

## CM-S Series

### Operating Instructions for CM-S5, CM-S521 & CM-S6, CM-S621 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-S SERIES safety switches are a coded magnet safety switch for use in machine guarding applications.

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

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

The **CM-S SERIES** are 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-S SERIES 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 Contact** 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 Contact** will close.

The CM-S SERIES 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  
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	UL 508, Industrial Control Equipment

#### EUROPEAN DIRECTIVES

Machinery Directive 98/37/EC
Low Voltage Directive 73/23/EC
Electromagnetic Compatibility Directive 89/336/EC

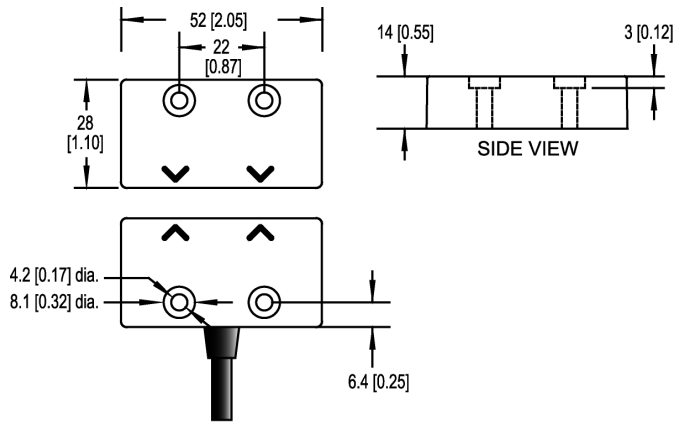
#### EUROPEAN STANDARDS

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.

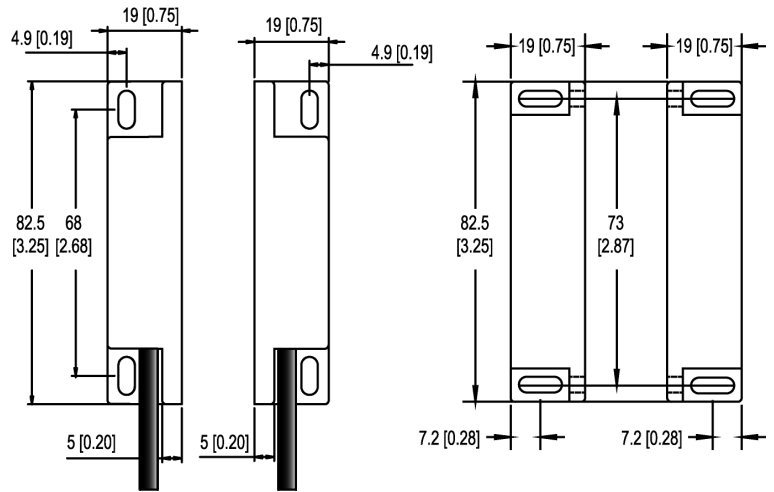
#### Declaration of Conformity

A Declaration of Conformity can be obtained from the Omron Scientific Technologies, Inc. web Site: [www.sti.com](http://www.sti.com)

## Dimensions



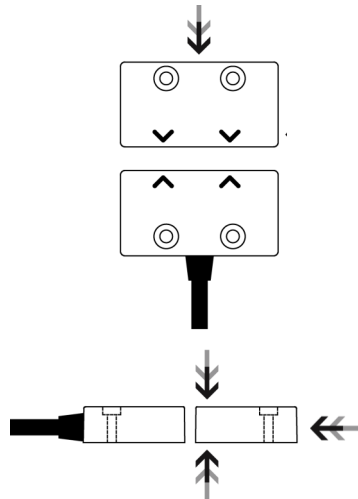
CM-S5, CM-S521



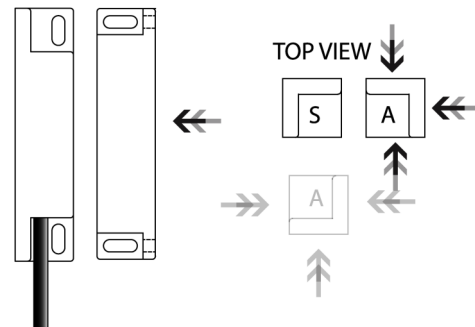
CM-S6, CM-S621

## Operation

CM-S5, CM-S521



CM-S6, CM-621



## Mounting

The CM-S SERIES 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.

