

# Installation Instructions

Original Instructions

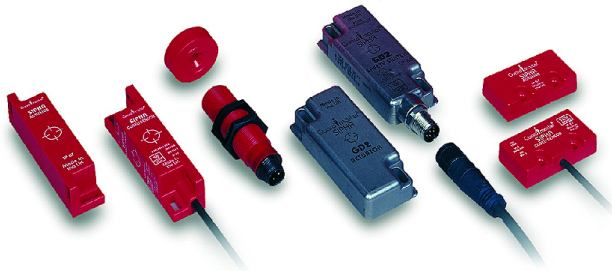


**Allen-Bradley**  
by ROCKWELL AUTOMATION



## Sipha Sensors

Catalog Number 440N-Sx



Installation of Sipha™ Sensors must be in accordance with the following steps and stated specifications and implemented by suitably competent personnel. The unit is not to be used as a mechanical stop. Guard stops and guides must be fitted.

Adherence to the recommended maintenance instructions forms part of the warranty.



**ATTENTION:** The presence of spare actuators can compromise the integrity of safety systems. Personal injury or death, property damage, or economic loss can result. Appropriate management controls, working procedures and alternative protective measures must be introduced to control their use and availability.



**WARNING:** Do not defeat, tamper, remove, or bypass this unit. Severe injury to personnel could result.

## Specifications

Table 1 - Specifications Table

Attribute	Value
<b>Safety Ratings</b>	
Standards	ISO 14119, ISO 13849-1, IEC 60947-5-3, IEC 62061, IEC 61508
Safety classification	Rating dependent on control unit and application
Functional safety	B10d: > 2 x 10 <sup>6</sup> operations Dual-channel interlock can be suitable for Performance Level PLe or PLd (according to ISO 13849-1) and for use in SIL 2 or SIL 3 systems (according to IEC 62061) depending on application characteristics See publication <a href="#">SAFETY-SR001</a>
Certifications	CE Marked for all applicable directives, cULus Listed, and TÜV Certified
<b>Outputs (Guard Door Closed, Actuator in Place)</b>	
Auxiliary output switching	300V DC, 250V AC, 0.5 A including inrush. 15V A/10 W suitable for AC/DC circuits.

Table 1 - Specifications Table (Continued)

Attribute	Value	
<b>Operating Characteristics</b>		
Sensing distance, make, max	S1/S3/S11/S12/S13/S31	5 mm (0.20 in.)
	S2/S21/S22/S23	9 mm (0.35 in.)
	S4 (GD2)	10 mm (0.39 in.)
	440N-S32111	7.5 mm (0.3 in.)
Sensing distance, break	S1/S11/S12/S13	11 mm (0.43 in.)
	S2/S3/S21/S22/S23/S31	12 mm (0.47 in.)
	S4 (GD2)	13 mm (0.51 in.)
	440N-S32111	12 mm (0.47 in.)
<b>Environmental</b>		
Enclosure type rating	IP67 (NEMA 6P)	
Operating temperature	S1/S2/S3	-10...+55 °C (14...131 °F)
	S4 (GD2)	-25...+125 °C (-13...+257 °F)
Shock	30 g, 11 ms half-sine	
Vibration	1 mm (0.4 in.), 10...55 Hz	
<b>Physical Characteristics</b>		
Cable size	0.54 mm <sup>2</sup> (20 AWG) 4-wire PVC jacket OD: 4 mm (0.16 in.)	
Material	S1/S2	Molded AB
	S4 (GD2)	Stainless steel
	S30	Actuator: Polyester
	S31	Sensor: Nylon (Trogamid)
Mounting	Any position	
Weight	S1	<ul style="list-style-type: none"> <li>Sensor: 18 g (0.04 lb)</li> <li>Actuator: 15 g (0.03 lb)</li> </ul>
	S2	<ul style="list-style-type: none"> <li>Sensor: 20 g (0.04 lb)</li> <li>Actuator: 30 g (0.07 lb)</li> </ul>
	S3	<ul style="list-style-type: none"> <li>Sensor: 18 g (0.04 lb)</li> <li>Actuator: 6 g (0.01 lb)</li> </ul>
	S4	<ul style="list-style-type: none"> <li>Sensor: 150 g (0.33 lb)</li> <li>Actuator: 170 g (0.37 lb)</li> </ul>
Auxiliary contacts <sup>(1)</sup>	S12/S22/S42	1 N.C. (black - white) not for safety use
	S13/S23/S43	1 N.O. (black - white) not for safety use
Mechanical life	1 x 10 <sup>6</sup>	
Torque settings, max	Mounting bolts: 1.0 N•m (8.85 lb•in)	

(1) The safety contacts are shown with the guard closed, the actuator in place (where relevant), and the machine able to be started.

