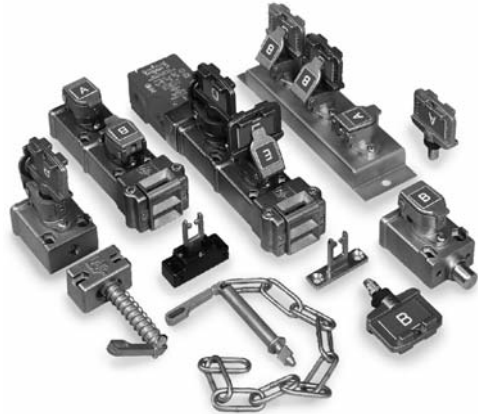




CNC precision cut keys



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 provide that 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, leading to a greater degree of security and tamper-resistance.

Why Prosafe?

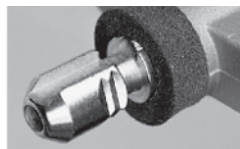
In order to derive the full benefits from a trapped key interlocking system its components must be totally practical, easily maintainable and readily available. Prosafe's unique key and code barrel gives the ability for even complicated interlocking systems and spare parts to be ordered from our worldwide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

Five 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 color-coded key and ID tags—at no extra charge.
4. Custom color/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.

The Prosafe Advantage



Stainless steel construction.

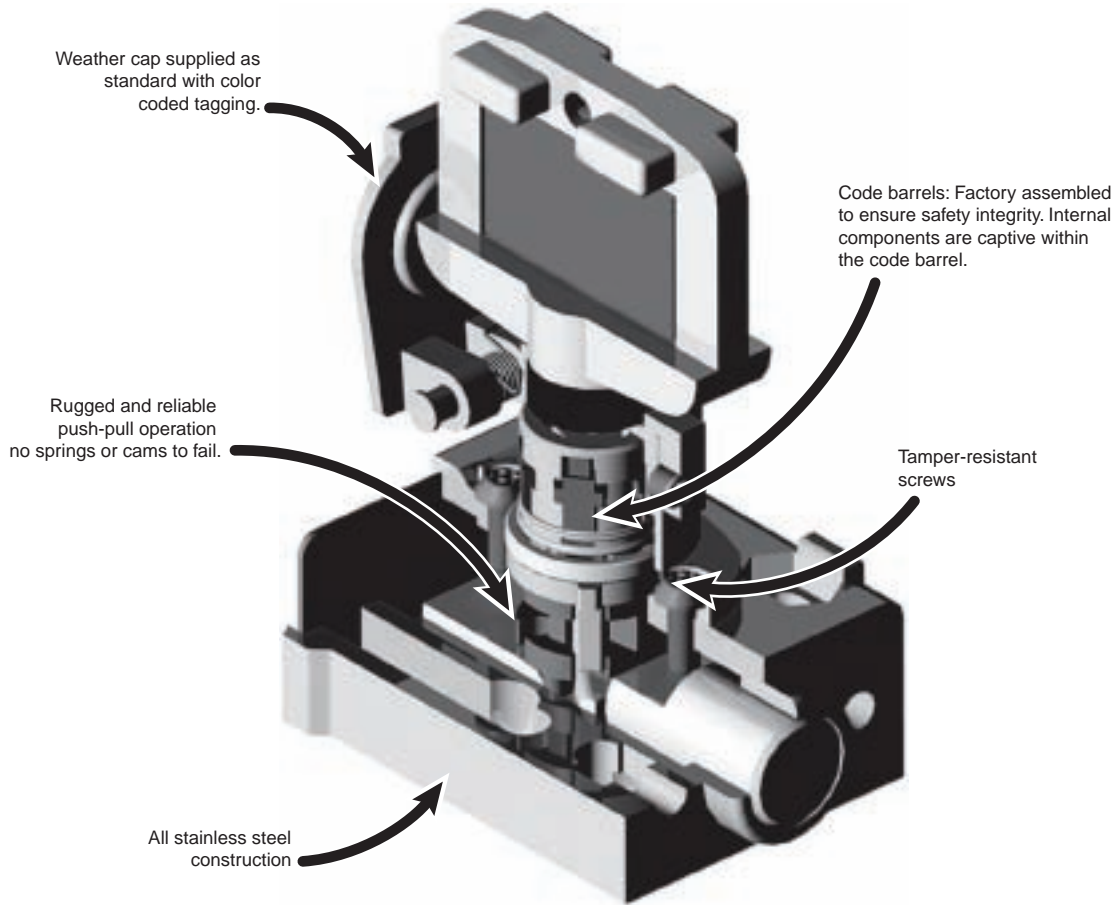
CE Marking—Tested and Approved

Only Prosafe products carry the prestigious BG mark. A sign of safety, independently tested by the German Berufsgenossenschaftliches Institut für Arbeitssicherheit, "BIA." Additional tests for valve interlocks include Lloyds Certificate for fire test and salt-mist resistance.

Over 100,000 Operations

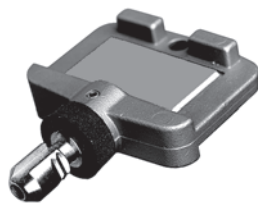
Prosafe products have been subjected to independent, exhaustive testing. With only a small amount of lubricant added infrequently, keys were inserted, rotated and removed at a rate of 12 times per minute. After 100,000 operations (at 10 operations a day this is equivalent to 27 years) the unit was functioning 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 Advantage



Prosafe Keys

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



3-Trapped Key
Switches

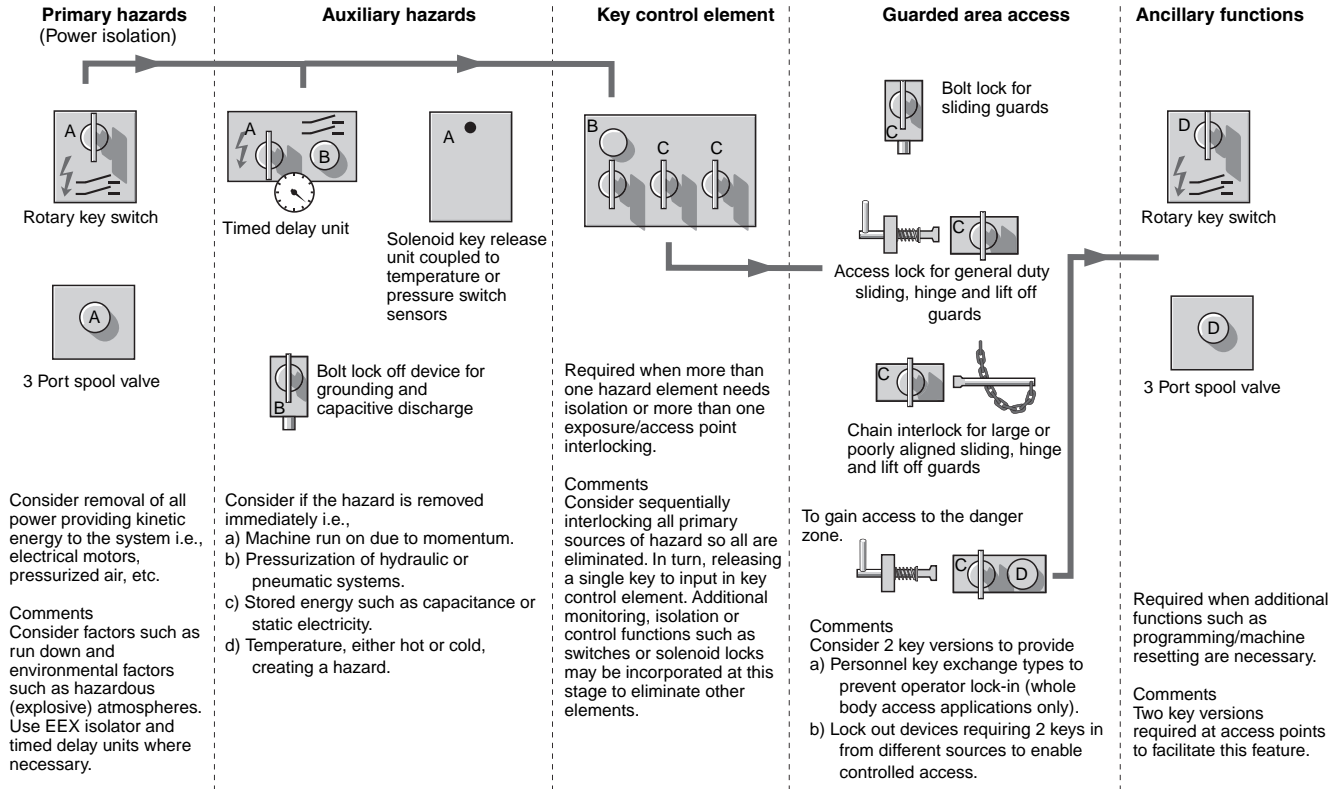
Safety Switches

Trapped Key Switches

Overview

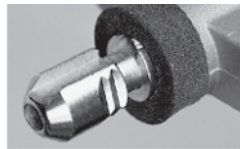
Design Suggestions for an Interlocking System

Plant and Machinery Interlocking



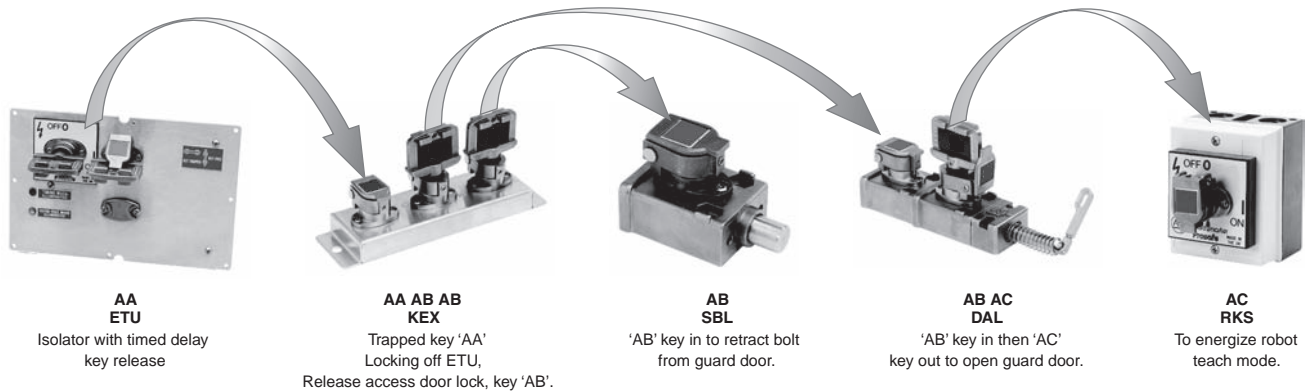
3-Trapped Key Switches

The Prosafe Advantage



Stainless steel construction.

Illustrated Principles of Trapped Key Interlocking



Sequence of Operation

1. The ETU isolator has two keys. One is a nonremovable key. The other key (a "AA" coded key) can be removed after a timed duration, which is set by a potentiometer inside the ETU isolator. Turn the nonremovable key to turn the hazardous machine motion off and start the timer. When the time expires, the Key Free LED turns ON. Remove the "AA" key.
2. Insert the "AA" key into the Key Exchange Unit (KEX) and turn it 90°.
3. Turn one of the "AB" keys 90° and remove it from the KEX. This traps the "AA" key in the KEX and prevents the restarting of the machine.
4. Insert the "AB" key into the Single-key Bolt Lock (SBL) and turn it 90° to gain partial body access to the machine.
5. Turn the second "AB" 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 "AB" key into the Dual-key Access Lock (DAL) and turn it 90°.
7. Turn the "AC" key 90° and remove the "C" key. Rotate the access handle to allow full body entry into the hazard zone.
8. Take the "AC" key into the hazard zone, insert it into the rotary key switch (RKSE) 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	Cat. No.
1	1	Single Key Time Delayed with an AA Primary Key	440T-MSTUE11AA
2	1	Key Exchange Unit, AB Primary Key, Two B Secondary Keys Trapped (included)	440T-MKEXE11AAABAB
3	1	Single Bolt Lock, AB Primary Key	440T-MSBLE10AB
4	1	Dual Access Lock, AB Primary Key, C Secondary Key Trapped (included)	440T-MDALE10ABAC
5	1	Rotary Key Switch, AC Primary Code Barrel	440T-MRKSE10AC
6	1	AA Key	440T-AKEYE10AA

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.

3-Trapped Key Switches

Safety Switches

Trapped Key Switches

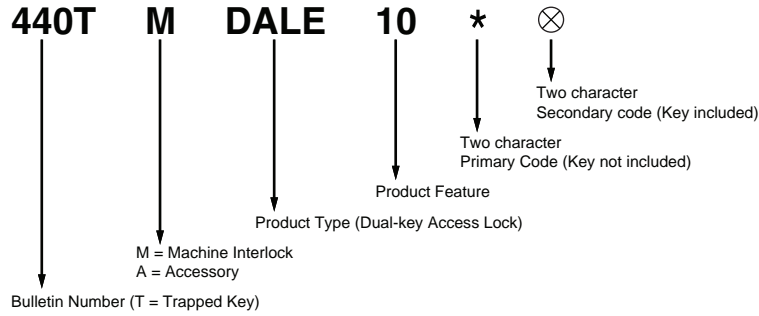
Overview

Code Selection

Ordering Prosafe trapped key products requires codes to be included in the cat. no.

