

Safety Switches

Tongue Switches

MT-GD2



Description

The MT-GD2 family is a robust, tongue-operated (or key-operated) safety-interlock switch designed to fit at the leading edge of sliding, hinged or lift-off guards. With its dual entry slots and rotatable head, the MT-GD2 can offer eight different options for actuator entry.

The MT-GD2 features a compact housing of only 117 x 40 x 43 mm (4.60 x 1.57 x 1.69 in.) with DIN 50041 standard fixing centres and includes forced guided contacts and a tamper-resistant mechanism.

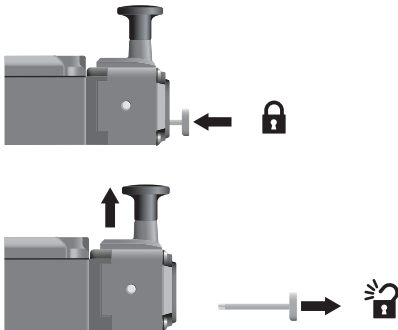
The MT-GD2 is available with a variety of contact configurations enabling it to be used as part of a system for higher-risk applications. Operation of the switch is achieved by the insertion of the specially-profiled stainless-steel actuator which should be permanently fixed to the leading edge of the guard door. An optional flexible actuator allows the MT-GD2 to operate on smaller-radius doors (≥60 mm) and a flat actuator gives additional mounting options, for example, on a chain.

A style incorporating a latch release mechanism allows manual retention of the actuator in the switch until the release mechanism is manually activated.

Features

- Strong and versatile, can be used in most applications
- Eight possible actuator entry points, easy to install
- Variety of contact configurations
- Snap acting MT-GD2 gives a min. break contact force of 40 N
- Optional latch release styles
- Industry standard fixing centers to DIN/EN50041

MT-GD2 Latch Release Style



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 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 Pl _e or Pl _d (according to ISO 13849-1:2006) and for use in SIL2 or SIL3 systems (according to IEC 62061) depending on application characteristics
Note:	For up-to-date information, visit http://www.ab.com/Safety/
Certifications	CE Marked for all applicable directives, cULus, TÜV, and CCC

Outputs	
Safety Contacts *	Standard: 3 N.C. or 2 N.C. direct opening action Snap acting: 2 N.C. direct opening forced disconnection
Auxiliary Contacts	Standard: 1 N.O. or 2 N.O. Snap Acting: 2 N.O.
Thermal Current I _{th}	10 A
Rated Insulation Voltage	(Ui) 500V
Switching Current @ Voltage, Min.	5 mA @ 5V DC

Utilization Category					
A600/AC-15	(Ue)	600V	500V	240V	120V
	(Ie)	1.2 A	1.4 A	3 A	6 A
Standard—DC-13	(Ue)	24V			
	(Ie)	2 A			
Snap-Acting—A300/AC-15	(Ue)	240V	120V		
	(Ie)	3 A	6 A		
Snap-Acting—DC-13	(Ue)	24V			
	(Ie)	2 A			

Operating Characteristics	
Break Contact Force, Min.	BBM & MBB: 12 N (2.7 lbf) BBM & Extended Flat Actuator: 32 N (7.2 lbf) Snap acting: 40 N (9.0 lbf)
Actuation Speed, Max.	160 mm (6.29 in.)/s
Actuation Frequency, Max.	2 cycles/s
Operating Life @ 100 mA load	1 x 10 ⁶ operations

Environmental	
Enclosure Type Rating	IP67
Operating Temperature [C (F)]	-20...+80° (-4...+176°)

Physical Characteristics	
Housing Material	Painted zinc
Actuator Material	Stainless Steel
Weight [g (lb)]	520 (1.15)
Color	Yellow or 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 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.

