

# FN.0.4 - FLOCONTROL SUPPLEMENTARY INSTRUCTIONS

TO BE READ IN CONJUNCTION WITH FLOWCON INSTALLATION & OPERATION INSTRUCTIONS

## Description:

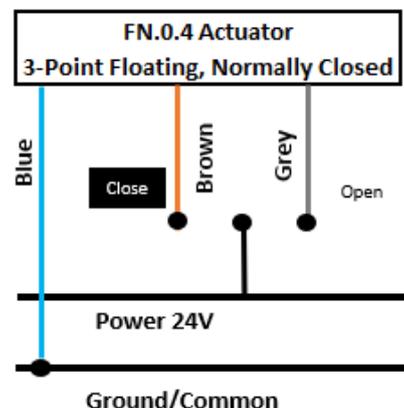
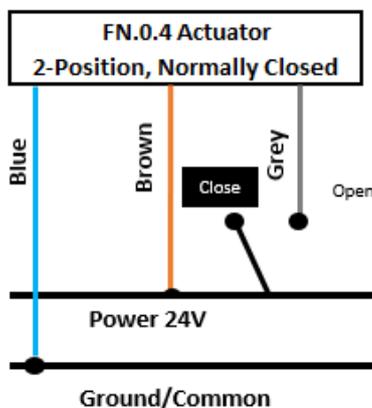
The FN.0.4 Electric Actuator is designed for 24V AC/DC  $\pm 10\%$ , 50/60Hz supply with a Digital 3-Point floating and ON/OFF signal and is self calibrating.

## How to identify the FN.0.4 Actuator:



- The Actuator is Black & White, with a profile as shown above, black cable 1.5m long as standard, with 3 coloured connecting wires.
- On the underside of the Actuator, the model **FN.0.4** and the software version, in this instance **4.12** can also be found on this label
- The long number in front of the software version number is the actuator serial number

## Wiring Diagram:



**Please note** FN.0.4 has a reaction time of 0.8 seconds. This is the time from giving a 24V signal until the actuator starts to move. This is particularly important is using a pulse power signal.

**Setting up the FN.0.4 Actuator Dip Switches:**



- The six Dip Switches can be found under the connection cover by unscrewing the setscrew [Torx T10] and lifting off the cover.

DIP switch	Function ON		Function OFF
#6	 Electrical override ON		 Electrical override OFF
#5	No function		No function
#4	No function		No function
#3	 Normally Open		 Normally Closed
#2	No function		No function
#1	No function		No function

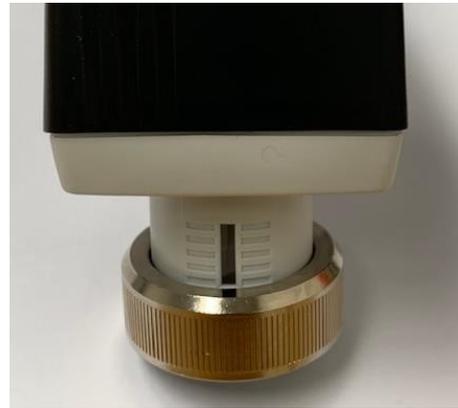
- The default setting for all the Dip Switches is the off position, as shown above, which will satisfy majority of the applications for the Green PICV.
- Switching the Dip Switch to the ON position changes the function as shown above.

### Actuator Mounting Instruction:

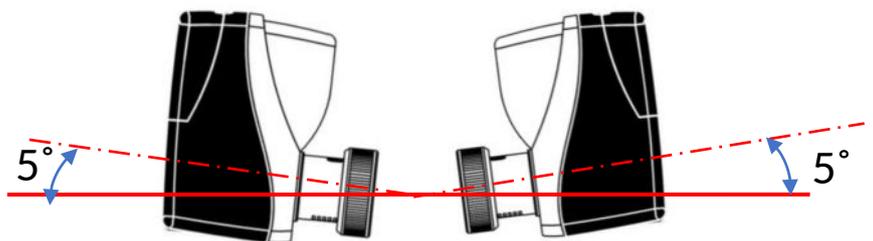
- The FN.0.4 actuator is designed to fit the following FlowCon PICV's
  - Green.EQ - 3.4mm stroke - closing time 75 sec
  - Green.0 - 3.4 mm stroke - closing time 75 sec
  - Green.1 - 3.4 mm stroke - closing time 75 sec
  - Green.1HF - 3.4 mm stroke - closing time 75 sec
  - Green.2 - 5.2 mm stroke - closing time 114.4 sec
- Ensure that the actuator is in the fully open position before mounting on the valve to avoid the risk of damaging the PICV, see below how to identify that the actuator is fully open:



The S.S drive pin should be fully up



No indicator pin should be visible in the window



- The actuator should be aligned to the PICV threaded insert, the locking ring should be rotated clockwise by hand until the locking ring is fully down, do not use tools or overtighten to avoid damage.
- According to the manufacturers installation instruction the actuator is suitable for mounting in the upside down position, but it is FloControl recommend mounting the actuator above the horizontal as shown.
- Note, it is good practice to mount with the actuator body facing upwards as shown.

