

Interlock Switches

Hinge Switches

Sprite™



Description

The Sprite is a hinge-actuated safety interlock switch in a compact housing—only 75 x 25 x 29 mm (2.95 x 0.98 x 1.14 in.)—making it the smallest interlock currently available. The Sprite has been designed for smaller machines such as printing machines, copiers and domestic machinery, which until now, have been able to use standard safety interlocks due to space restrictions. Despite its small size, the Sprite includes the necessary safety-related functions, such as forced-guided contacts and a tamper-resistant mechanism allowing machinery to be safeguarded in compliance with the machinery directive.

The shaft of the Sprite is connected to the existing hinge pin and the degree of operation can be adjusted to suit the application via the adjustable cam in the switch head.



**IMPORTANT:** After adjustment, the cam must be secured in position with the supplied cam locking pin to ensure optimal performance.

Features

- Ideal for small, light-weight guards
- The smallest hinge interlock switch available, 75 x 25 mm case
- Degree of operation can be customized with adjustable cam
- Contacts, 2 N.C. or 1 N.C. & 1 N.O.
- Four possible shaft positions, easy to install

Specifications

Safety Ratings	
Standards	EN954-1, ISO13849-1, IEC/EN60204-1, NFPA79, EN1088, ISO14119, IEC/EN60947-5-1, ANSI B11.19, AS4024.1
Safety Classification	Cat. 1 device per EN 954-1 May be suitable for use in Cat 3 or Cat 4 systems depending on the architecture and application characteristics
Functional Safety Data *	B10d: > 2 x 10 <sup>6</sup> operations at min. load PFH <sub>D</sub> : < 3 x 10 <sup>-7</sup> MTTFd: > 385 years May be suitable for use in performance levels Pl <sub>e</sub> or Pl <sub>d</sub> systems (according to ISO 13849-1:2006) and for use in SIL2 or SIL3 systems (according to IEC 62061) depending on the architecture and application characteristics
Certifications	CE Marked for all applicable directives, cULus NRTL/C and TÜV
Outputs	
Safety Contacts *	2 N.C. direct-opening action   1 N.C. direct-opening action
Auxiliary Contacts	—   1 N.O.
Shaft Rotation for Contact Operation	Maximum 11°; Minimum 3° (adjustable)
Thermal Current I <sub>th</sub>	10 A
Rated Insulation Voltage	(U <sub>i</sub> ) 500V
Switching Current @ Voltage, Min.	5 mA @ 5V DC
Utilization Category	
A600/AC-15	(U <sub>e</sub> ) 600V   500V   240V   120V (I <sub>e</sub> ) 1.2 A   1.4 A   3 A   6 A
DC-13	(U <sub>e</sub> ) 24V         (I <sub>e</sub> ) 2 A
Operating Characteristics	
Break Contact Force, Min.	8 cNm (torque on shaft)
Actuation Speed, Max.	160 mm (6.29 in.)/s
Actuation Frequency, Max.	1 cycle/s
Operating Life @ 100 mA load	1,000,000 operations
Environmental	
Enclosure Type Rating	IP67
Operating Temperature [C (F)]	-20...+80° (-4...176°)
Physical Characteristics	
Housing Material	UL Approved glass-filled PBT
Shaft Material	Stainless Steel
Weight [g (lb)]	80 (0.176)
Color	Red

\* Usable for ISO 13849-1:2006 and IEC 62061. Data is based on the B10d value given and:  
 - Usage rate of 1op/10 mins., 24 hrs/day, 360 days/year, representing 51840 operations per year  
 - Mission time/Proof test interval of 38 years

\* The safety contacts are described as normally closed (N.C.) i.e., with the guard closed, actuator in place (where relevant) and the machine able to be started.

3-Interlock Switches

**Product Selection**

Contact			Shaft Type	Actuator Shaft Dimensions—mm (in)	Cat. No.			
Safety	Auxiliary	Action			M16 Conduit		Connector§	
					M16	1/2 inch NPT Adaptor	4-Pin Micro (M12)	Connect to ArmorBlock Guard I/O 5-Pin Micro (M12)
2 N.C.	—	—	Solid	80 x Ø10 (3.14 x 0.39)	440H-S34019	440H-S34023	440H-S34027	—
				60 x Ø8 (2.36 x 0.31)	440H-S34020	440H-S34024	440H-S34028	—
				50 x Ø10(1.96 x 0.39)	440H-S34010	440H-S34017	440H-S34014	440H-S2NNPPS
1 N.C.	1 N.O.	BBM	Pre-Bored	30 x Ø16 (1.18 x 0.63) bore Ø9.5 (0.37)	440H-S34033	440H-S34034	440H-S34035	440H-S2NNHPS
				80 x Ø10 (3.14 x 0.39)	440H-S34021	440H-S34025	440H-S34029	—
				60 x Ø8 (2.36 x 0.31)	440H-S34022	440H-S34026	440H-S34030	—
Pre-Bored	50 x Ø10(1.96 x 0.39)	440H-S34012	440H-S34018	440H-S34015	—			
	30 x Ø16 (1.18 x 0.63) bore Ø9.5 (0.37)	440H-S34036	—	—	—			

§ For connector ratings, see page 3-9.

