# IDEM SKORPION Rotary Trapped Key

**800000-CS-A103**

**800001-A103**

**800003-A103**

**800002-A103**

**800004-A104**

**800005-A103**

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

The SKORPION system works on the principle of releasing factory coded mechanical keys in a predetermined sequence to ensure that machine power is isolated before any access can be gained to a dangerous machine or specific hazard.

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

With this system, safeguarding can be achieved without the need for extensive electrical wiring. This makes the system ideal for use in harsh environments.

When the control switch is used in conjuntion with a safety relay/safety controller, the system can be used to achieve up to PLe/Cat 3.

## Features

- No reduction of integrity due to the distance between movable guard and control system.
- High mechanical integrity with robust mountings suitable for all types of guards.
- Eliminates the need for electrical wiring to each movable guard.
- All keys are coded at the factory
- It is virtually impossible to override the system.
- Provides for quick yet safe and reliable access to machinery.
- Can prevent shortcuts and enforce a logical set of procedures.
- Until the control switch key is returned to its original position within the lock, there is no way to enable the machinery to be re-started.

## How a Trapped Key System Works

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

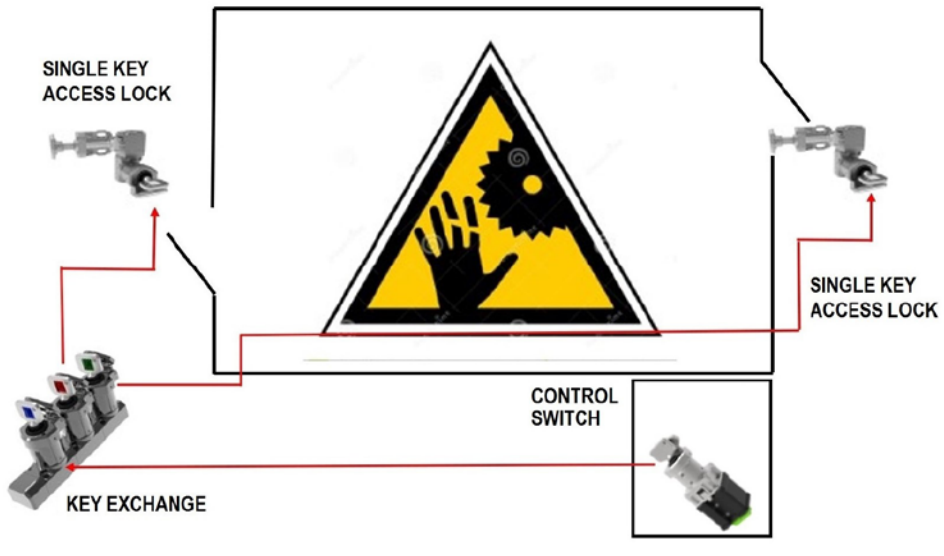
The essential feature of the system is that a removable key is literally trapped either in the guard lock or in the control switch. The lock on the guard is arranged so that the key can be released only when the guard has been closed and locked. This allows transfer of the key from the guard to the control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

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

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 sequence, then the transferable key is locked in and exchanged for a different one at each stage.

## Typical trapped key system with key exchange



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## How to select a trapped key system

You will need to determine four things in order to select the correct trapped key system for your application:

1) Do you need a solenoid or a non-solenoid trapped key control switch?
2) How many doors or gates do you need to protect.
3) Do you need full-body or partial-body access?
4) Select a key code

## FIRST

**Determine whether you need a solenoid or a non-solenoid trapped key control switch by asking, "Does the machine require time to come to a complete stop?"**

If YES, then you need a solenoid trapped key control switch.

You'll use one of the following:
800000-CS-SKR-A101
800000-CS-SKR-A102
800000-CS-SKR-A103
800000-CS-SKR-A104
800000-CS-SKR-A105

If NO, then you need a non-solenoid trapped key control switch.

You'll use one of the following:
800000-CS-A101
800000-CS-A102
800000-CS-A103
800000-CS-A104
800000-CS-A105

### Pro Tip:

The last four charaters are the key code. All components in your system should have the same key code.

If multiple machines will be installed within the same vicinity, then a different key code should be used.

## THEN

**Determine how many doors or gates you will need to protect in your system. Systems are available to protect up to three doors/gates.**

*I need to protect...*

☐ **One door/gate** ☐ **Two doors/gates** ☐ **Three doors/gates**

*Also ask...*

**Can you step fully into the guard and close the door or gate?**

If YES, then you need a full-body access system.

If NO, then you need a partial body access system.