3-Interlock Switches

Product Selection
Red Body Switches

Type	Contact			Actuator Type	Cat. No.					
	Safety	Auxiliary	Action		Conduit		Connector§			
					M20	1/2 in NPT	12-Pin M23	8-Pin Micro (M12)*	Connect to ArmorBlock Guard I/O 5-Pin Micro (M12)*	
MT-GD2	3 N.C.	1 N.O.	BBM	—	440K-MT55002	440K-MT55085	440K-MT55094	—	—	
				GD2 Standard	440K-MT55074	440K-MT55022	440K-MT55095	—	—	
				Fully Flexible	440K-MT55075	440K-MT55029	440K-MT55096	—	—	
			MBB	—	440K-MT55004	440K-MT55088	440K-MT55100	—	—	
				—	440K-MT55005	440K-MT55086	440K-MT55097	440K-M21BNDH	—	
				GD2 Standard	440K-MT55076	440K-MT55026	440K-MT55098	—	—	
	2 N.C.	2 N.O.	BBM	Fully Flexible	440K-MT55077	440K-MT55087	440K-MT55099	—	—	
				MBB	—	440K-MT55006	440K-MT55089	440K-MT55101	—	—
					—	—	440K-M22ANDT	440K-M22ANDL	440K-M21ANDH	440K-M2NNNDS
			Snap Acting		Extended Flat	440K-M22AEDM	440K-M22AEDT	—	—	—
				GD2 Standard	440K-M22ASDM	440K-M22ASDT	—	—	—	
				Fully Flexible	440K-M22ABDM	440K-M22ABDT	—	—	—	

§ 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 3-32 for wiring details.

⊗ With an 8-pin micro (M12) connector, not all contacts are connected. See *Typical Wiring Diagram* on page 3-32 for wiring details.

Yellow Body Switches

Type	Contact			Actuator Type	Cat. No.		
	Safety	Auxiliary	Action		Conduit	Connector§	
					1/2 in NPT	12-Pin M23	5-Pin Micro (M12)*
MT-GD2	2 N.C.	2 N.O.	Snap Acting	—	440K-M22ANYT	—	—
				Extended Flat	440K-M22AEYT	440K-M22AEYL	440K-M2NAEYS
—	2 N.C.	2 N.O.	MBB	—	440K-M22MNYT-N5	—	440K-M2NNNYS-N5

§ 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 3-32 for wiring details.

⊗ With an 8-pin micro (M12) connector, not all contacts are connected. See *Typical Wiring Diagram* on page 3-32 for wiring details.

3-Interlock Switches

Safety Switches

Tongue Switches

MT-GD2

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	4-Pin Micro (M12)	5-Pin Micro (M12)	8-Pin Micro (M12)	12-Pin M23
Cordset	889D-F4AC-*	—	889D-F8AB-*	889M-FX9AE-*
Patchcord	889D-F4ACDM-*	889D-F5ACDM-*	889D-F8ABDM-*	—
Distribution Box	898D-P4†LT-DM4	—	—	—
Shorting Plug	898D-41LU-DM	—	—	—
T-Port	898D-43LY-D4	—	—	—







* 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.

