

Models

BM060FNC Actuator: 50 in.lb. (5.6 Nm) with fail safe

Features

- Contactless feedback positioner
- Mounts easily on round shafts
- Manual clutch
- Maintenance-free
- Position indicator
- Auto-stroke
- Cable
- ½" (16mm) BW BXCON-1 conduit connector (optional)
- Fail safe by Enerdrive System

Applications

- Small dampers
- Unit ventilators
- 1/4 turn valves
- VAV box control
- Fan coils



BM060FNC Actuator

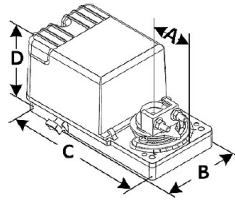


Description	BM060FNC Actuator
Torque	50 in.lb. [5.6 Nm] at rated voltage
Motor Type	Brushless motor
Running Time (for 90° Rotation)	3.5 seconds torque independent
Fail Safe (Enerdrive)	Yes
Fail Safe Runtime (0° to 90°)	3.5 seconds
Capacitor Charge Time on / Power-up	100 seconds
Power Consumption	31VA peak, 16W (during operation), 2W (at rest)
Overload Protection	Electronic throughout, 0° to 90° rotation
Power Supply	22 to 26 Vac 28 to 32 Vdc 50/60Hz
Transformer Requirements	Class 2; min. 36VA
Cable	5-wire FT6 plenum cable (18AWG) with strain relief (NP NEP617-2)
Electrical Connection	18 AWG [0.82mm ²] minimum, 39.5" (1m) long
Impedance	100 ohms for 2-10Vdc (0.1mA) 500 ohms for 4-20mA
Control Signals	2-10Vdc (default) or 4-20mA (DIP switch selectable) / 24Vac (On/Off or floating) / PWM (5 or 25s) / Zero span (adjustable)
Feedback Signals	2-10Vdc (default) or 4-20mA (DIP switch selectable)
Angle of Rotation	0° to 90°, mechanically and electronically adjustable (default: 90° stroke)
Direction of Rotation	Reversible, CW: Clockwise, CCW: Counter Clockwise (default: CW)
Cycles	100,000 full cycles, 1,500,000 repositions
Noise Produced	45 dB(A)
Ingress Protection	IP54 equivalent to Nema type 3S
Operating Temperature	0°F to +122°F [-18°C to +50°C]
Storage Temperature	-22°F to +122°F [-30°C to +50°C]
Relative Humidity	5 to 95% non-condensing
Weight	2.5 lb [1.1 kg]
Purpose and Action of Control	Type 1 operating control, electric actuator
Construction of Control	Independently mounted
Pollution Degree	2
Impulse Voltage	330V
Quality Management System	ISO 9001:2015
Certification	Complies to standards: UL 60730-1 & UL 60730-2-14, CSA E60730-1 & CSA E60730-2-14
	Complies to Low Voltage Directive & Electromagnetic Compatibility Directive
	Complies to Electrical Equipment (Safety) Regulations & Electromagnetic Compatibility Regulations

WARNING: Risk of mechanical failure. Do NOT press clutch when actuator is in operation.

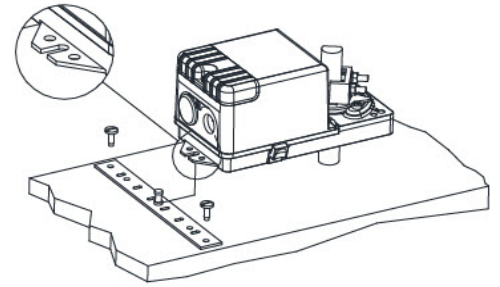
Dimensions

- A = 1.50" (38mm)
- B = 3.64" (93mm)
- C = 6.60" (168mm)
- D = 3.02" (77mm)



