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MECHAN CONTROLS PLC

MS4 Safety Switch

Installation Guide

KEEP THIS GUIDE FOR FUTURE REFERENCE

This information is designed to help suitably qualified personnel install and operate Mechan Safety Switch equipment.
Before using this product, read this guide thoroughly along with any relevant European and/or National standards e.g. Machinery Directive 89/392/EEC and it's amendments, Provision and Use of Work Equipment Regulations.

Further information can be obtained from Mechan Controls

MS4 ABS **MS4 SS**

Description

MAGNASAFE MS4 safety switches are magnetically operated non-contact safety switch for use in machine guarding applications.

The MS4 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. The MS4 is easy to install and tolerant to misalignment.

With correct installation, The MS4 safety switches comply with the guidelines given in EN1088.

c UL us Listed

CE

Approvals

CE	Complies with the relevant sections of the CE marking directive.
UL	UL 508, Industrial Control Equipment
EUROPEAN DIRECTIVES	
Machinery Directive 98/37/EC	
Low Voltage Directive 73/23/EC	
Electromagnetic Compatibility Directive 89/336/EC	
EUROPEAN STANDARDS	
EN292	Safety of Machinery Basic concepts, general principles for design.
EN 60204	Safety of Machinery Electrical equipment of machines.
EN 954-1	Safety of Machinery Safety related parts of controls systems
EN 1088	Interlocking devices associated with guards.
EN 60947-5-3	Safety of Machinery Specification for low voltage switchgear and control gear.

Operation

When the safety switch and actuator are within the specified operating range, (See table on page 3 for switching distances) the **Safety Contact** will be closed and the **Auxiliary Contact** will be open.

When the actuator moves out of the operating range, the **Safety Contact** will open. The Auxiliary **Contact** will close for indication.

The MS4 safety switch and actuator are designed to approach each other from most angles. When the switch is closed the targets on the printed face of the switch must be aligned.

Applications

Interlocked guards where door locking is not required.
Food and Beverage packing/filling systems
Diary
Pharmaceutical
Paper Industry
Can Forming and Filling, (Aluminum, Steel, Plastic)
Semiconductor Manufacture/Assembly.

Declaration of Conformity

A Declaration of Conformity may be obtained from Mechan Controls PLC, Tel +44(0)1695 722264
or from the Mechan Web Site at www.mechancontrols.co.uk

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Mounting

The MS4 safety switches can approach each other from most angles. When the guard is closed the targets on the printed face of the switch and actuator must be aligned.

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.)*

Use the tamper proof screws provided to make more secure.

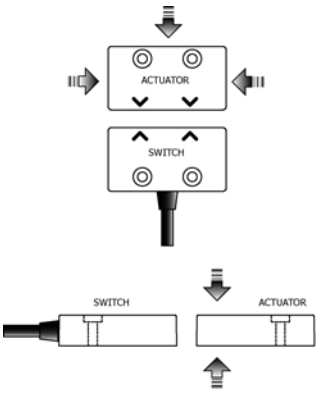
Do not use the safety switch as a door stop.

Leave a minimum of 50 mm between any adjacent switches.

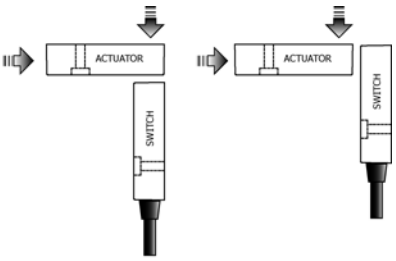
EN 1088
Provides some mounting suggestions, see example opposite.

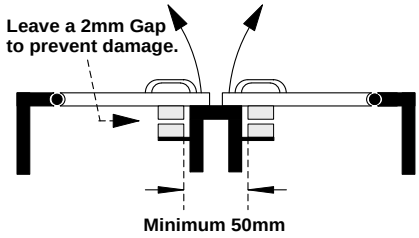
When fixing the safety switch to a sliding door (A), ensure that when the door is opened (B) it is not easily accessible, helping prevent the system being overridden.

