



Conforms to EN1088, EN292, EN60204-1
UL and C-UL listed (pending on MA-34, 35, 36)



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safety interlock switches

MA-S Series

Stainless Steel Magnetically Actuated Safety Interlock Switches and Actuators

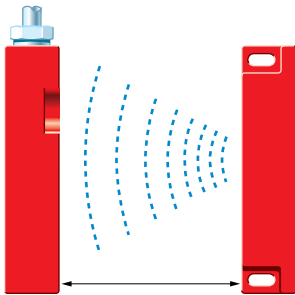
- Stainless steel cases—both switch and actuator are housed in stainless steel for applications that require the use of this robust and corrosion resistant material
- Large selection—choose from a variety of contact configurations housed in stainless steel to satisfy the most demanding applications
- NEMA 6 enclosure enables the MA-S Series switches to satisfy most application requirements
- Misalignment tolerant—the non-contact actuation of the MA-S Series switches makes them very tolerant to misalignment of up to 10 mm (0.39 in.)
- High temperature—the MA-S switches and cables are designed to operate in temperatures up to 125°C (257°F)
- Long life—the MA-S Series safety interlock switches are designed for a minimum of one million actuations

A **Go to the Engineering Guide**
For in-depth information on safety standards and use.

N **For More Guarding Products**
See Section N for safeguarding cutting and turning machines

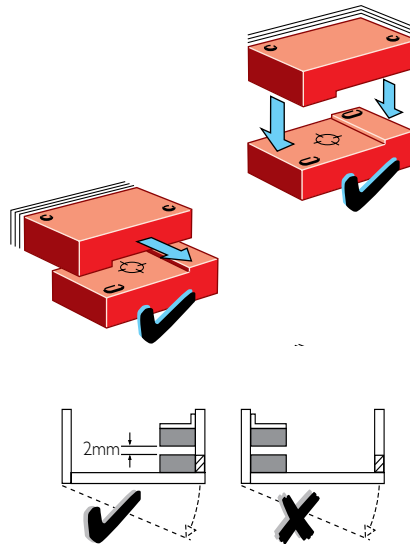
■ Operation

Operating Principle

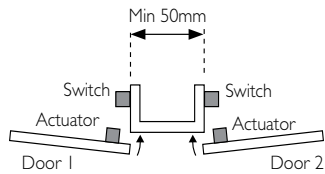
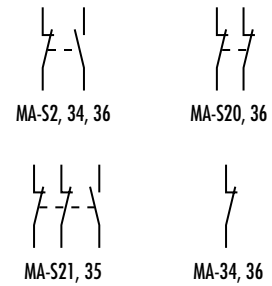


Encapsulated in the MA Series is a unique high-power industrial reed which is de-rated by a non-resettable overload protection circuit depending on switch type. On presenting the actuator to the switch, the high intensity magnetic field from the actuator causes the contacts to close. On removing the actuator (opening the door), the safety contacts open, isolating the machine.

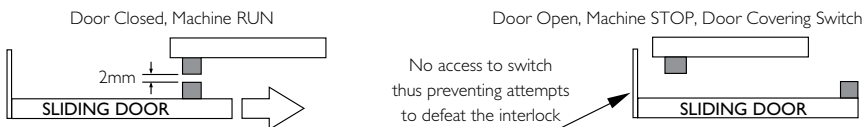
Mounting Examples



Contact Arrangements



It is advisable, where possible, to mount the switch and actuator on non-ferrous materials otherwise it may affect the operating distances.

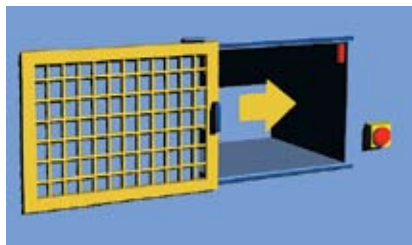


Wherever possible the units should be mounted so that no access can be obtained to the switch when the guard door is open, thus preventing attempts to defeat the safety system.

