

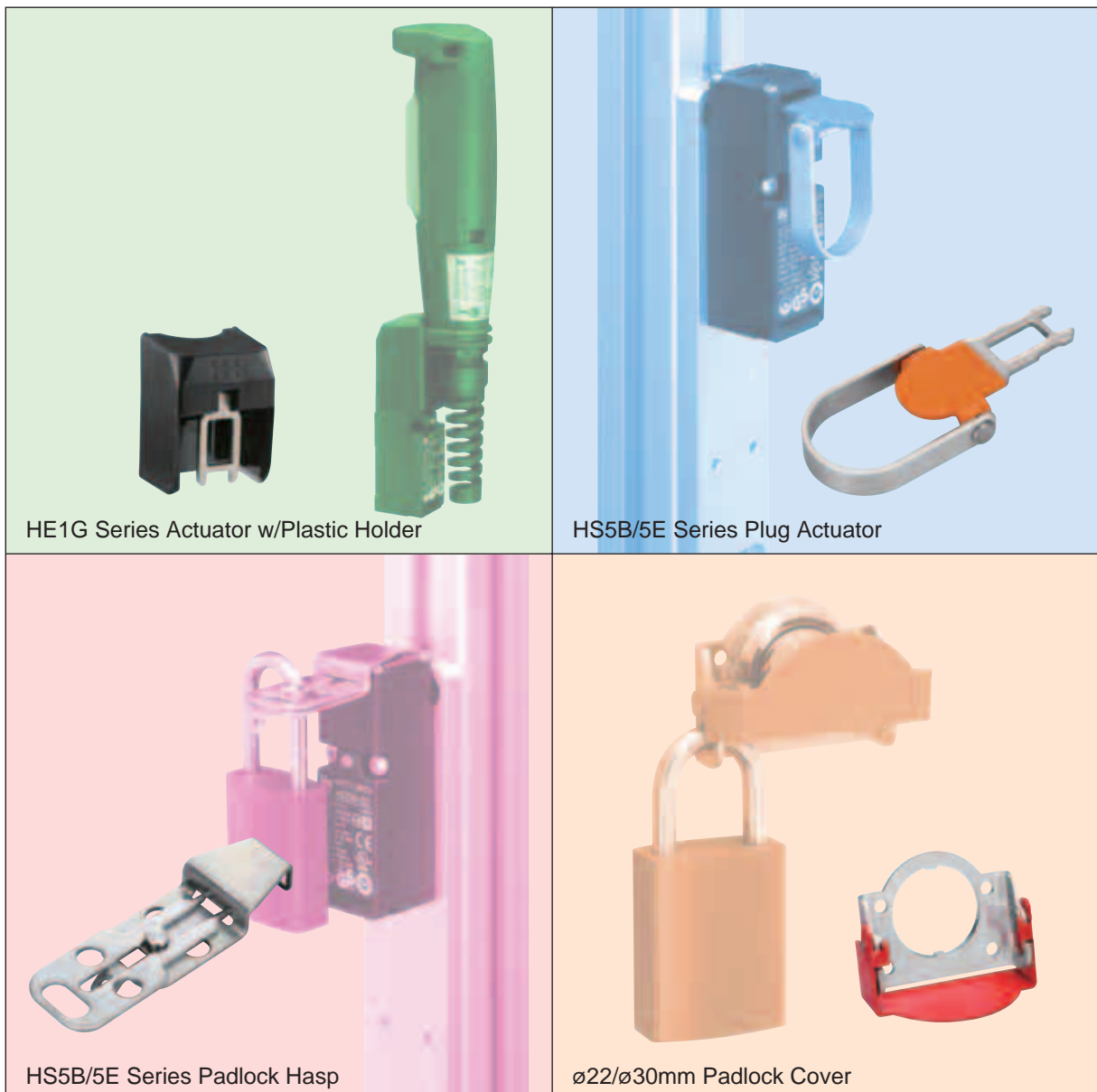
Safety Product Accessories

HE1G Series Actuator w/Plastic Holder

HS5B/5E Series Plug Actuator

HS5B/5E Series Padlock Hasp

ø22/ø30mm Series Padlock Cover



HE1G Series Actuator w/Plastic Holder

HS5B/5E Series Plug Actuator

HS5B/5E Series Padlock Hasp

ø22/ø30mm Padlock Cover

Safety Equipment Accessories — Operation Examples

For ensuring an even higher level of safety for machine operators.

When two or more operators are working in a danger zone, a machine should not be able to be restarted if operators are still located inside the danger zone. Various methods for unauthorized restarting of machines include: safety plugs, hostage control, and locking energy isolation devices using padlocks.

IDEC has a wide variety of accessories to provide complementary protective measures for safety equipment.

Actuator with Plastic Holder for HE1G Grip Switches (Pages 4 and 5)

Operation mode switching using a grip switch (equipped with enabling switch)

Actuator with plastic holder + grip switch + safety switch

Normal Operation

Automatic Operating Mode

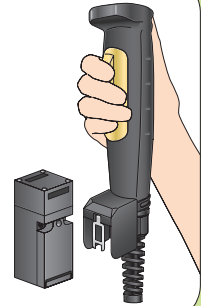
When the grip switch is installed on a safety switch, the contact of safety switch closes, allowing for automatic operation.



Teaching/Maintenance

Manual Operating Mode

Removing the grip switch from the safety switch opens the contact, and the machine can now be operated manually.



Plug Actuator for HS5B/5E Safety Switches (Pages 6 and 7)

Ideal on guard doors where conventional actuators cannot be used.

Can be also used as a hostage control key.