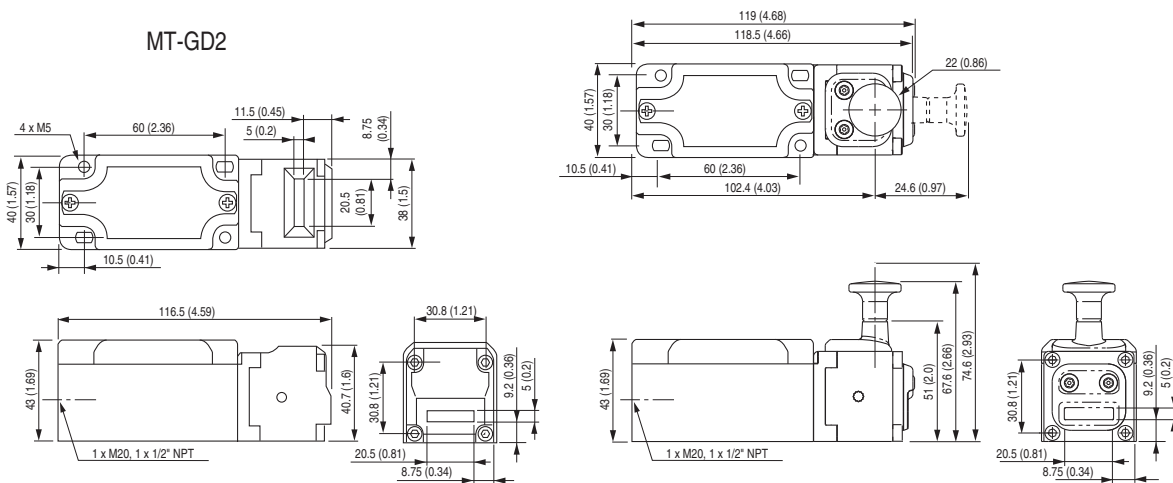
Accessories

Description	Dimensions	Cat. No.
 GD2 standard actuator	3-50	440G-A27011
 GD2 flat actuator	3-51	440K-A11112
 Fully flex actuator	3-50	440G-A27143
 Sliding bolt actuator	3-55	440G-A27163
 Extended flat actuator	3-51	440K-A17116
 Dust Cover	—	440K-A17180

