

# Spring Return Actuator



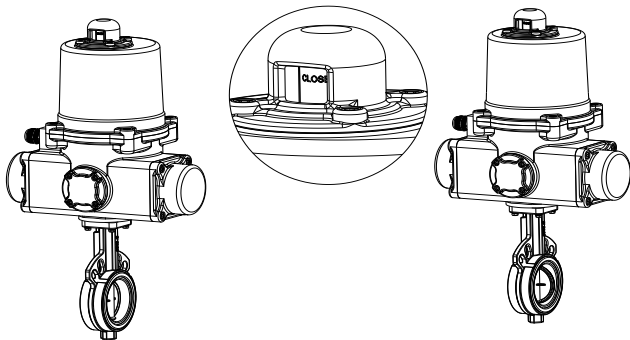
## CAUTION:

For the safety reason, do not remove or inspect the **SPRING STRUCTURE** in any cases. That can cause seriously injured if the applicable tools are not used.

## INSTALLATION

The actuator is shipped in the designated fail position from the factory. Make sure the valve and actuator are in the same position before mounting.

- If the actuator is set to fail close on loss of power, the valve must be in the closed position when mounting the actuator. On the other hand, if the actuator is set to fail open on loss of power, the valve must be in the open position when mounting the actuator.



- Remove valve mechanical stops and mount on the proper connection.

**CAUTION: Don't remove any parts necessary for the proper operation of the valve.**

- Check again that the valve and actuator are in the same position.
- Install mounting hardware on the valve or mount on the valve directly, mount actuator to valve securely tighten all bolts and screws once actuator screws have been started.
- Remove actuator cover.

**CAUTION: Be sure power is off at the main power box.**

- Wire actuator using the wiring diagram inside cover.
- Turn on power to actuator.
- CAUTION: Use extreme caution as there are live circuits that could cause electrical shock or death.**
- Make sure if it is needed to calibrate the fully-open or fully-closed position of the actuator. Refer to the "CALIBRATION" to set the position.
- Replace cover and secure cover screws.

## IMPORTANT NOTICES

- Make sure the voltage is correct before wiring.
- Turn power off before servicing or for maintenance purpose.
- Use sealant to seal conduit connections after wiring to prevent dusting or water contamination.
- Not intended for vacuum spaces and avoid installing near explosive atmospheres.
- When more than one electric actuator needs to operate simultaneously, please connect with the individual cables.
- Please connect the ground wire to PE inside the electric actuator.
- The warranty period of our product is for one year.

## CALIBRATION

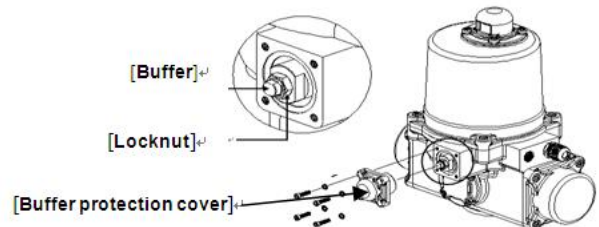
### NOTE

- Manually drive the actuator back to its fully closed position before the actuator will function again under power.
- Securely tighten the liquid-tight stopper.

Spring return actuator provided fail-safe positioning which controlled by buffer or mechanical stops. (ON-OFF Type is controlled by buffer and Floating and Modulating Type are controlled by mechanical stops.) When you supply power for operating, the end position is controlled by limit switches.

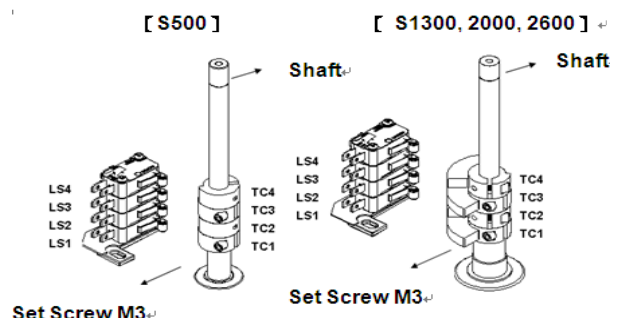
### 1. To set the fail-safe position:

- Remove power from actuator and take off buffer protection cover.
- Loosen the locknut.
- Calibration of the buffer position.
  - Forward : rotate clockwise. ( increase 1.5mm which corresponding to 1 turn).
  - Backward: rotate counter clockwise. ( decrease 1.5mm which corresponding to 1 turn.).
- After the adjustment is completed, replace the buffer protection cover and securely tighten all cover screws.



