SKORPION Trapped Key Interlocking with Key Exchange

THE SKORPION RANGE - AVAILABLE IN **STAINLESS STEEL 316** OR **DIE CAST:**

ISOLATION

ISB1

KEY EXCHANGE

SS-KE-NS5 shown above
Available with up to 10 Keys

INTERLOCKING

SS-TS

PRODUCT OVERVIEW:

The SKORPION Trapped Key System has been developed to provide extremely robust mechanical coded key safeguarding and interlocking for hazardous machinery.

The system works on the principle of releasing factory coded mechanical keys in a pre-determined sequence to ensure machine power is isolated before any access can be gained to hazardous or dangerous machinery.

After the machine control has been isolated (first key turned in the system) the key from the isolator can then be used to release other trapped keys to enable access to the guarded areas.

After release of the first key (power isolation) safeguarding can be achieved without the need for electrical wiring, this makes the system ideal for use in harsh environments.

When used in conjunction with interlock sensing they can be used to achieve up to PLe/Cat4 to ISO13849-1.

SS-HS

APPLICATION:

A trapped-key guarding system relies upon the transfer of keys between a power isolation switch (or control switch) and a locking mechanism fixed on a guard.

The essential feature of the system is that a removable key is trapped either in the guard lock, or in the power isolation switch. The lock on the guard is arranged so that the key can be released only when the guard has been closed and locked. This allows transfer of the key from the guard to the power isolation switch.

Closing the switch traps the key, so that it cannot be removed while the switch is in the ON position.

If there is more than one source of power, and therefore more than one circuit breaking element to be actuated, then a key-exchange box is necessary, to which all keys have to be transferred and locked in before the access key, which is of a different coding, can be released for transfer to the guard lock.

Where there is more than one guard, the exchange box will accommodate an equivalent number of access keys.

Where a number of operations have to be carried out in a pre-determined definite sequence, then the transferable key is locked in and exchanged for a different one at each stage.

SS-BS

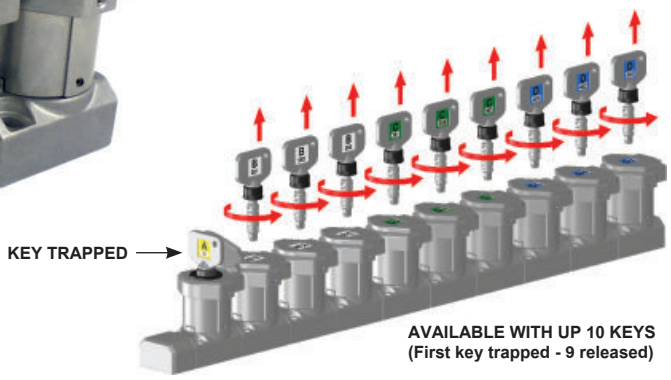
ADVANTAGES:

- No reduction of integrity due to the distance between movable guard and control system.
- High mechanical integrity, robust fixings and holdings suitable for all types of guards.
- Eliminates the need for electrical wiring to each movable guard.
- Fully Stainless Steel 316 version is suitable when the movable guard is placed in harsh or hostile environments.
- Suitable for CIP and SIP cleaning processes and can be high pressure hosed with detergents at high temperatures.
- Can be used where the movable guard requires to be removed completely.
- All keys are coded in the factory and it is virtually impossible to override the system.
- A trapped key system provides a quick yet safe and reliable access to machinery.
- Use of a trapped key system can also prevent shortcuts and enforce a logical set of procedures that need to be satisfied.
- Until the isolator key is returned to its original position within the lock, there is no way to enable the machinery to be re-started.

SKORPION Trapped Key Interlocking with Key Exchange

KEY EXCHANGE STAINLESS STEEL 316 ORDERING:

SS-KE-NS4

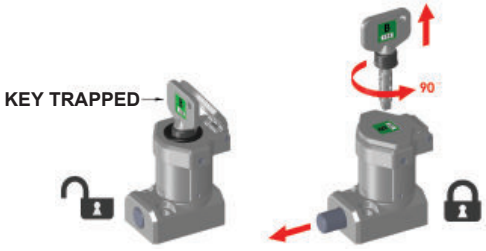


Sales Number	KEY EXCHANGE - STAINLESS STEEL 316	
SS-KE-NS2	2 Key	First key TRAPPED All remaining keys can be released non-sequentially.
SS-KE-NS3	3 Key	
SS-KE-NS4	4 Key	
SS-KE-NS5	5 Key	
SS-KE-S6	6 Key	First key TRAPPED All remaining keys are then released sequentially.
SS-KE-S7	7 Key	
SS-KE-S8	8 Key	
SS-KE-S9	9 Key	
SS-KE-S10	10 Key	

