

Interlock Switches Interlock Switches with Solenoid

# HS6B HS6E



Compact with three poles of contacts. (HS6B)



Small interlock switch with five poles and solenoid. (HS6E)



• See website for details on approvals and standards.

Model

HS6B

HS6E

Features

Without

Solenoid

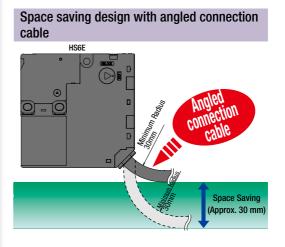
With

Solenoid

Page

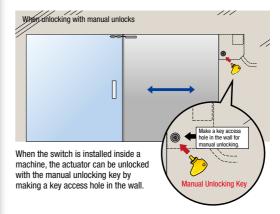
E-007

E-011

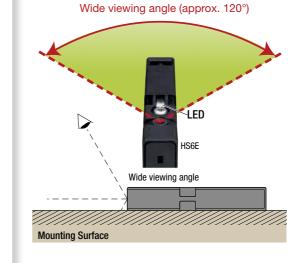


## Manual Unlocking Possible from Three Directions

The actuator can be unlocked manually with manual unlocks on either sides of the switch body (HS6E)



## Optically enhanced lens provides for wide viewing angle for power indicator



E-005



#### **Application Example**

Contributes to downsizing of semiconductor manufacturing equipment. Thinnest safety door switches on the market.

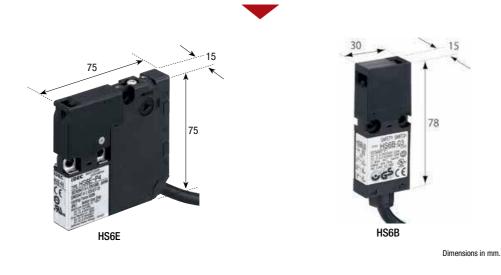
#### Downsizing equipment used inside clean rooms

As clean rooms cannot be easily expanded, the demand for downsizing of equipment is high to utilize limited space. However, even if downsizing is mechanically possible, the size of each part becomes a bottleneck and equipment cannot be made smaller in many cases.

For example, when using parts that comply with SEMI standards, by considering safety, it is difficult to find the appropriate size for parts and end up wasting space. Many of the semiconductor manufacturing equipment manufacturers most likely want to use small parts.



Thinnest door lock switches in its class expands flexibility in design



Download catalogs and CAD from http://eu.idec.com/downloads

Safety Products

APEM Switches &

Pilot Lights Control Boxes Emergency Stop Switches

Safety Products

Enabling Switches

Explosion Proof Terminal Blocks

Relays & Sockets

Circuit Protectors

Power Supplies

LED Illumination

Operator Interfaces

Sensors

AUTO-ID

Interlock Switches Non-contact Interlock Switches Safety Laser Scanners Safety Light Curtains Safety Modules

HS6B HS6E HS5D HS5L HS1L

HS1L Actuators for HS1/HS5/HS6 Actuators/ Padlock Hasp

E-006



# Safety Products

APEM

Switches &

Control Boxes

Non-contact Interlock Switches

Safety Lase Scanners Safety Light Curtains Safety Modules

HS6E

HS5D HS5L HS11 Actuators for HS1/HS5/HS6 Actuators/ Padlock Hasp

E-007

## HS6B Subminiature Interlock Switches

#### Compact interlock switch with three poles of contacts.

- Compact size:  $30 \times 15 \times 78$  mm
- · Dual contacts and monitor contacts achieve the highest safety category (ISO 13849-1, EN 954-1)
- Two actuator entry slots provide flexibility for installation options.
- Integral cable design minimizes wiring, preventing wiring mistakes.
- . Can be mounted in two directions.
- Pilot Lights • Degree of protection (contacts): IP67 (IEC 60529)
  - Housing allows drainage.
- Emergency • NC contacts are direct opening action (IEC/EN 60947-5-1). Stop Switches
  - · Proprietary actuators prevent unauthorized opening of the contacts Enabling Switches (IS014119, EN1088).

#### Interlock Switch

| Explosion Proof        | Contact Configuration  | Cable Length | Part No.<br>(Ordering Part No.) |
|------------------------|--|--------------|---------------------------------|
| Terminal Blocks        | 1NC-1NO  | 1m           | HS6B-11B01                      |
| Relays & Sockets       | 11 <u></u> 12 $\ominus$  | 3m           | HS6B-11B03                      |
| Circuit<br>Protectors  | 33 34  | 5m           | HS6B-11B05                      |
| Power Supplies         | 2NC  | 1m           | HS6B-02B01                      |
| LED Illumination       | $11 \xrightarrow{1} 12 \xrightarrow{20} 31 \xrightarrow{1} 32 \xrightarrow{20} 32$   | 3m           | HS6B-02B03                      |
|                        |  | 5m           | HS6B-02B05                      |
| Controllers            | 2NC-1NO  | 1m           | HS6B-12B01                      |
| Operator<br>Interfaces | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$                                | 3m           | HS6B-12B03                      |
| Sensors                |  | 5m           | HS6B-12B05                      |
| AUTO-ID                |  | 1m           | HS6B-03B01                      |
|                        | $11 \xrightarrow{-1} 12 \xrightarrow{-1} 22 \xrightarrow{-1} 22 \xrightarrow{-1} 22$ | 3m           | HS6B-03B03                      |
|                        | $31 \xrightarrow{21} 32 \xrightarrow{22} 32$   | 5m           | HS6B-03B05                      |

· Contact configuration shows the status when the actuator is inserted. • See E-010 for wiring.

#### Actuators

| Description                          | Part No.<br>(Ordering Part No.) |
|--------------------------------------|---------------------------------|
| Straight Actuator                    | HS9Z-A61                        |
| Right-angle Actuator                 | HS9Z-A62                        |
| Horizontal/vertical Angle Adjustable | HS9Z-A65                        |
| Actuator (for hinged doors) (Note)   | HS9Z-A66                        |

Note: Select an actuator that moves in the direction required by the hinged door and interlock switch (see E-009 and E-010).

See E-069 for details on actuators and actuator dimensions

#### Contact Ratings

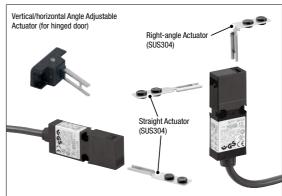
| Rated Insu       | Rated Insulation Voltage (Ui) |                        |      |       | 300V  |  |  |
|------------------|-------------------------------|------------------------|------|-------|-------|--|--|
| Rated Curr       | Rated Current (Ith)           |                        |      |       | 2.5A  |  |  |
| Rated Volta      | ige (Ue)                      | *                      | 30V  | 125V  | 250V  |  |  |
|                  | AC                            | Resistive load (AC-12) | —    | 2.5A  | 1.5A  |  |  |
| Rated<br>Current |                               | Inductive Load (AC-15) | —    | 1.5A  | 0.75A |  |  |
| (le) *           | DC                            | Resistive load (DC-12) | 2.5A | 1.1A  | 0.55A |  |  |
|                  | 00                            | Inductive Load (DC-13) | 2.3A | 0.55A | 0.27A |  |  |
|                  |                               |                        |      |       |       |  |  |

• Minimum applicable load (reference): 3V AC/DC, 5mA

#### Approved ratings

| TÜV     | AC-15 240V/0.75A<br>DC-13 250V/0.27A<br>DC-13 30V/2.3A               |
|---------|--|
| UL/c-UL | 240V AC/0.75A Pilot Duty<br>250V DC/0.27A Pilot Duty<br>C300<br>Q300 |
| CCC     | AC-15 240V/0.75A<br>DC-13 30V/2.3A                                   |

For more information, visit http://eu.idec.com

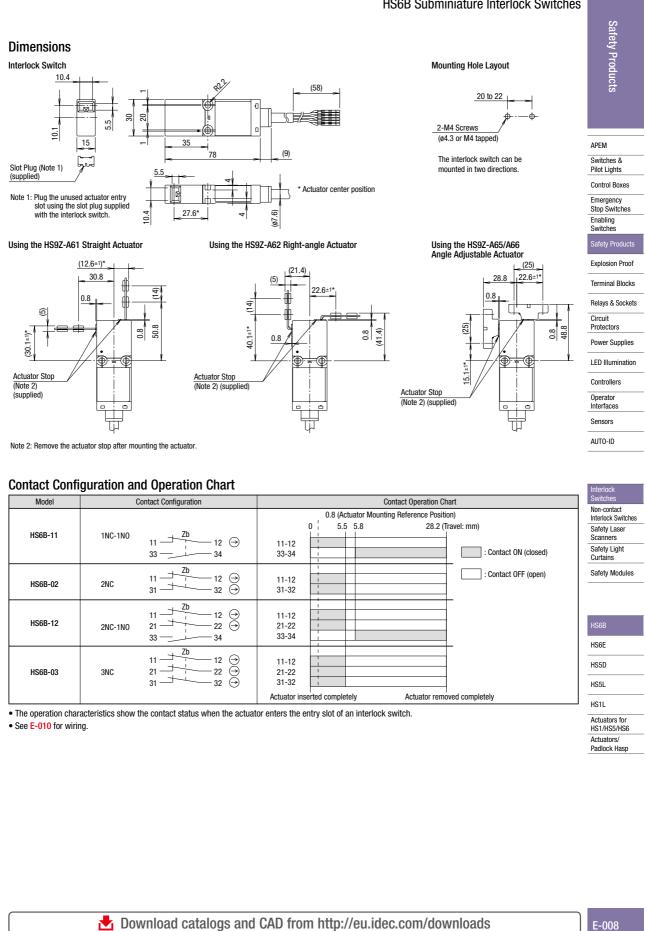


#### Specifications

| Applicable Standards                      | ISO14119<br>EN1088<br>IEC60947-5-1<br>EN60947-5-1 (TÜV approved)<br>GS-ET-15 (TÜVapproved)<br>UL508 (UL-listed)<br>CSA C22.2 No. 14 (c-UL-listed)<br>GB14048.5 (CCC approved)<br>KS C IEC60947-5-1/S1-G-1/S2-E-4 (KOSHA approved)<br>IEC 60204-1/ EN 60204-1<br>(applicable standards for use) |
|---|--|
| Applicable Directive                      | 2006/95/EC (Low Voltage Directive)<br>2006/42/EC (Machinery Directive)   |
| Operating<br>Temperature                  | -25 to +70°C (no freezing)   |
| Relative Humidity                         | 45 to 85% (no condensation)  |
| Storage Temperature                       | -40 to +80°C (no freezing)   |
| Pollution Degree                          | 3  |
| Impulse Withstand Voltage                 | 4 kV   |
| Insulation Resistance<br>(500V DC megger) | Between live and dead metal parts: 100 M $\Omega$ minimum Between terminals of different poles: 100 M $\Omega$ minimum   |
| Contact Resistance                        | 300 m $\Omega$ maximum (initial value, 1m cable) 500 m $\Omega$ maximum (initial value, 3m cable) 700 m $\Omega$ maximum (initial value, 5m cable)   |
| Electric Shock<br>Protection Class        | Class II (IEC 61140)   |
| Degree of Protection                      | IP67 (IEC 60529)   |
| Shock Resistance                          | Operating extremes: 300 m/s <sup>2</sup> (30G)<br>Damage limits: 1000 m/s <sup>2</sup> (100G)  |
| Vibration Resistance                      | Operating extremes:<br>5 to 55 Hz, amplitude 0.5 mm<br>Damage limits:<br>30 Hz, amplitude 1.5 mm   |
| Actuator Operating Speed                  | 0.05 to 1.0 m/s  |
| Direct Opening Travel                     | 8 mm minimum   |
| Direct Opening Force                      | 60N minimum  |
| Operating Frequency                       | 1200 operations/h  |
| Mechanical Durability                     | 1,000,000 operations minimum (GS-ET-15)  |
| Electrical Durability                     | 100,000 operations minimum<br>(operating frequency 1200 operations/h,<br>load AC-12 250V/1.5A, DC-12 250V/0.2A)<br>1,000,000 operations minimum<br>(operating frequency 1200 operations/h,load 24V AC/DC,<br>100mA)  |
| Conditional<br>Short-circuit Current      | 50A (250V) (Use 250V/10A fast-blow fuse for short- circuit protection.)  |
| Housing Color                             | Black  |
| Cable                                     | UL2464 No. 20 AWG (6-core)   |
| Weight (approx.)                          | 120g (HS6B-***01, cable length 1m)<br>270g (HS6B-***03, cable length 3m)<br>420g (HS6B-***05, cable length 5m)   |



#### HS6B Subminiature Interlock Switches





#### HS6B Subminiature Interlock Switches

#### ▲ Safety Precautions

- In order to avoid electric shock or fire, turn power off before installation, removal, wiring, maintenance, or inspection of the interlock switch.
- If relays are used in the circuit between the interlock switch and the load, use only safety relays, since welded or sticking contacts of standard relays may invalidate the functions of the interlock switch.
   Perform a risk assessment and make a safety circuit which satisfies the requirements of the safety category.
- Do not place a PLC in the circuit between the interlock switch and the load. Safety security can be endangered in the event of a malfunction of the PLC.
- Do not disassemble or modify the interlock switch, otherwise a malfunction or an accident may occur.
- Do not install the actuator in the location where a human body may come into contact. Otherwise injury may occur.

