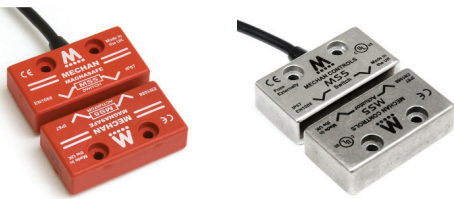


MECHAN CONTROLS



Installation Guide : MS5, MS5-SS, MS7, MS7-SS Safety Switches



Description:

MAGNASAFE MS5 and MS7 safety switches are non-contact, magnetically operated switch and actuator. Designed to work with safety relays that have a low inrush current on the switch input, these switches provides an economical method of switching for the higher category, dual channel circuits.

These safety switches are available in a robust ABS, or 316 Grade Stainless Steel housing, and both switch and actuator are fully sealed to IP67 making them suitable for use in wet or dusty environments. They are easy to install and tolerant to misalignment. With correct installation, these safety switches comply with the guidelines given in EN1088.

Magnasafe Safety switches are designed to be used in part of safety related control system. A risk assessment should take place to establish that the specifications of these safety switches are suitable for the application required. See Technical Specifications below or contact Mechan Controls for further information.

Keep this guide for future reference

This information is designed to help suitably qualified personnel install and operate Mechan Safety equipment. Before using this product, read this guide thoroughly along with any relevant European and/or National standards e.g. Machinery Directive 2006/42/EC and it's amendments, Provision and Use of Work Equipment Regulations. Further information can be obtained from Mechan Controls.

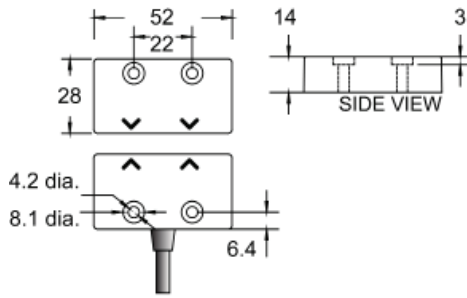
Technical Specifications		MS5	MS7
Contacts		Max 2 NO + 1 NC	1 NO + 1NC, 2 NO + 1 NC or 3 NO
Safety Contact Rating		24Vdc / 300mA	24Vdc / 300mA
Safety Contact Switching		7mm ON / 17mm OFF	7mm ON / 20mm OFF
Auxiliary Contact Rating		24Vdc / 300mA	15W / 10VA
Auxiliary Contact Switching		7mm OFF / 17mm ON	7mm OFF / 14mm ON
External Fuse (customer supplied)		0.2Amps Fast Acting	0.2Amps Fast Acting
Construction		RED ABS, or 316 Grade Stainless Steel	RED ABS, or 316 Grade Stainless Steel
IP Rating		IP67	IP67
Temperature	Operating Operating HT version	-25°C to +55°C -25°C to 125°C	-25°C to +55°C N/A
Fixing		M4 Torx security screws, Tightening 1.0NM	M4 Torx security screws, Tightening 1.0NM
Connection		Pre-wired or M12 Leaded Quick Disconnect	Pre-wired or M12 Leaded Quick Disconnect
Vibration / Shock		50 - 100 Hz 10g	50 - 100 Hz 10g

Safety Related Data			
B10d	2,000,000	PFH	6.52 x 10 ⁻⁸
TM (Mission Time)	> 20 Years	PFHd	4.3 x 10 ⁻⁸ See Note 1
DC	99%	SFF	98%
MTTFd	High > 100 Years (based on usage rate of 360 days/year, 24 hours/day, 10 Operations/hour)		
Note 1	Based on dual channel wiring according to CAT 3. Diagnostic coverage provided by downstream control logic. DC - medium, MTTFd = 100 Years. May be suitable for performance level applications PLe according to ISO 13849-1. (SIL 3 or SIL 2 according to IEC 62061)		

