Prosafe™ Trapped Key Interlock Switches

Overview

CNC precision cut keys

Tested to 100,000 operations

Interlocking and Control Solutions

Trapped Key Interlocks—Why Use Them?

Based upon the premise that no one key can be in two places at once, key interlock systems can be configured to ensure a predetermined sequence of events takes place or that hazards have been reduced before operators can become exposed to them.

It is a mechanical system and is therefore widely used in applications including those where the location of plant, environment or explosive atmospheres make the use of electrical interlock systems unsuitable or expensive to install. In addition, unique coding can be provided, lending to a greater degree of security and tamper-resistance.

Why Prosafe?

In order to derive the full benefits from a trapped key interlocking system its components must be totally practical, easily maintainable and readily available. Prosafe's unique key and code barrel gives the ability for even complicated interlocking systems and spare parts to be ordered from our worldwide network of distributors—fast! A first for trapped key interlocks.

5 Unique Prosafe Benefits

Compare the following to other trapped key manufacturers:

1. All stainless interlocking and coded parts—including the code barrel and internal components at no extra cost.
2. Weather cap as standard—no extra charge for dust caps and seals.
3. Standard red colour-coded key and ID tags—at no extra charge.
4. Custom colour/text keys and ID tags—nominal extra charge.
5. A complete range of isolators, key exchange, miniature valve interlocks and gate interlocks—all using the same key principle.

CE Marking—Tested and Approved

Only Prosafe products carry the prestigious BG mark. A sign of safety, independently tested by the German Berufsgenossen-schaftliches Institut für Arbeitssicherneit, 'BIA'. Additional tests for valve interlocks include Lloyds Certificate for fire test and salt-mist resistance. Switches and sensors carry the necessary 'BASEEFA' approvals while isolator switches carry UL, CSA and TUV approvals.

Over 100,000 Operations

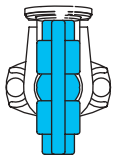
Prosafe products have been subjected to independent, exhaustive testing. With only a small amount of lubricant added infrequently, keys were inserted, rotated and removed at a rate of 12 times per minute. After 100,000 operations (at 10 operations a day this is equivalent to 27 years) the unit was functioning satisfactorily and most importantly would 'pass' only the original or equivalent new key. No incorrect keys could operate the lock, underlining the unit's integrity as well as longevity.

The Prosafe Advantage

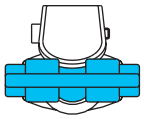
Stainless steel construction.

The Advantage

90° Key Operation



Key Free



Key Trapped

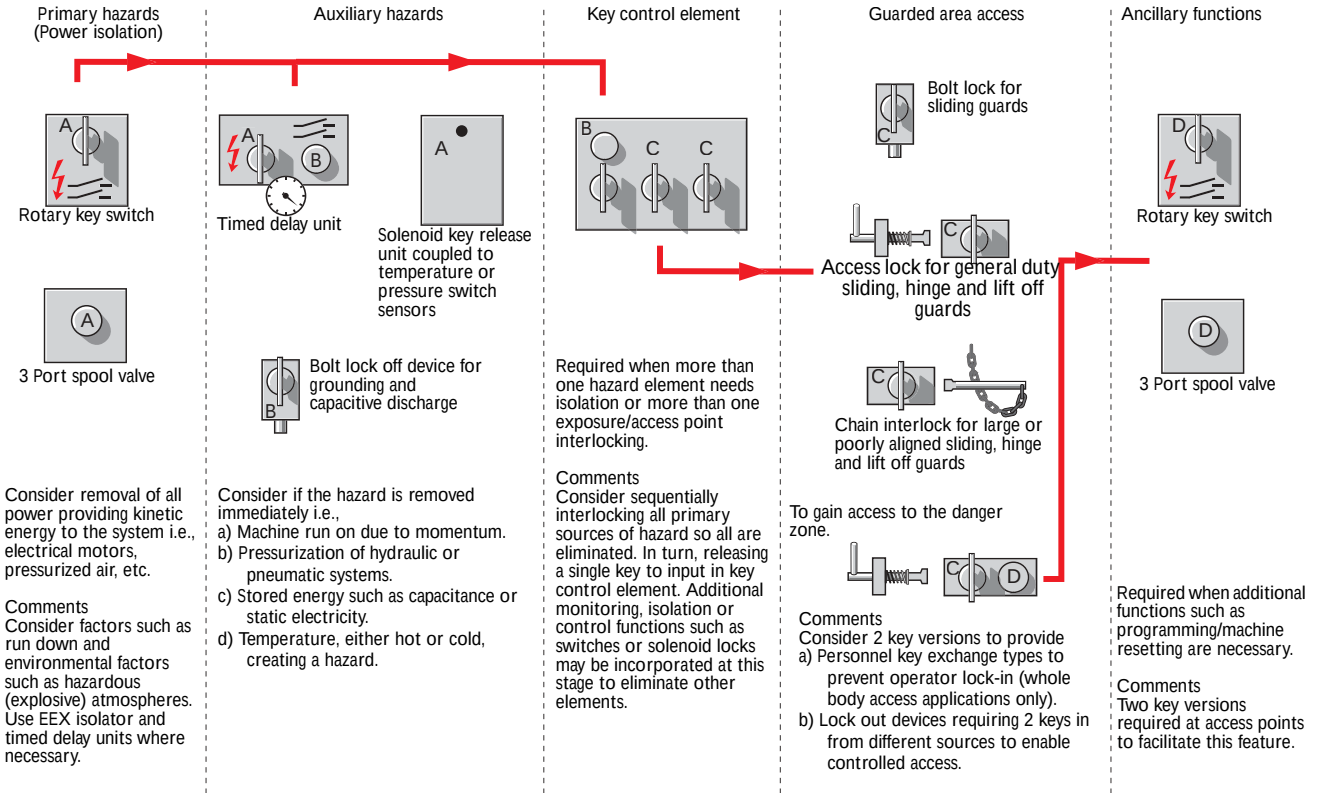
Prosafe Keys

Compact, solid and sturdy keys supplied with dust seals and coded tagging. Optional colours/text are available.

Overview

Designing an Interlocking System

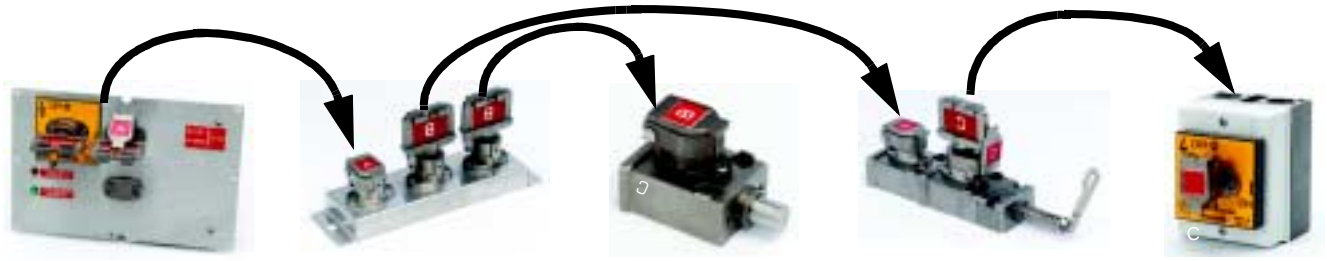
Plant and Machinery Interlocking



The Prosafe Advantage

Stainless steel construction.

Illustrated Principles of Trapped Key Interlocking



A
ETU
Isolator with timed delay key release

A B B
KEX
Trapped key 'A' Locking off ETU, Release access door lock, key 'B'.

B
SBL
'B' key in to retract bolt from guard door.

B C
DAL
'B' key in then 'C' key out to open guard door.

C
RKS
To energize robot teach mode.

Sequence of Operation

1. The ETU isolator has two keys. One is a non removable key. The other key (a 'A' coded key) can be removed after a timed duration, which is set by a potentiometer inside the ETU isolator. Turn the non removable key to turn the hazardous machine motion off and start the timer. When the time expires, the Key Free LED turns ON. Remove the 'A' key.
2. Insert the 'A' key into the Key Exchange Unit (KEX) and turn it 90°.
3. Turn one of the 'B' keys 90° and remove it from the KEX. This traps the 'A' key in the KEX and prevents the restarting of the machine.
4. Insert the 'B' key into the Single-key Bolt Lock (SBL) and turn it 90° to gain partial body access to the machine.
5. Turn the second 'B' key 90° and remove it from the KEX. Removal of this key also traps the 'A' key in the KEX and prevents the restarting of the machine.
6. Insert the 'B' key into the Dual-key Access Lock (DAL) and turn it 90°.
7. Turn the 'C' key 90° and remove the 'C' key. Rotate the access handle to allow full body entry into the hazard zone.
8. Take the 'C' key into the hazard zone, insert it into the rotary key switch (RKS) and turn it 90° to send a signal to the machine control system, to allow the machine to operate in a slow or teach mode.
9. Reverse the process to return the machine to full operational mode.

Bill of Materials

Item	Quantity	Description	Catalogue Number
1	1	Single Key Time Delayed with an B Primary Key	**440T-MSTUE110A**
2	1	Key Exchange Unit, A Primary Key, Two B Secondary Keys Trapped (included)	**440T-MKEXE110A0B0B**
3	1	Single Bolt Lock, B Primary Key	**440T-MSBLE100B**
4	1	Dual Access Lock, B Primary Key, C Secondary Key Trapped (included)	**440T-MDALE100B0C**
5	1	Rotary Key Switch, C Primary Code Barrel	**440T-MRKSE100C**
6	1	A Key	**440T-AKEYE100A**

Note: Primary keys must be ordered separately, when not provided for by a previous sequential trapped key.
In the example above, only one primary key must be ordered separately. The remaining primary keys are provided by a previous sequential secondary (trapped) key.

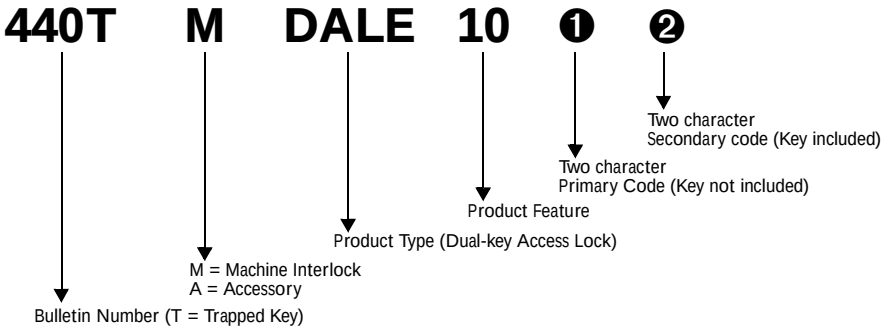
Overview

Code Selection

Ordering Prosafe trapped key products requires codes to be included in the catalogue number.

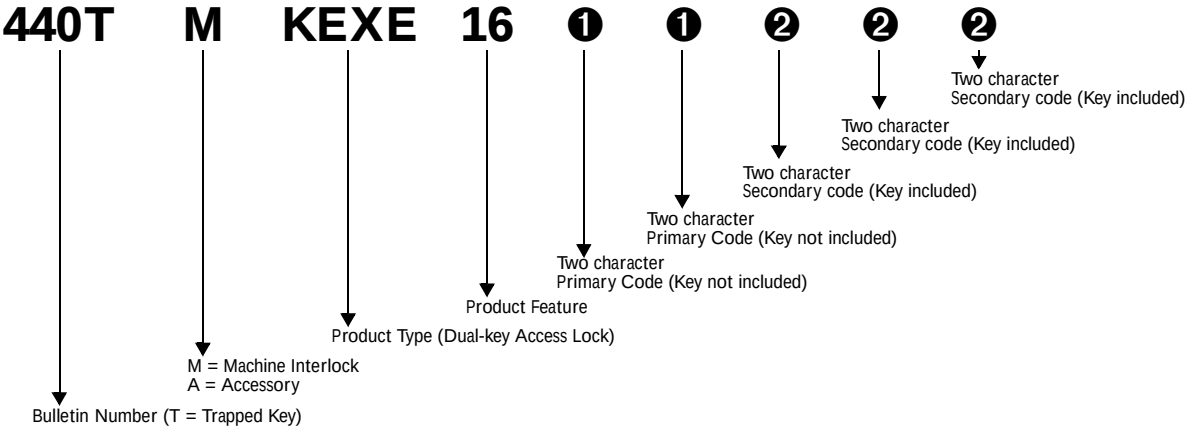
- The codes are added to the end of the catalogue number.
- Each code must be two characters in length.
- Single letter codes must be preceded by a 0 (zero).
- The first code(s) is the primary code and the last code(s), if necessary, are the secondary code(s).
- Primary codes do not include the key. The key must be ordered separately or must come from a previous operation.
- Secondary codes come complete with a key, as the key is trapped in the code barrel.
- Use the table on page 5-7 to select and track codes.