#### Instructions

- Regardless of door types, do not use the interlock switch as a door stop. Install a mechanical door stop at the end of the door to protect the interlock switch against excessive force.
- Explosion Proof • Do not apply excessive shock to the interlock switch when opening or closing the door. A shock to the interlock switch exceeding 1,000 m/s<sup>2</sup> may cause damage to the interlock switch.
  - If the operating atmosphere is contaminated, use a protective cover to prevent the entry of foreign objects into the interlock switch through the actuator entry slots.
- Power Supplies Entry of a considerable amount of foreign objects into the interlock switch may affect the mechanism of the interlock switch and cause a malfunction.
  - Do not store the interlock switches in a dusty, humid, or organic-gas atmosphere.
  - Use proprietary actuators only. When other actuators are used, the interlock switch may be damaged.
  - Do not modify the actuator, otherwise it will damage the interlock switch.
  - Cover the unused actuator entry slot using the slot plug supplied with the interlock switch.

#### Minimum Radius of Hinged Door

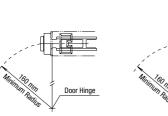
- Non-contact Interlock Switches
   • When using the interlock switch on hinged doors, refer to the minimum radius of doors shown below. When using on doors with small minimum radius, use the angle adjustable actuator (HS9Z-A65 and HS9Z-A66).
  - Note: Because deviation or dislocation of hinged doors may occur in actual applications, make sure of the correct operation before installation.

#### When using the HS9Z-A62 Right-angle Actuator

When the door hinge is on the extension line of the interlock switch surface:

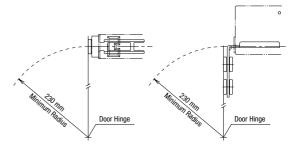


Safety Modules





 When the door hinged is on the extension line of the actuator mounting surface:



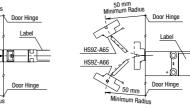
#### When using the HS9Z-A65/HS9Z-A66 Angle Adjustable Actuator

• When the door hinge is on the extension line of the interlock switch surface:

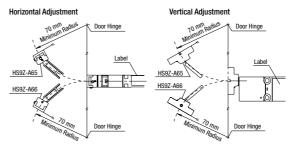
Horizontal Adjustment Vertical Adjustment 50 mm Minimum Radius Door Hinge

50 mn

Mi



When the door hinge is on the extension line of the actuator mounting surface



E-009

#### For more information, visit http://eu.idec.com

Safety Products

APEM Switches & Pilot Lights

Control Boxes Emergency Stop Switches

Enabling Switches

Relays & Sockets

Circuit

Protectors

Controllers

Operator Interfaces

Sensors

AUTO-ID

#### HS6B Subminiature Interlock Switches

#### Instructions

#### Actuator Angle Adjustment for the HS9Z-A65/HS9Z-A66

- . Using the angle adjustment screw, the actuator angle can be adjusted (see figures on page E-070). Adjustable angle: 0 to 20°
- The larger the adjusted angle of the actuator, the smaller the applicable radius of the door opening.
- After installing the actuator, open the door. Then adjust the actuator so that its edge can enter properly into the actuator entry slot of the interlock switch.
- After adjusting the actuator angle, apply Loctite to the adjustment screw so that the screw will not become loose.

#### Mounting

Mount the interlock switch on a fixated machine or guard, and mount the actuator on the hinged door. Do not mount both interlock switch and actuator on hinged doors, otherwise, malfunction will occur.

Note: When mounting an actuator, make sure that the actuator enters into the slot in the correct direction, as shown on the right.



- Interlock switch (M4 screw): 1.0 to 1.5 N·m
- Actuator (M4 screw): 1.0 to 1.5 N·m
- . Mounting bolts are not supplied, and must be purchased separately by the user.
- Note: The above recommended tightening torque of the mounting screw is the value with hex socket head bolts. When other screws are used and tightened to a smaller torque, make sure that the screws do not become loose after mounting.

#### Cable

- Do not fasten or loosen the gland at the bottom of the interlock switch.
- . When bending cable during wiring, make sure that the cable radius is kept at 40 mm minimum.
- . When wiring, make sure that water or
- oil does not enter from the end of cable



#### Wire Identification

. Wires can be identified by color and/or a white line printed on the wire. Colored Insulation

| No. | Insulation<br>Color | No. | Insulation<br>Color | Jacket           |
|-----|---------------------|-----|---------------------|------------------|
| 1   | Orange/White        | 4   | Brown               |                  |
| 2   | Blue/White          | 5   | Blue                |                  |
| 3   | Brown/White         | 6   | Orange              | Dummy Insulation |
|     |                     |     |                     | (black)          |

#### **Terminal Number Identification**

- When wiring, the terminal number on each contact can be identified by wire color.
- The following diagrams show a safety (main) contact and one or two auxiliary contacts for two-contact and three-contact types. 1NC-1N0

Blue 11

Orange 31

|           | , Zh |                 |
|-----------|------|-----------------|
| Blue 11   |      | 12 Blue/White   |
| Orange 33 |      | 34 Orange/White |

F

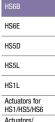
E

ſ

2NC Zb 12 Blue/White 32 Orange/White

|          | 2NC-1N0 |                 |           | 3NC   |
|----------|---------|-----------------|-----------|-------|
|          | Zb      |                 |           | Zb    |
| lue 11   |         | 12 Blue/White   | Blue 11   | 12 BI |
| rown 21  |         | 22 Brown/White  | Brown 21  | 22 Br |
| range 33 |         | 34 Orange/White | Orange 31 | 32 01 |

- lue/White rown/White range/White
- . When wiring, cut any dummy insulation (black) and any unused wires at the end of the jacket to avoid incorrect wiring.



Actuators/ Padlock Hasp

Download catalogs and CAD from http://eu.idec.com/downloads

E-010

Safety Products

APEM

Switches &

Pilot Lights

Emergency

Enabling

Switches

Control Boxes

Stop Switches

Explosion Proof

Terminal Blocks

Relays & Sockets

LED Illumination

Controllers

Operator Interfaces Sensors AUTO-ID

Non-contact Interlock Switches

Safety Laser Scanners

Safety Light

Safety Modules

Curtains

Circuit Protectors Power Supplies





# Safety Products

## HS6E Subminiature Interlock Switches with Solenoid

### Small interlock switch with five poles and solenoid.

- Ideal for applications in tight spaces.
- Compact body:  $75 \times 15 \times 75$  mm, 15-mm-wide
- Reversible mounting and angled cable allow four actuator insertion directions. • Energy saving. 24V DC, 110 mA (solenoid: 100 mA, LED: 10 mA). Can be driven

#### APEM Switches &

Switches

Explosion Proof

Relays & Sockets

LED Illumination

Circuit Protectors Power Supplies

 Manual unlocking possible on three sides. Pilot Lights

directly by a controller.

• LED indicator shows solenoid operation

#### Control Boxes Spring Lock

- Emergency • Automatically locks the actuator without power applied to the solenoid. Stop Switches
  - After the machine stops, unlocking is completed by the solenoid. Enabling
    - . Manual unlocking is possible on three sides in the event of power failure or maintenance.

#### Solenoid Lock

- The actuator is locked when energized.
- The actuator is unlocked when de-energized. Terminal Blocks
  - · Flexible locking function can be achieved, for an application where locking is not required and sudden stopping of a machine must be prevented.

### Ratings

#### Contact Ratings

|                          | 00110                                  | 101 11                                       | aung     | 0                      |   |  |       |
|--------------------------|--|--|----------|------------------------|---|--|-------|
| Controllers              | Rated Insulation Voltage (Ui) (Note 1) |  |          |                        |   | 300V (door monitor contact)<br>150V (lock monitor contact) |       |
| Operator                 |  |  |          | -30 (-) (              | 30V (between LED or solenoid and ground)  |  |       |
| Interfaces               |  |  |          |                        | Operating temperature -25 to 35°C   |  |       |
| Sensors                  |  |  |          |                        | 2.5A (up to 2 circuits)<br>1.0A (3 or more circuits)                              |  |       |
| AUTO-ID                  | Rated                                  | Therma                                       | al Curre | ent (Ith)              | Operating temperature 35 to 50°C<br>1.0A (1 circuit)<br>0.5A (2 or more circuits) |  |       |
|                          | Rated Voltage (Ue)                     |  | 30V      | 125V                   | 250V  |  |       |
|                          |  | ent (le)*<br>Main & Lock<br>Monitor Circuits | AC       | Resistive load (AC-12) | —   | 2A   | —     |
| Interlock<br>Switches    |  |  |          | Inductive Load (AC-15) | -   | 1A   | _     |
| Non-contact              | (le)*                                  | ain 8<br>nitor                               | DC       | Resistive load (DC-12) | 2A  | 0.4A   | _     |
| Interlock Switches       | rent                                   | M M  | Ň        | Inductive Load (DC-13) | 1A  | 0.22A  | -     |
| Safety Laser<br>Scanners | Rated Current (le)*                    |  | DA ET    | Resistive load (AC-12) | -   | 2.5A   | 1.5A  |
| Safety Light             | Rate                                   | or Monite<br>Circuit                         |          | Inductive Load (AC-15) | —   | 1.5A   | 0.75A |
| Curtains                 |  | Rated<br>Door Monitor<br>Circuit             | DC       | Resistive load (DC-12) | 2.5A  | 1.1A   | 0.55A |
| Safety Modules           |  |  |          | Inductive Load (DC-13) | 2.3A  | 0.55A  | 0.27A |

• Minimum applicable load (reference value): 3V AC/DC, 5 mA

#### Approved ratings

|      |                            | -   |  |                                    |
|------|----------------------------|---|--|------------------------------------|
| HS6B |                            | TÜV   | UL/c-UL  | CCC                                |
| HSOE | Door<br>Monitor            | AC-15 240V/0.75A<br>DC-13 250V/0.27A              | 240V AC/0.75A Pilot Duty<br>250V DC/0.27A Pilot Duty<br>C300                 | AC-15 240V/0.75A<br>DC-13 30V/2.3A |
| HS5D | Contact                    | DC-13 30V/2.3A                                    | Q300   | 50 10 000/210/1                    |
| HS5L | Lock<br>Monitor<br>Contact | AC-15 125V/1A<br>DC-13 125V/0.22A<br>DC-13 30V/1A | 125V AC/1A Pilot Duty<br>125V DC/0.22A Pilot Duty<br>DC-13 30V/1A Pilot Duty | AC-15 125V/1A<br>DC-13 30V/1A      |
| HS1  | COMACE                     | DC-13 30V/1A                                      | DG-13 30W/TA PIIOL DULY  |                                    |

#### Actuators for HS1/HS5/HS6 So

Lo Ra Ra

| Actuators/   |
|--------------|
| Padlock Hasp |

| ble              | olenoid/Indicator                        |  |               |  |  |  |  |  |
|------------------|--|--|---------------|--|--|--|--|--|
| ocking Mechanism |  | Spring Lock  | Solenoid Lock |  |  |  |  |  |
| ated Voltage     |  | 24V DC (100% duty cycle)                               |               |  |  |  |  |  |
| ated Current     |  | 110 mA (solenoid 100 mA, LED 10 mA)<br>(initial value) |               |  |  |  |  |  |
|                  | Coil Resistance                          | 240Ω (at 20°C)   |               |  |  |  |  |  |
|                  | Pickup Voltage                           | Rated voltage × 85% maximum (at 20°C)                  |               |  |  |  |  |  |
| -                | Dropout Voltage                          | Rated voltage × 10% minimum (at 20°C)                  |               |  |  |  |  |  |
| solenoid         | Maximum Continuous<br>Applicable Voltage | Rated voltage × 110%                                   |               |  |  |  |  |  |
|                  | Maximum Continuous<br>Applicable Time    | Continuous   |               |  |  |  |  |  |
|                  | Insulation Class                         | Class F  |               |  |  |  |  |  |
| ator             | Light Source                             | LED  |               |  |  |  |  |  |
| Indicator        | Illumination Color                       | Green  |               |  |  |  |  |  |

#### Right-angle Actuator (SUS304)



#### Specifications

| 4119         0947-5-1         0947-5-1         0947-5-1         198 (TÜ approved)         188 (TÜ approved)         17-19 (TÜ approved)         18 (c-UL listed)         1048.5 (CC approved)         182 (CU listed)         1048.5 (CC approved)         182 (CD approved)         183 (CD approved)         185 (CD approved)         185 (CD approved)         185 (CD approved) |
|--|
| 85% (no condensation)         85% (no condensation)         to +80°C (no freezing)         & lock monitor circuits: 1.5 KV         monitor circuit: 2.5 kV         een solenoid/LED and ground: 0.5 KV         een live and dead metal parts: 100 MΩ minimum         een trinals of different poles: 100 MΩ minimum         mΩ maximum (initial value, 1m cable)         mΩ maximum (initial value, 3m cable)  |
| to +80°C (no freezing)<br>& lock monitor circuits: 1.5 KV<br>monitor circuit: 2.5 kV<br>een solenoid/LED and ground: 0.5 kV<br>een live and dead metal parts: 100 M $\Omega$ minimum<br>een terminals of different poles: 100 M $\Omega$ minimum<br>m $\Omega$ maximum (initial value, 1m cable)<br>m $\Omega$ maximum (initial value, 3m cable)   |
| & lock monitor circuits: 1.5 KV<br>monitor circuit: 2.5 KV<br>een solenoid/LED and ground: 0.5 KV<br>een live and dead metal parts: 100 MΩ minimum<br>een terminals of different poles: 100 MΩ minimum<br>mΩ maximum (initial value, 1m cable)<br>mΩ maximum (initial value, 3m cable)   |
| monitor circuit: 2.5 kV<br>een solenoid/LED and ground: 0.5 kV<br>een live and dead metal parts: 100 MΩ minimum<br>een terminals of different poles: 100 MΩ minimum<br>mΩ maximum (initial value, 1m cable)<br>mΩ maximum (initial value, 3m cable)  |
| monitor circuit: 2.5 kV<br>een solenoid/LED and ground: 0.5 kV<br>een live and dead metal parts: 100 MΩ minimum<br>een terminals of different poles: 100 MΩ minimum<br>mΩ maximum (initial value, 1m cable)<br>mΩ maximum (initial value, 3m cable)  |
| een terminals of different poles: 100 MΩ minimum<br>mΩ maximum (initial value, 1m cable)<br>mΩ maximum (initial value, 3m cable)   |
| mΩ maximum (initial value, 3m cable)   |
|  |
| s II (IEC 61140)   |
| (IEC 60529)  |
| ating extremes: 100 m/s² (10G)<br>age limits: 1000 m/s² (100G)   |
| ating extremes: 10 to 55 Hz, amplitude 0.35 mm<br>age limits: 30 Hz, amplitude 1.5 mm  |
| to 1.0 m/s   |
| nm minimum   |
| minimum  |
| I minimum (GS-ET-19)   |
| operations/h   |
| 0,000 operations minimum (GS-ET-19)  |
| 000 operations minimum (rated load)<br>0,000 operations minimum (24V AC/DC, 100 mA)<br>ating frequency 900 operations/h)   |
|  |
| (250V)<br>250V/10A fast-blow fuse for short-circuit protection.)   |
|  |
| 250V/10A fast-blow fuse for short-circuit protection.)<br>64, No. 22 AWG   |
|  |

\*1) See E-014 for actuator retention force.

