FlowCon FN Actuators

FlowCon Electrical Actuators

SPECIFICATIONS

FlowCon FN.0.2

Supply voltage:	24V AC/DC ±10%, 50/60 Hz
Type:	Electrical, bi-directional synchronous motor
Power consumption:	24V AC: 0.9VA standby / 2.5VA operating / 4.7VA max. 24V DC: 0.75W standby / 1.2W operating / 2.2W max.
Inrush current:	10A (peak)
Control signal:	Analog 0(2)-10V DC, <0.5mA
Resolution:	1:100 (0-10V) and 1:80 (2-10V)
Feedback:	Yes, control signal
Failsafe function:	Fail in place
Electrical override:	Yes
Position indicator:	Yes
Operation time:	22 sec/mm
Actuating force:	High (250N -30N/+70N)
Stroke:	5.8 mm / 0.23 in (compensated)
Ambient temperature[1]:	0°C to +50°C / +32°F to +122°F
Media temperature:	0°C to +120°C / +32°F to +248°F
Humidity rating:	0..85% rH, no condensation
Protection:	IP54 incl. upside-down, class III, indoor use only
CE conformity:	EN 60730
Cable:	Fixed, 5 wires x 0.50 mm^2, 1.5 meter Fixed, 5 wires x AWG20, 4.9 ft
Closing point adjustment:	During operation the actuator will self-adjust according to the closing point and stroke length of the valve.

Note 1: Including +5°C self-generated heat based on UL requirements.

SPECIFICATIONS (...continued)

FlowCon FN.0.2-BUS

Supply voltage:	24V AC/DC ±10%, 50/60 Hz
Type:	Electrical, bi-directional synchronous motor
Power consumption:	24V AC: 2.1 VA standby / 3.6VA operating / 5.4VA max. 24V DC: 1.0 W standby / 1.8W operating / 2.7W max.
Inrush current:	24V AC: 7.2A (peak) 24V DC: 5.0A (peak)
Control signal:	0-100% (BACnet or Modbus)
Resolution:	1:100 (0-10V)
Feedback:	Yes, 0-100% (BACnet or Modbus)
Failsafe function:	Fail in place
Manual override:	Yes, with magnet
Position indicator:	Yes
Operation time:	22 sec/mm (alternatively 16 sec/mm or 28 sec/mm)
Actuating force:	High (250N -30N/+70N)
Stroke:	9 mm / 0.35 in
Ambient temperature[2]:	0°C to +50°C / +32°F to +122°F
Media temperature:	-10°C to +120°C / +14°F to +248°F
Humidity rating:	0..85% rH, no condensation
Protection:	IP54 incl. upside-down, class III, indoor use only
CE conformity:	EN 60730
Closing point adjustment:	During operation the actuator will self-adjust according to the closing point of the valve
Cable:	2 groups:
- Group 1:	Fixed, 2x2 wires x 0.34 mm², 1.5 meter Fixed, 2x2 wires x AWG22, 4.9 ft Fixed, 2 wires x 0.50 mm², 1.5 meter Fixed, 2 wires x AWG20, 4.9 ft
- Group 2:	Fixed, 4 wires x 0.50 mm², 1.5 meter Fixed, 4 wires x AWG20, 4.9 ft
Recommended cable:	Twisted pair with shielding (characteristic impedance ~120Ω)
Recommended cable length:	Baud rate dependent: 9600 and 19200 baud rate - max. 1000 meter 38400 and 57600 baud rate - max. 750 meter 115200 baud rate - max. 500 meter

Modbus:

Transmission type:	RTU slave
Interface:	EIA-485 / RS-485
Baud rates supported:	9600, 19200, 38400, 57600 and 115200
Start/stop bits:	8N2 (standard)
Participants:	Up to 32 recommended, max. 64 participants
Load:	1/8 unit load

BACnet:

Protocol:	BACnet MS/TP Master
Interface:	EIA-485 / RS-485
Device profile:	BACnet Application Specific Controller (B-ASC) type server
Baud rates supported:	9600, 19200, 38400, 57600 and 115200
Services (BIBBS) supported:	DS-RP-B, DS-RPM-B, DS-WP-B, DS-WPM-B, DS-COV-B, DM-DDB-B, DM-DOB-B, DM-DCC-B, DM-TS-B, DM-RD-B and DM-R-B
Participants:	Up to 32 recommended, max. 64 participants
Load:	1/8 unit load.