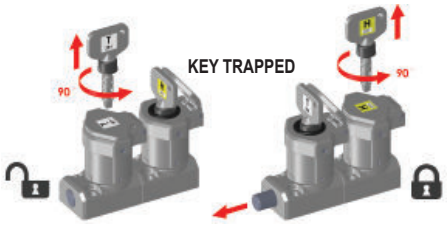
BOLT INTERLOCKS (not suitable for guard access) STAINLESS STEEL 316 ORDERING:

SS-BS

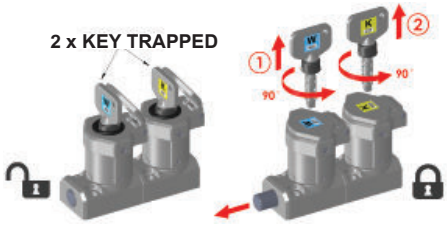
Sales Number	BOLT INTERLOCK SINGLE KEY STAINLESS STEEL 316
SS-BS	Key trapped - bolt retracted



SS-BD-11



Sales Number	BOLT INTERLOCK DUAL KEY STAINLESS STEEL 316
SS-BD-11	2 keys - 1 key trapped 1 key free - bolt retracted



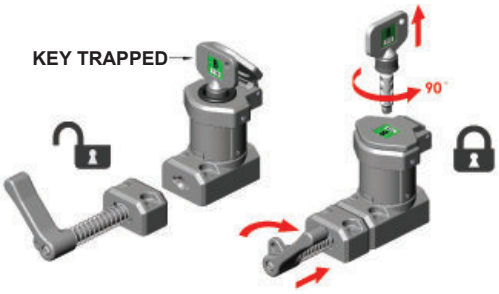
Sales Number	BOLT INTERLOCK DUAL KEY STAINLESS STEEL 316
SS-BD-20	2 keys trapped - bolt retracted

SKORPION Trapped Key Interlocking with Key Exchange

HANDLE INTERLOCKS (Single Key) STAINLESS STEEL 316 ORDERING:

SS-HS

Sales Number	HANDLE INTERLOCK SINGLE KEY STAINLESS STEEL 316
SS-HS	Key trapped - actuator unlocked (spring action handle)
SS-HS-C	Key trapped - actuator unlocked (chain fixed to handle)

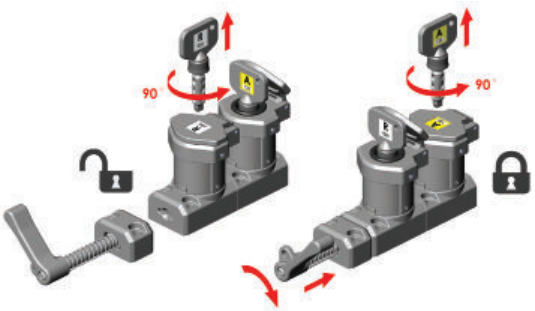


SS-HS-C

HANDLE INTERLOCKS (Dual Key) STAINLESS STEEL 316 ORDERING:

SS-HD-11

Sales Number	HANDLE INTERLOCK DUAL KEY STAINLESS STEEL 316
SS-HD-11	2 sequential keys - one key trapped one key free - actuator unlocked (spring action handle)
SS-HD-C-11	2 sequential keys - one key trapped one key free - actuator unlocked (chain fixed to handle)



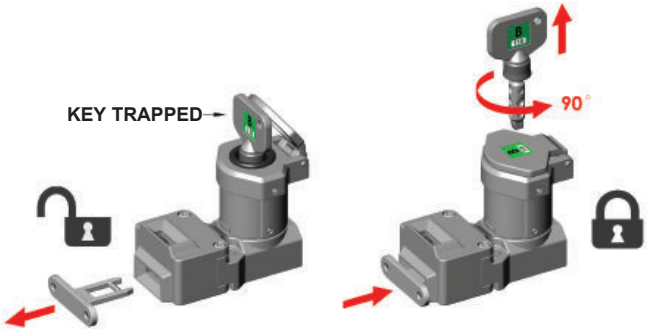
SS-HD-C-11

SKORPION Trapped Key Interlocking with Key Exchange

TONGUE INTERLOCKS (Single Key) STAINLESS STEEL 316 ORDERING:

SS-TS

***See below for Actuator options.**

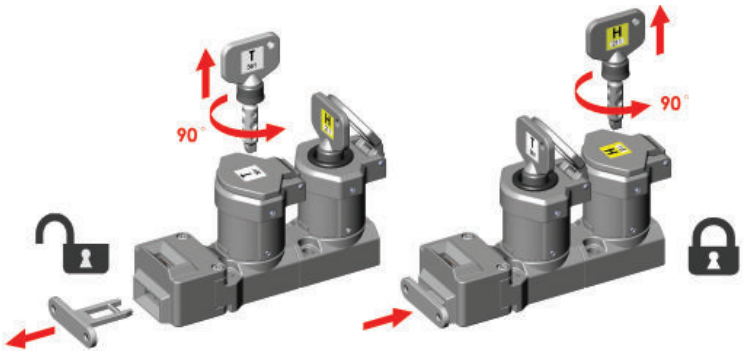


Sales Number	TONGUE INTERLOCK SINGLE KEY STAINLESS STEEL 316 **Holding Force** (ISO14119) F1 Max 3000N Fzh 2307N
SS-TS	Key trapped - actuator unlocked

TONGUE INTERLOCKS (Dual Key) STAINLESS STEEL 316 ORDERING:

SS-TD-11

***See below for Actuator options.**



Sales Number	TONGUE INTERLOCK DUAL KEY STAINLESS STEEL 316 **Holding Force** (ISO14119) F1 Max 3000N Fzh 2307N
SS-TD-11	2 sequential keys - one key trapped one key free - actuator unlocked

ACTUATORS FOR TONGUE INTERLOCK SWITCHES SELECTION CHART:

SALES NUMBER	ACTUATOR TYPE
140107	A = Standard Actuator Stainless Steel 316
140108	F = Flat Actuator Stainless Steel 316 with Plastic Cover
140110	HF = Heavy Duty Flexible Actuator Stainless Steel 316 and Die Cast
140111	HFH = Heavy Duty Flexible Actuator fully Stainless Steel 316

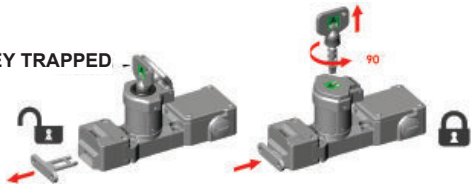
SKORPION Trapped Key Interlocking with Key Exchange

INTERLOCKING WITH CONTROL ISOLATION STAINLESS STEEL 316 ORDERING:

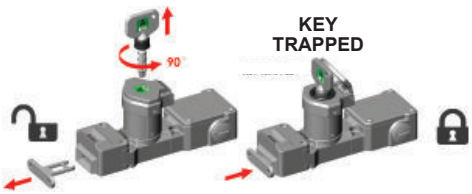
SS-TS-CB

*See below for Actuator options.

Holding Force (ISO14119) F1 Max 3000N Fzh 2307N



Sales Number	TONGUE INTERLOCK SINGLE KEY WITH CONTACT BLOCK STAINLESS STEEL 316 Key Trapped - Actuator Unlocked - NC safety Contacts Open
SS-TS-CB-22-N	Single Tongue Interlock with 2NC 2NO Contact Block - **1/2" NPT**
SS-TS-CB-31-N	Single Tongue Interlock with 3NC 1NO Contact Block - **1/2" NPT**
SS-TS-CB-22-M	Single Tongue Interlock with 2NC 2NO Contact Block - **M20**
SS-TS-CB-31-M	Single Tongue Interlock with 3NC 1NO Contact Block - **M20**

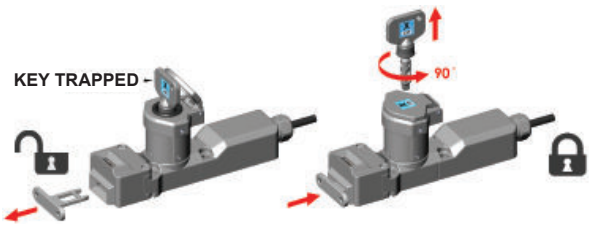


Sales Number	TONGUE INTERLOCK SINGLE KEY WITH CONTACT BLOCK STAINLESS STEEL 316 Key Free - Actuator Unlocked - NC Safety Contacts Open
SS-TSR-CB-22-N	Single Tongue Interlock with 2NC 2NO Contact Block - **1/2" NPT**
SS-TSR-CB-31-N	Single Tongue Interlock with 3NC 1NO Contact Block - **1/2" NPT**
SS-TSR-CB-22-M	Single Tongue Interlock with 2NC 2NO Contact Block - **M20**
SS-TSR-CB-31-M	Single Tongue Interlock with 3NC 1NO Contact Block - **M20**

EXPLOSION PROOF INTERLOCKING WITH CONTROL ISOLATION S/STEEL 316 ORDERING:

SS-TS-CB EX

*See below for Actuator options.



Trapped Key with ATEX EExd IIC T6 certified explosion proof contact blocks.
The explosion proof contact blocks conform to European harmonized standard EN60079-0 and EN60079-1 and can be used in European Zone 1, 2, 21, 22 environments. (Gas and Dust).
Designed for use in oil, petro-chemical, pharmaceutical, food processing and packaging applications where the potential for explosive atmospheres are present.

