

Safety Switches

Guard Locking Switches

Atlas™ 5



Description

The Atlas 5 is a positive-mode, tongue-operated guard-locking interlock switch that locks a machine guard closed until power is isolated to ensure that it remains isolated while the guard is open. A heavy-duty switch, the Atlas 5 locking mechanism is designed to withstand forces up to 5000 N (1124 lbs) and the die-cast alloy housing is ideal for use in harsh environments. A unique feature of the Atlas 5 is a patented self-aligning head that tolerates actuator or guard misalignment, making it particularly useful for heavy machine guards.

The Atlas 5 is designed for machines that do not stop immediately or where premature interruption of the machine could cause damage to tooling and components or cause an additional hazard. With 2 safety (N.C.) contacts and 2 auxiliary (N.O.) contact, Atlas 5 is ideal for PLC controlled machines.

Features

- Mechanical lock
- High locking force— 5000 N (1124 lbs)
- Heavy duty die-cast alloy housing ideal for harsh environments
- Patented self-aligning head tolerates actuator misalignment

3-Interlock Switches

Specifications

Safety Ratings		
Standards	EN 954-1, ISO 13849-1, IEC /EN 60204-1, NFPA 79, EN1088, 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 (related to Safety Contacts) *	B10d: > 2 x 10 ⁶ operations at min. load PFH _D : < 3 x 10 ⁻⁷ MTTFd: > 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 SIL 2 or SIL 3 systems (according to IEC 62061) depending on the architecture and application characteristics	
Certifications	CE marked for all applicable directives, cULus, CSA, and TÜV	
Outputs		
Safety Contacts *	Atlas 5: 2 N.C. direct-opening action; 1 N.O. direct-opening action Atlas 5 trapped key (left hand): 2 N.C. direct-opening action; 1 N.O. direct-opening action	
Auxiliary Contacts	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		
AC-15	(U _e) 240V	120V
	(I _e) 1.5 A	3 A
DC-13	(U _e) 250V	24V
	(I _e) 0.55 A	2 A
Solenoid Characteristics		
Locking Type	Power to Release	
Holding Force, Max.	5000 N (1124 lbs)	
Power Supply	24V AC/DC or 110V AC or 230V AC (solenoid)	
Solenoid Power	13 W typical 100% ED	
Operating Characteristics		
Break Contact Force, Min.	12 N (2.7 lbs)	
Actuation Speed, Max. *	160 mm (6.3 in) per sec.	
Actuation Frequency, Max.	2 cycle per sec.	
Operating Radius, Min	300 mm end entry, 800 mm entry front	
Operating Life @ 100 mA load	1,000,000 operations	
Environmental		
Enclosure Type Rating	IP 65	
Operating Temperature— C (F)	-10... +60° (14... +140°)	
Physical Characteristics		
Housing Material	Die-cast alloy	
Actuator Material	Stainless Steel	
Weight— g (lbs)	1200 (2.65)	
Color	Red	

* Usable for ISO 13849-1:2006 and IEC 62061. Data is based on the B10d value given and:
 - Usage rate of 1 op/10mins., 24hrs/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

Module Type	Actuator Type	Contact		Solenoid Contacts	Solenoid Voltage	Cat. No.			
		Safety	Auxiliary			M20 Conduit		Connector§	
						M20	1/2 inch NPT Adaptor	12-Pin M23	8-Pin Micro (M12)*
Standard	Standard	2 N.C.	1 N.O.	2 N.C. & 1 N.O.	24V AC/DC	440G-L07264	440G-L07258	440G-L07298	440G-L2NNSDH-3N
					110V AC/DC	440G-L07263	440G-L07257	—	—
					230V AC/DC	440G-L07262	440G-L07256	—	—
24V AC/DC					440G-L07255	440G-L07249	440G-L07301	440G-L2NNSDH-38	
110V AC/DC					440G-L07254	440G-L07248	—	—	
230V AC/DC					440G-L07253	440G-L07247	—	—	
LH Key Lock									

§ For connector ratings, see page 3-9.

