and 6 M, longer to order
Features	Tamper resistant, coded magnet technology Suitable for wet / wash-down areas Dual contacts with indication
Approvals	UL 508 industrial control equipment, CE, EMC tested



MS8 SAFETY SWITCH

The MS8-SS SLIM-LINE IP67 safety switch can be operated from 3 sides, enabling an easy installation to all kinds of sliding, lift-off and hinged guards. The small footprint with 2 safety contacts and 1 indicator contact is suitable for use with a variety of low inrush current safety switches.

The MS8 is easy to integrate. Being non-contact, it has no mechanical parts to wear or break and will provide a long term reliable solution to safety switch problems.

General Specifications

Operation	Magnetic
Contacts	2 N/O + 1 N/C
Operating Distance	10 mm ON, 30 mm OFF
Contact Rating	0.4 A / 24 VDC
Operating Temperature	-10 to 55°C
Construction	316 Grade stainless steel, resin filled
IP Rating	IP67
Cable Lengths	Standard: 5 and 10 M, longer available to order Quick disconnect : M12 6 pole connector, 5 M cable
Features	Operation on three sides Tolerant to misalignment Suitable for wet / wash-down areas
Approvals	UL 508 industrial control equipment, CE, EMC tested

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MAGNASAFE MAGNETIC SAFETY SWITCHES



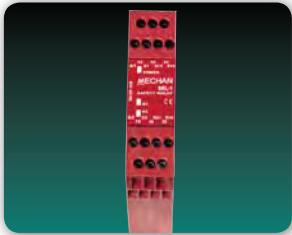
MS21 SAFETY SWITCH

The MS21 is a robust IP67 magnetic safety switch. With up to 2 safety contacts and 1 indicator contact, capable of switching most safety relays, the MS21 is ideal for non contact safety applications.

Available in both AC or DC switching versions, the MS21 is easy to integrate. Being non contact, it has no mechanical parts to wear or break and will provide a long term reliable solution to safety switch problems.

General Specifications

Operation	Magnetic
Contacts	Max. 2 safety 1 auxiliary contacts
Operating Distance	10 mm ON, 30 mm OFF
Safety Contact Rating	AC = 2 A, DC = 1 A
Operating Temperature	-10 to 55°C
Construction	316 grade stainless steel or ABS, resin filled
IP Rating	IP67
Mounting	Target to target
Cable Lengths	3 and 6 M, longer available to order
Features	Dual safety contacts, indicator contact Non-contact switching, tolerant to misalignment Suitable for wet / wash-down areas
Approvals	UL 508 industrial control equipment, CE, EMC tested



SRL-1 Safety Relay

The SRL-1 Safety relay has dual channel, low voltage inputs, two normally open control contact outputs and one normally closed indication contacts.

Designed for operation with the range of safety switches, the SRL-1 is also suitable for use with Emergency Stop Buttons, Light Curtains, and mechanical Safety Switches.

Depending on installation the SRL-1 can be used in Category 4/SIL 3 safety circuits.

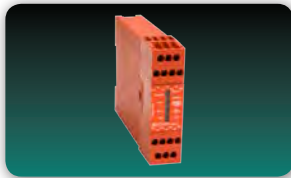
General Specifications

Supply nominal voltage	24 VAC/DC
Nominal power consumption	3 VA
Safety contacts	2 x N/O
Auxiliary contact	1 x N/C
Output contact rating (max)	4 A/230 VAC; 2 A/24 VDC (Res.) @ Cos=1
Output contact rating (min)	10 V/10 mA
Output contact fuse rating	AC = 5 A; DC = 2.5 A; Quick blow
Drop out time	Deactivation by inputs, 13 ms
Internal fuse	500 mA resettable
Internal fuse recovery time	> 2 seconds
Max conductor size	1 x 2.5 mm stranded with sleeves, 1 x 4 mm solid
Installation group (Control unit)	C in accordance with VDE0110
Enclosure protection	Housing IP40, Terminals IP20
Operating temperature	-10 - +55°C (85% Humidity max)
Storage temperature	-20 - +60°C
Housing material	Polycarbonate red
Mounting/Fixing	35 mm Symmetric DIN Rail
Weight (AC/DC) (3 M/5 M)	210 g
Dimensions	119 x 22.5 x 84 mm

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HE-SERIES CODED MAGNETIC SAFETY SWITCHES



SCU-1 Control Unit

The SCU-1 Control Unit, the main control unit, provides for a HE Series multi-gate machine guarding solution capable of monitoring up to 30 switches in the series. It features built-in LED status indicators for power, output, manual and automatic reset. It is IP55 rated and Din-rail mountable for easy installation.