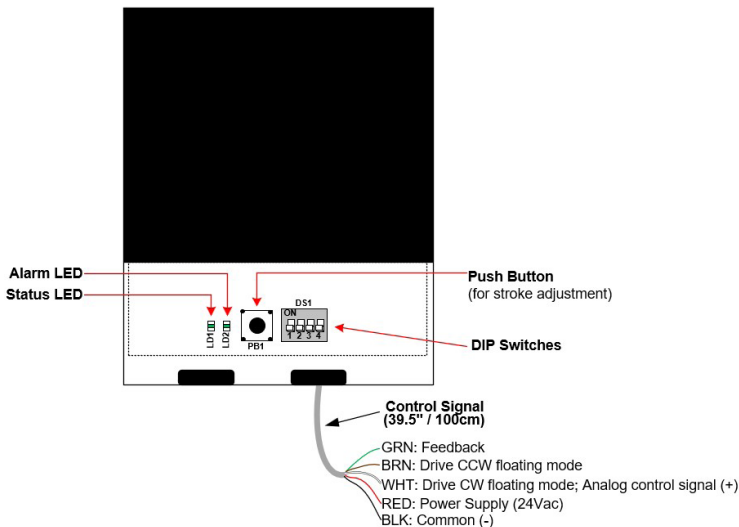
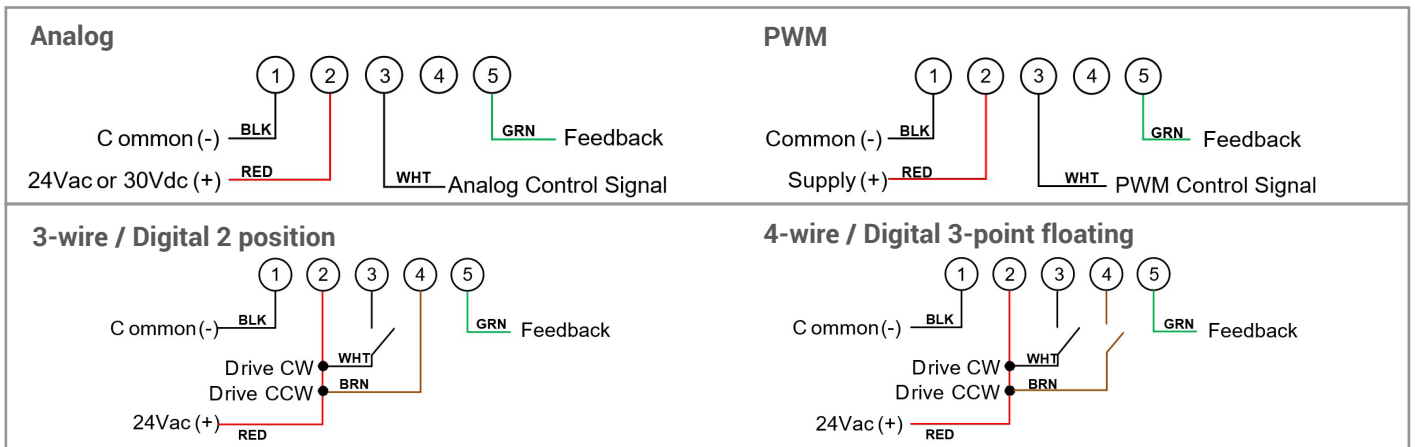
Mechanical Installation

1. Manually close the damper blades and position the actuator to 0° or 90°.
2. Slide the actuator onto the shaft.
3. Tighten the nuts on the "U" bolt to the shaft with an 8mm wrench to a torque of 60 in-lb [6.7 Nm].
4. Slide the mounting bracket under the actuator. Ensure free movement of the slot at the base of the actuator. Place the bracket pin at mid-distance of the slot.
5. Affix the bracket to the ductwork with #8 self-tapping screws.



Wiring

We strongly recommend that all products be wired to a separate grounded transformer and that transformer shall service only these products. This precaution will prevent interference with, and/or possible damage to incompatible equipment.