## Installation

### Gap Tolerance

Figure 1 - S11, S12, S13, S21, S22, S23, S42, and S43

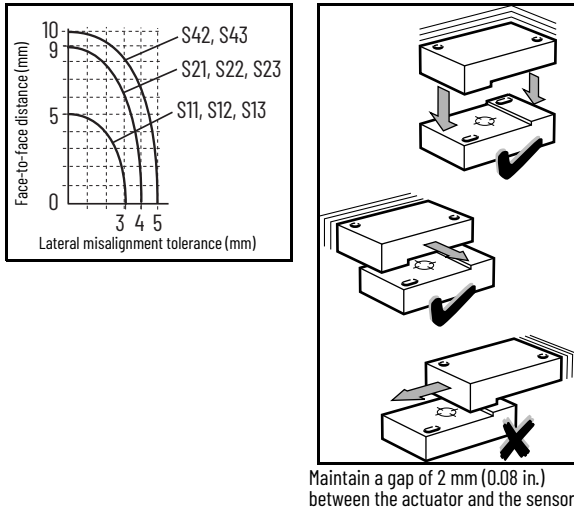
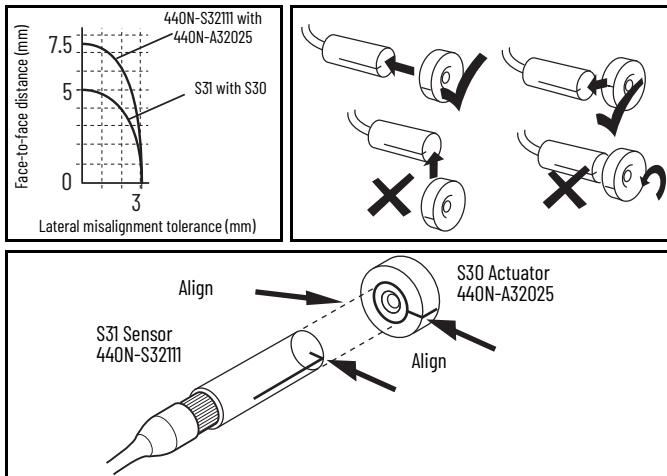


Figure 2 - S31



### Alignment

Figure 3 - S11, S12, and S13

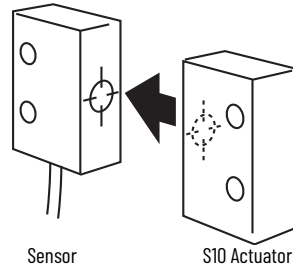


Figure 4 - S21, S22, and S23

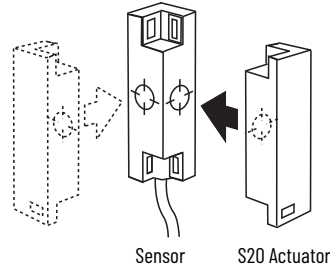
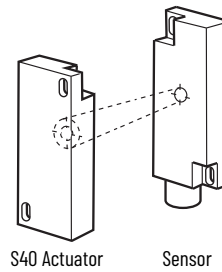
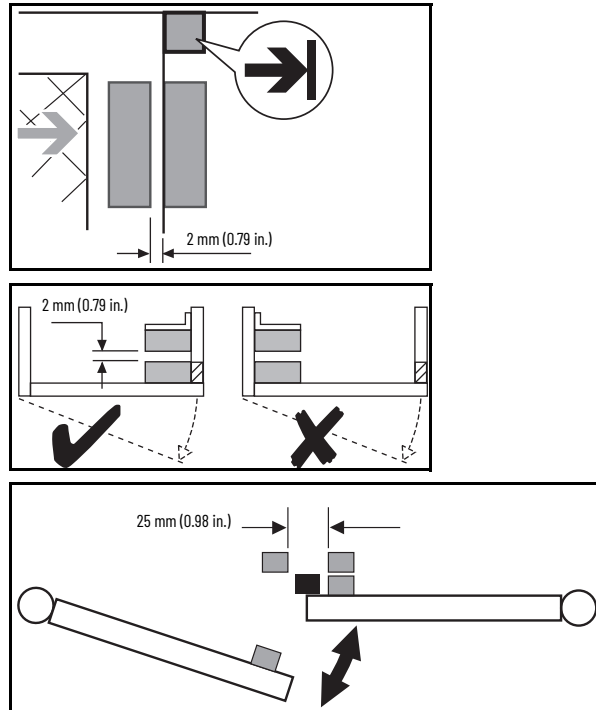