Safety switch + Plug actuator

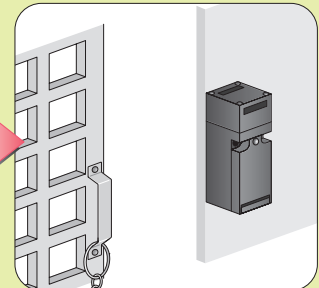
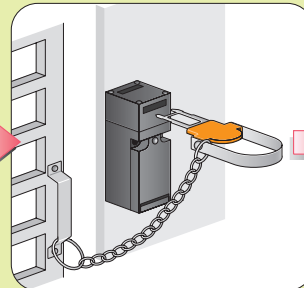
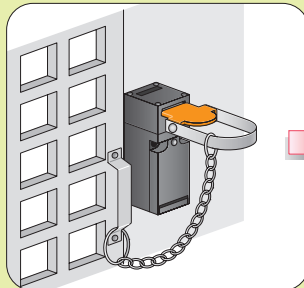
Machine Operating

Machine Stopped

Guard Door Open

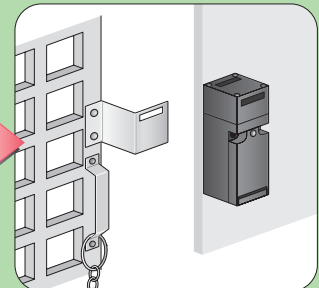
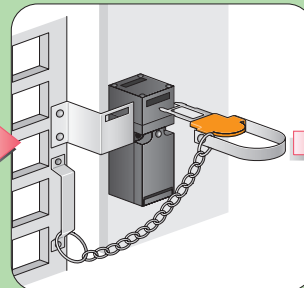
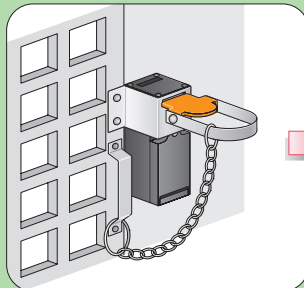
Useful on a machine door

The guard door and plug actuator are chained together, and the actuator can be installed and removed manually.



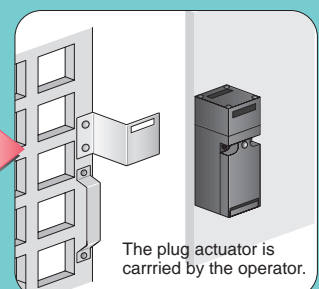
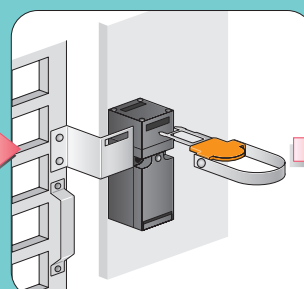
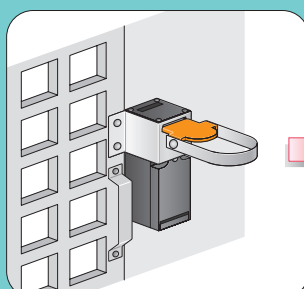
When the door needs to be secured tightly

By equipping the door with a bracket which has an actuator entry slot, the door is prevented from coming loose.



Hostage Control

Leaving the guard door and plug actuator unchained, the plug actuator can be used as a hostage key.



The plug actuator is carried by the operator.

HS5B/5E Padlock Hasp and ø22/30mm Padlock Cover

(Pages 8 and 9)

(Pages 10 and 11)

Ensures safety when two or more operators enter a danger zone.

Machine Operating

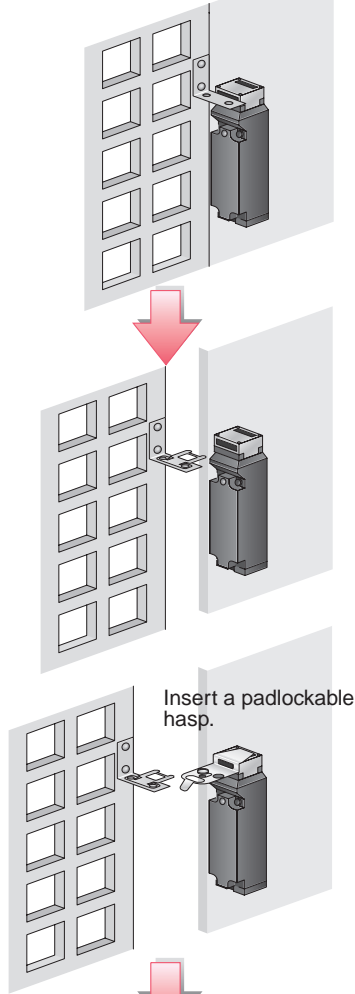
Machine Stopped

Maintenance and other operator-attended operation

An operator enters the zone.

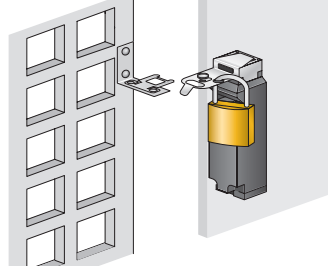
Multiple operators enter the zone.

Safety Switch + Padlock Hasp



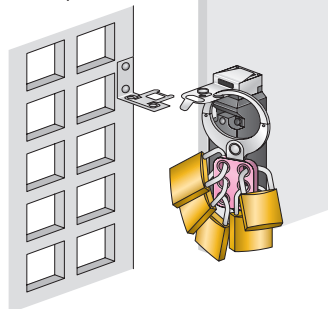
Use a padlock

Accommodates up to four operators (a maximum of four padlocks can be installed).

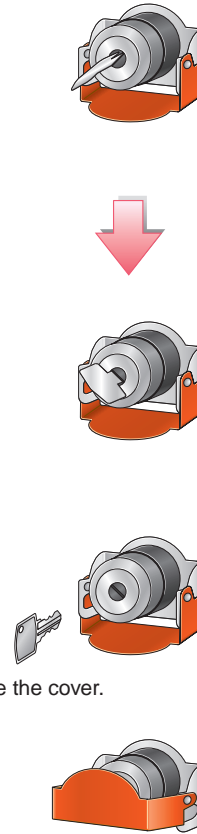


Use a hasp

When five or more operators are working, use a hasp.



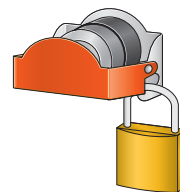
Key Selector Switch/Safety Plug + Padlock Cover



Close the cover.

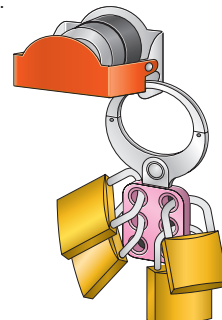
Use a padlock

Accommodates up to two operators (a maximum of two padlocks can be installed).



Use a hasp

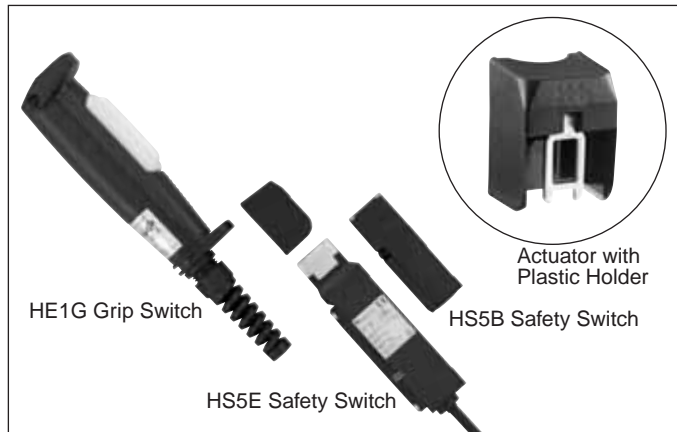
When three or more operators are working, use a hasp.