E-011



| andard         Peckage businity: 1           Lock Mechanism         Circuit Number         Contact Configuration         Contact Configuration         Contact Configuration         Part No.           Lock Mechanism         Circuit Number         Contact Configuration         Tim         Part No.           L         Wain Circuit: 1WG - 1NC, Door Moniter Circuit: 2NC<br>Monitor Circuit: 101         Tim         HSGE-144802-6         Minitor Circuit: 100           M         Main Circuit: 102 - 114         22         S3         S6         S7         HSGE-144802-6         Minitor Circuit: 100           M         Main Circuit: 102 - 114         22         S1         S7         HSGE-144802-6         Minitor Circuit: 100           M         Main Circuit: 102 - 114         22         S1         S7         HSGE-144802-6         Minitor Circuit: 100           M         Main Circuit: 102 - 114         22         S1         S7         HSGE-144802-6         Minitor Circuit: 100         Tim         HSGE-144802-6         Minitor Circuit: 100           Main Circuit: 104 - 114         11         12         14         42         S7         S7         HSGE-144802-6         Minitor Circuit: 100           N         Main Circuit: 104 - 114         11         12         41         42  | andard<br>Lock Mechanism | Circuit Number | Contact Configuration   | Cable Length                                     | Package Quantity:<br>Part No. |  |  |
|--|--------------------------|----------------|---|--|-------------------------------|--|--|
| L         Main Circuit: 1NC+1NC, Door Monther Circuit: 2NC<br>Lock Monther Circuit: 2NC         3m         HSBE-L44803-6         Amments<br>Main<br>Monther Circuit: 2NC           Main Circuit: 1NC+1NC, Door Monther Circuit: 2NC<br>Monther Circuit: 2NL+12: 23         3m         HSBE-L44803-6         Amments<br>Main Circuit: 1NL+1NC, Door Monther Circuit: 2NC         1m         HSBE-L44803-6         Amments<br>Main Circuit: 1NL+1NC, Door Monther Circuit: 2NC         1m         HSBE-L44803-6         Amments<br>Main Circuit: 1NL+1NC, Door Monther Circuit: 2NC         1m         HSBE-M44803-6         See M44803-6         See M44803-   | LUCK WIECHAINSIN         |                |   | Cable Leligui                                    | Fait NU.                      | rod                                      |  |
| L         Main Circuit: 1NC + 1NC, Door Monitor Circuit: 200<br>Look Monitor Circuit: 001<br>Monitor Circuit: 011 + 12         3m         HSRE-1.44803-6         AFM<br>Monitor<br>Monitor Circuit: 021 + 12           Main Circuit: 1NC + 1NC, Door Monitor Circuit: 1NC<br>Monitor Circuit: 021 + 12         11 + 12         41 + 42         5m         HSRE-1.44803-6         AFM<br>Monitor Circuit: 021 + 12           Main Circuit: 1NC + 1NC, Door Monitor Circuit: 1NC<br>Monitor Circuit: 021 + 12         11 + 42         3m         HSRE-1.44803-6         Samta M<br>Main Circuit: 1NC + 1NC, Door Monitor Circuit: 1NC<br>Monitor Circuit: 21 + 12         11 + 42         3m         HSRE-144803-6         Rauge AS<br>Main Circuit: 1NC + 1NC, Door Monitor Circuit: 1NC<br>Monitor Circuit: 21 + 42         3m         HSRE-144803-6         Rauge AS<br>Main Circuit: 1NC + 1NC, Door Monitor Circuit: 1NC<br>Monitor Circuit: 22 + 51 + 52         5m         HSRE-144803-6         Circuit<br>Main Circuit: 21 + 12         41 + 42         3m         HSRE-144803-6         Rauge AS<br>Main Circuit: 1NC + 1NC, Door Monitor Circuit: 1NC<br>Monitor Circuit: 22 + 51 + 52         5m         HSRE-144803-6         Circuit<br>Main Circuit: 30         Main Circuit: 1NC + 1NC, Door Monitor Circuit: 1NC<br>Monitor Circuit: 21 + 12         3m         HSRE-1474803-6         Circuit<br>Main Circuit: 1NC + 1NC, Door Monitor   |                          |                |   | 1m   | HS6E-L44B01-G                 | ucts                                     |  |
| Main Circuit: 1NC + 1NC, Dark Monitor Circuit: 20<br>Main Circuit: 1NC + 1NC, Dark Monitor Circuit: 20<br>Luck Monitor Circuit: 20<br>Main Circuit: 1NC + 1NC, Dark Monitor Circuit: 20<br>Monitor Circuit: 20<br>Main Circuit: 1NC + 1NC, Dark Monitor Circuit: 20<br>Monitor Circuit: 2  |                          |                | L   | Main Circuit: 1NC+1NC, Door Monitor Circuit: 2NC | 3m                            | HS6E-L44B03-G                            |  |
| M         Main Circuit: 1NC         1m         HS6E-M44801-6         Tempgrov<br>Conduct<br>Monther Circuit: 021.1.22         Tempgrov<br>Statistical<br>Monther Circuit: 021.1.22         Sm         HS6E-M44801-6         Tempgrov<br>Statistical<br>Monther Circuit: 021.1.22         Tempgrov<br>Statistical<br>Monther Circuit: 021.1.22         Sm         HS6E-M44801-6         Emergency<br>Statistical<br>Monther Circuit: 021.1.22         Sm         HS6E-M44801-6         Emergency<br>Statistical<br>Monther Circuit: 021.1.22         Emergency<br>Statistical<br>Monther Circuit: 021.1.22         Sm         HS6E-M44801-6         Emergency<br>Statistical<br>Monther Circuit: 021.1.22         Emergency<br>Statistical<br>Monther Circuit: 021.1.22         Sm         HS6E-M44801-6         Emergency<br>Statistical<br>Monther Circuit: 021.1.22         Emergency<br>Statistical<br>Monther Circuit: 021.1.22         Sm         HS6E-M44803-6         Emergency<br>Statistical<br>Monther Circuit: 021.1.22         Sm         HS6E-P44801-6         Emergency<br>Statistical<br>Monther Circuit: 021.1.22         Sm         HS6E-P44803-6         Smoth<br>Provestical<br>Monther Circuit: 021.1.22         Sm         HS6E-L7Y4801-6         Minther<br>Monther Circuit: 021.1.22         Minther<br>Monther Circuit: 021.1.22         Sm         HS6E-L7Y4801-6         Minther<br>Monther Circuit: 021.1.22         Minther<br>Minther<br>Monther Circuit: 021.1.22         Minther<br>Minther<br>Monther Circuit: 021.1.22   |                          |                | Monitor Circuit: → 21 + 22 53 54  | 5m   | HS6E-L44B05-G                 | Switches &                               |  |
| M         Main Circuit:         11         12         41         42           Monitor Circuit:         911         22         911         92         5m         HS6E-M44803-G         Sinth Not           M         Main Circuit:         110         12         41         42         5m         HS6E-M44803-G         Sinth Not           N         Main Circuit:         110         12         41         42         3m         HS6E-M44803-G         Sinth Not           N         Main Circuit:         101         12         41         42         3m         HS6E-M44803-G         Protects           N         Main Circuit:         11         12         41         42         3m         HS6E-M44803-G         Protects   |                          |                |   | 1m   | HS6E-M44B01-G                 |  |  |
| Minimic Gradit         Minimic Gradit         Minimic Gradit         Minimic Gradit         Sm         HSGE-M44805-G         Section Procession           N         Main Circuit:         1NC + INC, Door Monitor Circuit:         1NC + INC, Door Monitor Circuit:         1N         Immediate         Sm         HSGE-M44805-G         Explosion P           N         Main Circuit:         1N + IZ + 12 + 22 + 33 + 42         3m         HSGE-M44805-G         Reps 5.5           Monitor Circuit:         31 + 32 + 34         5m         HSGE-M44805-G         Reps 5.5           Main Circuit:         1NC + INC, Door Monitor Circuit:         1N         HSGE-M44805-G         Reps 5.5           P         Main Circuit:         1NC + 1NC, Door Monitor Circuit:         1NC + 1NC         1m         HSGE-P44803-G         Direct I           P         Main Circuit:         1NC + 1NC, Door Monitor Circuit:         12 + 12 + 41 + 42         3m         HSGE-P44803-G         Direct I           P         Main Circuit:         1NC + 1NC, Door Monitor Circuit:         1m         HSGE-L7Y4803-G         Sm         HSGE-L7Y4803-G         Sm         Minitor Reps 5.5           L         Main Circuit:         NC + 1NC, Door Monitor Circuit: 2NC         3m         HSGE-L7Y4803-G         Minitor Reps 1.5         Sm HSGE-L7Y4803-G         Minitor Re  |                          | м              | Main Circuit: $\bigcirc 11 + 12 + 41 + 42$  | 3m   | HS6E-M44B03-G                 | Stop Switch<br>Enabling                  |  |
| N         Main Circuit: 100         1m         HSGE-N44801-G         Terminal Bit           N         Main Circuit: 011 + 12 41 + 42         3m         HSGE-N44803-G         Balaya & So           Main Circuit: 10C + 10C, Door Monitor Circuit: 132         31         5m         HSGE-N44803-G         Devel Supt           P         Main Circuit: 10C + 10C, Door Monitor Circuit: 10C         1m         HSGE-P44803-G         Devel Supt           P         Main Circuit: 10C + 10C, Door Monitor Circuit: 10C         1m         HSGE-P44803-G         Controllers           P         Main Circuit: 011 + 12 41 + 42         3m         HSGE-P44803-G         Controllers           Monitor Circuit: 011 + 12 41 + 42         3m         HSGE-P44803-G         Methodse-P44803-G         Methodse-P44803-G           L         Main Circuit: 011 + 12 41 + 42         3m         HSGE-P44803-G         Methodse-P44803-G         Methodse-P44803-G           L         Main Circuit: 10C + 10C, Door Monitor Circuit: 20C         1m         HSGE-L7Y4803-G         Muintefficient   | ring Lock                |                | Monitor Circuit: $\bigcirc 21 + 22 = 31 + 32$<br>Monitor Circuit: $\bigcirc 31 + 32$      | 5m   | HS6E-M44B05-G                 |  |  |
| N         Main Circuit:         11         12         41         42         3m         HS6E-N44803-6         Reling & So           Main Circuit:         021         22         93         54         5m         HS6E-N44803-6         Processor           Main Circuit:         10C-1000         Circuit:         10C         1m         HS6E-N44803-6         Circuit           P         Main Circuit:         011         12         41         42         3m         HS6E-P44803-6         Circuit           P         Main Circuit:         011         12         41         42         3m         HS6E-P44803-6         Circuit         Dever Sup           Monitor Circuit:         011         12         41         42         3m         HS6E-P44803-6         Controllers           Monitor Circuit:         011         12         41         42         3m         HS6E-P44803-6         Sectors           Monitor Circuit:         011         12         41         42         3m         HS6E-L7Y4801-6         ArT0-0           Monitor Circuit:         011         12         41         42         5m         HS6E-L7Y4803-6         Sectors           Main Circuit:         011         12  |                          |                |   | 1m   | HS6E-N44B01-G                 |  |  |