### Start Up calibration sequence:

- The actuator has a stroke length of 9mm and will self calibrate to the Green insert closed position when fitted to the insert and the power is turned onto the actuator.
- During the initial calibration process the actuator should be set to operate for 360 seconds during this time the LED will flash Green.
- Once the actuator locates the closed position it will calibrate to the PICV and the LED will stay Green permanently and the actuator will stay in the closed position. No further action is required. The calibrated position will be retained in the actuator memory.
- The S.S. pin, located on the actuator neck, will indicate when the actuator is fully closed.
- The closed position on the indicator scale and is different for the GreEQ, 0, 1 and 1HF compared to the Green.2, see below.
- After the initial calibration process the run time can be changed to 90 seconds



The open & closed position for the GreEQ, 0, 1 and 1HF



The open & closed position for the Green.2

- FlowCon has a policy of continuous product development which has progressively simplified the calibration procedure.
  - For actuators with a software version 4.11 and above the actuator firm ware is programmed to identify the closed position. If the actuator is powered up off the valve it will not detect a closing position and the calibration will be ignored and the valve will retract fully and stop.
  - The actuator will re-calibrate at next power up until calibration have been done successfully (powered up for 360 seconds, mounted on the valve with dip switch 6 in off position).
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### Electrical override & Recalibrating the actuator using DIP switch 6:

- To drive the actuator fully open, flip Dip Switch 6 from the OFF position to the ON position the LED will now flash between Red and Green, after 10 seconds flip the Dip Switch back to the OFF position.



- As well as driving the actuator open this routine prepares the actuator for recalibration.
- Always keep the actuator powered up for 360 seconds during calibration.
- This is also required after using dip switch #6.
- The actuator will close with the LED flashing Green.
- Once closed the actuator will be recalibrated and the LED will be solid Green.

### Removing & Remounting the Actuator:

- The actuator should be removed from the valve in the fully open position only. This can be achieved by driving the actuator open with the control signal or by flipping DIP switch 6 to the ON position.
- Always keep the actuator powered up for 360 seconds during calibration. This is also required after after using dip switch #6.
- The DIP switch 6 should be reset to the OFF position after 10 seconds and should remain in this position whilst the actuator is not fitted to the PICV.
- Once the actuator is fully open turn off the power
- The actuator should only be remounted onto the PICV in the fully open position.
- When the power is restored, the actuator will calibrate as detailed above.

### Fault Finding Tips:

- If the PICV is suspected to be passing, remove the actuator and confirm that the PICV insert is not damaged by confirming the pin is in the up position and exhibits a spring resistance. If the insert is damaged replace with new one set at the same setting as the one removed to obtain the correct flow rate.
- If the actuator fails to fully open or close the PICV recalibrate the actuator to the valve by flipping DIP switch 6 from the OFF to the ON position and back to OFF position as described above, whilst still mounted to the valve and allow to recalibrate.
- If the actuator still fails to fully open or close confirm that the control signal run time is correct.

- A very useful technique to confirm that the actuator is performing correctly is to remove from the PICV and attach the actuator to a free standing insert as below to confirm that the actuator opens & closes the valve



Green.0 insert fully open



Green.0 insert fully closed



Green.2 insert fully open



Green.2 insert fully closed

- If the actuator fails to open or close the insert replace the actuator with a new one and return for investigation

## Exchanging the Actuator:

- Should it be necessary to exchange/replace the actuator.
- This can be carried out without rewiring the actuator.
- Ensure the power is turned off



Remove the cable retaining clip using a Torx T7 driver



Pull the cable bayonet connection off the pins



Fit the cable bayonet fitting to the new actuator pins ensure that all 3 pins are captured within the bayonet.



Ensure the retaining clip securing faces out as this is needed to retain the cover, reassemble

- Fit the new actuator to the PICV and turn on the power, the actuator will self calibrate to the PICV