Ordering Example 1:



Order catalogue number 440TMDALE100A0B to get a Dual key Access Lock with an “A” primary code and a “B” secondary code, with a “B” key included.

Ordering Example #2:



Order catalogue number 440TMKEXE160A0B0C0C0C to get a key exchange unit with “A” and “B” primary codes and three “C” secondary codes. The “A “and “B” keys are not included. The three “C” keys, which are trapped in the secondary code barrels, are included.

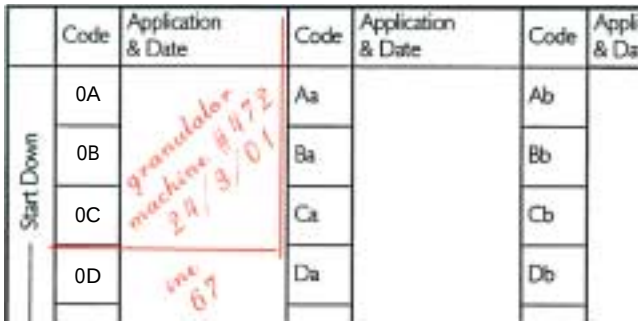
The Prosafe Advantage

Stainless steel construction.

Key Coding

Below is an example reference guide that is useful in selecting and tracking codes. Start down the 0A column as the lower codes (typically 0A to ZA) are stocked. The chart continues on to ZZ. Note that there only 25 letters used—Q is not used.

Codes are ordered with upper case letters. Labels with two letter codes will show the first letter in upper case and the second letter in lower case.



	Code	Application & date	Code	Application & date	Code	Application & date	Code	Application & date	Code	Application & date	Code	Application & date	Code	Application & date
Start Down ↓	0A		Aa		Ab		Ac		Ad		Ae		Af	
	0B		Ba		Bb		Bc		Bd		Be		Bf	
	0C		Ca		Cb		Cc		Cd		Ce		Cf	
	0D		Da		Db		Dc		Dd		De		Df	
	0E		Ea		Eb		Ec		Ed		Ee		Ef	
	0F		Fa		Fb		Fc		Fd		Fe		Ff	
	0G		Ga		Gb		Gc		Gd		Ge		Gf	
	0H		Ha		Hb		Hc		Hd		He		Hf	
	0I		Ia		Ib		Ic		Id		Ie		If	
	0J		Ja		Jb		Jc		Jd		Je		Jf	
	0K		Ka		Kb		Kc		Kd		Ke		Kf	
	0L		La		Lb		Lc		Ld		Le		Lf	
	0M		Ma		Mb		Mc		Md		Me		Mf	
	0N		Na		Nb		Nc		Nd		Ne		Nf	
	0O		Oa		Ob		Oc		Od		Oe		Of	
	0P		Pa		Pb		Pc		Pd		Pe		Pf	
	0R		Ra		Rb		Rc		Rd		Re		Rf	
	0S		Sa		Sb		Sc		Sd		Se		Sf	
	0T		Ta		Tb		Tc		Td		Te		Tf	
	0U		Ua		Ub		Uc		Ud		Ue		Uf	
	0V		Va		Vb		Vc		Vd		Ve		Vf	
	0W		Wa		Wb		Wc		Wd		We		Wf	
	0X		Xa		Xb		Xc		Xd		Xe		Xf	
	0Y		Ya		Yb		Yc		Yd		Ye		Yf	
	0Z		Za		Zb		Zc		Zd		Ze		Zf	

Rotary Switches

BIA 974016

Description

The rotary switches are used for electrical isolation of machinery to enable safe access. Once the power has been turned off, the key can then be withdrawn and used in the next sequence of operation such as unlocking an access hatch or allowing valves to be operated.

The rotary switch can either be mounted in a panel or purchased in an IP65 enclosure. The rotary switch is available with 4 poles, either 4 N.O. or 2 N.C. and 2 N.O. The 100A 4 N.O. switch has 3 contacts rated at 100A and 1 contact rated at 20A.

Features

- 316L stainless steel keys
- Direct drive operation—positively opens contacts
- IP 65 rated enclosure—water and dust resistant
- Stainless steel dust cap included
- Up to 100A isolation
- 4 N.O. or 2 N.O. and 2 N.C. contacts
- Replaceable code barrel assembly

Specifications

Standards	EN292-1&2, EN1088, IEC/EN60204-1, IEC/EN60947-5-1, ISO12100-1&2, ISO14119, GS-ET-19, AS4024.1, UL508, CSA 22.2
Category	Cat. 1 per EN 954-1 (ISO 13849-1) Suitable for Cat. 2, 3, and 4 systems
Approvals	BG, cULus on contact block, CE marked for all applicable directives, and C-Tick not required
Enclosure Rating	IP65 (RKS only)
Conduit Entries	4 x M20 (RKS only)
Operating Temperature	-10°C to +40°C (14°F to +104°F)
Mechanical Operations	100,000
Max. Shear Force to Key	15.1kN (3398lbs)
Max. Torque to Key	14Nm (124lb•in)
Humidity	95% RH
Finger Protection	DIN 57106/VDE 0106 T.100

Specifications (continued)

Weight RPSE 10, 11, 12, 13, 20 RPSE14, 16 RKSE10,11,12,13 RKSE14,16	500g (1.1lbs) 1000g (2.2lbs) 850g (1.9lbs) 1250g (2.8lbs)			
Electrical Operations	>100,000			
Climatic Test	Constant to DIN IEC 68 Part 2-3 Variable to DIN IEC 68 Part 2-30			
Ambient Temperature	Encased -25°C to +40°C (10°F to +104°F)			
Rtd. Insulation Voltage (Ui)	690V			
Rtd. Impulse withstand Volt. (Uimp)	6kV			
S3 Intermittent Rating (VDE 0530 Part 1) Duty Factor	60/40/25% = 1, 3/1, 6/2xlu			
Last Two-Digits of Catalog No. (See Product Selection table)	10 11 16	12	13	14
Rtd. Uninterrupted Current (Iu) IEC/EN/VDE UL/CSA	 20A 16A	 32A 30A	 63A 60A	 100A 100A
Rtd. Operational Voltage (Ue) IEC/EN/SEV/VDE UL/CSA	 690V 600V	 690V 600V	 690V 600V	 1000V 600V
Main Switch Isol. Voltage Up To	750V	750V	750V	1000V
Rtd. Operational Current (Ie) AC-21A IEC/EN/VDE AC-1 SEV	 20A 20A	 32A 32A	 63A 63A	 100A 100A
Rtd. Oper. Power at 50-60Hz AC-23A IEC/EN/VDE 3 Phase 220-240V 3 Pole 380-440V 500-690V	 4kW 7.5kW 7.5kW	 7.5kW 15kW 15kW	 15kW 30kW 30kW	 22kW 37kW 37kW
AC-3A IEC/EN/VDE 3 Phase 220-240V 3 Pole 380-440V 500-690V	 4kW 5.5kW 5.5kW	 7.5kW 11kW 11kW	 15kW 22kW 22kW	 22kW 37kW 30kW
DOL-Rating UL/CSA 3 Phase 140V 3 Pole 240V 480V 600V	 1.5HP 3HP 7.5HP 10HP	 3HP 10HP 20HP 20HP	 5HP 15HP 30HP 40HP	 7.5HP 30HP 50HP 50HP
Rated Breaking Capacity AC-23/AC-3 220-240 V Motor Switch 380-440 V 500-690 V Maximum Fuse Size (GI) Rated Fuse Short Circuit Current	 250A 250A 150A 25A 15kA	 330A 330A 220A 35A 15kA	 500A 500A 270A 63/50A 15/20kA	 600A 600A 300A 100A 25kA
Terminal Cross Section Single/Multiple Wire: min. mm^2 max. mm^2	 1 10	 1 10	 4 16	 2.5 3.5
Fine Strand Wire minimum mm^2 With Sleeve maximum mm^2	0.75 6	0.75 6	2.5 10	1.5 2.5
American Wire Gauge (AWG)	8	8	6	2

The Prosafe Advantage

Stainless steel construction.

Product Selection

Type		Contacts	Current	Catalogue Number
	IP65 Enclosure Mounted	4 N.O.	20A	**440T-MRKSE10❶**
		2 N.O. & 2 N.C.		**440T-MRKSE11❶**
		4 N.O.	32A	**440T-MRKSE12❶**
			63A	**440T-MRKSE13❶**
		3 N.O. & 1 N.O.	3 N.O. 100A and 1 N.O. 20A	**440T-MRKSE14❶**
		8 N.O.	20A	**440T-MRKSE16❶**
	Panel Mounted	4 N.O.	20A	**440T-MRPSE10❶**
		2 N.O. & 2 N.C.		**440T-MRPSE11❶**
		4 N.O.	32A	**440T-MRPSE12❶**
			63A	**440T-MRPSE13❶**
		3 N.O. & 1 N.O.	3 N.O. 100A and 1 N.O. 20A	**440T-MRPSE14❶**
		8 N.O.	20A	**440T-MRPSE16❶**
		4 N.O.	40A	**440T-MRPSE20❶**

❶ Substitute the desired primary code for this symbol (key not included). See page 5-6 for code selection.

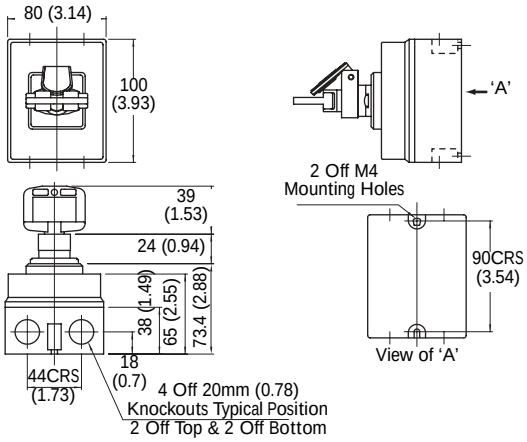
Accessories

Description	Additional Information	Catalogue Number
Replacement Key	See page 5-33	**440T-AKEYE10⊗**
Replacement Code Barrel, All Except 100A		**440T-ASCBE14❶**
Replacement Code Barrel, 100A		**440T-ASCBE11❶**
Replacement Dust Cap		**440T-ASFC10⊗**
Cable Grip, M20 Conduit	14-2	**440A-A09028**
Adaptor, M20 to 1/2in NPT Plastic	14-2	**440A-A09042**
Supplemental Contact Assembly, 20A 1 N.O. Late Make, Early Break 1 N.C. Auxiliary	For use with RPSE12, RPSE13, RPSE20	**440T-AACA10**
Supplemental Contact Assembly, 20A 2 N.O. Late Make, Early Break	For use with RPSE12, RPSE13, RPSE20	**440T-AACA11**

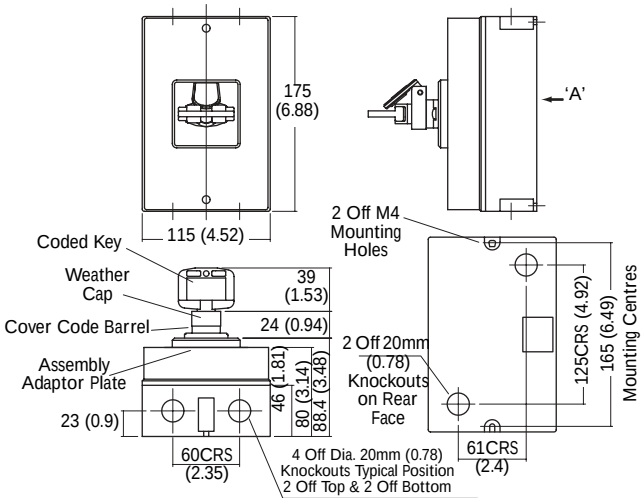
❶ Substitute the desired primary code for this symbol (key not included). See page 5-6 for code selection.
⊗ Substitute the desired code for this symbol. See page 5-6 for code selection.