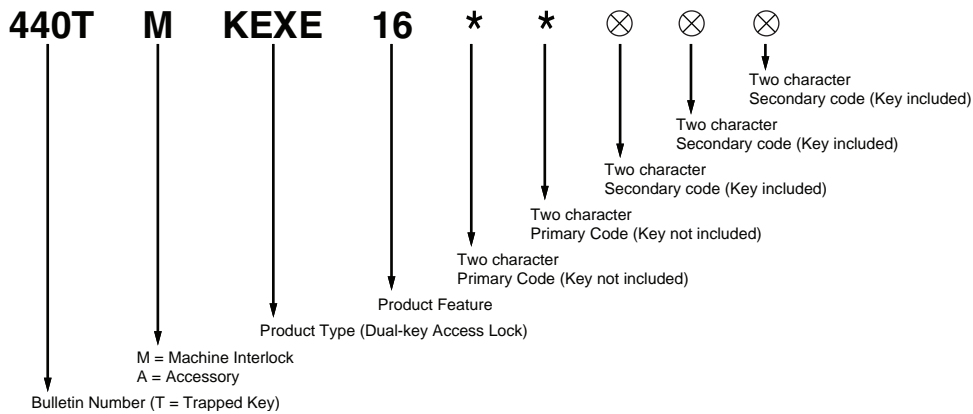
- The codes are added to the end of the cat. no.
- Each code must be two characters in length.
- The first code(s) is the primary code and the last code(s), if necessary, are the secondary code(s).
- Primary codes do not include the key. The key must be ordered separately or must come from a previous operation.
- Secondary codes come complete with a key, as the key is trapped in the code barrel.
- Use the tables on page 3-107 to select and track codes.

Ordering Example 1



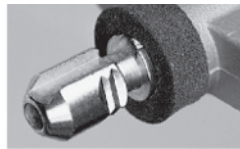
Order Cat. No. 440TMDALE10AAAB to get a Dual key Access Lock with an "AA" primary code and a "AB" secondary code, with a "AB" key included.

Ordering Example 2



Order Cat. No. 440TMKEXE16AAABACACAC to get a key exchange unit with "AA" and "AB" primary codes and three "AC" secondary codes. The "AA" and "AB" keys are not included. The three "AC" 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 Aa column as the lower codes (typically Aa to Za) are stocked. The chart continues on to Zz. Note that there are only 24 letters used—O & Q are not used.

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

	Code	Application & Date	Code	Application & Date	Code	Appli & Da
Start Down	Aa	<i>granulator machine #472 24/3/01</i>	Ab		Ac	
	Ba		Bb		Bc	
	Ca		Cb		Cc	
	Da		Db		Dc	

Code	Application & Date	Code	Application & Date	Code	Application & Date	Code	Application & Date	Code	Application & Date	Code	Application & Date
Aa		Ab		Ac		Ad		Ae		Af	
Ba		Bb		Bc		Bd		Be		Bf	
Ca		Cb		Cc		Cd		Ce		Cf	
Da		Db		Dc		Dd		De		Df	
Ea		Eb		Ec		Ed		Ee		Ef	
Fa		Fb		Fc		Fd		Fe		Ff	
Ga		Gb		Gc		Gd		Ge		Gf	
Ha		Hb		Hc		Hd		He		Hf	
Ia		Ib		Ic		Id		Ie		If	
Ja		Jb		Jc		Jd		Je		Jf	
Ka		Kb		Kc		Kd		Ke		Kf	
La		Lb		Lc		Ld		Le		Lf	
Ma		Mb		Mc		Md		Me		Mf	
Na		Nb		Nc		Nd		Ne		Nf	
Pa		Pb		Pc		Pd		Pe		Pf	
Ra		Rb		Rc		Rd		Re		Rf	
Sa		Sb		Sc		Sd		Se		Sf	
Ta		Tb		Tc		Td		Te		Tf	
Ua		Ub		Uc		Ud		Ue		Uf	
Va		Vb		Vc		Vd		Ve		Vf	
Wa		Wb		Wc		Wd		We		Wf	
Xa		Xb		Xc		Xd		Xe		Xf	
Ya		Yb		Yc		Yd		Ye		Yf	
Za		Zb		Zc		Zd		Ze		Zf	

3-Trapped Key Switches

Safety Switches

Rotary Switches



Description

The rotary switches are used for electrical isolation of machinery to improve safe access and also as teach boxes in robot cells. 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 enclosure. The rotary switch is available with 4 poles, either 4 N.O. or 2 N.C. and 2 N.O. The 100 A 4 N.O. switch has 3 contacts rated at 100 A and 1 contact rated at 20 A.

Features

- 316L stainless steel keys
- Direct drive operation—positively opens contacts
- Stainless steel dust cap included
- Up to 400 A isolation
- 4 N.O., 2 N.O. and 2 N.C., 3 N.O./1 N.C., 3 N.O., or 3 N.C. and neutral contacts
- Replaceable code barrel assembly

Specifications

Safety Ratings

Standards	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
Certifications	CE Marked for all applicable directives, BG, cULus on contact block; C-Tick not required

Operating Characteristics

Conduit Entry	4 x M20 (RKS only)
Mechanical Life	100,000 operations
Finger Protection	DIN 57106/VDE 0106 T.100

Environmental Characteristics

Operating Temperature [C (F)]	-10...+40 ° (14...104 °)
Relative Humidity	95%

Physical Characteristics

Shear Force to Key	15.1 k•N (3398 lbs), max.
Torque to Key	14 N•m (124 lb•in), max.

Specifications (continued)

Weight [g (lbs)]	RPSE	10, 11, 12, 13, 20:	500 (1.1)	14, 16:	1000 (2.2)
	RKSE	10, 11, 12, 13:	850 (1.9)	14, 16:	1250 (2.8)
Electrical Life	100,000 operations				
Climatic Test	Constant to DIN IEC 68 Part 2-3 Variable to DIN IEC 68 Part 2-30				
Ambient Temperature, Operation	Encased -25...40 °C (10...104 °F)				
(Ui) Rated Insulation Voltage	690V				
(Uimp) Rated Impulse withstand Voltage	6 kV				
S3 Intermittent Rating Duty Factor (VDE 0530, Part 1)	60/40/25% = 1, 3/1, 6/2 xlu				
Last two digits of Cat. No. (See Product Selection table)	10				
	11				
	16				
Rated Uninterrupted Current (Iu)	IEC/EN/VDE	20A	32A	63A	100A
	UL/CSA	16A	30A	60A	100A
Rated Operational Voltage (Ue)	IEC/EN/VDE	690V	690V	690V	1000V
	UL/CSA	600V	600V	600V	600V
	Main Switch Isolation Voltage, Max.	750V	750V	750V	1000V
Rated Operational Current (Ie)	AC-21A IEC/EN/VDE	20A	32A	63A	100A
	AC-1 SEV	20A	32A	63A	100A
Rated Operational Power at 50/60 Hz (AC-23A IEC/EN/VDE)	3-phase 220...240V	4 kW	5.5 kW	15 kW	22 kW
	3-pole 380...440V	7.5 kW	11 kW	22 kW	37 kW
	500...690V	7.5 kW	11 kW	22 kW	37 kW
Rated Operational Power at 50/60 Hz (AC-3A IEC/EN/VDE)	3-phase 220...240V	3 kW	4 kW	11 kW	22 kW
	3-pole 380...440V	5.5 kW	7.5 kW	18.5 kW	30 kW
	500...690V	5.5 kW	7.5 kW	18.5 kW	30 kW
DOL Rating (UL/CSA)	3-phase 140V	1 HP	2 HP	5 HP	10 HP
	3-pole 240V	2 HP	5 HP	15 HP	25 HP
	480V	5 HP	10 HP	30 HP	30 HP
Rated Breaking Capacity	AC-23/AC-3 220...240V	250A	330A	500A	600A
	Motor Switch 380...440V	250A	330A	500A	600A
	500...690V	150A	220A	270A	300A
Fuse Rating (GI)		25 A, max.	35 A, max.	63/50 A, max.	100 A, max.
Rated Fuse Short Circuit Current		15 kA	15 kA	15/20 kA	25 kA
Terminal Cross Section	1...10		4...16		2.5...3.5
	mm ² single/multiple wire				
Conductor Size, mm ² min...max	0.75 ...6		2.5...10		1.5...2.5
	(stranded) with sleeve				
	8 AWG		6 AWG		2 AWG



3-Trapped Key Switches

The Prosafe Advantage

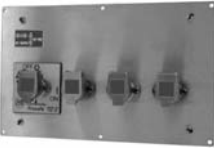



Stainless steel construction.

Product Selection

Type	Contact Type	Current Accuracy	Cat. No.
 Enclosure Mounted (RKS only)	4 N.O.	20 A	440T-MRKSE10*
	2 N.O. & 2 N.C.	20 A	440T-MRKSE11*
	4 N.O.	32 A	440T-MRKSE12*
	4 N.O.	63 A	440T-MRKSE13*
	3 N.O. & 1 N.O.	3 N.O. 100 A and 1 N.O. 20 A	440T-MRKSE14*
	8 N.O.	20 A	440T-MRKSE16*
Mild Steel Enclosure Mounted (RKS only)	3 N.O. + Neutral	200 A	440T-MRKSE21*
	3 N.O.	400 A	440T-MRKSE22*
	4 N.O.	20 A	440T-MRPSE10*
 Panel Mounted	2 N.O. & 2 N.C.	20 A	440T-MRPSE11*
	4 N.O.	32 A	440T-MRPSE12*
	4 N.O.	63 A	440T-MRPSE13*
	3 N.O. & 1 N.O.	3 N.O. 100 A and 1 N.O. 20 A	440T-MRPSE14*
	8 N.O.	20 A	440T-MRPSE16*
	3 N.O. & 3 N.C.	20 A	440T-MRPSE18*
	4 N.O.	40 A	440T-MRPSE20*

* Substitute the desired primary code for this symbol (key not included). See page 3-107.

Type	Number of Keys	Contact Type	Current Accuracy	Cat. No.	
Isolator on First Key Out					
	Dual key isolator	2 keys out	4 N.O.	20 A	440T-MMRSE10**
		2 N.O. & 2 N.C.	20 A	440T-MMRSE11**	
		4 N.O.	32 A	440T-MMRSE12**	
		4 N.O.	63 A	440T-MMRSE13**	
	Triple key isolator	3 keys out	4 N.O.	20 A	440T-MMRSE20***
			2 N.O. & 2 N.C.	20 A	440T-MMRSE21***
			4 N.O.	32 A	440T-MMRSE22***
			4 N.O.	63 A	440T-MMRSE23***
	Quad key isolator	4 keys out	4 N.O.	20 A	440T-MMRSE30****
			2 N.O. & 2 N.C.	20 A	440T-MMRSE31****
			4 N.O.	32 A	440T-MMRSE32****
			4 N.O.	63 A	440T-MMRSE33****
	Dual key exchange isolator	1 key in/ 1 key out	4 N.O.	20 A	440T-MMRXE10*⊗
			2 N.O. & 2 N.C.	20 A	440T-MMRXE11*⊗
			4 N.O.	32 A	440T-MMRXE12*⊗
			4 N.O.	63 A	440T-MMRXE13*⊗
	Triple key exchange isolator	1 key in/ 2 key out	4 N.O.	20 A	440T-MMRXE20*⊗⊗
			2 N.O. & 2 N.C.	20 A	440T-MMRXE21*⊗⊗
			4 N.O.	32 A	440T-MMRXE22*⊗⊗
			4 N.O.	63 A	440T-MMRXE23*⊗⊗
	Quad key exchange isolator	1 key in/ 3 key out	4 N.O.	20 A	440T-MMRXE30*⊗⊗⊗
			2 N.O. & 2 N.C.	20 A	440T-MMRXE31*⊗⊗⊗
			4 N.O.	32 A	440T-MMRXE32*⊗⊗⊗
			4 N.O.	63 A	440T-MMRXE33*⊗⊗⊗

* Substitute the desired primary code for this symbol (key not included). See page 3-107.

⊗ Substitute the desired secondary code for this symbol (key included). See page 3-107.