HE1G Series Actuator with Plastic Holder

HS5B/HS5E safety switches detect the installation/removal of HE1G grip switches.

- The actuator with plastic holder for the HS5B/HS5E safety switches can be installed onto the HE1G grip switches easily using the two mounting screws supplied with the actuator.
- Inserting the actuator on the HE1G grip switch into the entry slot of HS5B/HS5E safety switch, the grip switch can be retained firmly in position.
- Using with HS5E safety door lock switches prevent unauthorized removal of grip switches.
- Easy switching by removing/installing the grip switches can be achieved by designing the circuit to initiate automatic or manual operation when the safety switch is installed or removed, respectively.



Types

Description	Type No.
Actuator with plastic holder for HE1G	HE9Z-GP15

Note: The HE1G grip switches and HS5B/HS5E safety switches are ordered separately.

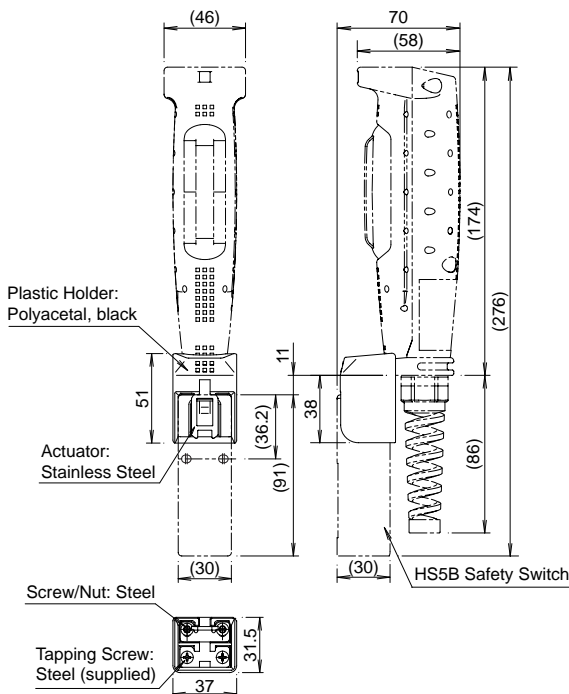
Specifications

Applicable Type	HE1G Grip Switch HS5B/HS5E Safety Switch
Mechanical Durability	10,000 operations
Weight (approx.)	30g

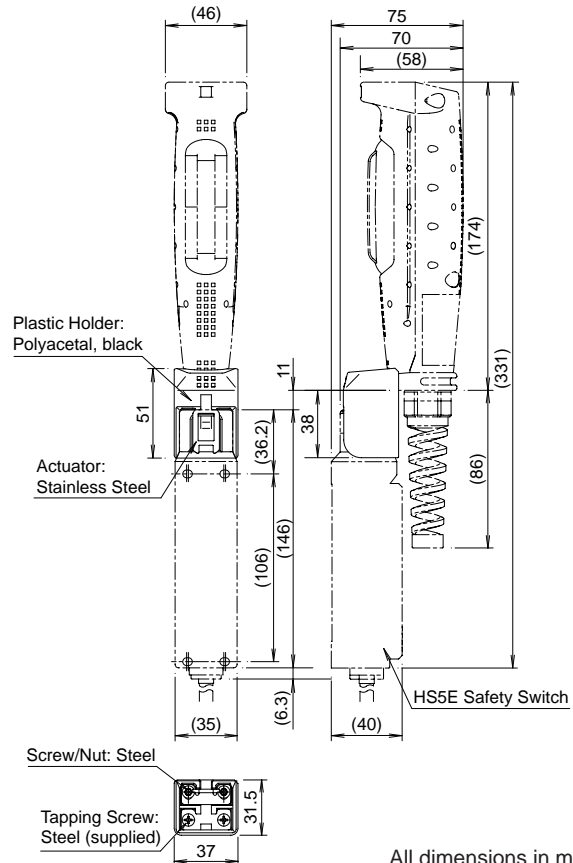
Note: Refer to the specifications of HE1G grip switches and HS5B/HS5E safety switches.

Dimensions

- When used with an HE1G grip switch and an HS5B safety switch



- When used with an HE1G grip switch and an HS5E safety switch



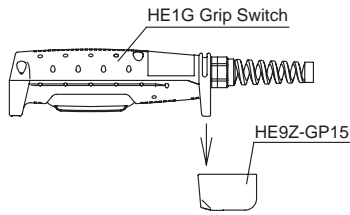
All dimensions in mm.

HE1G Series Actuator with Plastic Holder

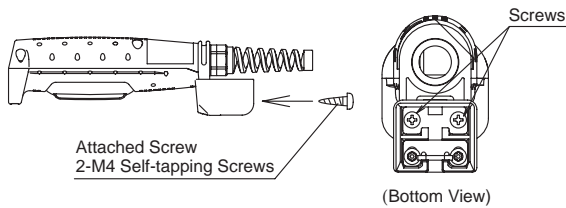
Instructions

• Mounting

- ① The HE9Z-GP15 and the HE1G grip switch are installed as shown in the following figure.



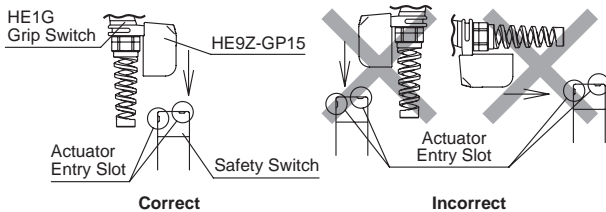
- ② Secure the actuator using the attached two screws in the direction of the arrow as shown in the following figure.