Approximate Dimensions—mm (inches)

RKSE10 and RKSE11



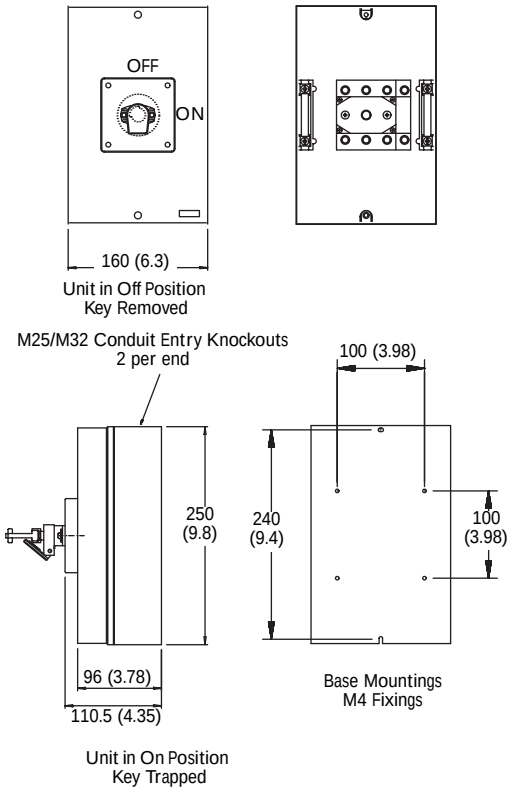
RKSE12 and RKSE13



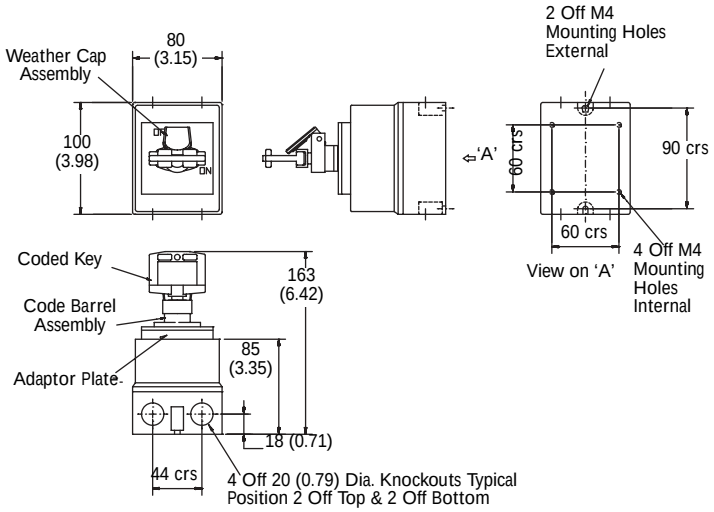
Rotary Switches

Approximate Dimensions—mm (inches) (continued)

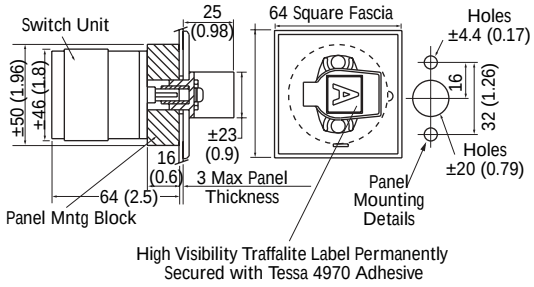
RKSE14



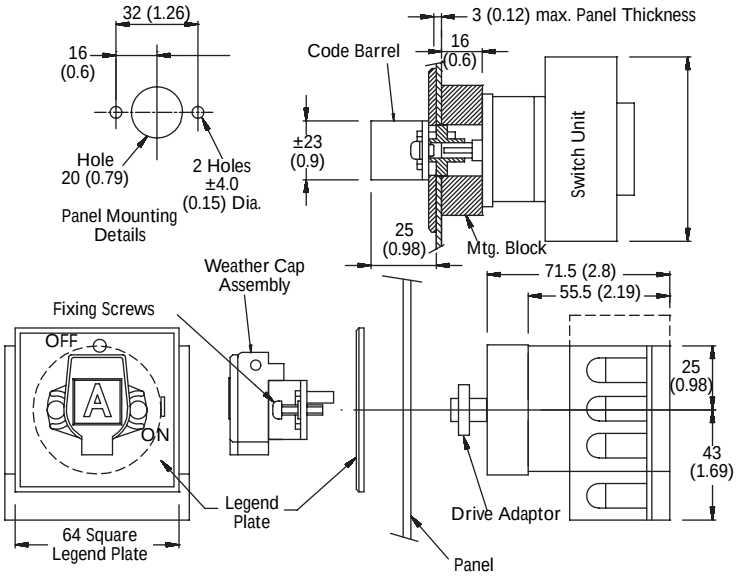
RKSE16



RPSE10 and 11

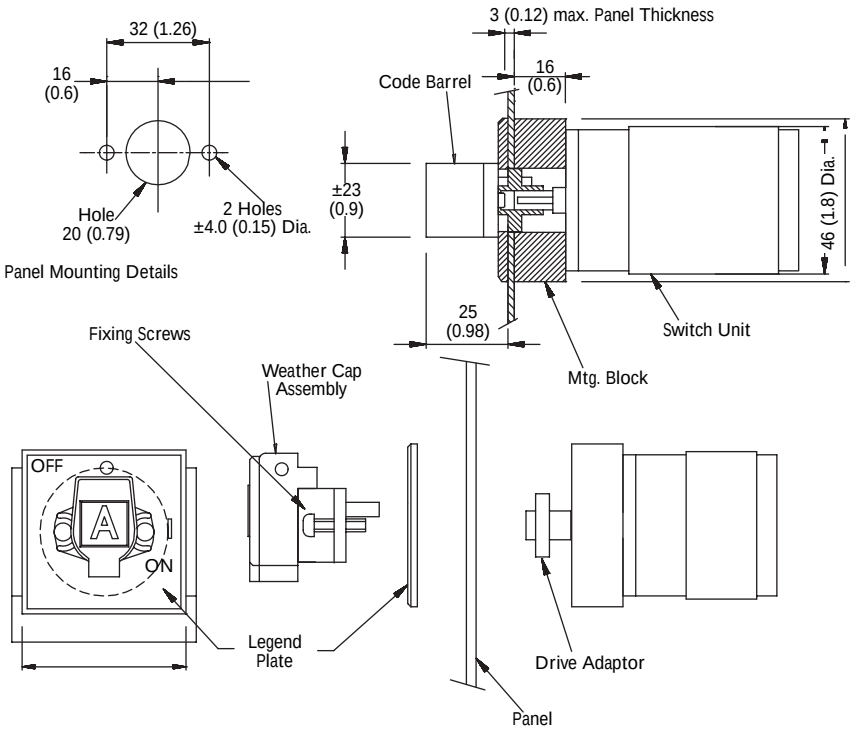


RPSE 12, 13, 14 and 20



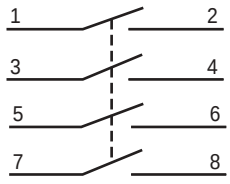
Approximate Dimensions—mm (inches) (continued)

RPSE16

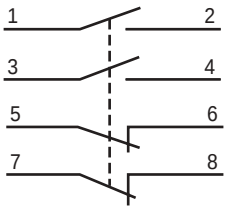


Typical Wiring

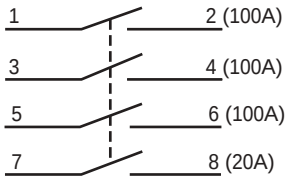
Diagrams Shown with Key Free



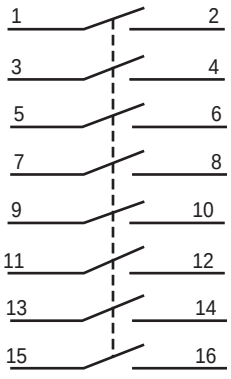
RKSE10 and RPSE10
RKSE12 and RPSE12
PKSE13 and RPSE13
--------- and RPSE20



RKSE11 and RPSE11



RKSE14 and RPSE14



RKSE16 and RPSE16

Solenoid Release Units

Description

The solenoid release unit is used for electrical isolation of machinery to enable safe access. It consists of a rotary power switch (RPS) and a solenoid. The trapped key can be removed once an external signal is given to its internal solenoid locking mechanism. An indicator light on the SRU indicates when trapped key can be removed; that is, when power is applied to the solenoid. The solenoid signal only needs to be present when key removal is necessary. The solenoid is rated for 100% duty cycle. Power to the solenoid can be removed after the trapped key is removed.

Removing the trapped key causes the isolating power switch to change state; the normally open contacts open and the normally closed contacts (if applicable) will close.

The trapped key can then be used in the next sequence of the operation.

Features

- Direct drive operation—positively opens contacts
- Integral solenoid monitoring
- Key trapped until release signal is applied
- IP 65 enclosure or panel mounted versions
- LED or NEON “key free” indication
- 316L stainless steel construction
- 24V DC, 110V AC/DC or 230V AC solenoid options
- Weatherproof stainless steel dust cap as standard
- UL and CSA approval on switches
- Single or multiple key units available (contact factory)
- Replaceable code barrel assembly

Specifications

Standards	EN292-1&2, EN1954-1, IEC/EN60204-1, EN1088, IEC/EN60947-5-1, ISO13849-1, ISO12100-1&2, ISO14119, GS-ET-19, AS4024.1
Category	Cat. 1 per EN 954-1 (ISO 13849-1) Suitable for Cat. 2, 3, and 4 systems
Approvals	BG, cULus and CE marked for all applicable directives
Solenoid Voltage	24V DC, 110V AC, 230V AC, 110V DC
Solenoid Power DC Types AC Types	 6.5W continuous 6VA continuous
Electrical Characteristics	See rotary power switches
Mounting	Any position
Max Shear Force to Key	15.1kN (3398lbs)
Max Torque to Key	14Nm (124lb•in)
Material Trapped Key Components Face Plate Optional Box	 316L Stainless Steel 316L Stainless Steel ABS Plastic
Cable	0.75sq. mm2 (18AWG) 2-wire PVC jacket QD
Operating Temperature	0°C to +40°C (+32°F to +104°F)
Humidity	95% RH
Environmental With Optional Plastic Enclosure	 IP65 (NEMA 13)
Electrical Life	>100,000
Mechanical Life	100,000

The Prosafe Advantage

Stainless steel construction.

Product Selection

Solenoid Voltage	Contacts	Current	Catalogue Number
24V DC	2 N.O. & 2 N.C.	20A	**440T-MSRUE11❶**
	4 N.O.		**440T-MSRUE10❶**
		32A	**440T-MSRUE12❶**
110V AC	2 N.O. & 2 N.C.	20A	**440T-MSRUE22❶**
	4 N.O.		**440T-MSRUE20❶**
		32A	**440T-MSRUE23❶**
230V AC	2 N.O. & 2 N.C.	20A	**440T-MSRUE33❶**
	4 N.O.		**440T-MSRUE30❶**
		32A	**440T-MSRUE34❶**
110V DC	2 N.O. & 2 N.C.	20A	**440T-MSRUE44❶**
	4 N.O.		**440T-MSRUE40❶**
	3 N.O. & 3 N.C.		**440T-MSRUE46❶**

❶ Substitute the desired primary code for this symbol (key not included). See page 5-6 for code selection.

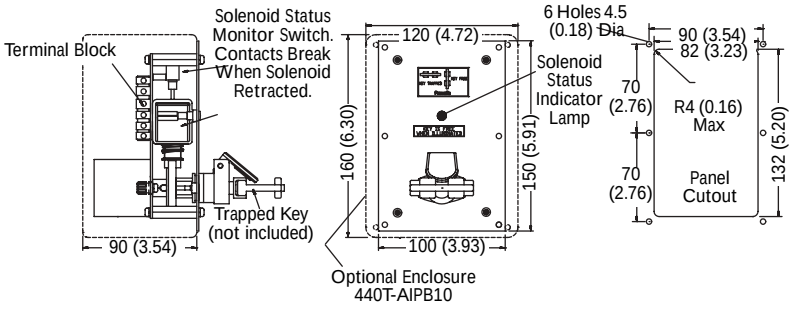
Accessories

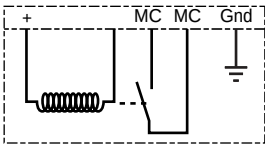
Description	Additional Information	Catalogue Number
Replacement Key	See page 5-33	**440T-AKEYE10⊗**
Replacement Code Barrel		**440T-ASCBE14❶**
Replacement Dust Cap		**440T-ASFC10⊗**
Optional IP65 Plastic Enclosure	For use with 20A units	**440T-AIPB10**
	For use with 32A units	**440T-AIPB22**

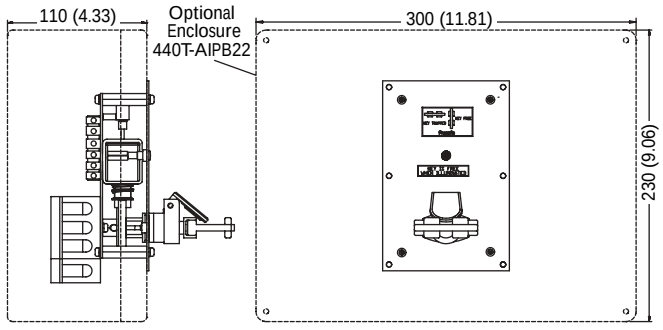
❶ Substitute the desired primary code for this symbol (key not included). See page 5-6 for code selection.
⊗ Substitute the desired code for this symbol. See page 5-6 for code selection.