## *Now use the following table to select the correct door/gate access for your application:*

| | One Door/Gate | | Two Doors/Gates | | Three Doors/ Gates |
|---|---|---|---|---|---|
| *Key Code* | *Full Body* | *Partial Body* | *Full Body* | *Partial Body* | *Full Body* |
| *A101* | – | 800001-A101 | – | – | – |
| *A102* | – | 800001-A102 | – | – | – |
| *A103* | 800003-A103 | 800001-A103 | 800004-A103 | 800002-A103 | 800005-A103 |
| *A104* | 800003-A104 | 800001-A104 | 800004-A104 | 800002-A104 | 800005-A104 |
| *A105* | 800003-A105 | 800001-A105 | 800004-A105 | 800002-A105 | 800005-A105 |

# IDEM SKORPION Rotary Trapped Key Control Switch

## Control Switch Without Solenoid

Used to immediately turn off machine control circuits

800000-CS-A102

## Features

- No solenoid
- 4 normally open (NO) contacts
- 2 normally closed (NC) contacts
- Die-cast aluminum alloy

**Control Switch Without Solenoid Selection Guide**

| Part Number | Price | Description | Key Code | Drawing |
|---|---|---|---|---|
| 800000-CS-A101 | $05n#3: | IDEM SKORPION Series control switch and key | A101 | PDF |
| 800000-CS-A102 | $05n#4: | IDEM SKORPION Series control switch and key | A102 | PDF |
| 800000-CS-A103 | $05n#5: | IDEM SKORPION Series control switch and key | A103 | PDF |
| 800000-CS-A104 | $05n#6: | IDEM SKORPION Series control switch and key | A104 | PDF |
| 800000-CS-A105 | $05n#7: | IDEM SKORPION Series control switch and key | A105 | PDF |

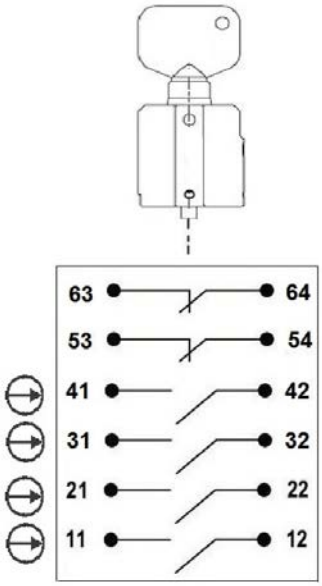
**IDEM SKORPION Rotary Trapped Key Control Switches General Specifications**

| | |
|---|---|
| Mechanical Life ($B10_d$) | 1,000,000 cycles |
| Electrical Output Contacts | Rated 240V 3A (A300) |
| Temperature | -20 C to 40 C [-4 F to 104 F] |
| Wire Size | 16-28 AWG |
| Terminal Torque | 6 lb•in (0.7 N•m) |
| Ingress Protection | IP50 (IP51 with 800050 enclosure) |
| Weight | 2.5 lb [1.13 kg] |
| Standards | UL60947-5-1, ISO14119, PD/ISO/TS 19837 |
| Agency Approvals | UL and CE |

## Connection Diagram

*Machine Able to Run Condition:*
- Key inserted and turned to trapped position
- 11/12, 21/22, 31/32, 41,42 are closed (control contacts)
- 53/54, 63,64 are open (auxiliary contacts)

*Machine In Safe Condition:*
- Turning the key will cause the following to occur
- 11/12, 21/22, 31/32, 41/42 will open (control contacts)
- 53/54, 63/64 will close (auxiliary contacts)
- Key can be removed



# IDEM SKORPION Rotary Trapped Key Control Switch Enclosure

## Enclosure for Control Switch

IDEM provides an optional polycarbonate enclosure for all of its control switches.

- IP51 with control switch installed
- Pre-drilled holes for convenient installation

800050

**IDEM SKORPION Enclosure Selection Guide**

| Part Number | Price | Description | Material | For use with | Weight | Drawing |
|---|---|---|---|---|---|---|
| 800050 | $5n#u: | Control switch enclosure | Polycarbonate | 800000-x control switches | 0.8 lb [0.36 kg] | PDF |


**800050 with 800000-CS-SKR-A104 mounted inside.**

# IDEM SKORPION Rotary Trapped Key Gate Interlocks

A complete trap key system includes the control switch as well as a gate interlock system. Depending on the number and type of entries being protected, your system will require certain specific components.

We have made system selection simple by offering various packages based on different system architectures. The tables below will help you select the correct interlock kit for your application.

Note that the use of a control switch is required with any of these interlock kits.

## Features

- Die-cast aluminum alloy
- Interlocks are suitable for CIP and SIP cleaning processes and can be high-pressure hosed with detergents at high temperatures.
- High mechanical integrity with robust mountings suitable for all types of guards.
- Eliminates the need for electrical wiring to each movable guard.
- All keys are coded at the factory
- Can prevent shortcuts and enforce a logical set of procedures.
- 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.

