Safety,
Technology
& Innovation

CM-S Series

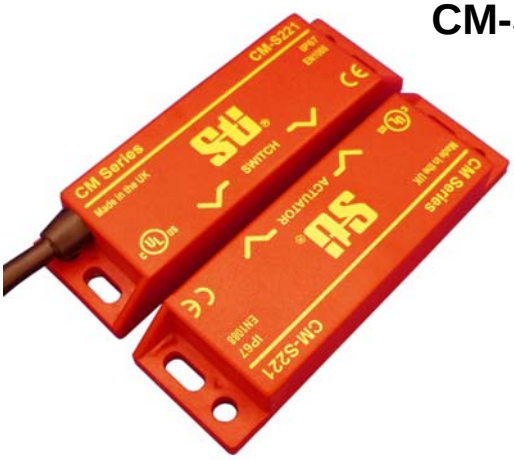
Operating Instructions for CM-S221 Safety Switches

KEEP THIS GUIDE FOR FUTURE REFERENCE

This information is designed to help suitably qualified personnel install and operate Omron Scientific Technologies, Inc. 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
Omron Scientific Technologies, Inc.

CM-S221



Description

CM-S221 safety switches are a coded magnet safety switch for use in machine guarding applications.

Designed for use in applications where increased security is required, the CM-S221 has a coded magnetic actuator and cannot be fully operated with a single magnet.

The CM-S221 switches are designed to be connected to a safety control circuit which has less than 0.5 Amps inrush current.

The CM-S221 is manufactured in a robust ABS housing and fully sealed to IP67 and can be used in wet or dusty environments.

With correct installation, the CM-S221 safety switches comply with the guidelines given in EN1088.

Operation

When installed on a machine guard, and the switch and actuator are within the specified operating range, the **N/C Contacts** will be closed and the **N/O Contacts** will be open (See table on page 4 for switching distances)

When the actuator moves out of the operating range, the **N/C Contacts** will open. The **N/O Contacts** will close for indication.

The CM-S221 safety switch and actuator are designed to 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.

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.

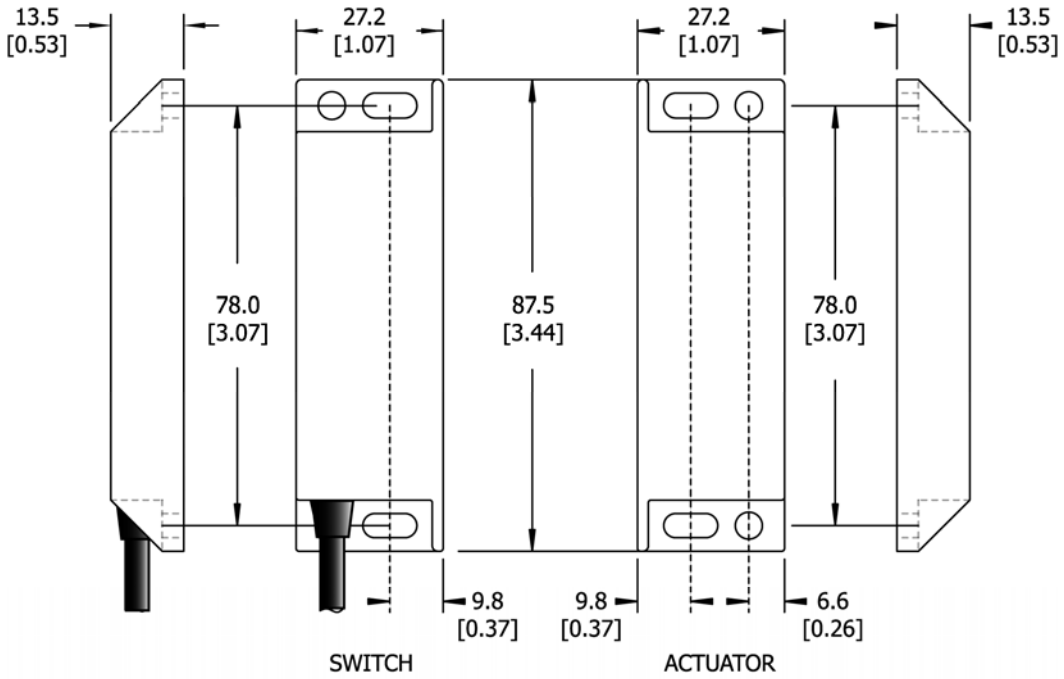
Approvals

CE	Complies with the relevant sections of the CE marking directive.
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 EN ISO 13849-1	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.

