

Caution !



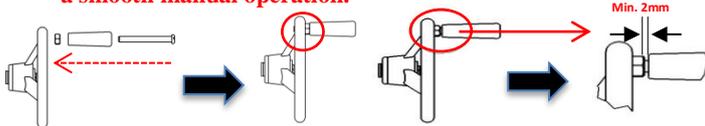
- **Operating by handwheel :**
Do not use any tools to increase force on handwheel for operating as this can damage the actuator or valve.
- **Instruction for handwheel :**
Remove the stopper and press the handwheel toward the actuator before handwheel operation. After manual operation, pull the handwheel out to disengage the manual override and re-place the stopper to enable the electrical control.

Installation Notices

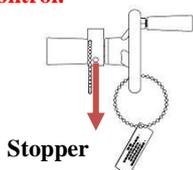
- a. Please read operation manual and wiring diagram carefully before installation.
- b. Verify that supply voltage is in accordance with the data on nameplate to prevent short circuit or electrical/electronic parts damage caused by incorrect power input.
- c. Turn power off before wiring or maintenance.
- d. Connect the ground wire to PE point inside the electric actuator.
- e. To avoid functional failure caused by static, do not touch any components on the PCBA with metal tools or bare hands.
- f. Use suitable water-proof cable gland to ensure it fits the conduit entry size, diameter of the cable and the enclosure protection of the actuator when wiring. The water-proof cable gland must be tightened and flattened to the cable after wiring procedure and use original black water-proof plug to seal unused conduit entry and fasten the top cover of the actuator to prevent dust or water from entering the actuator. The red plastic dust-proof plug is not meant for long-term use. Replace it with suitable water-proof connector to ensure the enclosure protection rating.
- g. Running time and rest time should be based on the standard of 75% duty cycle, or the motor may overheat and stop running.
- h. Actuator should be installed in an upright or horizontal position. Do not mount upside down or below a horizontal position.
- i. These units are not designed to operate in vacuum spaces or where an explosive atmosphere exists.
- j. Periodically inspect actuator enclosure to prevent dust from accumulating.
- k. Please obey the local environment regulation for equipment scrapping.

Manual Device Installation

- a. Pass the screw through the handle and tighten the nut onto handwheel.
 - ⚠ **Do not overtighten.**
- b. Secure the handle to the wheel with the slotted screw and tighten the locknut all the way down to the wheel. Ensure that the locknut is locked between the wheel and the handle.
 - ⚠ **Leave a 2 mm gap between the locknut and the handle as the figure below to allow the handle free to rotate and then to have a smooth manual operation.**



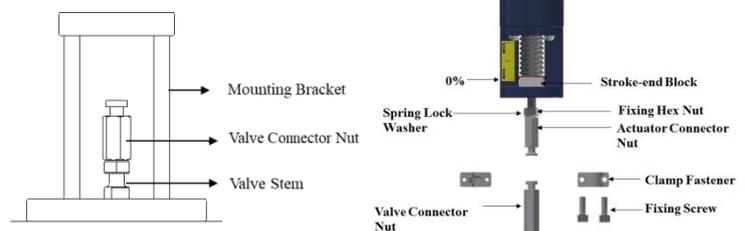
- c. Assembly completed as shown in the figure below.
 - ⚠ **Remove the stopper and press the handwheel toward the actuator before handwheel operation. After manual operation, pull the handwheel out to disengage the manual override and re-place the stopper to enable the electrical control.**



Valve Mounting Instructions

⚠ **DO NOT remove the stroke end block before completing installation.**

- a. The actuator shall be sized to ensure that its thrust force output and stroke length meet the load and stroke requirements of valve and its ability to overcome the required duty cycle of application. Before mounting, verify that the valve connecting nut fits with size of valve stem and the actuator is in its fully-closed position (stroke position 0%).
- b. Operate the valve to the fully-closed position.
- c. Remove the fixing screws from the clamp fastener and lock the valve connector nut onto the valve stem.
- d. Lock the actuator connector nut, spring lock washer, and fixing hex nut to the output shaft of the actuator as shown in figure below.
- e. Install the actuator onto the mounting bracket and tighten the fixing screws securely.



- f. Mount the actuator with bracket onto the valve and make sure the actuator connector nut connects the valve connector nut properly as figure below, and then tighten the fixing screws of clamp fastener securely.

⚠ **The tightening torque for both of the fixing screws must be the same to ensure the force applied evenly.**

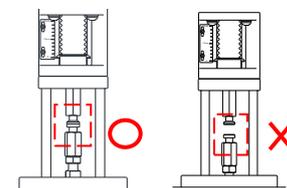


Figure 1 : Correct Figure 2 : Incorrect

Note :

Rotate the valve connector nut until it touches the surface of actuator connector nut. (Figure 1)

⚠ **Valve Connector Nut must have a minimum thread engagement of 1 x the valve stem diameter. If not, adjust the Actuator Connector Nut accordingly.**

- g. Tighten the valve nut with the Valve Connector Nut mutually.
 - ⚠ **Fasten the Valve Connector Nut with wrench and tighten the valve nut toward the Valve Connector Nut. (Figure 3).**