General Specifications

Supply nominal voltage	24Vac/dc (+/- 15 %)
Nominal power consumption	3VA
Safety contacts	2 x NO
Auxiliary contact	1 x NC
Output contact rating (max)	4A/230Vac; 2A/24Vdc(Res.)@Cos=1
Output contact rating (min)	10V/10mA
Output contact fuse rating	AC=5A; DC=2.5A; Quick blow
Drop out time	Deactivation by inputs, 13ms
Internal fuse	100mA Resettable
Internal fuse recovery time Internal fuse	>2 Seconds
Internal switches	Reset Manual / Automatic—Selectable
Max conductor size	1 x 2.5mm stranded with sleeves, 1 x 4mm solid
Installation group (Control unit)	C in accordance with VDE0110
IP Rating	Housing IP40, Terminals IP20
Operating temperature	-10C to +55C (85% Humidity max)
Storage temperature	-20C to +60C
Housing material	Polycarbonate Red
Mounting / Fixing	35mm Symmetric DIN Rail
Utilization category in accordance with EN 60947-4-1	
Safety contacts:AC1 at 230 V	Imin:10mA.Imax:4A
Safety contacts:DC1 at 24 V	Imin:10mA.Imax:2A
Air gap creepage in accordance with EN 60947-1	Vibration In Accordance With EN 60068-2-6
Pollution Degree	2
Weight	210g
Over voltage Category	III
Rated Insulation Voltage	250V
Frequency	10-55Hz
Amplitude	0.35mm
Rated Impulse Withstand Voltage	4.0KV
Simultaneity Channel 1	∞
Simultaneity Channel 2	∞
PL In accordance with EN ISO 13849-1	PL-e, CAT 4
SIL CL in accordance with EN IEC 62061	SIL 3
PFHd in accordance with EN IEC 62061	3.62 x 10-09
PFH	4.43 x 10-09
B10d	2 X 106
MTTFd	>100 years (Based on usage rate of 360 days/year, 24 hours/day, 10 operations/hour)
Tm(mission time)	20 years
DC	96.5%
SFF	98.2%
APPROVALS	CE, CAT 4 SIL 3 PLe, EN ISO 13849-1, EN ISO 62061, EN 60204, EN 60947-5-1, EN 1088, EN 60947-5-3

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HE-SERIES CODED MAGNETIC SAFETY SWITCHES



HE-1 Safety Switches

The HE1 Series Non-Contact Safety Switch Interlocks are the smaller latest coded magnetic non-contact switches featuring solid state, single point switching for single or multi-gate machine guarding a CAT 4, SIL 3 PLe safety performance level fully encapsulated in ABS or stainless steel resin filled housing. The solid state design is even more tolerant to shock and vibration, and provides single point switching which makes for a simpler and more reliable machine guard interlock. The HE safety switch has 2 x N/O + 1 N/C bi-directional solid state outputs along with built in LED(s) for indication.

General Specifications

Operation	Coded Non-contact
Contact Arrangements	2 x N/O + 1 x N/C
Safety Contact Operating Distance	7mm ON / 12mm OFF
Safety Contact Rating	DC: 24Vdc / 400mA
Auxiliary Contact Rating	DC: 24Vdc / 400mA
External Fusing (When not using SCU-1)	400mA
IP Rating	IP67
Cable Length	100 Meters max
Operating temperature	-25°C to +55°C
Storage temperature	-25°C to +55°C
Mounting	Target to target
Construction	Red ABS Resin Filled or 316 Grade Stainless Steel resin Filled



HE-2 Safety Switches

The HE2 Series Non-Contact Safety Switch Interlocks are the larger latest coded magnetic non-contact switches featuring solid state, single point switching for single or multi-gate machine guarding a CAT 4, SIL 3 PLe safety performance level fully encapsulated in either a ABS or stainless steel resin filled housing. The solid state design is even more tolerant to shock and vibration, and provides single point switching which makes for a simpler and more reliable machine guard interlock. The HE safety switch has 2 x N/O + 1 N/C bi-directional solid state outputs along with built in LED(s) for indication.

General Specifications

Operation	Coded Non-contact
Contact Arrangements	2 x N/O + 1 x N/C
Safety Contact Operating Distance	7mm ON / 12mm OFF
Safety Contact Rating	DC: 24Vdc / 400mA
Auxiliary Contact Rating	DC: 24Vdc / 400mA
External Fusing (When not using SCU-1)	400mA
IP Rating	IP67
Cable Length	100 Meters max
Operating temperature	-25°C to +55°C
Storage temperature	-25°C to +55°C
Mounting	Target to target
Construction	Red ABS Resin Filled or 316 Grade Stainless Steel resin Filled

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KS - Powersafe Electrical Switch



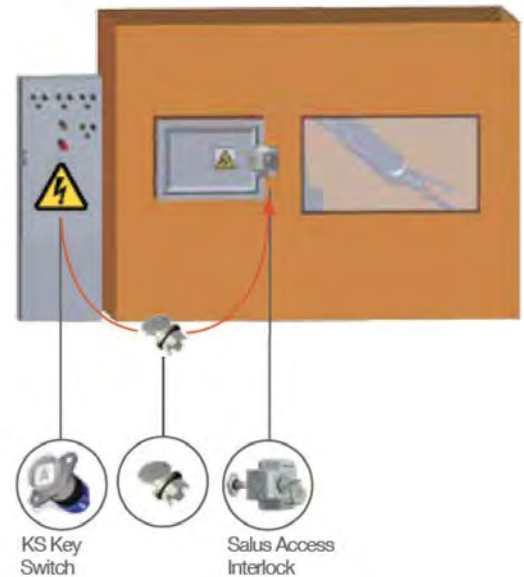
- Key driven electrical switch
- Designed for machine control circuits
- Intended for short term, off load isolation usage
- Available with FS or Q type lock portions
- Manufactured from either brass or stainless steel
- Ideal for use in normal or harsh, corrosive environments and heavy duty use
- To be mounted into an existing panel or for surface mounting
- Polycarbonate IP65 rated enclosure (surface mount version)
- Available with 20 A as standard and 32 or 63 A upon request
- Supplied with gasket

Application

A typical application of KS powersafe electrical switch is machine guarding. It is usually used in combination with an access interlock such as the Salus for part body access or an access interlock with an exchange key for full body access control such as AIE.