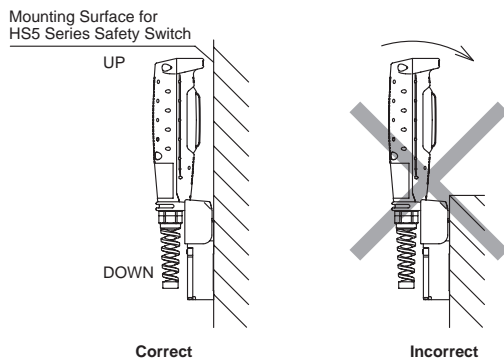
- Using the attached screws (M4 self-tapping screw × 2), secure the HE9Z-GP15 to the HE1G grip switch. Recommended tightening torque: 1.0 ± 0.1 N·m. Do not use excessive force to tighten the HE9Z-GP15 onto the grip switch, otherwise the mounting holes on the grip switch will become deformed and the HE9Z-GP15 will no longer be able to be secured. Prevent the screws from loosening by applying epoxy. (Recommended: LOCTITE 425, ThreeBond 1401)

• Precautions for Installation

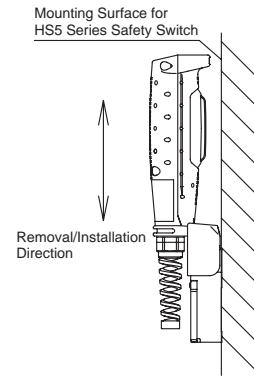
- When using the HE9Z-GP15 for safety-related equipment in a control system, refer to safety standards and regulations in each country and region to make sure of correct operation. Also, perform a risk assessment to ensure safety before starting operation of the machine.
- Read the instruction sheets for both the grip switch and safety switch to be used.
- Insert the HE9Z-GP15 in the direction shown in the following figure only. Do not insert from any other direction. Also, do not use the slot plug attached to the safety switch.



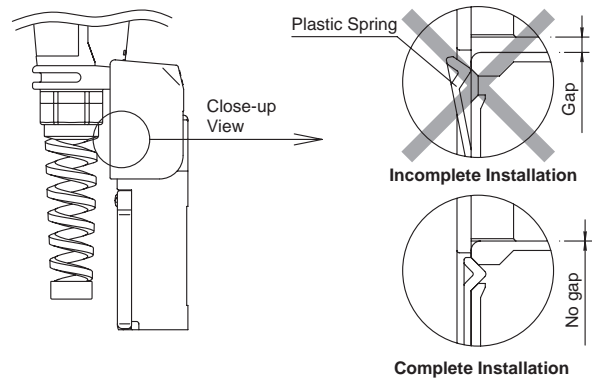
- Vertical installation of the grip switch and safety switch is shown below. Do not install in any other direction. Also, make sure that a mounting surface is provided for the entire area of the grip switch, so that the grip switch does not bend over as shown below. Bending the grip switch deforms and damages the HE9Z-GP15 actuator.



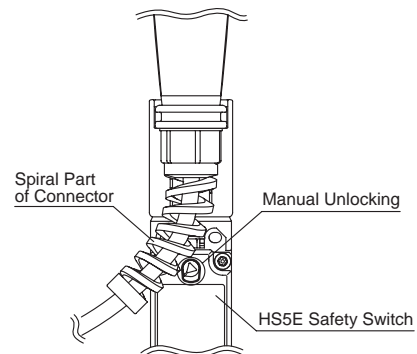
- Do not install the grip switch and the safety switch in an area subjected to vibration. Excessive vibration may cause malfunction of the switch contacts of the grip switch. Also, exposure to vibration for a long period of time can cause scratching and deformation of plastic parts.
- When installing or removing the grip switch, do not use excessive force on the grip switch in any direction other than shown in the following figure. Otherwise the HE9Z-GP15 actuator can become deformed or damaged.



- Make sure that the HE9Z-GP15 actuator is inserted completely into the safety switch. Avoid any foreign objects between the actuator and safety switch as they may interfere with the plastic spring, resulting in possible damage to the actuator.



- When manually unlocking the HS5E safety switch attached to the grip switch, bend the spiral part of the connector slightly to be able to access the manual unlocking key.



- Do not apply excessive shocks to the HE9Z-GP15 when attached to the HS5E safety switch, otherwise the actuator may be removed from the safety switch. Also excessive shocks may result in damage or failure of the safety switch.
- When the plastic part of the HE9Z-GP15 or the actuator is damaged or deformed, stop using immediately.
- The HE9Z-GP15 is used for HE1G grip switch and HS5B/HS5E safety switches only. Do not use the HE9Z-GP15 for other products.
- Do not modify or disassemble the HE9Z-GP15.

HS5B/5E Series Plug Actuator

Allows HS5B/HS5E safety switches to be used as safety plug units.

- By chaining a plug actuator to a guard door for use with the HS5B/HS5E switches, the open/close status of a guard door can be detected.
- Unlike safety plugs, the plug actuators can be removed/installed while power is applied.
- Defeating-prevention structure is provided within the HS5B/HS5E safety switches.
- Selection of with or without locking function is possible by selecting HS5B (without lock) or HS5E (with lock) safety switches.
- Contact configuration of the HS5B/HS5E safety switches remains the same.
- IP67 protection of the HS5B/HS5E safety switches remains the same.
- Usage of the HS9Z-PH5 padlock hasps allows the safety plug to be used as a hostage control unit.



Types

Description	Type No.
HS5B/HS5E Plug Actuator	HS9Z-A5P

Note: The HS5B/HS5E safety switches are ordered separately.