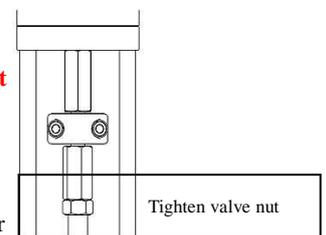


Figure 3

- h. Remove the conduit entry plug to relieve the pressure inside the actuator for the ease of the top cover removal and gently remove the cover.
 - ⚠ **The power must be off before removing the cover.**
- i. Refer to operation manual section 4.2 for wiring instructions and connect the wires according to the wiring diagram labeled inside the cover of actuator.
- j. Supply power to actuator.
 - ⚠ **Care must be taken at all times as there are live circuits present that may cause electrical shock.**
- k. Assemble the cover and secure cover screws firmly after setting.
 - ⚠ **Please ensure that the O-ring seal is in good condition prior to cover installation.**

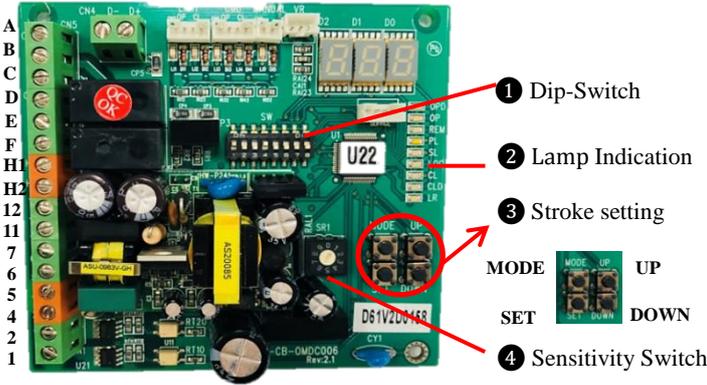


Caution !

To avoid functional failure caused by static, do not touch any components on the PCBA with metal tools or bare hands.

Modulating Control Board Adjustment

The layout is based on 110 / 220V.



1 Dip-Switch Setting (Original Factory Setting : 1, 4, 8 ON)



* S1, S2 : Input Signal Setting * S3, S4 & S5 : Output Signal Setting

Input Signal	S1	S2	Output Signal	S3	S4	S5
4 - 20 mA	ON	OFF	4 - 20 mA	OFF	ON	OFF
1 - 5 V	OFF	OFF	2 - 10 V	ON	OFF	ON
2 - 10 V	OFF	ON				

* S6, S7 & S8 : Setting of fail position when input signal fails.

⚠ The input signal type is set by switches 1 and 2. And switch 6 is used to set the corresponding relationship between value of input signal and operation direction of actuator.

Symbol	S6	S7	S8	Signal Failed Position
	ON	OFF	ON	Fully-Open (100%)
		ON	OFF	Fully-Closed (0%)
		ON	ON	The Last Position
	OFF	ON	OFF	Fully- Open (100%)
		OFF	ON	Fully- Closed (0%)
		ON	ON	The Last Position

2 LED Indication

Lamp	Actuator Status
OPD	Fully-Open Position
OP	Opening Direction
REM	Remote Control Mode
PL	Alerting Signal
SL	Setting Mode
LOC	Local Control Mode
CL	Closing Direction
CLD	Fully-Closed Position
LR	MCU Indication

3 Stroke Setting

- Press "MODE" 5 times to get into **AUo**.
- Press and hold "SET" around 5 sec until "LOC" comes on to enter Auto setting mode.
- When the Auto setting is completed, "LOC" comes off and the actuator stops running. The travel setting is completed.

4 Sensitivity Switch Setting (SR1)

- Factory setting:
Select "MODBUS" control, the sensitivity is preset to 1.
Select "analog signal" control, the sensitivity is preset to 7.
- When analog signal is selected:
Switch to 1: the highest sensitivity.
Switch to 0: the lowest sensitivity.

MODBUS Setting

⚠ MODBUS and modulating control cannot service at the same time.

- Set the dip switches 1 - 2 at "ON" state and 3 - 8 at "OFF" state.
- Baud rate setting

- Press "MODE" twice until **PAR** displays.
- Press "SET" once, then **SPd** will display.
- Press "DOWN" 10 times until **BAU** displays.
- Press and hold "SET" around 3 sec until the LED indicator flashes to enter setting mode.
- Press "UP" or "DOWN" to set the required baud rate. (default value #4)

Setting Value	Baud rate
4 (default)	9600
5	19200

- Press "SET" once to complete the setting.

Station setting

- Press "DOWN" once, then **Id** will display.
- Press and hold "SET" around 3 sec until the LED indicator flashes to enter setting mode.
- Press "UP" or "DOWN" to select the required station (Station Range:1 to 127, default Station: 1).
- Press "Set" once to complete the setting.
- Press "Mode" 4 times to get back to the home page.

MODBUS Parameter Address

Parameter Address (Hexadecimal)	Function	Setting range (Hexadecimal)
5	Station setting for MODBUS	1 to 127 station
6	Baud rate setting for MODBUS	4 to 5
8	Position setting (%)	0 to 64
9	Position feedback setting (%)	0 to 64