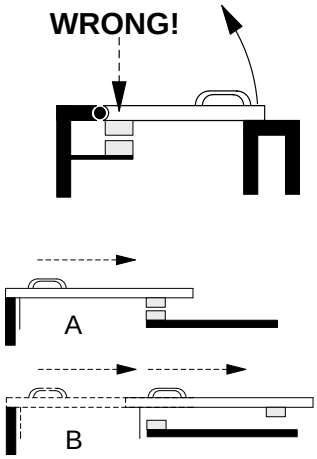
MS4-11 / MS4-10
ABS or SS
MS4-10-110AC



MS4-10-110AC-03M-RA
Only

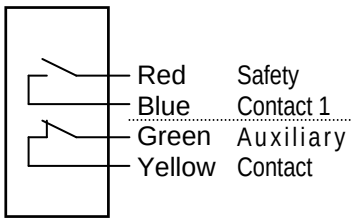




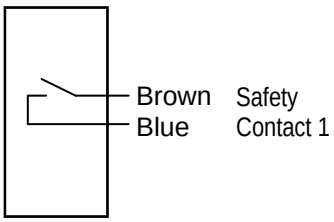


Contacts & Connections

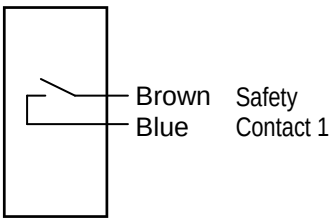
MS4-11-DC
MS4-SS-11-DC



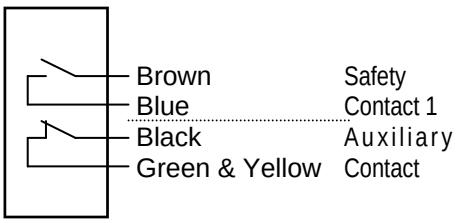
MS4-10-DC
MS4-SS-10-DC



MS4-10-110AC
MS4-10-110AC-03M-RA



MS4-SS-11-DC-HT



All Safety contacts should be fused externally

	Safety Contact External Fuse AC	Safety Contacts External Fuse DC
MS4-11 / MS4-10 (ABS or Stainless Steel)	-	0.8 Amps Quick Blow
MS4-10-110AC	1.6 Amps quick blow	-
MS4-10-110AC-03M-RA	2.5 Amps Quick Blow	-

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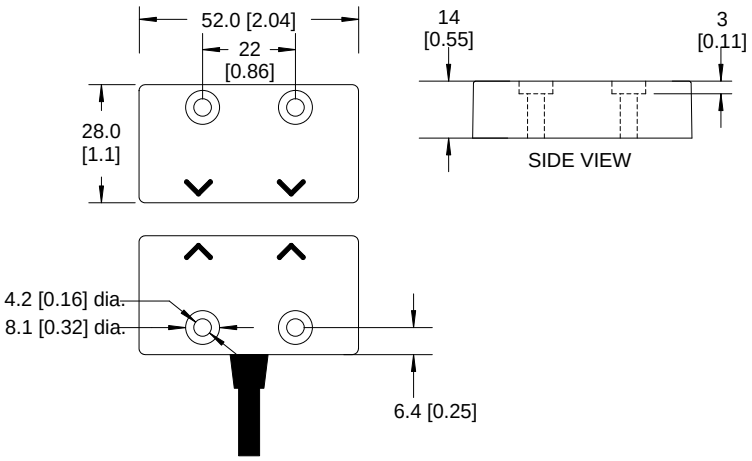
Dimensions