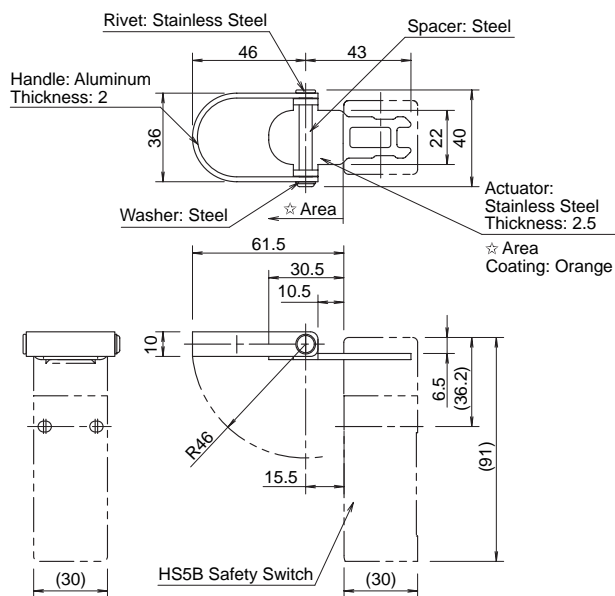
Specifications

Applicable Type	HS5B/HS5E Safety Switches
Weight (approx)	35g

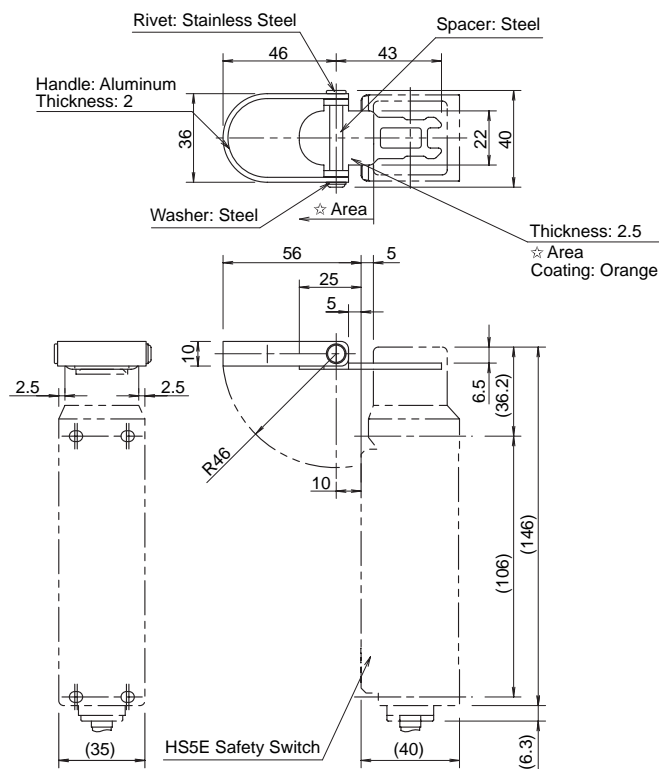
Note: Refer to the specifications of HS5B/HS5E safety switches.

Dimensions

• When used with the HS5B safety switch



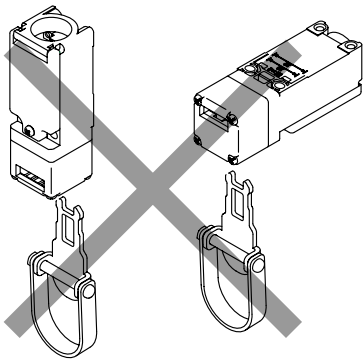
• When using with the HS5E safety switch



All dimensions in mm.

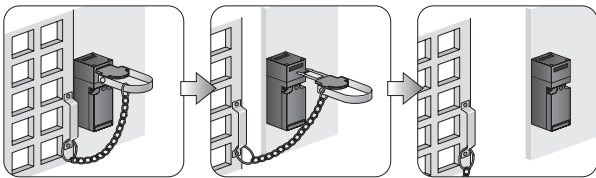
Precautions for Installation

- When using the HS9Z-A5P for safety-related equipment in a control system, refer to the safety standards and regulations in each country to make sure of correct operation. Also, perform a risk assessment to ensure safety before starting operation.
- Read the instruction sheet of the safety switch to be used.
- Note the projections on the HS9Z-A5P to prevent injury.
- Regardless of door types, do not use the HS9Z-A5P as a door lock. Install a separate lock such as a metal latch.
- When the direction to insert the HS9Z-A5P into the safety switch is different from the opening/closing direction of the door, do not open the door while the HS9Z-A5P remains in the safety switch.
- Do not insert the HS9Z-A5P from the lower side as shown in the following figure. Otherwise the HS9Z-A5P may fall because of vibration.



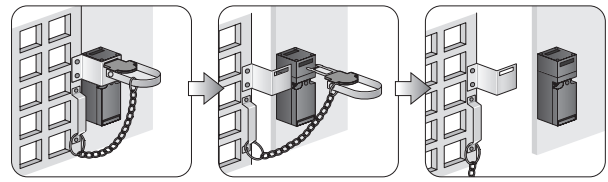
- The HS9Z-A5P is used for HS5B/HS5E safety switches only. Do not use the HS9Z-A5P with other products.
- Do not modify or disassemble the HS9Z-A5P.

When linking the HS9Z-A5P to the door with a chain

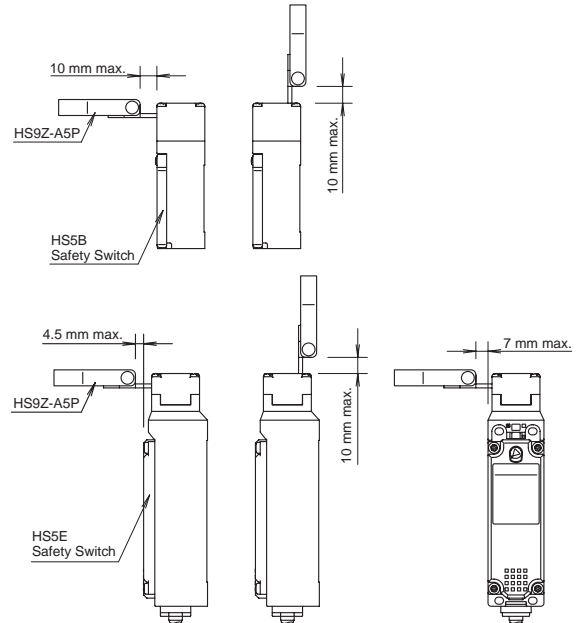


- Connect the chain to the handle of the HS9Z-A5P and the door firmly.
- Use a chain which has welded joints and does not break apart easily. Stop using the interlock device when the chain breaks.
- Give proper slack to the chain, and do not apply excessive force to the HS9Z-A5P. Determine the proper length of the chain so that the door does not open wide and that the danger zone can not be accessed by the operator.
- Refer to the following standards for safety distances and safety gaps.
 - ISO13852 (Safety distances to prevent danger zones being reached by the upper limbs.)
 - ISO13853 (Safety distances to prevent danger zones being reached by the lower limbs.)
 - ISO13854 (Minimum gaps to avoid crushing of parts of the human body.)
- When an operator enters the danger zone, take measures such as using a Padlock Hasp (HS9Z-PH5) so that the operator is not trapped, and the machine can not be started by mistake.

When inserting the HS9Z-A5P into a part of the door

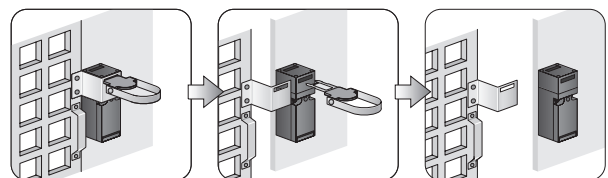


- The thickness of a door to insert the HS9Z-A5P depends upon the insertion direction as shown in the following figure. When placing a thicker objects, the HS9Z-A5P cannot enter sufficiently, causing malfunction of the safety switch.