### 2. To set the end position:

- Apply power to operate actuator to fully-open position.
- Turn off the power.
- Loosen the M3 set screw on the cam by 2.5mm Allenkey.
- Adjust the travel cam (TC 1) :
  - Increase the degree: rotate clockwise.
  - Decrease the degree: rotate counter clockwise.
- Securely tighten the set screw and apply power to check the traveling position. If the position is not correct, please repeat step a~d.
- After the adjustment is completed, check again the M3 set screw is securely tightened.



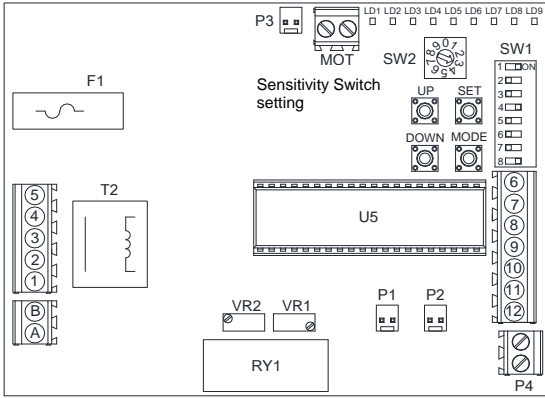
# Modulating Board Set Up



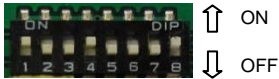
## CAUTION:

To avoid functional failure caused by statics, do not touch any components on the PCB with metal tools or unarmed.

▲ To adjust the following settings, turn power off FIRST.



## Dip Switch setting (Factory setting: 1,4,8 ON)



\* S1, S2 for input signal

Input Signal	S1	S2
2-10V	OFF	ON
4-20mA	ON	OFF
1-5V	OFF	OFF

\* S3, S4 & S5 for output signal

Output Signal	S3	S4	S5
2-10V	ON	OFF	ON
4-20mA	OFF	ON	OFF

\* S6, S7 & S8-Actuator response to the loss of control signal.

Symbol	S6	S7	S8	
 90° signal	OFF	OFF	ON	Fully closed
		ON	OFF	Fully open
		ON	OFF	Stops
 90° signal	ON	ON	OFF	Fully closed
		OFF	ON	Fully open
		ON	OFF	Stops

## P4 Terminal (Contact Rating : 3A/250V)

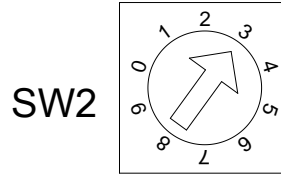
P4 is a contact for warning. You can connect with alarm or similar components. If the microprocessor sees the actuator doesn't reach the (normal) end of travel previously set after 15 seconds, this would cause the microprocessor to set the P4 (Alarm) output status to ON and the LED 5 comes ON.

### NOTE:

To reset and return to the original status :

Please turn off the power, then power on after 10.

## Sensitivity Switch: (Factory setting "3")



- When switch to "1": The Highest Sensitive and the 0~90 degree can be divided up to around 50 times movement
- When switch to "0": The Lowest Sensitive and the 0~90 degree can be divided up to around 10 times movement

The sensitivity decreases 5 times movement by sectors from SW1 to SW2, SW2 to SW3, SW3 to SW4 and so on.

## Settings for OPEN and CLOSE

### OPEN setting

- Keep pressing "SET" for 2 seconds until LD 9 comes on to get into manual mode.
- Keep pressing "UP" until the actuator runs to fully-open position, LD2 comes on.
- Supply the input signal according to the dip switch setting (5V or 10V or 20mA).
- Press "MODE" once. The OPEN setting is completed.

### CLOSE setting

- Keep pressing "DOWN" until the actuator runs to fully-closed position, LD1 comes on.
- Supply the input signal according to the dip switch setting (1V or 2V or 4mA).
- Press "MODE" once. The CLOSE setting is completed.

**After completing the above settings, press "Set" once and LD9 comes off.**

## Lamp Signal

LD1: Fully-closed	LD6: Motor thermostat turn off
LD2: Fully-open	LD7: Output signal short circuit
LD3: Power	LD8: Motor current is excessive
LD5: Wrong input signal	LD9: Setting input signal