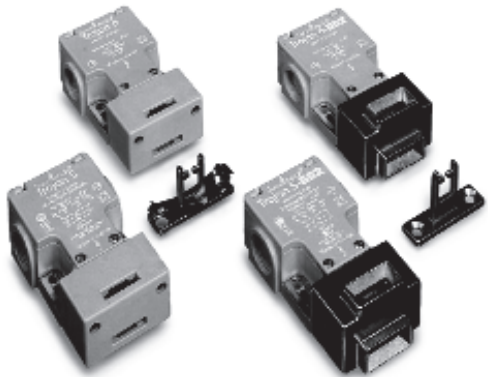


Safety Switches

Tongue Switches

Trojan™ 5 & 6



Description

The Trojan family is a universal tongue-operated (or key-operated) safety-interlock switch designed to fit at the leading edge of sliding, hinged or lift-off guards. The dual key entry slots and rotatable head, movable only by releasing the cover screws, allow four actuator entry options. The Trojan contains all of the safety related functions—i.e., forced guided contacts, tamper resistant mechanism—allowing the machine to be safeguarded in compliance with the machine directive.

Operation of the switch is achieved through the insertion of a specially-profiled stainless-steel key that is permanently mounted to the leading edge of the guard door. The standard (not GD2) Trojan actuator includes a self-ejecting mechanism that prevents operation of the switch if the actuator is not mounted to the guard door (e.g., if the operator uses a spare key).

Features

- Strong and versatile, can be used in most applications
- Self-ejecting tamper resistant actuator, only operates when mounted to the guard (not with GD2 models)
- Four possible actuator entry points, easy to install
- GD2 style available for demanding applications

3-Interlock Switches

Specifications

Safety Ratings			
Standards	EN 954-1, ISO 13849-1, IEC/EN 60204-1, NFPA 79, EN 1088, ISO 14119, IEC/EN 60947-5-1, ANSI B11.19, AS 4024.1		
Safety Classification	Cat 1 device per EN 954-1 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 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, TÜV, and CCC		
Outputs			
Safety C contacts * Direct Opening Action	3 N.C.	2 N.C.	2 N.C.
Auxiliary Contacts	1 N.O.	2 N.O.	1 N.O.
Thermal Current I _{th}	10 A		
Rated Insulation Voltage (U _i)	500V		
Switching Current @ Voltage, Min.	5 mA @ 5V DC		
Utilization Category			
Trojan 5 A300/AC-15	(U _e) 240V	120V	
	(I _e) 3 A	6 A	
P300/DC-13	(U _e) 250V	24V	
	(I _e) 0.55 A	2 A	
Trojan 6 A600/AC-15	(U _e) 600V	500V	240V 120V
	(I _e) 1.2 A	1.4 A	3 A 6 A
N600/DC-13	(U _e) 600V	500V	125V 24V
	(I _e) 0.4 A	0.55 A	2.2 A 2 A
Operating Characteristics			
Break Contact Force, Min.	Trojan 5: 12 N (2.7 lb) and 30 N (6.75 lb) Trojan 6: 20 N (4.5 lb)		
Actuation Speed, Max.	160 mm (6.29 in) per sec		
Actuation Frequency, Max.	2 cycle per sec		
Operating Radius, Min	175 mm (6.89 in) (60 mm) (2.36 in) with flexible actuator		
Operating Life @ 100 mA load	1 x 10 ⁶ operations		
Environmental			
Enclosure Type Rating	IP 67		
Operating Temperature—C (F)	-20... +80° (-4... +176°)		
Physical Characteristics			
Housing Material	UL approved glass-filled PBT		
Actuator Material	Stainless Steel		
Weight—g (lbs)	160 (0.35)		
Color	Red		

* Suitable for ISO 13849-1:2006 and IEC 62061. Data other than B10d is based on:
 - Usage rate of 1 op/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

Type	Contact			Actuator Type	Cat. No.			
	Safety	Auxiliary	Action		M20 Conduit		Connector§	
					M20	1/2 inch NPT Adaptor	Connect to Distribution Box 6-Pin Micro (M12)	Connect to ArmorBlock Guard I/O 5-Pin Micro (M12)*
Trojan 5 Standard	2 N.C.	1 N.O.	BBM	Standard	440K-T11090	440K-T11202	440K-T11205	—
				Guide/Semi-Flex	440K-T11110	440K-T11203	440K-T11206	—
				Guide/Fully-Flex	440K-T11467	440K-T11204	440K-T11207	440K-T2NNBPS
				—	440K-T11089	—	440K-T11129	—
			BBM Gold Contacts	Standard	440K-T11085	—	—	—
				MBB	Standard	440K-T11118	440K-T11208	440K-T11224
			Guide/Semi-Flex		440K-T11123	440K-T11209	440K-T11363	—
			Guide/Fully-Flex		440K-T11468	440K-T11210	440K-T11364	—
—	440K-T11146	440K-T11469	440K-T11365		—			
Trojan 5 GD 2	2 N.C.	1 N.O.	BBM	GD 2 Standard	440K-T11336	440K-T11211	440K-T11366	440K-T2NNGPS-NG
				Guide/Semi-Flex	440K-T11337	440K-T11212	440K-T11367	—
				Guide/Fully-Flex	440K-T11338	440K-T11213	440K-T11368	—
				—	440K-T11147	—	440K-T11226	—
			MBB	GD 2 Standard	440K-T11339	440K-T11470	440K-T11369	—
				Guide/Semi-Flex	440K-T11340	440K-T11471	440K-T11370	—
				Guide/Fully-Flex	440K-T11341	440K-T11472	440K-T11371	—
				—	440K-T11167	—	440K-T11372	—
Trojan 5 30 N			BBM	Standard	440K-T11333	440K-T91024	440K-T11492	—