* With an 8-pin micro connector, not all contacts are connected. See *Typical Wiring Diagrams* on page 3-49 for wiring details.

Recommended Logic Interfaces

Description	Safety Outputs	Auxiliary Outputs	Time Delay	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
Specialty Safety Relays								
MSR178	3 N.O.	2 N.C.	1.5 s... 30 min	Removable	Automatic	24V AC/DC, 115V AC or 230V AC	5-38	440R-M23227
CU2	2 N.O.	1 N.C.	0.1 s... 40 min	Fixed	—	24V AC/DC	5-50	440R-S07281
CU3	2 N.O.	1 N.C.	—	Fixed	Automatic/Manual	110V AC	5-58	440R-S35002
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	8-Pin Micro (M12)	12-Pin M23
Cordset	889D-F8AB-*	889M-F12AH-*
Patchcord	889D-F8ABDM-*	889M-F12AHMU-†

* 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 OM3, (0.3 m), OM6 (0.6 m), 1 (1 m), 2 (2 m) or 3 (3 m) for standard lengths.

Note: For additional information, see the Safety Connection System section (page 7-1) of this catalog.

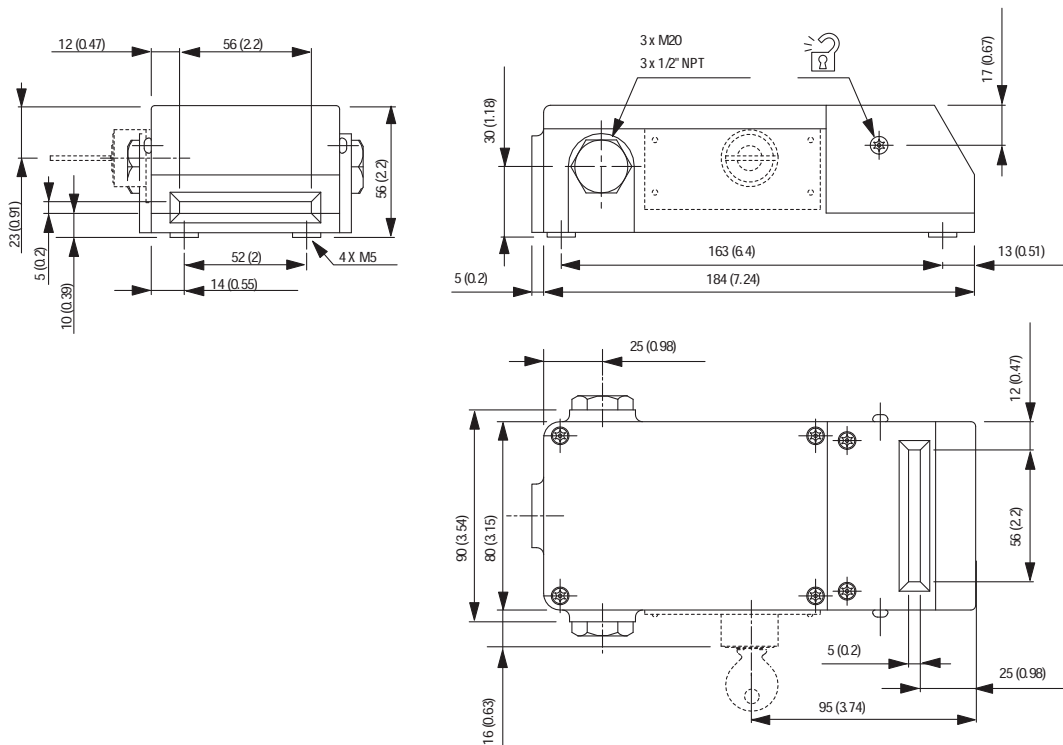
Safety Switches
Guard Locking Switches
 Atlas™ 5

Accessories

	Description	Dimensions	Cat. No.
	Standard Actuator	3-50	440G-A07136
	Atlas Replacement End Cap	3-54	440G-A07180
	Fully Flex Actuator	3-50	440G-A07269
	Dust Cover	3-54	440K-A17181

Approximate Dimensions—mm (inches)

Dimensions are not intended to be used for installation purposes.