**Recommended Logic Interfaces**

Description	Safety Outputs	Auxiliary Outputs	Terminals	Reset Type	Power Supply	Cat. Page No.	Cat. No.
<b>Single-Function Safety Relays</b>							
MSR127RP	3 N.O.	1 N.C.	Removable (Screw)	Monitored Manual	24V AC/DC	5-26	<b>440R-N23135</b>
MSR127TP	3 N.O.	1 N.C.	Removable (Screw)	Auto./Manual	24V AC/DC	5-26	<b>440R-N23132</b>
MSR9T	2 N.O.	1 N.C.	Fixed	Auto./Manual	24V AC/DC	5-14	440R-F23027
MSR30RT	2 N.O. Solid State	1 N.O. Solid State	Removable	Auto./Manual or Monitored Manual	24V DC	5-16	440R-N23198
MSR33RT	2 N.O. Solid State	1 N.O.	Removable	Auto. or Monitored Manual	24V DC SELV	5-18	440R-F23200
<b>Modular Safety Relays</b>							
MSR210P Base 2 N.C. only	2 N.O.	1 N.C. and 2 PNP Solid State	Removable	Auto./Manual or Monitored Manual	24V DC from the base unit	5-82	440R-H23176
MSR220P Input Module	—	—	Removable	—	24V DC	5-86	440R-H23178
MSR310P Base	MSR300 Series Output Modules	3 PNP Solid State	Removable	Auto./Manual Monitored Manual	24V DC	5-102	440R-W23219
MSR320P Input Module	—	2 PNP Solid State	Removable	—	24V DC from the base unit	5-106	440R-W23218

**Note:** For additional Safety Relays connectivity, see page 5-12.  
 For additional Safety I/O and Safety PLC connectivity, see page 5-116.  
 For application and wiring diagrams, see page 10-1.

**Connection Systems**

Description	4-Pin Micro (M12)		5-Pin Micro (M12) for ArmorBlock Guard I/O
	2 N.C.	1 N.C. & 1 N.O.	2 N.C.
Cordset	889D-F4AC-*	889D-F4AC-*	—
Patchcord	889D-F4ACDM-*	889D-F4ACDM-*	889D-F5ACDM-*
Distribution Box	889D-4†LT-DM4	898D-F4†KT-DM4	—
Shorting Plug	889D-41LU-DM	898D-41KU-DM	—
T-Port	889D-43LY-D4	898D-43KY-D4	—

\* Replace symbol with 2 (2 m), 5 (5 m), or 10 (10 m) for standard cable lengths.  
 \* Replace symbol with 1 (1 m), 2 (2 m), 3 (3 m), 5 (5 m), or 10 (10 m) for standard cable lengths.  
 † Replace symbol with 4 or 8 for number of ports.  
**Note:** For additional information, see the Safety Connection System section (page 7-1) of this catalog.

3-Interlock Switches

Interlock Switches

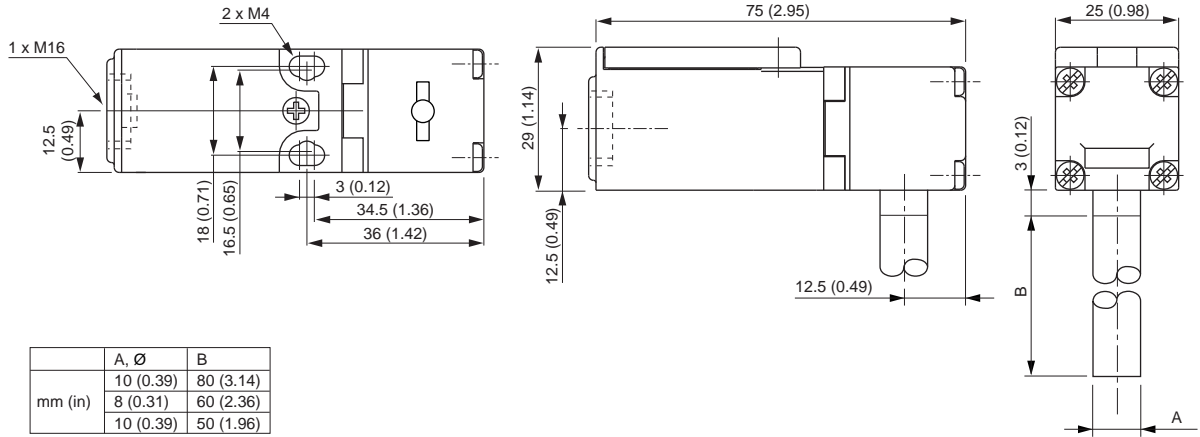
Hinge Switches

Sprite™

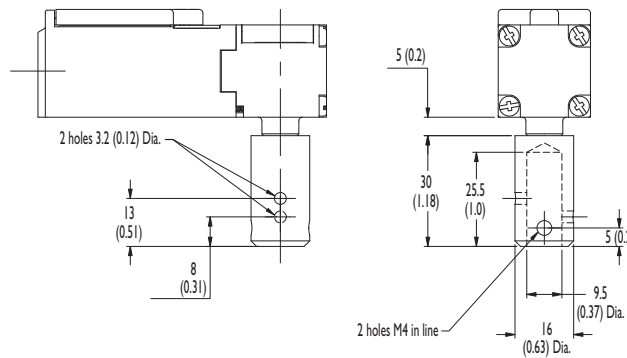
Approximate Dimensions

Dimensions are shown in mm (in.). Dimensions are not intended to be used for installation purposes.

# = mm (in)



Hollow Shaft



Note: 2D, 3D and electrical drawings are available on [www.ab.com](http://www.ab.com).

3-Interlock Switches

**Typical Wiring Diagrams**

Description		1 N.C. & 1 N.O.	2 N.C.
Contact Configuration			
Contact Action □ Open ■ Closed			
4-Pin Micro (M12)			
5-Pin Micro (M12) For ArmorBlock Guard I/O		—	
Cordset 889D-F4AC-*	Brown	Safety A	Safety A
	Blue		
	White	Aux A	Safety B
	Black		

\* Replace symbol with 2 (2 m), 5 (5 m) or 10 (10 m) for standard cable lengths.

**3-Interlock Switches**