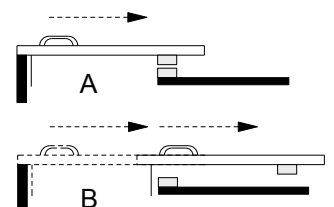
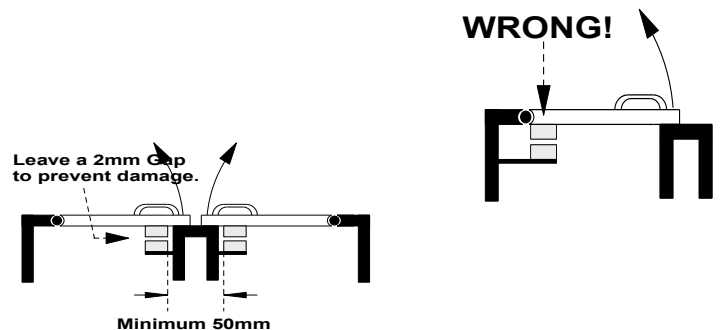
Do not use the safety switch as a door stop.

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.

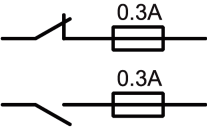



# CONNECTIONS

## ABS - Pre-wired

<p><b>CM-S5</b></p> <p>Red  Blue</p> <p>Yellow  Green</p>	<p><b>CM-S521</b></p> <p>Black  White</p> <p>Red  Blue</p> <p>Yellow  Green</p>	<p><b>CM-S6</b></p> <p>Red  Blue</p> <p>Yellow  Green</p>	<p><b>CM-S621</b></p> <p>Black  White</p> <p>Red  Blue</p> <p>Yellow  Green</p>
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## FUSES

<p><b>CM-S5 / CM-S6</b></p>  <p>All Contacts</p>	<p><b>CM-S521 / CM-S621</b></p>  <p>All Contacts</p>
<p>All external fuses should be a 'FAST ACTING'</p>	

## Technical Specifications

PRODUCT	CM-S521	CM-S5	CM-S621	CM-S6
Contact Arrangements	2 x N/C + 1 x N/O	1 x N/C + 1 x N/O	2 x N/C + 1 x N/O	1 x N/C + 1 x N/O
N/C Safety Contact Rating	24Vdc / 0.3Amp Inductive/Resistive		24Vdc / 0.3Amp Inductive/Resistive	
N/C Safety Contact Operating Distance	7mm ON / 10mm OFF		7mm ON / 10mm OFF	
N/C Safety Contact Close/Drop/Bounce	3ms / 2.1ms / 0.7ms		3ms / 2.1ms / 0.7ms	
N/O Safety Contact Rating	24Vdc / 0.3Amp Inductive/Resistive		24Vdc / 0.3Amp Inductive/Resistive	
N/O Safety Contact Operating Distance	7mm OFF / 10mm ON		7mm OFF / 10mm ON	
N/O Safety Contact Close/Drop/Bounce	0.5ms / 0.3ms / 0.7ms		0.5ms / 0.3ms / 0.7ms	
External Fuse (Customer Supplied)	0.3 Amp Fast Acting		0.3 Amp Fast Acting	
IP Rating	IP67		IP67	
Vibration / Shock	50—100Hz / 10g		50—100Hz / 10g	
Operating Temperature	-10 to +55C		-10 to +55C	
Mounting & Fixture	Target to Target		Target to Target	
Connection	Pre-wired		Pre-wired	
Construction	Red ABS		Red ABS	

### 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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