Note 2: Including +5°C self-generated heat based on UL requirements.

SPECIFICATIONS (...continued)

FlowCon FN.0.4

Supply voltage:	24V AC/DC ±10%, 50/60 Hz
Type:	Electrical, bi-directional synchronous motor
Power consumption:	24V AC: 0.9 VA standby / 2.5VA operating / 4.7VA max. 24V DC: 0.75W standby / 1.2W operating / 2.2W max.
Inrush current:	10A (peak)
Control signal:	Digital 3-point floating and ON/OFF
Feedback:	No
Failsafe function:	Fail in place
Electrical override:	Yes
Position indicator:	Yes
Operation time:	22 sec/mm
Reaction time:	0.8 sec
Actuating force:	High (250N -30N/+70N)
Stroke:	5.8 mm / 0.23 in (compensated)
Ambient temperature[3]:	0°C to +50°C / +32°F to +122°F
Media temperature:	0°C to +120°C / +32°F to +248°F
Humidity rating:	0..85% rH, no condensation
Protection:	IP54 incl. upside-down, class III, indoor use only
CE conformity:	EN 60730
Cable:	Fixed, 3 wires x 0.50 mm^2, 1.5 meter Fixed, 3 wires x AWG20, 4.9 ft
Closing point adjustment:	During operation the actuator will self-adjust according to the closing point and stroke length of the valve.

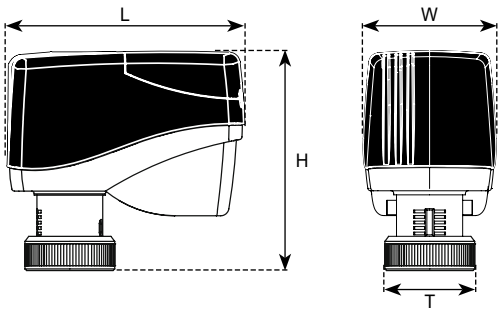
FlowCon FN.5.4

Supply voltage:	24V AC/DC ±10%, 50/60 Hz
Type:	Electrical, bi-directional synchronous motor
Power consumption:	5VA
Control signal:	Digital (2-position / 3-point-floating)
Feedback:	No
Failsafe function:	Fail in place
Operation time:	50 Hz: 18.5 sec/mm
Actuating force:	Low (120N -10N/+10N)
Ambient temperature:	+2°C to +50°C / +36°F to +122°F
Humidity rating:	<95% rH, no condensation
Protection:	IP54, class II
Cable:	Fixed, 3 wires x 0.30 mm^2 halogen free, 1 m Fixed, 3 wires x AWG22 halogen free, 3 ft
Closing point adjustment:	During operation the actuator will self-adjust according to the closing point of the valve.

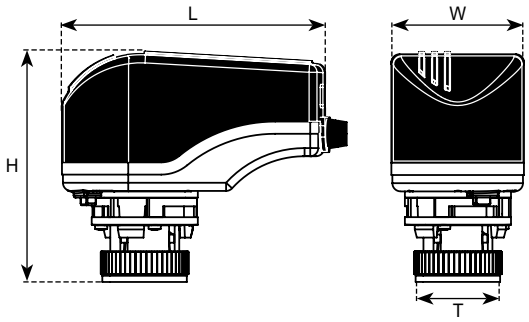
Note 3: Including +5°C self-generated heat based on UL requirements.

DIMENSIONS AND WEIGHT (NOMINAL)

Actuator	L mm (in)	W mm (in)	H mm (in)	T	Weight kg (lb)
FN.0.2	86.5 (3.41)	48.5 (1.91)	80 (3.15)	M30x1.5	0.25 (0.55)
FN.0.2-BUS					0.35 (0.77)
FN.0.4					0.25 (0.55)
FN.5.4	104 (4.09)	51 (2.01)	92 (3.62)	M30x1.5	0.25 (0.55)



FlowCon FN.0.2 / FN.0.2-BUS / FN.0.4



FlowCon FN.5.4

MODEL NUMBER SELECTION

FN . . .

