

FCEL Electric Actuator Operating Manual

Caution!! Read Before Operation!!

When the actuator is operated for the 1st time it is important to check the correct rotation of the motor. Otherwise serious damage may occur.

1) Place Valve position at 45 degrees by turning the handwheel , energize the actuator to open or close and check proper valve rotation direction.

2) If Rotation direction is reverse, stop immediately and recheck wiring.

1) General

All Flomatic Electric Actuators are thoroughly tested and checked before shipment . If installation will not occur immediately, actuator should be kept in a dry place. Please DO NOT remove plugs from conduit entries until ready for wiring.

2) Operation

2.1) Auto/Manual Operation

Auto/ Manual Shift operation as follows:

- 1) Manual Override: **Caution: Before engaging manual override power must be off.** Push or Pull the hand/auto declutching lever to engage clutch. (Handwheel may have to be “jockeyed” slightly.) After engaging clutch, turn handwheel either to “Open” or “Closed”.
- 2) Auto Operation by Motor: Once wiring is complete actuator is ready for operation and will instantly operate once electric power is energized. If in manual mode when electric power is re-energized, actuator will automatically declutch and operate.

2.2) Valve Position Indication-

Actuator Top mounted Visual position indication shows “OPEN” and “CLOSED” valve position.



3) Wiring Connections

3.1) Top Housing Cover Removal

Remove the 4 Socket head Housing Capscrews with a hex key wrench. Lift housing cover from actuator base. Look for wiring diagram in plastic envelope.

3.2) Wiring

- 1) Connect power and control connections to the terminal strip per wiring
- 2) 2 Ground Connections need to be wired . (1 internal- identified by sticker and 1 external located between the two mechanical stops)

3.3) Conduit Entries (3/4 inch NPT)

SEAL All conduit entries even if not used!!

4) Limit Switches (LS) - Cam activated snap action switches,

4.1) Setting the Closed Limit Switch: (Lower Cam and Lower Switch)

- 1) Pull the declutch lever and turn Handwheel **clockwise** to move the valve to fully **Closed** position.
- 2) Using a hex key wrench, loosen the **lower cam** screw. (**Closed LS**)
- 3) Adjust the cam to trip the **lower cam** switch (LS), then tighten screw.

4.2) Setting the Open Limit Switch: (Upper Cam and Upper Switch)

- 1) Pull the declutch lever and turn Handwheel **counter-clockwise** to move the valve to the fully Opened position.
- 2) Using a hex key wrench, loosen the **upper cam** screw. (**Opened LS**)
- 3) Adjust the cam to trip the **upper cam** switch (LS), then tighten screw.

4.3) Mechanical Travel Limit Stops: (TLS)

- 1) Closed Travel Limit Stop is on Left and Open Travel Limit Stop is located on right.
- 2) Set each mechanical (TLS) bolt 1 turn beyond the Limit Switch trip point.
- 3) If the stop bolts make contact before the O/C LS trips, rotate bolt 2 turns counter-clockwise.

4.4) Limit Switch/Travel Stop Operation Test

To test Open/Closed Limit Switch and Mechanical TLS operate the valve to Open-Closed Several times with Limit Swtches wired to control panel to check Open/closed indicator Lights.

5) Torque Switch

Torque switches are factory set to actuator rated torque and should not be necessary to reset. Call factory if you have special requirement. Torque switches set with special tools to protect the actuator. If re-set without factory consultation warranty may be voided.

6) Adaptation mounting for Actuator and valve

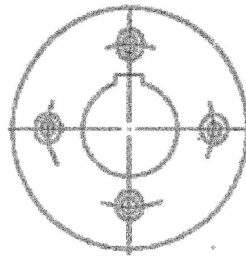
6.1 Drive Bushing

1) Removal

An internal actuator drive bushing is assembled on the bottom of the actuator with 4 retaining screws. Socket hex-key wrench is required for their removal.

2) Machining

The Drive bushing is machined to adapt to valve shaft (or mounting coupler if actuator is not direct mounted to the valve.) If key/keyway adaptation is used the direction of keyway should align with one of the drive bushing screws.



6.2 Reassembling the drive bushing

1) Check the relative position of valve and actuator (Open-Closed).

If not rotate the actuator to same position as valve.

2) Line UP actuator key way or other shaft configuration (Square, etc.) with valve

Shaft or coupler Key Way, etc. ** Actuator can mount in one of 4 quadrants as determined by the drive bushing installed position.

3) Insert the drive bushing back into the actuator with the 4 retaining screws.

Trouble shooting

Mechanical Trouble

Valve will not operate

- 1) Try moving the valve with the Manual Handwheel after Pulling the declutch lever.**
- 2) Watch mechanical position On top of actuator for movement**
- 3) If Handwheel will not move, the valve is stuck. Valve needs to disassembled and repaired.**
- 4) If Handwheel moves well without interruption, check the adapter connecting the valve and actuator.**
- 5) If Handwheel moves check electrical functioning.**

Electrical Trouble

Check Main

Control Panel 1st

Then Actuator

- 1) Check Main Power Supply, relays, fuses, lamps, switches**
- 2) If the problem is the control panel- replace defective parts.
If NO Control Panel problem Check Actuator**
- 3) Check the Actuator Motor and replace if necessary.**
- 4) Torq Switch Tripping- turn main power off and follow Mechanical Trouble Shooting procedure**
- 5) Check for faulty Limit switch with circuit check, adjust or replace.**
- 6) All other electrical problems can be resolved by parts Replacement.**

FCEL Actuators are designed for long life under normal operating conditions. It is Recommended to make an operational check 2X's per year.

Flomatic warrants all products to be free of defects in workmanship and materials for 1 Year from date of shipment.