# Actuator
## Specification & Installation instructions

**Feature:**

- Mounts easy on round & square shaft (with option –8).
- External clutch for manual adjustments.
- Maintenance free.
- Position indicator.
- Fail safe by *Enerdrive System*[1] (on model 060 & 080).
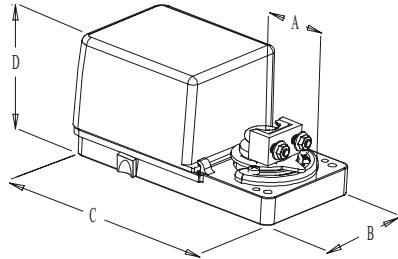- Auxiliary switches (on model 020 & 080).

| Old Number | |
|---|---|
| *BBTF1000A* | **BT000F** |
| *BBTF1021A* | **BT020F** |
| *BBTF1060A* | **BT060F** |
| *BBTF1080A* | **BT080F** |

| Technical Data | BT000F<br>*BBTF1000A* | BT060F<br>*BBTF1060A* | BT020F<br>*BBTF1021A* | BT080F<br>*BBTF1080A* |
|---|---|---|---|---|
| **Fail safe -** *Enerdrive* | No | Yes | No | Yes |
| **Power consumption** | 15 VA | 24VA Peak, 15VA | 15 VA | 24VA Peak, 15VA |
| **Control signal** | 3 wire / 2 position,<br>3 wire / 3 point floating | 2 wire / 2 position,<br>4 wire / 3 point floating | 3 wire / 2 position,<br>3 wire / 3 point floating | 2 wire / 2 position,<br>4 wire / 3 point floating |
| **Auxiliary switches** | No | | Yes (2) | |
| **Ingress protection** | IP22 equivalent to Nema type 2,<br>IP54 equivalent to Nema type 3R if water tight inlet<br>bushings (not supplied NEP617) are installed | | IP22 equivalent to Nema type 2 | |
| **Running time through 90º** | 6 to 8 sec Torque dependant | | | |
| **Torque** | 50 in.lb. [5,6 Nm] at rated voltage | | | |
| **Power supply** | 22 to 26 VAC or 28 to 32 VDC | | | |
| **Electrical connection** | 18 AWG [0.8 mm$^2$] minimum | | | |
| **Inlet bushing** | 2 inlet bushing of 5/8 in [15.9 mm] & 7/8 in [22.2 mm] | | | |
| **Angle of rotation** | 0 to 90 degrees, mechanically adjustable (factory set with 90º stroke) | | | |
| **Direction of rotation** | Reversible, Clockwise (CW) or Counterclockwise (CCW) (factory set with CW direction) | | | |
| **Ambient temperature** | -22ºF to +122ºF [-30ºC to +50ºC] | | | |
| **Storage temperature** | -22ºF to +122ºF [-30ºC to +50ºC] | | | |
| **Relative Humidity** | 5 to 95 % non condensing. | | | |
| **Weight** | 3 lbs. [1.4 kg] | | | |

### Warning: Do not press the clutch when actuator is powered

## Dimensions



| Dimension | | Inches | Metric (mm) |
|---|---|---|---|
| **A** | | 1.50 | 38.1 |
| **B** | | 3.26 | 82.8 |
| **C** | | 6.60 | 167.5 |
| **D** | model 000 & 060 | 3.01 | 76.4 |
| | model 020 & 080 | 3.72 | 94.5 |

## Caution

We strongly recommend that all neptronic® products be wired to a separate transformer and that transformer shall service only neptronic® products. This precaution will prevent interference with, and/or possible damage to incompatible equipment.
When multiple actuators are wired on a single transformer, polarity must be observed. Long wiring runs create voltage drop which may affect the actuator performance.