Exd IIC T6 (-20 ≤ Ta ≤ +60C)

Ex tb IIIC T85C (-20 ≤ Ta ≤ +60C) Db

Sales Number	TONGUE INTERLOCK SINGLE KEY WITH EXPLOSION PROOF CONTACT BLOCK STAINLESS STEEL 316 **Holding Force** (ISO14119) F1 Max 3000N Fzh 2307N
SS-TS-CB-22-EX	Single Tongue Interlock with 2NC 2NO Pre-wired EX Block
SS-TS-CB-11-EX	Single Tongue Interlock with 1NC 1NO Pre-wired EX Block

ACTUATORS FOR TONGUE INTERLOCK SWITCHES SELECTION CHART:

SALES NUMBER	ACTUATOR TYPE
140107	A = Standard Actuator Stainless Steel 316
140108	F = Flat Actuator Stainless Steel 316 with Plastic Cover
140110	HF = Heavy Duty Flexible Actuator Stainless Steel 316 and Die Cast
140111	HFH = Heavy Duty Flexible Actuator fully Stainless Steel 316

SKORPION Trapped Key Interlocking with Key Exchange

KEY CODE SELECTION & ORDERING:

IDEM offer a unique range of KEY CODE variants that number in the tens of thousands.

To assist in the process of ordering we offer a range of 48 STANDARD KEY CODES which are shown in the table below (other KEY CODES are available to the customer upon request).

Note: Different KEY FOB colours are available dependent upon the code chosen. This is a customer option to provide the end-user with an easily seen visual aid e.g. the First Key (Primary Key) could be chosen in a different colour to the colour chosen for the Released Keys - therefore easily distinguishing the Primary Key from the other keys in the system.

Please see Order Form TK1 available either from www.idemsafety.com or by contacting IDEM at sales@idemsafety.com.

KEY FOB COLOUR	YELLOW Key Fob	WHITE Key Fob
	A	B
Key Code	A101	B201
	A102	B202
	A103	B203
	A104	B204
	A105	B205
	A106	B206
	A107	B207
	A108	B208
	A109	B209
	A110	B210
	A111	B211
	A112	B212
KEY FOB COLOUR	GREEN Key Fob	BLUE Key Fob
	C	D
Key Code	C301	D401
	C302	D402
	C303	D403
	C304	D404
	C305	D405
	C306	D406
	C307	D407
	C308	D408
	C309	D409
	C310	D410
	C311	D411
	C312	D412

ORDERING:

Please see Order Form TK1 available either from www.idemsafety.com or by contacting IDEM at sales@idemsafety.com.
Tens of thousands of codes are possible. It is the responsibility of the customer to select the key code from the standard list above or contact IDEM to discuss other key code options available.

ORDER FORM TK1: (See examples on next two pages)

SKORPION TRAPPED KEY ORDER FORM/TEMPLATE - TK1 (for Example 2)					
ORDER	ITEM 1	ITEM 2	ITEM 3	ITEM 4	ITEM 5
Part Number					
	CODE	CODE	CODE	CODE	CODE
Key Fob Code					
Key Status					

ACTUATOR TYPES				
	140107 (A Standard)	140108 (F Flat)	140110 (HF Flexible)	140111 (HFH S/Steel Flexible)
Quantity				

SKORPION Trapped Key Interlocking - ISOLATION

CONTROL SWITCH WITH SOLENOID RELEASE UNIT - **ISB4-SR:**

ISB4

Request Button version also available

The ISB4-SR is a trapped key operated control switch designed to turn off machine safety circuits.

The key is trapped when the main safety contacts are closed (machine able to run) and can only be released when the internal solenoid in the ISB4-SR is energised.

This then enables the key to be turned and released and the safety contacts opened. The key can then be used to release other devices in a trapped key system.

It can be used in conjunction with safety delay timers to allow a delay time before the solenoid is energised therefore allowing for any machine run down prior to releasing of the key.

Versions with integral request button are available.

All isolation available with Stainless Steel 316 or Mirror Polished Die Cast Metal Barrel

ISB4-SR STAINLESS STEEL 316			
Sales Number	**Contact Block**	**Solenoid Voltage**	**Conduit Entry**
SS-ISB4-SR-22	2NC 2NO (240V 3A max)	24V ac/dc	M20
SS-ISB4-SR-31	3NC 1NO (240V 3A max)	24V ac/dc	M20

ISB4-SR DIE-CAST METAL (Mirror Finish)			
Sales Number	**Contact Block**	**Solenoid Voltage**	**Conduit Entry**
M-ISB4-SR-22	2NC 2NO (240V 3A max)	24V ac/dc	M20
M-ISB4-SR-31	3NC 1NO (240V 3A max)	24V ac/dc	M20