3-Trapped Key
Switches

Safety Switches

Rotary Switches

Accessories

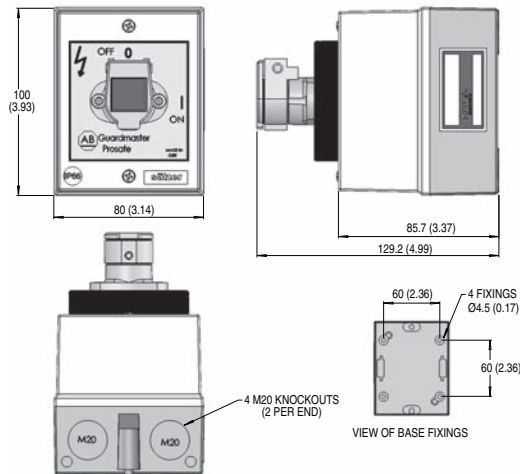
Description	Additional Information	Cat. No.
Stainless steel key		440T-AKEYE10*
Stainless steel replacement code barrel for products other than 100 A RPS/RKS units with dust cap	3-140	440T-ASCBE14*
Stainless steel replacement code barrel for 100 A unit rotary switch		440T-ASCBE11*
Stainless steel weatherproof replacement dust cap		440T-ASFC10*
Cable grip, M20 conduit, accommodates cable diameter 7...10.5 mm (0.27...0.41 in.)	3-53	440A-A09028
Adaptor, conduit, M20 to 1/2 inch NPT, plastic		440A-A09042
Supplemental Contact Block, 20 A, 1 N.O. Late Make, Early Break 1 N.C. Auxiliary	For use with RPSE12, RPSE20 (maximum 1 per switch)	440T-AACA10
Supplemental Contact Block, 20 A, 2 N.O. Late Make, Early Break	For use with RPSE12, RPSE20 (maximum 1 per switch)	440T-AACA11
Supplemental Contact Block, 20 A, 1 N.O., 1 N.C.	For use with RPSE13 & 14	440T-AACA20
Supplemental Contact Block, 20 A, 2 N.O.	For use with RPSE13 & 14	440T-AACA21
ABS plastic enclosure	For use with dual key, and dual key exchange, isolators	440T-AIPB10
Stainless steel enclosure (240x180x150 mm)	For use with >20 A RPSE units (not including RPSE21 or 22)	440T-AIPB25
Stainless steel enclosure (150x150x80 mm)	For use with RPSE10 & 11	440T-AIPB26
ABS plastic enclosure	For use with triple/quad key, and triple/quad key exchange, isolators	440T-AIPB50
Stainless steel enclosure	For use with triple/quad key, and triple/quad key exchange, isolators	440T-AIPB55

* Substitute the desired primary code for this symbol (key not included). See page 3-107.

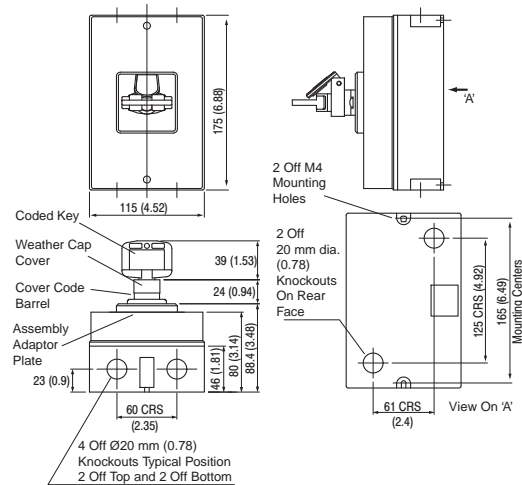
Approximate Dimensions [mm (in.)]

Dimensions are not intended to be used for installation purposes.

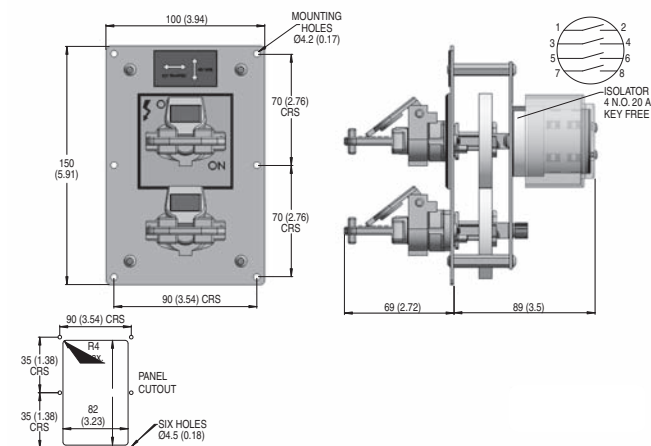
MRKSE10 and MRKSE11



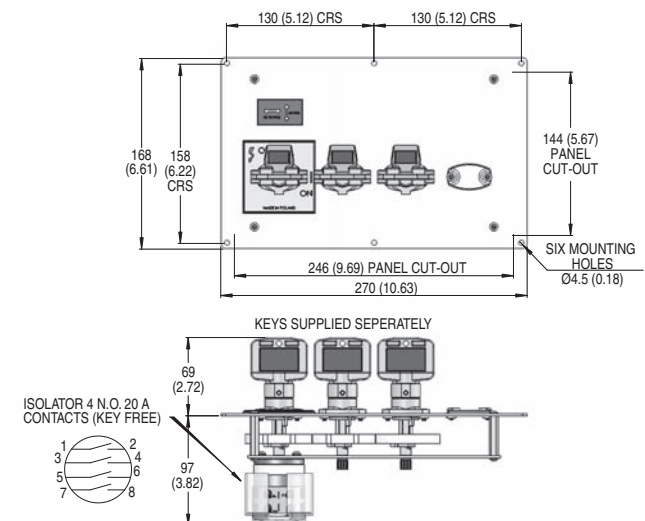
MRKSE12 and MRKSE13



MMRSE10



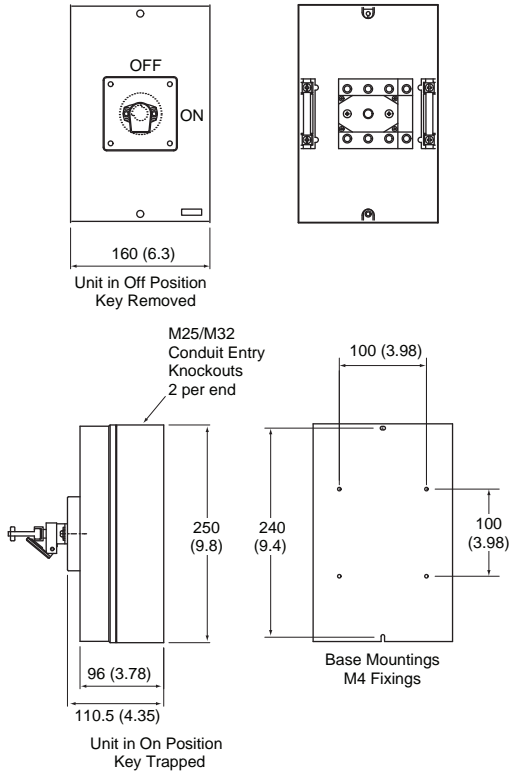
MMRSE20



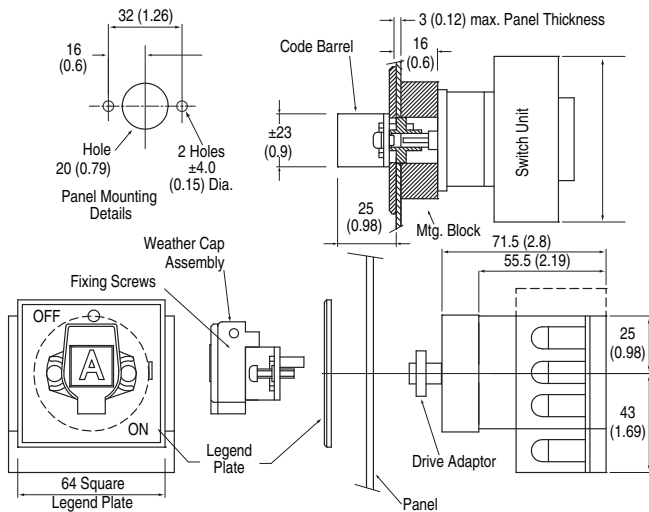
Approximate Dimensions [mm (in.)] (continued)

Dimensions are not intended to be used for installation purposes.

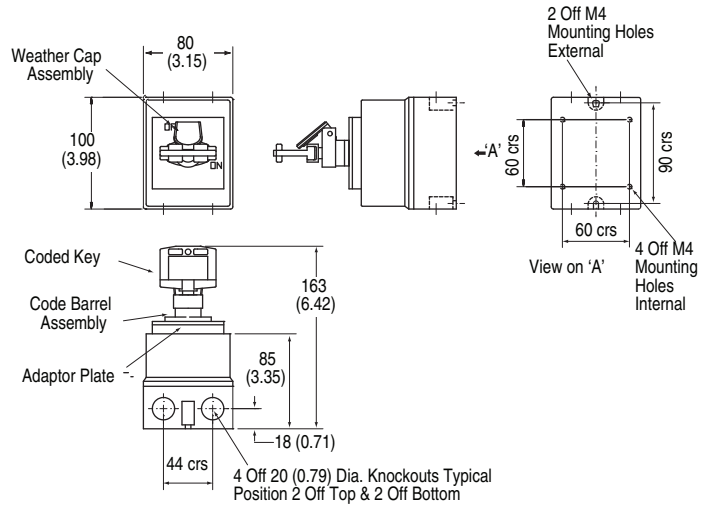
MRKSE14



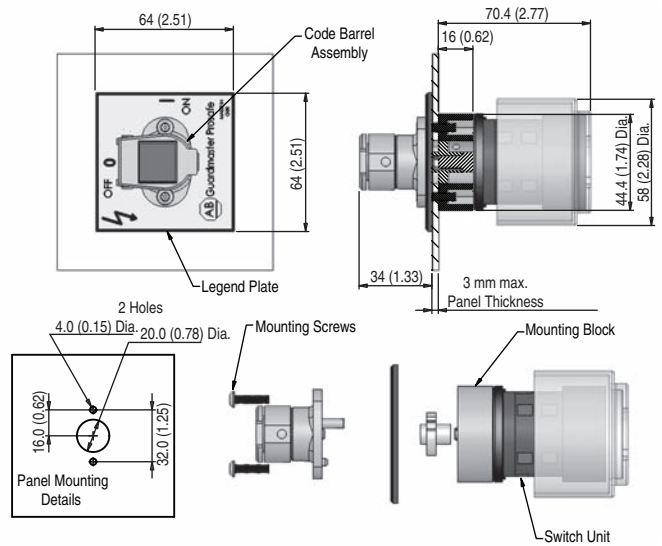
MRPSE 12, 13, 14 and 20



MRKSE16



MRPSE10 and 11



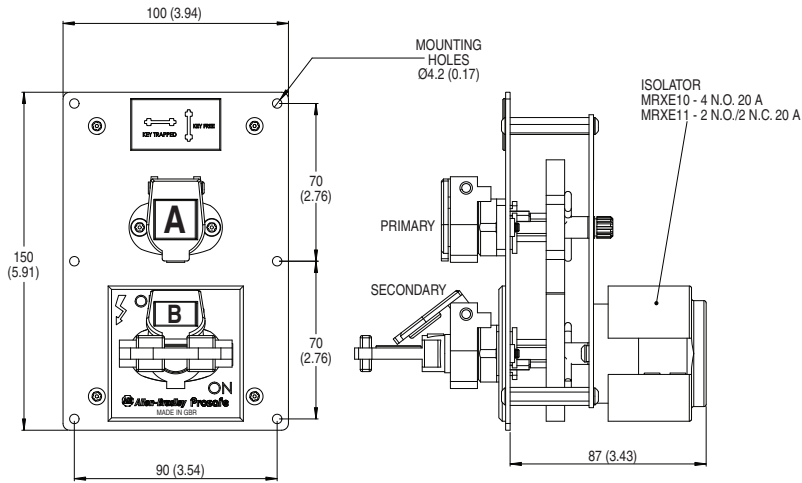
3-Trapped Key
Switches

Safety Switches

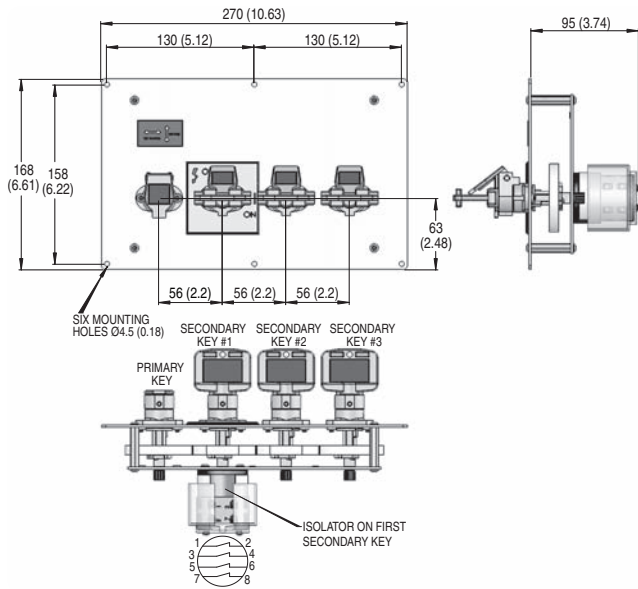
Rotary Switches

Approximate Dimensions [mm (in.)] (continued)