§ For connector ratings see page 3-9.

* With a 5-pin micro (M12) connector, not all contacts are connected. See *Typical Wiring Diagram* on page 3-27 for wiring details.

Type	Contact			Actuator Type	Cat. No.		
	Safety	Auxiliary	Action		M20 Conduit		Connector§
					M20	1/2 inch NPT Adaptor	8-Pin Micro (M12)*
Trojan 6	3 N.C.	1 N.O.	BBM	Standard	440K-T11171	440K-T11435	—
				—	440K-T11449	440K-T11408	—
	2 N.C.	2 N.O.	BBM	Standard	440K-T11174	440K-T11438	—
				—	440K-T11452	440K-T11416	440K-W21BNPH
		MBB	—	440K-T11453	440K-T11454	440K-W21MNP	
Trojan 6 GD 2	3 N.C.	1 N.O.	BBM	GD 2 Standard	440K-T11418	440K-T11466	—
				—	440K-T11188	440K-T11444	—
			MBB	—	440K-T11456	440K-T11457	—
	2 N.C.	2 N.O.	BBM	GD 2 Standard	440K-T11445	440K-T11425	—
				—	440K-T11459	440K-T11433	440K-W21BNPH-NG
			MBB	—	440K-T11460	440K-T11461	440K-W21MNP-NG

§ For connector ratings see page 3-9.

* With an 8-pin micro (M12) connector, not all contacts are connected. See *Typical Wiring Diagram* on page 3-27 for wiring details.

3-Interlock Switches

Safety Switches

Tongue Switches

Trojan™ 5 & 6

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	5-24	440R-N23135
MSR127TP	3 N.O.	1 N.C.	Removable (Screw)	Auto./Manual	24V AC/DC	5-24	440R-N23132
MSR126T	2 N.O.	None	Fixed	Auto./Manual	24V AC/DC	5-22	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	5-74	440R-H23176
MSR220P Input Module	—	—	Removable	—	24V DC	5-78	440R-H23178
MSR310P Base	MSR300 Series Output Modules	3 PNP Solid State	Removable	Auto./Manual Monitored Manual	24V DC	5-94	440R-W23219
MSR320P Input Module	—	2 PNP Solid State	Removable	—	24V DC from the base unit	5-98	440R-W23218




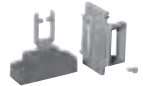




Note: For additional Safety Relays connectivity, see the Safety Relays section (page 5-8) of this catalog.
 For additional Safety I/O and Safety PLC connectivity, see the Programmable Safety System section (page 5-107) of this catalog.
 For application and wiring diagrams, see the Safety Applications section (page 10-1) of this catalog.

Connection Systems

Description	Trojan 5		Trojan 6
	5-Pin Micro (M12)	6-Pin Micro (M12)	8-Pin Micro (M12)
Cordset	—	889R-F6ECA-*	889D-F8AB-*
Patchcord	889R-F5ECRM-*	889R-F6ECRM-‡	889D-F8ABDM-‡
Distribution Box	—	898R-F68MT-A5	—
Shorting Plug	—	898R-P61MU-RM	—
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.
 † Replace symbol with 4 or 8 for number of ports.
Note: For additional information, see the Safety Connection System section (page 7-1) of this catalog.

