

Description

With the increasing speed and complexity of applications a simple magnetic switch may be insufficient to meet the increased risks, therefore Sipa's design incorporates several magnetically sensitive elements which must be triggered in a particular sequence to operate correctly. The Sipa sensor, designed to operate with its own actuator, helps prevent defeatability by a simple magnet.

The Sipa with its molded-in brackets and diminutive size, is extremely versatile and simple to install. The Sipa sensor must be connected to the Sipa control unit giving a monitored circuit. For high-risk applications the control unit is used with a single sensor to give a high-integrity system. For other applications, multiple sensors (including mechanical switches) can be connected to one Sipa control unit. Sipa has facilities for connecting a manual reset button and for monitoring external devices such as contactors.

Four types of sensors and actuators are available incorporating different operating distances and physical sizes.





Features

- Non-contact actuation
- Magnetic coded sensing
- Four housing styles
- Must be operated with its own safety control unit




Specifications

Safety Ratings	
Standards	EN954-1, ISO13849-1, IEC/EN60204-1, NFPA79, EN1088, ISO14119, IEC60947-5-1, IEC/EN60947-5-3, ANSI B11.19, AS4024.1
Safety Classification	Rating dependent on control unit and application.
Functional Safety Data	B10d: > 2 x 10 ⁶ operations at min. PFH _D : > 3 x 10 ⁻⁷ MTTFd: > 385 years
Note: For up-to-date information, visit http://www.ab.com/Safety/	Dual channel interlock may be suitable for performance levels PLe or PLd (according to ISO 13849-1:2006) and for use in SIL2 or SIL3 systems (according to IEC 62061) depending on application characteristics
Certifications	CE Marked for all applicable directives, cULus, and TÜV
Outputs (Guard Door Closed, Actuator in Place)	
Auxiliary Output Switching	300V DC, 250V AC, 0.5 A including inrush. 15W A/10 W suitable for AC/DC circuits
Operating Characteristics	
Sensing Distance, Make [mm (in.)]	Style S1: 5 (0.20) Style S2: 9 (0.35) Style S3: 5 (0.20) Style S4: 10 (0.39)
Sensing Distance, Break [mm (in.)]	Style S1: 11 (0.43) Style S2: 12 (0.47) Style S3: 12 (0.47) Style S4: 13 (0.51)
Environmental	
Enclosure Type Rating	IP67 (NEMA 6P)
Operating Temperature [C (F)]	S1, S2, S3: -10...+55° (+14...+131°) S4 (GD2): -25...+125° (-13...+257°)
Vibration	1 mm, 10...55 Hz
Shock	30 g, 11 ms half-sine
Physical Characteristics	
Cable Size	0.54 mm ² (20 AWG) 4-wire PVC Jacket OD—4 mm (0.16 in.)
Material	S1, S2: Molded ABS S30 (Actuator): Polyester S31 (Sensor): Nylon (Trogamid) S4 (GD2): Stainless Steel
Mounting	Any position
Weight [g (lbs)]	S1: Sensor: 18 (0.04); Actuator: 15 (0.03) S2: Sensor: 20 (0.04); Actuator: 30 (0.07) S3: Sensor: 18 (0.04) Actuator: 6 (0.01) S4: Sensor: 150 (0.33); Actuator: 170 (0.37)

Product Selection

Housing Style	Housing Material	Safety Contacts	Auxiliary Contacts	Type	Connection	Cat. No.		
 S1	ABS plastic	1 N.C. & 1 N.O.	None	S11	3 m Cable	440N-S32014		
					10 m Cable	440N-S32016		
			1 N.C.	S12	3 m Cable	440N-S32022		
					10 m Cable	440N-S32032		
			1 N.O.	S13	3 m Cable	440N-S32037		
				10 m Cable	440N-S32036			
 S2					None	S21	3 m Cable	440N-S32015
							10 m Cable	440N-S32017
			1 N.C.	S22	3 m Cable	440N-S32023		
					10 m Cable	440N-S32033		
	1 N.O.	S23	3 m Cable	440N-S32038				
		10 m Cable	440N-S32039					
 S3	Actuator: Polyester Sensor: Nylon [Trogamid]	1 N.C. & 1 N.O.	None	S31	3 m Cable	440N-S32101		
					4-Pin Micro (M12)	440N-S32024		
 S4	Stainless Steel			1 N.C.	S42	8-Pin Micro (M12)	440N-S32047	
						3 m Cable	440N-S32055	
						10 m Cable	440N-S32056	
				1 N.O.	S43	8-Pin Micro (M12)	440N-S32046	
						3 m Cable	440N-S32053	
					10 m Cable	440N-S32054		

Recommended Logic Interfaces

Housing	Supply Voltage	Safety Contacts	Auxiliary Contacts	Housing Width	Type	Cat. Page No.	Cat. No.
	24V AC/DC	1 N.O.	1 N.C. Solid State	22.5 mm	Control Unit 1	5-74	440N-S32013
	24V AC/DC; 115/230V AC	2 N.O.	1 N.C.	45 mm	Control Unit 2		440N-S32021
	24V AC/DC; 115/230V AC	2 N.O. + 1 N.O. delayed	1 N.C.	90 mm	Sipha 6		440N-S32052