 Universal Mounting Brackets can be used with this product. See page G241 for details.

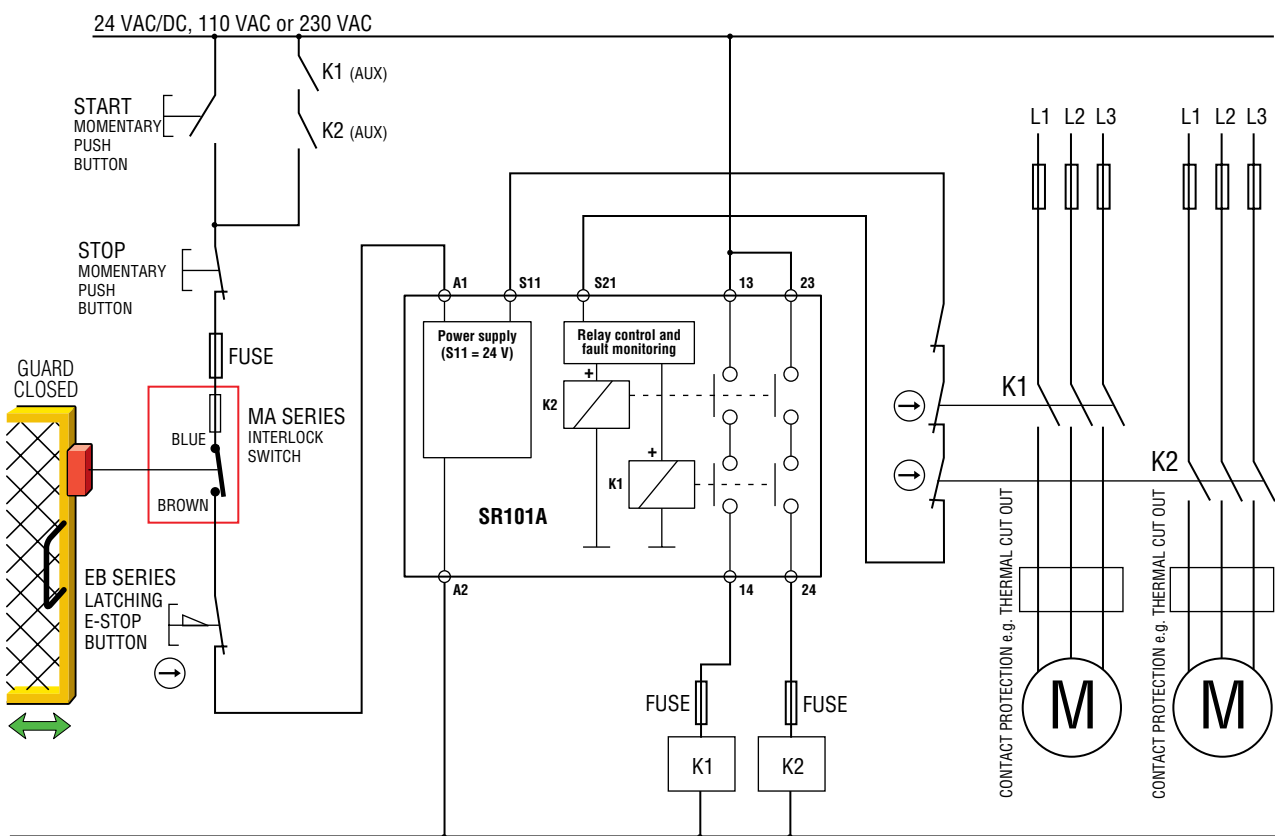
Applications

Typical applications are on sliding guard doors or swinging guard doors.



Typical Application of MA Series with a Safety Monitoring Relay

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 For a full explanation of the circuit operating principle and fault detection, see "Common Circuit Examples" in the Engineering Section of this catalog.