Approximate Dimensions—mm (inches) Typical Wiring Diagram

Dimensions are not intended to be used for installation purposes.







Electronic Timed-Delay Units

BIA 974016

Description

The Electronic Timed-delay Unit (ETU) is used in applications that require an elapsed time to occur before allowing access to a hazardous area. The ETU uses a CU1 control unit timer to execute the timing sequence. Turning a non removable key initiates the timer. When the CU1 times out, its output energizes an internal solenoid, which then allows the removal of either one or two trapped keys.

The Single-key Timed delay Unit (STU) has one trapped key. After the CU1 timer has expired, the single trapped key can be removed and used to continue the next sequence in allowing access to the hazard. The single key must be returned to the STU and trapped to allow the non removable key to re-initiate the hazard.

The Dual-key Timed delay Unit (DTU) has two trapped keys. After the CU1 timer has expired, both keys can be removed and used to continue the next sequences in allowing access to the hazard. Both keys must be returned to the DTU and trapped to allow the non removable key re-initiate the hazard.

See the CU1 control unit for details on setting the delay time.

Features

- Timed-delay output up to 40 minutes
- Single key or Dual key
- 316L stainless steel keys
- Category 1 Stop
- Replaceable code barrel assembly
- Optional IP65 enclosure

Specifications

Standards	EN292-1&2, EN1954-1, IEC/EN60204-1, EN1088, IEC/EN60947-5-1, ISO13849-1, ISO12100-1&2, ISO14119, GS-ET-19, AS4024.1
Category	Cat. 3 per EN 954-1 (ISO 13849-1) Suitable for Cat. 2, 3, or 4 systems
Approvals	BG and CE marked for all applicable directives
Operating Temperature	0°C to +40°C (32°F to +104°F)
Humidity	95% RH
Mechanical Operations	100,000
Max. Shear Force to Key	15.1kN (3398lbs)
Max. Torque to Key	14Nm (124lb•in)
Material Trapped Key Components Face Plate Optional Box	 316L Stainless Steel 316L Stainless Steel ABS Plastic
Assembly Fixing	Tamper resistant screws
Weight	2.0kg (4.4lbs)
Inputs	24V DC, 110V AC and 230V AC
Time Range	0.1 second to 40 minutes

The Prosafe Advantage

Stainless steel construction.

Product Selection

Type	Solenoid Voltage	Contact Set 1	Contact Set 2	Catalogue Number
Single Key Out Panel Mounted	24V DC	3 N.O. 40A	1 N.O. 20A	**440T-MSTUE10❶**
		2 N.O. 20A	1 N.C. 20A	**440T-MSTUE11❶**
	110V AC	3 N.O. 40A	1 N.O. 20A	**440T-MSTUE20❶**
		2 N.O. 20A	1 N.C. 20A	**440T-MSTUE22❶**
	230V AC	3 N.O. 40A	1 N.O. 20A	**440T-MSTUE30❶**
		2 N.O. 20A	1 N.C. 20A	**440T-MSTUE33❶**
Dual Key Out Panel Mounted	24V DC	3 N.O. 40A	1 N.O. 20A	**440T-MDTUE10❶❶**
		2 N.O. 20A	1 N.C. 20A	**440T-MDTUE11❶❶**
	110V AC	3 N.O. 40A	1 N.O. 20A	**440T-MDTUE20❶❶**
		2 N.O. 20A	1 N.C. 20A	**440T-MDTUE22❶❶**
	230V AC	3 N.O. 40A	I N.O. 20A	**440T-MDTUE30❶❶**
		2 N.O. 20A	1 N.C. 20A	**440T-MDTUE33❶❶**

❶ Substitute the desired primary code for this symbol (key not included). See page 5-6 for code selection.

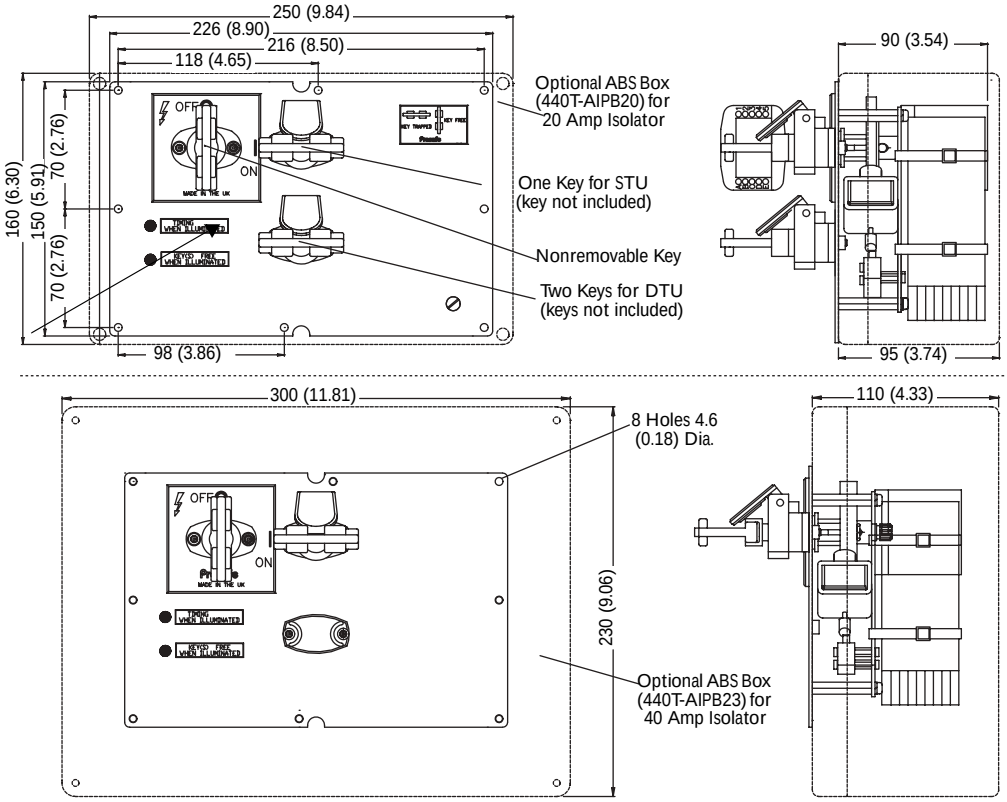
Accessories

Description	Page Number	Catalogue Number
Replacement Key	5-33	**440T-AKEYE10⊗**
Replacement Code Barrel		**440T-ASCBE14❶**
Replacement Dust Cap		**440T-ASFC10⊗**
Optional IP65 Plastic Enclosure	For use with 20A units	**440T-AIPB20**
	For use with 40A units	**440T-AIPB23**

❶ Substitute the desired primary code for this symbol (key not included). See page 5-6 for code selection.
⊗ Substitute the desired code for this symbol. See page 5-6 for code selection.

Approximate Dimensions—mm (inches)

Dimensions are not intended to be use for installation purposes.



Stopped Motion Units

BIA 974016

Description

The Stopped Motion Unit (SMU) is used in applications that require the detection of stopped motion of mechanical parts of a machine. The SMU uses inductive proximity sensors to detect motion and the CU2 control unit to monitor the sensors.

The CU2 requires a PNP and an NPN output type proximity sensors. When the proximity sensors stop detecting movement, the CU2 activates its output, powering an internal solenoid. With the solenoid energized, one or two trapped keys can be removed from the SMU.

The removable trapped keys (one or two) can be used to continue the next sequence in allowing access to the hazardous area.

See the CU2 control unit for details on setting the delay time.

Additional proximity sensors can be found in the *Sensors* catalogue.

Features

- Stopped motion detection
- NPN and PNP proximity sensors
- Timed-delay output up to 40 minutes
- Category 1 Stop
- Replaceable code barrel assembly
- Optional IP65 enclosure

Specifications

Standards	EN292-1&2, EN1954-1, IEC/EN60204-1, EN1088, IEC/EN60947-5-1, ISO13849-1, ISO12100-1&2, ISO14119, GS-ET-19, AS4024.1
Category	Cat. 3 per EN 954-1 (ISO 13849-1)
Approvals	BG and CE marked for all applicable directives
Operating Temperature	0°C to +40°C (32°F to +104°F)
Humidity	95% RH
Mechanical Operations	100,000
Maximum Shear Force to Key	15.1kN (3398lbs)
Maximum Torque to Key	14Nm (124lb•in)
Material	
Trapped Key Components	316L Stainless Steel
Face Plate	316L Stainless Steel
Optional Box	ABS Plastic
Inductive Sensors	Stainless Steel Barrel, Plastic Face
Assembly Fixing	Tamper resistant screws
Weight	2.0kg (4.4lbs)
Inputs	24V DC, 110V AC and 230V AC
Time Range	0.1 second to 40 minutes
Zero Speed Sensors	2x inductive sensors

The Prosafe Advantage

Stainless steel construction.

Product Selection (sensors not included)

Type	Solenoid Voltage	Contact Set 1	Contact Set 2	Catalogue Number
Single Key Out Panel Mounted	24V DC	3 N.O. 40A	1 N.O. 20A	**440T-MSMSE10❶**
		2 N.O. 20A	1 N.C. 20A	**440T-MSMSE11❶**
	110V AC	3 N.O. 40A	1 N.O. 20A	**440T-MSMSE20❶**
		2 N.O. 20A	1 N.C. 20A	**440T-MSMSE22❶**
	230V AC	3 N.O. 40A	1 N.O. 20A	**440T-MSMSE30❶**
		2 N.O. 20A	1 N.C. 20A	**440T-MSMSE33❶**
Dual Key Out Panel Mounted	24V DC	3 N.O. 40A	1 N.O. 20A	**440T-MDMSE10❶❶**
		2 N.O. 20A	1 N.C. 20A	**440T-MDMSE11❶❶**
	110V AC	3 N.O. 40A	1 N.O. 20A	**440T-MDMSE20❶❶**
		2 N.O. 20A	1 N.C. 20A	**440T-MDMSE22❶❶**
	230V AC	3 N.O. 40A	I N.O. 20A	**440T-MDMSE30❶❶**
		2 N.O. 20A	1 N.C. 20A	**440T-MDMSE33❶❶**

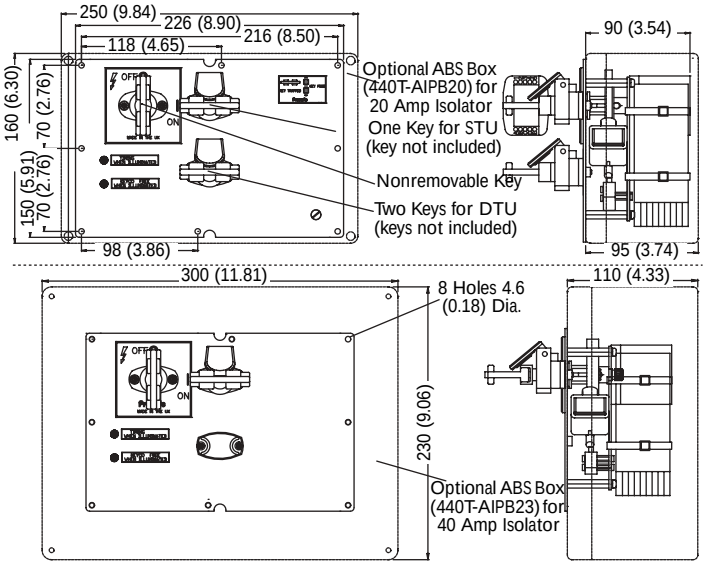
❶ Substitute the desired primary code for this symbol (key not included). See page 5-6 for code selection.

Accessories

Description	Size	Type	Page Number	Catalogue Number
Replacement Key	—	—	5-33	**440T-AKEYE10⊗**
Replacement Code Barrel				**440T-ASCBE14❶**
Replacement Dust Cap				**440T-ASFC10⊗**
Replacement Fuse		250V 500mA	NA	**440R-A31562**
Optional IP65 Plastic Enclosure		—	For use with 20A units	**440T-AIPB20**
			For use with 40A units	**440T-AIPB23**
Inductive Proximity Sensors	12mm	NPN	4-67	**872C-D3NN12-E2**
		PNP		**872C-D3NP12-E2**
	18mm	NPN		**872C-D5NN18-E2**
		PNP		**872C-D5NP18-E2**
	30mm	NPN		**872C-D10NN30-E2**
		PNP		**872C-D10NP30-E2**

❶ Substitute the desired primary code for this symbol (key not included). See page 5-6 for code selection.
⊗ Substitute the desired code for this symbol. See page 5-6 for code selection.