| Monitor Circuit:         33         34         5m         HS6E-N44805-G         Hotekties           P         Main Circuit:         11.1         12         41.4         42         3m         HS6E-P44801-G         LED Illumin           P         Main Circuit:         11.1         12         41.4         42         3m         HS6E-P44803-G         Controllers           Monitor Circuit:         21.1         22         51.1         52         5m         HS6E-P44803-G         Controllers           Monitor Circuit:         21.1         22         51.1         5m         HS6E-P44803-G         Controllers           Monitor Circuit:         21.1         22         51.1         5m         HS6E-L7Y4803-G         Deprator           L         Main Circuit:         11.4         12         41.4         42         Sm         HS6E-L7Y4803-G         Monitor Circuit:         Monitor Circuit:         Monitor Circuit:         NUTO-ID         Monitor Circuit:         Monitor Circuit:         NUTO-ID         Monitor Circuit:         <  |                          | N              |   | 3m   | HS6E-N44B03-G                 | Relays & So                              |  |
| P         Main Circuit: NC+1NC, DOOR MONITOR Circuit: NC         1m         HS6E-P44803-G         Controllers           P         Main Circuit: © 11 + 12 + 42<br>Monitor Circuit: © 21 + 22 = 51 - 52         3m         HS6E-P44803-G         Controllers           Main Circuit: © 21 + 22 = 51 - 52         5m         HS6E-P44803-G         Controllers         Controllers           L         Main Circuit: © 11 + 12 - 41 + 42         5m         HS6E-P44803-G         Sensors           L         Main Circuit: 1NC+1NC, Door Monitor Circuit: 2NC<br>Lock Monitor Circuit: 2NC<br>Monitor Circuit: 011 + 12 - 41 + 42         3m         HS6E-L7Y4803-G         Interdood<br>Sortel-Lock           M         Main Circuit: 011 + 12 - 41 + 42<br>Monitor Circuit: 011 + 12 - 41 + 42         5m         HS6E-L7Y4803-G         Sortel-Lock           M         Main Circuit: 1NC+1NC, Door Monitor Circuit: 2NC<br>Monitor Circuit: 011 + 12 - 41 + 42         3m         HS6E-M7Y4803-G         Sortel-Lock           M         Main Circuit: 1NC+1NC, Door Monitor Circuit: 1NC         1m         HS6E-M7Y4803-G         Sortel-Lock           M         Main Circuit: 011 + 12 - 41 + 42<br>Monitor Circuit: 011 + 12 - 41 - 42         3m         HS6E-N7Y4803-G         HS6E           N         Main Circuit: 1NC+1NC, Door Monitor Circuit: 1NC, 1NO<br>Lock Monitor Circuit: 021 + 22 - 51 - 52         5m         HS6E-N7Y4803-G         HS6E           N   |                          |                |   | 5m   | HS6E-N44B05-G                 | Protectors                               |  |
| Main Circuit:         11         12         41         42           Monitor Circuit:         33         34         5m         HS6E-P44B05-G         Gerator           Main Circuit:         33         34         5m         HS6E-L7Y4B01-G         AITO-ID           L         Main Circuit:         11         12         41         42         3m         HS6E-L7Y4B01-G         AITO-ID           L         Main Circuit:         11         12         41         42         3m         HS6E-L7Y4B03-G         Smithexx M           Main Circuit:         11         12         41         42         5m         HS6E-L7Y4B03-G         Smithexx M           Main Circuit:         11         12         41         42         5m         HS6E-L7Y4B03-G         Smithexx M           Monitor Circuit:         11         12         41         42         5m         HS6E-L7Y4B03-G         Smithexx M           Main Circuit:         01         12         21         22         51         52         5m         HS6E-M7Y4B03-G         Safety Mod           Main Circuit:         01         12         21         22         51         52         5m         HS6E-M7Y4B03-G         HS6E </td <td></td> <td rowspan="3">Р</td> <td></td> <td>1m</td> <td>HS6E-P44B01-G</td> <td></td>  |                          | Р              |   | 1m   | HS6E-P44B01-G                 |  |  |
| L         Monitor Circuit:         33         34         5m         HS6E-P44805-6         Interfaces           L         Main Circuit:         10         (When inserted)         (When 0N)         1m         HS6E-L77/4B01-6         AUTO-ID           L         Main Circuit:         11         12         41         42         3m         HS6E-L77/4B03-6         Interfaces           Main Circuit:         01         12         41         42         5m         HS6E-L77/4B03-6         Interfaces           Main Circuit:         01         12         41         42         5m         HS6E-L77/4B03-6         Interfaces           Main Circuit:         01         12         41         42         5m         HS6E-L77/4B03-6         Interfaces           Main Circuit:         01         12         41         42         3m         HS6E-M77/4B01-6         Safety Lipic           M         Main Circuit:         01         12         21         52         5m         HS6E-N77/4B03-6         Safety Lipic           N         Main Circuit:         01         12         41         42         3m         HS6E-N77/4B03-6         HS6E           N         Main Circuit:         01         12<  |                          |                |   | 3m   | HS6E-P44B03-G                 |  |  |
| Image: Construct of the intervence   |                          |                |   | 5m   | HS6E-P44B05-G                 | Interfaces                               |  |
| Interformation of content into indication of incuit: 1NO       Interformation of incuit: 1NO       Interformation of incuit: 1NO         Main Circuit: $\bigcirc 11 + 12 - 41 + 42$ 5m       HS6E-L7Y4B05-G       Interformation of incuit: 31 - 32         Main Circuit: $\bigcirc 11 + 12 - 41 + 42$ 5m       HS6E-M7Y4B01-G       Safety Ligh Curtains         Main Circuit: $\bigcirc 11 + 12 - 41 + 42$ 3m       HS6E-M7Y4B03-G       Safety Ligh Curtains         Ienoid Lock       Main Circuit: $\bigcirc 11 + 12 - 41 + 42$ 3m       HS6E-M7Y4B03-G       Safety Ligh Curtains         N       Main Circuit: $\bigcirc 11 + 12 - 41 + 42$ 3m       HS6E-M7Y4B03-G       Safety Mod         N       Main Circuit: $\bigcirc 11 + 12 - 41 + 42$ 3m       HS6E-M7Y4B03-G       Safety Mod         N       Main Circuit: $\bigcirc 11 + 12 - 41 + 42$ 3m       HS6E-N7Y4B03-G       HS6E         N       Main Circuit: $\bigcirc 11 + 12 - 41 + 42$ 3m       HS6E-N7Y4B03-G       HS5E         N       Main Circuit: $\bigcirc 11 + 12 - 41 + 42$ 3m       HS6E-N7Y4B03-G       HS5E         N       Main Circuit: $\bigcirc 11 + 12 - 41 + 42$ 3m       HS6E-N7Y4B03-G       HS5L         P       Main Circuit: $\bigcirc 11 + 12 - 41 + 42$ 3m       HS6E-P7Y4B01-G       HS1L         Actuators f       Main Circuit: $\bigcirc 11 + 12 - 41 + 42$ 3m<   |                          |                | (When inserted) (When ON)   | 1m   | HS6E-L7Y4B01-G                |  |  |
| Main Circuit:11124142Monitor Circuit:212253545mHS6E-L7Y4B05-GMonoconterMain Circuit:Main Circuit:111241425mHS6E-L7Y4B05-GSafety Last<br>Safety Last<br>Safety Last<br>Safety Last<br>Safety Last<br>Safety MonMMain Circuit:111241423mHS6E-M7Y4B01-GSafety Last<br>Safety Last<br>Safety Last<br>Safety Last<br>Safety MonIenoid LockMain Circuit:111241423mHS6E-M7Y4B03-GSafety MonMMain Circuit:111241423mHS6E-M7Y4B03-GSafety MonNMain Circuit:111241423mHS6E-N7Y4B03-GHS6ENMain Circuit:111241423mHS6E-N7Y4B03-GHS6ENMain Circuit:111241423mHS6E-N7Y4B03-GHS6ENMain Circuit:111241423mHS6E-N7Y4B03-GHS6ENMain Circuit:111241423mHS6E-N7Y4B03-GHS6EPMain Circuit:111241423mHS6E-P7Y4B03-GHS1PMain Circuit:111241423mHS6E-P7Y4B03-GHS1PMain Circuit:111241423mHS6E-P7Y4B03-GHS1PMain Circuit:1112 <th< td=""><td></td><td rowspan="2">L</td><td></td><td>3m</td><td>HS6E-L7Y4B03-G</td><td>Interlock</td></th<>  |                          | L              |   | 3m   | HS6E-L7Y4B03-G                | Interlock                                |  |
| $ \begin{array}{ c c c c c c c c c c c c c c c c c c c$  |                          |                | Main Circuit: $\bigcirc 11$ + 12 41 + 42<br>Monitor Circuit: $\bigcirc 21$ + 22 53 54     | 5m   | HS6E-L7Y4B05-G                | Switches<br>Non-contact<br>Interlock Swi |  |
| M       Main Circuit: $\bigcirc 11$ $12$ $41$ $42$ $3m$ HS6E-M7Y4B03-G       Safety Mod         lenoid Lock       Main Circuit: $\bigcirc 21$ $22$ $51$ $52$ $5m$ HS6E-M7Y4B05-G       HS6E         N       Main Circuit: $1NC+1NC$ , Door Monitor Circuit: $1NC$ , 1NO<br>Lock Monitor Circuit: $1NO$ $1m$ HS6E-N7Y4B01-G       HS6E         N       Main Circuit: $\bigcirc 11$ $12$ $41$ $42$ $3m$ HS6E-N7Y4B03-G       HS6E         N       Main Circuit: $\bigcirc 11$ $12$ $41$ $42$ $3m$ HS6E-N7Y4B03-G       HS6E         N       Main Circuit: $\bigcirc 11$ $12$ $41$ $42$ $3m$ HS6E-N7Y4B03-G       HS6E         N       Main Circuit: $\bigcirc 11$ $12$ $41$ $42$ $3m$ HS6E-N7Y4B03-G       HS6E         P       Main Circuit: $\bigcirc 11$ $12$ $41$ $42$ $3m$ HS6E-P7Y4B03-G       HS5L         P       Main Circuit: $\bigcirc 11$ $12$ $41$ $42$ $3m$ HS6E-P7Y4B03-G       HS1L         P       Main Circuit: $\bigcirc 11$ $12$ $41$ $42$ $3m$ HS6E-P7Y4B03-G       HS1L  |                          |                |   | 1m   | HS6E-M7Y4B01-G                | Scanners<br>Safety Ligh                  |  |
| $ \begin{array}{ c c c c c c c c c c c c c c c c c c c$  |                          | м              | Main Circuit: $\bigcirc 11 + 12 + 41 + 42$  | 3m   | HS6E-M7Y4B03-G                |  |  |
| $P \qquad \begin{array}{ c c c c c c c c c c c c c c c c c c c$  | lenoid Lock              |                |   | 5m   | HS6E-M7Y4B05-G                |  |  |
| $ P $ $ Main Circuit: \bigcirc 11 + 12 + 41 + 42 \\ Monitor Circuit: \bigcirc 21 + 22 + 53 + 54 \\ Monitor Circuit: 33 + 34 \\ Main Circuit: 1NC+1NC, Door Monitor Circuit: 1NC, 1NO \\ Lock Monitor Circuit: 1NC + 1NC \\ Main Circuit: \bigcirc 11 + 12 + 41 + 42 \\ Monitor Circuit: \bigcirc 21 + 22 + 51 + 52 \\ Monitor Circuit: \bigcirc 21 + 22 + 51 + 52 \\ Monitor Circuit: \bigcirc 21 + 22 + 51 + 52 \\ Monitor Circuit: \bigcirc 21 + 22 + 51 + 52 \\ Monitor Circuit: \bigcirc 21 + 22 + 51 + 52 \\ Monitor Circuit: \bigcirc 21 + 52 \\ Monitor Circuit: \bigcirc $ |                          |                |   | 1m   | HS6E-N7Y4B01-G                |  |  |
| P     Main Circuit:     31     34     5m     HS6E-N7Y4B05-G       Main Circuit:     1NC+1NC, Door Monitor Circuit:     1NC     1m     HS6E-P7Y4B01-G       Main Circuit:     01     1m     HS6E-P7Y4B01-G     HS1L       Actuators f     HS1/HS1/HS1/H     3m     HS6E-P7Y4B03-G     HS1/HS1/HS1/HS1/HS1/HS1/HS1/HS1/HS1/HS1/  |                          | N              | Main Circuit: $\ominus 11$ + 12 + 41 + 42<br>Maniter Circuit: $\ominus 21$ + 22 - 53 - 54 | 3m   | HS6E-N7Y4B03-G                |  |  |
| $P \qquad \begin{array}{c c c c c c c c c c c c c c c c c c c $  |                          |                | Monitor Circuit: <u>33</u> <u>34</u>  | 5m   | HS6E-N7Y4B05-G                |  |  |
| P Main Circuit: $\bigcirc 11$ + 12 + 42<br>Monitor Circuit: $\bigcirc 21$ + 22 + 51 + 52<br>Monitor Circuit: $\bigcirc 21$ + 22 + 51 + 52  |                          |                |   | 1m   | HS6E-P7Y4B01-G                |  |  |
|  |                          | Р              | Main Circuit: $\bigcirc 11$ + 12 + 41 + 42  | 3m   | HS6E-P7Y4B03-G                | HS1/HS5/H<br>Actuators/                  |  |
|  |                          |                |   | 5m   | HS6E-P7Y4B05-G                |  |  |

• The contact configurations show the contact status when the actuator is inserted and locked.

• LED color is G (green) only.

• Actuators are not supplied with the interlock switch and must be ordered separately.

• See E-022 for wiring.