3-Interlock Switches

Connection Systems

Description	4-Pin Micro (M12)	8-Pin Micro (M12)
Cordset	889D-F4ECA-*	889D-F8AB-*
Patchcord	889D-F4ECRM-*	889D-F8ABDM-*

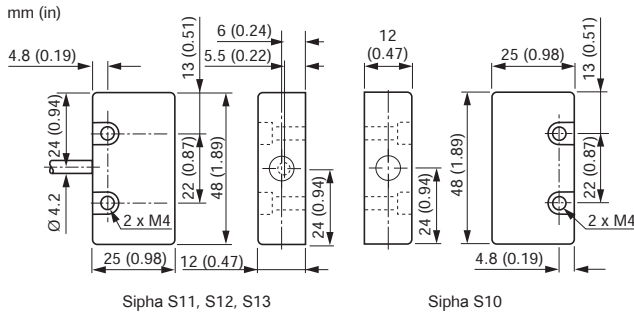
* Replace symbol with 2 (2 m), 5 (5 m), or 10 (10 m) for standard cable lengths.
 * Replace symbol with 1 (1 m), 2 (2 m), 3 (3 m), 5 (5 m), or 10 (10 m) for standard cable lengths.
Note: For additional information, see page 7-1.

Safety Switches
Non-Contact Switches
 Sipha™ Sensors

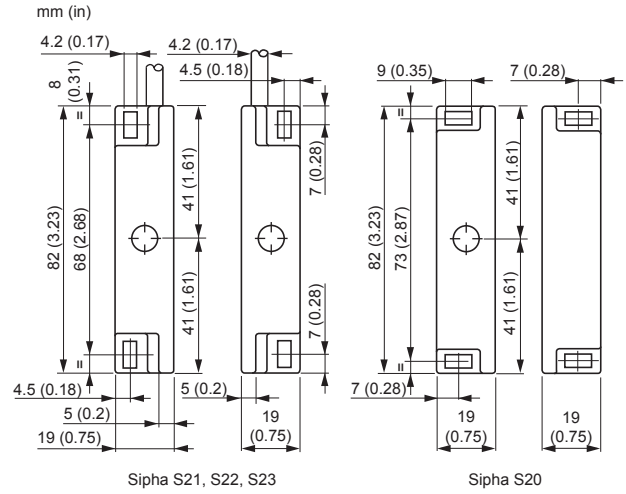
Approximate Dimensions

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

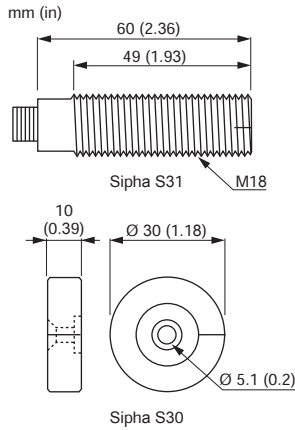
Sipha S1



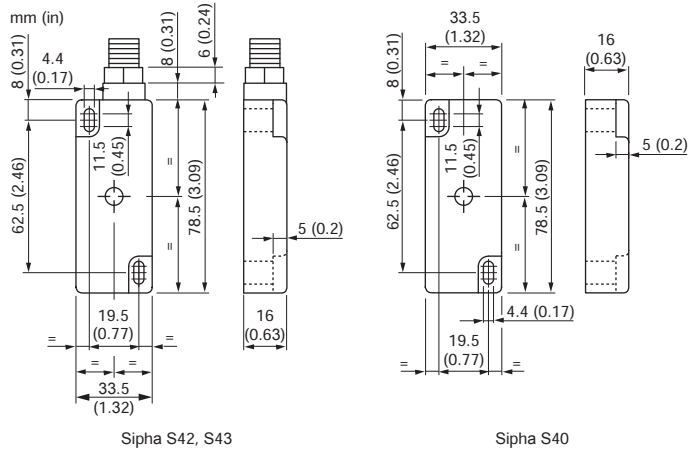
Sipha S2



Sipha S3



Sipha S4



3-Interlock Switches

Accessories

Description	Cat. No.
Actuator S10	440N-A32019
Actuator S20	440N-A32020
Actuator S30	440N-A32025
Actuator S40 (GD2)	440N-A32041
Bag of 40 washers for S2 models	440N-A17127

Typical Wiring Diagrams

Description		S11, S21	S42, S12, S22	S43, S13, S23
		1 N.O. + 1 N.C.	2 N.C. + 1 N.O.	1 N.C. + 2 N.O.
Cable Versions	Red	Safety A_N.C.	Safety A_N.C.	Safety A_N.C.
	Blue			
	Yellow			
	Green	Safety B_N.O.	Safety B_N.O.	Safety B_N.O.
	Black	—	Aux A_N.C.	Aux A_N.O.
	White	—	External Ground	External Ground
Green/Yellow		—	External Ground	External Ground

Description		S31	S42	S43
4-Pin Micro (M12)			—	—
8-Pin Micro (M12)		—		
4-Pin Cordset 889D-F4AC-*	Brown	Safety A_N.C.	—	—
	Blue			
	White	Safety B_N.O.		
	Black			
8-Pin Cordset 889D-F8AB-*	White Brown	Safety A	Safety A_N.C.	Safety A_N.C.
	Red Yellow	Safety B	Safety B_N.O.	Safety B_N.O.
	Grey Pink	Aux A	Aux A_N.C.	Aux A_N.O.
	Green Blue	NA	Gnd	Gnd

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