The KS breaks the machine safety circuit, ensuring a machine is shut down when the key is turned and removed. The key can then be taken to the Salus access interlock to enable access to the machine.

The machine cannot be restarted until the door is closed, the bolt is trapped in the access interlock and the key is removed and taken to the KS key switch.



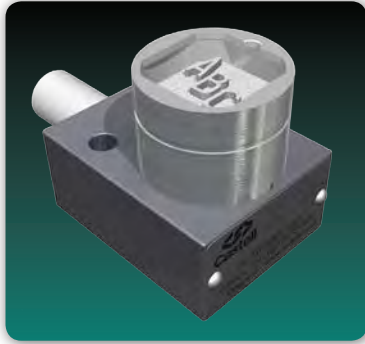
Order Information

	Product Type	1	2	3	4	5	6	7
Part Number	KS							
Example	KS	20	FS	B	P	C/O	4	TBA

1	Isolation	20 A, standard (32 and 63 A available on request)
2	Lock portion type	FS/Q
3	Material	B = Brass / S = Stainless steel
4	Mounting	P = Panel mount (back of board) F = Front of board mount, with enclosure
5	Contacts arrangement in normal position (key in)	C/O = NO/NC arrangement (contacts closed/open) CC = NC arrangement (all contacts closed)
6	Number of contacts	4, standard
7	Lock portion symbol	FS up to 3 characters / Q up to 6 characters

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K - Bolt Interlock



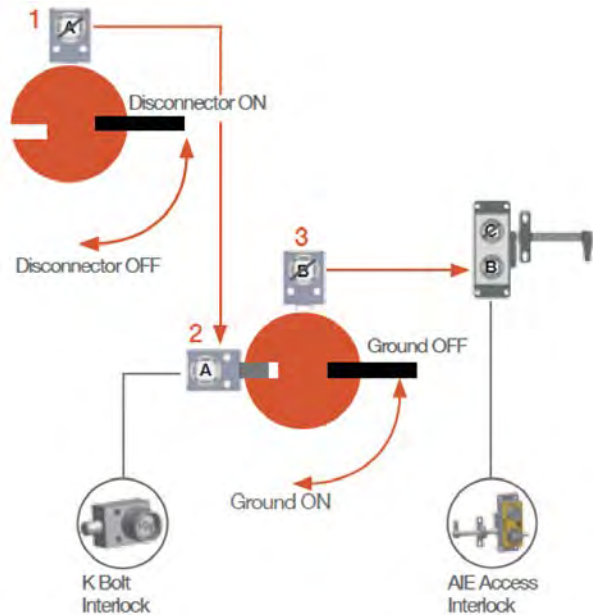
- Key operated mechanical bolt interlock
- Designed for the control of electrical switchgear
- Comes with a 15.88 mm diameter bolt available in various lengths
- Available with FS or Q type lock portions
- Manufactured in either brass or stainless steel
- Ideal for use in standard or harsh, corrosive environments
- Shear force of bolt: 30KN (stainless steel) and 19KN (brass)

Application

The K bolt interlocks are used as a part of a safety system to allow safe control of valves or disconnect switches.

While power supply to the system is switched on, the access doors to the hazardous area are locked closed. Key A is trapped in the disconnecter K bolt interlock (1) while the process is on. To enter the hazardous area, the disconnecter is turned to the OFF position and key A is released, locking the disconnecter in the disengaged position. Key A is then taken to the grounding switch. Key A enters the second K lock (2) which retracts the bolt enabling the cammed switch lever to be rotated to engage the ground. Once rotated, the recess in the cam aligns with the next K lock (3) with key B trapped in its lock. Key B can now be removed from K lock (3), which now locks the lever in place ensuring that the ground connection cannot be broken.

The system is now disconnected and grounded, key B can be taken to operate the access interlock on the door of the hazardous area to gain access into it.