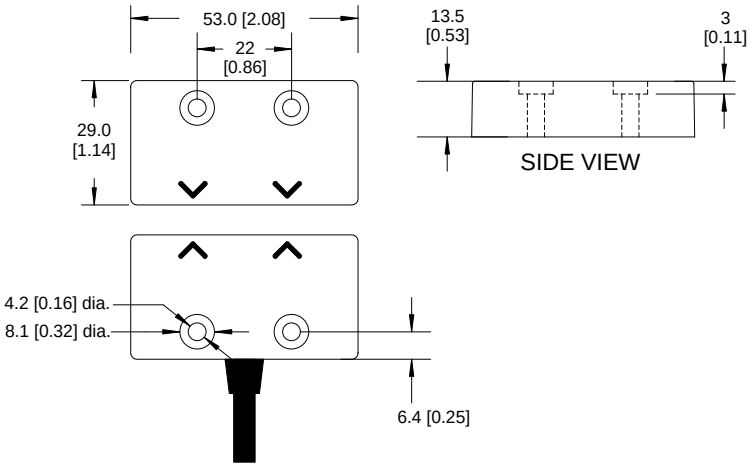
MS4 RED ABS HOUSING

Dimensions in mm and [inches in brackets]



MS4 316 STAINLESS STEEL HOUSING

Dimensions in mm and [inches in brackets]



Technical Specifications

	DC		AC
Type	MS4-10 / MS4-SS-10	MS4-11 MS4-SS-11 / MS4-SS-11-HT	MS4-10-110AC MS4-10-110VAC-RA
Contact Arrangement	1 x N/O Safety	1 x N/O Safety & 1 x N/C Aux.	1 x N/O Safety
Safety Contact Rating	30Vdc / 1Amp Inductive/ Res.	30Vdc / 1Amp Inductive/ Res.	110Vac / 2Amps 110Vac / 3 Amps (MS4-10-110VAC-RA only)
Safety Contact Operating Distance	10mm ON / 25mm OFF	10mm ON / 25mm OFF	10mm ON / 25mm OFF
Safety Contact Close/Drop/ Bounce	3ms / 2.1ms / 0.7ms	3ms / 2.1ms / 0.7ms	3ms / 2.1ms / 0.7ms
Auxiliary Contact Rating	N/A	15W / 10VA	N/A
Auxiliary Contact Operating Distance	N/A	8mm OFF / 10mm ON	N/A
Auxiliary Contact Close/Drop/ Bounce	N/A	0.5ms / 0.3ms / 0.7ms	N/A
Internal Fuse	1Amp Fast Acting	1Amp Fast Acting	2Amp Fast Acting
External Fuse (Customer Supplied)	0.8 Amp Fast Acting	0.8 Amp Fast Acting	1.6 Amps Fast Acting 2.5 Amps Fast Acting (MS4-10-110VAC-RA only)
IP Rating	IP67	IP67	IP67
Vibration / Shock	50—100Hz / 10g	50—100Hz / 10g	50—100Hz / 10g
Operating Temperature	-10 to +55C	-10 to +55C -10 to +95C (HT version only)	-10 to +55C
Mounting & Fixture	Target to Target	Target to Target	Target to Target
Connection	Pre-wired cable	Pre-wired cable	Pre-wired cable
Construction	Red ABS Resin Filled or 316 Grade Stainless Steel	Red ABS Resin Filled or 316 Grade Stainless Steel	Red ABS Resin Filled

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Part Numbers

PART NUMBER	DESCRIPTION	STOCK CODE
DC		
MS4-10-DC-03M	1 x N/O, DC, ABS, Safety Switch & Actuator, 3 metre Pre-wired	353.001
MS4-11-DC-03M	1 x N/O + 1 x N/C, DC, ABS, Safety Switch & Actuator, 3 metre Pre-wired	353.002
MS4-SS-10-DC-03M	1 x N/O, DC, Stainless Steel, Safety Switch & Actuator, 3 metre Pre-wired	353.006
MS4-SS-11-DC-03M	1 x N/O + 1 x N/C, DC, Stainless Steel, Safety Switch & Actuator, 3 metre Pre-wired	353.005
AC		
MS4-10-110AC-03M	1 x N/O, 110V AC, ABS, Safety Switch & Actuator, 3 metre Pre-wired	353.004
MS4-10-110AC-03M-RA	1 x N/O, 110V AC, ABS, Safety Switch & Actuator, 3 metre Pre-wired Right Angled Actuation	
LONGER CABLES AVAILABLE		

Specification Changes

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 that may be in force.