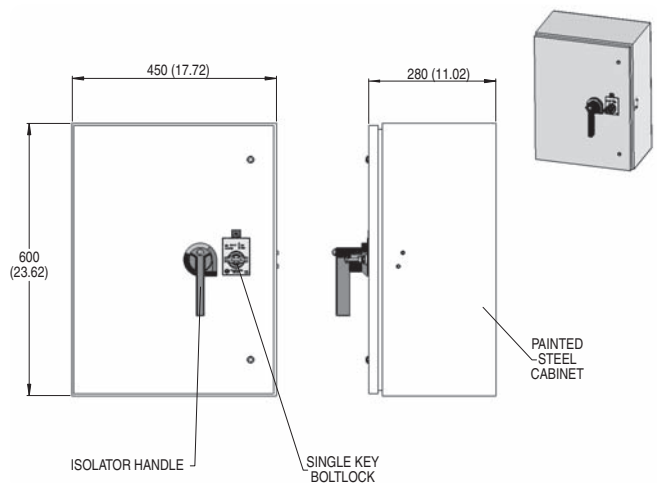
MMRXE10 and MMRXE11



MMRXE30



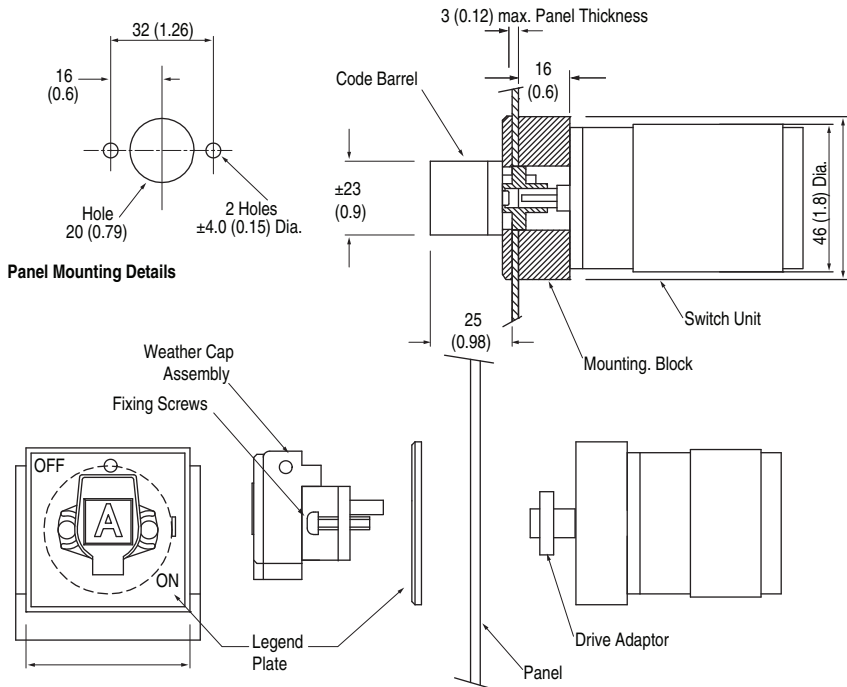
MRKSE22



3-Trapped Key Switches

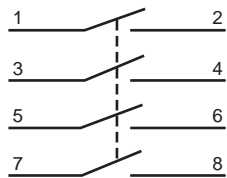
Approximate Dimensions [mm (in.)] (continued)

MRPSE16

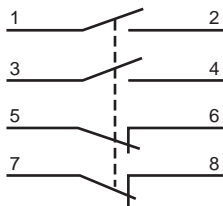


Typical Wiring

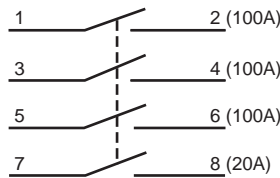
Diagrams Shown with Key Free



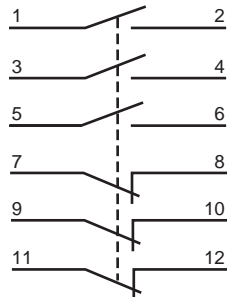
MRKSE10 and MRPSE10
MRKSE12 and MRPSE12
MRKSE13 and MRPSE13
----- and MRPSE20
MMRSE10 and MMRXE10
MMRSE12 and MMRXE12
MMRSE13 and MMRXE13
MMRSE20 and MMRXE20
MMRSE22 and MMRXE22
MMRSE23 and MMRXE23
MMRSE30 and MMRXE30
MMRSE32 and MMRXE32
MMRSE33 and MMRXE33



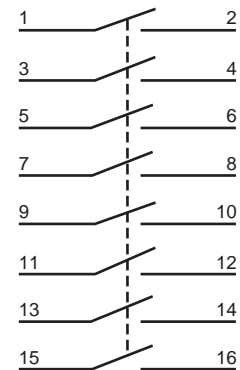
MRKSE11 and MRPSE11
MMRSE11 and MMRXE11
MMRSE21 and MMRXE21
MMRSE31 and MMRXE31



MRKSE14 and MRPSE14



MRKSE18 and MRPSE18



MRKSE16 and MRPSE16

Safety Switches

Solenoid Release Units



Description

The solenoid release unit is used for electrical isolation of machinery to improve safe access. It consists of a rotary power switch 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 solenoid release unit indicates when the 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.

Rotating 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
- LED or NEON "key free" indication
- 316L stainless steel construction
- 24V DC, 110V AC 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

Safety Ratings	
Standards	EN1954-1, IEC/EN60204-1, EN1088, IEC/EN60947-5-1, ISO13849-1, ISO12100-1&2, ISO14119, GS-ET-19, AS4024.1
Certifications	CE Marked for all applicable directives and BG
Operating Characteristics	
Solenoid Voltage	24V DC, 110V AC, 230V AC
Solenoid Power	DC Types: 6.5 W continuous AC Types: 6V A continuous
Electrical Life	100,000 operations
Mechanical Life	100,000 operations
Utilization Category	
Electrical Characteristics	See rotary power switches.
Environmental & Physical Characteristics	
Shear Force to Key	15.1 k•N (3398 lbs), max.
Torque to Key	14 N•m (124 lb•in), max.
Material	Trapped Key Components: 316L stainless steel Steel Face Plate: 316L stainless steel Optional Box: ABS plastic
Operating Temperature [C (F)]	0...40 ° (32...104 °)
Relative Humidity	95%

The Prosafe Advantage



Stainless steel construction.

Product Selection

Type	Solenoid Voltage	Contacts	Current, Nom	Cat. No.	
Single key out	24V DC	2 N.O. & 2 N.C.	20 A	440T-MSRUE11*	
		4 N.O.		440T-MSRUE10*	
		3 N.O. & 3 N.C.	32 A	440T-MSRUE12*	
	110V AC	2 N.O. & 2 N.C.	4 N.O.	20 A	440T-MSRUE13*
				32 A	440T-MSRUE22*
		3 N.O. & 3 N.C.	4 N.O.	20 A	440T-MSRUE20*
				63 A	440T-MSRUE23*
		2 N.O. & 2 N.C.	4 N.O.	20 A	440T-MSRUE14*
				63 A	440T-MSRUE24*
	230V AC	2 N.O. & 2 N.C.	4 N.O.	20 A	440T-MSRUE33*
				32 A	440T-MSRUE30*
		63 A	440T-MSRUE34*		
	110V DC	2 N.O. & 2 N.C.	4 N.O.	20 A	440T-MSRUE35*
					3 N.O. & 3 N.C.
		4 N.O.	440T-MSRUE40*		
Dual key out	24V DC	4 N.O.	20 A	440T-MSRUE46*	
		2 N.O. & 2 N.C.		440T-MS2097D**	
		4 N.O.	32 A	440T-MS2097A**	
		4 N.O.	63 A	440T-MS2097G**	
			63 A	440T-MS2097J**	
Triple key out	24V DC	4 N.O.	20 A	440T-MS3417D***	
		2 N.O. & 2 N.C.		440T-MS3417A***	
		4 N.O.	32 A	440T-MS3417G***	
			63 A	440T-MS3417J***	
Quad key out	24V DC	4 N.O.	20 A	440T-MS3418D****	
		2 N.O. & 2 N.C.		440T-MS3418A****	
		4 N.O.	32 A	440T-MS3418G****	
			63 A	440T-MS3418J****	

* Substitute the desired primary code for this symbol (key not included). See 3-107.

Accessories

Description	Additional Information	Cat. No.
Stainless steel key	3-140	440T-AKEYE10*
Stainless steel replacement code barrel with dust cap		440T-ASCBE14*
Stainless steel weatherproof replacement dust cap		440T-ASF10*
Optional plastic enclosure	For use with single key out 20 A units	440T-AIPB10
	For use with single key out 32 A units	440T-AIPB22
Optional ABS plastic enclosure	For use with triple/quad key out units	440T-AIPB50
Optional stainless steel enclosure	For use with triple/quad key out units	440T-AIPB55

* Substitute the desired primary code for this symbol (key not included). See 3-107.

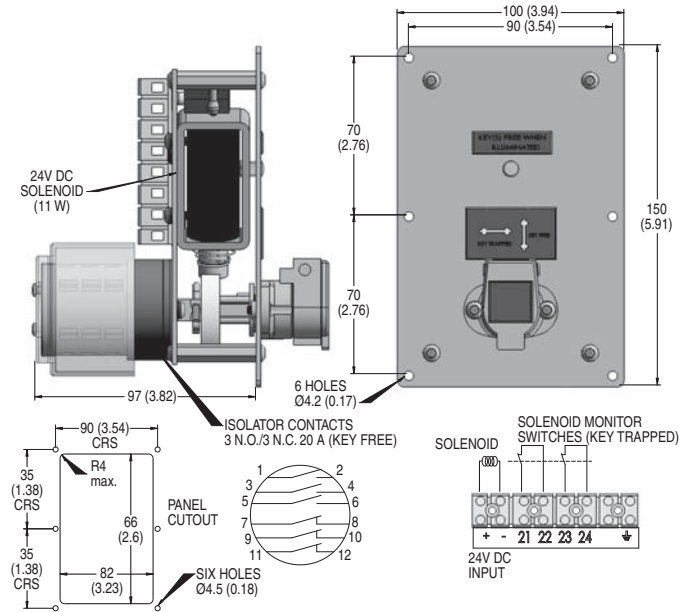
Safety Switches

Solenoid Release Units

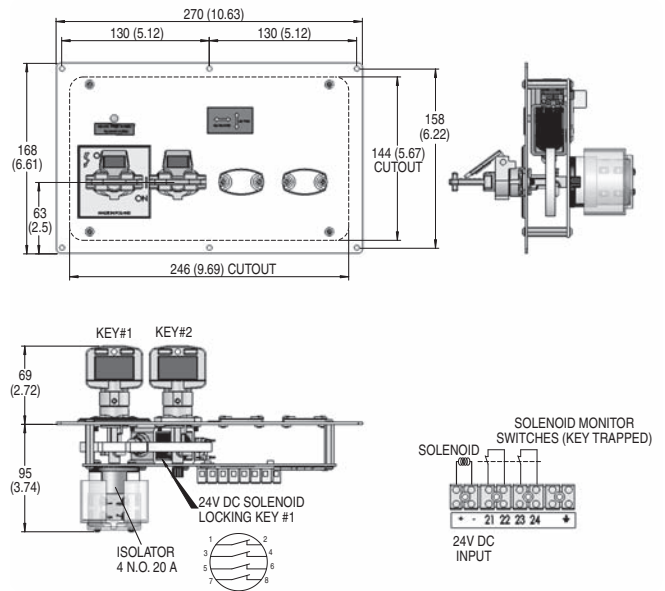
Approximate Dimensions [mm (in.)]

Dimensions are not intended to be used for installation purposes.