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

3-Interlock Switches

Typical Wiring Diagrams


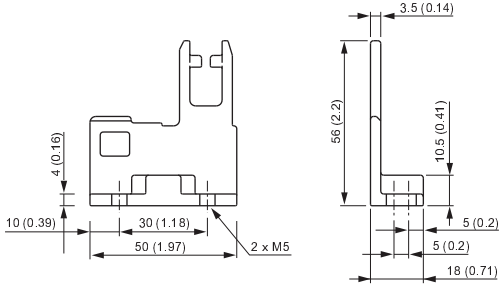
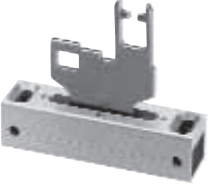
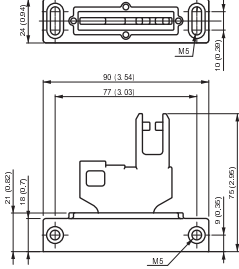

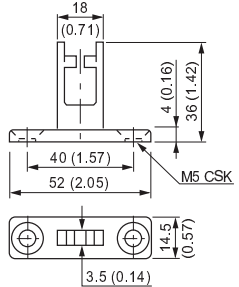

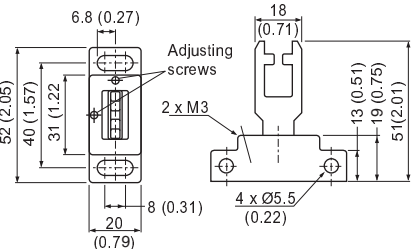

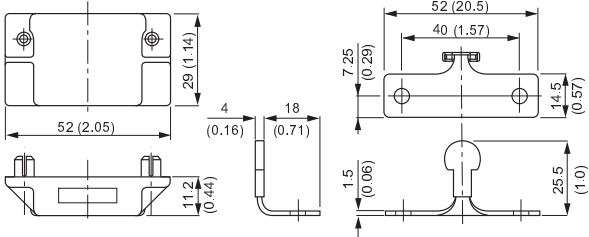
	Atlas 5													
Contact C configuration														
Contact Action	<p style="text-align: center;">BBM</p>													
8-Pin Micro (M12)	<p style="text-align: center;">Jumpers on 9-10 and 19-20</p>													
12-Pin M23	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td rowspan="6" style="text-align: center;"> Pin 11 not connected. </td> <td style="text-align: center;">1 and 3</td> <td style="text-align: center;">Solenoid Power</td> </tr> <tr> <td style="text-align: center;">4 and 6</td> <td style="text-align: center;">Safety A</td> </tr> <tr> <td style="text-align: center;">7 and 8</td> <td style="text-align: center;">Safety B</td> </tr> <tr> <td style="text-align: center;">2 and 5</td> <td style="text-align: center;">Aux A</td> </tr> <tr> <td style="text-align: center;">9 and 10</td> <td style="text-align: center;">Solenoid A</td> </tr> <tr> <td style="text-align: center;">12</td> <td style="text-align: center;">Ground</td> </tr> </table>	 Pin 11 not connected.	1 and 3	Solenoid Power	4 and 6	Safety A	7 and 8	Safety B	2 and 5	Aux A	9 and 10	Solenoid A	12	Ground
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8-Pin Cordset 889D-F3AB-*	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">Brown Blue</td> <td style="text-align: center;">Solenoid Power</td> </tr> <tr> <td style="text-align: center;">Grey Red</td> <td style="text-align: center;">Safety A</td> </tr> <tr> <td style="text-align: center;">Yellow Pink</td> <td style="text-align: center;">Safety B</td> </tr> <tr> <td style="text-align: center;">White Green</td> <td style="text-align: center;">Solenoid A</td> </tr> </table>	Brown Blue	Solenoid Power	Grey Red	Safety A	Yellow Pink	Safety B	White Green	Solenoid A					
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12-Pin Cordset 889M-F12AH-*	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">Brown Grey</td> <td style="text-align: center;">Solenoid Power</td> </tr> <tr> <td style="text-align: center;">Pink Yellow</td> <td style="text-align: center;">Safety A</td> </tr> <tr> <td style="text-align: center;">White Red/Blue</td> <td style="text-align: center;">Safety B</td> </tr> <tr> <td style="text-align: center;">Blue Red</td> <td style="text-align: center;">Aux A</td> </tr> <tr> <td style="text-align: center;">Black Violet</td> <td style="text-align: center;">Solenoid A</td> </tr> <tr> <td style="text-align: center;">Green</td> <td style="text-align: center;">Ground</td> </tr> </table>	Brown Grey	Solenoid Power	Pink Yellow	Safety A	White Red/Blue	Safety B	Blue Red	Aux A	Black Violet	Solenoid A	Green	Ground	
Brown Grey	Solenoid Power													
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* Replace symbol with 2 (2m), 5 (5m) or 10 (10m) for standard cable lengths.