Order Information

	Product Type	1	2	3	4	5
Part Number	K					
Example	K	FS	B	6.4	4	TBA

1	Lock Portion Type	FS / Q
2	Material	B = Brass / S = Stainless steel
3	L Dimension (bolt length when retracted) in mm	0 / 6,4 / 12,7 / 19,1 / 25,4
4	Form	1 / 2 / 3 / 4
5	Lock portion symbol	FS up to 3 characters / Q up to 6 characters

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BEMF - Motor Sensing Interlock



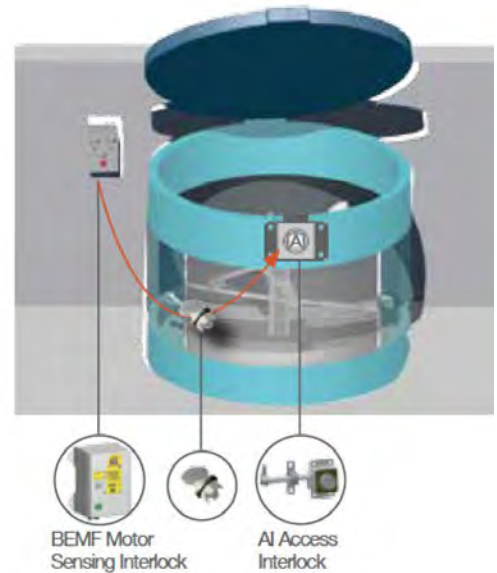
- Motor sensing interlock
- Designed to control access to rotating machinery
- Relies on the measurement of the electromotive force generated by the windings of an electric motor
- Only when the motor has stopped will the BEMF drop to zero and allow the release of a key
- The unit is used for connection to AC and DC motors including DC braking systems
- Designed to provide the highest level of safety when installed as part of an access control system for dangerous machinery
- Available with FS or Q type lock portions

Application

The BEMF is designed to operate as part of an integrated safety system. The BEMF controls access to hazardous areas with rotating machinery.

When the electric motor is running, the key of the BEMF interlock cannot be removed, hence preventing access to the hazardous area. To gain access to the area, the electrical motor must be switched off by turning the key to OFF position. This changes the switches of the electrical supply to the machine to a safe condition. Only when the motor has stopped will the BEMF drop to zero and allow the release of a key. A green LED illuminates. By pushing the green button, the key can now be removed and taken by the personnel to the AI access interlock.

The guard can only be opened when the electrical supply has been switched into a safe condition. The machine cannot be restarted until the door is closed and the key is removed and taken to the BEMF.



Order Information

	Product Type	1	2	3	4	5	6	7
Part Number	BEMF							
Example	BEMF	FS	B	F	3	110	A	TBA

1	Lock portion type	FS/Q
2	Material	B = Brass / S = Stainless steel
3	Mounting	F = Front of board mount with enclosure, standard
4	Number of poles	3, standard
5	Voltage	24 / 110 / 240, standard
6	Current	AC (use for 110V and 240V) / DC (use for 24V)
7	Lock portion symbol	FS up to 3 characters / Q up to 6 characters

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X - Key Exchange Box



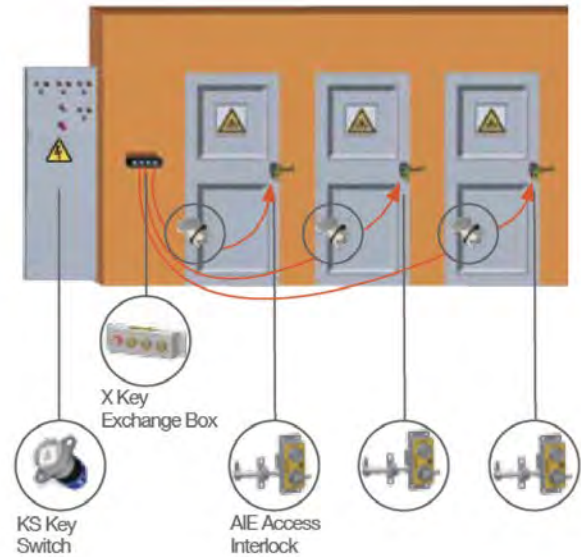
- Key exchange box
- Designed to enable a sequential release of keys by insertion of an initial key
- The need for this type of product usually arises when there are multiple points of entry
- Designed to be the link between the isolation units and access interlocks
- Available in a number of configurations and number of locks
- Supplied in an enclosure suitable for surface mounting
- Available with FS or Q type lock portions

Application

A typical application of the X key exchange box is machine guarding with one or more access points to the hazardous area. The key exchange box is used as a part of a safety system, which ensures a machine is shut down, before access to the hazardous area is allowed.

The system involves a KS key switch for the electrical supply and typically more than one AIE access interlocks for full body access. The removal of the isolation key from the key switch isolates the electrical supply to the machine. This key is taken to the X key exchange box to release the trapped keys. The sequentially released keys are used to gain access through the AIE door interlocks.

The machine cannot be restarted until all keys are returned to the key exchange box and the power isolation key is removed and taken to the KS key switch.