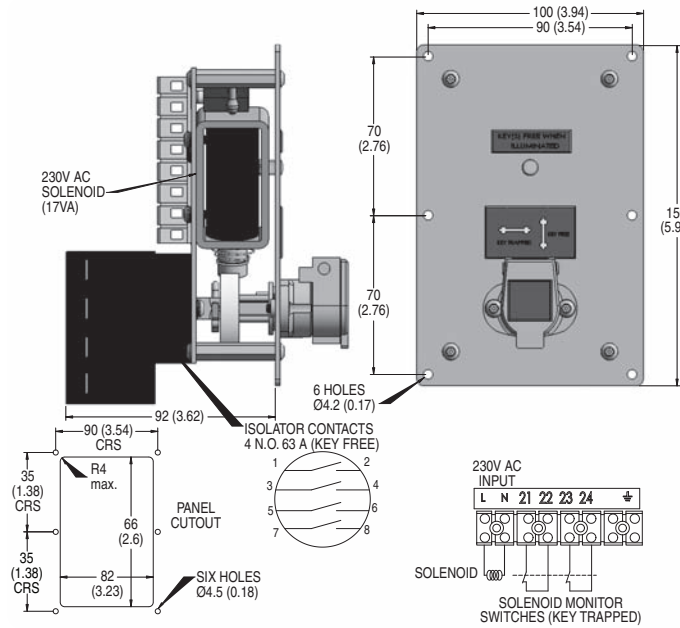
MSRUE13



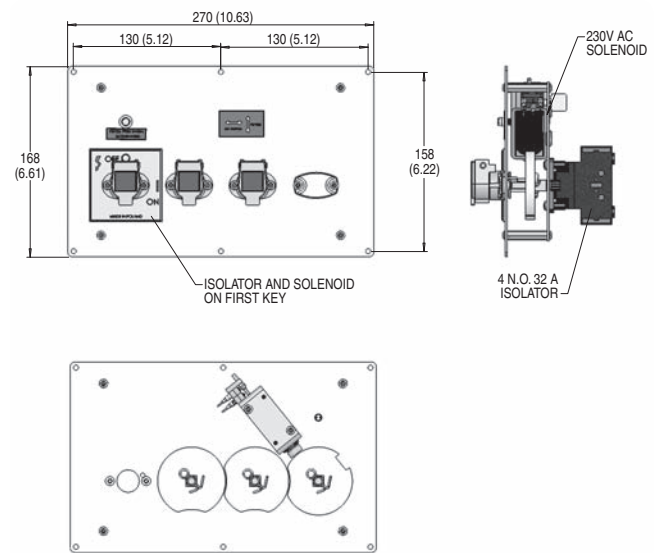
MS2097



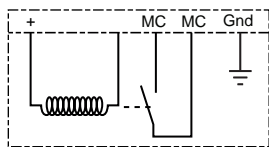
MSRUE35



MS3417



Typical Wiring



3-Trapped Key Switches



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 an CU1 control unit timer to execute the timing sequence. Turning a nonremovable 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 preset time 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 nonremovable key to re-initiate the hazard.

The Dual-key Timed delay Unit (DTU) has two trapped keys. After the CU1 preset time 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 nonremovable key re-initiate the hazard.

Features

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

Specifications

Safety Ratings	
Standards	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)
Certifications	CE Marked for all applicable directives and BG
Operating Characteristics	
Electrical Life	100,000 operations
Mechanical Life	100,000 operations
Solenoid Voltage	24V DC, 110V AC, and 230V AC
Time Delay	0.1 s...30 min
Environmental & Physical Characteristics	
Operating Temperature [C (F)]	0...40 ° (32...104 °)
Relative Humidity	95%
Shear Force to Key	15.1 k•N (3398 lbs), max.
Torque to Key	14 N•m (124 lb•in), max.
Material	Trapped key components: 316L stainless steel Face plate: 316L stainless steel Optional box: ABS plastic or stainless steel

The Prosafe Advantage



Stainless steel construction.

Safety Switches

Electronic Timed-Delay Units

Product Selection

Type	Solenoid Voltage	Contact Set 1	Contact Set 2	Cat. No.
Single key out Panel mounted	24V DC	3 N.O. 40 A	1 N.O. 20 A	440T-MSTUE10*
		2 N.O. 20 A	1 N.C. 20 A	440T-MSTUE11*
	110V AC	3 N.O. 40 A	1 N.O. 20 A	440T-MSTUE20*
		2 N.O. 20 A	1 N.C. 20 A	440T-MSTUE22*
	230V AC	3 N.O. 40 A	1 N.O. 20 A	440T-MSTUE30*
		2 N.O. 20 A	1 N.C. 20 A	440T-MSTUE33*
Dual key out Panel mounted	24V DC	3 N.O. 40 A	1 N.O. 20 A	440T-MDTUE10**
		2 N.O. 20 A	1 N.C. 20 A	440T-MDTUE11**
	110V AC	3 N.O. 40 A	1 N.O. 20 A	440T-MDTUE20**
		2 N.O. 20 A	1 N.C. 20 A	440T-MDTUE22**
	230V AC	3 N.O. 40 A	1 N.O. 20 A	440T-MDTUE30**
		2 N.O. 20 A	1 N.C. 20 A	440T-MDTUE33**

* Substitute the desired primary code for this symbol (key not included). See 3-107 for code selection.

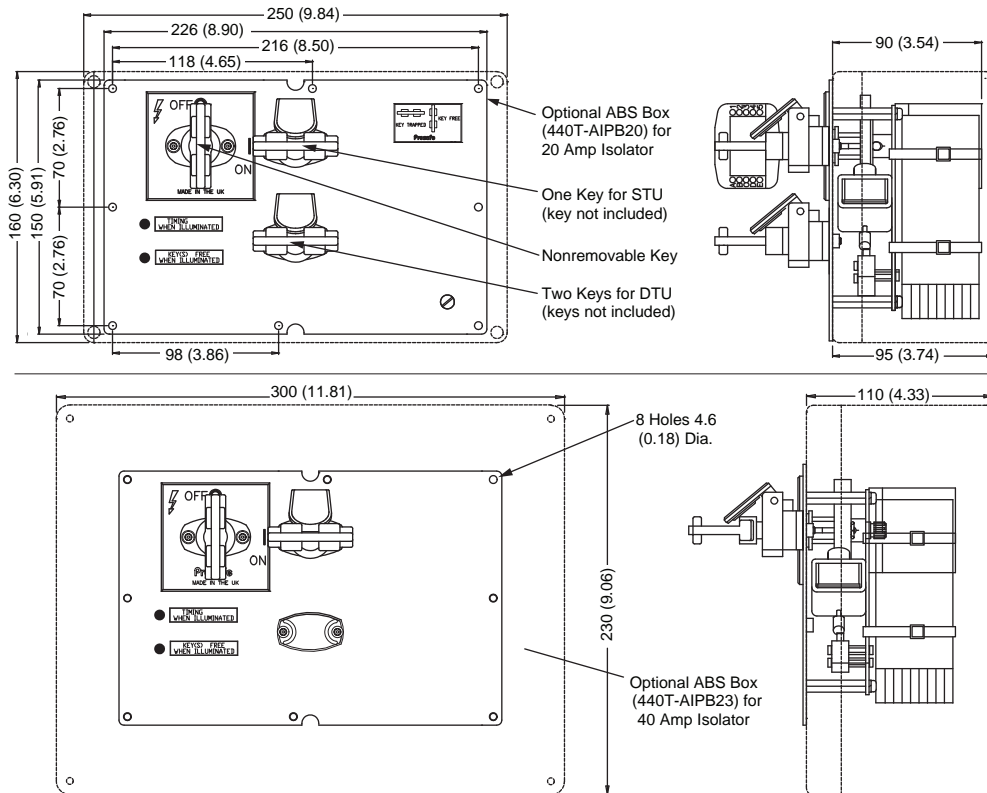
Accessories

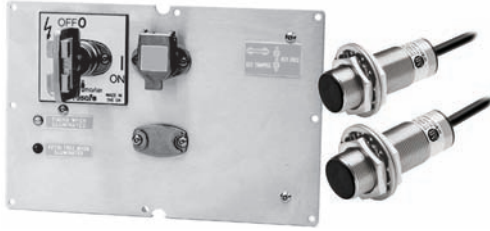
Description	Additional Information	Cat. No.
Stainless steel key	3-140	440T-AKEYE10*
Stainless steel replacement code barrel with dust cap		440T-ASCBE14*
Stainless steel weatherproof replacement dust cap		440T-ASFC10*
Optional plastic enclosure	For use with 20 A units	440T-AIPB20
	For use with 40 A units	440T-AIPB23
Optional stainless steel enclosure	For use with all units	440T-AIPB46

* Substitute the desired primary code for this symbol (key not included). See 3-107 for code selection.

Approximate Dimensions [mm (in.)]

Dimensions are not intended to be used for installation purposes.





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 catalog.

Features

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

Specifications

Safety Ratings	
Standards	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)
Certifications	CE Marked for all applicable directives and BG
Operating Characteristics	
Electrical Life	100,000 operations
Mechanical Life	100,000 operations
Solenoid Voltage	24V DC, 110V AC, and 230V AC
Time Delay	0.1 s...40 min
Zero Speed Sensors	2x inductive sensors
Environmental & Physical Characteristics	
Operating Temperature [C (F)]	0...40° (32...104°)
Relative Humidity	95%
Shear Force to Key	15.1 k•N (3398 lbs)
Torque to Key	14 N•m (124 lb•in)
Material	Trapped key components: 316L stainless steel Face plate: 316L stainless steel Optional box: ABS plastic or stainless steel Inductive sensors: stainless steel barrel, plastic face
Mounting	Tamper resistant screws
Weight	2.0 kg (4.4 lbs)

The Prosafe Advantage



Stainless steel construction.

Safety Switches

Stopped Motion Units

Product Selection

Type	Solenoid Voltage	Contact Set 1	Contact Set 2	Cat. No.
Single key out Panel mounted	24V DC	3 N.O. 40 A	1 N.O. 20 A	440T-MSMSE10*
		2 N.O. 20 A	1 N.C. 20 A	440T-MSMSE11*
	110V AC	3 N.O. 40 A	1 N.O. 20 A	440T-MSMSE20*
		2 N.O. 20 A	1 N.C. 20 A	440T-MSMSE22*
	230V AC	3 N.O. 40 A	1 N.O. 20 A	440T-MSMSE30*
		2 N.O. 20 A	1 N.C. 20 A	440T-MSMSE33*
Dual key out Panel mounted	24V DC	3 N.O. 40 A	1 N.O. 20 A	440T-MDMSE10**
		2 N.O. 20 A	1 N.C. 20 A	440T-MDMSE11**
	110V AC	3 N.O. 40 A	1 N.O. 20 A	440T-MDMSE20**
		2 N.O. 20 A	1 N.C. 20 A	440T-MDMSE22**
	230V AC	3 N.O. 40 A	1 N.O. 20 A	440T-MDMSE30**
		2 N.O. 20 A	1 N.C. 20 A	440T-MDMSE33**

* Substitute the desired primary code for this symbol (key not included). See 3-107 for code selection.

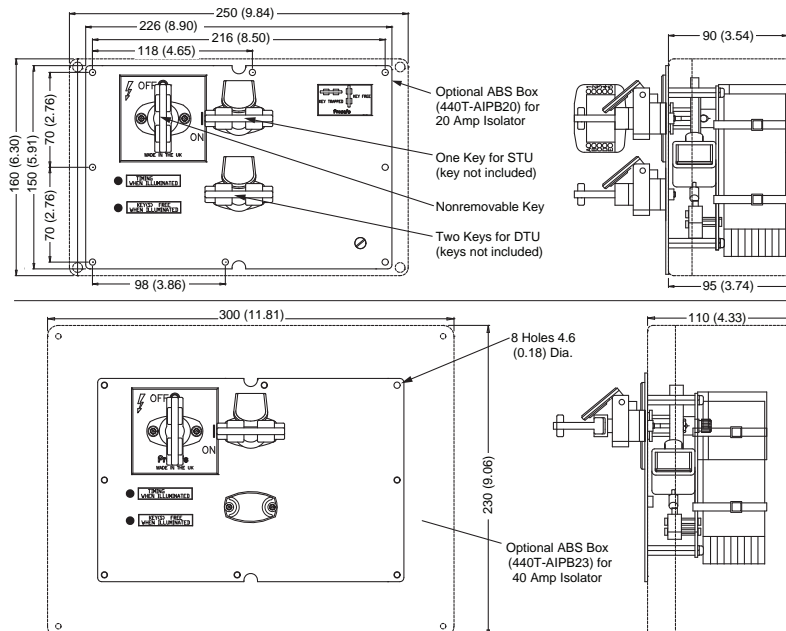
Accessories

Description	Size [mm]	Type	Additional Information	Cat. No.
Stainless steel key	—	—	3-140	440T-AKEYE10*
Stainless steel replacement code barrel with dust cap				440T-ASCBE14*
Stainless steel weatherproof replacement dust cap				440T-ASFC10*
500 mA fuse—Bussmann Cat. No. ETF-500 mA	—	500 mA @ 250V	NA	440R-A31562
Optional plastic enclosure	—	—	For use with 20 A units	440T-AIPB20
Optional stainless steel enclosure			For use with 40 A units	440T-AIPB23
			For use with all units	440T-AIPB46
Inductive Proximity Sensor, Three-wire, DC	12	NPN	page 5-57	872C-D3NN12-E2
		PNP		872C-D3NP12-E2
	18	NPN		872C-D5NN18-E2
		PNP		872C-D5NP18-E2
	30	NPN		872C-D10NN30-E2
	PNP	872C-D10NP30-E2		

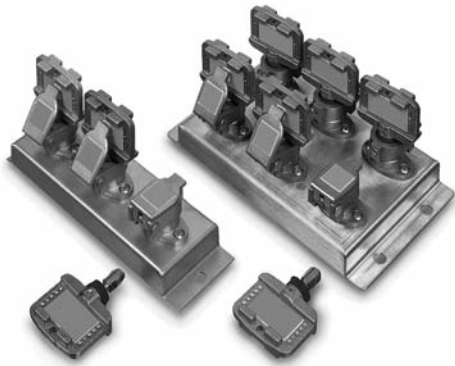
* Substitute the desired primary code for this symbol (key not included). See 3-107 for code selection.