**IDEM SKORPION Trapped Key Gate Interlock System Selection Guide**

| Part Number | Price | Access Type | Number of Doors/Gates | Key Exchange | Weight | Drawing |
|---|---|---|---|---|---|---|
| *Partial Body, 1 Door/Gate* | | | | | | |
| 800001-A101 | $05n#d: | Partial body | 1 | None | 3.15 lb [1.43 kg] | PDF |
| 800001-A102 | $05n#e: | Partial body | 1 | None | 3.15 lb [1.43 kg] | PDF |
| 800001-A103 | $;05n#f: | Partial body | 1 | None | 3.15 lb [1.43 kg] | PDF |
| 800001-A104 | $05n#g: | Partial body | 1 | None | 3.15 lb [1.43 kg] | PDF |
| 800001-A105 | $05n#h: | Partial body | 1 | None | 3.15 lb [1.43 kg] | PDF |
| *Partial Body, 2 Doors/Gates* | | | | | | |
| 800002-A103 | $;-005n#i: | Partial body | 2 | Yes | 13.15 lb [5.96 kg] | PDF |
| 800002-A104 | $;-005n#j: | Partial body | 2 | Yes | 13.15 lb [5.96 kg] | PDF |
| 800002-A105 | $;005n#k: | Partial body | 2 | Yes | 13.15 lb [5.96 kg] | PDF |
| *Whole Body, 1 Door/Gate* | | | | | | |
| 800003-A103 | $-05n#l: | Whole body | 1 | None | 5.05 lb [2.29 kg] | PDF |
| 800003-A104 | $05n#n: | Whole body | 1 | None | 5.05 lb [2.29 kg] | PDF |
| 800003-A105 | $05n#o: | Whole body | 1 | None | 5.05 lb [2.29 kg] | PDF |
| *Whole Body, 2 Doors/Gates* | | | | | | |
| 800004-A103 | $;005n#p: | Whole body | 2 | Yes | 16.75 lb [7.60 kg] | PDF |
| 800004-A104 | $;005n#q: | Whole body | 2 | Yes | 16.75 lb [7.60 kg] | PDF |
| 800004-A105 | $;005n#s: | Whole body | 2 | Yes | 16.75 lb [7.60 kg] | PDF |
| *Whole Body, 3 Doors/Gates* | | | | | | |
| 800005-A103 | $;;005n#t: | Whole body | 3 | Yes | 23.35 lb [10.59 kg] | PDF |
| 800005-A104 | $;005n#v: | Whole body | 3 | Yes | 23.35 lb [10.59 kg] | PDF |
| 800005-A105 | $;005n#x: | Whole body | 3 | Yes | 23.35 lb [10.59 kg] | PDF |

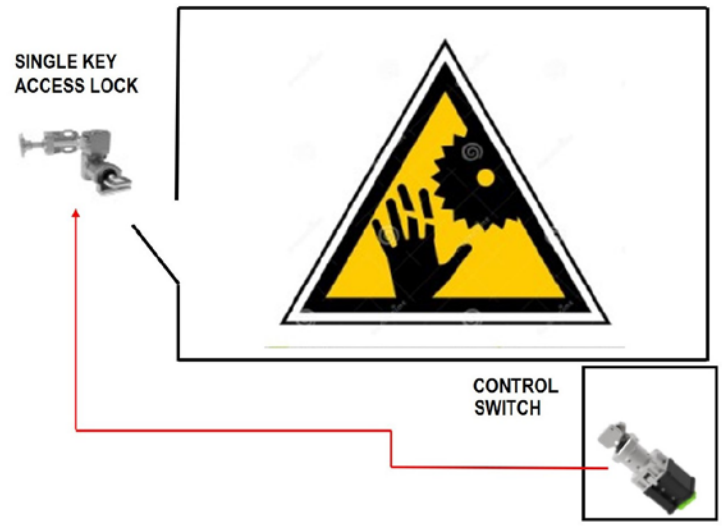
** A control switch with the same key code (the last four characters of the part number) is required.*

**IDEM SKORPION Rotary Trapped Key Gate Interlocks General Specifications**

| | |
|---|---|
| *Mechanical Life ($B10_d$)* | 1,000,000 cycles |
| *Holding Force* | 3000N [674.4 lbf] |
| *Temperature* | -20 C to 40 C [-4 F to 104 F] |
| *Mounting Specifications* | M6 screws (not supplied) should be tightened to 2 N•m [1.5 lb•ft] |
| *Standards* | ISO14119, PD/ISO/TS 19837 |
| *Agency Approvals* | CE |