Accessories

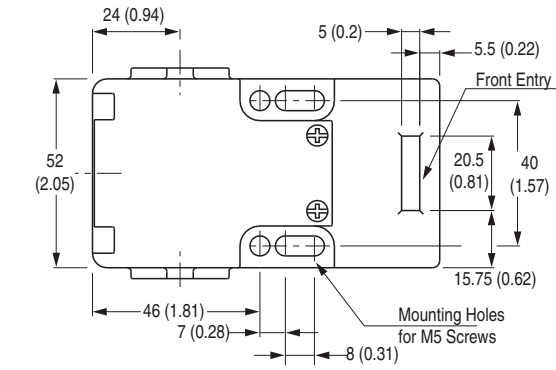
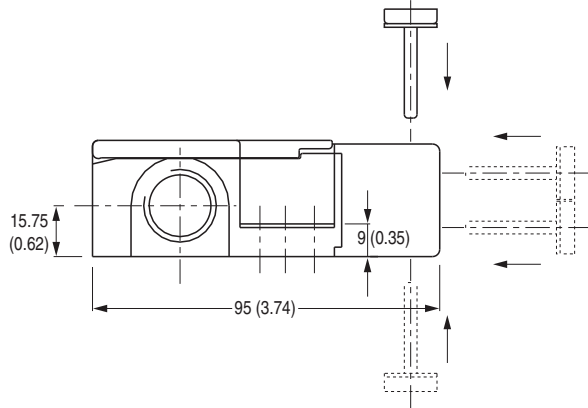
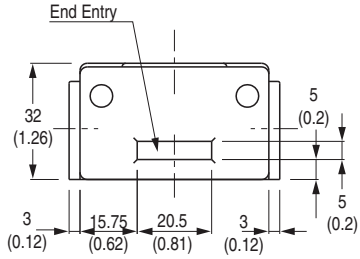
	Description	To Be Used With:	Dimensions	Cat. No.
	Standard Actuator	Trojan T5 and T6 Standard Models Only	3-51	440K-A11095
	GD2 Standard Actuator	GD2 Models Only	3-50	440G-A27011
	GD2 Flat Actuator	GD2 Models Only	3-51	440K-A11112
	Alignment Guide with Semi-Flexible Actuator	Discard Alignment Guide for GD2 Models	3-51	440K-A11144
	Alignment Guide with Fully-Flexible Actuator	Discard Alignment Guide for GD2 Models	3-52	440K-A27010
	Sliding Bolt Actuator	GD2 Models Only	3-55	440G-A27163
	Catch and Retainer Kit	Trojan T5 and T6 Standard Models Only	3-50	440K-A11094
	Replacement Cover	Trojan T5 Standard Models Only	3-54	440A-A11495
		Trojan T5 GD2		440A-A11496
		Trojan T6 Standard Models Only		440A-A11497
		Trojan T6 GD2		440A-A11498
	Dust Cover	All Models	3-54	440K-A17180

Safety Switches
Tongue Switches
 Trojan™ 5 & 6

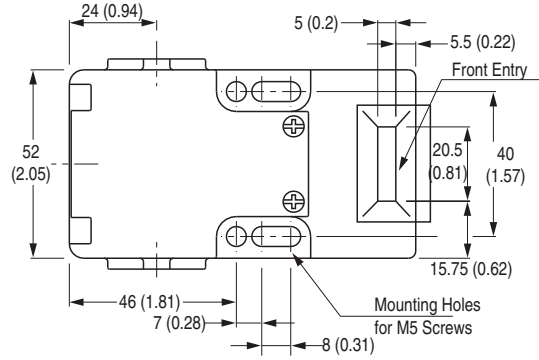
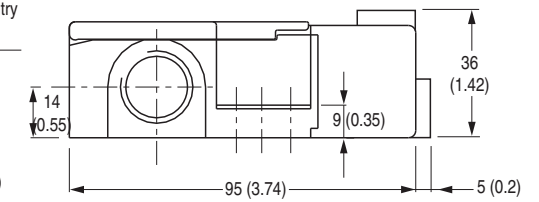
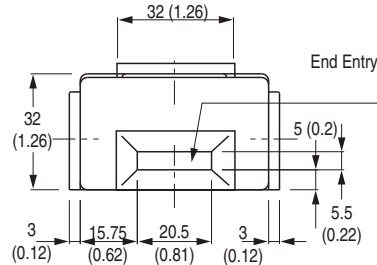
Approximate Dimensions—mm (inches)

Dimensions are not intended to be used for installation purposes.

Standard Model



GD2 Model



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

3-Interlock
Switches

Typical Wiring Diagrams

Description	Trojan 5		Trojan 6	
	2 N.C. & 1 N.O.		2 N.C. & 2 N.O.	3 N.C. & 1 N.O.
Contact C configuration				
Contact Action	 BBM MBB		 BBM MBB	 BBM MBB
6-Pin Micro (M12)			—	—
5-Pin Micro (M12) for ArmorBlock Guard I/O			—	—
8-Pin Micro (M12)	—			—
6-Pin Cordset 889R-F6ECA-*	Red /White	Safety A	—	—
	Red /Black		—	—
	Red	Safety B	—	—
	Red /Blue		—	—
	Green	Aux	—	—
Red /Yellow	—	—	—	
8-Pin Cordset 889D-F8AB-*	Grey Red	—	Safety A	—
	Yellow Pink	—	Safety B	—
	White Blue	—	Aux A	—
	Green Brown	—	NA	—

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