Approximate Dimensions [mm (in.)]

Dimensions are not intended to be used for installation purposes.



3-Trapped Key Switches



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 six ways
- Weatherproof stainless steel dust cap as standard
- Replaceable code barrel assembly

Specifications

Safety Ratings

Standards	EN1088, ISO12100-1&2, ISO14119, AS4024.1
Category	Cat. 3 per EN 954-1 (ISO 13849-1) cULus and TÜV
Certifications	CE Marked for all applicable directives and BG; C-Tick not required

Operating Characteristics

Operating Temperature [C (F)]	-40...+200 ° (-40...+392 °)
Mechanical Life	100,000 operations

Environmental & Physical Characteristics

Shear Force to Key	15.1 k•N (3398 lbs), max.
Torque to Key	14 N•m (124 lb•in), max.
Relative Humidity	95%
Material	316L stainless steel

Optional Key Exchange Cabinets

Number of Keys	Length [mm (in.)]	Width [mm (in.)]	Depth [mm (in.)]	Cat. No.
Painted Mild Steel				
7...11 way (max)	400 (15.7)	300 (11.8)	200 (7.87)	440T-AIPB30
12...15 way (max)	400 (15.7)	400 (15.7)	210 (8.26)	440T-AIPB33
16...25 way (max)	600 (23.6)	600 (23.6)	210 (8.26)	440T-AIPB34
Stainless Steel				
12...15 way (max)	400 (15.7)	400 (15.7)	210 (8.26)	440T-AIPB40
16...25 way (max)	600 (23.6)	600 (23.6)	210 (8.26)	440T-AIPB44

The Prosafe Advantage



Stainless steel construction.

Product Selection

Key Exchange Units		
Number of Keys	Keys In and Out	Cat. No.
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‡
25 way	1 key in 24 keys out	440T-MKEXE40‡

‡ Specify the codes individually for each primary key in (key not included) and for each secondary key (key included). See 3-107 for code selection.

Consult factory for other configurations of keys in and keys out.

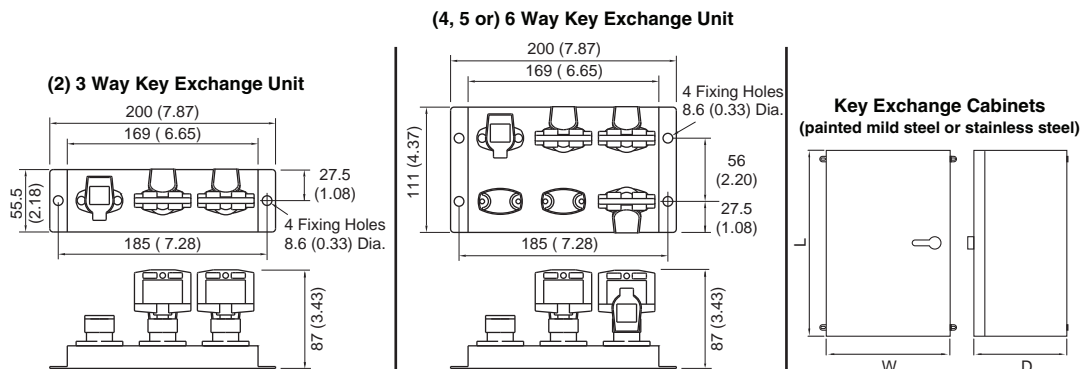
Accessories

Description	Additional Information	Cat. No.
Stainless steel key		440T-AKEYE10*
Stainless steel replacement code barrel with dust cap	3-140	440T-ASCBE14*
Stainless steel weatherproof replacement dust cap		440T-ASFC10*
Optional Key Exchange Cabinet	Mild steel cabinet for 7-...11-way units	440T-AIPB30
	Mild steel cabinet for 12-...15-way units	440T-AIPB33
	Mild steel cabinet for 16-...25-way units	440T-AIPB34
	Stainless steel cabinet for 12-...15-way units	440T-AIPB40
	Stainless steel cabinet for 16-...25-way units	440T-AIPB44

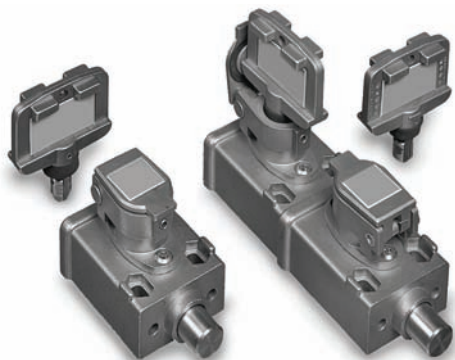
* Substitute the desired primary code for this symbol (key not included). See 3-107 for code selection.

Approximate Dimensions [mm (in.)]

Dimensions are not intended to be used for installation purposes.



3-Trapped Key Switches



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
- 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
- Solenoid and electric versions
- Multiple key options

The Prosafe Advantage



Stainless steel construction.

Specifications

Safety Ratings	
Standards	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
Certifications	CE Marked for all applicable directives and BG; C-Tick not required
Operating Characteristics	
Operating Temperature [C (F)]	Mechanical: -40...+200 ° (-40...+392°) Electrical: -20...+80 ° (-4...+176 °) Solenoid: -20...+60 ° (-4...+140°)
Mechanical Life	100,000 operations
Environmental & Physical Characteristics	
Shear Force to Key	15.1 k•N (3398 lbs), max.
Torque to Key	14 N•m (124 lb•in), max.
Relative Humidity	95%
Weight [kg (lbs)]	SBL: 0.60 (1.32) DBL: 1.10 (2.43)
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 Diameter	15 mm (0.59 in.)

3-Trapped Key Switches

Safety Switches

Bolt Interlocks

Product Selection - Mechanical

Type	Trapped Key Condition	Bolt Retracted [mm (in.)]	Bolt Extended [mm (in.)]	Cat. No.
Single key	Key trapped to retract bolt	0	14 (0.55)	440T-MSBLE10*
		3 (0.11)	17 (0.66)	440T-MSBLE11*
		6 (0.23)	20 (0.78)	440T-MSBLE12*
		13 (0.51)	27 (1.06)	440T-MSBLE13*
Dual key	Both keys trapped to retract bolt	0	14 (0.55)	440T-MDBLE10**
		3 (0.11)	17 (0.66)	440T-MDBLE11**
		6 (0.23)	20 (0.78)	440T-MDBLE12**
		13 (0.51)	27 (1.06)	440T-MDBLE13**
	Primary key trapped, secondary key free to retract bolt	0	14 (0.55)	440T-MDBLE14*⊗
		3 (0.11)	17 (0.66)	440T-MDBLE15*⊗
		6 (0.23)	20 (0.78)	440T-MDBLE16*⊗
		13 (0.51)	27 (1.06)	440T-MDBLE17*⊗
Dual Key with Secondary Ejector Key	Primary key trapped, secondary key free to retract bolt	0	14 (0.55)	440T-MDBLJ14*⊗
		3 (0.11)	17 (0.66)	440T-MDBLJ15*⊗
		6 (0.23)	20 (0.78)	440T-MDBLJ16*⊗
		13 (0.51)	20 (0.78)	440T-MDBLJ17*⊗
Triple key	Three keys trapped to retract bolt	0	14 (0.55)	440T-MTBLE10***
		3 (0.11)	17 (0.66)	440T-MDBLE11***
		6 (0.23)	20 (0.78)	440T-MTBLE12***
		13 (0.51)	27 (1.06)	440T-MTBLE13***
	Two primary trapped, one secondary key free to retract bolt	0	14 (0.55)	440T-MTBLE14**⊗
		3 (0.11)	17 (0.66)	440T-MTBLE15**⊗
		6 (0.23)	20 (0.78)	440T-MTBLE16**⊗
		13 (0.51)	27 (1.06)	440T-MTBLE17**⊗
	One primary trapped, two secondary keys free to retract bolt	0	14 (0.55)	440T-MTBLE18*⊗⊗
		3 (0.11)	17 (0.66)	440T-MTBLE19*⊗⊗
		6 (0.23)	20 (0.78)	440T-MTBLE20*⊗⊗
		13 (0.51)	27 (1.06)	440T-MTBLE21*⊗⊗
Quad key	Four keys trapped to retract bolt	0	14 (0.55)	440T-MQBLE10****
		3 (0.11)	17 (0.66)	440T-MQBLE11****
		6 (0.23)	20 (0.78)	440T-MQBLE12****
		13 (0.51)	27 (1.06)	440T-MQBLE13****
	Three primary trapped, one secondary key free to retract bolt	0	14 (0.55)	440T-MQBLE14***⊗
		3 (0.11)	17 (0.66)	440T-MQBLE15***⊗
		6 (0.23)	20 (0.78)	440T-MQBLE16***⊗
		13 (0.51)	27 (1.06)	440T-MQBLE17***⊗

* Substitute the desired primary code for this symbol (key not included). See 3-107 for code selection.

⊗ Substitute the desired secondary code for this symbol (key included). See 3-107 for code selection.

Product Selection - Electrical

Contact Type	Type	Trapped Key Condition	Bolt Retracted [mm (in.)]	Bolt Extended [mm (in.)]	Cat. No.
2 N.C. & 1 N.O. break before make	Single key	Free key to retract bolt	0	14 (0.55)	440T-MSBSE10*
			3 (0.11)	17 (0.66)	440T-MSBSE11*
			6 (0.23)	20 (0.78)	440T-MSBSE12*
			13 (0.51)	27 (1.06)	440T-MSBSE13*
		Key trapped to retract bolt	0	14 (0.55)	440T-MSBSE33*
			3 (0.11)	17 (0.66)	440T-MSBSE34*
			6 (0.23)	20 (0.78)	440T-MSBSE35*
			13 (0.51)	27 (1.06)	440T-MSBSE36*
	Dual key	Both keys trapped to retract bolt	0	14 (0.55)	440T-MDBSE10**
			3 (0.11)	17 (0.66)	440T-MDBSE11**
			6 (0.23)	20 (0.78)	440T-MDBSE12**
			13 (0.51)	27 (1.06)	440T-MDBSE13**
		Primary key trapped, secondary key free to retract bolt	0	14 (0.55)	440T-MDBSE14*⊗
			3 (0.11)	17 (0.66)	440T-MDBSE15*⊗
			6 (0.23)	20 (0.78)	440T-MDBSE16*⊗
			13 (0.51)	27 (1.06)	440T-MDBSE17*⊗

* Substitute the desired primary code for this symbol (key not included). See 3-107 for code selection.

⊗ Substitute the desired secondary code for this symbol (key included). See 3-107 for code selection.

Product Selection - Solenoid

Solenoid Voltage	Contact Type	Type	Trapped Key Condition	Bolt Retracted [mm (in.)]	Bolt Extended [mm (in.)]	Cat. No.		
24V DC	2 N.C. & 1 N.O. break before make	Single key	Free key to retract bolt	0	14 (0.55)	440T-MSBUE10*		
				3 (0.11)	17 (0.66)	440T-MSBUE11*		
				6 (0.23)	20 (0.78)	440T-MSBUE12*		
				13 (0.51)	27 (1.06)	440T-MSBUE13*		
			Key trapped to retract bolt	0	14 (0.55)	440T-MSBUE33*		
				3 (0.11)	17 (0.66)	440T-MSBUE34*		
		Dual key	Both keys trapped to retract bolt	6 (0.23)	20 (0.78)	440T-MSBUE35*		
				13 (0.51)	27 (1.06)	440T-MSBUE36*		
				0	14 (0.55)	440T-MDBUE10**		
				3 (0.11)	17 (0.66)	440T-MDBUE11**		
			Primary key trapped, secondary key free to retract bolt	6 (0.23)	20 (0.78)	440T-MDBUE12**		
				13 (0.51)	27 (1.06)	440T-MDBUE13**		
				0	14 (0.55)	440T-MDBUE14*⊗		
						3 (0.11)	17 (0.66)	440T-MDBUE15*⊗
						6 (0.23)	20 (0.78)	440T-MDBUE16*⊗
						13 (0.51)	27 (1.06)	440T-MDBUE17*⊗

* Substitute the desired primary code for this symbol (key not included). See 3-107 for code selection.
 ⊗ Substitute the desired secondary code for this symbol (key included). See 3-107 for code selection.