Figure 5 - S42 and S43



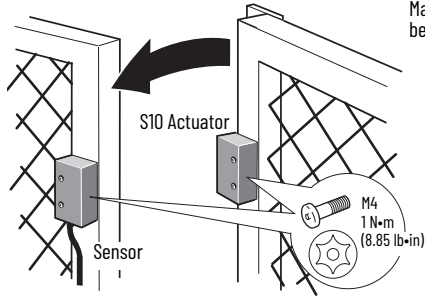
### Position the Sensor

Figure 6 - Proper Position of the Sensor



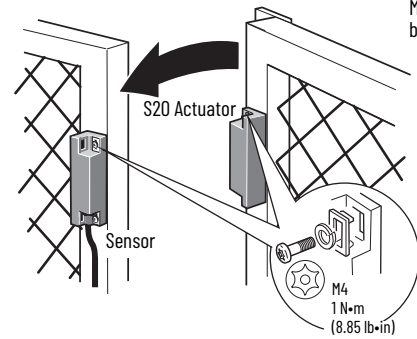
## Mount the Sensor

Figure 7 - S11, S12, and S13



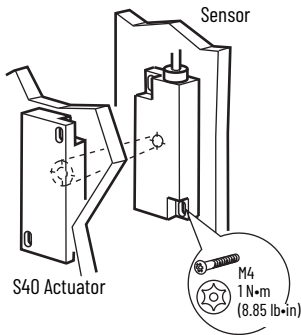
Maintain a gap of 5 mm (0.2 in.) between the actuator and the sensor.

Figure 8 - S21, S22, and S23



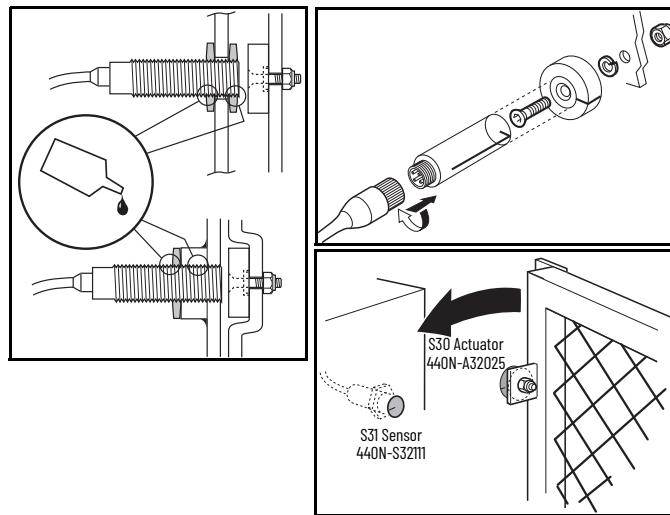
Maintain a gap of 5 mm (0.2 in.) between the actuator and the sensor.

Figure 9 - S11, S12, and S13



Maintain a gap of 5 mm (0.2 in.) between the actuator and the sensor.

Figure 10 - S31



## Wiring Connections

Table 2 - Connection Systems

Description	Cat. No. 4-pin Micro (M12)	Cat. No. 8-pin Micro (M12)
Cordset	889D-F4ECA-x <sup>(1)</sup>	889D-F8AB-x <sup>(1)</sup>
Patchcord	889D-F4ECRM-y <sup>(2)</sup>	889D-F8ABDM-y <sup>(2)</sup>

- (1) x = 2 (2 m [6.6 ft]), 5 (5 m [16.4 ft]), or 10 (10 m [32.8 ft]) for standard cable lengths. For other cable lengths, contact your local Allen-Bradley distributor or Rockwell Automation sales office.  
 (2) y = 1 (1 m [3.3 ft]), 2 (2 m [6.6 ft]), 3 (3 m [9.8 ft]), 5 (5 m [16.4 ft]), or 10 (10 m [32.8 ft]) for standard cable lengths.