Order Information

	Product Type	1	2	3	4	5	6
Part Number	X						
Example	X	FS	B	H	1	3	TBA

1	Lock portion type	FS/Q
2	Material	B = Brass / S = Stainless steel
3	Mounting	H = Horizontal / V = Vertical
4	Number of free keys (keys in)	Please specify
5	Number of trapped keys (keys out)	Please specify
6	Lock portion symbols: Please advise each lock separately as free key symbols (keys in) and trapped key symbols (keys out)	FS up to 3 characters / Q up to 6 characters

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Z - Key Exchange Box



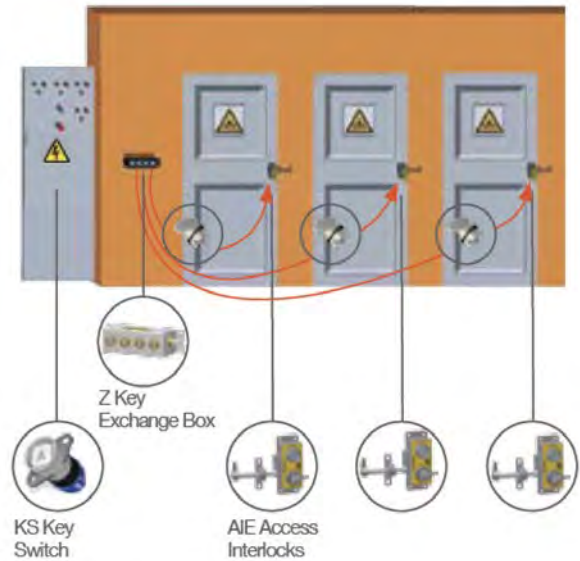
- Key exchange box
- Designed to enable the release of keys by insertion of an initial key
- Releases up to 5 keys in any order
- Made for the usage in situations where multiple access points to the hazardous area are given
- Designed to be the link between the isolation units and access interlocks
- Supplied in an enclosure suitable for surface mounting
- Available with FS or Q type lock portions

Application

A typical application of the Z key exchange box is machine guarding with one or more access points to the hazardous area. The key exchange box is used as a part of a safety system, which ensures a machine is shut down, before access to the hazardous area is allowed.

The system involves a KS key switch for the electrical supply and typically more than one AIE access interlocks for full body access. The removal of the isolation key from the key switch isolates the electrical supply to the machine. This key is taken to the Z key exchange box to release the trapped keys. The released keys are used to gain access through the AIE access interlocks.

The machine cannot be restarted until all keys are returned to the Z key exchange box and the power isolation key is released and replaced in the KS key switch.



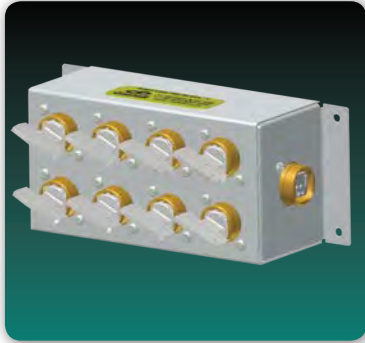
Order Information

Product Type	1	2	3	4	5	6
Part Number	Z					
Example	Z	FS	B	H	1	4 TBA

1	Lock portion type	FS/Q
2	Material	B = Brass / S = Stainless steel
3	Mounting	H = Horizontal / V = Vertical
4	Number of free keys (keys in)	Please specify
5	Number of trapped keys (keys out)	Please specify
6	Lock portion symbols: Please advise each lock separately as free key symbols (keys in) and trapped key symbols (keys out)	FS up to 3 characters / Q up to 6 characters

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Y - Key Exchange Box



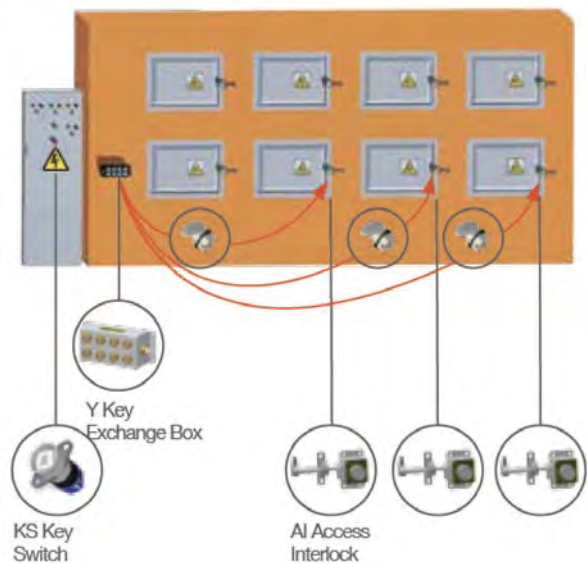
- Key exchange box
- Designed to enable the release of keys by insertion of an initial key
- Releases 6 or more keys (with no upper limit) in any order
- Made for the usage in situations where multiple access points to the hazardous area are given
- Designed as the link between the isolation units and access interlocks
- Supplied in an enclosure suitable for surface mounting
- Available with FS or Q type lock portions

Application

A typical application of the Y key exchange box is machine guarding with more than one access points to the hazardous area. The key exchange box is used as a part of a safety system, which ensures a machine is shut down, before access to the hazardous area is allowed.

The system involves a KS key switch for the electrical supply and typically more than one AI access interlock for part body access. The removal of the isolation key from the key switch isolates the electrical supply to the machine. This key is taken to the Y key exchange box to release the trapped keys. The released keys are used to gain access through the AI door interlocks.

The machine cannot be restarted until all keys are returned to the Y key exchange box and the end key (power isolation key) is removed and taken to the KS key switch.