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■ Specifications

Electrical		All Models Unless Indicated	
Safety Contacts:	AC models	MA-S2, 36 — 1 N/C	MA-S20, S21 — 2 N/C
	DC models	MA-S2, 34, 36 — 1 N/C	MA-S20, S21, 35, 36 — 2 N/C
Safety Contact Operating Distance:	Make 7-12 mm (0.28-0.47 in.); Break 12-25 mm (0.47 to 0.98 in.)		
Auxiliary Contacts:	MA-S2, S21, 34, 35, 36	1 N/O	
Aux. Contact Operating Distance:	MA-S2, S21, 34, 35, S36	Make 10-13 mm (0.39-0.51 in.); Break 8-10 mm (0.31-0.39 in.)	
Safety Rated Voltage:	AC models	230 VAC	
	DC models	30 VDC	
Safety Rated Current:	AC models	2 A max., fuse externally 1.6 A quick acting	
	DC models: All except MA-35	1 A, fuse externally 800 mA quick acting	
	DC model: MA-35	0.3 A max., fuse externally 0.2 A quick acting	
Internal Fuse	AC models	2 A fast acting	
	DC models: All except MA-35	1 A fast acting	
External Fuse (Customer Supplied)	AC models	1.6 A fast acting	
	DC models	0.8 A fast acting	
Electrical Life:	1 x 10 ⁶		
Mechanical—Special Safety Reed		Safety	Aux.
Closing Time:	3.0 mS		0.5 mS
Drop-Out Time:	2.1 mS		0.3 mS
Bounce Time:	0.7 mS		0.7 mS
Shock:	10 G		10 G
Vibration:	10 G, 50 to 100 Hz		
Mechanical			
Mounting:	Any position		
Case Material:	Stainless steel		
Actuator Material:	Stainless steel		
Wiring Connection:	Various lengths or male M12 micro connector		
Weight:	600 g (1 lb. 5 oz.)		
Color:	Stainless steel		
Mechanical Life:	10 x 10 ⁶		
Environmental			
Protection:	IP67 (NEMA 6)		
Operating Temperature:	MA-S2, S20, S21	-10 to 125°C (14 to 257°F)	
	MA-34, 35, 36	-10 to 55°C (14 to 131°F)	
Compliance			
Standards:	EN1088, EN292, EN60204-1		
Approvals/Listings:	CE marked for all applicable directives		
	MA-S2, S20, S21	UL and C-UL	
	MA-34, 35, 36	UL and C-UL	

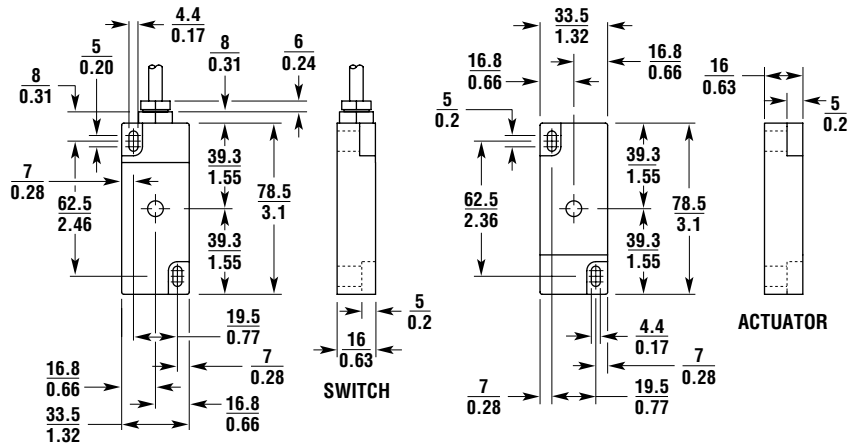
Specifications are subject to change without notice.

Note: The safety contacts of the Omron STI switches are described as normally closed (N/C)— i.e., with the guard closed, actuator in place, and the machine able to be started.

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safety interlock switches

■ Dimensions — mm/in.