Table 3 - Contact Configuration - S11, S12, S13, S21, S22, S23, S42, and S43

Callout	Wire Color	Contacts
1	Blue	Safety N.C.
2	Yellow	Safety N.O.
3	Green	Safety N.O.
4	Red	Safety N.C.
5	Black	Aux.
6	White	Aux.
⊥	Green	Earth

**IMPORTANT** Do not use anaerobic adhesive.

## Typical Wiring Diagrams

Table 4 - S11, S12, S21, S13, S22, S23, S42, and S43

Cable Versions	S11 and S21 1 N.O. and 1 N.C.	S42, S12, and S22 2 N.C. and 1 N.O.	S43, S13, and S23 1 N.C. and 2 N.O.
Red	Safety A N.C.	Safety A N.C.	Safety A N.C.
Blue			
Yellow	Safety B N.O.	Safety B N.O.	Safety B N.O.
Green			
Black	-	Aux. A N.C.	Aux. A N.O.
White			
Green/yellow	-	Ground	Ground

Table 5 - S42 and S43

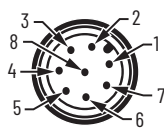

8-pin Micro (M12)	8-pin Cordset 889D-F8AB-x <sup>(1)</sup>	S42 Contacts	S43 Contacts
	1	White/brown	Safety A N.C.
	2	White/brown	Safety A N.C.
	3	Green/blue	Ground
	4	Red/yellow	Safety B N.O.
	5	Green/pink	Aux. A N.C.
	6	Green/pink	Aux. A N.C.
	7	-	No connection
	8	Red/yellow	Safety B N.O.

Table 6 - S31

4-pin Micro (M12)	4-pin Cordset 889D-F4AC-x <sup>(1)</sup>	S 31 Contacts
	1	Brown
		Blue
	2	White
		Black
	3	Brown
		Blue
	4	White
		Black

(1) Recommended cordset. x = 2 (2 m [6.6 ft]), 5 (5 m [16.4 ft]), or 10 (10 m [32.8 ft]) for standard cable lengths. For other cable lengths, contact your local Allen-Bradley distributor or Rockwell Automation sales office.

## Approximate Dimensions

Dimensions are not intended to be used for installation purposes.

Figure 11 - Sipha S1 [mm (in.)]

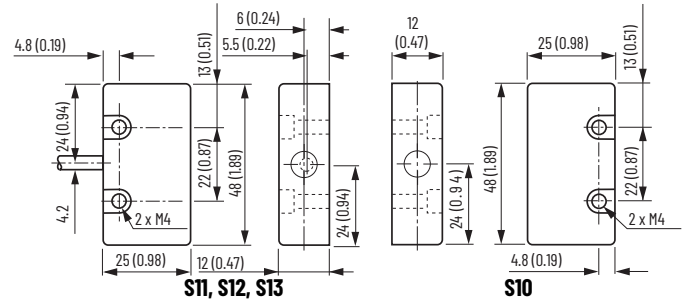


Figure 12 - Sipha S2 [mm (in.)]

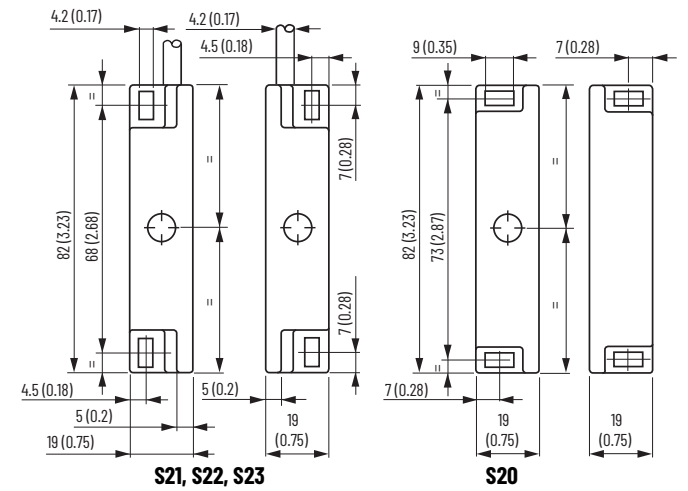


Figure 13 - Sipha S31 (440N-S32111) and S30 (440N-A32025) [mm (in.)]

