

Description

When it comes to machine safety, Rockwell Automation knows that protection of personnel and equipment is your main concern. At the same time, flexibility and productivity are points that must also be considered as you design your safety system. Optimize all of these with the new Allen-Bradley SensaGuard family of non-contact switches.

Featuring the latest generation of RFID technology for coding and inductive technology for sensing, SensaGuard's large sensing range and tolerance to misalignment is a cost-effective solution that is ideally suited for a wide range of industrial safety applications.

The SensaGuard product line is a Category 4/SIL 3 rated switch per EN954-1, TÜV functional safety approved to IEC 61508.

Features

- Switches can be connect to a standard safety relay, for example, the MSR126, MSR127, MSR200/300 Family, SmartGuard™ and Safety I/O Blocks
- · Multiple actuator sizes for large sensing distance
- IP69K environmental rating
- Short-circuit and over-voltage protection
- LED located on the switch for door status and troubleshooting
- Unique coded version
- Automatic learn process at unit power up
- During commissioning you have the option to select if the sensor can learn a new actuator up to eight times or lock the unit so it can not learn another actuator
- Integrated latch version
- Adjustable magnetic latch force 20...60N
- Designed for easy mounting on aluminum profile

Benefits

- No dedicated controller required
- Cat 4/SIL 3 rating maintained even with multiple units connected in series
- Switches can be connected in series with other devices (light curtain, E-stops, key interlock switches)
- Extended diagnostics for easy troubleshooting
- · Large sensing distances
- Tolerance to misalignment
- Multiple sensing directions
- Stainless steel version suitable for use in harsh environments
- Use standard proximity brackets

Specifications

Safety Ratings					
Standards	IEC 60947-5-3, IEC 61508, EN 954				
Safety Classification	Cat. 4/SIL3				
Functional Safety Data * Note: For up-to-date information, visit http://www.ab.com/Safety/	PFH _D : > 1.12 x 10 ⁻⁹ MTTFd: > 385 years 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 (UL 508), and TÜV				
Outputs (Guard Door Closed, Act	tuator in Place)				
Safety Outputs	2 x PNP, 0.2 A, max.; Status: ON (+24V DC)				
Auxiliary Outputs	1 x PNP, 0.2 A max.; Status: OFF (0V DC)				
Operating Characteristics					
	18 mm Plastic Barrel/18 mm Target	15 mm (0.59 in.)			
Sensing Distance (Assure)	18 mm Plastic Barrel/30 mm Target	25 mm (0.98 in.)			
Selising Distance (Assure)	18 mm Stainless Steel Barrel/Standard Target	10 mm (0.39 in.)			
	Large Rectangular Flat Pack with Standard Target	15 mm (0.59 in.)			
Misalignment Tolerance, Min	See misalignment curve				
Repeat Accuracy	10% of Sensing Range				
Output Current, Max.	200 mA (all outputs)				
Operating Voltage	24V DC, +10%/-15% Class 2				
Current Consumption	50 mA				
Frequency of Operating Cycle	1 Hz				
Response Time (Off)	54 ms				
Environmental					
Enclosure Type Rating	NEMA 3, 4X, 12, 13, IP69K				
Operating Temperature [C (F)]	-10+55° (+14+131°)				
Relative Humidity	595%				
Shock	IEC 68-2-27, 30 g, 11 ms				
Vibration	IEC 68-2-6 1055 Hz				
Radio Frequency	IEC 61000-4-3, IEC 61000-4	1-6			
Physical Characteristics					
Housing Material	VALOX® DR 48				
Actuator Material	VALOX® DR 48				
Color	Red				

- Usable for ISO 13849-1:2006 and IEC 62061. Data other than B10d is based on:
 - Usage rate of 1op/10 mins., 24 hrs/day, 360 days/year, representing 51840 operations per year
 - Mission time/Proof test interval of 30 years