- Refer to the standard (ISO13852 through 13854) for safety distances and safety gaps.
- When an operator enters the danger zone, take measures such as using a Padlock Hasp (HS9Z-PH5) so that the operator is not trapped, and the machine can not be started by mistake.

When using the HS9Z-A5P as a hostage key



- Do not use two or more HS9Z-A5P for one safety switch.
- Treat the HS9Z-A5P with care, and ensure that the HS9Z-A5P is not inserted into other safety switches.
- When an operator enters the danger zone, take measures such as using a Padlock Hasp (HS9Z-PH5) so that the operator is not trapped, and the machine can not be started by mistake.

HS5B/HS5E Series Padlock Hasp

Padlock hasps prevent unauthorized insertion of actuators.

- Ideal to prevent machines from operating when two or more operators are inside the danger zone.
- Accommodates up to four padlocks when the hasp is installed on the safety switch.
- By providing each operator with a padlock to install on the hasp before entering the danger zone, the machine can not restart until all operators have left the zone and removed their padlocks (use a hasp for five or more operators).

Note: Use of padlocks to ensure safety requires strict observance of opening rules. Safety cannot be ensured if the rules are neglected, such as failing to install the padlocks.



Types

Description	Type No.
HS5B/HS5E Padlock Hasp	HS9Z-PH5

Note: The HS5B/HS5E safety switches are ordered separately.

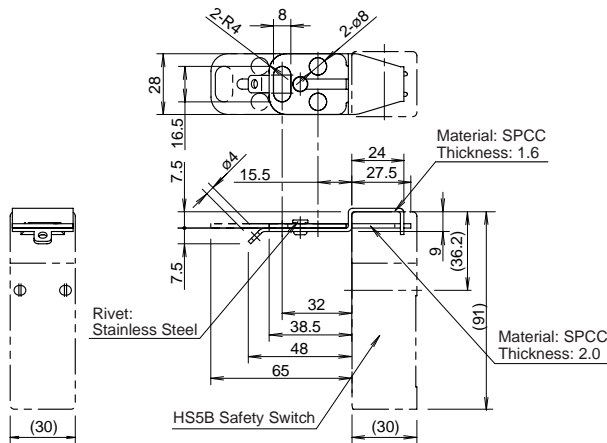
Specifications

Applicable Type	HS5B/HS5E Safety Switches
Shackle Diameter of Applicable Padlock	ø5.5 to 7.5 mm
Withstand Force	30N or more
Weight (approx)	35g

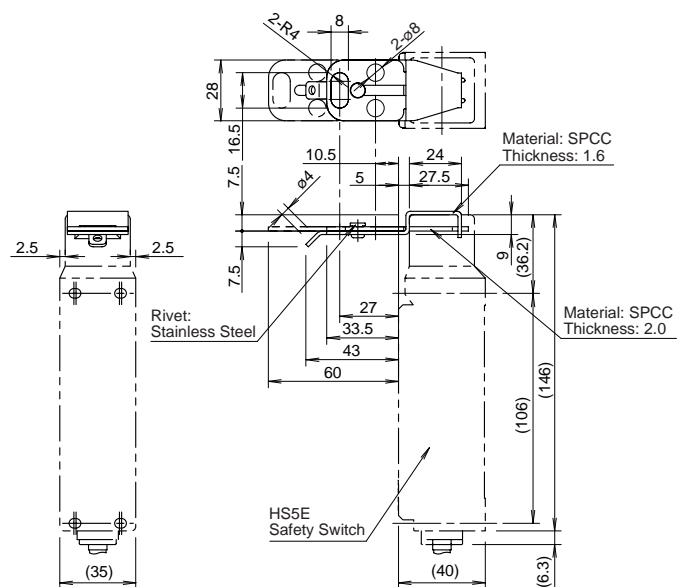
Note: Refer to the specifications of HS5B/HS5E safety switches.

Dimensions

• When used with the HS5B safety switch



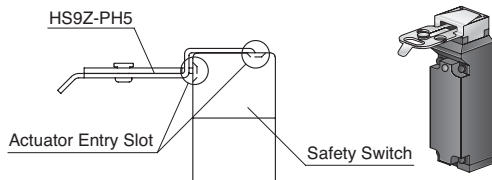
• When using with the HS5E safety switch



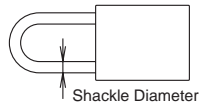
All dimensions in mm.

Precautions for Installation

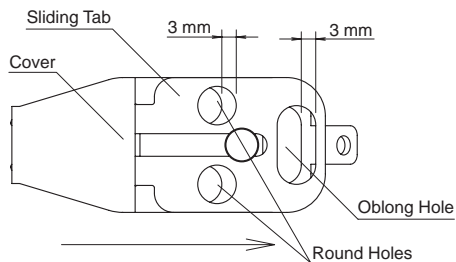
- When using the HS9Z-PH5 for safety-related equipment in a control system, refer to the safety standards and regulations in each country to make sure of correct operation. Also, perform a risk assessment to ensure safety before starting operation.
- Read the instruction sheet of the safety switch to be used.
- Note the projections on the HS9Z-PH5 when using to prevent injury.
- Insert the HS9Z-PH5 in the direction as shown in the following figure. Do not insert from any other direction. Also, do not use the slot plug supplied with the safety switch.



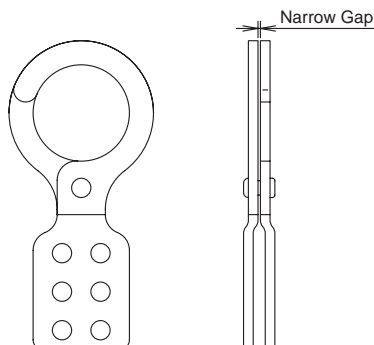
- Do not deform the HS9Z-PH5. The HS9Z-PH5 may come off from the safety switch even if a padlock is installed. Stop using immediately if the HS9Z-PH5 becomes deformed.
- The shackle diameter of the applicable padlock (refer to the following figure) is $\varnothing 5.5$ to 7.5 mm.



- When using a hasp or special padlock, make sure that the sliding tab does not slide 3 mm or more in the direction shown below, otherwise the HS9Z-PH5 may come off the safety switch.



- When using a hasp such as shown below, make sure that the hasp is installed in round holes not in the oblong hole. Otherwise the sliding tab may slide 3 mm or more. Check periodically that the narrow gap between the jaws is not widened, so that the HS9Z-PH5 does not fall off from the hasp.