Order Information

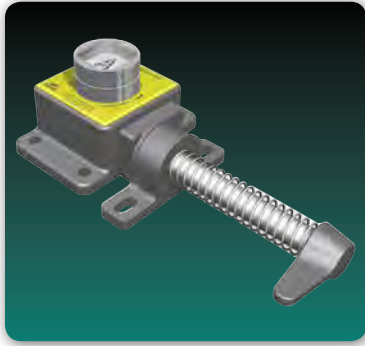
	Product Type	1	2	3	4	5	6
Part Number	Z						
Example	Z	FS	B	H	1	8	TBA

1	Lock portion type	FS/Q
2	Material	B = Brass / S = Stainless steel
3	Mounting	H = Horizontal / V = Vertical
4	Number of free keys (keys in)	1, standard
5	Number of trapped keys (keys out)	Please specify
6	Lock portion symbols: Please advise each lock separately as free key symbols (keys in) and trapped key symbols (keys out)	FS up to 3 characters / Q up to 6 characters

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AI - SINGLE KEY ACCESS INTERLOCK



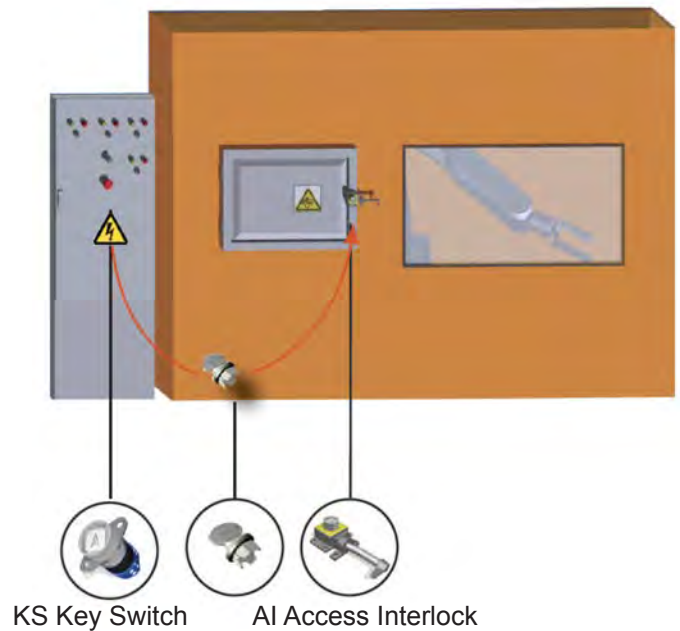
- Single key access interlock
- Ideal for use on hinged doors
- Has an open cavity design
- Manufactured in either aluminum alloy/brass or stainless steel
- Ideal for use in standard or harsh, corrosive environments and heavy duty use
- Shear force of bolt: 24KN

Application

A typical application of the AI single key access interlock is machine guarding with part body access. The AI is used as a part of a safety system, which ensures a machine is shut down, before access to the hazardous area is allowed.

The system involves a KS key switch that breaks the machine safety circuit, when the key is removed. The key can then be taken to the AI access interlock to enable access to the machine.

The machine cannot be restarted until the door is closed, the bolt is replaced and the key is removed and taken to the KS.



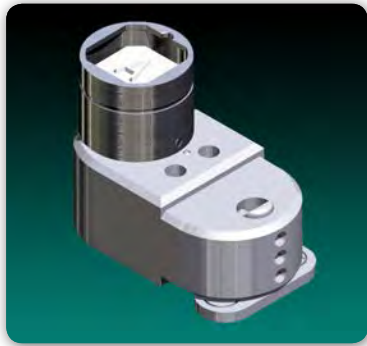
Order Information

	Product Type	1	2	3	4
Part Number	AI				
Example	AI	FS	S	1	TBA

1	Lock Portion Type	FS / Q
2	Material	AL = Aluminium alloy/brass S = Stainless steel
3	Handing	1 = Left hinged door (bolt enters left) 2 = Right hinged door (bolt enters right)
4	Lock portion symbol	FS up to 3 characters / Q up to 6 characters

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D - PANEL DOOR INTERLOCK



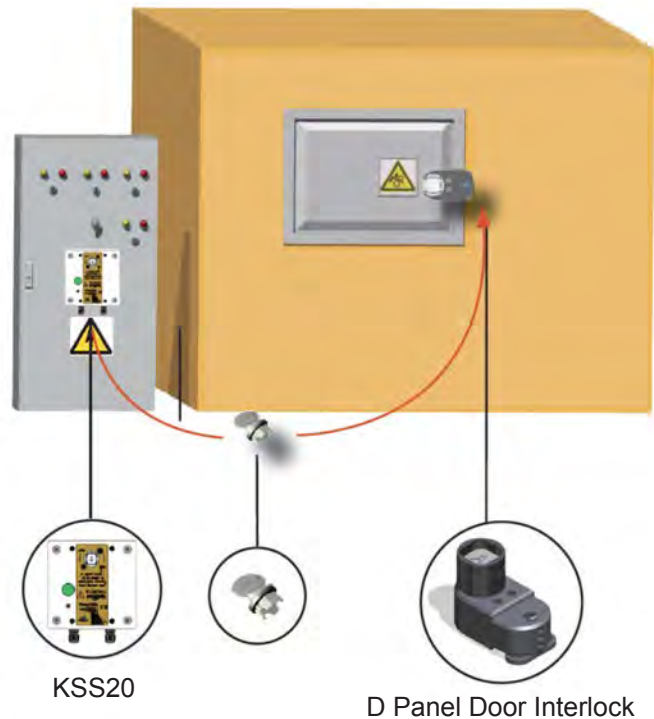
- Two-part panel door interlock
- Comprises of a lock body and a rear or front entry mounted catch
- Typically used for interlocking electrical control cubicles and distribution panels
- Also suitable for use on light access doors or hatches
- The catch is available in two options, suited to well aligned or misaligned doors
- Manufactured in either brass or stainless steel
- Ideal for use in standard or harsh, corrosive environments
- Available with FS or Q type lock portions