Approximate Dimensions—mm (inches)



Exchange Units

BIA 974016

Description

The key exchange unit (KEX) is used in an interlocking sequence to link together other devices in the Prosafe range and caters to more complex operating sequences.

The operating principle is such that no secondary keys can be removed from the unit until all primary keys have been inserted, rotated, and trapped. The primary keys remain trapped until all secondary keys have been re-inserted, rotated, and trapped.

It is typically used in applications where there is more than one access way to the hazardous area, and each access way must be open at the same time. The key exchange unit accomplishes this by allowing one or more keys to be inserted which then releases multiple keys out.

A typical process may require a rotary key switch to turn a motor off. The key from the rotary switch is removed and inserted into a KEX. The KEX then releases three keys which would allow simultaneous access to the hazard area through three different gates. This KEX is described as 1 key in 3 keys out. The keys in are considered primary codes, so the keys are not included in the KEX. The keys out are considered secondary codes, so the keys are included.

Features

- A range of off-the-shelf units in various combinations
- 316L Stainless steel construction
- Primary key(s) in release secondary keys simultaneously on units up to 6 way
- Weatherproof stainless steel dust cap as standard
- Replaceable code barrel assembly

Specifications

Standards	EN292-1&2, EN1088, ISO12100-1&2, ISO14119, AS4024.1
Category	Cat. 1 per EN 954-1 (ISO 13849-1) Suitable for Cat. 2, 3, or 4 systems
Approvals	BG, CE marked for all applicable directives and C-Tick not required
Operating Temperature	-40°C to +200°C (-40°F to +392°F)
Mechanical Operations	100,000
Max. Shear Force to Key	15.1kN (3398lbs)
Max. Torque to Key	14Nm (124lb•in)
Humidity	95% RH
Material	316L Stainless steel

Accessories

Optional Key Exchange Cabinets

No. of Keys	L	W	D	Catalogue Number
	mm (inches)			
Painted Mild Steel				
11 way (max)	400 (15.7)	300 (11.8)	200 (7.87)	**440T-AIPB30**
15 way (max)	400 (15.7)	400 (15.7)	210 (8.26)	**440T-AIPB33**
25 way (max)	600 (23.6)	600 (23.6)	210 (8.26)	**440T-AIPB34**
40 way (max)	800 (31.4)	800 (31.4)	210 (8.26)	**440T-AIPB35**
Stainless Steel				
15 way (max)	400 (15.7)	400 (15.7)	210 (8.26)	**440T-AIPB40**
25 way (max)	600 (23.6)	600 (23.6)	210 (8.26)	**440T-AIPB44**
40 way (max)	800 (31.4)	800 (31.4)	210 (8.26)	**440T-AIPB45**

The Prosafe Advantage

Stainless steel construction.

Allen-Bradley

GuardMaster®

Product Selection

Key Exchange Units		
Number of Keys	**Keys in and out**	**Catalogue Number**
2 way	1 key in 1 key out	**440T-MKEXE10♦**
3 way	1 key in 2 keys out	**440T-MKEXE11♦**
4 way	1 key in 3 keys out	**440T-MKEXE12♦**
5 way	1 key in 4 keys out	**440T-MKEXE13♦**
6 way	1 key in 5 keys out	**440T-MKEXE14♦**
4 way	2 key in 2 keys out	**440T-MKEXE15♦**
5 way	2 key in 3 keys out	**440T-MKEXE16♦**
6 way	2 key in 4 keys out	**440T-MKEXE17♦**
6 way	3 key in 3 keys out	**440T-MKEXE18♦**
7 way	1 key in 6 keys out	**440T-MKEXE19♦**
8 way	1 key in 7 keys out	**440T-MKEXE20♦**
9 way	1 key in 8 keys out	**440T-MKEXE22♦**
10 way	1 key in 9 keys out	**440T-MKEXE23♦**
11 way	1 key in 10 keys out	**440T-MKEXE24♦**
12 way	1 key in 11 keys out	**440T-MKEXE25♦**
13 way	1 key in 12 keys out	**440T-MKEXE26♦**
14 way	1 key in 13 keys out	**440T-MKEXE27♦**
15 way	1 key in 14 keys out	**440T-MKEXE28♦**
16 way	1 key in 15 keys out	**440T-MKEXE29♦**
17 way	1 key in 16 keys out	**440T-MKEXE30♦**
18 way	1 key in 17 keys out	**440T-MKEXE33♦**
19 way	1 key in 18 keys out	**440T-MKEXE34♦**
20 way	1 key in 19 keys out	**440T-MKEXE35♦**
21 way	1 key in 20 keys out	**440T-MKEXE36♦**
22 way	1 key in 21 keys out	**440T-MKEXE37♦**
23 way	1 key in 22 keys out	**440T-MKEXE38♦**
24 way	1 key in 23 keys out	**440T-MKEXE39♦**

♦ Specify the codes individually for each primary key in (key not included) and each secondary key out (key included). See page 5-6 for code selection.
Consult factory for other configurations of keys in and keys out.

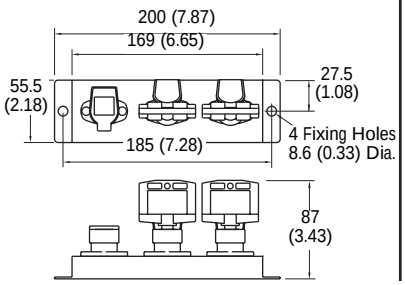
Accessories

Description	Page Number	Catalogue Number
Replacement Key	5-33	**440T-AKEYE10⊗**
Replacement Code Barrel		**440T-ASCBE14❶**
Replacement Dust Cap		**440T-ASFC10⊗**

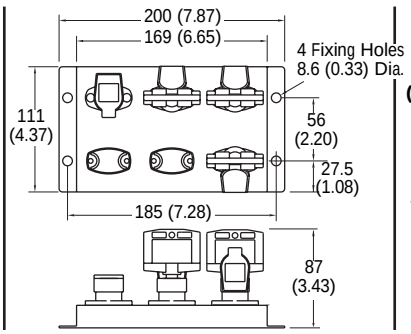
❶ Substitute the desired primary code for this symbol (key not included). See page 5-6 for code selection.
⊗ Substitute the desired code for this symbol. See page 5-6 for code selection.

Approximate Dimensions—mm (inches)

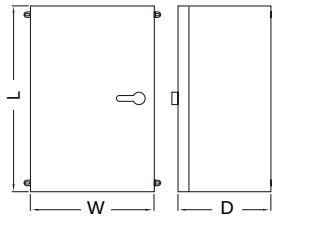
(2) 3 Way Key Exchange Unit



(4, 5 or) 6 Way Key Exchange Unit



Key Exchange Cabinets (painted mild steel or stainless steel)



Bolt Interlocks

Single

Dual

BIA 974016

Description

The bolt interlocks are designed to allow access to hazardous areas when an appropriate key is inserted into the interlock. These bolt interlocks are manufactured in 316L stainless steel to provide a rugged, industrial grade method of helping prevent access through gates.

One advantage of the bolt interlocks is that there is no need to run power wires to the gate. Power is disconnected by a trapped key rotary switch on a control panel and the key is then hand-carried to the gate by the operator.

The Single Bolt interlock (SBL) is designed to be used to access hazardous areas where partial body exposure is required. The SBL is not shipped with a key. If two keys are needed for partial body access, select the Dual Bolt interlock (DBL) that requires both keys to be trapped to operate. This version of the DBL does not include the keys.

When whole body access is needed, the DBL, with one primary key and one secondary trapped key (included) should be used. The secondary key serves the function of a personnel key. This DBL allows the operator to carry the personnel key into the hazardous area. When the operator returns from the hazardous area and returns the personnel key to the DBL, the locking sequence can be reversed and the process re-started.

Features

- 316L Stainless steel construction
- Single or dual key units
- Various extensions of bolt
- Direct drive push/pull operation
- Replaceable code barrel assembly
- Fitted with tamper resistant screws
- Weatherproof stainless steel dust cap as standard

Specifications

Standards	EN292-1&2, EN1088, ISO12100-1&2, ISO14119, AS4024.1
Category	Cat. 1 per EN 954-1 (ISO 13849-1) Suitable for Cat. 2, 3, or 4 systems
Approvals	BG, CE marked for all applicable directives and C-Tick not required
Operating Temperature	-40°C to +200°C (-40°F to +392°F)
Mechanical Operations	100,000
Max. Shear Force to Key	15.1kN (3398lbs)
Max. Torque to Key	14Nm (124lb•in)
Humidity	95% RH
Weight	(SBL) 0.60kg (1.32lbs) (DBL) 1.10kg (2.43lbs)
Material	316L Stainless Steel
Mounting	
SBL	2 x M5 Counterbored from Top or 2 x M5 from Underside with M5 Nuts
DBL	4 x M5 Counterbored from Top or 4 x M5 from Underside with M5 Nuts
Bolt	15mm (0.59in) Ø

The Prosafe Advantage

Stainless steel construction.

Allen-Bradley

Guardmaster®

Product Selection

Type	Trapped Condition	Bolt Retracted—mm (inches)	Bolt Extended—mm (inches)	Catalogue Number
Single Key	Key Trapped to Bolt Retract	0	14 (0.55)	**440T-MSBLE10❶**
		3 (0.11)	17 (0.66)	**440T-MSBLE11❶**
		6 (0.23)	20 (0.78)	**440T-MSBLE12❶**
		12 (0.47)	27 (1.06)	**440T-MSBLE13❶**
Dual Key	Both Keys Trapped to Retract Bolt	0	14 (0.55)	**440T-MDBLE10❶❶**
		3 (0.11)	17 (0.66)	**440T-MDBLE11❶❶**
		6 (0.23)	20 (0.78)	**440T-MDBLE12❶❶**
		13 (0.51)	27 (1.06)	**440T-MDBLE13❶❶**
	Primary Key Trapped, Secondary Key Free to Retract Bolt	0mm	14 (0.55)	**440T-MDBLE14❶❷**
		3 (0.11)	17 (0.66)	**440T-MDBLE15❶❷**
		6 (0.23)	20 (0.78)	**440T-MDBLE16❶❷**
		13 (0.51)	27 (1.06)	**440T-MDBLE17❶❷**

❶ Substitute the desired primary code for this symbol (key not included). See page 5-6 for code selection.
❷ Substitute the desired secondary code for this symbol (key included). See page 5-6 for code selection.

Accessories

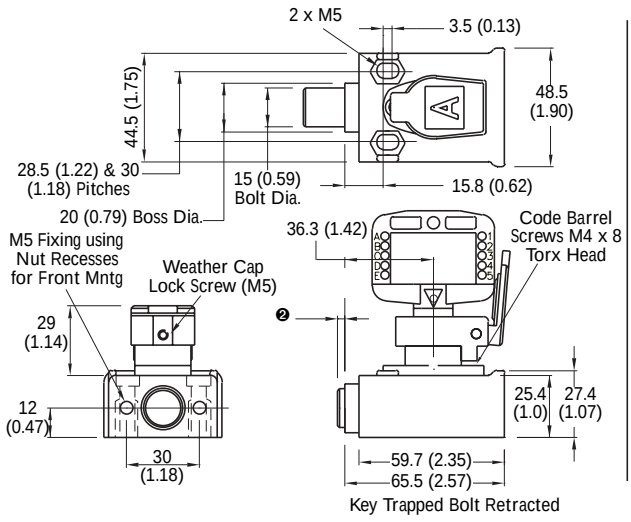
Description	Page Number	Catalogue Number
Replacement Key	5-33	**440T-AKEYE10⊗**
Replacement Code Barrel		**440T-ASCBE14❶**
Replacement Dust Cap		**440T-ASFC10⊗**

❶ Substitute the desired primary code for this symbol (key not included). See page 5-6 for code selection.
⊗ Substitute the desired code for this symbol. See page 5-6 for code selection.

