# INSTRUCTION SHEET

HS1E-740 Lock Device

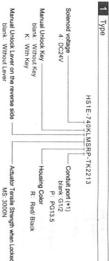


Confirm that the delivered product is what you have ordered. Read this instruction sheet to make sure of correct operation. Make sure that the instruction sheet is kept by the end user.

#### SAFETY NOTE

### CAUTION

injury or damage to equipm



(\*1): When using M20 conduit port, use with HW9Z-NM20 connector locking ring sold separately Manual Unlock Lever on the reverse :
blank: Without Lever
L: With Lever

2 Specific	2 Specifications and Ratings	
Applicable Standards	ndards	ISO14119, EN1088
		IEC60947-5-1, EN60947-5-1
		GS-ET-19, UL508, CSA C22.2 No.14, GB 14048.5
	Standards for Use	IEC60204-1/EN60204-1
Applicable Directives	actives	89/392/EEC (Machine Directive)
2002		73/23/EEC (Low voltage Derective)
Operating	Operating Temperature	-20 to +40°C (no freezing)
Condition	Condition Operating Humidity	45 to 85% (no condensation)

Main Circuit 2 (3-4) Auxiliary Circuit 2 D Resistive load(AC-12) D Resistive load(DC-12)	Main Circuit 2 A Resistive load(AC-12) (3-4) C Inductive load(AC-15)	Main Circuit 2 A Resistive load(AC-12) C Inductive load(AC-15)	Main Circuit 2         A Resistive load(AC-12)           (3-4)         C Inductive load(AC-15)           Auxiliary Circuit 2         D Resistive load(DC-12)	Main Circuit 2         A Resistive load(AC-12)           (3-4)         C Inductive load(AC-15)           Auxiliary Circuit 2         D Resistive load(DC-12)	Main Circuit 2   A   Resistive load(AC-12)	A Resistive load(AC-12) C Inductive load(AC-15) D Resistive load(DC-12) C Inductive load(DC-13)
	ad(DC-12) 6A	Г				ad(DC-13) 3A
	╀		4			0.9A

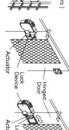
	(9-10)	0) C Inductive load(DC-13) 3A 0.9A
	Auxiliary Circuit 1	125VAC 0.1A (Resistive load)
	(7-8)	/30VDC 0.1A (Resistive load)
		_
		6VDC 5mA / 24VDC 1mA
Electric Shock Protection Class	ction Class	Class II O
Degree of Protection		IP67 (IEC60529)
	Damage Limits	1000m/s <sup>2</sup>
Shock Resistance	Operating Extremes	10 to 55 Hz, half amplitude 0.35 mm
	Damage Limits	30 Hz, half amplitude 1.5 mm
Operating Frequency	,	900 operations/hour
Operating Speed		0.05 to 1.0 m/s
Actuator Tensile Strength when Locked	ngth when Locked	Actuator operation is horizontal to mounting sur : 3,000N minimum (GS-ET
		Actuator operation is vertical to mounting surface : 2,800N minimum (GS-ET
Direct Opening Travel	H	11 mm minimum
Direct Opening Force	3	20 N minimum
Contact Resistance		100 m Ω maximum (Initial value)
Short-circuit protective device	e device	250V, 10A fast acting type fuse
Solenoid Rated Operating Voltage	ating Voltage	24VDC 100%ED
Solenoid Rated Current	ent	292mA
Solenoid Turn ON Voltage	oltage	Rated Voltage × 85% maximum (at 20°C)
Solenoid Turn OFF Voltage	'oltage	Rated Voltage × 10% minimum (at 20°C)
Solenoid Rated Power Consumption	er Consumption	Approx. 7W
Weight		Approx. 500g

Mounting
 Mount the lock device on the equipment body.
 Mount the actuator on the door.

see the figure below.

Examples of Mounting on Slidin





## 4 Notes for Operation

- Regardless of door types, do not use the lock device as a door stop. Install a mechanical foor stop at the end of the door to protect the lock device against an excessive force.
- Regardless of door types, do not apply a tension to the lock device during operation, install a separate lock as shown in (3) so that the lock device is free from unnecessary force. Do not apply an excessive shock to the lock device when opening or closing the door.