Settings

DIP Switches

#	Feature	OFF	ON
1	Rotation	CW *	CCW
2	Fail-safe direction	at 0° *	at 90°
3	Control Input signal	Vdc *	mA
4	Feedback	Vdc *	mA

* = default

Green Status LED

State	Description
ON	Auto-stroke
Flash	Normal operation
Rapid flash	During charging of capacitors

Red Alarm LED

State	Description
Flash	Error or Configuration mode

Normal Operation

The status LED will indicate the selected control mode:

Control State	Number of LED Pulses
Analog	1
Digital ON/OFF or floating	2
PWM 5 seconds	3
PWM 25 seconds	4

Auto-Stroke Adjustment

To initiate an auto-stroke calibration, press and release the push button (PB1) once the unit is done charging the capacitors. The status LED will remain lit.

The actuator travels in both directions to find its limits. When the limits are found, the status LED will begin flashing slowly, indicating the unit is in normal operation.

If the range of the actuator is less than 30 degrees, it will signal the Auto-Stroke Alarm.

Configuration Instructions

- Ensure to set all dip switches to OFF (if not already set), then press and hold the push button (PB1) for 3 seconds. The red alarm LED will blink with one pulse, meaning that the first menu (Control State) is now accessible.
- Select the desired control mode by toggling the associated dip switch to ON and then back to OFF. In the absence of a selection, the control state menu shall remain unchanged.

Menu	Number of Alarm LED Pulses	Dip Switch 1	Dip Switch 2	Dip Switch 3	Dip Switch 4
Control State	1	Analog (Modulating)*	Digital (On/Off or floating)	PWM (5 sec)	PWM (25 sec)
Zero Span	2	2-10Vdc*	0-10Vdc	Minimum value	Maximum value

* Default factory settings

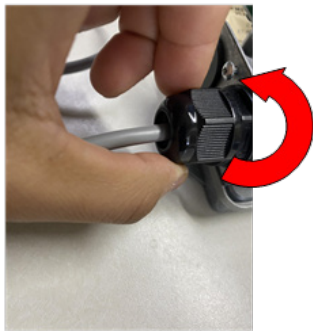
- Continue navigating through the configuration menus by pressing and releasing the push button (PB1).
 - Once pressed, access the second menu (Zero Span). There will be 2 pulses on the alarm LED as a result.
 - Pressing the push button (PB1) again will return to the first menu (Control State).
- To change the span range to something other than 2-10Vdc or 0-10Vdc, access the Zero Span menu and do the following:
 - Input the desired minimum voltage to the white wire, then toggle dip switch 3 to ON and then back to OFF.
 - Input the desired maximum voltage to the white wire, then toggle dip switch 4 to ON and then back to OFF.
 - The maximum voltage must be at least 3V greater than the minimum voltage, and they must both lie within 0 to 10V.
- To leave the configuration menu and save any changes, press and hold the push button (PB1) for 3 seconds.
- To perform a factory reset, press and hold the push button (PB1) for at least 15 seconds. Both LEDs will turn ON to indicate the factory reset has succeeded.

List of Alarms

# of Alarm LED Pulses	Alarm	Issues	Solution
1	Power fail	The actuator is not receiving any power and is shutting off.	Ensure the actuator is properly connected to the power supply source.
2	Auto-stroke	The actuator auto-stroke is not at a minimum of 30°.	Press the push button (PB1) and ensure that the span is greater than 30°.
3	Over-torque	The torque limit has been exceeded.	Ensure that the actuator is loaded with nominal load or less. Change the direction or trigger the auto-stroke calibration.
4	Hardware	Electronic issue (EEPROM, position sensor or failsafe capacitors)	Contact Neptronic.

BX Connector Attachment Installation

1. Remove the strain relief by turning it counterclockwise and slide it off the wires.
2. Insert the conduit attachment and turn it clockwise until it has been properly tightened onto the actuator attachment.



Step 1



Step 2



Recycling at end of life: please return this product to your Neptronic local distributor for recycling. If you need to find the nearest Neptronic authorized distributor, please consult www.neptronic.com.