

INSTRUCTION SHEET

HS5D / 5E / 5E-K / 5L Door Handle Actuator HS5 Series

Confirm that the delivered product is what you have ordered. Read this instruction sheet to make sure of correct operation. Make sure that the instruction sheet is kept by the end user.

SAFETY PRECAUTIONS

In this operation instruction sheet, safety precautions are categorized in order of importance to Caution:

WARNING

Warning notices are used to emphasize that improper operation may cause severe personal injury or death.

CAUTION

Caution notices are used where inattention might cause personal injury or damage to equipment.

1 Type

HS9Z-DH5C	Unit
C:	Switch Cover Unit
RH:	Right-door Handle Unit, Push-turn Type
(RHN):	Right-door Handle Unit, Free-turn Type
LH:	Left-door Handle Unit, Push-turn Type
(LHN):	Left-door Handle Unit, Free-turn Type
B:	HS5B Installation Kit

RHN and LHN are not standard. Contact IDEC.

2 Specifications

Applicable Type	HS5B Metal Head Interlock Switch Type No. HS5B-□□Z** HS5D Metal Head Interlock Switch Type No. HS5D-□□Z** HS5E Interlock Switch Rear Unlocking Button Type Type No. HS5E-□44L**G HS5E Key Type Interlock Switch Type No. HS5E-K□□L**△■ HS5L Interlock Switch Rear Unlocking Button Type Type No. HS5L-□44L**G
Weight (approx.)	950g (HS9Z-DH5C) 1000g (HS9Z-DH5LH/RH/LHN/RHN) 30g (HS9Z-DH5B)
Mechanical Durability	100,000 operations minimum
Applicable Shackle Diameter of Padlock	φ6 to 7.5
Withstand Load of Padlock	30N minimum
Handle Operation Angle	77 (removed status ⇄ inserted status)
Thickness of mounting frame or panel	70mm maximum

- Interlock switches are not supplied with the door handle actuator and must be ordered separately.
- For the interlock switches, see the specifications of the interlock switches used.

3 Mounting Examples

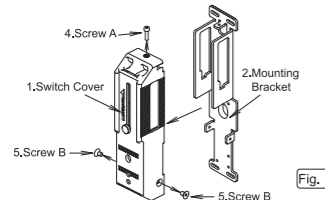
- Check whether the package contains the following parts.

Unit	Parts	Qty
Switch Cover Unit HS9Z-DH5C	1.Switch Cover	1
	2.Mounting Bracket	1
	3.Blind Cap	1
	4.Screw A *	1
	5.Screw B *	2
	6.Screw C	4
	7.Manual Unlock Label	1
Handle Unit HS9Z-DH5RH HS9Z-DH5LH HS9Z-DH5RHN HS9Z-DH5LHN	8.Actuator Cover	1
	9.Front Handle (black)	1
	10.Back Handle (gunmetal)	1
	11.Back Handle Shaft	1
	12.Back Handle Plate	1
	13.Back Handle Base	1
HS9Z-DH5B Installation Kit	16.Mounting Plate	1
	17.Spacer	2

* Screw A and Screw B are temporarily installed on the mounting bracket, and screw D is temporarily installed on the front handle and back handle.

Installing the Switch Cover Unit (HS9Z-DH5C)

- Remove the screws A and B, and remove the switch cover from the mounting bracket.(Fig. 1)



- When using the HS5E-□□/HS5E-K□□/HS5L-□□ interlock switch
Using the screw C, fasten the HS5E-□□ interlock switch, HS5E-K□□ interlock switch or HS5L-□□ interlock switch on the mounting bracket. (fig. 2-1) (Note 1)
Please note you only need 3 screws C to fasten the HS5L-□□ interlock switch on the mounting bracket (Fig.2.2)

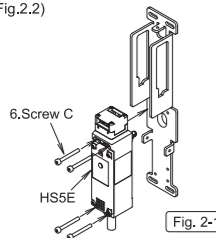


Fig. 2-1

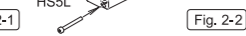


Fig. 2-2

Note 1 : When using on an HSSL cable side-routing type (HS5L-□44LSM-G), install the main unit plate onto an frame, etc. before installing the Safety Switch.
For details on installing the main unit plate, see step 5).

<When using the HS5D-□□ Interlock Switch>
Using the mounting plate, two spacers, and two Screws C, install the HS5D-□□ on the HS5D Installation kit(HS9Z-DH5B)(Fig.2-3).

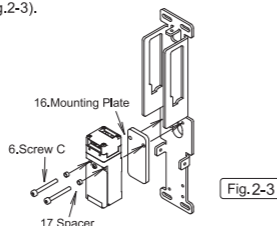


Fig.2-3

- Of the two actuator entry slots on the switch cover, plug the unused slot using the blind cap.
* Attach the tab on one end to the switch cover, and bending the blind cap, attach the other end on the switch cover.