**3-Interlock
Switches**

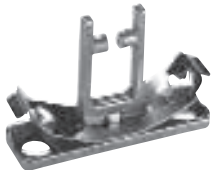
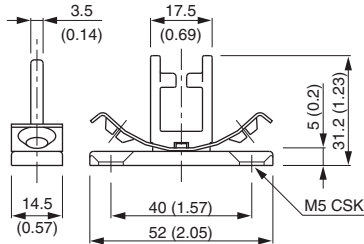

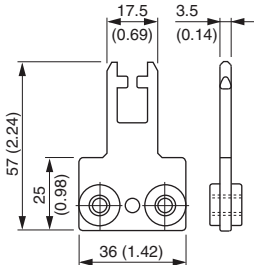

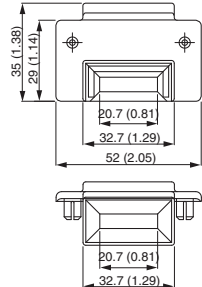
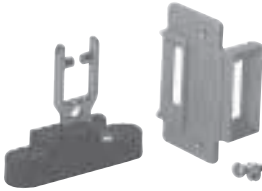
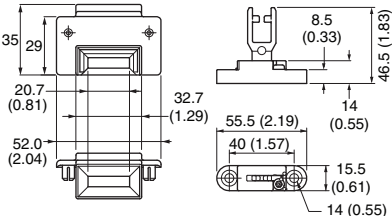

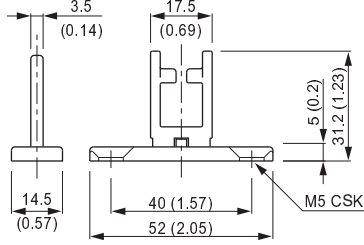

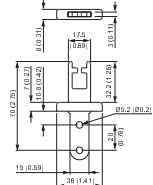
Accessories for Interlock and Guard Locking Switches