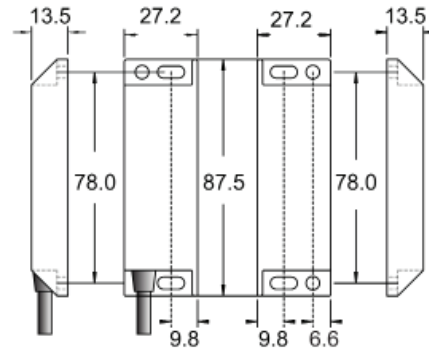
Safety Standards	
Approvals	CE Complies with all relevant sections of the CE Marking Directive UL 508 Industrial Control, TUV Approved
European Directives	Machinery Directive 2006/42/EC, Low Voltage Directive 2006/95/EC; EMC Directive 2004/108/EC
European Standards	BS EN 12100 Safety of Machinery. General principles for design. BS EN 1088 Safety of Machinery. Interlocking devices associated with guards. BS EN ISO 13849 Safety of Machinery. Safety related parts of control systems. BS EN ISO 62061 Safety of Machinery. Functional safety of safety related electrical, electronic and programmable electronic control systems BS EN 60204 Safety of Machinery. Electrical equipment of machines. BS EN 60947-5-1 Low-voltage switchgear and controlgear. BS EN 60947-5-3 Low-voltage switchgear and controlgear.

Dimensions

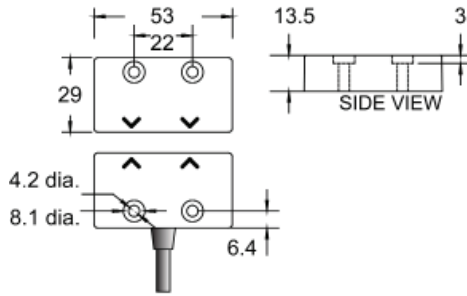
MS5



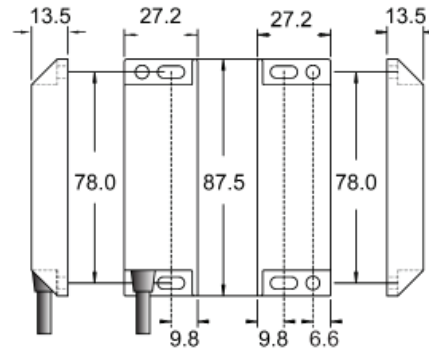
MS7



MS5-SS



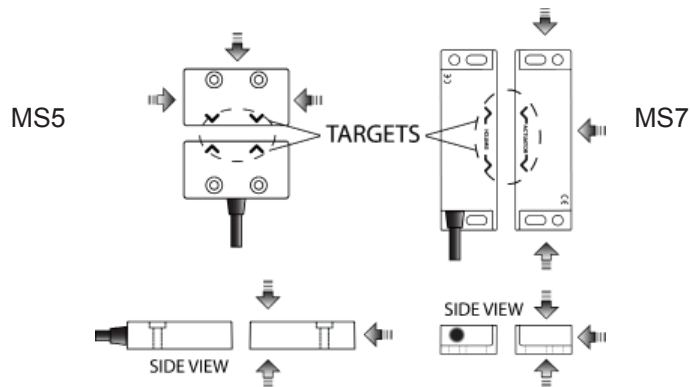
MS7-SS



All Dimensions in MM

Operation

Magnasafe safety switches can approach each other from most directions. When closed the targets printed on the front face of the switches must be aligned.



Mounting

Do not use safety switches as a stop. 1 mm separation when closed provides the best results.

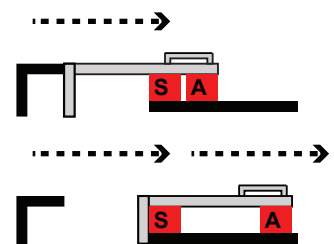
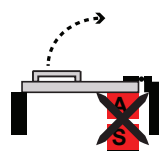
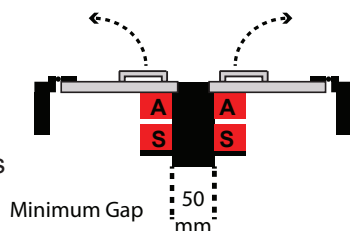
Minimum separation 50mm between adjacent switches.

DO NOT mount on hinged side of the guard.

EN1088 : Hide the actuator where possible.