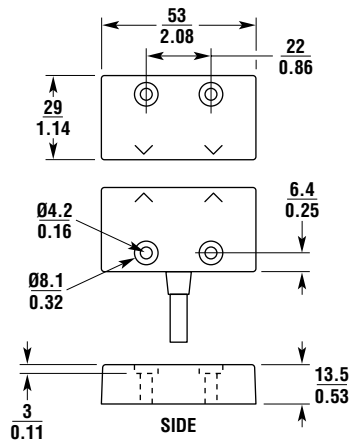
MA-S2, S20, S21



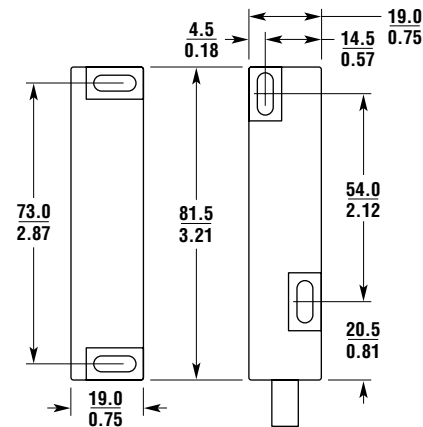
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MA-34, 35



MA-36



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For in-depth information on safety standards and use.

N **For More Guarding Products**
See Section N for safeguarding cutting and turning machines

■ Ordering

Model	Contacts	Wiring Entry	Part No.
AC ONLY			
MA-S2ASC3	1 N/C + 1 N/O	3 m cable, pre-wired	44507-0400
MA-S20ASC3	2 N/C	3 m cable, pre-wired	44507-0420
MA-S21ASC3	2 N/C + 1 N/O	3 m cable, pre-wired	44507-0440
MA-36AS10C3	1 N/C	3 m cable, pre-wired	44507-3650
MA-36AS10CC	1 N/C	Connector, micro dual key way	44507-3659
MA-36AS10CC5	1 N/C	Connector, micro dual key way + 5 m cable	44507-3658
DC ONLY			
MA-S2DSC3	1 N/C + 1 N/O	3 m cable, pre-wired	44507-0410
MA-S20DSC3	2 N/C	3 m cable, pre-wired	44507-0430
MA-S21DSC3	2 N/C + 1 N/O	3 m cable, pre-wired	44507-0450
MA-34DS10C3	1 N/C	3 m cable, pre-wired	44507-3410
MA-34DS10C10	1 N/C	10 m cable, pre-wired	44507-3411
MA-34DS11C3	1 N/C + 1 N/O	3 m cable, pre-wired	44507-3420
MA-35DS21C3	2 N/C + 1 N/O	3 m cable, pre-wired (300 mA max.)	44507-3540
MA-35DS21C5	2 N/C + 1 N/O	5 m cable, pre-wired (300 mA max.)	44507-3541
MA-35DS21C5HT	2 N/C + 1 N/O	5 m HT cable, pre-wired (300 mA max.)	44507-3542
MA-35DS21C12	2 N/C + 1 N/O	12 m cable, pre-wired (300 mA max.)	44507-3543
MA-35DS21CC	2 N/C + 1 N/O	Connector, micro dual key way (300 mA max.)	44507-3549
MA-36DS10C3	1 N/C	3 m cable, pre-wired	44507-3610
MA-36DS11C3	1 N/C + 1 N/O	3 m cable, pre-wired	44507-3620
MA-36DS20C3	2 N/C	3 m cable, pre-wired	44507-3630
MA-36DS21C3	2 N/C + 1 N/O	3 m cable, pre-wired	44507-3640
Replacement Actuator for MA-S2, S20, S21, Stainless Steel			44507-0760
Replacement Actuator for MA-34, Stainless Steel			44507-0734
Replacement Actuator for MA-35, Stainless Steel			44507-0735
Replacement Actuator for MA-36, Stainless Steel			44507-0736
Accessories (see page G238)			

■ = New product



Universal Mounting Brackets can be used with this product. See page G241 for details.

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