ISB4-SR MODELS WITH REQUEST BUTTON - NC/NO Changeover

ISB4-SR STAINLESS STEEL 316			
Sales Number	**Contact Block**	**Solenoid Voltage**	**Conduit Entry**
SS-ISB4-SR-22-PB	2NC 2NO (240V 3A max)	24V ac/dc	M20
SS-ISB4-SR-31-PB	3NC 1NO (240V 3A max)	24V ac/dc	M20

ISB4-SR DIE-CAST METAL (Mirror Finish)			
Sales Number	**Contact Block**	**Solenoid Voltage**	**Conduit Entry**
M-ISB4-SR-22-PB	2NC 2NO (240V 3A max)	24V ac/dc	M20
M-ISB4-SR-31-PB	3NC 1NO (240V 3A max)	24V ac/dc	M20

SKORPION Trapped Key Interlocking - ISOLATION

ISOLATION SWITCH WITH SOLENOID CONTROL (PANEL MOUNT) - **ISP-SKR:**

ISP-SKR

All isolation available with Stainless Steel 316 or Mirror Polished Die Cast Metal Barrel

Fitted with RED/GREEN status lamps.

In addition to the 4 pole main isolator contacts, all models of the isolation switch ISP-SKR are supplied with:

RED lamp wired to indicate solenoid energized.

GREEN lamp for end user designation.

2NC 1NO monitoring contact block.

Solenoid energised to release key .

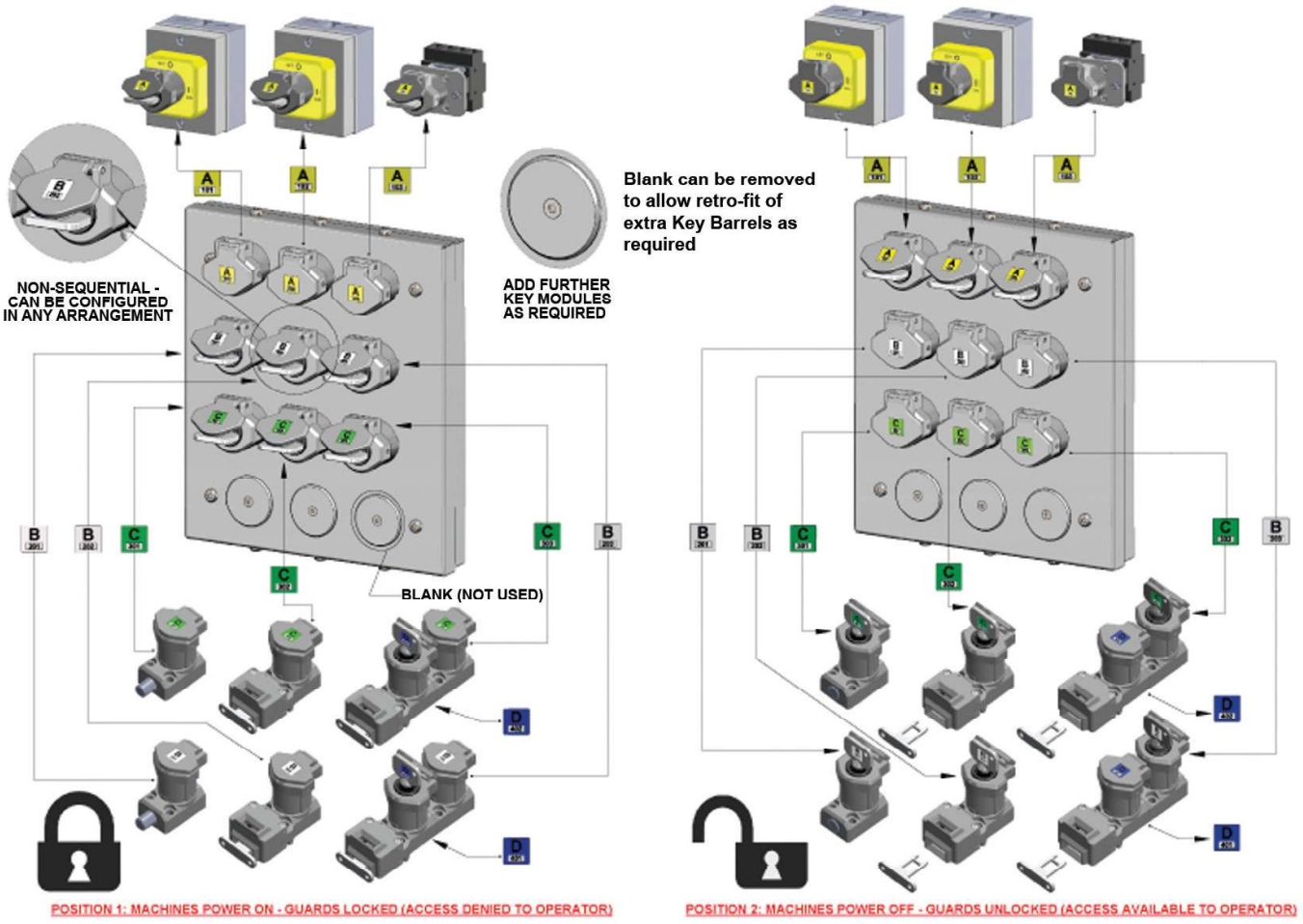
Power "ON" = Key TRAPPED. Power "OFF" = Key can be RELEASED