**Download catalogs and CAD from http://eu.idec.com/downloads** 

E-012



Sa

| Pro  | Lock Mechanism | Circuit Number | Contact Configuration   | Cable Length | Part No.        |
|--|----------------|----------------|---|--------------|-----------------|
| afety Products                                 |                |                | Door Monitor Lock Monitor<br>(When inserted) (When solenoid is OFF)   | 1m           | HS6E-VL44B01-G  |
|  |                | VL             | Door monitor circuit: 3NC Lock monitor circuit: 1NC, 1NO<br>Monitor Circuit: $\bigcirc 11 + 12  41 + 42$      | 3m           | HS6E-VL44B03-G  |
| APEM   |                |                | Monitor Circuit: $\bigcirc 21$ + 22 $53$ $54$<br>Monitor Circuit: $\bigcirc 31$ + 32                          | 5m           | HS6E-VL44B05-G  |
| Switches &<br>Pilot Lights<br>Control Boxes    |                |                | Door monitor circuit:3NC Lock monitor circuit: 2NC  | 1m           | HS6E-VM44B01-G  |
| Emergency<br>Stop Switches                     |                | VM             | Monitor Circuit: $\bigcirc$ $11$ + $12$ $41$ + $42$<br>Monitor Circuit: $\bigcirc$ $21$ + $22$ $51$ + $52$    | 3m           | HS6E-VM44B03-G  |
| Enabling<br>Switches<br>Safety Products        | Spring Lock    |                | Monitor Circuit: $\bigcirc 31 + 32$   | 5m           | HS6E-VM44B05-G  |
| Explosion Proof                                |                |                | Door monitor circuit: 2NC, 1NO Lock monitor circuit: 1NC, 1NO   | 1m           | HS6E-VN44B01-G  |
| Terminal Blocks<br>Relays & Sockets            |                | VN             | Monitor Circuit: $\bigcirc$ $11$ + $12$ $41$ + $42$<br>Monitor Circuit: $\bigcirc$ $21$ + $22$ $53$ 54        | 3m           | HS6E-VN44B03-G  |
| Circuit<br>Protectors                          |                |                | Monitor Circuit: 3334   | 5m           | HS6E-VN44B05-G  |
| Power Supplies                                 |                | VP             | Door monitor circuit: 2NC, 1NO Lock monitor circuit: 2NC  | 1m           | HS6E-VP44B01-G  |
| Controllers                                    |                |                | Monitor Circuit: $\bigcirc 11$ 12 41 42<br>Monitor Circuit: $\bigcirc 21$ 22 51 52                            | 3m           | HS6E-VP44B03-G  |
| Operator<br>Interfaces<br>Sensors              |                |                | Monitor Circuit: 33 34  | 5m           | HS6E-VP44B05-G  |
| AUTO-ID  |                |                | Door monitor Lock monitor<br>(When inserted) (When solenoid is off)   | 1m           | HS6E-VL7Y4B01-G |
|  |                | VL             | Door monitor circuit: 3NC Lock monitor circuit: 1NC, 1NO  | 3m           | HS6E-VL7Y4B03-G |
| Interlock<br>Switches<br>Non-contact           |                |                | Monitor Circuit: $\bigcirc 11$ 124142Monitor Circuit: $\bigcirc 21$ 225354Monitor Circuit: $\bigcirc 31$ 3232 | 5m           | HS6E-VL7Y4B05-G |
| Interlock Switches<br>Safety Laser<br>Scanners |                |                | Door monitor circuit: 3NC Lock monitor circuit: 2NC   | 1m           | HS6E-VM7Y4B01-G |
| Safety Light<br>Curtains<br>Safety Modules     |                | VM             | Monitor Circuit: $\bigcirc 11$ + 12 41 + 42<br>Monitor Circuit: $\bigcirc 21$ + 22 $51$ + 52                  | 3m           | HS6E-VM7Y4B03-G |
|  | Solenoid Lock  |                | Monitor Circuit: $\Theta$ 31 + 32   | 5m           | HS6E-VM7Y4B05-G |
| HS6B   |                |                | Door monitor circuit: 2NC, 1NO Lock monitor circuit: 1NC, 1NO   | 1m           | HS6E-VN7Y4B01-G |
| HS6E<br>HS5D                                   |                | VN             | Monitor Circuit: $\bigcirc 11$ + 12 41 + 42<br>Monitor Circuit: $\bigcirc 21$ + 22 53 54                      | 3m           | HS6E-VN7Y4B03-G |
| HS5L   |                |                | Monitor Circuit: <u>33</u> <u>34</u>  | 5m           | HS6E-VN7Y4B05-G |
| HS1L<br>Actuators for                          |                |                | Door monitor circuit: 2NC, 1NO Lock monitor circuit: 2NC  | 1m           | HS6E-VP7Y4B01-G |
| HS1/HS5/HS6<br>Actuators/<br>Padlock Hasp      |                | VP             | Monitor Circuit: $\bigcirc 11$ + 12 41 + 42<br>Monitor Circuit: $\bigcirc 21$ + 22 51 + 52                    | 3m           | HS6E-VP7Y4B03-G |
|  |                |                | Monitor Circuit: 33 34  | 5m           | HS6E-VP7Y4B05-G |

• The contact configurations show the contact status when the actuator is inserted and locked.

• LED color is G (green) only.

• Actuators are not supplied with the interlock switch and must be ordered separately.

• See E-022 for wiring.

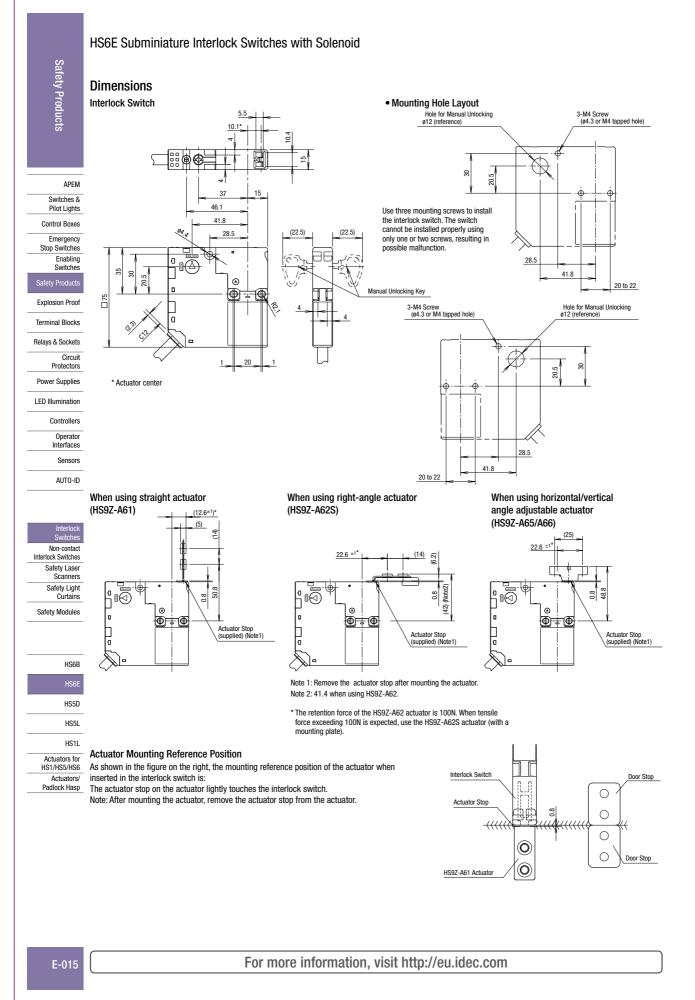
E-013



| HS9Z-A61<br>HS9Z-A62<br>HS9Z-A62S | The retention force of HS9Z-A61 actuator is 500N maximum.<br>Do no apply excessive load, otherwise the actuator may fall off the door.<br>The retention force of HS9Z-A62 actuator is 100N maximum.<br>Do no apply excessive load, otherwise the actuator may fall off the door.<br>When retention force of 100N or more is required, use the HS9Z-A62S actuator. | Safety Products   |
|-----------------------------------|---|---|
| HS9Z-A62                          | Do no apply excessive load, otherwise the actuator may fall off the door. The retention force of HS9Z-A62 actuator is 100N maximum. Do no apply excessive load, otherwise the actuator may fall off the door.   | APEM  |
|                                   | Do no apply excessive load, otherwise the actuator may fall off the door.   |   |
|                                   | Do no apply excessive load, otherwise the actuator may fall off the door.   |   |
| HS9Z-A62S                         |   | Switches &<br>Pilot Lights  |
| HS9Z-A62S                         |   | Control Box   |
|                                   | The retention force of HS9Z-A62S actuator is 500N maximum.<br>Do no apply excessive load, otherwise the actuator may fall off the door.   | Emergency<br>Stop Switch<br>Enabling<br>Switches  |
|                                   |   | Safety Prod   |
| HS9Z-A65                          |   | Explosion Pr  |
|                                   | The HS9Z-A65 and HS9Z-A66 have the metal key installed in opposite directions.  | Relays & So   |
| HS9Z-A66                          | The retention force of HS92-A65 and HS92-A66 actuators is 500N maximum.   | Circuit<br>Protectors<br>Power Supp   |
|                                   |   |   |
| ration in consideration           | of the dear and interleak quiteb. (See E 020 to E 021)  | LED Illumina  |
|                                   |   | Controllers<br>Operator<br>Interfaces   |
|                                   |   | Sensors   |
| <u>4 4 B 05</u> - <u>G</u>        |   | AUTO-ID   |
| 05<br>Ho<br>B:                    | 5: 5m   | Switches<br>Non-contact<br>Interlock Swi  |
|                                   | dicator Voltage<br>24V DC   | Safety Lase<br>Scanners<br>Safety Light<br>Curtains<br>Safety Mode  |
|                                   |   | Scanners<br>Safety Light<br>Curtains  |
|                                   | 24V DC<br>Manual Unlock Key Manual Unlock Key   | Scanners<br>Safety Light<br>Curtains<br>Safety Mode<br>HS6B   |
| J 4:                              | 24V DC  | Scanners<br>Safety Light<br>Curtains<br>Safety Mode<br>HS6B<br>HS6E   |
| 4:<br>Part No.                    | 24V DC<br>Manual Unlock Key Manual Unlock Key   | Scanners<br>Safety Light<br>Curtains<br>Safety Mode<br>HS6B<br>HS6B<br>HS5D   |
| 4:<br>Part No.                    | Manual Unlock Key<br>(supplied) (plastic)<br>Manual Unlock Key<br>(long) (metal)  | Scanners<br>Safety Light<br>Curtains<br>Safety Mode<br>HS6B<br>HS6E<br>HS6E<br>HS5D<br>HS5L   |
| 4:<br>Part No.                    | Manual Unlock Key<br>(supplied) (plastic)<br>Manual Unlock Key<br>(long) (metal)  | Scanners<br>Safety Light<br>Curtains<br>Safety Mode<br>HS68<br>HS68<br>HS68<br>HS5D<br>HS5L<br>HS1L   |
| 4:<br>Part No.                    | Manual Unlock Key<br>(supplied) (plastic)<br>Manual Unlock Key<br>(long) (metal)  | Scanners<br>Safety Light<br>Curtains<br>Safety Mode<br>HS6B<br>HS6B<br>HS6B<br>HS5D<br>HS5L<br>HS5L<br>HS5L<br>HS5L<br>HS5L   |
| 4:<br>Part No.                    | Manual Unlock Key<br>(supplied) (plastic)<br>Manual Unlock Key<br>(long) (metal)  | Scanners<br>Safety Light<br>Curtains<br>Safety Mode<br>HS68<br>HS68<br>HS68<br>HS5D<br>HS5L<br>HS1L<br>Actuators fo<br>HS1L<br>Actuators /<br>Padlock Has   |
|                                   | HS9Z-A66<br>ection in consideration   | The HS9Z-A65 and HS9Z-A66 have the metal key installed in opposite directions.         The retention force of HS9Z-A65 and HS9Z-A66 actuators is 500N maximum.         HS9Z-A66         rection in consideration of the door and interlock switch. (See E-020 to E-021) |

Trimada AG | CH-5610 Wohlen | Tel. +41 56 618 77 00 | info@trimada.ch | www.trimada.ch