Approximate Dimensions

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

MT-GD2 Latch Release



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

3-Interlock Switches

Safety Switches
Tongue Switches
MT-GD2

Typical Wiring Diagrams

Description		2 N.C. & 1 N.O.	2 N.C. & 2 N.O.	3 N.C. & 1 N.O.																												
Contact Configuration																																
Contact Action		<p>BBM</p>	<p>BBM</p>	<p>BBM</p>																												
	□ Open ■ Closed	—	<p>MBB</p>	<p>MBB</p>																												
		—	<p>Snap Acting</p>	—																												
5-Pin Micro (M12) for Connection to ArmorBlock Guard I/O	—	—		—																												
8-Pin Micro (M12)	—	—		—																												
12-Pin Cordset	<p>Pins 2, 5 and 11 are not connected.</p>	<table border="1"> <tr><td>1 and 3</td><td>Safety A</td></tr> <tr><td>4 and 6</td><td>Safety B</td></tr> <tr><td>7 and 8</td><td>NC</td></tr> <tr><td>9 and 10</td><td>Aux A</td></tr> <tr><td>12</td><td>Ground</td></tr> </table>	1 and 3	Safety A	4 and 6	Safety B	7 and 8	NC	9 and 10	Aux A	12	Ground	<table border="1"> <tr><td>Safety A</td></tr> <tr><td>Safety B</td></tr> <tr><td>Aux A</td></tr> <tr><td>Aux B</td></tr> <tr><td>Ground</td></tr> </table>	Safety A	Safety B	Aux A	Aux B	Ground	<table border="1"> <tr><td>Safety A</td></tr> <tr><td>Safety B</td></tr> <tr><td>Safety C</td></tr> <tr><td>Aux A</td></tr> <tr><td>Ground</td></tr> </table>	Safety A	Safety B	Safety C	Aux A	Ground								
1 and 3	Safety A																															
4 and 6	Safety B																															
7 and 8	NC																															
9 and 10	Aux A																															
12	Ground																															
Safety A																																
Safety B																																
Aux A																																
Aux B																																
Ground																																
Safety A																																
Safety B																																
Safety C																																
Aux A																																
Ground																																
8-Pin Cordset 889D-F8AB-*	<table border="1"> <tr><td>Grey Red</td><td>—</td></tr> <tr><td>Yellow Pink</td><td>—</td></tr> <tr><td>White Blue</td><td>—</td></tr> <tr><td>Green</td><td>—</td></tr> <tr><td>Brown</td><td>—</td></tr> </table>	Grey Red	—	Yellow Pink	—	White Blue	—	Green	—	Brown	—	<table border="1"> <tr><td>—</td></tr> <tr><td>—</td></tr> <tr><td>—</td></tr> <tr><td>—</td></tr> <tr><td>—</td></tr> </table>	—	—	—	—	—	<table border="1"> <tr><td>Safety A</td></tr> <tr><td>Safety B</td></tr> <tr><td>Aux A</td></tr> <tr><td>Ground</td></tr> <tr><td>Not Used</td></tr> </table>	Safety A	Safety B	Aux A	Ground	Not Used	<table border="1"> <tr><td>—</td></tr> <tr><td>—</td></tr> <tr><td>—</td></tr> <tr><td>—</td></tr> <tr><td>—</td></tr> </table>	—	—	—	—	—			
Grey Red	—																															
Yellow Pink	—																															
White Blue	—																															
Green	—																															
Brown	—																															
—																																
—																																
—																																
—																																
—																																
Safety A																																
Safety B																																
Aux A																																
Ground																																
Not Used																																
—																																
—																																
—																																
—																																
—																																
12-Pin Cordset 889M-FX9AE-*	<table border="1"> <tr><td>Brown Blue</td><td>Safety A</td></tr> <tr><td>White Green</td><td>Safety B</td></tr> <tr><td>Yellow Grey</td><td>Not Used</td></tr> <tr><td>Pink Red</td><td>Aux A</td></tr> <tr><td>Green/Yellow</td><td>Ground</td></tr> </table>	Brown Blue	Safety A	White Green	Safety B	Yellow Grey	Not Used	Pink Red	Aux A	Green/Yellow	Ground	<table border="1"> <tr><td>Safety A</td></tr> <tr><td>Safety B</td></tr> <tr><td>Not Used</td></tr> <tr><td>Aux A</td></tr> <tr><td>Aux B</td></tr> <tr><td>Ground</td></tr> </table>	Safety A	Safety B	Not Used	Aux A	Aux B	Ground	<table border="1"> <tr><td>Safety A</td></tr> <tr><td>Safety B</td></tr> <tr><td>Safety C</td></tr> <tr><td>Aux A</td></tr> <tr><td>Aux B</td></tr> <tr><td>Ground</td></tr> </table>	Safety A	Safety B	Safety C	Aux A	Aux B	Ground	<table border="1"> <tr><td>Safety A</td></tr> <tr><td>Safety B</td></tr> <tr><td>Safety C</td></tr> <tr><td>Aux A</td></tr> <tr><td>Aux A</td></tr> <tr><td>Ground</td></tr> </table>	Safety A	Safety B	Safety C	Aux A	Aux A	Ground
Brown Blue	Safety A																															
White Green	Safety B																															
Yellow Grey	Not Used																															
Pink Red	Aux A																															
Green/Yellow	Ground																															
Safety A																																
Safety B																																
Not Used																																
Aux A																																
Aux B																																
Ground																																
Safety A																																
Safety B																																
Safety C																																
Aux A																																
Aux B																																
Ground																																
Safety A																																
Safety B																																
Safety C																																
Aux A																																
Aux A																																
Ground																																