Application

The power supply to the system is switched on and the access doors to the hazardous area are locked closed.

The removal of the isolation key in the KSS, isolates the electrical supply to the LV Panel. This key is then used to unlock the D panel door interlock on the panel door.

The power cannot be switched on until the door is closed, the catch is trapped in the D panel door interlock and the key returned to the KSS.



Order Information

	Product Type	1	2	3	4	5	6
Part Number	D						
Example	D	FS	B	RE	MS	4	TBA

1	Lock Portion Type	FS / Q
2	Material	B = Brass / S = Stainless steel
3	Catch entry	RE = Rear entry / FR = Front entry
4	Catch type	STD = Standard catch, use for well aligned doors MS = Catch with spring, use for misaligned doors
5	Form	1 / 2 / 3 / 4
6	Lock portion symbol	FS up to 3 characters / Q up to 6 characters

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AIS/HERCULES - ACCESS INTERLOCK WITH SAFETY SWITCH



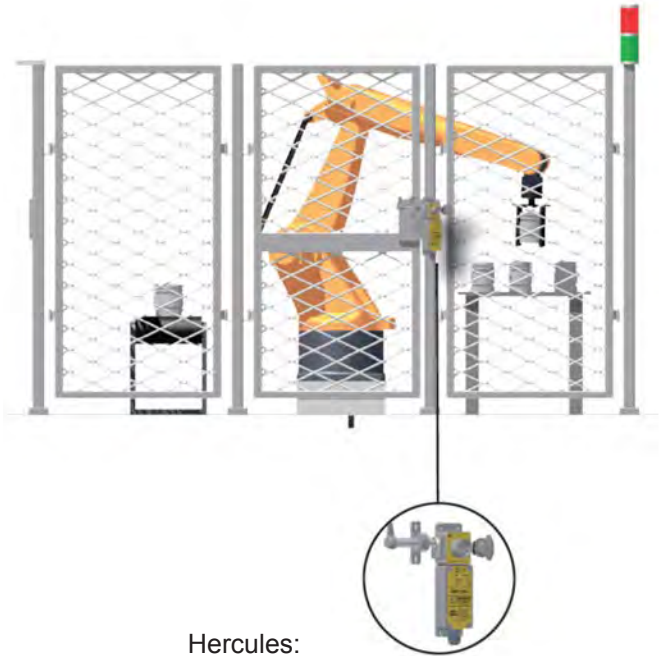
- Dual key access interlock
- Complete with electrical contacts
- Suitable for use on hinged or sliding doors
- The contacts can be used to switch off the machine via its control circuitry or to initialise a signal to visual beacons/sounders
- The switch is sealed to IP65 with 1 N/O 2 N/C contacts, it is rated to 6 A
- Ideal for use in cross monitored safety systems
- Manufactured in a durable stainless steel
- Ideal for use in harsh or corrosive environments and where the lock is subject to heavy duty use
- Available in a double key or exchange key condition

Application

A typical application of the AIES access interlock with safety switch is machine guarding.

The removal of the key from the AIES isolates the electrical supply to the machine and allows the removal of the side bolt and the personnel key. This will trap the isolation key. Therefore the guard can only be opened when the electrical supply has been switched into a safe condition. The personnel key is then taken into the area by the operative to safeguard against accidental lock-in or start-up or to initialise another part of the process, i.e. switching the machine into a teach mode.

The machine cannot be restarted until the door is closed, the bolt is trapped and the personnel key replaced in the AIES dual key access interlock.



Hercules:
AIS access interlock with safety switch

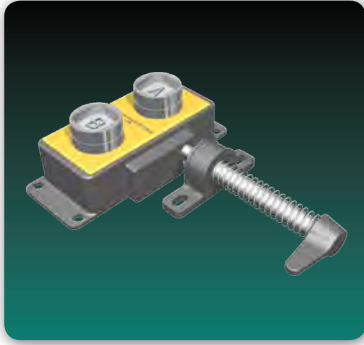
Order Information

	Product Type	1	2	3	4	5
Part Number	AIS					
Example	AIS	FS	S	KF	1	TBA

1	Lock Portion Type	FS / Q
2	Material	S = Stainless steel, standard
3	Key Condition (with bolt trapped)	KT = Key trapped while bolt trapped KF = Key free while bolt trapped
4	Handing	1 = Left hinged door (bolt enters left) 2 = Right hinged door (bolt enters right)
5	Lock portion symbol	FS up to 3 characters / Q up to 6 characters

While every effort has been made to ensure the accuracy of the information provided, no liability can be taken for any errors or omissions. Tapeswitch Corporation reserves the right to alter specifications and introduce improvements without prior notice.