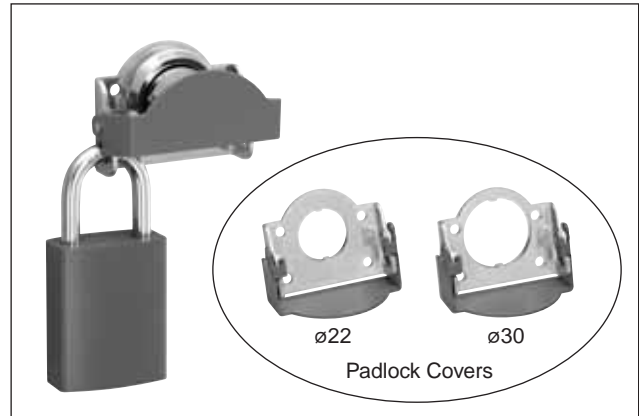
- Keep the weight of padlocks and hasps to a maximum of 1500g on one tab hole, and at a maximum of 3000g for the total of all tab holes. Using padlocks and hasps weighing over the maximum allowable weight may cause deformation of the HS9Z-PH5, and the safety switch may be damaged.
- Do not apply excessive shock to the HS9Z-PH5 while installing it on the safety switch, otherwise failure or damage may be caused.
- Do not apply excessive vibration while padlocks or hasps are installed, otherwise failure or damage may be caused.
- The HS9Z-PH5 is used for HS5B/HS5E safety switches. Do not use the HS9Z-PH5 for any other products.
- Make sure that locking and unlocking the padlock and hasp do not interfere with other products in close proximity.
- Do not modify or disassemble the HS9Z-PH5.
- Padlocks and hasps are available from the following manufacturers.
 - Panduit Corporation (<http://www.panduit.com/>)
 - Master Lock Company (<http://www.masterlock.com/>)

ø22/30 Series Padlock Cover

Prevents unauthorized operation of key switches and safety plugs used as hostage controls.

- Ideal to prevent machines from operating when two or more operators are inside the danger zone.
- When padlocked, the padlock covers prevent keys or plugs from being inserted into the locks.
- By providing each operator with a padlock to install onto the hasp before entering the danger zone, the machine can not restart until all operators have left the zone and removed their padlocks (use a hasp for three or more operators).

Note: Use of padlocks to ensure safety requires strict observance of operating rules. Safety cannot be ensured if the rules are neglected, such as failing to install the padlocks.



Types

Description	Type No.
ø22 mm Padlock Cover	HS9Z-PC22
ø30 mm Padlock Cover	HS9Z-PC30

Notes

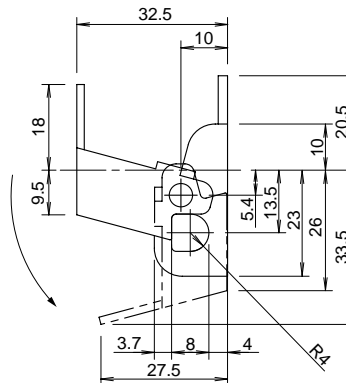
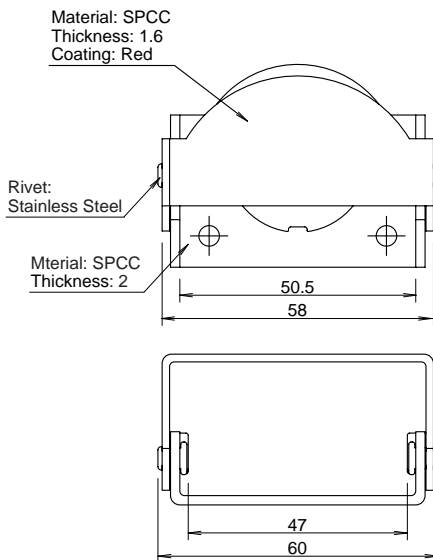
- Key selector switch and safety plug are ordered separately.
- HS9Z-PC22 (ø22mm) cannot be used on HW1K and LW*K. The nameplates for HW series cannot be used on HS9Z-PC22.

Specifications

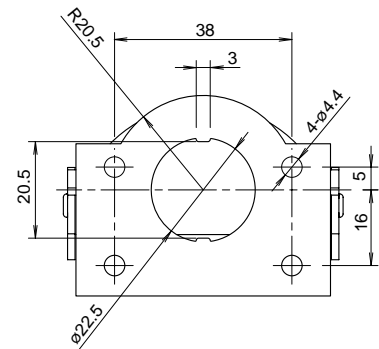
Applicable Type	ø22 mm	ASW*K
	ø30 mm	HS2P, ASN*K, ASTN*K, ASD*K
Shackle Diameter of Applicable Padlock	ø5.5 to 7.5 mm	
Withstand Force	30N or more	
Weight (approx.)	55g	

Note: For the specifications of key selector switches and safety plugs, refer to the specifications of HS2P safety plugs, ASW*K, ASN*K, ASTN*K, and ASD*K key selector switches.

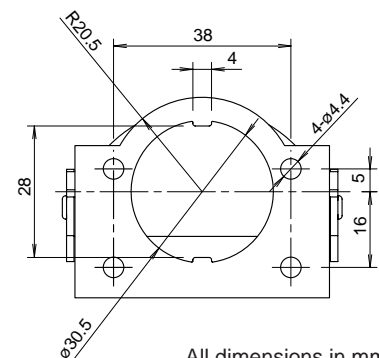
Dimensions



• HS9Z-PC22



• HS9Z-PC30

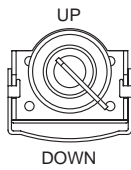


All dimensions in mm.

Instructions

• Mounting

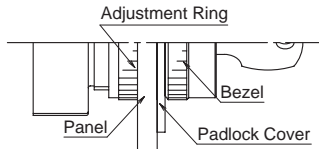
- The direction to install the padlock cover is as shown in the figure on the right.



<HS9Z-PC22>

Installation with ASW*K

- Do not use an anti-rotation ring (OGL-31) or nameplate which is an optional accessory for the ASW*K.
- Install the HS9Z-PC22 padlock cover between the panel and the bezel (see below). For panel mounting, refer to the instructions for the TW series control units.

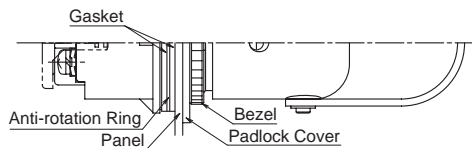


- When using the panel thickness adjustment ring, add the thickness of the HS9Z-PC22 (2.0 mm) to the adjustment value.