Accessories

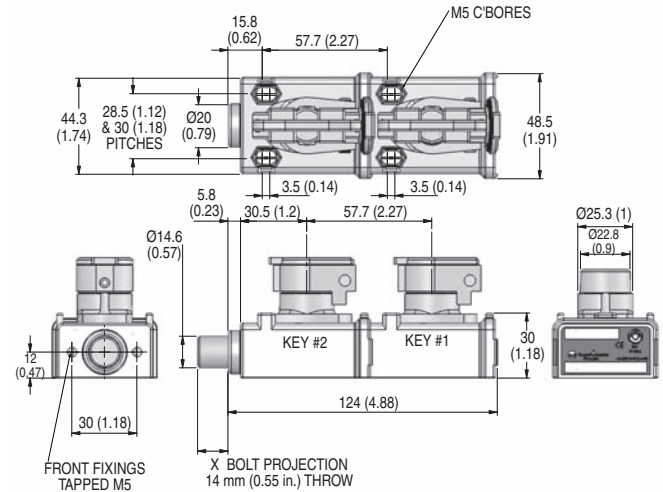
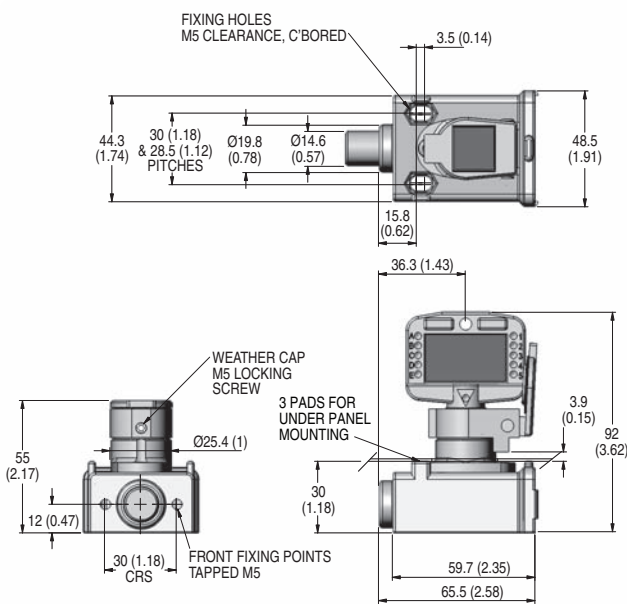
Description	Additional Information	Cat. No.
Stainless steel key	3-140	440T-AKEYE10*
Stainless steel replacement code barrel with dust cap		440T-ASCBE14*
Stainless steel weatherproof replacement dust cap		440T-ASFC10*
Stainless steel ejector key		440T-AKEYE13*

* Substitute the desired primary code for this symbol (key not included). See 3-107 for code selection.

Approximate Dimensions [mm (in.)]

Dimensions are not intended to be used for installation purposes.
 MSBLE10, 11, 12, and 13

MDBLE10, 11, 12, and 13



Type	X [mm (in.)]
440T-MDBLE10	0 (0)
440T-MDBLE11	3 (0.12)
440T-MDBLE12	6 (0.24)
440T-MDBLE13	13 (0.51)

3-Trapped Key Switches

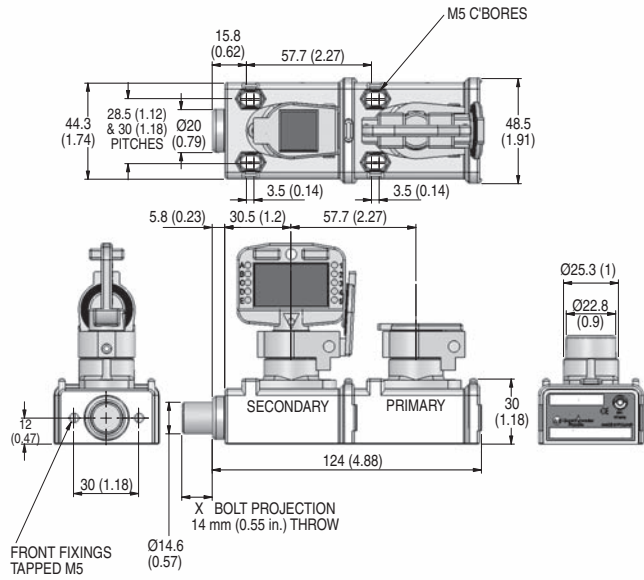
Safety Switches

Bolt Interlocks

Approximate Dimensions [mm (in.)] (continued)

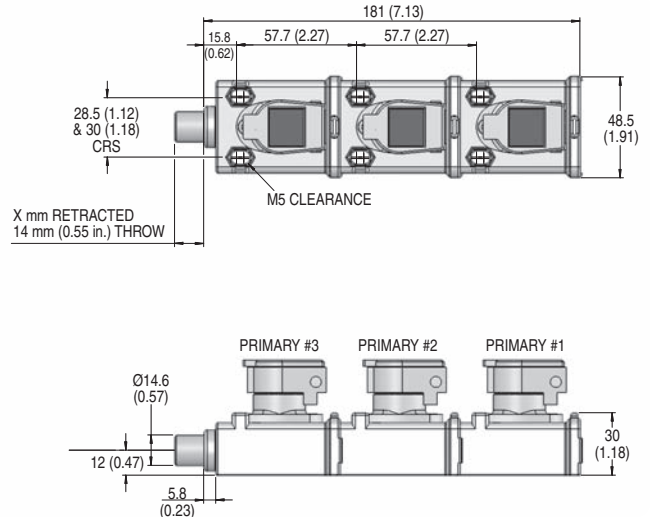
Dimensions are not intended to be used for installation purposes.

MDBLE14, 15, 16, and 17



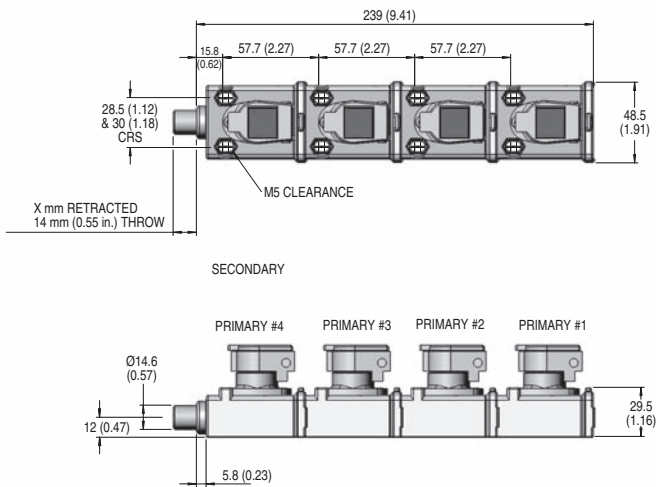
Type	X [mm (in.)]
440T-MDBLE14	0 (0)
440T-MDBLE15	3 (0.12)
440T-MDBLE16	6 (0.24)
440T-MDBLE17	13 (0.51)

MTBLE10, 11, 12, and 13



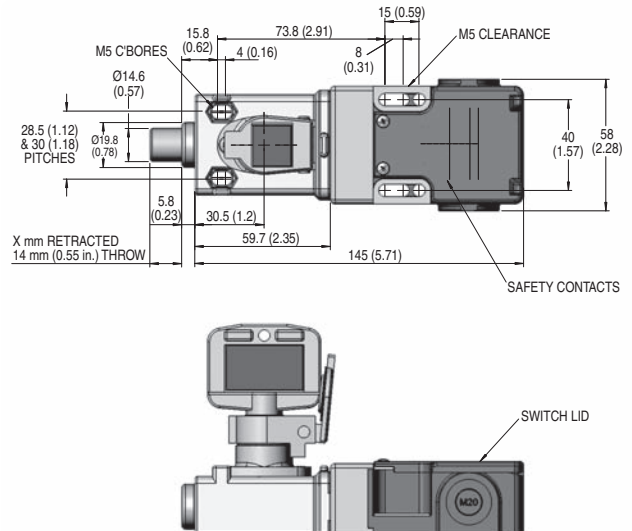
Type	X [mm (in.)]
440T-MTBLE10	0 (0)
440T-MTBLE11	3 (0.12)
440T-MTBLE12	6 (0.24)
440T-MTBLE13	13 (0.51)

MQBLE10, 11, 12, and 13



Type	X [mm (in.)]
440T-MQBLE10	0 (0)
440T-MQBLE11	3 (0.12)
440T-MQBLE12	6 (0.24)
440T-MQBLE13	13 (0.51)

MSBSE10, 11, 12, and 13



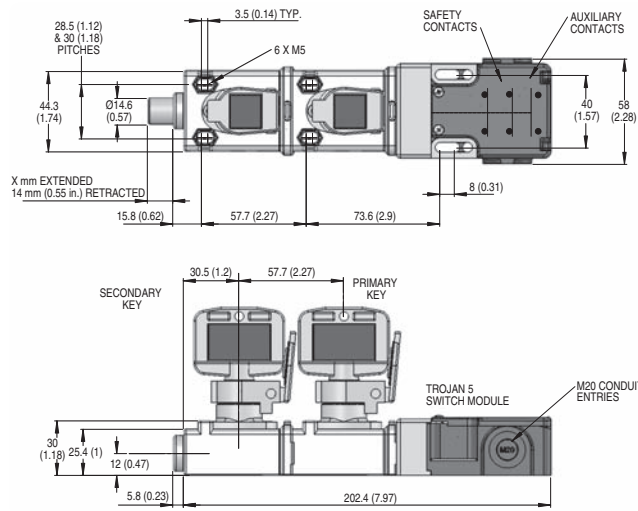
Type	X [mm (in.)]
440T-MSBSE10	0 (0)
440T-MSBSE11	3 (0.12)
440T-MSBSE12	6 (0.24)
440T-MSBSE13	13 (0.51)

3-Trapped Key Switches

Approximate Dimensions [mm (in.)] (continued)

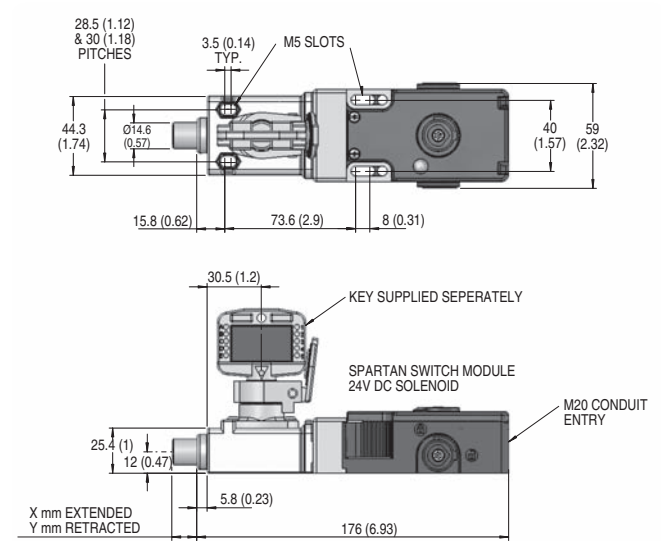
Dimensions are not intended to be used for installation purposes.

MDBSE10, 11, 12, and 13



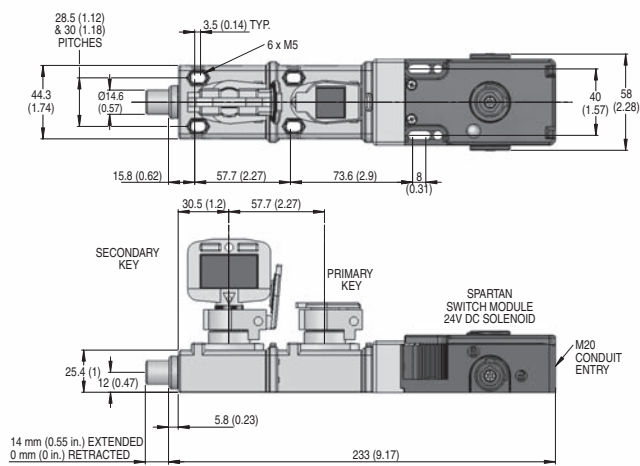
Type	X [mm (in.)]
440T-MDBSE10	0 (0)
440T-MDBSE11	3 (0.12)
440T-MDBSE12	6 (0.24)
440T-MDBSE13	13 (0.51)

MSBUE33, 34, 35, and 36

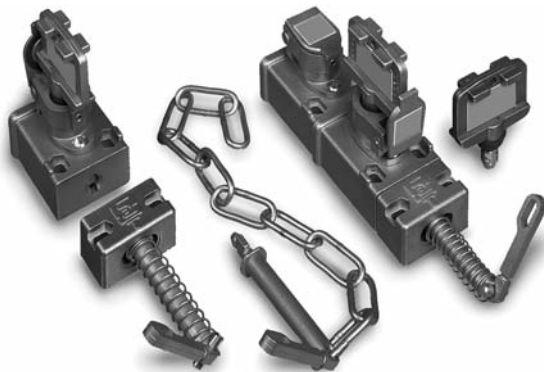


Type	X [mm (in.)]	Y [mm (in.)]
440T-MSBUE33	14 (0.55)	0 (0)
440T-MSBUE34	17 (0.67)	3 (0.12)
440T-MSBUE35	20 (0.79)	6 (0.24)
440T-MSBUE36	27 (1.06)	13 (0.51)

MDBUE14, 15, 16, and 17



3-Trapped Key
Switches



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.