Certificate of Conformity

A Declaration of Conformity may be obtained from the Omron STI web site, www.sti.com

Dimensions

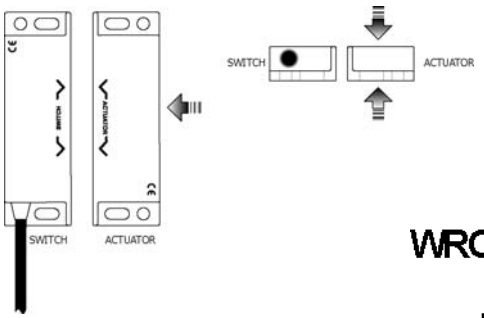


DIMENSIONS IN
MM [INCHES]

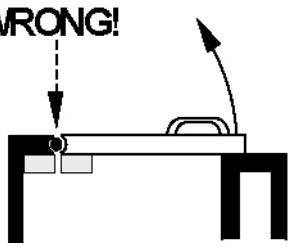
Mounting

The CM-S221 safety switches can approach each other from most angles.

When the switch is closed the targets on the printed face of the switch must be aligned.

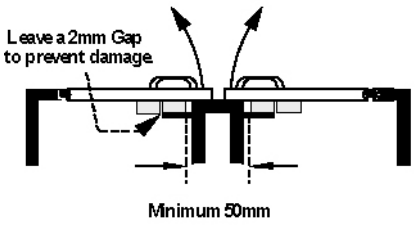


Mount the switch on to the machine frame and the Actuator on to the opening edge of the door. Always try to mount the switch on non-ferrous material.
Ferrous materials may reduce the switching distance.

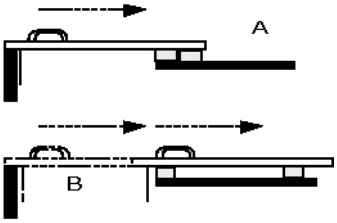


Use the tamper proof screws.

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.

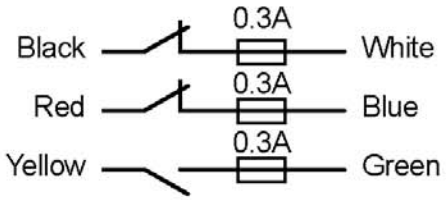


When fixing the safety switch to a sliding door (A), ensure that when the door is opened (B) it is not
easily accessible, helping prevent the system being overridden.

Connection

ABS - Pre-wired

CM-S221



Fuses

PRODUCT	FUSE Rating (All contacts)
CM-S221	0.3 Amps
All external fuses should be a 'FAST ACTING'	

TECHNICAL SPECIFICATION

PRODUCT	CM-S221
Contact Arrangements	2 x N/C + 1 x N/O
N/C Safety Contact Rating	24Vdc / 0.3Amp Inductive/Resistive
N/C Safety Contact Operating Distance	7mm ON / 10mm OFF
N/C Safety Contact Close/Drop/Bounce	3ms / 2.1ms / 0.7ms
N/O Safety Contact Rating	24Vdc / 0.3Amp Inductive/Resistive
N/O Safety Contact Operating Distance	7mm OFF / 10mm ON
N/O Safety Contact Close/Drop/Bounce	0.5ms / 0.3ms / 0.7ms
External Fuse (Customer Supplied)	0.3 Amp Fast Acting
IP Rating	IP67
Vibration / Shock	50—100Hz / 10g
Operating Temperature	-10°C to +55°C
Mounting & Fixture	Target to Target
Connection	Pre-wired
Construction	ABS Resin encapsulated

Specification Changes

In the interest of product development, specifications are subject to change without notice.

Note

The N/C contacts of the STI switches are described as normally closed (N/C) when the guard closed, actuator in place, and the machine able to be started. The N/O contacts are open when the guard is open.

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OMRON SCIENTIFIC TECHNOLOGIES, INC.
6550 Dumbarton Circle, Fremont CA 94555-3605 USA
Tel: 1/510/608-3400
Fax: 1/510/744-1442
E-mail: sales@sti.com
www.sti.com

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