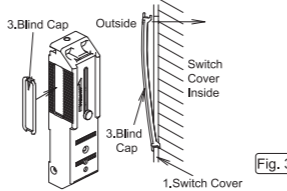


Fig. 3

- Install the switch cover on the mounting bracket, and fasten using the Screw A and two Screws B (Fig.4).

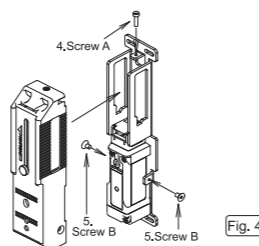


Fig. 4

- Fasten the switch cover unit on the mounting frame or panel. Mounting screws and nuts are not supplied and must be provided by the user.

*Installing the Rear Unlocking Button
When the thickness of mounting frame or panel is 3.0mm or less:Install the rear unlocking button of the HS5E-□□, HS5E-K□□ or HS5L-□□ on the rod. For details, see the instruction sheet.

When the thickness of mounting frame or panel is over 3.0mm: Install the Rear Unlocking Button Kit for Frame Mounting (HS9Z-FL5□). For details, see the instruction sheet (Fig.5).

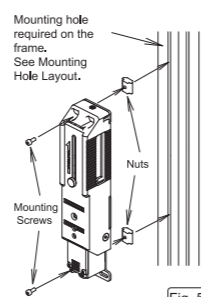


Fig. 5

Installing the Handle Unit (HS9Z-DH5RH/RHN)

- Install the front handle (black) on the rod as shown in Fig. 6.

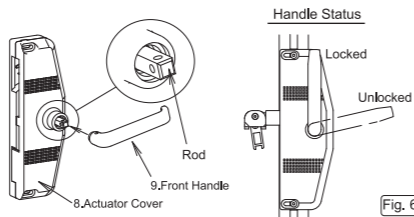


Fig. 6

- Tighten the Screw D attached to the handle using the hexagonal wrench (size:2.5) (Fig.7).

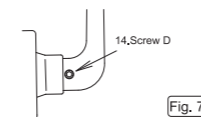


Fig. 7

- Fasten the handle unit on the mounting frame and panel.
Align the handle unit with the switch cover unit (HS9Z-DH5C) referring to 6. Adjustment.
Mounting screws and nuts are not supplied and must be provided by the user.(Fig.8).

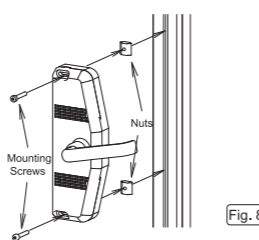
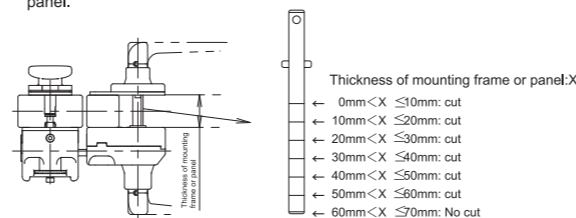


Fig. 8

- Cut the back handle shaft according to the thickness of mounting frame and panel.



Thickness of mounting frame or panel.X
 ← 0mm<X ≤10mm: cut
 ← 10mm<X ≤20mm: cut
 ← 20mm<X ≤30mm: cut
 ← 30mm<X ≤40mm: cut
 ← 40mm<X ≤50mm: cut
 ← 50mm<X ≤60mm: cut
 ← 60mm<X ≤70mm: No cut

- Align the back handle plate, back handle shaft, and the back handle base as shown below,and fasten using two Screws E (Fig.9).

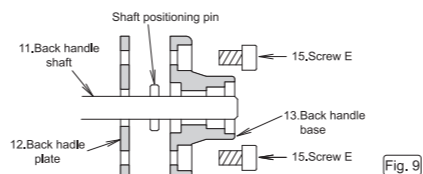


Fig. 9

- Install the back handle (gunmetal) on the back handle shaft (Fig.10).

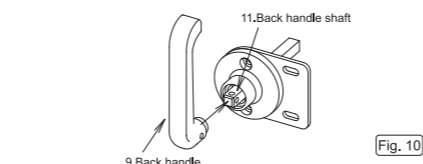


Fig. 10

- Tighten the Screw D attached to the handle using the hexagonal wrench (size:2.5)(Fig.11).

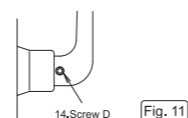


Fig. 11

- Turn the handle to the locked position, and insert the back handle shaft into the actuator cover (Fig.12). The back handle should be in the locked position.