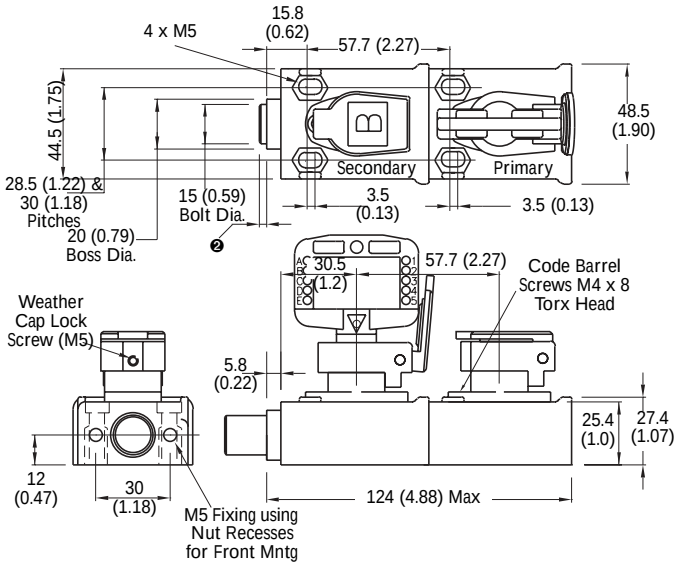
Approximate Dimensions—mm (inches)

Dimensions are not intended to be used for installation purposes.

Single Key Bolt Interlock



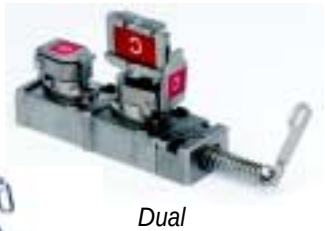
Dual Key Bolt Interlock



❷ Standard Retracted Projections 0, 3, 6 & 13 (0, 0.11, 0.23 & 0.51) Extension 14 (0.55)

Access/Chain Interlocks

Single



Dual

BIA 974016

Description

The access interlocks are designed to allow access to hazardous areas when an appropriate key is inserted into the interlock. These access interlocks are manufactured in 316L stainless steel to provide rugged, industrial grade method of helping prevent access through gates. They are actuated by either a lever or a rod which is connected to chain.

One advantage of the access interlocks is that there is no need to run power wires to the gate. Power is disconnected by a trapped key rotary switch on a control panel and the key is then hand-carried to the gate by the operator.

The Single key Access interlock (SAL) and Single-key Chain lock (SCL) are designed to be used to access hazardous areas where partial body exposure is required. If two keys are needed for partial body access, select the dual-key access interlock (DAL) or dual-key chain lock (DCL) with both keys trapped.

When whole body access is needed, the DAL or DCL, with one key trapped and one key free should be used. The secondary key serves the function of a personnel key. The DAL and DCL allow the operator to carry the personnel key into the hazardous area. When the operator returns from the hazardous area and returns the personnel key to the DAL or DCL, the locking sequence can be reversed and the process restarted.

Features

- 316L Stainless steel construction
- Single and dual key units
- Direct drive operation
- Fitted with tamper resistant screws
- Stainless steel dust cap as standard
- Replaceable code barrel assembly

Specifications

Standards	EN292-1&2, EN1088, ISO12100-1&2, ISO14119, AS4024.1
Category	Cat. 1 per EN 954-1 (ISO 13849-1) Suitable for Cat. 2, 3, or 4 systems
Approvals	BG, CE marked for all applicable directives, and C-Tick not required
Misalignment	+/-10mm (0.39in)
Max. Shear Force to Key	15.1kN (3398lbs)
Max. Torque to Key	14Nm (124lb•in)
Operating Temperature	-40°C to +200°C (-40°F to +392°F)
Humidity	95% RH
Material	316L stainless steel
Mounting	
SAL and SCL	2 or 4 x M5 Counterbored from Top or 2 or 4 x M5 from Underside with Nuts
DAL and DCL	4 or 6 x M5 Counterbored from Top or 4 or 6 x M5 from Underside with Nuts
Weight	
SAL and SCL	0.8kg (1.8lbs)
DAL and DCL	1.35kg (3lbs)
Mechanical Life	100,000

The Prosafe Advantage

Stainless steel construction.

Product Selection

Operation	Actuator	Key Condition	Catalogue Number
Single Key	Lever	Key trapped to release lever	**440T-MSALE10❶**
	Chain	Key trapped to release chain	**440T-MSCLE10❶**
Dual Key	Lever	Primary key trapped, secondary key free to release lever	**440T-MDALE10❶❷**
		Both keys trapped to release lever	**440T-MDALE11❶❶**
	Chain	Primary key trapped, secondary key free to release chain	**440T-MDCLE10❶❷**
		Both keys trapped to release chain	**440T-MDCLE11❶❶**

❶ Substitute the desired primary code for this symbol (key not included). See page 5-6 for code selection.
❷ Substitute the desired secondary code for this symbol (key included). See page 5-6 for code selection.

Accessories

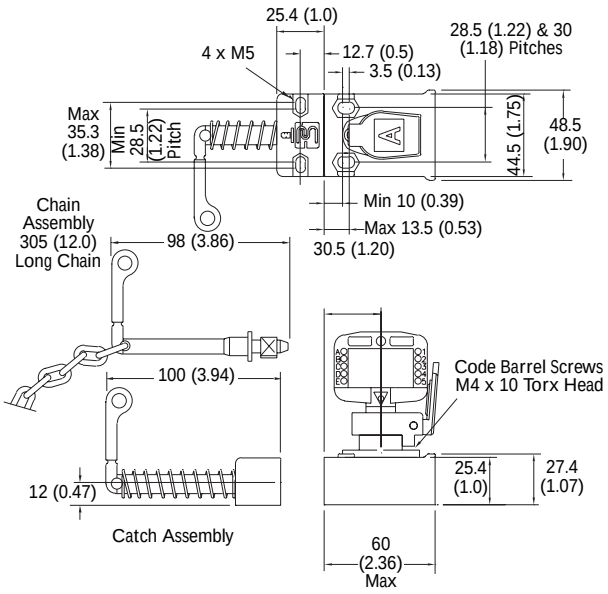
Description	Page Number	Catalogue Number
Replacement Key	5-33	**440T-AKEYE10⊗**
Replacement Code Barrel		**440T-ASCBE14❶**
Replacement Dust Cap		**440T-ASFC10⊗**
Replacement Spare Block Catch	—	**440T-ACAD10**
Replacement Spare Chain Catch	—	**440T-ACHA10**

❶ Substitute the desired primary code for this symbol (key not included). See page 5-6 for code selection.
⊗ Substitute the desired code for this symbol. See page 5-6 for code selection.

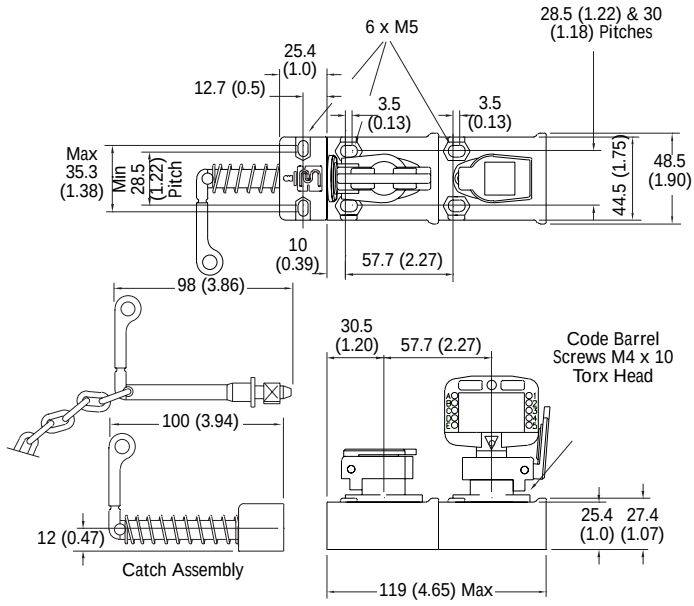
Approximate Dimensions

Dimensions are not intended to be used for installation purposes.

Single Key Access Interlock



Dual Key Access Interlock



Slamlock Mechanical

Single

Dual

Specifications

Standards	EN292-1&2, EN1088, IEC/EN60947-5-1, GS-ET-19, ISO12100-1&2, ISO14119, AS4024.1
Category	Cat. 1 per EN 954-1 (ISO 13849-1) Suitable for Cat. 2, 3, or 4 systems
Approvals	BG, CE marked for all applicable directives, and C-Tick not required
Operating Temperature	-40°C to +200°C (-40°F to +392°F)
Mechanical Operations	In excess of 10^5 operations under normal working conditions.
Max Shear Force to Key	15.1kN (3398lbs)
Max Torque to Key	14Nm (124lb•in)
Humidity	95% RH
Weight Single key version Dual key version	 760gm (0.76kg (1.68lbs)) 1332gm (1.33kg (2.93lbs))
Code Barrels	Tested to 100,000 operations
Ambient Working Temp	-10°C to +50°C (14°F to +122°F)
Material	316L Stainless Steel
Mounting SSL DSS	 2 x M5 Counterbored from Top or 2 x M5 from Underside with Nuts 4 x M5 Counterbored from Top or 4 x M5 from Underside with Nuts
Max Holding Force	2000N (450lbs)

Description

The Prosafe Slamlock combines the features of trapped keys with tongue actuated interlocks. When the actuator is inserted into the interlock (guard closed), the trapped key can be rotated and removed. With the key free, the actuator can not be removed thus locking closed the guard door. The trapped key must be re-inserted and rotated 90° to unlock the guard.

Slamlocks are manufactured in 316L stainless steel to provide a rugged, industrial grade method of interlocking guard doors.

One advantage of the slamlock is that there is no need to run power wires to the gate. Power is disconnected by a trapped key on a control panel or by a Prosafe RKS type unit and the key is then hand-carried to the gate by the operator.

The single key Slamlock (SSL) is used to interlock hatches, guards and doors where full body access is not required.

Dual key Slamlock (DSL) is similar to the single key version but has a secondary key to allow '2 key in' or 'key exchange' conditions. The key exchange version may be used where whole body access is required, as the secondary key can be used as a personnel key.

Features

- 316L stainless steel construction
- Selection of actuator types available
- Single or dual key versions available
- Direct drive operation
- Replaceable code barrel assembly
- Fitted with tamper resistant screws
- Weatherproof stainless steel dust cap as standard
- Conforms to EN 292, EN 1088, GS ET 19

The Prosafe Advantage

Stainless steel construction.

Allen-Bradley
GuardMaster®

Product Selection

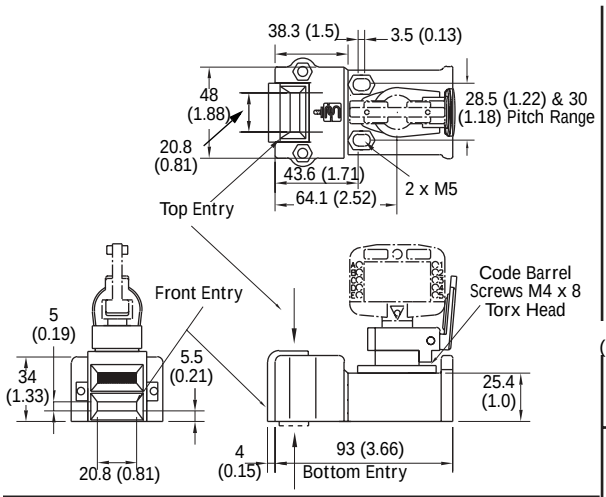
Type	Key Condition	Actuator	Catalogue Number
Single Key	Key Trapped to Release Actuator	Standard	**440T-MSSLE10❶**
		Flexible	**440T-MSSLE11❶**
		Flat	**440T-MSSLE12❶**
Dual Key	Primary Key Trapped, Secondary Key Free to Release Actuator	Standard	**440T-MDSLE10❶❷**
		Flexible	**440T-MDSLE11❶❷**
		Flat	**440T-MDSLE12❶❷**
	Both Keys Free to Release Actuator	Standard	**440T-MDSLE20❶❶**
		Flexible	**440T-MDSLE22❶❶**
		Flat	**440T-MDSLE23❶❶**

❶ Substitute the desired primary code for this symbol (key not included). See page 5-6 for code selection.
❷ Substitute the desired secondary code for this symbol (key included). See page 5-6 for code selection.

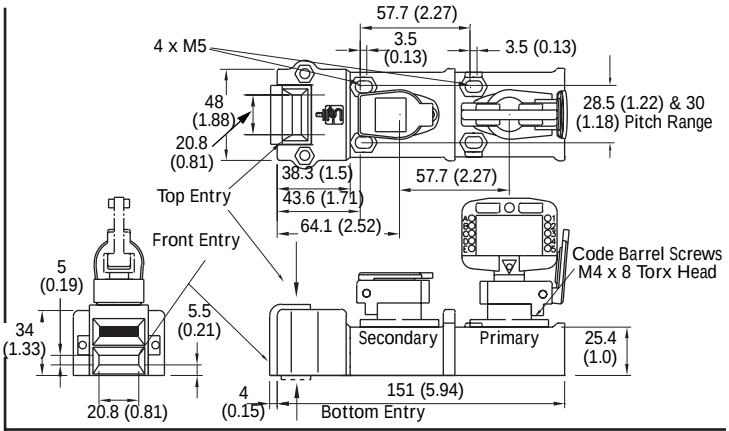
Approximate Dimensions—mm (inches)

Dimensions are not intended to be used for installation purposes.