ISP-SKR STAINLESS STEEL 316		
Sales Number	**ISOLATION SWITCH PANEL MOUNT SOLENOID KEY RELEASE**	
	RATING	**SOLENOID VOLTAGE**
SS-ISP-SKR-25	25A 690V 4 pole	24V ac/dc
SS-ISP-SKR-40	40A 690V 4 pole	24V ac/dc
SS-ISP-SKR-63	63A 690V 4 pole	24V ac/dc

ISP-SKR DIE CAST METAL (Mirror Finish)		
Sales Number	**ISOLATION SWITCH PANEL MOUNT SOLENOID KEY RELEASE**	
	RATING	**SOLENOID VOLTAGE**
M-ISP-SKR-25	25A 690V 4 pole	24V ac/dc
M-ISP-SKR-40	40A 690V 4 pole	24V ac/dc
M-ISP-SKR-63	63A 690V 4 pole	24V ac/dc

SKORPION Trapped Key Interlocking - HANDLE INTERLOCKS

MULTI KEY EXCHANGE SYSTEM 12 Key System Example with Blanks



MULTI KEY EXCHANGE SYSTEM ORDER EXAMPLE

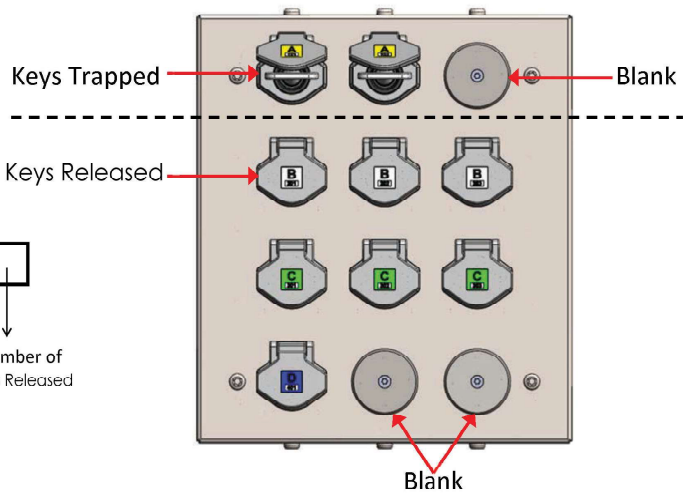
MX Multiple Key Exchange System Ordering Example

For an initial Stainless Steel Box Mounted system of 2 keys trapped and 7 keys released the sales number would be: **SS-MX-B-12-2 X 7***.

This would have 1 blank on the first row and 2 blanks on row four (see image below). The blanks can be utilised later as your system grows.

***SS** or **M** (Stainless Steel or Die Cast). **MX-P** or **MX-B** (Panel or Box). Total Keys **20, 12** or **8.** **4x10** = No. of keys trapped x released.

Example: **SS-MX-B-12-2x7**



Multiple Key Exchange – Part number

□-MX-□-□-□x□

Stainless Steel:	(Panel Mount)	TYPE	Number of Keys Trapped	Number of Keys Released	
Die Cast:	(Box Mount)	20			
SS	P	12			
M	B	8			

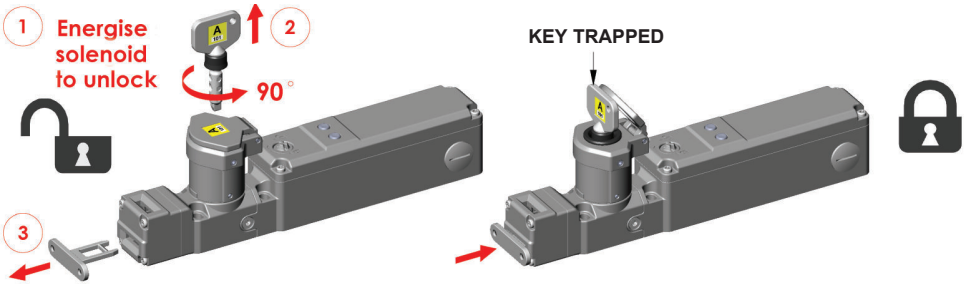
SKORPION Trapped Key Interlocking with Key Exchange

TONGUE INTERLOCK with SOLENOID RELEASE (Single Key) with ACTUATOR

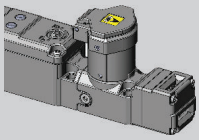
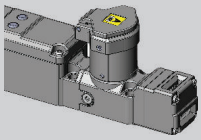
SS-TS-SR

***See below for Actuator options.**

All available in Stainless Steel 316 or Mirror Polished Die Cast Metal



SS-TS-SR shown with Push Button and Illuminated Emergency Stop Button.