  A name to the lock device account on 1,000 m/s finaty cause failure. A shock to the lock device exceeding 1,000 m/s² may cause failure. 0
- When opening the lock device lid to wire, open the lid @ only.
- (See the figure on the right.)

  Never remove other screws, otherwise the lock device may be damaged.

  The lock device cover can be only removed or installed with the special
- Avoid foreign objects such as dust, liquid and oil from entering the lock L-shaped wrench supplied with the lock device
- Entry of foreign objects in the actuator entry slot may affect the mechanism of the lock device and cause a breakdown. If the operating atmosphere is contaminated, use a protective cover to prevent the entry of foreign objects into the lock device through the actuator entry slots.
- hand will be caused (coil temperature rises up to approx. 100 degree C). vise burning on
- Use heat-resistant wire when the solenoid touches wires.
  Use only the designated actuator for the HS1E-740.
  Other actuators will cause a breakdown of the lock device.





## A CAUTION

electrical shocks or fire hazard power to the lock device before starting installation, removal, wiring, and inspection on the lock device. Failure to turn power off may cause

Use wins of a proper size to meet voltage and current requirements. Tighten the terminal
screws to a recommended bightening proper of 0.9 to 1.1N-m. Loose ferminal screws will cause
unexpected heating and fire hazard during operation.
 Do not instal the actuator in the location where the human body may come into contact.

Otherewise injury may occur.

in case the spare actuator is inserted into the lock device.

Ensure that the actuator is firmly fastened to the door (welding, rivet, special screw) in the appropriate location, so that the actuator cannot be removed easily. nent of spare actuator. Safety function of lock device will be lost

Manual Unlocking

(Unlocking Method)

· HS1E with manual unlock key The HS1E allows manual unlocking of the key to precheck door operation or turning on power, as well as for emergency use such as a power failure

the main circuit remains open and the door is not locked the key towards UNLOCK by 90°. When nsert the attached key into the key hole and turn s closed with the key removed in the unlocked

(refer to the figure on the right).

Note: Do not use the lock device with the key installed, otherwise the machine may be unlocked during operation.

HS1E with manual unlock lever on the reverse side:
Turn the lever clockwise until the actuator is unlocked
(refer to the figure on the right).
Note: A hole for the lever should be opened on the mountir Also, using the lock device with the key installed may also cause malfunction and error of the lock device.

See (7). When opening the hole, apply proper protection inst water and other foreign objects

⊗

 HS1E without manual unlock key Ø

Remove the screw at the side of the lock device using the wrench for mounting the HSTE lid. Push the lever inside the lock device toward the connector hole using a small screwdriver until the actuator is unlocked. See the figure on the right. lock device. Push the pin inside the lock device toward the connector hole using a small screwdriver until the actuator is unlocked. See the figure on the right. A hole for the lever should be opened on iver form the hole of the reverse side of the

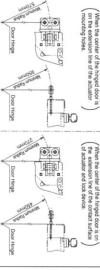


## A CAUTION the mounting panel. When opening the hole,apply proper protection against water and other foreign objects.

he machine stops, and the function of lock device is lost plete stop. Manual unlocking the lock device, make sure the machine has come to a ocking during operation may unlock the lock device before

### 5 Adjustments

the applicable door is shown in the following figures. Inimum Radius of Hinged Door
When using the lock device for a hinged door, the minimum radius of

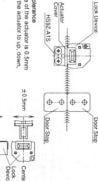


The figures shown above are based on the condition that the actuator enters is the actuator entry slot smoothry when the door is closed or opened. Since there may be deviation or dislocation of the higged door, make sure of correct operation in the actual application before installation.

Actuator Mounting Reference Position

As shown below, the mounting reference position of the actuator inserted into the lock device is the actuator cover or stop film touches the lock device lightly.

