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Tongue Interlock Switches

Bulletin Number 440K

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Elf Miniature Tongue Interlock Switches

The Elf™ Miniature Tongue Interlock Switches have the following features:

- Ideal for small, lightweight guards
- The smallest interlock switch available
- Contacts, 2 N.C. or 1 N.O. and 1 N.C.
- Eight possible actuator entry points, easy to install
- Environmental protection: IP67
- GD2 style available for difficult applications



Specifications

Attribute	440K-E			
Safety Ratings				
Standards	ISO 14119, IEC 60947-5-1			
Safety classification	Type 2 Interlocking Device per ISO 14119			
Functional safety data	Visit http://literature.rockwellautomation.com/idc/groups/literature/documents/sr/safety-sr001_-en-e.pdf			
Certifications	c-UL-us Listed, TÜV Certified, and CE Marked for all applicable directives www.rockwellautomation.com/certification/overview.page			
Outputs				
Safety contacts[1] Direct Opening Action	1 N.C.		2 N.C.	
Auxiliary contacts	1 N.O.		None	
Thermal current/$_{Ith}$	5 A (10 A if A600)			
Rated insulation voltage	2500V			
Switching current @ voltage, min	3 mA @ 18V DC			
Utilization Category				
A600/AC-15 (Ue)	600V	500V	240V	120V
A600/AC-15 (Ie)	1.2 A	1.4 A	3.0 A	6.0 A
DC-13 (Ue)	24V			
DC-13 (Ie)	2 A			
Operating Characteristics				
Break contact force	6 N (1.35 lbf), min			
Actuation speed	160 mm (6.29 in.)/s, max			
Actuation frequency	2 cycles/s, max			

Attribute	440K-E
Operating radius	150 mm (5.9 in.) [60 mm (2.36 in.) with GD2 kit], min
Mechanical life	1,000,000 operations
Environmental	
Enclosure type rating	IP67
Operating temperature	-20…+80 °C (-4…+176 °F)
Physical Characteristics	
Housing material	UL approved glass-filled PBT
Actuator material	Stainless steel
Weight	60 g (2.11 oz)
Color	Red

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

Product Selection

Contact			Actuator Type	Cat. No.			
				M16 Conduit		Connector(1)	
Safety	Auxiliary	Action		M16	1/2 inch NPT Adaptor	Connect to Distribution Box 4-Pin Micro (M12)	Connect to ArmorBlock Guard I/O 5-Pin Micro (M12)(2)
1 N.C.	1 N.O.	BBM	Flat	440K-E33036	440K-E33029	440K-E33074	—
			90°	440K-E33040	440K-E33030	440K-E33025	—
			GD2 metal alignment guide w/semi-flexible actuator	440K-E33034	440K-E33031	440K-E33075	—
			—	440K-E33014	440K-E33053	440K-E33076	—
2 N.C.	—	—	Flat	440K-E33080	440K-E33037	440K-E33077	440K-E2NNFPS
			90°	440K-E33041	440K-E33045	440K-E33024	—
			GD2 metal alignment guide w/semi-flexible actuator	—	440K-E33046	440K-E33078	440K-E2NNAPS
			—	440K-E33047	—	440K-E33079	—

(1) For connector ratings, see Table 33 .

(2) With a 5-pin micro (M12) connector, not all contacts are connected. See Typical Wiring Diagrams on page 85 for wiring details.

Table 32 - Connection Systems

Description	Cat. No.		
	Connection to Distribution Box 4-pin Micro (M12)		Connection to ArmorBlock Guard I/O 5-pin Micro (M12)
	1 N.C. & 1 N.O.	2 N.C.	2 N.C.
Cordset	889D-F4AC-x(1)	889D-F4AC-x(1)	—
Patchcord	889D-F4ACDM-y(2)	889D-F4ACDM-y(2)	889D-F5ACDM-x(1)
Distribution Box	898D-P4z KT-DM4(3)	898D-4z LT-DM4(3)	—
Shorting Plug	898D-41KU-DM	898D-41LU-DM	—
T-Port	898D-43KY-D4	898D-43LY-D4	—

(1) Replace x with 2 [2 m (6.56 ft)], 5 [5 m (16.4 ft)], or 10 [10 m (32.8 ft)] for standard cable lengths.

(2) Replace y with 1 [1 m (3.28 ft)], 2 (2 m), 3 [3 m (9.8 ft)], 5 (5 m), or 10 (10 m) for standard cable lengths.

(3) Replace z with 4 or 8 for number of ports.

Table 33 - Connector Ratings

Description	Max Ratings		Applicable Standards
	AC	DC	
4-pin Micro (M12)	250V, 4 A	250V, 4 A	IEC 61076-2-101
5-pin Micro (M12)	60V, 4 A	60V, 4 A	IEC 61076-2-101:
6-pin Micro (M12)	30V, 2 A	30V, 2 A	IEC 61076-2-101
8-pin Micro (M12)	30V, 2 A	30V, 2 A	IEC 61076-2-101
12-pin M23	63V, 6 A	63V, 6 A	IEC 61984