AIE - DOUBLE KEY ACCESS INTERLOCK



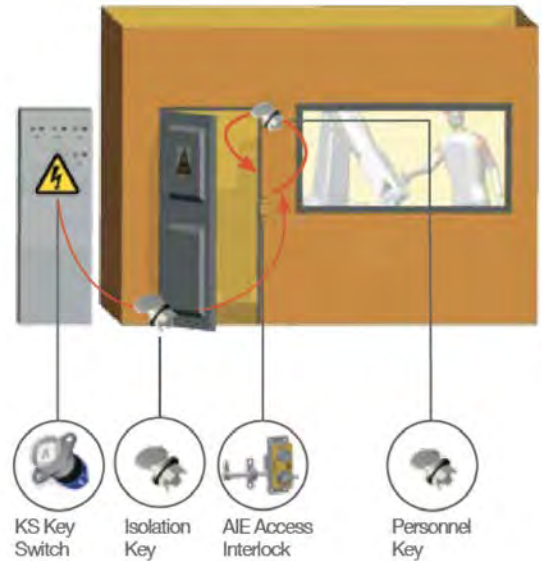
- Dual key access interlock
- Suitable for use on hinged and sliding doors
- The interlock has an open cavity design
- Manufactured in either aluminum alloy/brass or stainless steel
- Ideal for harsh or corrosive environments where the lock is subject to heavy duty use
- Available in an exchange or double key condition
- Shear force of bolt: 24KN

Application

A typical application of the AIE dual key access interlock is machine guarding with full body access. The AIE is used as part of a safety system, which ensures a machine is shut down, before access to the hazardous area is allowed.

The system involves a KS key switch for the electrical supply. The removal of the isolation key from the key switch isolates the electrical supply to the machine. This key is taken to the AIE and inserted into the lock. This allows the release of the personnel key and then the side bolt, which traps the isolation key. The personnel key is then taken into the area by the operative to safeguard themselves against accidental lock-in and start-up.

The machine cannot be restarted until the personnel key is returned, the bolt is replaced in the AIE and the isolation key is removed and taken to the KS.



Order Information

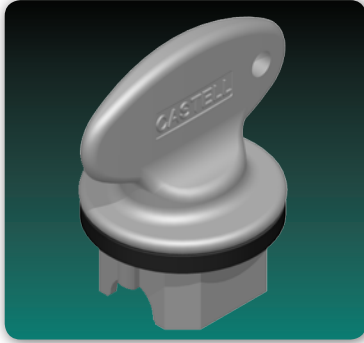
	Product Type	1	2	3	4	5
Part Number	AIE					
Example	AIE	FS	S	E	1	TBA

1	Lock Portion Type	FS / Q
2	Material	AL = Aluminium alloy/brass S = Stainless steel
3	Key Condition	E = Exchange key condition D = Double key condition (sequential removal of both keys)
4	Handing	1 = Left hinged door 2 = Right hinged door
5	Lock portion symbol: Please advise for each lock portion separately as isolation key/lock symbol and personnel key/lock symbol	FS up to 3 characters / Q up to 6 characters

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FS Keys - Figure Style Keys



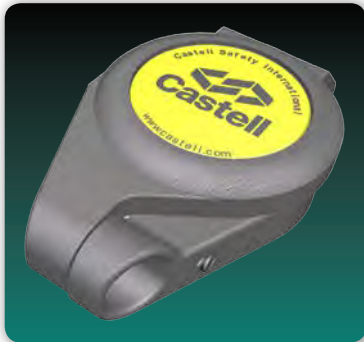
- A selection of keys is available to suit a range of applications
- Stainless steel, brass and plated range of keys
- Customized coding: SYMBOL (CODE) to be advised when ordering*:
Select up to 3 characters
Any alpha-numeric (A-Z) and (0-9) configurations
Do not use letter O, use zero instead
Do not use lower case
For spacing as a character advise TABLET (submaster key)*
- 47,988 code options available
- Master and submaster keys available*

Q Keys - Q Style Keys



- A selection of keys is available to suit a range of applications
- Stainless steel, brass and plated range of keys
- Customized coding: SYMBOL (CODE) to be advised when ordering*:
Select up to 6 characters
Any alpha-numeric (A-Z) and (0-9) configurations
Additional, non-alphanumeric characters available: (*), (/), (-) and ()
Do not use letter O, use zero instead
Do not use lower case
- Over 3.6 billion code options available
- Recorded in an internal data base to avoid duplications

FLIP-S - Flip Cap



- Protective cap
- Used to prevent dust ingress into the Castell FS (figure style) lock portions
- Can be fitted with a padlock to prevent lock operation during maintenance

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Industrial Plant Maintenance **Stamping** Lock out **Area Guarding**
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Machine Guarding Monitoring Entertainment Access Control
Emergency Response **Transportation** Amusement Parks
Motion Sensing Monitoring Counting **Machine Control** Security



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