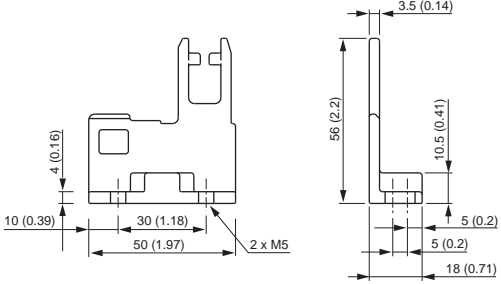

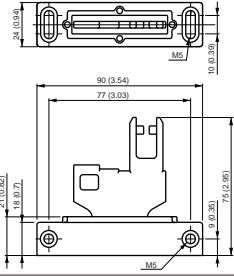

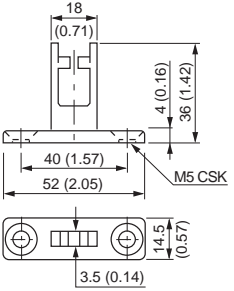

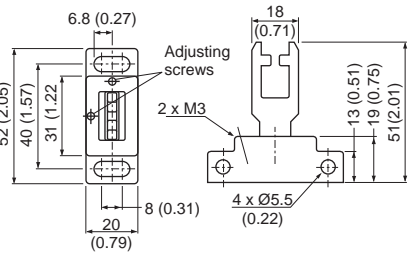

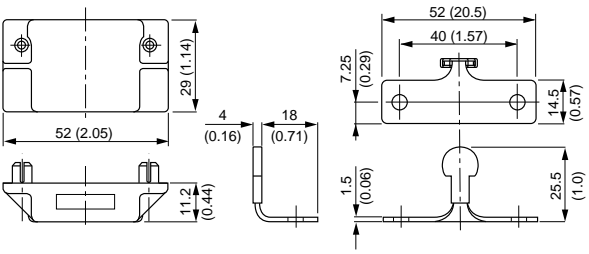
* Replace symbol with 2 (2 m), 5 (5 m) or 10 (10 m) for standard cable lengths.

3-Interlock Switches

Safety Switches
Accessories
Actuators

Accessories for Interlock and Guard Locking Switches


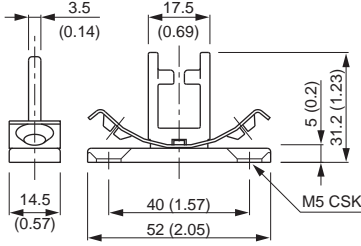

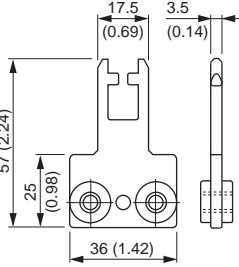

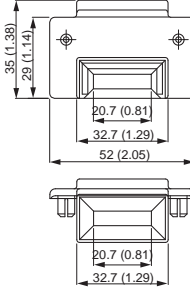

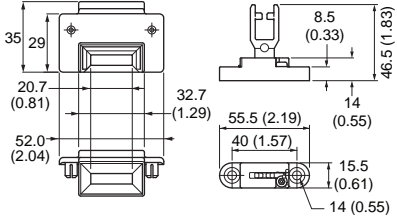

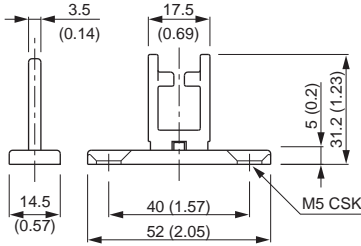

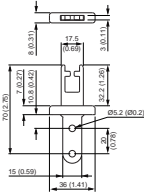
Actuators*

Item	Description	Approximate Dimensions [mm (in.)]	Cat. No.
	Standard actuator		440G-A07136
	Fully flex actuator		440G-A07269
	GD2 standard actuator		440G-A27011
	Fully flex actuator		440G-A27143
	Catch and Retainer Kit		440K-A11094

* See page 3-8 for Switch Compatibility table.