<HS9Z-PC30>

Installation for HS2P

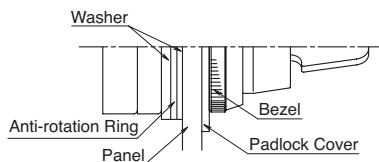
- Install the HS9Z-PC30 padlock cover between the panel and the bezel (see below). Refer to the panel mounting method of the HS2P safety plug. When adjusting the number of gaskets to suit the mounting panel thickness, add the thickness of the HS9Z-PC30 (2.0 mm) to the adjustment value.



Installation for the ASN*K, ASTN*K, and ASD*K

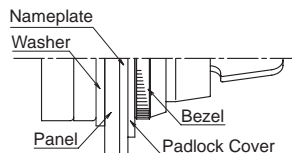
(1) When using no nameplate

- To prevent the selector switch from turning, use of an anti-rotation ring (OGL-11) is recommended.
- Install the HS9Z-PC between the panel and the bezel (see below). For panel mounting, refer to the instructions for ø30 mm control units.

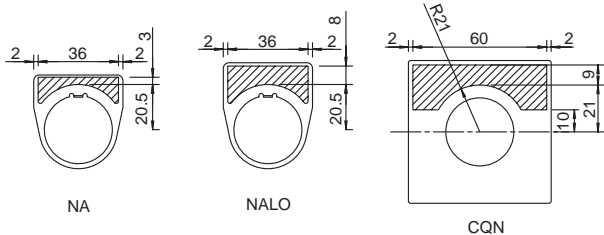


(2) When using a nameplate

- Install the HS9Z-PC30 padlock cover between the nameplate and the bezel (see below). Anti-rotation ring (OGL-11) is not necessary when using NA or NALO nameplates. When using the CQN nameplate, use of an anti-rotation ring (OGL-11) is recommended.



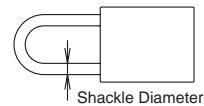
- Symbols and marks can be engraved in the engraving area shown in the figures below.



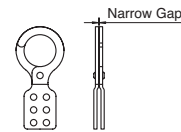
- When adjusting the rubber washer thickness to suit the mounting panel thickness, add the thickness of anti-rotation ring (0.8 mm), nameplate (0.5 to 2.0 mm), and the HS9Z-PC30 (2.0 mm) to the adjustment value.

• Precautions for Installation

- When using the HS9Z-PC for safety-related equipment in a control system, refer to the safety standards and regulations in each country to make sure of correct operation. Also, perform a risk assessment to ensure safety before starting operation.
- Read directions of the safety plug and the key selector switch used.
- Make sure that the following requirements are satisfied when using the HS9Z-PC.
 - ☆ When a plug is installed on the HS2P safety plug, or a key is inserted to the key selector switch, the HS9Z-PC cannot be closed, and the HS9Z-PC cannot be locked using a padlock or a hasp.
 - ☆ When the HS9Z-PC is closed on the HS2P safety plug or on the key selector switch, the plug cannot be installed on the HS2P safety plug, and a key cannot be inserted into the key selector switch.
- Before closing the HS9Z-PC, make sure that the plug is removed from the HS2P safety plug, and the key is removed from key selector switch. When the plug of the HS2P safety plug or the key of key selector switch is deformed or damaged, replace it with a new one immediately. Otherwise the HS9Z-PC may be closed while the plug or key is installed, initiating operation.
- The applicable shackle diameter of padlock is ø5.5 to 7.5 mm.



- When using a hasp as shown below, check periodically that the narrow gap between the jaws is not widened, so that the HS9Z-PC does not fall off the hasp.



- Because a variety of shapes are available on the market for padlocks and hasps, make sure that the requirements shown with ☆ are satisfied when choosing the padlocks and hasps.
- Keep the weight of padlocks and hasps to a maximum of 1500g on one side, and at a maximum of 3000g total of both sides. Using padlocks and hasps weighing over the maximum allowable weight may cause deformation of the padlock, and the HS2P safety plug and key selector switch may be damaged.
- Do not apply excessive shock to the HS9Z-PC, otherwise failure or damage may be caused.
- Do not apply vibration while padlocks or hasps are installed, otherwise failure or damage may be caused.
- The HS9Z-PC is used for following applicable models. Do not use the padlock cover for other products.

Applicable model of the HS9Z-PC22

Key Selector Switch ASW*K

Applicable model of the HS9Z-PC30

Safety Plug: HS2P

Key Selector Switch: ASN*K, ASTN*K, ASD*K

- Ensure that locking and unlocking the padlock and hasp do not interfere with other products in close proximity.
- Do not modify or disassemble the padlock cover. Stop using immediately if the padlock cover is deformed.
- Padlocks and hasps are available from the following manufacturers.
 - Panduit Corporation (<http://www.panduit.com/>)
 - Master Lock Company (<http://www.masterlock.com/>)

HS5E Series Safety Door Lock Switches

Solenoid safety switch with four contacts in a compact body. Ideal for small or special-shape doors with limited mounting space.

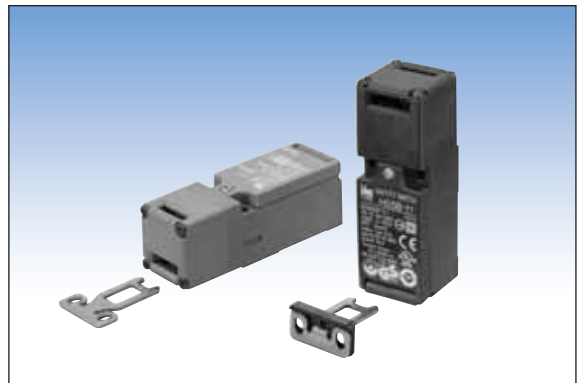
- Compact body. 35 × 40 × 146 mm.
- Four internal contacts
- Gold-plated contacts.
- Spring lock and solenoid lock types are available.
- The head orientation can be rotated, allowing up to 8 different actuator entries.
- Metal head ensures durability.
- Integrated cable design minimizes wiring, preventing incorrect wiring.
- RoHS directive compliant.



HS5B Series Miniature Safety Interlock Switches

Actuators are interchangeable with the HS5E safety door switches.

- Compact body. 30 × 30 × 91 mm.
- The head orientation can be rotated, allowing up to 8 different actuator entries.
- Degree of protection (contacts): IP67 (IEC 60529)
- NC contacts are direct opening action (IEC/EN 60947-5-1)
- Proprietary actuators prevent unauthorized opening of the contacts (ISO 14119, EN 1088)



Specifications and other descriptions in this catalog are subject to change without notice.



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