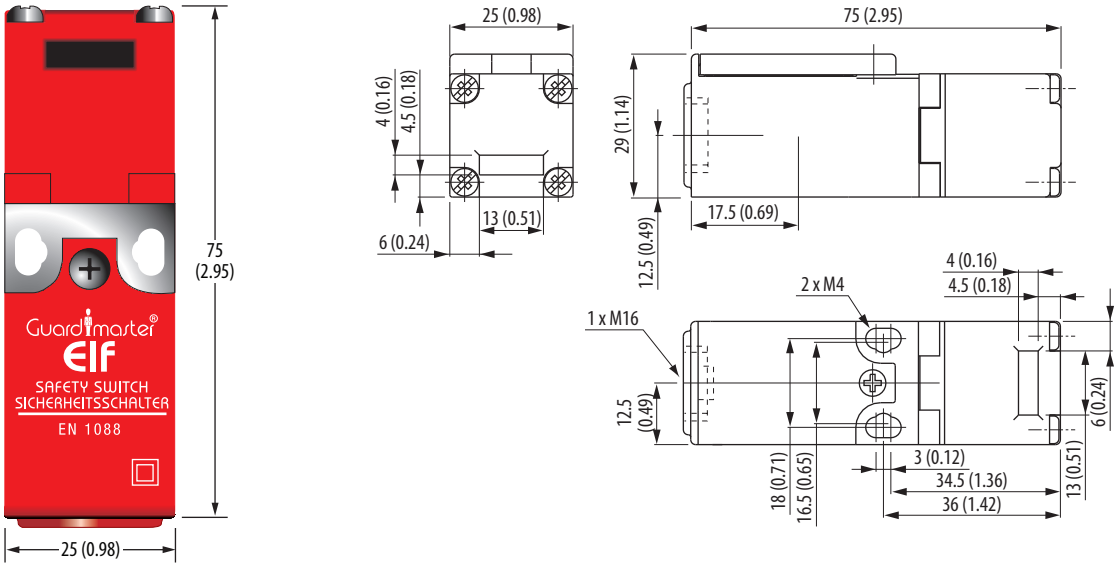
Accessories

Description		Cat. No.
	Flat actuator, not to be used with metal alignment guide	440K-A21014
	90° actuator, not to be used with metal alignment guide	440K-A21006
	Metal alignment guide with semi-flexible actuator	440K-A21030

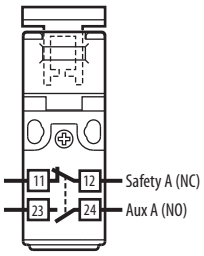
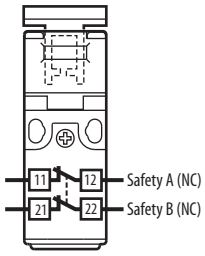
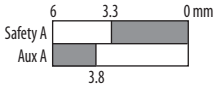
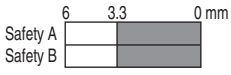
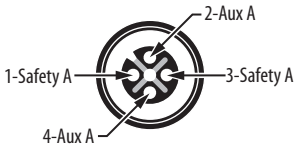
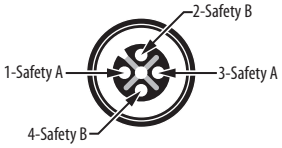
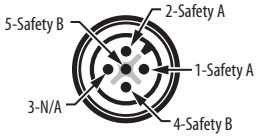
Description		Cat. No.
	Metal Alignment Guide	440K-A21069
	Replacement Cover	440A-A33085
	Dust Cover	440K-A17182

Approximate Dimensions

Dimensions are shown in mm (in.). Dimensions are not intended to be used for installation purposes. 2D, 3D, and electrical drawings are available on https://ab.rockwellautomation.com/.



Typical Wiring Diagrams

Description	1 N.C. & 1 N.O.	1 N.C.
Contact Configuration		
Contact Action ☐Open ■Closed	 BBM	
4-pin Micro (M12)		
5-pin Micro (M12) For ArmorBlock Guard I/O	—	

Description		1 N.C. & 1 N.O.	1 N.C.
Cordset 889D-F4AC-x[1]	Brown	Safety A	Safety A
	Blue		
	White	Aux A	Safety B
	Black		

(1) Replace x with 2 [2 m (6.56 ft)], 5 [5 m (16.4 ft)], or 10 [10 m (32.8 ft)] for standard cable lengths.

Cadet 3 Tongue Interlock Switches

The Cadet™ 3 tongue interlock switches have the following features:

- Compact size
- Ideal for small, lightweight guards
- Contacts, 2 N.C. and 1 N.O. or 3 N.C.
- Sealed to IP67
- Eight possible actuator entry points, easy to install
- Industry standard fixing centers to DIN 50047
- GD2 style available for difficult applications



Specifications

Attribute	Value			
Safety Ratings				
Standards	ISO 14119, IEC 60947-5-1			
Safety classification	Type 2 Interlocking Device per ISO 14119			
Functional safety data	Visit http://literature.rockwellautomation.com/idc/groups/literature/documents/sr/safety-sr001_-en-e.pdf			
Certifications	c-UL-us Listed, TÜV Certified, and CE Marked for all applicable directives www.rockwellautomation.com/certification/overview.page			
Outputs				
Safety contacts(1) Direct Opening Action	2 N.C.		3 N.C.	
Auxiliary contacts	1 N.O.		None	
Thermal current/$_{Ith}$	10 A			
Rated insulation voltage (Ui)	500V			
Switching current @ voltage	3 mA @ 18V DC, min			
Utilization Category				
A600/AC-15 (Ue)	600V	500V	240V	120V
A600/AC-15 (Ie)	1.2 A	1.4 A	3.0 A	6.0 A
DC-13 (Ue)	24V			
DC-13 (Ie)	2 A			
Operating Characteristics				
Break contact force	15 N (3.37 lbf), min			
Actuation speed	160 mm (6.29 in.)/s, max			
Actuation frequency	2 cycles/s, max			
Operating radius	150 mm (5.9 in.) [60 mm (2.36 in.) with GD2 kit], min			
Mechanical Life	1,000,000 operations			
Environmental				
Enclosure type rating	IP67			
Operating temperature	-20…+80 °C (-4…+176 °F)			
Physical Characteristics				
Housing material	UL approved glass-filled PBT			
Actuator material	Stainless steel			
Weight	80 g (0.176 lb)			
Color	Red			

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

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