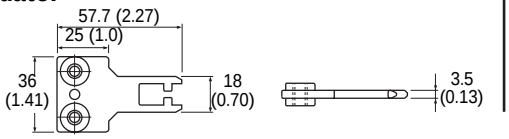
Single Key Slamlock



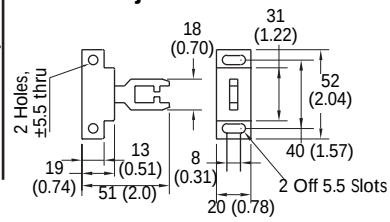
Double Key Slamlock



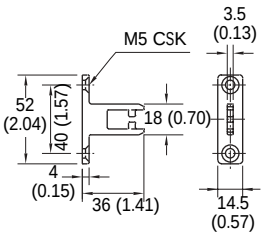
Flat Actuator



Flexible/Adjustable Actuator

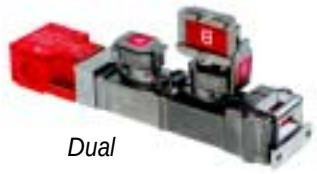


Standard Actuator



Slamlock Electrical

Single



Dual

BIA 974016

Description

The Prosafe Slamlock with electrical isolation combines the features of trapped key tongue actuated interlocks while also providing sets of electrical safety and auxiliary contacts. When the actuator is inserted into the lock and the key is removed the actuator is trapped in the unit thus locking closed the guard door. In this state the safety contacts are closed and the auxiliary contacts are open. To open the guard door the key must be inserted and rotated 90°, opening the safety contacts, closing the auxiliary contacts and enabling the actuator to be released thus unlocking the guard door. While the guard door is open the key is trapped in the unit.

Slamlocks with electrical isolation offer the features of electrical safety interlock switches with the benefits of a trapped key/enforced sequence systems. They allow a combination of both approaches for safeguarding machinery and processes to be used.

The single key Slamlock (SSS) is used to interlock hatches, guards and doors where full body access is not required. The single key locks the actuator and operates the switch in the same action.

Dual key Slamlock (DSS) is similar to the single key version but has a secondary key to allow '2 key in' or 'key exchange' conditions. The key exchange version may be used where whole body access is required, as the secondary key can be used as a personnel key.

Features

- Electrical safety contacts combined with trapped key/enforced sequence feature
- Most of unit constructed from 316L stainless steel
- Selection of actuator types available
- Single or dual key versions available
- Direct drive operation
- Replaceable code barrel assembly
- Weatherproof stainless steel dust cap as standard

Specifications

Standards	EN292-1&2, EN1088, IEC/EN60947-5-1, GS-ET-19, ISO12100-1&2, ISO14119, AS4024.1
Category	Cat. 1 per EN 954-1 (ISO 13849-1) Suitable for Cat. 2, 3, or 4 systems
Approvals	BG, CE marked for all applicable directives, and C-Tick not required
Safety Contact	2 N.C. positive break
Utilization Category AC (Ue) (Ie) DC	AC 15 500V 250V 100V 1A 2A 5A 250V 0.5A, 24V 2A
Max. Switched Current/ Voltage/Load	500V/500V A
Thermal Current (Ith)	10A
Minimum Current	5V 5mA DC
Safety Contact Gap	>2 x 2mm (0.07in)
Rtd. Insulation Voltage	(Ui) 500V
Rtd. Impulse Withstand Volt.	(Uimp) 2500V
Auxiliary Contacts	1 N.O.
Pollution Degree	3
Actuator Travel-Pos. Opening	5mm (0.19in)
Minimum Operating Radius	175mm (6.88in) (60mm (2.36in) with flexible actuator)
Break Contact Min. Force	12N (2.7lbs)
Max. Actuation Speed	1m/s
Max. Actuation Frequency	2 cycle/s
Case Material	UL approved glass-filled polyester & 316L Stainless Steel
Actuator Material	Stainless steel
Contact Protection	IP67
Conduit Entry	3 x M20
Operating Temperature	-20°C to +80°C (-4°F to 176°F)
Humidity	95% RH
Mounting SSS DSS	 4 x M5 Counterbored from Top or 4 x M5 from Underside with Nuts 6 x M5 Counterbored from Top or 6 x M5 from Underside with Nuts
Mechanical Life	100,000
Electrical Life	1,000,000
Weight (SSSE) (DSSE)	 1160g (2.6lbs) 1700g (3.7lbs)
Colour	Red/Stainless
Max. Holding Force	2000N (450lbs)
Max. Releasable Load	100N (22.5lbs)
Max. Shear Force for Keys	15.1KN (3398lbs)
Max. Torque to Key	14Nm (124lb•in)

Note: The safety contacts of the Guardmaster switches 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.

The Prosafe Advantage

Stainless steel construction.

Allen-Bradley
Guardmaster®

Product Selection

Contacts	Type	Key Condition	Actuator	Catalogue Number
2 N.C. + 1 N.O. Break Before Make	Single Key	Key Trapped to Release Actuator	Standard	**440T-MSSSE10❶**
			Flexible	**440T-MSSSE11❶**
			Flat	**440T-MSSSE12❶**
		Key Free to Release Actuator	Standard	**440T-MSSSE20❶**
			Flexible	**440T-MSSSE22❶**
			Flat	**440T-MSSSE23❶**
	Dual Key	Primary Key Trapped, Secondary Key Free to Release Actuator	Standard	**440T-MDSSE10❶❷**
			Flexible	**440T-MDSSE11❶❷**
			Flat	**440T-MDSSE12❶❷**
		Both Keys Free to Release Actuator	Standard	**440T-MDSSE20❶❶**
			Flexible	**440T-MDSSE22❶❶**
			Flat	**440T-MDSSE23❶❶**

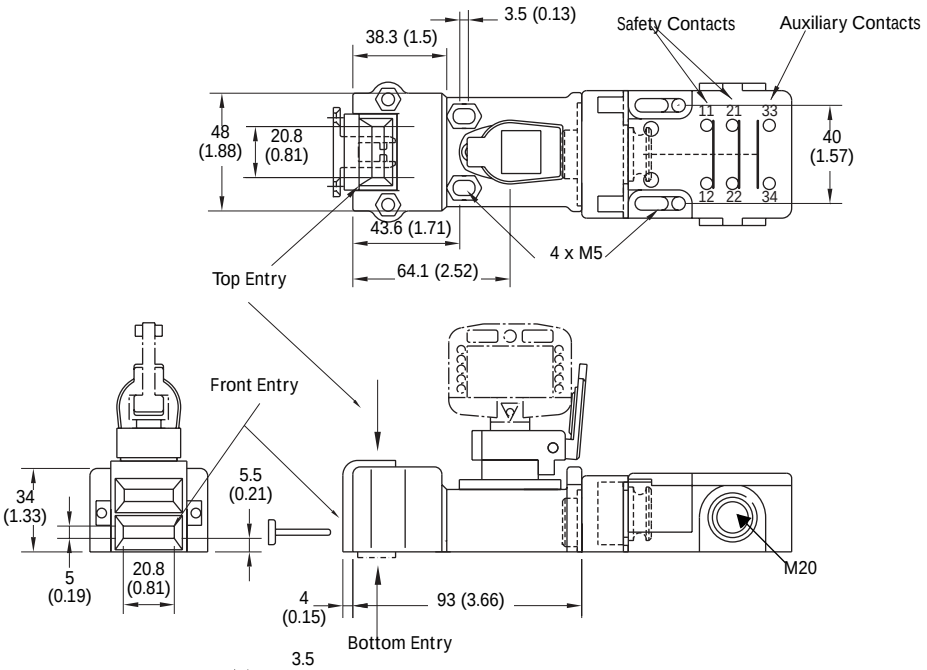
❶ Substitute the desired primary code for this symbol (key not included). See page 5-6 for code selection.
❷ Substitute the desired secondary code for this symbol (key included). See page 5-6 for code selection.

Slamlock Electrical

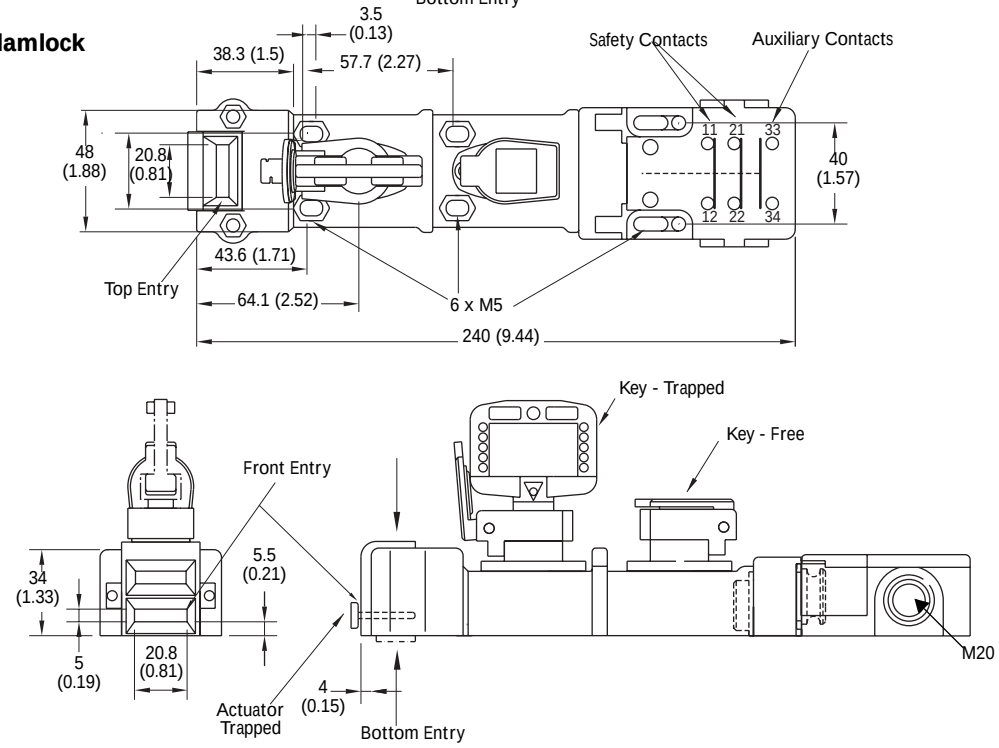
Approximate Dimensions—mm (inches)

Dimensions are not intended to be used for installation purposes.

Single Key Slamlock



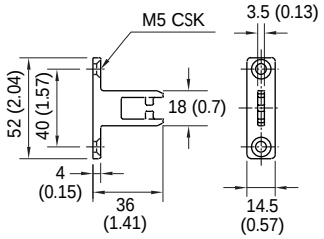
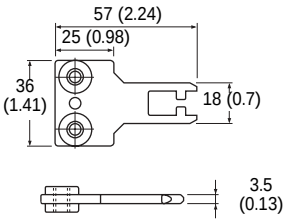
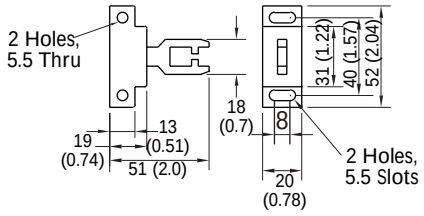
Double Key Slamlock



The Prosafe Advantage

Stainless steel construction.

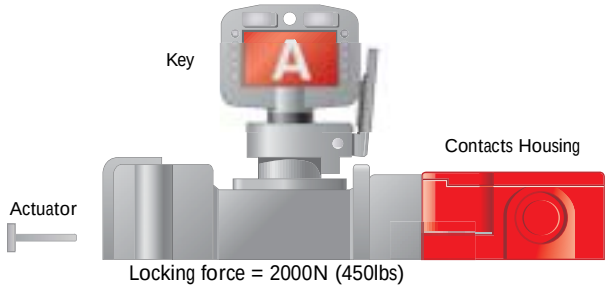
Accessories

Description		Approximate Dimensions—mm (inches)	Catalogue Number
	Replacement Standard Actuator		**440G-A27011**
	Replacement Flat Actuator		**440K-A11112**
	Replacement Flexible Actuator		**440G-A27143**
	Replacement Keys	See page 5-33	**440T-AKEYE10⊗**
	Replacement Code Barrel	See page 5-33	**440T-ASCBE14❶**
	Replacement Dust Cap	See page 5-33	**440T-ASFC10⊗**

❶ Substitute the desired primary code for this symbol (key not included). See page 5-6 for code selection.
⊗ Substitute the desired secondary code for this symbol (key included). See page 5-6 for code selection.