Saf

#### HS6E Subminiature Interlock Switches with Solenoid

|                                    | cuit Diagrams and C<br>ndard – Spring Lock  | )perating Cha  | racteristics   |   |  |   |  | ety Products  |
|------------------------------------|---|--|--|---|--|---|--|---|
| Interlock Switch Status            |   |  | Status 1  Door closed  Machine ready to operate Solenoid de-energized  | Status 2  Door closed Machine cannot be operated Solenoid energized   | Status 3   Door open  Machine cannot be operated  Solenoid energized | Status 4<br>• Door open<br>• Machine cannot be<br>operated<br>• Solenoid<br>de-energized  | Unlocking using<br>Manual Unlock Key<br>• Door closed<br>• Machine cannot be<br>operated<br>• Solenoid<br>de-energized | APEM  |
| Door Status                        |   |  |  |   |  |   | Manually<br>Unlocked   | Switches &<br>Pilot Lights<br>Control Boxes<br>Emergency<br>Stop Switches |
| Circuit Diagram (Example: HS6E-N4) |   | $\begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \end{array} \\ \begin{array}{c} \end{array} \\ \end{array} $ | $\begin{array}{c} \begin{array}{c} (+) \\ A2 \\ \hline \\ 11 \\ \bullet \\ 12 \\ \bullet \\ 12$ | $\begin{array}{c} (+) & (-) \\ A2 & (-) \\ A2 & (-) \\ A2 & (-) \\ A1 $ |  | $\begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \end{array} \\ \begin{array}{c} \end{array} \\ \end{array} $ | Enabling<br>Switches<br>Safety Products<br>Explosion Proof   |   |
| Doo                                | HS6E-L4<br>(When inserted) (When ON)  | Main Circuit 11-42   | Closed (locked)  | Closed (unlocked)   | Open   | Open  | Closed (unlocked)  | Terminal Blocks<br>Relays & Sockets<br>Circuit                            |
|                                    | Door Lock<br>Monitor Monitor  | Door Monitor Circuit<br>(door closed) 21-22  |  |   |  |   |  | Protectors  |
|                                    | $\begin{array}{c c} (+) & (-) \\ A_2 & A_1 \\ \hline \\ Main Circuit: & \oplus 1 \\ 1 + 12 & 41 + 42 \end{array}$   | Door Monitor Circuit<br>(door closed) 31-32  |  |   |  |   |  | Power Supplies  |
|                                    | Monitor Circuit: $\ominus 21 + 22 53 54$<br>Monitor Circuit: $\ominus 31 + 32$  | Lock Monitor Circuit<br>(unlocked) 53-54   |  |   |  |   |  | LED Illumination  |
|                                    | HS6E-M4   | Main Circuit 11-42   |  |   |  |   |  | Operator  |
|                                    |   | Door Monitor Circuit   |  |   |  |   |  | Interfaces<br>Sensors   |
| JTain                              | $\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$  | (door closed) 21-22<br>Door Monitor Circuit<br>(door closed) 31-32   |  |   |  |   |  | AUTO-ID   |
| uit Dia                            |   | Lock Monitor Circuit<br>(locked) 51-52   |  |   |  |   |  |   |
| Model and Circuit Diagram          | HS6E-N4   | Main Circuit 11-42   |  |   |  |   |  | Interlock   |
| Aodel 8                            |   | Door Monitor Circuit   |  |   |  |   |  | Switches<br>Non-contact   |
| _                                  | Main Circuit:         ⊕1         12         41         42           Monitor Circuit:         ⊕21         22         53         54           Monitor Circuit:         33         34         54 | (door closed) 21-22<br>Door Monitor Circuit  |  |   |  |   |  | Interlock Switche<br>Safety Laser<br>Scanners                             |
|                                    | Monitor Circuit: 3 <u>3</u> <u>34</u>   | (door open) 33-34<br>Lock Monitor Circuit<br>(unlocked) 53-54  |  |   |  |   |  | Safety Light<br>Curtains  |
|                                    | HS6E-P4   | Main Circuit 11-42   |  |   |  |   |  | Safety Modules  |
|                                    | Main Circuit: ⊕1 <u>1+ 12 41+ 42</u>  | Door Monitor Circuit<br>(door closed) 21-22  |  |   |  |   |  |   |
|                                    | Monitor Circuit: $\bigcirc 21 + 22 51 + 52$<br>Monitor Circuit: $33 34$   | Door Monitor Circuit<br>(door open) 33-34  |  |   |  |   |  | HS6B  |
|                                    |   | Lock Monitor Circuit<br>(locked) 51-52   |  |   |  |   |  | HS6E  |
| Sole                               | enoid Power A1-A2 (all model)   |  | OFF (de-energized)   | ON (energized)  | ON (energized)   | OFF (de-energized)  | OFF (de-energized)   | HS5D  |
|                                    | n circuit: Connected to the mac   |  |  |   |  |   |  | HS5L  |
| 011                                | itor circuit: Sends the monitorir   | ig signals of open/ci  | useu anu iuck/uniocke  | eu statuses of the prot   |  |   |  | HS1L  |
| pe                                 | eration Characteristics (I  | -  |  |   |  |   |  | Actuators for<br>HS1/HS5/HS6  |
|                                    | 3.0 0<br>   | 3 (Actuator Insertion Pos<br>1.9 (Locked Posit   | ion)   |   |  |   |  | Actuators/<br>Padlock Hasp  |
| lair                               | ı Circuit   | 5.5 5.8  | 28.2 (stroke in mm)  |   |  |   |  |   |
| 001                                | Monitor Circuit (door open, NO)   |  | : Contacts ON  | (closed)  |  |   |  |   |
| ock                                | Monitor Circuit (unlocked, NO)  |  | : Contacts OFF   | (open)  |  |   |  |   |
| Fo                                 | e characteristics shown in the<br>r the HS9Z-A62S actuator, sub<br>le characteristics show the con  | tract 0.6 mm.  |  |   |  |   |  |   |
|                                    |   |  |  |   |  |   |  |   |
|                                    | 📩 D   | ownload cat  | alogs and CA   | D from http:/   | /eu.idec.com   | /downloads  |  | E-016   |
|                                    |   |  |  |   |  |   |  |   |

Trimada AG | CH-5610 Wohlen | Tel. +41 56 618 77 00 | info@trimada.ch | www.trimada.ch



#### Standard – Solenoid Lock

Safety

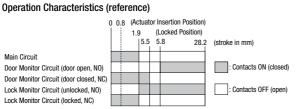
| ty _                       | Sta                                 | ndard – Solenoid Lock  | _   |   |   |  |   |  |
|----------------------------|-------------------------------------|--|---|---|---|--|---|--|
| ly Products                | Inte                                | rlock Switch Status  |   | Status 1  Door closed Machine ready to operate Solenoid | Status 2  Door closed Machine cannot be operated Solenoid de serviced | Status 3  Door open Machine cannot be operated Solenoid  | Status 4  Door open Machine cannot be operated Solenoid | Unlocking using<br>Manual Unlock Key<br>• Door closed<br>• Machine cannot be<br>operated<br>• Solenoid<br>• Solenoid |
|                            | -                                   |  |   | energized   | de-energized  | de-energized   | energized   | de-energized   |
|                            |                                     |  |   |   | $\sim$  |  |   | اا ، ۳۵۰   |
| APEM                       | Doc                                 | or Status  |   |   |   |  |   |  |
| Switches &<br>Pilot Lights |                                     |  |   | Anna and  | ्रीक्र  | and the second s |   |  |
| Control Boxes              |                                     |  |   |   |   |  | वनह   | Manually<br>Unlocked   |
| Emergency                  |                                     |  |   |   |   |  |   |  |
| Stop Switches<br>Enabling  |                                     |  |   |   |   |  |   |  |
| Switches                   | Circuit Diagram (Example: HS6E-N7Y) |  |   | 11 12 41 42   | <u>11 12 41 42</u>  | <u>11 12 41 42</u>   |   | <u>11 12 41 42</u>   |
| Safety Products            |                                     |  |   | 2 <u>1 22 53 0 54</u>                                   | <u>21</u> <u>22</u> <u>53</u> <u>54</u>                               | 21 22 53 54  |   | 21 22 53 54  |
| Explosion Proof            |                                     |  |   | <u>33_0 a 34</u>  | <u>33</u>   | 33 0 34  |   | <u>33</u> <u>o</u> <u>o</u> <u>34</u>  |
|                            | Doc                                 | HS6E-L7Y   | 1   | Closed (locked)   | Closed (unlocked)   | Open   | Open  | Closed (unlocked)  |
| Terminal Blocks            |                                     | (When inserted) (When ON)  | Main Circuit 11-42                          |   |   |  |   |  |
| Relays & Sockets           |                                     | Door Lock<br>Monitor Monitor   | Door Monitor Circuit                        |   |   |  |   | -  |
| Circuit                    |                                     | 낢 (+) ㄷ♡ㄱ(-)   | (door closed) 21-22                         |   |   |  |   | -  |
| Protectors                 |                                     | H A2 H A1<br>Main Circuit: ⊕11 + 12 41 + 42<br>Monitor Circuit: ⊕21 + 22 53 54       | Door Monitor Circuit<br>(door closed) 31-32 |   |   |  |   |  |
| Power Supplies             |                                     |  | Lock Monitor Circuit                        |   |   |  |   |  |
| LED Illumination           |                                     | Monitor Circuit: ⊕3 <u>1 + 32</u>  | (unlocked) 53-54                            |   |   |  |   | _  |
| Controllers                |                                     | HS6E-M7Y   | Main Circuit 11-42                          |   |   |  |   |  |
| Operator                   |                                     |  | Door Monitor Circuit                        |   |   |  |   | -  |
| Interfaces                 |                                     | Main Circuit: ⊕1 <u>1 + 12 41 + 4</u> 2  | (door closed) 21-22                         |   |   |  |   |  |
| Sensors                    | ram                                 | Monitor Circuit: $\bigcirc 21 + 22  51 + 52$<br>Monitor Circuit: $\bigcirc 31 + 32$  | Door Monitor Circuit<br>(door closed) 31-32 |   |   |  |   |  |
| AUTO-ID                    | Diag                                | Monitor Circuit: (+) 31 + 32   | Lock Monitor Circuit                        |   |   |  |   |  |
|                            | Ircuit                              |  | (locked) 51-52                              |   |   |  |   |  |
|                            | nd Ci                               | HS6E-N7Y   | Main Circuit 11-42                          |   |   |  |   |  |
| Interlock                  | Model and Circuit Diagram           |  | Door Monitor Circuit                        |   |   |  |   |  |
| Switches<br>Non-contact    | 2                                   | Main Circuit: ⊕11 + 12 41 + 42<br>Monitor Circuit: ⊕21 + 22 53 54                    | (door closed) 21-22                         |   |   |  |   |  |
| Interlock Switches         |                                     | Monitor Circuit: $33334$   | Door Monitor Circuit<br>(door open) 33-34   |   |   |  |   |  |
| Safety Laser<br>Scanners   |                                     |  | Lock Monitor Circuit                        |   |   |  |   |  |
| Safety Light               |                                     |  | (unlocked) 53-54                            |   |   |  |   | _  |
| Curtains                   |                                     | HS6E-P7Y   | Main Circuit 11-42                          |   |   |  |   |  |
| Safety Modules             |                                     |  | Door Monitor Circuit                        |   |   |  |   | -  |
|                            |                                     | Main Circuit: ⊕1 <u>1 + 12 41 + 42</u><br>Monitor Circuit: ⊕2 <u>1 + 22 51 + 5</u> 2 | (door closed) 21-22                         |   |   |  |   |  |
|                            |                                     | Monitor Circuit: 33 34   | Door Monitor Circuit<br>(door open) 33-34   |   |   |  |   |  |
| HS6B                       |                                     |  | Lock Monitor Circuit                        |   |   |  |   |  |
| HS6E                       |                                     |  | (locked) 51-52                              |   |   |  |   |  |
| HS6E                       | Sol                                 | enoid Power A1-A2 (all model)  |   | ON (energized)  | OFF (de-energized)  | OFF (de-energized)   | ON (energized)<br>(Note 2)                              | OFF (de-energized) to<br>ON (re-energized)<br>(Note 1) (Note 2)  |
| 11030                      |                                     |  |   |   |   |  | (   | (Note 1) (Note 2)  |

Main circuit: Connected to the machine drive control circuit, sending the interlo ck signals of the protective door Monitor circuit: Sends the monitoring signals of open/closed and lock/unlocked statuses of the protective door.

HS1L Note 1: Do not attempt manual unlocking while the solenoid is energized.

Note 2: Do not energize the solenoid for a long period of time while the door is open or while the door is unlocked manually using the manual unlock key.

Actuators for HS1/HS5/HS6 Actuators/ Padlock Hasp



• The characteristics shown in the chart above are of the HS9Z-A61, -A62, -A65, and -A66 actuators.

For the HS9Z-A62S actuator, subtract 0.6 mm.

• The characteristics show the contact status when the actuator enters an entry slot of an interlock switch.