Actuator force:
0 = High
5 = Low

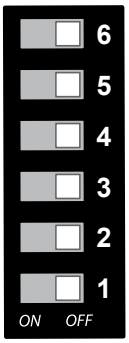
Control signal:
2 = 24V modulating
2-BUS = 24V modulating incl. Modbus and BACnet
4 = 24V digital

Example:
FN.0.2 = FlowCon FN actuator 24V modulating, high actuating force without failsafe function.

VALVE FUNCTION

The valve functions are adjusted with the DIP switches under the connection cover.

FlowCon FN.0.2



Switch #1: Auto cycle ON/OFF
If the plant specifications permit it, the auto cycle can be activated during commissioning. Auto cycle prevents the valve from jamming when the valve is not moved for a longer period of inactivity, e.g. for heating systems during the summer.
When the auto cycle is activated, the actuator will perform 50% stroke cycle if no stroke movement has occurred during a 3-week period.
Factory setting = OFF.

Switch #2: Analog 2-10V DC / 0-10V DC
Setting control range by the continuous actuating signal 0-10V DC or 2-10V DC.
Factory setting = 0-10V DC.

Switch #3: Normally open / Normally closed
Setting actuating direction with 10V DC control signal to “valve open” or “valve closed” as well as the position feedback.
Factory setting = Normally closed; 0V DC = valve closed.

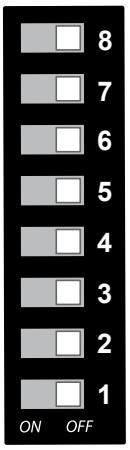
Switch #4: Equal % control / Linear control
Setting of actuating control curve either equal percentage or linear control.
Factory setting = Linear control.

Switch #5: No function.

Switch #6: Electrical override
Setting override function to ON and the actuator will open valve fully. When set to OFF again, the actuator will re-calibrate and thereafter go into normal operation mode.
Factory setting = OFF.

VALVE FUNCTION

FlowCon FN.0.2-BUS



Switch #1: BIT 0 ON/OFF
For bus address setting. Setting bit 0 to either 1 (=ON) or 0 (=OFF).
Factory setting = OFF.

Switch #2: BIT 1 ON/OFF
For bus address setting. Setting bit 1 to either 1 (=ON) or 0 (=OFF).
Factory setting = OFF.

Switch #3: BIT 2 ON/OFF
For bus address setting. Setting bit 2 to either 1 (=ON) or 0 (=OFF).
Factory setting = OFF.

Switch #4: BIT 3 ON/OFF
For bus address setting. Setting bit 3 to either 1 (=ON) or 0 (=OFF).
Factory setting = OFF.

Switch #5: BIT 4 ON/OFF
For bus address setting. Setting bit 4 to either 1 (=ON) or 0 (=OFF).
Factory setting = OFF.

Switch #6: BIT 5 ON/OFF
For bus address setting. Setting bit 5 to either 1 (=ON) or 0 (=OFF).
Factory setting = OFF.

Switch #7: Bus portocol
Setting bus protocol selection to either MODbus (=ON) or BACnet (=OFF)
Factory setting = OFF.

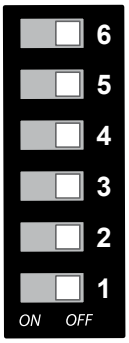
Switch #8: Terminating resistor
Setting terminating resistor to either active (=ON) or inactive (=OFF).
Factory setting = OFF.

Initial setting of switches 1 to 6 is OFF, which indicates that bus communication is deactivated and the actuator is in first-time mounting position. With switches 1 to 6 binary setting of the bus address in performed.

BIT 5 (32)	BIT 4 (16)	BIT 3 (8)	BIT 2 (4)	BIT 1 (2)	BIT 0 (1)	Address
0	0	0	0	0	1	1
0	0	0	0	1	0	2
0	0	0	0	1	1	3
0	0	0	1	0	0	4
0	0	0	1	0	1	5
0	0	0	1	1	0	6
0	0	0	1	1	1	7
0	0	1	0	0	0	8
0	0	1	0	0	1	9
0	0	1	0	1	0	10
0	0	1	0	1	1	11
0	0	1	1	0	0	12
:	:	:	:	:	:	:
1	1	1	1	1	1	63

VALVE FUNCTION (...continued)

FlowCon FN.0.4



Switch #1: No function.