Typical Applications

Actuator out, key trapped, safety contacts open, auxiliary contact closed.



Locking force = 2000N (450lbs)

Valve Lock, 3 Port Spool

BIA 974016

Description

The 3 port spool valve is used for pneumatic isolation of machinery to enable safe access. Rotation of the trapped key isolates the pneumatic power ensuring a safe condition. The key can then be withdrawn and used in the next sequence of operation.

Features

- Direct drive operation
- Pneumatic isolation of moving machinery or processes
- Up to 10 BAR (120 psi)
- Multiple key units available
- Virtually maintenance free
- Weatherproof stainless steel dust cap as standard
- Replaceable code barrel assembly

Specifications

Standards	EN292-1&2, EN1088, ISO12100-1&2, ISO14119, AS4024.1
Approvals	BG and CE marked for all applicable directives
Flow	Up to 10BAR (120 psi)
Operating Temperature	-10°C to +50°C (14°F to +122°F)
Humidity	95% RH
Mechanical Operations	100,000
Max. Shear Force to Key	15.1kN (3398lbs)
Maximum Torque to Key	14Nm (124lb•in)
Material	316L Stainless steel
Weight	0.60kg (1.32lbs)
Inputs	24V DC, 110V AC and 230V AC
Assembly Fixing	Tamper resistant screws

Product Selection

Description	Catalogue Number
3 Port spool valve	**440T-VPVLE10❶**
Optional Enclosure	**440T-AIPB24**

❶ Substitute the desired primary code for this symbol (key not included). See page 5-6 for code selection.

Accessories

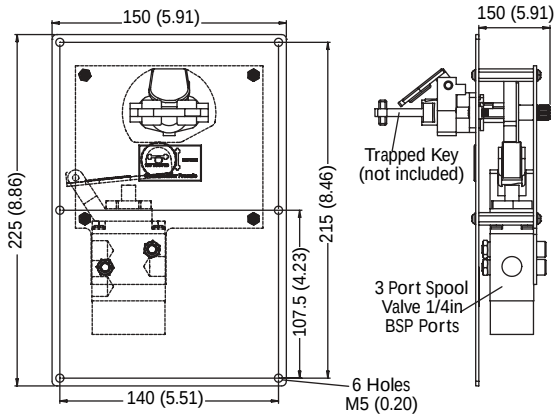
Description	Page Number	Catalogue Number
Replacement Key	5-33	**440T-AKEYE10⊗**
Replacement Code Barrel		**440T-ASCBE14❶**
Replacement Dust Cap		**440T-ASFC10⊗**

❶ Substitute the desired primary code for this symbol (key not included). See page 5-6 for code selection.

⊗ Substitute the desired code for this symbol. See page 5-6 for code selection.

Approximate Dimensions—mm (inches)

Dimensions are not intended to be used for installation purposes.



The Prosafe Advantage

Stainless steel construction.

Allen-Bradley

Guardmaster®

Miniature Valve Interlocks

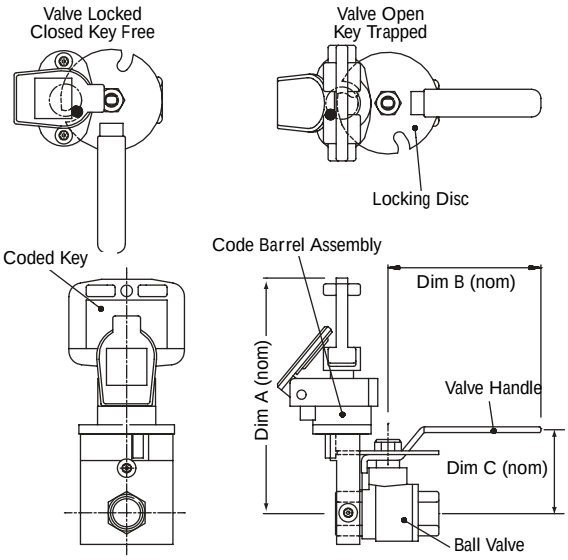
BIA 974016

Features

- Direct drive operation
- Supplied with valves 0.25in to 1in
- Direct body mounting with security screws
- Locked open or locked closed options
- Virtually maintenance free
- Weatherproof stainless steel dust cap as standard
- Replaceable code barrel assembly

Approximate Dimensions—mm (inches)

Dimensions are not intended to be used for installation purposes.



Dimensions—mm (inches)			
Model	**A**	**B**	**C**
MVLE10	104 (4.1)	68 (2.7)	38 (1.5)
MVLE11	104 (4.1)	68 (2.7)	38 (1.5)
MVLE12	112 (4.4)	80 (3.2)	48 (1.9)
MVLE13	104 (4.1)	68 (2.7)	38 (1.5)
MVLE14	104 (4.1)	68 (2.7)	38 (1.5)
MVLE15	112 (4.4)	80 (3.2)	48 (1.9)
MVLE16	108 (4.3)	110 (4.3)	53 (2.1)
MVLE17	108 (4.3)	110 (4.3)	53 (2.1)
MVLE18	115 (4.5)	110 (4.3)	61 (2.4)
MVLE19	115 (4.5)	110 (4.3)	61 (2.4)

Specifications

Standards	EN292-1&2, EN1088, ISO12100-1&2, ISO14119, AS4024.1
Approvals	BG and CE marked for all applicable directives
Ambient Temperature	-40°C to +200°C (14°F to +392°F)
Mechanical Operations	100,000
Maximum Shear Force to Key	15.1kN (3398lbs)
Maximum Torque to Key	14Nm (124lb•in)
Relative Operating Humidity	25% to 95%
Material	316L Stainless Steel

Product Selection

Valve Size	Valve Status	Catalogue Number
0.25in BSP	Key Free/Valve Locked Closed	**440T-VMVLE10❶**
0.375in BSP	Key Free/Valve Locked Closed	**440T-VMVLE11❶**
0.5in BSP	Key Free/Valve Locked Closed	**440T-VMVLE12❶**
0.25in BSP	Key Free/Valve Locked Open	**440T-VMVLE13❶**
0.375in BSP	Key Free/Valve Locked Open	**440T-VMVLE14❶**
0.5in BSP	Key Free/Valve Locked Open	**440T-VMVLE15❶**
1.0in BSP	Key Free/Valve Locked Closed	**440T-VMVLE18❶**
1.0in BSP	Key Free/Valve Locked Open	**440T-VMVLE19❶**

❶ Substitute the desired primary code for this symbol (key not included). See page 5-6 for code selection.

Accessories

Description	Page Number	Catalogue Number
Replacement Key	5-33	**440T-AKEYE10⊗**
Replacement Code Barrel		**440T-ASCBE14❶**
Replacement Dust Cap		**440T-ASFC10⊗**

❶ Substitute the desired primary code for this symbol (key not included). See page 5-6 for code selection.

⊗ Substitute the desired code for this symbol. See page 5-6 for code selection.

Switchgear Adaptors

BIA 974016

Description

The switch gear adaptor is used to interlock preparatory switch gear applications or other host equipment such as spool valves. Power is isolated and locked off when the key is rotated and removed. The key can then be used in the next sequence of operation.

Features

- Virtually maintenance free

Specifications

Standards	EN292-1&2, EN1088, ISO12100-1&2, ISO14119, AS4024.1
Category	Cat. 1 per EN 954-1
Approvals	BG and CE marked for all applicable directives
Operating Temperature	-10°C to +50°C (14°F to +122°F)
Mechanical Operations	>100,000
Max. Shear Force to Key	15.1kN (3398lbs)
Max. Torque to Key	14Nm (124lb•in)
Humidity	95% RH
Weight	0.30kg (0.66lbs)
Material	316L Stainless steel
Mounting	2 x M4
Shaft Dimensions	3/8sq in x 7/8in long (standard) 9/16in dia. x 7/8in long (optional—contact factory)

Product Selection (3/8 sq shaft)

Mounting Type	Trap Direction	Catalogue Number
45°	65° CW to Trap	**440T-MSGAU10❶**
	65° CCW to Trap	**440T-MSGAU11❶**
	90° CW to Trap	**440T-MSGAU12❶**
	90° CCW to Trap	**440T-MSGAU13❶**
	+/- 90° to Trap	**440T-MSGAU14❶**
	45° CW to Trap	**440T-MSGAU17❶**
	45° CCW to Trap	**440T-MSGAU18❶**

❶ Substitute the desired primary code for this symbol (key not included). See page 5-6 for code selection.

Accessories

Description	Page Number	Catalogue Number
Replacement Key	5-33	**440T-AKEYE10⊗**
Replacement Code Barrel		**440T-ASCBE14❶**
Optional Dust Cap		**440T-ASFC11⊗**

❶ Substitute the desired primary code for this symbol (key not included). See page 5-6 for code selection.

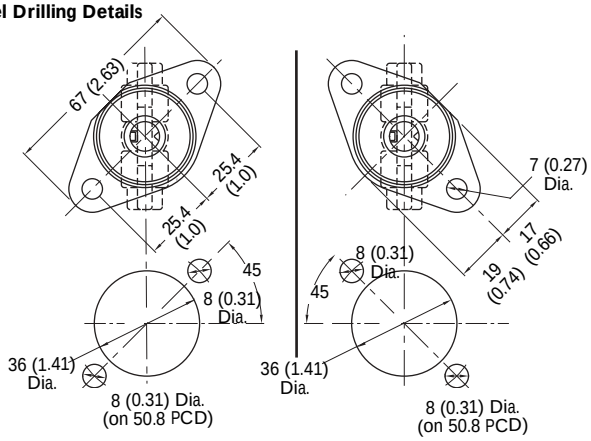
⊗ Substitute the desired code for this symbol. See page 5-6 for code selection.

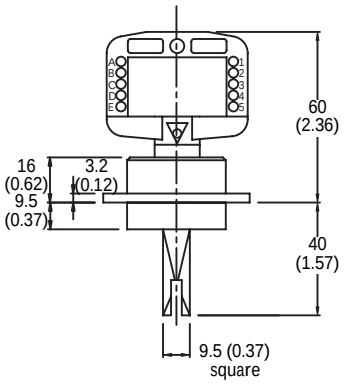
Approximate Dimensions—mm (inches)

Dimensions are not intended to be used for installation purposes.

45° Mounting Type

Panel Drilling Details



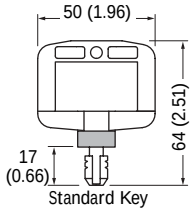
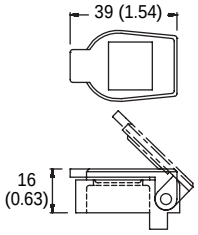
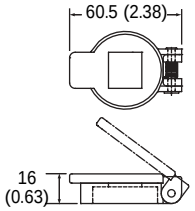
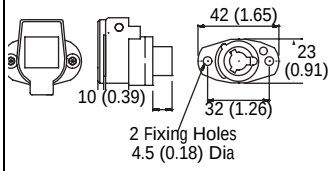
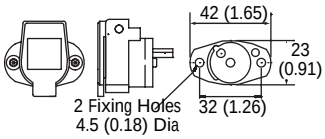


Stainless steel construction.

The Prosafe Advantage

Allen-Bradley
GuardMaster®

Product Selection

Description		Approximate Dimensions—mm (inches)	Catalogue Number
	Stainless Steel Weatherproof Keys		**440T-AKEYE10⊗**
	Stainless Steel Weatherproof Dust Cap		**440T-ASFC10⊗**
	Stainless Steel Weatherproof Dust Cap for Switchgear Adaptor		**440T-ASFC11❶**
	Stainless Steel Replacement Code Barrel for 100A Rotary Switch		**440T-ASCBE11❶**
	Stainless Steel Replacement Code Barrels for Products Other than 100A RPS/RKS Units		**440T-ASCBE14❶**

❶ Substitute the desired primary code for this symbol (key not included). See page 5-6 for code selection.
⊗ Substitute the desired code for this symbol. See page 5-6 for code selection.

ATTENTION: The presence of spare keys, override keys, or spare actuators can compromise the integrity of safety interlocking systems.Personal injury or death, property damage or economic loss can result from the introduction of spare keys, override keys or spare actuators into interlocking systems without appropriate management controls, working procedures and alternative protective measures to control their use and availability.

Notes