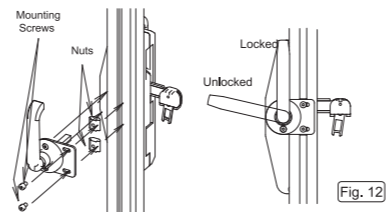


Fig. 12

- Adjusting to ensure the smooth operation of back handle, fasten the back handle unit on the mounting frame or panel.

*Install the HS9Z-DH5LH/LHN in the similar fashion as HS9Z-DH5RH/RHN.
Note that the handle direction becomes opposite.
*Mounting screws and nuts are supplied and must be provided by the user.

4 Precautions for Operation

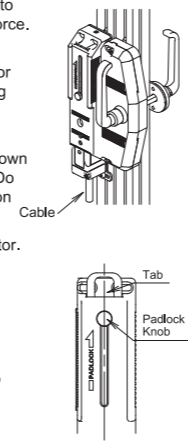
CAUTION

- The slide handle actuator can be used with HS5D Metal Head, HS5E-□□ interlock switch rear unlocking button type, HS5E-K□□ interlock switch rear unlocking button type and HS5L-□□ interlock switch rear unlocking button type only. Do no use with other interlock switches.
- Read instruction sheet before starting operation.
- HS5 Series Safety Switches are Type 2 low-level coded interlocking devices (EN ISO / ISO14119). When using the door handle actuator in the safety-related part of the system,make sure of proper operation while observing the safety standards and the latest regulations of the relevant country or region where the actual machine/system is used. Also, perform risk assessment before operation.

- Install a mechanical door stop to the end of the door to protect the door handle actuator against excessive force.
- Install the door handle actuator on the outside of the door. Do not install inside the door, otherwise the door cannot be opened or closed by the operator, affecting the operation and causing possible danger to the operator.
- Install the door handle actuator in the direction as shown on the right, so that the cable hub faces downward. Do not install in any other direction, otherwise malfunction will be caused.
- Do not modify or disassemble the door handle actuator.

Padlocking

- When padlocking the HS9Z-DH5, lift the knob on the front of the HS9Z-DH5. A tab will appear. Install the padlock or hasp on the tab.
- Make sure that the total weight of padlocks and hasp does not exceed 30N maximum. Otherwise the door handle actuator will be deformed or damaged.



Manual Unlocking

- When using the HS5E-□□ type or HS5L-□□ type, attach the manual unlock label on the front of switch cover unit.

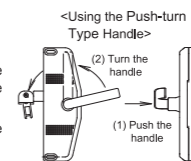


- For manual unlocking, refer to the specification of the HS5E-□□ type or HS5L-□□ type.

Handle Operation

<Push-turn Type>

- Close the door completely, and push the handle before turning the handle to insert the actuator, as shown on the right.

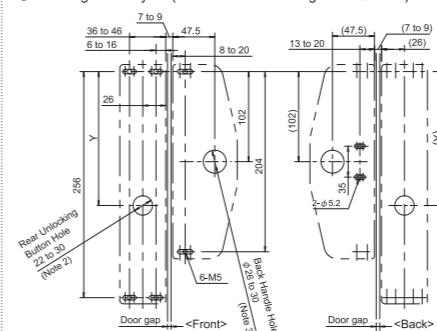


<Free-turn Type>

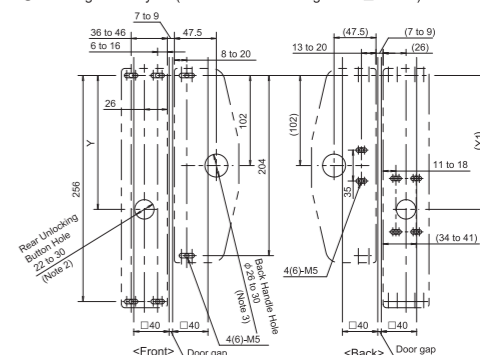
- Actuator can be inserted just by turning the handle. Pushing is not required.
- Do not close the door when the handle is in locked status. Also, do not turn the handle before closing the door completely.
- When turning the handle, make sure that your hand of fingers are not caught by the door.

5 Dimensions (mm)

Mounting Hole Layout (Thickness of mounting frame ≤ 3mm)



Mounting Hole Layout (Thickness of mounting frame ≥ 20mm)

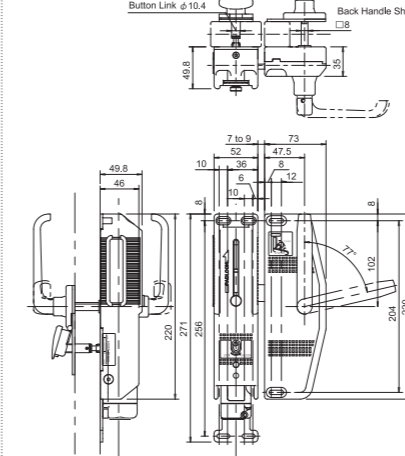


Note: The above mounting hole layout is for □40 frame.