(After mounting the actuator, remove the actuator cover or stop film from the actuator.)



Actuator Mounting Tolerance Mounting tolerance of the actuator is 0.5mm from the center of the actuator to up, down, right, and, left. ±0.5mm

Cente

瞄

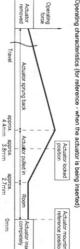
9 maximum

When closing the door, the actuator is inserted and locked within approx. 3.8 mm from the mounting reference position. 

Actuator can move 3.3 mm from the mounting eference position without affecting the contact

 $\left(\begin{array}{c} \text{Deviation of} \\ \text{door position} \end{array}\right) \leq 3.3 \text{ mm}$ 

Operating characteristics (for reference - when the



mended Screw Tightening Torque

53

or (G1/2)	screw (M3.5) 0	nting the lid (M4) 0	nting the actuator (M5 screw) *2 2.7 to 3.3 N·m	ting the lock device (M5 screw) *2 3	Sare
7 to 3.3 N·m	0.9 to 1.1 N·m	0.9 to 1.1 N·m	2.7 to 3.3 N·m	3.2 to 3.8 N·m	ew Tightening Torque
2.7 to 3.3 N·m after mounting	0.9 to 1.1 N·m that the screws do not become loose	N·m tightened to a smaller torque make sure	N·m values conlimed with nex socker nead	3.2 to 3.8 N·m torques of the mounting screw are the	ightening Torque *2: The recommended tightening

Opening the connector Hole

Break a desired knockout to mount a connector using a hammer

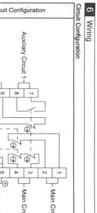
a screwtiner.

Remove the connector lock nut from inside the lock device before breaking the knockout to open a connector hole.

When breaking the knockout to open a connector hole, be careful not to damage the internal contact book.

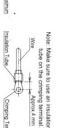
Note: Cracks or burrs on the connector hole will degrade the waterproof characteristics





100	Soler	Auxilia	Auxilia	Mair	Mair	D	Circ	cuit Configuration
	Solenoid Power	Auxiliary Circuit 2	Auxiliary Circuit 1	Main Circuit 2	Main Circuit 1	Door States	Auxilian	Auxilian
Door is locked.     The machine c be operated.	- 5-6 :	. 9-10 :	- 7-8 :	.34:	. 1-2:		Auxiliary Circuit 2-	Auxiliary Circuit 1-
Door is locked. The machine can be operated.	Off	Closed	Open	Closed	Closed	Closed	8	9 8 7
<ul> <li>Door is unlocked.</li> <li>The machine can not be operated.</li> </ul>	· 5-6 : On	- 9-10: Closed	• 7-8: Open	- 3-4: Open	-1-2: Open	Closed		
. The m	- 5-6 :	- 9-10 :	. 7-8:	. 3-4 :	- 1-2:		OSolen	Main Circuit 1  Main Circuit 2  → Main Circuit 2
The machine can not be operated.	Off/ On	Open	Closed	Open	Open	Open	- Solenoid Power	Dirouit 1