| 5-c                             | ircuit Independent Output -  | - Spring Lock                                       |  |   |   |   |  | afety Products                     |
|---------------------------------|--|---|--|---|---|---|--|------------------------------------|
|                                 |  |   | Status 1   | Status 2  | Status 3  | Status 4  | Unlocking using<br>Manual Unlock Key   | Prod                               |
| Inte                            | rlock Switch Status  |   | <ul> <li>Door closed</li> <li>Machine ready to operate</li> <li>Solenoid energized</li> </ul>  | <ul> <li>Door closed</li> <li>Machine cannot be operated</li> <li>Solenoid energized</li> </ul> | <ul> <li>Door open</li> <li>Machine cannot be operated</li> <li>Solenoid energized</li> </ul> | Door open     Machine cannot be<br>operated     Solenoid de-energized | <ul> <li>Door closed</li> <li>Machine cannot be<br/>operated</li> <li>Solenoid de-energized</li> </ul> | ucts                               |
|                                 | · · · · · · · · · · · · · · · · · · ·  |   |  |   |   |   |  |                                    |
| Doc                             | r Status   |   |  |   |   |   | 0-0  | APEM                               |
| DUC                             | 1 Status   |   | And the second s | ATTE A  | And the second  |   |  | Switches &<br>Pilot Lights         |
|                                 |  |   |  |   |   |   | Manually<br>unlocked   | Control Boxes                      |
|                                 |  |   |  |   |   |   |  | Emergency<br>Stop Switches         |
| Circ                            | uit Diagram (Example: HS6E-VN4)  |   |  |   |   |   |  | Enabling                           |
|                                 |  |   | 21 22 53 54<br>33 0 34   | 21 22 53 54<br>33 34  | 21 22 53 54<br>33 0 34  | 21 22 53 54<br>33 0 34  | 21 22 53 54<br>33 34   | Switches<br>Safety Products        |
| Doc                             | r  |   | Closed (locked)  | Closed (unlocked)   | Open  | Open  | Closed (unlocked)  | Explosion Proof                    |
|                                 | HS6E-VL4   | Door Monitor Circuit<br>(door closed) 11-12         |  |   |   |   |  | Terminal Blocks                    |
|                                 | Door monitor Lock monitor<br>(When inserted) (When off)  | Door Monitor Circuit<br>(door closed) 21-22         |  |   |   |   |  | Relays & Sockets                   |
|                                 |  | Door Monitor Circuit<br>(door closed) 31-32         |  |   |   |   |  | Circuit                            |
|                                 | Monitor Circuit: $\ominus 11$ , 12, 41, 42<br>Monitor Circuit: $\ominus 21$ , 22, 53, 54<br>Manitar Circuit: $\ominus 21$ , 22, 53, 54 | Lock Monitor Circuit                                |  |   |   |   |  | Protectors                         |
|                                 | Monitor Circuit: ⊕3 <u>1 + 32</u>  | (locked) 41-42<br>Lock Monitor Circuit              |  |   |   |   |  | Power Supplies                     |
|                                 | HS6E-VM4   | (unlocked) 53-54<br>Door Monitor Circuit            |  |   |   |   |  | LED Illumination                   |
|                                 |  | (door closed) 11-12<br>Door Monitor Circuit         |  |   |   |   |  | Controllers<br>Operator            |
|                                 | Monitor Circuit: ⊕11 + 12 41 + 42  | (door closed) 21-22<br>Door Monitor Circuit         |  |   |   |   |  | Interfaces                         |
| Iration                         | Monitor Circuit: $\oplus 21 + 22  51 + 52$<br>Monitor Circuit: $\oplus 31 + 32$  | (door closed) 31-32<br>Lock Monitor Circuit         |  |   |   |   |  | Sensors                            |
| configu                         |  | (locked) 41-42<br>Lock Monitor Circuit              |  |   |   |   |  | AUTO-ID                            |
| ntact C                         | HS6E-VN4   | (locked) 51-52<br>Door Monitor Circuit              |  |   |   |   |  |                                    |
| Model and Contact Configuration | Monitor Circuit: $\ominus 1_1 + 1_2 + 4_1 + 4_2$   | (door closed) 11-12<br>Door Monitor Circuit         |  |   |   |   |  | Interlock                          |
| odel a                          |  | (door closed) 21-22<br>Door Monitor Circuit         |  |   |   |   |  | Switches<br>Non-contact            |
| 2                               | Monitor Circuit: $\ominus 21 + 22 53 54$<br>Monitor Circuit: $33 34$   | (door open) 33-34                                   |  |   |   |   |  | Interlock Switches<br>Safety Laser |
|                                 |  | Lock Monitor Circuit<br>(locked) 41-42              |  |   |   |   |  | Scanners                           |
|                                 |  | Lock Monitor Circuit<br>(unlocked) 53-54            |  |   |   |   |  | Safety Light<br>Curtains           |
|                                 | HS6E-VP4   | Door Monitor Circuit<br>(door closed) 11-12         |  |   |   |   |  | Safety Modules                     |
|                                 | Monitor Circuit: ⊕1 <u>1 + 12</u> 4 <u>1 + 4</u> 2   | Door Monitor Circuit<br>(door closed) 21-22         |  |   |   |   |  |                                    |
|                                 | Monitor Circuit: $\bigcirc 21$ $22$ $51$ $52$<br>Monitor Circuit: $\bigcirc 21$ $32$ $34$  | Door Monitor Circuit<br>(door open) 33-34           |  |   |   |   |  |                                    |
|                                 |  | Lock Monitor Circuit<br>(locked) 41-42              |  |   |   |   |  | HS6B                               |
|                                 |  | Lock Monitor Circuit<br>(locked) 51-52              |  |   |   |   |  | HS6E                               |
|                                 | Solenoid Power A1-A2 (al   |   | OFF (de-energized)   | ON (energized)  | ON (energized)  | OFF (de-energized)  | OFF (de-energized)   | HS5D                               |
|                                 |  |   |  |   | on (chergized)  |   | of r (ac chergized)  | HS5L                               |
| Mor                             | itor circuit: Sends the monitorir  | ng signals of open/c                                | losed and lock/unlock  | ed statuses of the pro  | tective door.   |   |  | HS1L                               |
| Ope                             | eration Characteristics (refe  | ,   |  |   |   |   |  | Actuators for<br>HS1/HS5/HS6       |
|                                 | 0.08   | 3 (Actuator Insertion Posi<br>1.9 (Locked Position) | tion)  |   |   |   |  | Actuators/<br>Padlock Hasp         |
| Dee                             | Manitar Circuit (daar anan NO)   | 5.5 5.8   | 28.2 (stroke in mm)<br>: Contacts Of   | N (closed)  |   |   |  |                                    |
| Doo                             | Monitor Circuit (door open, NO)<br>Monitor Circuit (door closed, NC)   |   |  |   |   |   |  |                                    |
|                                 | Monitor Circuit (unlocked, NO)   |   | : Contacts OF  | FF (open)   |   |   |  |                                    |
| • Tł                            | e characteristics shown in the   | chart above are of t                                | he HS9Z-A61, -A62, -A  | A65, and -A66 actuato   | rs.   |   |  |                                    |
| Fo                              | r the HS9Z-A62S actuator, subt   | ract 0.6 mm.  |  |   |   |   |  |                                    |
| • Iľ                            | e characteristics show the con   | iaci siaius when the                                | e actuator enters an er  | nu y siot of an interioci   | SWILCH.   |   |  |                                    |
|                                 |  |   |  |   |   |   |  |                                    |
|                                 |  |   |  |   |   |   |  |                                    |
| _                               | n  | ownload oo  | talaga and C/  | D from http:  | //ou idea com   | downloada   |  | E ete                              |
|                                 | 🔼 D  | uwiniuau Ca   | talogs and CA  | יווטוו ווונוף:/   | /cu.iuec.com  | n nominogna   |  | E-018                              |



#### 5-circuit Independent Output – Solenoid Lock

Safety

| Products                           |                                      |  |  | Status 1  | Status 2   | Status 3  | Status 4  | When using Manual<br>Unlock Key  |
|------------------------------------|--------------------------------------|--|--|---|--|---|---|--|
| ucts                               | Inte                                 | prlock Switch Status   |  | <ul> <li>Door closed</li> <li>Machine ready to operate</li> <li>Solenoid energized</li> </ul> | <ul> <li>Door closed</li> <li>Machine cannot be operated</li> <li>Solenoid de-energized</li> </ul> | <ul> <li>Door closed</li> <li>Machine cannot be operated</li> <li>Solenoid de-energized</li> </ul>  | <ul> <li>Door open</li> <li>Machine cannot be operated</li> <li>Solenoid energized</li> </ul>   | <ul> <li>Door closed</li> <li>Machine cannot be operated</li> <li>Solenoid de-energized → energized</li> </ul> |
|                                    |                                      |  |  |   |  |   |   |  |
| APEM<br>Switches &                 | Doc                                  | ot Status  |  |   |  |   |   |  |
| Pilot Lights<br>Control Boxes      |                                      |  |  |   |  |   |   | Annually   |
| Emergency                          | -                                    |  |  |   | 408<br>  14 00000  |   |   | unlocked   |
| Stop Switches<br>Enabling          | Circ                                 | uit Diagram (Evample: HS6E_\/NI7V)   |  |   |  | $\begin{array}{c} \begin{array}{c} \begin{array}{c} (+) \\ A2 \\ 11 \\ 11 \\ 12 \end{array} \begin{array}{c} (+) \\ A2 \\ A1 \\ A2 \\ A1 \\ A1 \\ A2 \\ A1 \\ A1$ | $\begin{array}{c} (+) \\ A2 \\ \underline{41} \\ \underline{41} \\ 42 \\ \underline{41} \\ \underline{42} \\ \underline{41} $ | $\begin{array}{c c} & (+) & (-) \\ \hline & A2 & A1 \\ \hline 11 & 12 & 41 & 42 \end{array}$                   |
| Switches<br>Safety Products        | Circuit Diagram (Example: HS6E-VN7Y) |  |  | 21 22 53 54   | 21 22 53 54  |   |   | 21 22 53 54  |
| Explosion Proof                    | Doc                                  | nr   |  | Closed (locked)   | 33 o 34<br>Closed (unlocked)   | 0pen  | 33_0_0_34<br>Open   | 33 oo 34<br>Closed (unlocked)  |
| Terminal Blocks                    |                                      | HS6E-VL7Y  | Door Monitor Circuit   |   |  |   | 5000  |  |
| Relays & Sockets                   |                                      | Door Monitor Lock Monitor<br>(When inserted) When ON   | (door closed) 11-12<br>Door Monitor Circuit<br>(door closed) 21-22 |   |  |   |   |  |
| Circuit<br>Protectors              |                                      |  | Door Monitor Circuit<br>(door closed) 31-32                        |   |  |   |   |  |
| Power Supplies                     |                                      | Monitor Circuit: $\oplus 11 + 12  41 + 42$<br>Monitor Circuit: $\oplus 21 + 22  53  54$<br>Monitor Circuit: $\oplus 31 + 32$   | Lock Monitor Circuit<br>(locked) 41-42                             |   |  |   |   |  |
| LED Illumination                   |                                      |  | Lock Monitor Circuit<br>(unlocked) 53-54                           |   |  |   |   |  |
| Controllers                        |                                      | HS6E-VM7Y  | Door Monitor Circuit<br>(door closed) 11-12                        |   |  |   |   |  |
| Operator<br>Interfaces             |                                      |  | Door Monitor Circuit<br>(door closed) 21-22                        |   |  |   |   |  |
| Sensors                            | 5                                    | Monitor Circuit: $\ominus 1$ $1$ $1$ $4$ $4$ $4$ Monitor Circuit: $\ominus 2$ $5$ $5$ $5$  | Door Monitor Circuit<br>(door closed) 31-32                        |   |  |   |   |  |
| AUTO-ID                            | and Contact Configuration            | Monitor Circuit: ⊕3 <u>1 - 32</u>  | Lock Monitor Circuit<br>(locked) 41-42                             |   |  |   |   |  |
|                                    | lct Con                              |  | Lock Monitor Circuit<br>(locked) 51-52                             |   |  |   |   |  |
| Interlock                          | 1 Conta                              | HS6E-VN7Y  | Door Monitor Circuit<br>(door closed) 11-12                        |   |  |   |   |  |
| Switches                           | Model and                            |  | Door Monitor Circuit<br>(door closed) 21-22                        |   |  |   |   |  |
| Interlock Switches<br>Safety Laser | l₿                                   | Monitor Circuit: $\bigcirc 1_{1}$ , $1_{2}$ , $4_{1}$ , $4_{2}$<br>Monitor Circuit: $\bigcirc 2_{1}$ , $2_{2}$ , $5_{3}$ , $5_{4}$<br>Monitor Circuit: $3_{3}$ , $3_{4}$ | Door Monitor Circuit<br>(door open) 33-34                          |   |  |   |   |  |
| Scanners<br>Safety Light           |                                      |  | Lock Monitor Circuit<br>(locked) 41-42                             |   |  |   |   |  |
| Curtains                           |                                      |  | Lock Monitor Circuit<br>(unlocked) 53-54                           |   |  |   |   |  |
| Safety Modules                     |                                      | HS6E-VP7Y  | Door Monitor Circuit<br>(door closed) 11-12                        |   |  |   |   |  |
|                                    |                                      | Monitor Circuit: ⊕1 <u>1 + 12</u> 4 <u>1 + 4</u> 2   | Door Monitor Circuit<br>(door closed) 21-22                        |   |  |   |   |  |
| HS6B                               |                                      | Monitor Circuit: $\textcircled{O}21 + 22  51 + 52$<br>Monitor Circuit: $\textcircled{33}  34$  | Door Monitor Circuit<br>(door open) 33-34                          |   |  |   |   |  |
| HS6E                               |                                      |  | Lock Monitor Circuit<br>(locked) 41-42                             |   |  |   |   |  |
| HS5D                               |                                      |  | Lock Monitor Circuit<br>(locked) 51-52                             |   |  |   |   |  |
| HS5L                               | Sol                                  | enoid Power A1-A2 (all model)  |  | ON (energized)  | OFF (de-energized)   | OFF (de-energized)  | ON (energized)<br>(Note 2)  | (Note 1) (Note 2)<br>OFF (de-energized)<br>$\rightarrow$ ON (energized)  |
| HS1L                               | Mon                                  | itor circuit: Sends the monitoring s   | signals of open/close  | d and lock/unlocked sta   | tuses of the protective  | door.   | 1   | , on (onorgizou)   |

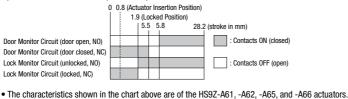
Monitor circuit: Sends the monitoring signals of open/closed and lock/unlocked statuses of the protective door.
Tote 1: Do not attempt manual unlocking while the solenoid is energized.

Actuators for HS1/HS5/HS6 Note 2: Do not attempt manual unlocking while the solenoid is energized Note 2: Do not energize the solenoid for a long period of time while the d

6. Note 2: Do not energize the solenoid for a long period of time while the door is open or while the door is unlocked manually using the manual unlock key.

#### Actuators/ Padlock Hasp

#### **Operation Characteristics (reference)**



For the HS9Z-A62S actuator, subtract 0.6 mm.

• The characteristics show the contact status when the actuator enters an entry slot of an interlock switch.

#### E-019

#### A Safety Precautions

- . In order to avoid electric shock or fire, turn power off before installation, removal, wiring, maintenance, or inspection of the interlock switch.
- . If relays are used in the circuit between the interlock switch and the load, use only safety relays, since welded or sticking contacts of standard relays may invalidate the functions of the interlock switch. Perform a risk assessment and make a safety circuit which satisfies the requirements of the safety category.
- . Do not place a PLC in the circuit between the interlock switch and the load. Safety security can be endangered in the event of a malfunction of the PLC.