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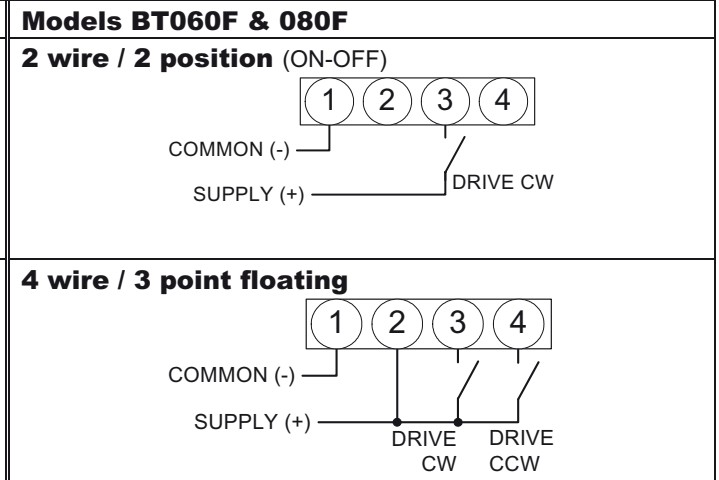
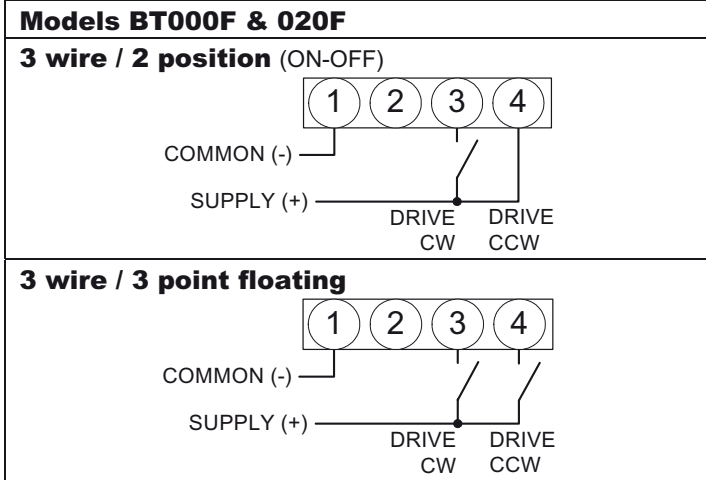[1] *Enerdrive System* U.S.A. Patent #5,278,454
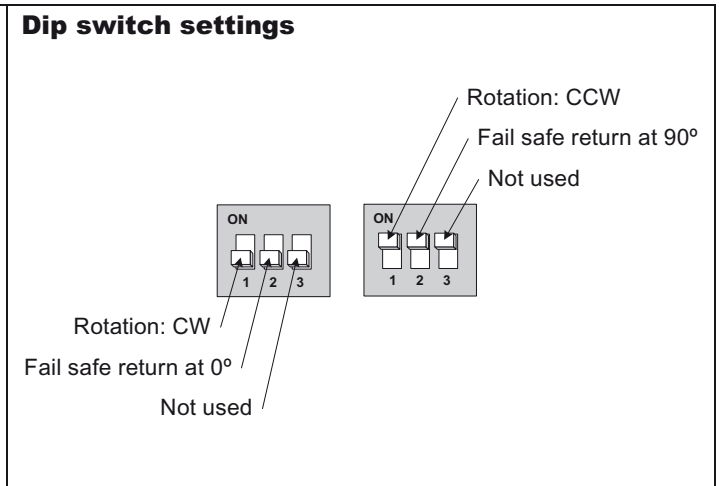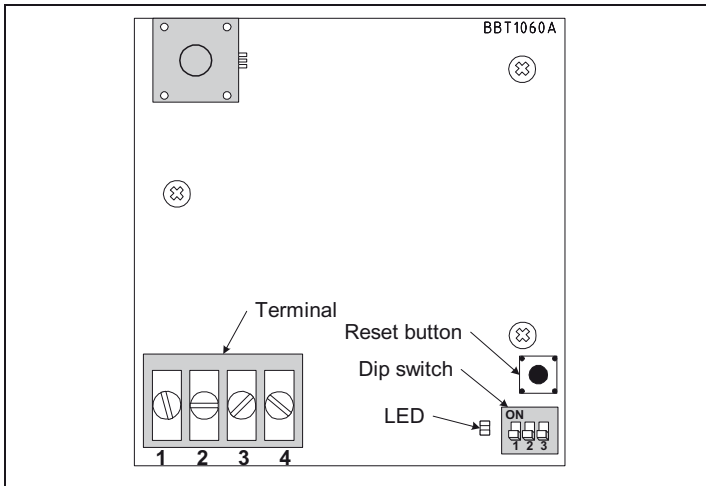
## Mechanical installation
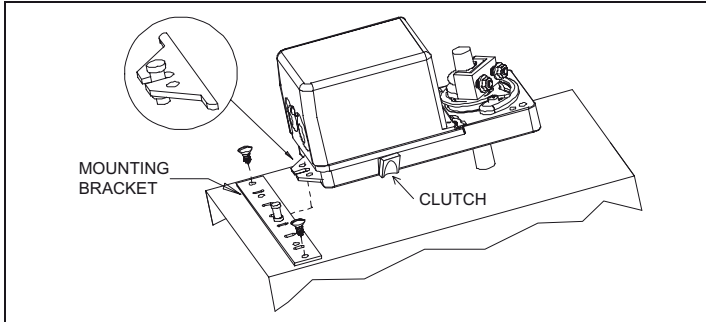


1. Manually close the damper blades and positioned the actuator at 0º or 90º.
2. Slide the actuator onto the shaft.
3. Tighten the nuts on the "U" bolt to the shaft with a 8mm wrench to a torque of 60 in.lb. [6,7 Nm].
4. Slide the mounting bracket under the actuator. Ensure free movement of the slot at the base of the actuator. The bracket pin must be placed in the mid distance of the slot.
5. Fix the bracket to the ductwork with #8 self-tapping screws.

## Wiring Diagrams

| Models BT000F & 020F | Models BT060F & 080F |
| --- | --- |
| **3 wire / 2 position** (ON-OFF) | **2 wire / 2 position** (ON-OFF) |
| COMMON (-), SUPPLY (+), DRIVE CW, DRIVE CCW | COMMON (-), SUPPLY (+), DRIVE CW |
| **3 wire / 3 point floating** | **4 wire / 3 point floating** |
| COMMON (-), SUPPLY (+), DRIVE CW, DRIVE CCW | COMMON (-), SUPPLY (+), DRIVE CW, DRIVE CCW |

## PC Board



Terminal
Reset button
Dip switch
LED

### Dip switch settings



Rotation: CCW
Fail safe return at 90º
Not used

Rotation: CW
Fail safe return at 0º
Not used

## Stroke adjustment

To adjust the stroke, press and release the reset button to start the auto-stroke process. The LED should be illuminated.

- First option:

  The actuator will then travel in both directions to find it's limit.
  The LED will extinguish, the process is complete.

- Second option:

  When the desired end position is reached, press and release the reset button. The actuator will now return back to its origin position. (you can also press and release the reset button when It's reaches the origin position)
  The LED will extinguish, the process is complete.