Product Selection

						Cat. No.		
	Assured	LED Door				Cable		Connector
Туре	Sensing Distance	Indication/ Diagnostic	Margin Indication	Magnetic Hold	Actuator Code Type	3 m	10 m	6 inch Pigtail, 8- pin Micro (M12)
18 mm plastic barrel/18 mm actuator 15 mm (0.59 in.)	15 mm	Yes	_	_	Standard	440N-Z21S16A	440N-Z21S16B	440N-Z21S16H
					Unique	440N-Z21U16A	440N-Z21U16B	440N-Z21U16H
18 mm plastic	25 mm	Yes	_	_	Standard	440N-Z21S26A	440N-Z21S26B	440N-Z21S26H
barrel/30 mm (0.98 in.)					Unique	440N-Z21U26A	440N-Z21U26B	440N-Z21U26H
18 mm		Yes	_	_	Standard	440N-Z21S17A	440N-Z21S17B	440N-Z21S17H
	10 mm (0.39 in.)				Unique	440N-Z21U17A	440N-Z21U17B	440N-Z21U17H
		Vee	_	_	Standard	440N-Z21SS2A	440N-Z21SS2B	440N-Z21SS2H
Plastic					Unique	440N-Z21US2A	440N-Z21US2B	440N-Z21US2H
rectangular/ rectangular	18 mm (0.71 in.) Yes		Yes		Standard	440N-Z21SS2AN	440N-Z21SS2BN	440N-Z21SS2HN
		res	_	Unique	440N-Z21US2AN	440N-Z21US2BN	440N-Z21US2HN	
actuator			Yes	Yes (9 N)	Standard	440N-Z21SS2AN9	440N-Z21SS2BN9	440N-Z21SS2HN9
					Unique	440N-Z21US2AN9	440N-Z21US2BN9	440N-Z21US2HN9
Plastic housing with integrated latch	Contact/ latched	Yes	_	Adjustable 2060 N	Standard	440N-Z21SS3PA	440N-Z21SS3PB	440N-Z21SS3PH
					Unique	440N-Z21US3PA	440N-Z21US3PB	440N-Z21US3PH

Recommended Logic Interfaces

Description	Safety Outputs	Auxiliary Outputs	Terminals	Reset Type	Power Supply	Cat. Page No.	Cat. No.	
Single-Function Sa	Single-Function Safety Relays							
MSR127RP	3 N.O.	1 N.C.	Removable (Screw)	Monitored Manual	24V AC/DC	5-26	440R-N23135	
MSR127TP	3 N.O.			Auto./Manual		5-26	440R-N23132	
Modular Safety Rel	Modular Safety Relays							
MSR211P Base 2 N.C. only	2 N.O.	1 N.C.	Removable	Auto./Manual or Monitored Manual	24V DC from the base unit	5-84	440R-H23177	
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	Cat. No.	
Cordset	889D-F8AB-∗	
Patchcord	889D-F8ABDM-*	
Safety Wired T-Port	898D-438Y-D8	
Safety Wired Shorting Plug	898D-418U-DM	

- 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 lengths.
 Note: For additional information, see page 7-1.



Accessorie	S		
	Description	To Be Used With	Cat. No.
		Standard coded models only	440N-Z18PT
1	18 mm plastic actuator	Unique coded models only	440N-Z18UPT
<u> </u>		Standard coded models only	440N-Z30PT
	30 mm plastic actuator	Unique coded models only	440N-Z30UPT
		Standard coded models only	440N-Z18SST
	18 mm stainless steel actuator	Unique coded models only	440N-Z18USST
4		Standard coded models only	440N-ZPREC
Rectangular plastic actuator	Destangular pleatic estructor	Unique coded models only	440N-ZUPREC
	Standard coded margin/magnetic hold models only	440N-ZPRECM	
		Unique coded margin/magnetic hold models only	440N-ZUPRECM
	Integrated latch actuator	Standard coded models only	440N-ZLPREC
	integrated lateri actuator	Unique coded models only	440N-ZULPREC
0	Mountingbracket for tubular proximity sensors— right angle style		871A-BRS18
0	Mounting bracket for tubular sensors—clamp style	18 mm barrel models	871A-BP18
-	Snap clamp mounting bracket		871A-SCBP18
	Swivel/tilt bracket allows ±10° vertical and 360° rotation adjustment		60-2649
	Mounting plate for vertically hinged doors	Integrated latch version only	440N-AHDB
	Mounting plate for slide and gull wing doors	integrated fatori version only	440N-ASDB

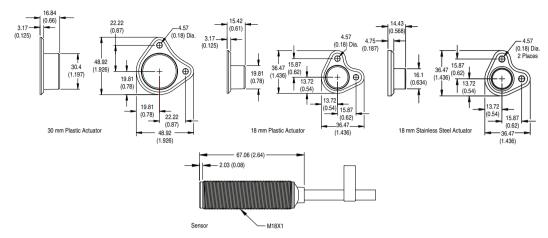


SensaGuard™

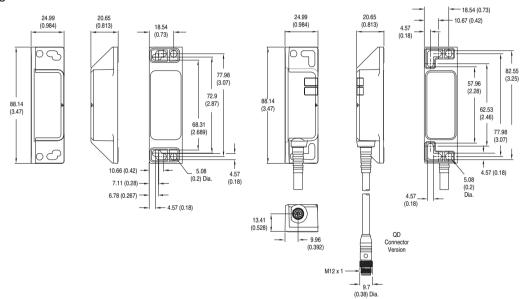
Approximate Dimensions

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

18 mm Barrel



Large Rectangular Flat Pack



Integrated Latch