Switch #2: No function.

Switch #3: Normally open / Normally closed
Setting actuating direction to “valve open” or “valve closed”.
Factory setting = Normally closed; 0V DC = valve closed.

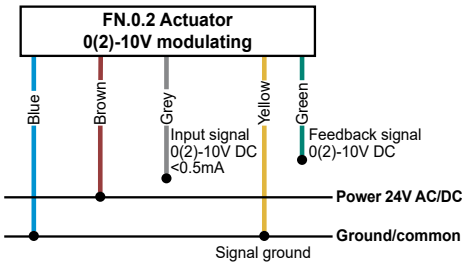
Switch #4: No function.

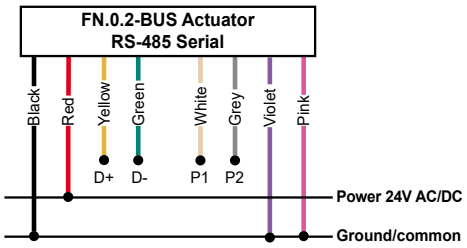
Switch #5: No function.

Switch #6: Electrical override
Setting override function to ON and the actuator will open valve fully. When set to OFF again, the actuator will re-calibrate and thereafter go into normal operation mode.
Factory setting = OFF.

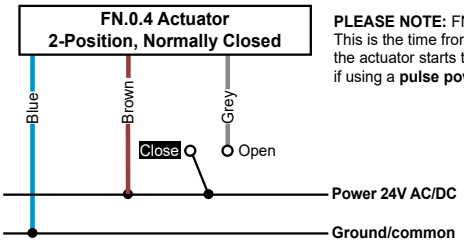
WIRING INSTRUCTION

ELECTRICAL MODULATING

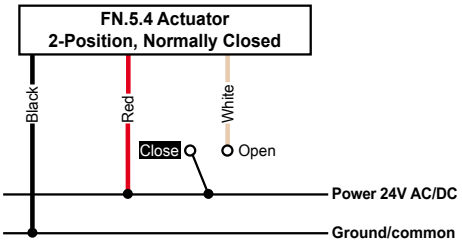


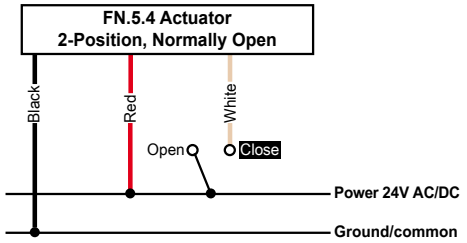


ELECTRICAL 2-POSITION

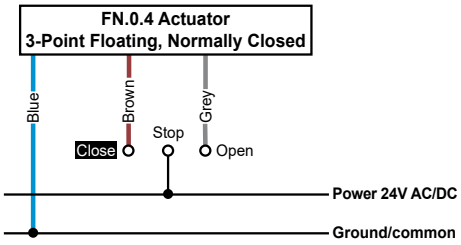


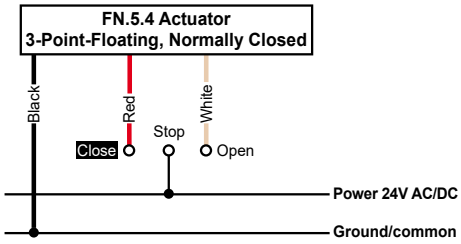
PLEASE NOTE: FN.0.4 has a reation time of 0.8 sec. This is the time from giving a 24V power signal until the actuator starts to move. This is particular important if using a **pulse power signal.**

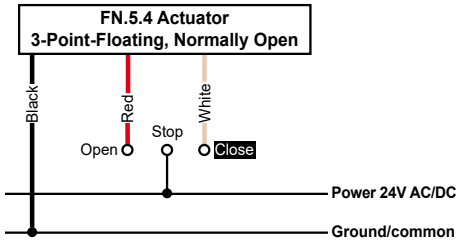




ELECTRICAL 3-POINT FLOATING







UPDATES

For latest updates please see www.flowcon.com