3-Interlock Switches


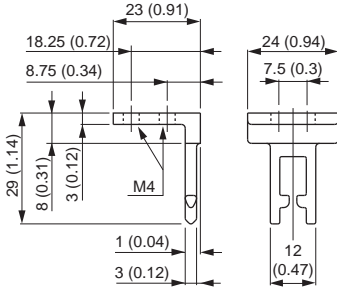

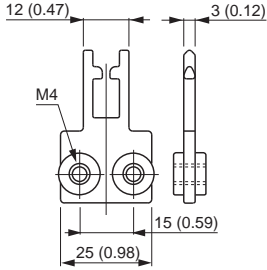

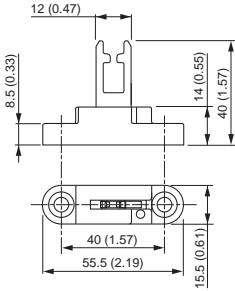

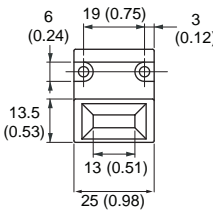
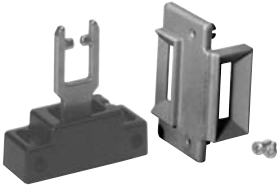
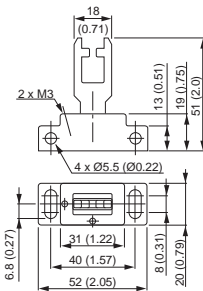
Actuators* (continued)

Item	Description	Approximate Dimensions [mm (in.)]	Cat. No.
	Standard actuator		440K-A11095
	GD2 flat actuator		440K-A11112
	Replacement Alignment Guide		440K-A11115
	Alignment guide with semi-flexible actuator		440K-A11144
	Standard actuator		440K-A11238
	Extended flat actuator		440K-A17116

* See page 3-8 for Switch Compatibility table.

Safety Switches
Accessories
 Actuators












Actuators* (continued)

Item	Description	Approximate Dimensions [mm (in.)]	Cat. No.
	90° actuator, not to be used with metal alignment guide		440K-A21006
	Flat actuator, not to be used with metal alignment guide		440K-A21014
	Metal alignment guide with semi-flexible actuator		440K-A21030
	Metal Alignment Guide		440K-A21069
	Alignment guide with fully-flexible actuator		440K-A27010







* See page 3-8 for Switch Compatibility table.

3-Interlock Switches

Beacons and Bulbs

Item	Description	Cat. No.
	Indicator, M20 Conduit Pilot Light—Amber Lens T-3 1/4 Insert Use T-3 1/4 Bulb (Sold Separately)	440A-A19001
	Indicator, M20 Conduit Pilot Light—Red Lens T-3 1/4 Insert Use T-3 1/4 Bulb (Sold Separately)	440A-A19002
	Indicator, 1/2 inch NPT Conduit Pilot Light—Amber Lens T-3 1/4 Insert Use T-3 1/4 Bulb (Sold Separately)	440A-A19005
	Indicator, 1/2 inch NPT Conduit Pilot Light—Red Lens T-3 1/4 Insert Use T-3 1/4 Bulb (Sold Separately)	440A-A19007
	Bulb, 24V for Conduit Pilot Light 2.8W T-3 1/4 Bulb, Miniature Screw Base	440A-A09056
	Bulb, 110V for Conduit Pilot Light 2.6W T-3 1/4 Bulb, Miniature Screw Base	440A-A09055
	Bulb, 240V for Conduit Pilot Light 0.75W T-3 1/4 Bulb, Miniature Screw Base	440A-A09054
	Red LED Bulb, 24V AC/DC for Conduit Pilot Light Bayonet Style Insert	800T-N319R
	Amber LED Bulb, 24V AC/DC for Conduit Pilot Light Bayonet Style Insert	800T-N319A
	Red LED Bulb, 120V AC for Conduit Pilot Light Bayonet Style Insert	800T-N320R
	Amber LED Bulb, 120V AC for Conduit Pilot Light Bayonet Style Insert	800T-N320A

Conduit Accessories









Item	Description	Cat. No.
	Blanking plug, M20 conduit	440A-A07265
	Cable Grip, M16 Conduit, Accommodates Cable Diameter 4...7 mm (0.27...0.16 in.)	440A-A09004
	Cable grip, M20 conduit, accommodates cable diameter 7...10.5 mm (0.27...0.41 in.)	440A-A09028
	Adaptor, conduit, M20 to 1/2 inch NPT, plastic	440A-A09042
	Adaptor, Conduit, 1/2 inch NPT to M16, Brass	440A-A09093
	Adaptor, Conduit, M16 to 1/2 inch NPT, Brass	440A-A09094