#### Instructions

- · Regardless of door types, do not use the interlock switch as a door stop. Install a mechanical door stop at the end of the door to protect the interlock switch against excessive force.
- Do not apply excessive shock to the interlock switch when opening or closing the door. A shock to the interlock switch exceeding 1,000 m/s<sup>2</sup> may cause damage to the interlock switch.
- . When unlocking, the switch may not be unlocked if a load is applied to the actuator.
- If the operating atmosphere is contaminated, use a protective cover to prevent the entry of foreign objects into the interlock switch through the actuator entry slots.
- Entry of a considerable amount of foreign objects into the interlock switch may affect the mechanism of the interlock switch and cause a malfunction.
- . Do not store the interlock switches in a dusty, humid, or organic-gas atmosphere, or in an area subjected to direct sunlight.
- Use dedicated actuators only. When other actuators are used, the interlock switch may be damaged.
- . For correct operation, install the interlock switch on a flat surface and provide sufficient strength to the surface so that it is not disfigured. Do not insert any object between the interlock switch and installation surface
- . Do not cut the actuator. modification of the actuator may cause damage.
- . The locking strength is rated at 500N. Do not apply a load higher than the rated value. When a higher load is expected, provide an additional system consisting of another interlock switch without lock (such as the HS6B/HS7A interlock switch) or a sensor to detect door opening and stop the machine.
- · Regardless of door types, do not use the interlock switch as a door lock. Install a separate lock using a latch or other measures.
- . While the solenoid is energized, the switch temperature rises approximately 35°C above the ambient temperature (to approximately 85°C while the ambient temperature is 50°C). Do not touch to prevent burns. If cables come into contact with the switch, use heat-resistant cables
- · Solenoid has polarity. Be sure of correct polarity when wiring, otherwise solenoid will be damaged. Do not apply voltage over the rated voltage, otherwise the solenoid will be burnt.
- · Bouncing will occur on the lock monitor contact during locking and unlocking (reference value: 20 ms).

- . Do not disassemble or modify the interlock switch, otherwise a malfunction or an accident may occur.
- Do not install the actuator in a location where a human body may come into contact. Otherwise injury may occur
- · Solenoid lock is locked when energized, and unlocked when deenergized. When energization is interrupted due to wire disconnection or other failures, the interlock switch may be unlocked causing possible danger to the operators. Solenoid lock must not be used in applications where locking is strictly required for safety. Perform a risk assessment and determine whether solenoid lock is appropriate.

Although the HS9Z-A61/A62/A62S actuators alleviate shock when

the actuator enters a slot in the interlock switch, make sure that

If the rubber bushings become deformed or cracked, replace with

minimum radius of doors shown below. When using on doors with

Note: Because deviation or dislocation of hinged doors may occur in actual

When Using the HS9Z-A62/A62S Right-angle Actuator

applications, make sure of the correct operation before installation.

When the door hinge is on the extension line of the interlock switch surface

small minimum radius, use the angle adjustable actuator (HS9Z-A65

When using the interlock switch on hinged doors, refer to the

excessive shock is not applied.

Minimum Radius of Hinged Door

new ones.

and HS9Z-A66)

Safety Products

#### APEM

Switches & Pilot Lights Control Boxes Emergency Stop Switches Enabling Switches

- Explosion Proof
- Terminal Blocks

Relays & Sockets Circuit

Protectors

Power Supplies LED Illumination

Controllers

- Operator Interfaces Sensors
- AUTO-ID

Non-contact Interlock Switches

Safety Laser Scanners

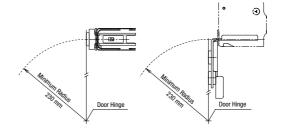
Safety Light

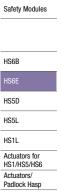
Curta

⊛

Door Hinge





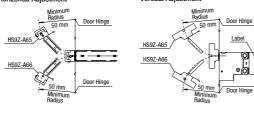


Download catalogs and CAD from http://eu.idec.com/downloads

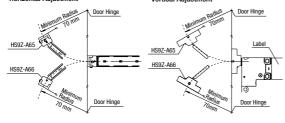
E-020



When using the HS9Z-A65/HS9Z-A66 Angle Adjustable Actuator . When the door hinge is on the extension line of the interlock switch surface Vertical Adjustment Horizontal Adjustment



. When the door hinge is on the extension line of the actuator mounting surface Horizontal Adjustment Vertical Adjustment



#### Actuator Angle Adjustment for the HS9Z-A65/HS9Z-A66

- . Using the angle adjustment screw, the actuator angle can be adjusted (see figures on E-070)
- Adjustable angle: 0 to 20°
- The larger the adjusted angle of the actuator, the smaller the applicable radius of the door opening.
- After installing the actuator, open the door. Then adjust the actuator so that its edge can enter properly into the actuator entry slot of the interlock switch.
- AUTO-ID · After adjusting the actuator angle, apply Loctite to the adjustment screw so that the screw will not become loose

#### Mounting Examples

Mount the interlock switch on a fixated machine or guard, and mount the actuator on the hinged door. Do not mount both interlock switch and actuator on hinged doors, otherwise malfunction will occur

Non-contact Interlock Switches Safety Lase Scanners Safety Light Curtains

Application on Sliding Doors Application on Hinged Doors

Safety Modules

HS6B

HS5D

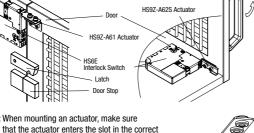
HS5L

HS11

HS9Z-A62S Actuato HS9Z-A61 Actuato

Note: When mounting an actuator, make sure direction, as shown on the right.

Actuators for HS1/HS5/HS6 Actuators Padlock Hasp



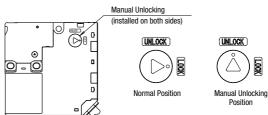
For Manual Unlocking

#### Spring lock

The HS6E allows manual unlocking of the actuator to pre-check proper door operation before wiring or turning power on, as well as for emergency use such as a power failure. Solenoid lock

The HS6E can be unlocked manually in emergency.

#### When using the manual unlock key

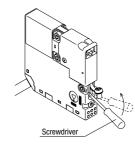


- . When locking or unlocking the interlock switch manually, turn the key fully using the manual unlock key supplied with the switch.
- Using the interlock switch with the key not fully turned (less than 90°) may cause damage to the interlock switch or operation failures (when manually unlocked, the switch will keep the main circuit disconnected and the door unlocked).
- Do not apply excessive force (0.45 N·m or more) to the manual unlock part, otherwise the manual unlock part will become damaged.
- . Do not leave the manual unlock key attached to the switch during operation. This is dangerous because the switch can always be unlocked while the machine is in operation.



When unlocking pushing the plate inside the interlock switch

- · Remove the screw at the side of the interlock switch (the same side where actuator is inserted) and insert a small screwdriver.
- Push the plate inside the interlock switch toward the LED indicator using the screwdriver until the actuator is unlocked.
- Tighten the screw to a proper torque (0.3 to 0.5 N·m). Do not tighten with excessive force, otherwise the interlock switch will be damaged. Be sure to reinstall the screw, otherwise the waterproof capability will be lost.



#### Caution

Before manually unlocking the interlock switch, make sure that the machine has come to a complete stop. Manual unlocking during operation may unlock the interlock switch before the machine stops, and the function of the interlock switch with solenoid is lost. While the solenoid is energized, do not unlock the switch manually (solenoid lock).

E-021

#### For more information, visit http://eu.idec.com

Safety Products

APEN Switches & Pilot Lights

Control Boxes Emergency Stop Switches Enabling Switches

Explosion Proof Terminal Blocks Relays & Sockets Circuit

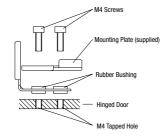
Protectors Power Supplies LED Illumination

Controllers



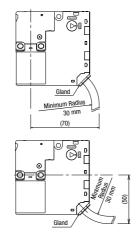
#### **Recommended Tightening Torque of Mounting Screws**

- Interlock switch: 1.0 to 1.5 N·m (three M4 screws)
- Actuators: 1.0 to 1.5 N·m (two M4 screws)
- . The above recommended tightening torques of the mounting screws are the values with hex socket head bolts. When other screws are used and tightened to a smaller torque, make sure that the screws do not become loose after mounting
- · Mounting bolts are not supplied with the interlock and must be supplied by the user.
- . To avoid unauthorized or unintended removal of the interlock switch and the actuator, it is recommended that the interlock switch and the actuator are installed in an unremovable manner, for example using special screws, rivets, or welding the screws.
- When installing the HS9Z-A62S actuator, use the mounting plate (supplied with the actuator) on the hinged door, and secure the actuator tightly using two M4 screws
- The mounting plate has orientation.
- Do not lose the mounting plate.



#### Cables

- Do not fasten or loosen the gland at the bottom of the interlock switch.
- . When bending the cable during wiring, make sure that the cable radius is kept at 30 mm minimum.
- . When wiring, make sure that water or oil does not enter from the end of the cable.
- . Do not open the lid of the interlock switch. Otherwise the interlock switch will be damaged.
- . The solenoid has polarity. Make sure of the correct polarity when wiring.



#### Wire Identification

• Wires can be identified by the color and or a white line printed on the wire.

| No. | Insulation Color | No. | Insulation Color |
|-----|------------------|-----|------------------|
| 1   | Blue/White       | 7   | White            |
| 2   | Gray             | 8   | Black            |
| 3   | Pink             | 9   | Pink/White       |
| 4   | Orange           | 10  | Brown/White      |
| 5   | Orange/White     | 11  | Brown            |
| 6   | Gray/White       | 12  | Blue             |

Note: Wires of gray or gray/white are not used and should not be connected.



#### Terminal Number Identification

- . When wiring, identify the terminal number of each contact by the color of insulation
- The following table shows the identification of terminal numbers.

. When wiring, cut unused wires at the end of the jacket to avoid incorrect wiring.

| Model   | Contact Arrangement  | Power Supplies                 |
|---------|--|--------------------------------|
|         | Door Monitor Lock Monitor  | LED Illumination               |
|         | (+) (+) (+) (+) (+) (+) (+) (+) (+) (+)  | Controllers                    |
| HS6E-L  |  | Operator<br>Interfaces         |
|         | Main circuit: Blue         →         11         12         41         42         Blue           Monitor circuit: Brown         →         21         -         22         Brown/White         Pink/         53         54         Pink/   | Sensors                        |
|         | Monitor circuit: Orange ( 31 - 32 Orange/White   | AUTO-ID                        |
|         | Main circuit: Blue         →         11         12         41         42         Blue/           Monitor circuit: Brown         →         21         +         22         Brown/White         Pink         51         +         52         Pink  |                                |
| HS6E-M  | Monitor circuit: Brown     21     22     Brown/White     Pink     51     52     Pink/       Monitor circuit: 0range     31     32     0range/White   | Interlock                      |
|         |  | Switches                       |
| HS6E-N  | Main circuit: Blue     →     11     12     41     42     Blue/       Monitor circuit: Brown     →     21     +     22     Brown/White     Pink     53     54     Pink/   |                                |
|         | Monitor circuit: Orange 33 34 Orange/White   | Safety Laser<br>Scanners       |
|         | Main circuit: Blue \ominus 11 + 12 41 + 42 Blue/   | Safety Light<br>White Curtains |
| HS6E-P  | Monitor circuit: Brown → 21 + 22         21 + 22         Brown/White         Pink         51 + 52         Pink/           Monitor circuit: 0range         33         34         0range/White         Pink/         0 <td>White Safety Modules</td> | White Safety Modules           |
|         | Monitor circuit: Blue $\bigcirc$ <u>11</u> <u>12</u> Blue/White Gray <u>41</u> <u>42</u> Gray/   | White                          |
| HS6E-VL | Monitor circuit: Brown (→) <u>21</u> <u>22</u> Brown/White<br>Monitor circuit: Orange (→) 31 <u>32</u> Orange/White  |                                |
|         | Monitor circuit: Pink 53 54 Pink/  | White HS6B                     |
|         | Monitor circuit: Blue ⊖ 11 12 Blue/White Gray 41 42 Gray<br>Monitor circuit: Brown ⊖ 21 4 22 Brown/White   | White HS6E                     |
| HS6E-VM | Monitor circuit: Brown ↔ 21 + 22 Brown/White<br>Monitor circuit: Orange ↔ 31 + 32 Orange/White   | HS5D                           |
|         | Monitor circuit: Pink 51 52 Pink/  |                                |
|         | Monitor circuit: Blue <u>11 12</u> Blue/White Gray <u>41 42</u> Gray   | White HS5L                     |
| HS6E-VN | Monitor circuit: Brown (→) <u>21</u> <u>22</u> Brown/White<br>Monitor circuit: Orange (→) <u>33</u> <u>34</u> Orange/White   | HS1L                           |
|         | Monitor circuit: Pink 53 54 Pink/  | HS1/HS5/HS6                    |
|         | Monitor circuit: Blue → 11 + 12 Blue/White Gray 41 + 42 Gray/<br>Monitor circuit: Brown → 21 + 22 Brown/White  | White Actuators/               |
| HS6E-VP | Monitor circuit: Orange $\xrightarrow{\bigcirc}$ 33 34 Orange/White  | Padlock Hasp                   |
|         | Monitor circuit: Pink 51 - 52 Pink/  | White                          |

Note: The contact arrangements show the contact status when the actuator is inserted and locked.

Download catalogs and CAD from http://eu.idec.com/downloads

E-022

Safety Products

#### APEM Switches & Pilot Lights

Control Boxes

Stop Switches

Explosion Proof

Terminal Blocks

Relays & Sockets

Circuit Protectors

Emergency

Enabling

Switches