	Y1 (mm)
HS5E-□□/K□□	177.5
HSSL-□□	173.1

- Interlock Switch: Use the HS5E-□□ Type rear unlocking button HS5E-K□□ Type rear unlocking button HS5L-□□ Type rear unlocking button.

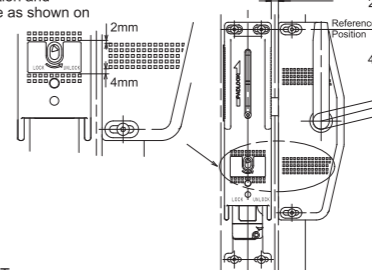
Dimensions



	Y2 (mm)	Y3 (mm)
HS5E-□□/K□□	177.5	116.6
HSSL-□□	173.1	112.2

Actuator Mounting Reference Position

The mounting reference position and allowable mounting range are as shown on the right.



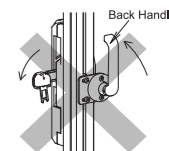
Recommended Tightening Torques

HS9Z-DH5C	Tightening Torque
To install HS5E-□□/HS5E-K□□/HS5L-□□ interlock switch Screw C (M4) *	1.5 to 1.8N · m
To install HS9Z-DH5C unit Three M5 Screws *	4.5 to 5.0 N · m
To install switch cover unit mounting screws Two Screws B (flat-head screw for M5 hexagonal socket), One Screw A for M4 hexagonal socket *	4.5 to 5.0 N · m
HS9Z-DH5RH/RHN/LH/LHN	
To install HS9Z-DH5RH/LH handle unit Two M5 screws each on the front and back *	4.5 to 5.0 N · m
To install Back Handle Base Two Screws E (M5)*	2.5 to 3.0 N · m
To fasten handles One Screw D (M5 hex set screw) *	1.0 to 1.2 N · m

* When the torque is not enough to recommended screw tightening torque, make sure that the screw do not become loose by using adhesive sealants etc.

Back Handle

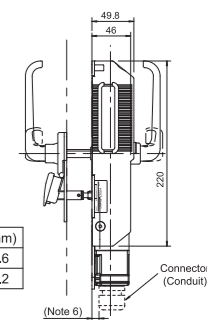
- The back handle cannot insert the actuator.



WARNING

- By using the Door Handle Actuator with the HS5E-K Key interlock switch (HS5E-K, optional), and connecting the EB3N safety relay barrier, the HS5E-K can be used as a intrinsically safe explosion-proof product.
- When using the explosion-proof cover, affix the nameplate for ExialBT6, supplied with the EB3N safety relay barrier, where it is easily visible.
- When using in an explosive atmosphere, see the EB3N safety relay instruction manual or the user's manual. (The manuals can be downloaded from IDEC website. <http://www.idec.com/japan/>)
- When using the HS5E-K with the Switch cover unit (HS9Z-DH5C) as an intrinsically safe explosion-proof product, be sure to use a grounded metal mounting panel or a frame.Use a mounting panel or a frame, that covers all the mounting surface.
- When using the explosion-proof cover, HS5E-K with rear unlocking button type, and rear unlocking button kit for frame mounting together, do not open a hole larger than the specified size.
- When connecting the lead wire, connect using a junction box. See the instruction manual supplied with the EB3N safety relay barrier.
- The inductance and capacitance of the HS5E-K are 1.40μH/m, 0.31nF/m(5m type). When connecting with the EB3N safety relay barrier, make sure that the intrinsically safe parameters are within Lis80μH, Cis32nF.

(Installing HS5L Cable Side-Routing Type)



Note 2: Mounting hole is required when using the HS5E-□□, HS5E-K□□, HS5L-□□. Mounting hole is not when using the HS5D-□□.

Note 3: Before operation, ensure to make adjustment so that the back handle shaft does not interfere with the frame.

Note 4: The value is for Push-turn Type. For Free-turn type, 81mm (locked, unlocked).

Note 5: Thickness of mounting flange and panel

	Thickness of mounting flange and panel	
HS5B-□□/HS5D-□□	≤ 70mm	
HS5E-□□/HS5E-K□□/HS5L-□□	10 to 70mm	

Note 6: When using on an HS5L cable side-routing type (HS5L-□44LSM-G), take the size of the connector (conduit) into consideration when selecting mounting screws.

7 Precaution for Disposal

When disposing of the door handle actuator, do so as an industrial waste.