Mount the switch on to the machine frame and the actuator on to the opening edge of the door.

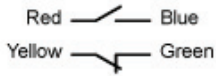
Always try to mount the switch on non-ferrous material. (Ferrous materials may reduce the switching distance.)



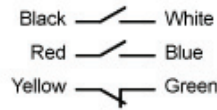
Connections and Fuses

PRE-WIRED

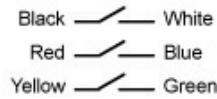
MS7-11



MS5-21 & MS5-SS-21
MS7-21 & MS7-SS-21

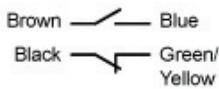


MS7-30

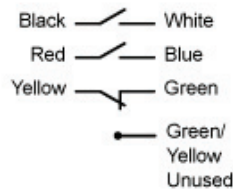


PRE-WIRED HIGH TEMPERATURE

MS5-SS-11-dc-xxHT



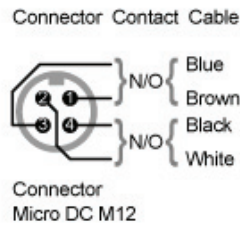
MS5-SS-21-dc-xxHT



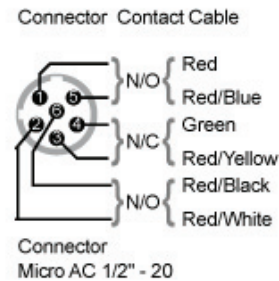
XX= cable length in metres

LEADED QUICK DISCONNECT

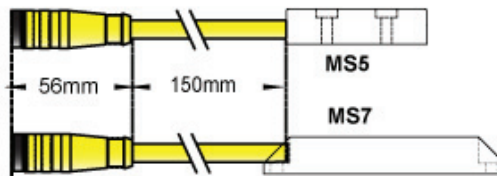
MS5-20-DC-LQD



MS5-21-DC-LQD
MS5-SS-DC-21-LQD
MS7-21-DC-LQD
MS7-SS-21-DC-LQD



LEADED QUICK DISCONNECT OPTION LQD 150mm Cable with M12 Connector



CONTACT OPERATION:

The NO contacts on the Mechan switches are open when the actuator is away from the switch

When the actuator is within the specified operating distance the NO contact(s) will close and the NC contact will open

