

Interlock Switches
Hinge Switches
 Rotacam™



Description

The Rotacam is heavy-duty, hinge-actuated safety-interlock switch. It can be used as, or connected to, the existing hinge pin for direct operation of the switch. Machine power is isolated when the guard has been opened just 5°. For applications requiring a larger degree of operation, the internal cam can be adjusted from 5...11°.



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

The Rotacam is available with two N.C. safety contacts and one N.O. auxiliary contact. The switch 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 die-cast housing is sealed to IP66 and features one M20 conduit entry (1/2 inch NPT and connector style also available). Two different shaft lengths of 30 mm and 85 mm can also be specified.

EX and Pneumatic styles of Rotacam are also available; see page 9-10 for more information.

Features

- Can be used as a hinge pin on light- and medium-weight guard doors
- Isolates power within 5° of door movement
- Degree of operation can be customized with adjustable cam
- Robust die-cast case, ideal for heavy-duty applications
- Contacts, 2 N.C. & 1 N.O.

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 EN954-1 Dual channel interlocks suitable for Cat. 3 or 4 systems
Functional Safety Data *	B10d: > 2 x 10 ⁶ operations at min. load PFH _D : < 3 x 10 ⁻⁷ MTTF _D : > 385 years May be suitable for use in performance levels Pl _e or Pl _d 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
Note:	For up-to-date information, visit http://www.ab.com/Safety/
Certifications	CE Marked for all applicable directives, cULus, SUVA, and TÜV
Outputs	
Safety Contacts *	2 N.C. direct opening action
Auxiliary Contacts	1 N.O.
Shaft Rotation for Contact Operation	11° maximum; 5° minimum, (adjustable)
Thermal Current I _{th}	10 A
Rated Insulation Voltage	(U _i) 500V
Switching Current @ Voltage, Min.	5 mA @ 5V DC
Utilization Category	
A600/AC-15	(U _e) 600V 500V 240V 120V (I _e) 1.2 A 1.4 A 3 A 6 A
DC-13	(U _e) 24V (I _e) 2 A
Operating Characteristics	
Break Contact Force, Min.	12 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	IP66
Operating Temperature [C (F)]	-20...+80° (-4...176°)
Physical Characteristics	
Housing Material	Heavy-duty die-cast alloy
Shaft Material	Stainless Steel
Weight [g (lb)]	420 (0.926)
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.

Product Selection

Safety Contacts	Auxiliary Contacts	Contact Action	Shaft Dimensions	Operating Shaft Type	Cat. No.		
					M20 Conduit		Connector§
					M20	1/2 inch NPT Adaptor	8-Pin Micro (M12)
2 N.C.	1 N.O.	BBM	L = 30 (1.18) D = 16 (0.63)	Pre-Bored	440H-R03074	440H-R03078	440H-R03111
			L = 85 (3.35) D = 12.7 (0.5)	Solid	440H-R03079	440H-R03088	440H-R03112

§ For connector ratings, see 3-9.

Recommended Logic Interfaces

Description	Safety Outputs	Auxiliary Outputs	Terminals	Reset Type	Power Supply	Cat. Page No.	Cat. No.
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.	1 N.C.	Removable (Screw)	Auto./Manual	24V AC/DC	5-26	440R-N23132
MSR126T	2 N.O.	None	Fixed	Auto./Manual	24V AC/DC	5-24	440R-N23117
MSR30RT	2 N.O. Solid State	1 N.O. Solid State	Removable	Auto./Manual or Monitored Manual	24V DC	5-16	440R-N23198
Modular Safety Relays							
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	8-Pin Micro (M12)
	2 N.C. & 1 N.O.
Cordset	889D-F8AB-*
Patchcord	889D-F8ABDM-*
Distribution Box	—
Shorting Plug	—
T-Port	—

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

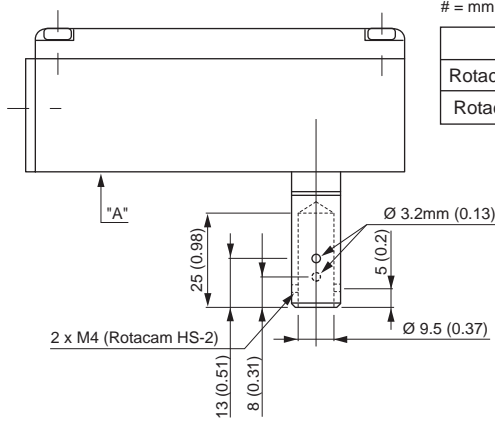
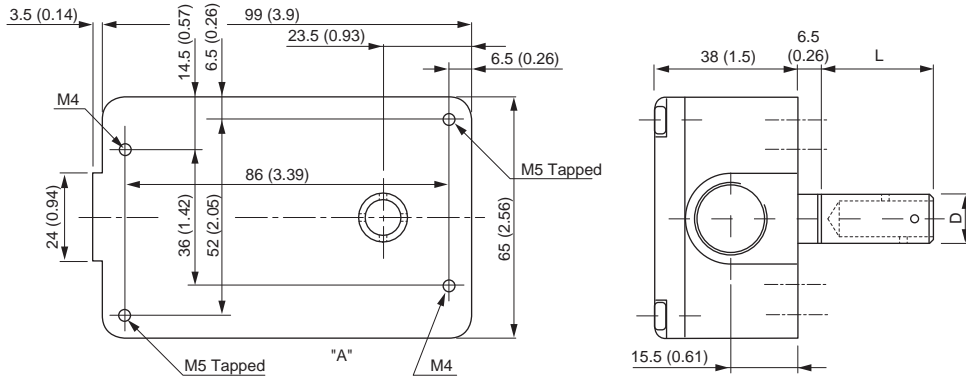
* Replace symbol with 1 (1 m), 2 (2 m), 3 (3 m), 5 (5 m), or 10 (10 m) for standard cable lengths.

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

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Approximate Dimensions

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



= mm (in)

	L	D
Rotacam HS-2	30mm (1.18)	16mm (0.63)
Rotacam P85	85mm (3.35)	12.7mm (0.5)

Note: Holes only on pre-bored models.

Note: 2D, 3D and electrical drawings are available on www.ab.com.

Typical Wiring Diagrams

Description	2 N.C. & 1 N.O.	
Contact Configuration		
Contact Action □ Open ■ Closed		
8-Pin Micro (M12) Pin 2 Not Connected		
8-Pin Cordset 889D-F8AB-*	White Blue	Safety A
	Grey Pink	Safety B
	Green Yellow	Aux A
	Red	Ground
	Brown	Not Connected

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

**3-Interlock
Switches**