Safety Switches




Accessories

Replacement and Dust Covers, Emergency Override, and Flex Release


Replacement Covers

Item	Description	Cat. No.
	Elf™	440A-A33085
	Cadet™	440A-A21115
	Trojan T15	440A-A11499
	Trojan 5 Standard Models Only	440A-A11495
	Trojan T5 GD2	440A-A11496
	Trojan T6 Standard Models Only	440A-A11497
	Trojan T6 GD2	440A-A11498
	440G-MT No LED, No Override	440G-MT47120
	440G-MT LED and Override	440G-MT47123
	Cover for TLS-1 with external override key for series D and earlier	440G-A27140
	Cover for TLS-3 with external override key for series D and earlier	440G-A27142
	Cover for TLS-1 with override key attached for series D and earlier	440G-A27207
	Cover for TLS-3 with override key attached for series D and earlier	440G-A27208
	Atlas Replacement End Cap	440G-A07180

Dust Covers

Item	Applicable Switch	Cat. No.
	Elf Cadet	440K-A17182
	Trojan T15, T5, and T6 All Models MT G2 440G-MT	440K-A17180
	TLS-GD2	440K-A17183
	Atlas 5	440K-A17181


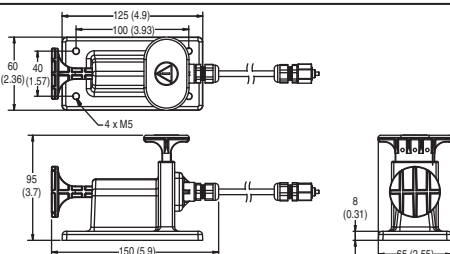
Emergency Override

Item	Description	Cat. No.
	TLS-GD2/440G-MT Solenoid Emergency Override (See Warning below.)	440G-A36026





WARNING: Do not attach the Emergency Override Key to the TLS-GD2/440G-MT switch.


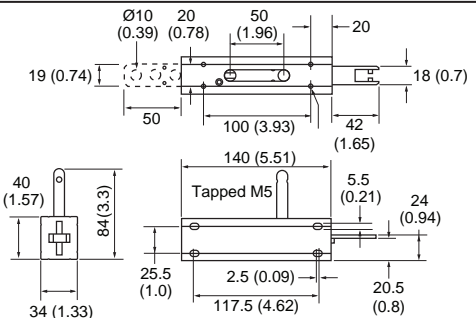

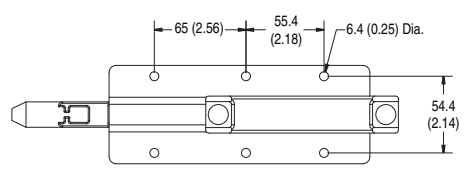
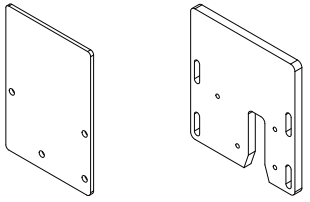
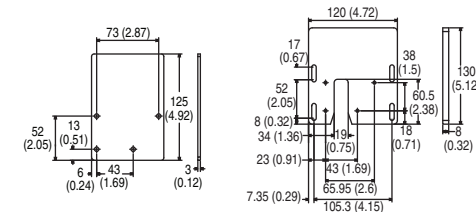
Flex Release

Item	Description	Approximate Dimensions [mm (in.)]	Cat. No.
	Flexible Release—1 m (3.28 ft) Cable		440G-A27356
	Flexible Release—3 m (9.84 ft) Cable		440G-A27357

Tools

Item	Description	Cat. No.
	Security Bit	440A-A09015
	Screwdriver Including Security Bit	440A-A09018

Door Handles

Item	Description	Dimensions [mm (in.)]	Cat. No.
	Sliding bolt actuator		440G-A27163
	Sliding Bolt		440K-AMDS
	Sliding Bolt Mounting Plate for TLS-GD2		440K-AMDSSMPB

3-Interlock Switches