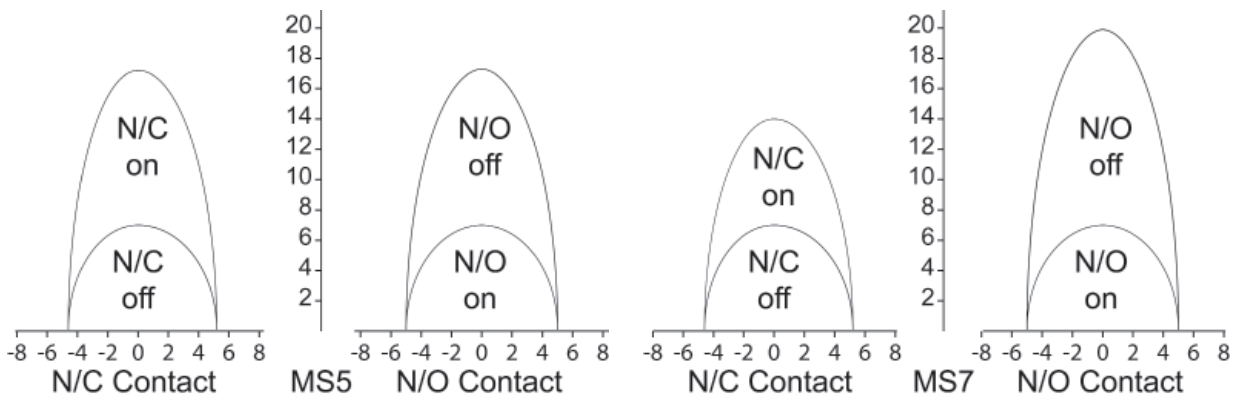
FUSES

All safety contacts should be externally

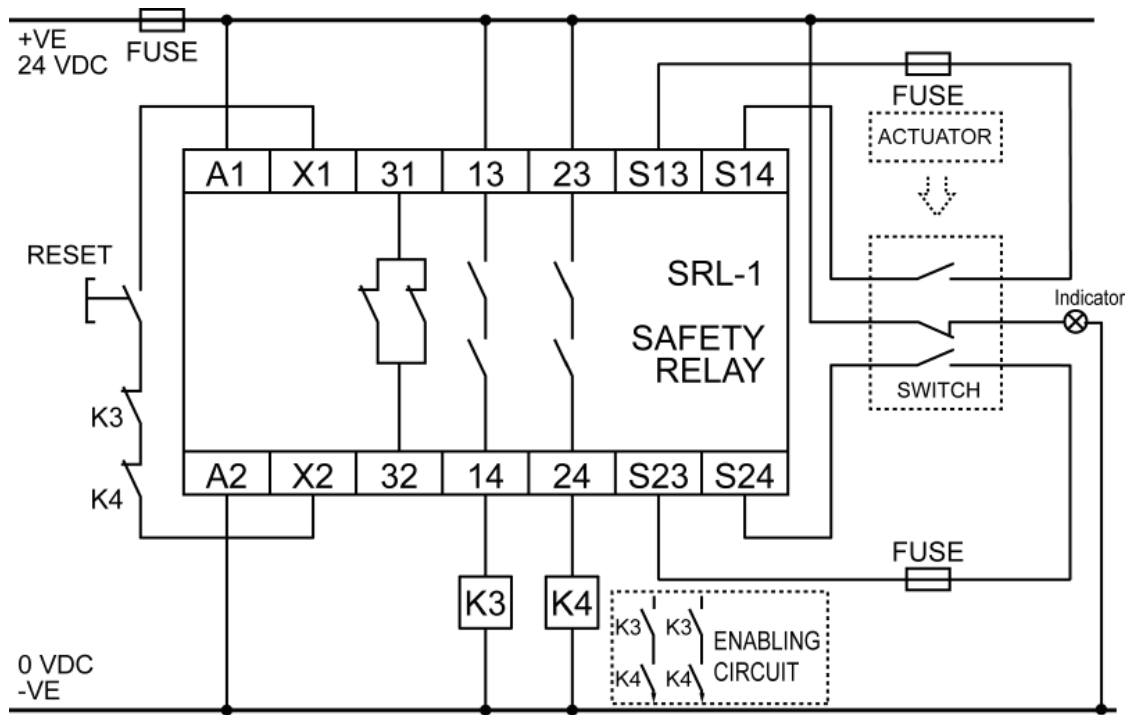
MS5 0.2 Amps Fast Acting MS7 0.2 Amps Fast acting

Switching Characteristics

The chart shows the switching points in millimetres.



Recommended Safety Control Unit



IMPORTANT

CONNECTION TO A SAFETY RELAY

The MS5 & MS7 non-contact safety switches are designed work with safety relays that have a low inrush current on the switch input.

All control contacts should be externally fused

Recommended Safety Control Unit Mechan Part Number : SRL-1 24VAC/DC

Maintenance

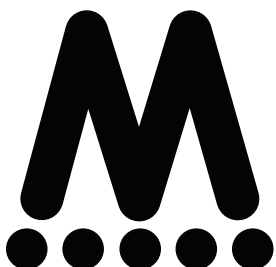
It is recommended to check the safe operation of the of the switches and look for signs of damage or excessive wear on a weekly basis. Damaged units should be replaced or returned to the manufacturer for repair where practical.

Declaration of Conformity

Mechan Controls declares that the products shown conform to the Essential Health and Safety Requirements of the European Machinery Directive. The above products have been third party tested to conform to the requirements of EN-13849-1 and EN 62061. Full declaration of conformity can be downloaded from the Mechan Controls web site www.mechancontrols.co.uk or by contacting Mechan directly Tel : + 44 1695 722264

NOTES

In the interest of product development specifications are subject to change without notice. It is the responsibility of the user to ensure compliance with any acts or by-laws in place. All information regarding Mechan equipment is believed to be accurate at the time of printing. Responsibility cannot be accepted for errors or omissions.



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