Actuators*

Item	Description	Approximate Dimensions - mm (inches)	Cat. No.
	Standard Actuator	 <p>Dimensions: 10 (0.39), 4 (0.16), 30 (1.18), 50 (1.97), 2 x M5, 56 (2.2), 3.5 (0.14), 10.5 (0.41), 5 (0.2), 5 (0.2), 18 (0.71)</p>	44CG-A07136
	Fully Flex Actuator	 <p>Dimensions: 21 (0.83), 18 (0.71), 90 (3.54), 77 (3.03), 10 (0.39), 21 (0.83), 18 (0.71), 71 (2.80), 9 (0.35), M5</p>	44CG-A07269
	GD2 Standard Actuator	 <p>Dimensions: 18 (0.71), 4 (0.16), 36 (1.42), 40 (1.57), 52 (2.05), M5 CSK, 4.5 (0.18), 3.5 (0.14)</p>	44CG-A27011
	Fully Flexible Actuator	 <p>Dimensions: 6.8 (0.27), 18 (0.71), 52 (2.05), 40 (1.57), 31 (1.22), Adjusting screws, 2 x M3, 13 (0.51), 19 (0.75), 51 (2.01), 8 (0.31), 20 (0.79), 4 x Ø5.5 (0.22)</p>	44CG-A27143
	Catch and Retainer Kit	 <p>Dimensions: 52 (2.05), 29 (1.14), 4 (0.16), 18 (0.71), 7.25 (0.29), 52 (20.5), 40 (1.57), 14.5 (0.57), 11.2 (0.44), 1.5 (0.06), 25.5 (1.0)</p>	44CK-A11094

* See page 3-8 for switch compatibility table.

Actuators* (continued)


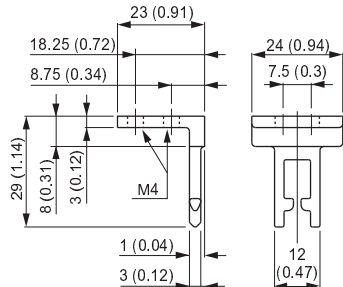

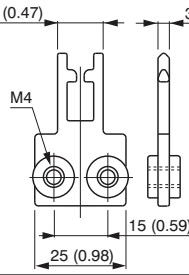

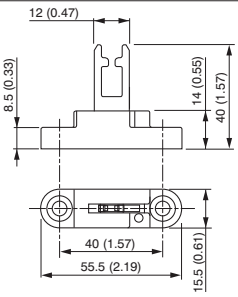

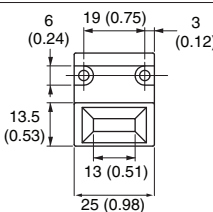
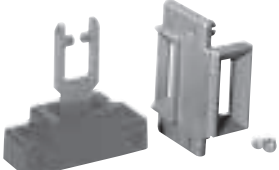
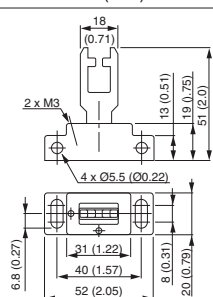
Item	Description	Approximate Dimensions - mm (inches)	Cat. No.
	Standard Actuator	 <p>Dimensions: 3.5 (0.14), 17.5 (0.69), 14.5 (0.57), 40 (1.57), 52 (2.05), 5 (0.2), 31.2 (1.23), M5 CSK</p>	44CK-A11095
	GD2 Flat Actuator	 <p>Dimensions: 17.5 (0.69), 3.5 (0.14), 57 (2.24), 25 (0.98), 36 (1.42)</p>	44CK-A11112
	Replacement Alignment Guide	 <p>Dimensions: 35 (1.38), 29 (1.14), 20.7 (0.81), 32.7 (1.29), 52 (2.05)</p>	44CK-A11115
	Alignment Guide with Semi-Flexible Actuator	 <p>Dimensions: 35, 29, 20.7 (0.81), 32.7 (1.29), 52.0 (2.04), 8.5 (0.33), 46.5 (1.83), 14 (0.55), 55.5 (2.19), 40 (1.57), 15.5 (0.61), 14 (0.55)</p>	44CK-A11144
	Standard Actuator	 <p>Dimensions: 3.5 (0.14), 17.5 (0.69), 14.5 (0.57), 40 (1.57), 52 (2.05), 5 (0.2), 31.2 (1.23), M5 CSK</p>	44CK-A11238
	Extended Flat Actuator	 <p>Dimensions: 80.31, 17.5 (0.69), 30.51, 20.62, 15.5 (0.61), 15 (0.59), 38 (1.51), 15.5 (0.61), 15 (0.59), 15 (0.59), 15 (0.59), 15 (0.59)</p>	44CK-A17116

* See page 3-8 for switch compatibility table.