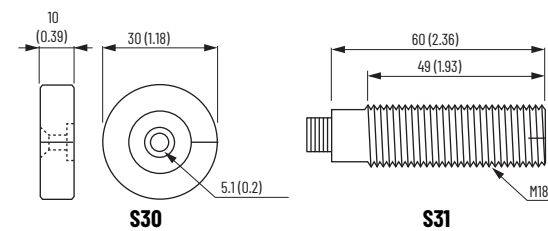
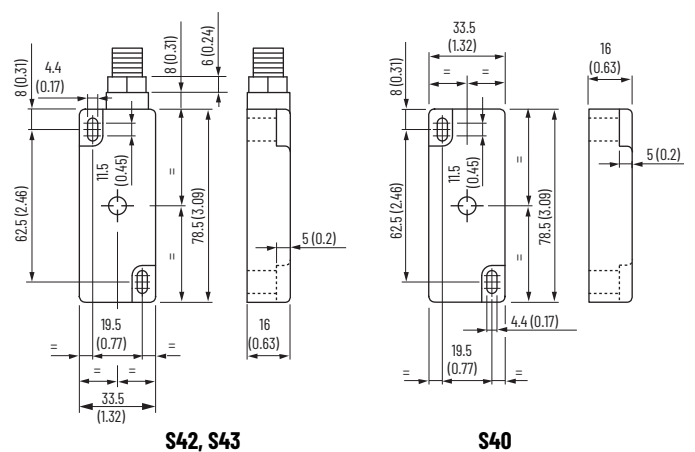





Figure 14 - Sipha 4 [mm (in.)]



## Recommended Logic Interface

Housing	Description
 <p>Cat. No. 440N-S32013</p>	<ul style="list-style-type: none"> <li>Supply voltage: 24V AC/DC</li> <li>Safety contacts: 1 N.O.</li> <li>Auxiliary contact: 1 N.C. solid-state</li> <li>Housing width: 22.5 mm (0.89 in.)</li> <li>Type: Control unit 1</li> </ul>
 <p>Cat. No. 440N-S32021</p>	<ul style="list-style-type: none"> <li>Supply Voltage: 24V AC/DC; 115/230V AC</li> <li>Safety contacts: 2 N.O.</li> <li>Auxiliary contact: 1 N.C.</li> <li>Housing width: 45.0 mm (1.77 in.)</li> <li>Type: Control unit 2</li> </ul>
 <p>Cat. No. 440N-S32052</p>	<ul style="list-style-type: none"> <li>Supply Voltage: 24V AC/DC; 115/230V AC</li> <li>Safety contacts: 2 N.O. and 1 N.O. delayed</li> <li>Auxiliary contact: 1 N.C.</li> <li>Housing width: 90.0 mm (3.54 in.)</li> <li>Type: Sipha 6</li> </ul>

## Additional Resources

To download publications, visit [rok.auto/literature](http://rok.auto/literature) and search for the following publication numbers.

Resource	Description
Safety Switches Specifications Technical Data, publication <a href="#">SWITCH-TD001</a>	Provides specification information for safety switch devices.
Functional Safety Data Sheet, publication <a href="#">SAFETY-SR001</a>	Provides functional safety data for Rockwell Automation products.
Industrial Automation Wiring and Grounding Guidelines, publication <a href="#">1770-4.1</a>	Provides general guidelines for installing a Rockwell Automation industrial system.
Product Certifications website, <a href="http://rok.auto/certifications">rok.auto/certifications</a>	Provides declarations of conformity, certificates, and other certification details.

## Rockwell Automation Support

Use these resources to access support information.

<b>Technical Support Center</b>	Find help with how-to videos, FAQs, chat, user forums, and product notification updates.	<a href="http://rok.auto/support">rok.auto/support</a>
<b>Knowledgebase</b>	Access Knowledgebase articles.	<a href="http://rok.auto/knowledgebase">rok.auto/knowledgebase</a>
<b>Local Technical Support Phone Numbers</b>	Locate the telephone number for your country.	<a href="http://rok.auto/phonesupport">rok.auto/phonesupport</a>
<b>Literature Library</b>	Find installation instructions, manuals, brochures, and technical data publications.	<a href="http://rok.auto/literature">rok.auto/literature</a>
<b>Product Compatibility and Download Center (PCDC)</b>	Download firmware, associated files (such as AOP, EDS, and DTM), and access product release notes.	<a href="http://rok.auto/pcdc">rok.auto/pcdc</a>

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At the end of life, this equipment should be collected separately from any unsorted municipal waste.

Rockwell Automation maintains current product environmental compliance information on its website at [rok.auto/pec](http://rok.auto/pec).

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