

CM 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.

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

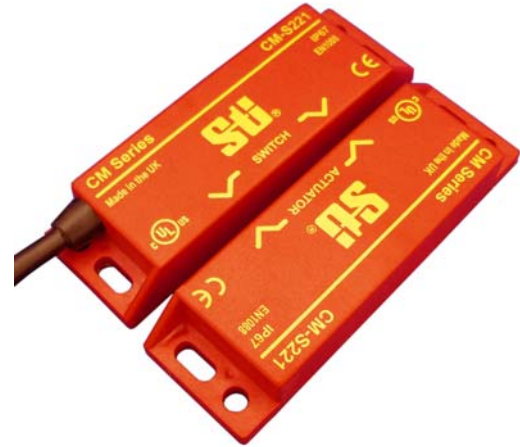
When the safety switch and actuator are within the specified operating range (see table on page 3 for switching distances), the N/C contacts will be closed and the N/O contacts will be open.

When the actuator moves out of the operating range, the N/C contacts will open and the N/O contacts will close. Both the N/C and N/O contacts may be used for safety.

The CM-S221 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
- Dairy
- 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

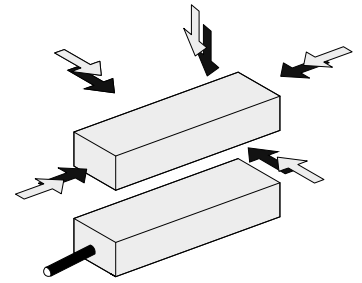
EN292	Safety of Machinery Basic concepts, general principles for design.
EN 60204	Safety of Machinery Electrical equipment of machines.
EN 954-1	Safety of Machinery Safety related parts of controls systems
EN 1088	Interlocking devices associated with guards.
EN 60947-5-3	Safety of Machinery Specification for low voltage switchgear and control gear.

Certificate of Conformity

A Declaration of Conformity can be obtained from the Omron Scientific Technologies, Inc. web Site: www.sti.com

Mounting

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

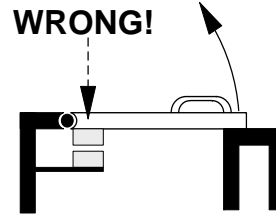


When the switch is closed the targets on the printed face of the switch must be aligned.

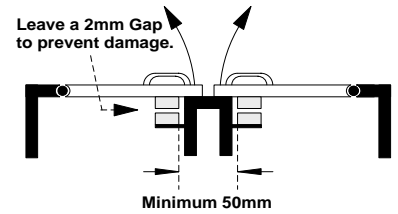
Mount the switch on to the machine frame and the actuator on to the opening edge of the door. Always try to mount the switch on non-ferrous material.

Ferrous materials may reduce the switching distance.

Use the tamper proof screws.



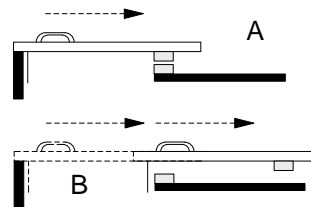
Do not use the safety switch as a door stop. Leave a minimum of 50 mm between any adjacent switches.



EN 1088

Provides some mounting suggestions, see example opposite.

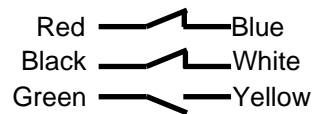
When fixing the safety switch to a sliding door (A), ensure that when the door is opened (B) it is not easily accessible, helping prevent the system being overridden.



Contacts & Connections

PRE-WIRED SWITCHES

CM-S221



External Fusing

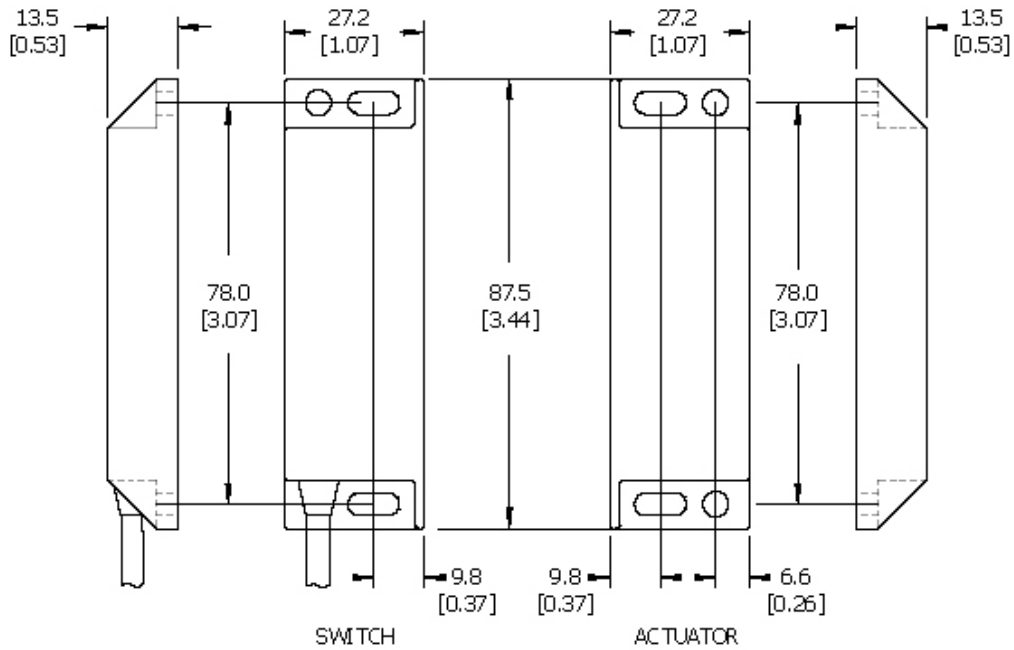
All contacts should be fused externally

		DC
CM-S221		0.2 Amps

Dimensions

CM-S221 RED ABS HOUSING

Dimensions in mm and [inches
in brackets]



Technical Specifications

	DC Switching
Contacts Arrangements:	2 x N/C + 1 x N/O
N/C Contact Rating	24Vdc / 0.3Amp Inductive/Resistive
N/C Contact Operating Distance	7mm ON / 12mm OFF
N/C Contact Close/Drop/Bounce	3ms / 2.1ms / 0.7ms
N/O Contact Rating	24Vdc / 0.3Amp Inductive/Resistive
N/O Contact Operating Distance	8mm OFF / 10mm ON
N/O Contact Close/Drop/Bounce	0.5ms / 0.3ms / 0.7ms
External Fuse (Customer Supplied)	0.2 Amp Fast Acting
IP Rating	IP67
Vibration / Shock	50—100Hz / 10g
Operating Temperature	-10 to +55C
Mounting & Fixture	Target to Target
Connection	Pre-wired
Construction	Red ABS Resin Filled

Specification Changes

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

Note

The safety contacts of the Omron Scientific Technologies, Inc. switches are described as normally closed (N/C)
i.e. With the guard closed, actuator in place, and the machine able to be started.

OMRON AUTOMATION AND SAFETY • THE AMERICAS HEADQUARTERS • Chicago, IL USA • 847.843.7900 • 800.556.6766 • www.omron247.com

OMRON CANADA, INC. • HEAD OFFICE

Toronto, ON, Canada • 416.286.6465 • 866.986.6766 • www.omron247.com

OMRON ELECTRONICS DE MEXICO • HEAD OFFICE

México DF • 52.55.59.01.43.00 • 01-800-226-6766 • mela@omron.com

OMRON ELECTRONICS DE MEXICO • SALES OFFICE

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