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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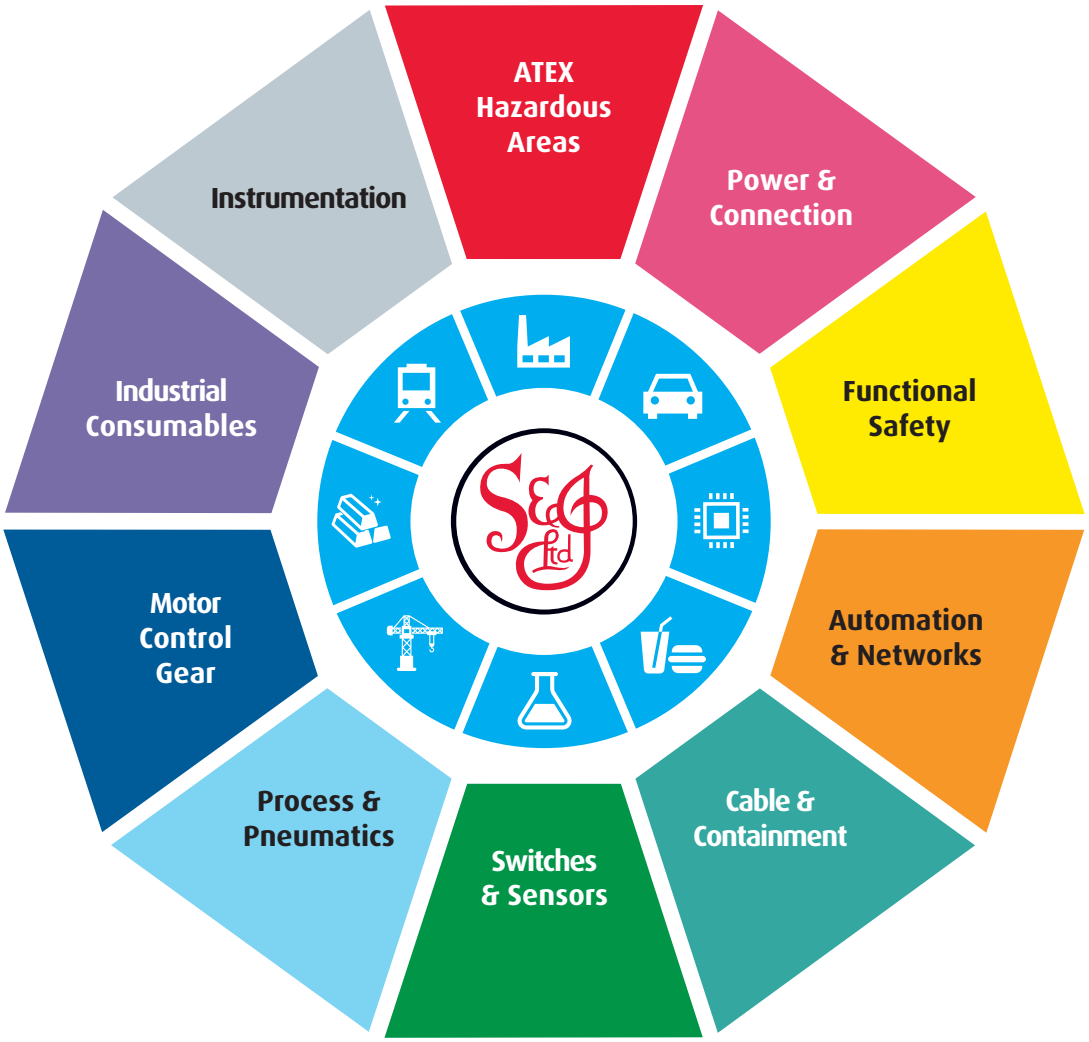

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