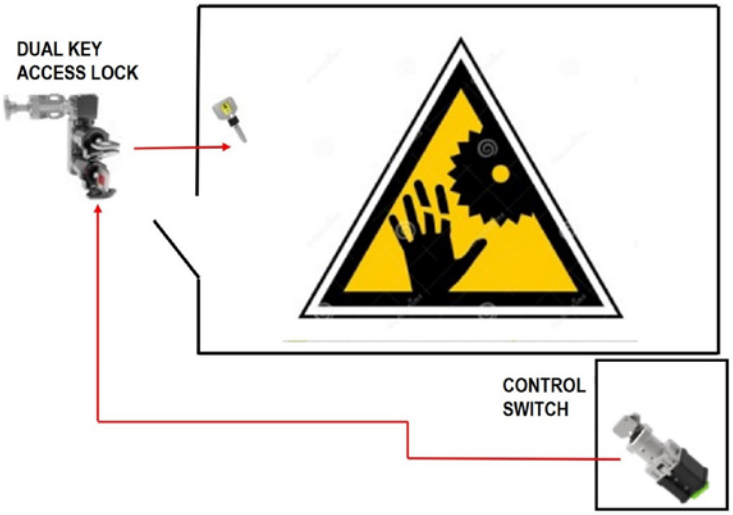
# IDEM SKORPION Rotary Trapped Key

## Examples of trapped key systems




| One Door/Gate With Only Partial Body Access | |
|---|---|
| *Required Components* | |
| *If machine DOES NOT have run-down time* | *If machine DOES have run-down time* |
| (1) 800000-CS-A101 | (1) 800000-CS-SKR-A101 |
| (1) 800001-A101 | (1) 800001-A101 |

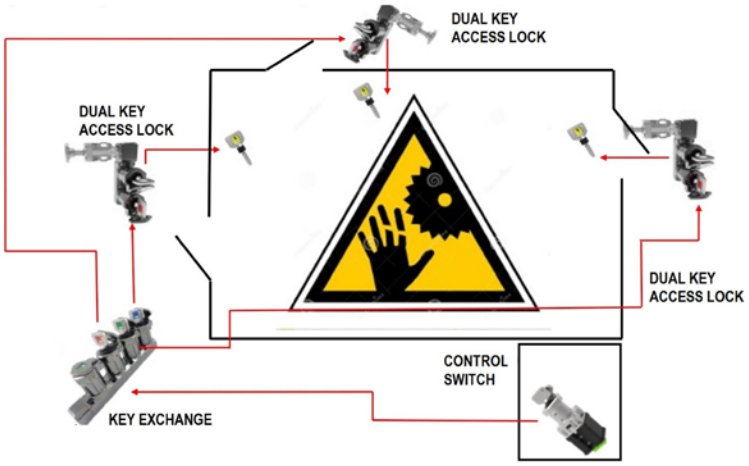
***NOTE:***
***In order to avoid cross-controlling when multiple machines are in close proximity, A101 can be replaced with A102, A103, A104 or A105.***




| One Door/Gate With Whole Body Access | |
|---|---|
| *Required Components* | |
| *If machine DOES NOT have run-down time* | *If machine DOES have run-down time* |
| (1) 800000-CS-A103 | (1) 800000-CS-SKR-A103 |
| (1) 800003-A103 | (1) 800003-A103 |

***NOTE: In order to avoid cross-controlling when multiple machines are in close proximity, A103 can be replaced with A104 or A105.***

***If whole body access is allowed, then the operator should remove a key from the access lock and retain the key while inside to prevent someone else from shutting the door and turning on the machine.***




| Three Doors/Gates With Whole Body Access | |
|---|---|
| *Required Components* | |
| *If machine DOES NOT have run-down time* | *If machine DOES have run-down time* |
| (1) 800000-CS-A103 | (1) 800000-CS-SKR-A103 |
| (1) 800005-A103 | (1) 800005-A103 |

***NOTE: In order to avoid cross-controlling when multiple machines are in close proximity, A103 can be replaced with A104 or A105.***

***If whole body access is allowed, then the operator should remove a key from the access lock and retain the key while inside to prevent someone else from shutting the door and turning on the machine.***

# Safety Products

*Warning: Safety products sold by AutomationDirect are Safety components only. The purchaser/installer is solely responsible for the application of these components and ensuring all necessary steps have been taken to assure each application and use meets all performance and applicable safety requirements and/or local, national and/or international safety codes as required by the application. AutomationDirect cannot certify that our products, used solely or in conjunction with other AutomationDirect or other vendors' products, will assure safety for any application. Any person using or applying any products sold by AutomationDirect is responsible for learning the safety requirements for their individual application and applying them, and therefore assumes all risks, and accepts full and complete responsibility, for the selection and suitability of the product for their respective application.*

*AutomationDirect does not provide design or consulting services, and cannot advise whether any specific application or use of our products would ensure compliance with the safety requirements for any application.*