

**Feature:**

- Retrofit assembly available for the majority of the manufacturers of valves (with option –XX-Y) (see Retrofit option).
- Manual override
- Maintenance free.
- Control signal fully programmable.
- Fail safe by *Enerdrive System*¹ (on model 060).

Old Number

AQM2000A	AM000
AQM2060A	AM060
	AM000-30
	AM060-30

Technical Data	AM000 AQM2000A	AM060 AQM2060A	AM000-30	AM060-30
Fail safe - <i>Enerdrive</i>	No	Yes	No	Yes
Power consumption	6 VA	20VA Peak, 6VA	6 VA	20VA Peak, 6VA
Running time to ½ inch	60 sec force dependant		30 sec force dependant	
Force	100 lb. [450 N] at rated voltage			
Feedback	4 to 20 mA or 2 to 10 VDC adjustable			
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]			
Control signal	Analog, Digital or Pulse with modulation (PWM) programmable (factory set with Analog control signal)			
Maximum stroke	1 in [25.4 mm], electronically adjustable			
Direction	Reversible, normally up position (open) or normally down position (close) (factory set normally down)			
Ambient 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 lbs. [0.9 kg]			

Warning: Do not use automatic screw driver on manual override

Dimensions

Dimension	Inches	Metric (mm)
A	6.93	176.0
B	4.80	121.9
C	3.60	91.4

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.

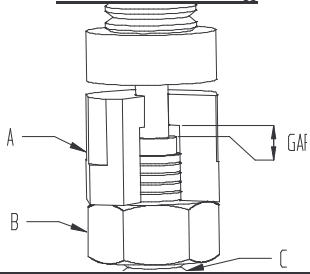
¹ Enerdrive System U.S.A. Patent #5,278,454



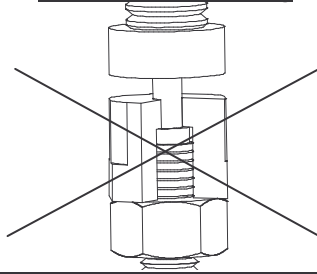
Mechanical installation

Mounting of the actuator on valve

Correct mounting



Non Correct mounting



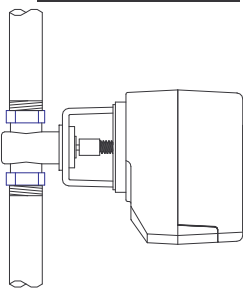
1. Screw completely the valve shaft (C) unto the coupling of the actuator (A).
2. Unscrew the coupling (A) for 1/2 of turn in order to leave a functional play.
3. Screw the counter nut (B).

Warning:

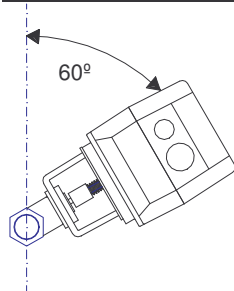
Do not over tight coupling of the actuator on the shaft of the valve.

Mounting of the actuated valve on system

Vertical mounting



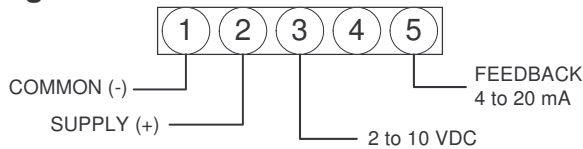
Horizontal mounting



1. Pay attention to system particularity; be sure that the expansions, contractions of the system and its medium as well as operating pressures are within the tolerances.
2. When plumbing, the motorized valve should be situated in an easily accessible place and sufficient space should be allowed for the removal of the actuator.
3. To prevent moisture from collecting in the motor casing, install the motorized valve such that the **actuator is superior to the valve**, at 60° maximum / at vertical. Avoid mounting the valve so that the valve stem is below horizontal.

Wiring Diagrams

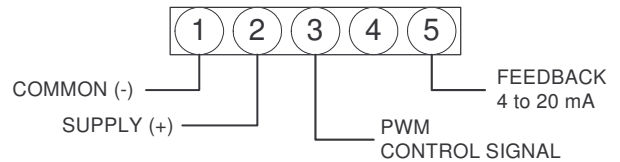
Analog



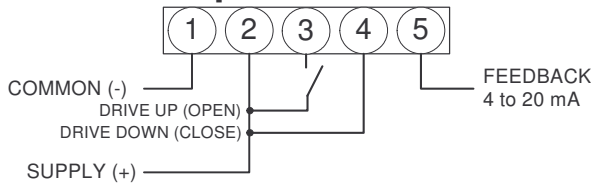
For 4 to 20 mA control signal

Connect one of the supplied 500 ohm resistors between pins 1 and 3.