Applicable Crimping Terminal nded Wire Core Size: 0.5 to 1.25 mm<sup>2</sup>



When replacing the IDEC lock device with this lock device (HS1E\_7C\_RX2213) for maintenance confirm the part number indicated on the lock device, and wire the lock device referring to the "Equivalent terminal number table" shown below. After wring, correct the terminal number to the new terminal numbers on the electrical drawing attached to the machine. □Lock Device Use a connector with a degree of protection IP67.
Applicable connector dimensions: See the figure on the right.
When using the M20 connector, replace the bocking rut in the lock
device with the connector locking nut (HW8Z-NM20) sold seprately Wire Length inside the Lock Device Note: For lock device with a manual unlock lever on the reverse side, open a \$30 hole on the panel cut out for the lever (refer to the above figure), open a \$40 hole and from the hole of lever, seal the hole properly so that the sealing can be removed from inside of the machine. Note: Use the slot plug attached to the lock device to close RP: Actuator mounting reference position (61/2)Applicable Plastic Connector Example: Type SCS-10□(made by Seiwa Electric)
Applicable Metal Connector Example: 1 Type ALS-16□(made by Nihon Frex)
(PG13.5)Applicable Plastic Connector Example: 1 Type ALS-16□(made by LAPP)
Applicable Metal Connector Example: 1 Type ABS-1□PG13.5(made by Nihon Flex)
(M20)Applicable Plastic Connector Example: 3 Type ABS-1□PG13.5(made by LAPP)
Applicable Metal Connector Example: 3 Type ABS-1□PG13.5(made by LAPP)
Applicable Metal Connector Example: 3 Type ABS-1□PG13.5(made by LAPP)
Applicable Metal Connector Example: 3 Type ABS-1□PG13.5(made by LAPP)
Applicable Metal Connector Example: 3 Type ABS-1□PG13.5(made by LAPP)
Applicable Metal Connector Example: 3 Type ABS-1□PG13.5(made by LAPP)
Applicable Metal Connector Example: 3 Type ABS-1□PG13.5(made by LAPP)
Applicable Metal Connector Example: 3 Type ABS-1□PG13.5(made by LAPP)
Applicable Metal Connector Example: 3 Type ABS-1□PG13.5(made by LAPP)
Applicable Metal Connector Example: 3 Type ABS-1□PG13.5(made by LAPP)
Applicable Metal Connector Example: 3 Type ABS-1□PG13.5(made by LAPP)
Applicable Metal Connector Example: 3 Type ABS-1□PG13.5(made by LAPP)
Applicable Metal Connector Example: 3 Type ABS-1□PG13.5(made by LAPP)
Applicable Metal Connector Example: 3 Type ABS-1□PG13.5(made by LAPP)
Applicable Metal Connector Example: 3 Type ABS-1□PG13.5(made by LAPP)
Applicable Metal Connector Example: 3 Type ABS-1□PG13.5(made by LAPP)
Applicable Metal Connector Example: 3 Type ABS-1□PG13.5(made by LAPP)
Applicable Metal Connector Example: 3 Type ABS-1□PG13.5(made by LAPP)
Applicable Metal Connector Example: 3 Type ABS-1□PG13.5(made by LAPP)
Applicable Metal Connector Example: 3 Type ABS-1□PG13.5(made by LAPP)
Applicable Metal Connector Example: 3 Type ABS-1□PG13.5(made by LAPP)
Applicable Metal Connector Example: 3 Type ABS-1□PG13.5(made by LAPP)
Applicable Metal Connector Example: 3 Type ABS-1□PG13.5(made by LAPP)
Applicable Metal Connector Example: 3 Type ABS-1□PG13.5(made by LAPP)
Applicable Metal Connector Example: 3 Type ABS-1□PG13.5( 8 Precautions on Lock Device Replacement 7 Dimensions Applicable Connectors When using flexible conduit and metal connector
Applicable Flexible Conduit Example: Type VF-03(made by Nihon Flex)
Applicable Metal Connector Example(01/2): Type RLC-103(made by Nihon Flex) Note: When using ST-M20 x 1.5, use with gasket GP-M (Type No: GPM20, made by LAPP) When using plastic connector, metal connector and multi-core cable k device the unused actuator entry slot. 1 2 3 7±1 4 5(+) 6(-) 7 8 9 10 E66561/E66562/E6664 5.5 ple(G1/2): Type RLC-103(made by Nihon Flex)
(PG13.5): Type RBC-103PG13.5(made by Nihon Flex)
(M20): RLC-103EC20(made by Nihon Flex) þ 1 2 (7) (8) HS9Z-A1S Door dosed Mori Seiki part number □Actuator
Type: HS9Z-A1S ACTUBIOL COARL

2-M5 screw (\$52 or M5 Tap)

Actuator Mountain
Hole Layout 22

Dispose of HS1E-740 Lock Device as an industrial waste 9 Precaution for Disposa

	Т	_		
ı				
ì				
'				
١				
ı				
١				
•				
١				
,				
•				

IDEC CORPORATION