	With MANUAL RELEASE	Without MANUAL RELEASE
		

STAINLESS STEEL 316 MODEL	CONTACT BLOCK	CONDUIT ENTRY	SALES NUMBER	SALES NUMBER
SS-TS-SR	2NC 2NO	M20	815001	815301
SS-TS-SR	3NC 1NO	M20	815002	815302

DIE-CAST METAL MODEL	CONTACT BLOCK	CONDUIT ENTRY	SALES NUMBER	SALES NUMBER
M-TS-SR	2NC 2NO	M20	820001	820301
M-TS-SR	3NC 1NO	M20	820002	820302

PUSH BUTTON & ILLUMINATED STOP (Fitted to Lid)
Momentary Request Push Button 1 x Changeover Contact Common Closed/Open - Add PB to Sales Number
2NC Illuminated Red E-Stop (twist to reset, mushroom head, plug in spade terminals) - Add ES to Sales Number
Momentary Request Push Button and Illuminated Red E-Stop - Add PB-ES to Sales Number

SPECIFICATIONS	
Supply/Solenoid Voltage	24V ac/dc
Holding Force	F1 max. 3000N FzH 2307N
Enclosure Protection	IP67
Operating Temperature	-25C to +40C
Conduit Exit	M20
Fixing	4 x M6

Operating Principle

The TS-SR is a trapped key operated tongue interlock switch designed to hold closed machine guards.

When the actuator tongue is inserted into the switch (guard closed) the key can be rotated and trapped and the main safety contacts are closed (machine able to run).

The actuator tongue can only be released when the internal solenoid in the TS-SR is energised. This then enables the key to be turned and released, the safety contacts opened and the actuator tongue removed.

The key can then be used to release other devices in a trapped key system.

It can be used in conjunction with safety delay timers to allow a delay time before the solenoid is energised therefore allowing for machine run down time prior to releasing of the key and actuator tongue.

ACTUATORS FOR TONGUE INTERLOCK SWITCHES SELECTION CHART:

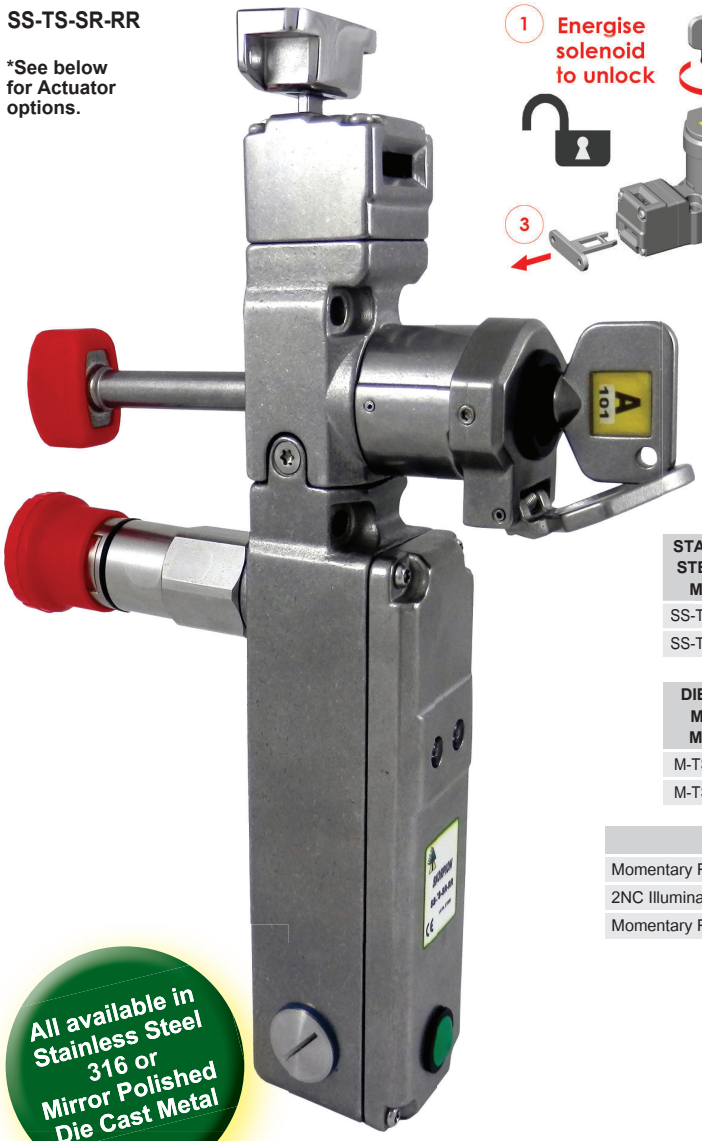
SALES NUMBER	ACTUATOR TYPE
140107	A = Standard Actuator Stainless Steel 316
140108	F = Flat Actuator Stainless Steel 316 with Plastic Cover
140110	HF = Heavy Duty Flexible Actuator Stainless Steel 316 and Die Cast
140111	HFH = Heavy Duty Flexible Actuator fully Stainless Steel 316