PWM



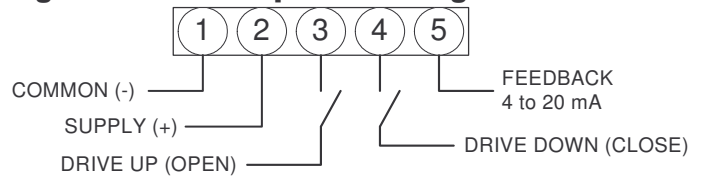
Digital – 3 wire / 2 position



Special consideration for Digital control

In this mode, actuator is sensitive to induced electrical voltages from other sources. To prevent such interference, wire one 2.2k ohm 0.5W resistor between pins 4 and 1 and a second 2.2k ohm 0.5W resistor between pins 3 and 1. These resistors are supplied.

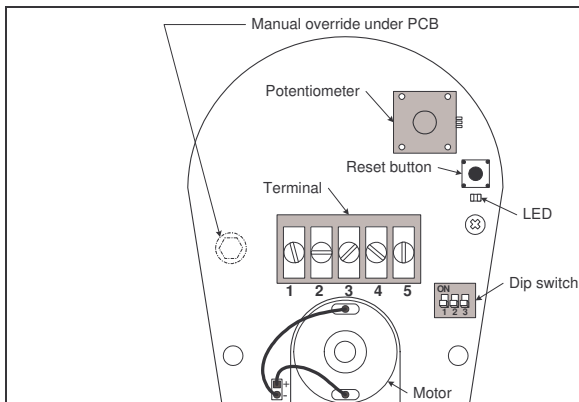
Digital – 4 wire / 3 point floating



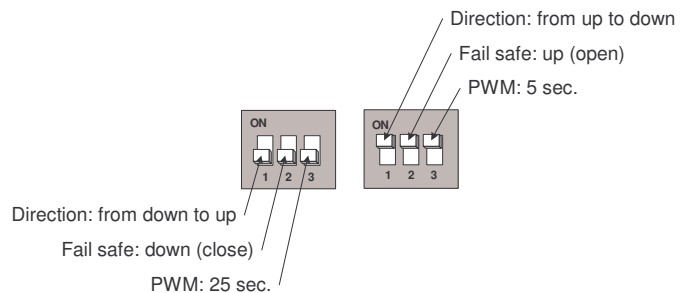
For 2 to 10 VDC output feedback

For any of above wiring configurations, connect one of the supplied 500 ohm resistors between pins 1 and 5.

PC Board



Dip switch settings



Stroke adjustment – No control signal change

1. Apply power and, **wait for at least 10 seconds**.
2. 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 its limit and position itself according to the demand.
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 original position. (you can also press and release the reset button when it reaches the original position)
The LED will extinguish, the process is complete.

Programming – Change of control signal

1. Remove power and put all dip switches "OFF". (factory preset).
2. Apply power and, **within 10 seconds**, press and release the reset button. The LED should be blinking.
3. Select the control signal with dip switches:
 - **Digital** (On/Off or 3 point floating)
move switch **No1** "ON" and then "OFF".
 - **PWM**
move switch **No2** "ON" and then "OFF".
 - **Analog** (factory preset)
move switch **No3** "ON" and then "OFF".
4. **Stroke adjustment**
see the stroke adjustment section above.

Note. If PWM mode is selected:

- Time base : When programming is done,
if switch No3 is "on" time base is 0.1 to 5 sec. (resolution 20 msec.)
if switch No3 is "off" time base is 0.1 to 25 sec. (resolution 100 msec.)
* For 5 sec. time base, we strongly recommend a switch common connection for better position stability.
- Switch 24 VAC: Triac or dry contact, 40mA maximum switching current.
- Switch common: NPN transistor, SCR, Triac or dry contact 75mA maximum switching current.

Feedback selection (for up to down direction)

To select up to down direction put switch No1 "ON".

In Analog or 3 point floating mode you can program the feedback control.

If switch No3 is "OFF":

The feedback control is automatically reverse to 4 to 20 mA for up to down direction.

If switch No3 is "ON":

The feedback control is to 20 to 4 mA for up to down direction.

Zero and span calibration

This feature is applicable to analog control signal only.

1. Remove power and put all dip switches "OFF". (factory preset).
2. Apply power and, **within 10 seconds** press and hold the reset button until the LED blinks once.
The Zero and span calibration process then start.
3. Release the reset button. The LED is now constantly illuminated.
4. Apply new minimum voltage.
It can be any value between 0 to 7 VDC, with an external 0 to 10 volt supply (ex: MEP).
5. Press and release the reset button to memorize the new minimum voltage. The LED blinks once.
6. Apply new maximum voltage.
It can be any value between 3 to 10 VDC, this value should be greater than the new minimum value.
7. Press and release the reset button to memorize the new maximum voltage. The LED blinks once.
The Zero and span calibration process is complete.

Note: To reset zero and span to 2 to 10 VDC (factory value). You just have to re-select the analog control signal mode, see Programming.

Retrofit option