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Safety Switches
Accessories
 Actuators












Actuators* (continued)

Item	Description	Approximate Dimensions - mm (inches)	Cat. No.
	90° Actuator, Not to be used with Metal Alignment Guide		44CK-A-21006
	Flat Actuator, Not to be used with Metal Alignment Guide		44CK-A-21014
	Metal Alignment Guide with Semi-Flexible Actuator		44CK-A-21030
	Metal Alignment Guide		44CK-A-21069
	Alignment Guide with Fully-Flexible Actuator		44CK-A-27010

* 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, 1/2n NPT Conduit Pilot Light—Amber Lens T-3 1/4 Insert Use T-3 1/4 Bulb (Sold Separately)	440A-A19005
	Indicator, 1/2n 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 (Q.27...Q.16 in)	440A-A09004
	Cable Grip, M20 Conduit, Accommodates Cable Diameter 7...10.5 mm (Q.27...Q.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

3-Interlock Switches





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 T15 Standard Models Only	440A-A11495
	Trojan T5GD2	440A-A11496
	Trojan T6 Standard Models Only	440A-A11497
	Trojan T6GD2	440A-A11498
	440G-MT No LED, No Override	440G-MT 47120
	440G-MT LED and Override	440G-MT 47123
	Replacement Cover for TLS-1 with External Override Key	440G-A27140
	Replacement Cover for TLS-3 with External Override Key	440G-A27142
	Replacement Cover for TLS-1 with Override Key Attached	440G-A27207
	Replacement Cover for TLS-3 with Override Key Attached	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


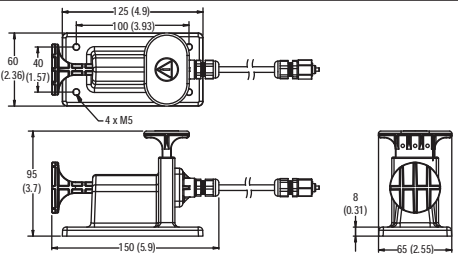
Emergency Override

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.


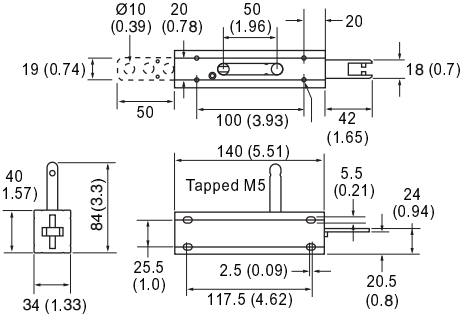

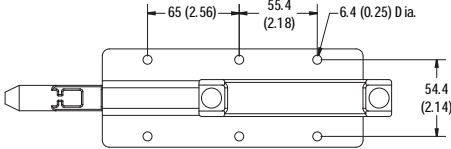
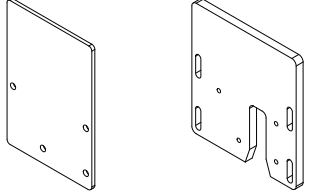
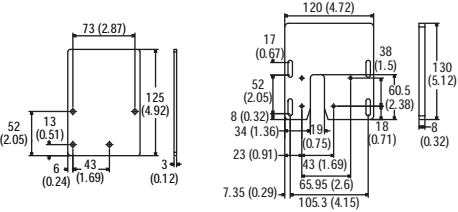
Flex Release

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