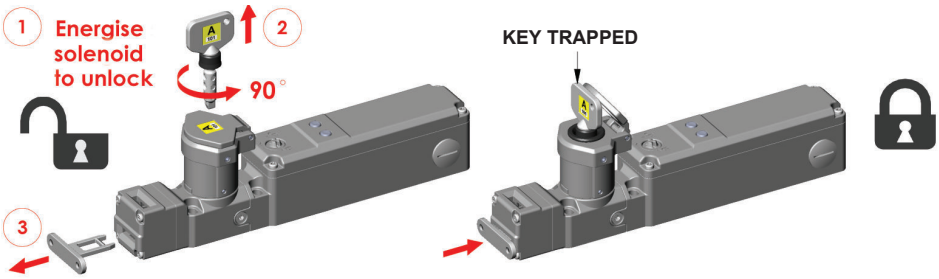
SKORPION Trapped Key Interlocking with Key Exchange

TONGUE INTERLOCK with SOLENOID RELEASE (Single Key) with REAR RELEASE ESCAPE

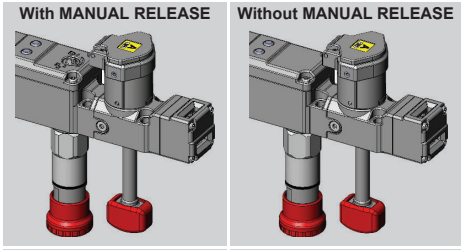
SS-TS-SR-RR

***See below for Actuator options.**





All available in Stainless Steel 316 or Mirror Polished Die Cast Metal



STAINLESS STEEL 316 MODEL	CONTACT BLOCK	CONDUIT ENTRY	SALES NUMBER	SALES NUMBER
SS-TS-SR-RR	2NC 2NO	M20	815051	815351
SS-TS-SR-RR	3NC 1NO	M20	815052	815352

DIE CAST METAL MODEL	CONTACT BLOCK	CONDUIT ENTRY	SALES NUMBER	SALES NUMBER
M-TS-SR-RR	2NC 2NO	M20	820051	820351
M-TS-SR-RR	3NC 1NO	M20	820052	820352

PUSH BUTTON & ILLUMINATED STOP (Fitted to Lid)
Momentary Request Push Button 1 x Changeover Contact Common Closed/Open - Add PB to Sales Number
2NC Illuminated Red E-Stop (twist to reset, mushroom head, plug in spade terminals) - Add ES to Sales Number
Momentary Request Push Button and Illuminated Red E-Stop - Add PB-ES to Sales Number

SPECIFICATIONS	
Supply/Solenoid Voltage	24V ac/dc
Holding Force	F1 max. 3000N FzH 2307N
Enclosure Protection	IP67
Operating Temperature	-25C to +40C
Conduit Exit	M20
Fixing	4 x M6

Operating Principle

The TS-SR-RR is the same as the TS-SR apart from it provides a manual means of escape from inside the guarded area. The red button and red knob can be used to release the lock and key simultaneously.

The red button and red knob are fitted to protrude through the guard frame to enable access to the switch from inside the hazardous area.

When the actuator tongue is inserted into the switch (guard closed) the key can be rotated and trapped and the main safety contacts are closed (machine able to run).

The actuator tongue can only be released when the internal solenoid in the TS-SR-RR is energised. This then enables the key to be turned and released, the safety contacts opened and the actuator tongue removed.

The key can then be used to release other devices in a trapped key system.

It can be used in conjunction with safety delay timers to allow a delay time before the solenoid is energised therefore allowing for machine run down time prior to releasing of the key and actuator tongue.

ACTUATORS FOR TONGUE INTERLOCK SWITCHES SELECTION CHART:

SALES NUMBER	ACTUATOR TYPE
140107	A = Standard Actuator Stainless Steel 316
140108	F = Flat Actuator Stainless Steel 316 with Plastic Cover
140110	HF = Heavy Duty Flexible Actuator Stainless Steel 316 and Die Cast
140111	HFH = Heavy Duty Flexible Actuator fully Stainless Steel 316