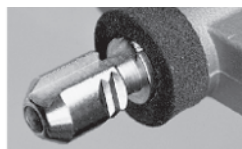
The Single-key Access Lock (SAL) and Single-key Chain Lock (SCL) are designed to be used to access hazardous areas where partial body exposure is required. If two keys are needed for partial body access, select the Dual-key Access Lock (DAL) or Dual-key Chain Lock (DCL) with both keys trapped.

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
- Direct drive operation
- Fitted with tamper resistant screws
- Stainless steel dust cap as standard
- Replaceable code barrel assembly
- Solenoid and electric versions
- Multiple key options

The Prosafe Advantage



Stainless steel construction.

Specifications

Safety Ratings	
Standards	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
Certifications	CE Marked for all applicable directives and BG; C-Tick not required
Operating Characteristics	
Operating Temperature [C (F)]	Mechanical: -40...+200 ° (-40...+392 °) Electrical: -20...+80 ° (-4...+176 °) Solenoid: -20...+60 ° (-4...+140°)
Relative Humidity	95%
Mechanical Life	100,000 operations
Physical Characteristics	
Misalignment Tolerance	±10 mm (0.39 in.)
Shear Force to Key	15.1 k•N (3398 lbs), max.
Torque to Key	14 N•m (124 lb•in), max.
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 [kg (lbs)]	SAL and SCL: 0.8 (1.8) DAL and DCL: 1.35 (3)

Product Selection - Mechanical

Type	Actuator Type	Trapped Key Condition	Cat. No.
Single key	Lever	Key trapped to release lever	440T-MSALE10*
	Chain	Key trapped to release chain	440T-MSCLE10*
Single key with padlock hasp	Extended Lever	Key trapped to release lever	440T-MSALE20*
	Lever	Key trapped to release lever	440T-MSALE11*
Dual key	Lever	Key trapped to release chain	440T-MSCLE11*
		Primary key trapped, secondary key free to release lever	440T-MDALE10*⊗
	Chain	Both keys trapped to release lever	440T-MDALE11**
		Primary key trapped, secondary key free to release chain	440T-MDCLE10*⊗
Dual key with padlock hasp	Lever	Both keys trapped to release chain	440T-MDCLE11**
		Primary key trapped, secondary key free to release lever	440T-MDALE45*⊗
Dual key with eject key	Lever	Primary key trapped, secondary spring eject key	440T-MDALJ10*⊗
	Chain		440T-MDCLJ10*⊗
Triple key	Lever	One primary trapped, two secondary keys free to release lever	440T-MTALE11*⊗⊗
	Chain	One primary trapped, two secondary keys free to release chain	440T-MTCLE11*⊗⊗

* Substitute the desired primary code for this symbol (key not included). See 3-107 for code selection.

⊗ Substitute the desired secondary code for this symbol (key included). See 3-107 for code selection.

Product Selection - Electrical

Contact Type	Type	Actuator Type	Trapped Key Condition	Cat. No.
2 N.C. & 1 N.O. break before make	Dual Key	Lever	Both keys trapped to release lever	440T-MDASE21**
			Primary key trapped, secondary key free to release lever	440T-MDASE20*⊗
		Chain	Both keys trapped to release chain	440T-MDCSE21**
			Primary key trapped, secondary key free to release chain	440T-MDCSE20*⊗

* Substitute the desired primary code for this symbol (key not included). See 3-107 for code selection.

⊗ Substitute the desired secondary code for this symbol (key included). See 3-107 for code selection.

Accessories

Description	Additional Information	Cat. No.
Stainless steel key	3-140	440T-AKEYE10*
Stainless steel replacement code barrel with dust cap		440T-ASCBE14*
Stainless steel weatherproof replacement dust cap		440T-ASFC10*
Replacement actuator type lever	—	440T-ACAD10
Replacement actuator type chain	—	440T-ACHA10
Stainless steel ejector key	—	440T-AKEYE13*

* Substitute the desired primary code for this symbol (key not included). See 3-107 for code selection.

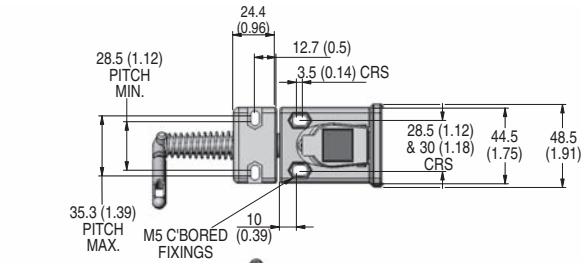
Safety Switches

Access/Chain Interlocks

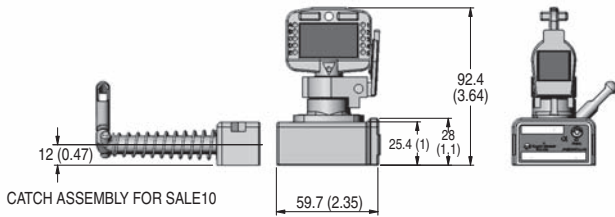
Approximate Dimensions [mm (in.)]

Dimensions not intended to be used for installation purposes.

MSALE10

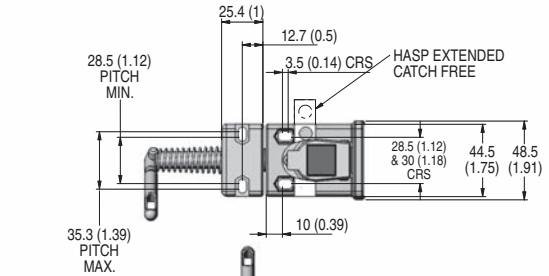


CHAIN ASSEMBLY FOR SACLE10

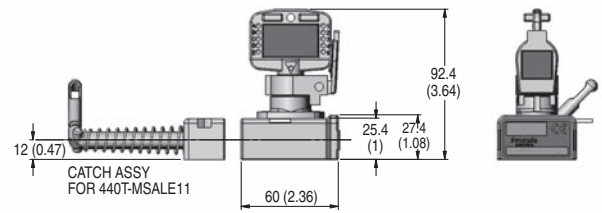


CATCH ASSEMBLY FOR SALE10

MSALE11

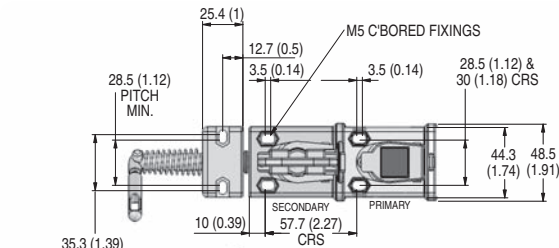


CATCH ASSY FOR 440T-MSCLE11

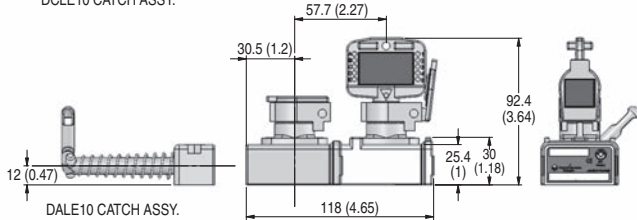


CATCH ASSY FOR 440T-MSALE11

MDALE10 and MDCLE10

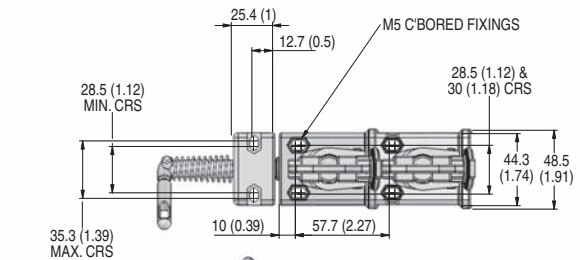


DCLE10 CATCH ASSY.

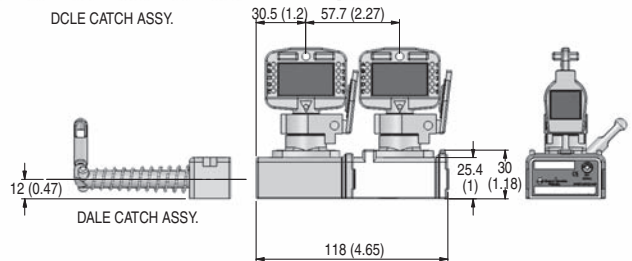


DALE10 CATCH ASSY.

MDALE11



DCLE CATCH ASSY.



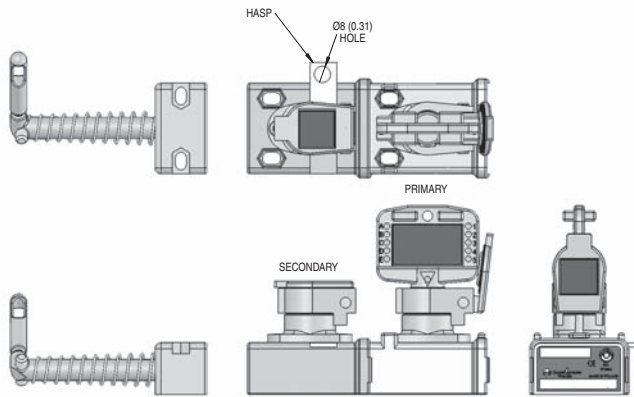
DALE CATCH ASSY.

3-Trapped Key Switches

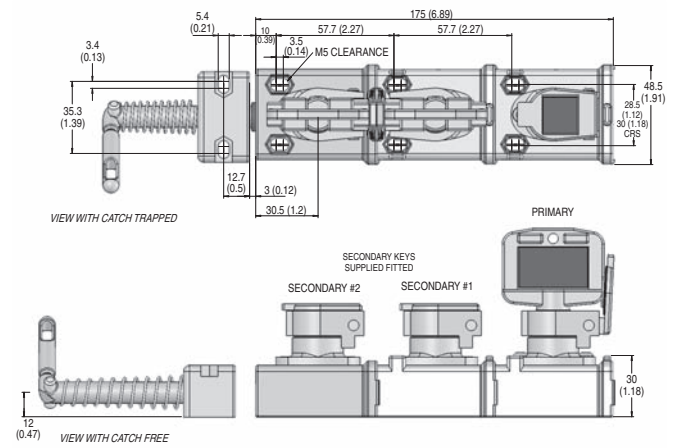
Approximate Dimensions [mm (in.)] (continued)

Dimensions not intended to be used for installation purposes.

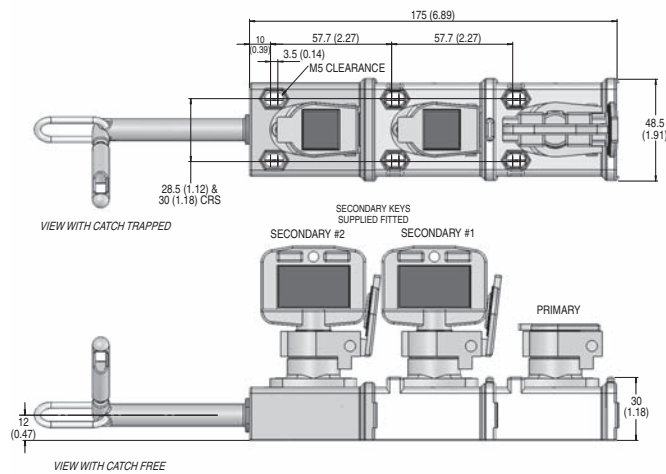
MDALE45

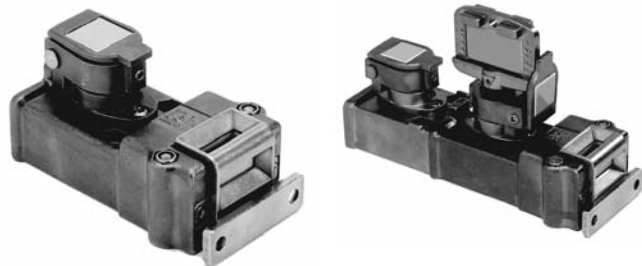


MTALE11



MTCLE11





Single

Dual

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 "two 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
- Direct drive operation
- Replaceable code barrel assembly
- Fitted with tamper resistant screws
- Weatherproof stainless steel dust cap as standard
- Multiple key options

Specifications

Safety Ratings

Standards	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
Certifications	CE Marked for all applicable directives and BG; C-Tick not required

Operating Characteristics

Operating Temperature [C (F)]	-40...+200 ° (-40...+392 °)
Mechanical Life	In excess of 100,000 operations under normal working conditions
Code Barrel Life	Tested to 100,000 operations

Environmental & Physical Characteristics

Shear Force to Key	15.1 k•N (3398 lbs), max.
Torque to Key	14 N•m (124 lb•in), max.
Relative Humidity	95%
Weight [kg (lbs)]	Single Key: 0.76 (1.68) Dual Key: 1.33 (2.93)
Ambient Temperature [C (F)]	-10...+50 ° (14...122 °)
Material	316L stainless steel
Mounting	SSL: 2 x M5 counterbored from top or 2 x M5 from underside with nuts DSS: 4 x M5 counterbored from top or 4 x M5 from underside with nuts
Holding Force, Max.	2000 N (450 lbs)

The Prosafe Advantage



Stainless steel construction.