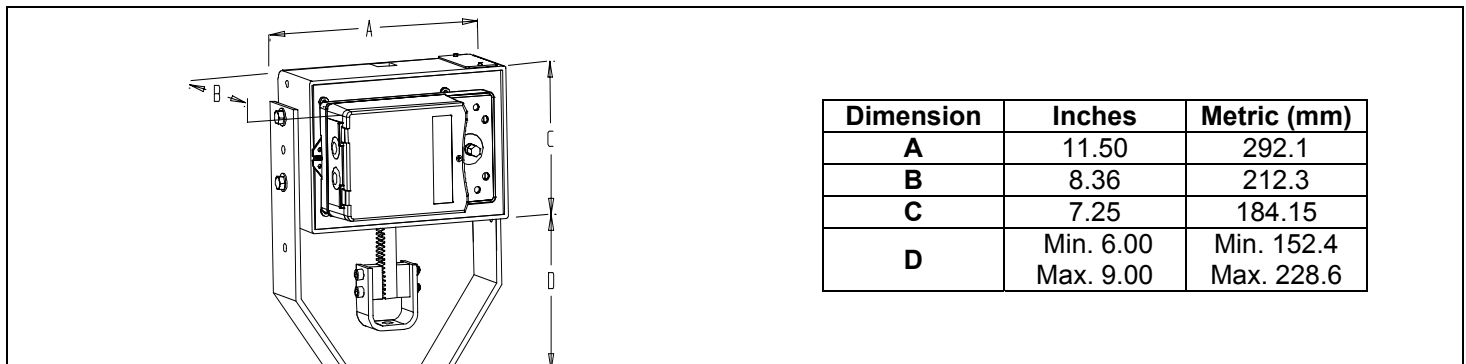
**Feature:**

- Force up to 1500 lb [6750 N].
- Clutch for manual adjustments.
- Maintenance free.
- Control signal fully programmable.
- Fail safe (battery backup) (on model 940 & 310).

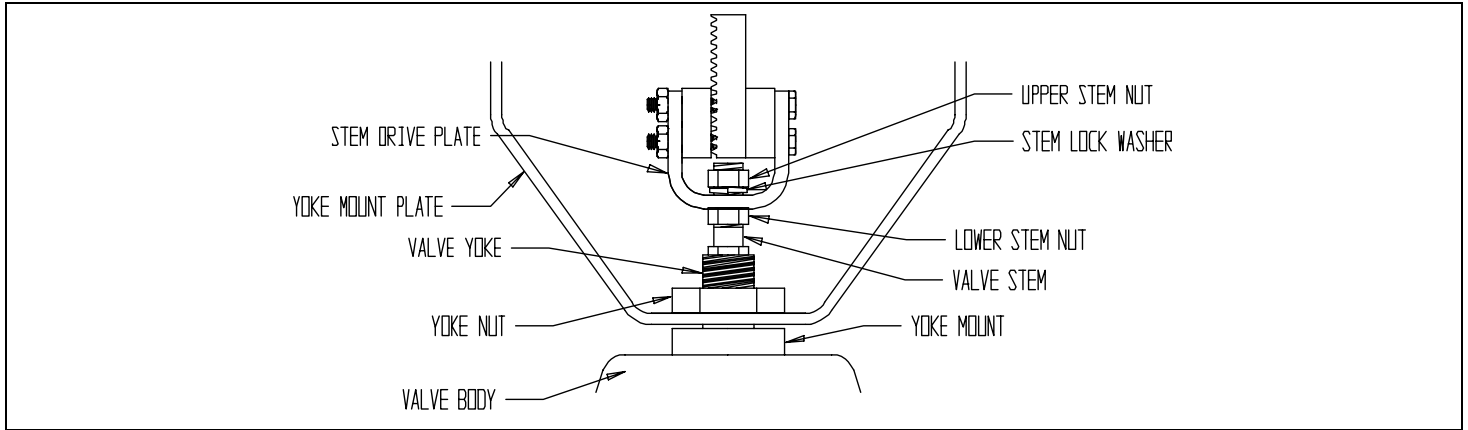
MTM910AV**MTM940AV****New Number****MM000****MM010****MM300****MM310**

Technical Data	MTM910AV [MM000]	MTM940AV [MM010]	MM300	MM310
Fail safe	No	Yes	No	Yes
Power supply	28 to 32 VDC or 22 to 26 VAC		28 to 32 VDC or 22 to 26 VAC, 110 to 130 VAC, 220 to 240 VAC 50/60Hz	
Approvals			Class 2	
Vertical force	1500 lb. [6750 N] at rated voltage			
Stroke / lift time	2 to 7 min., depending upon stroke, force independent			
Feedback	4 to 20 mA or 2 to 10 VDC adjustable			
Power consumption	40 VA			
Electrical connection	18 AWG [0.8 mm ²] minimum			
Inlet bushing	2 inlet bushing of 7/8 in [22.2 mm]			
Control signal	Analog, Digital or Pulse width modulation (PWM) programmable (factory set with Analog control signal)			
Stroke / lift	Electronically adjustable from 1in to 3.5 in [2.54 cm to 8.89 cm]			
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	45 lbs. [20.5 kg]			

Warning: Do not press the clutch when actuator is powered**Dimensions****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..

Mounting on valve



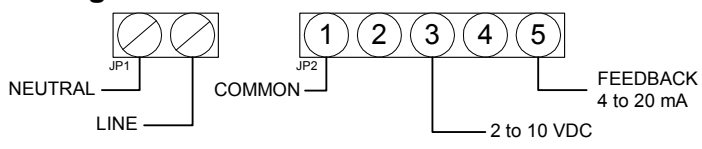
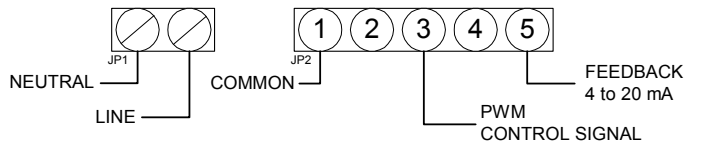
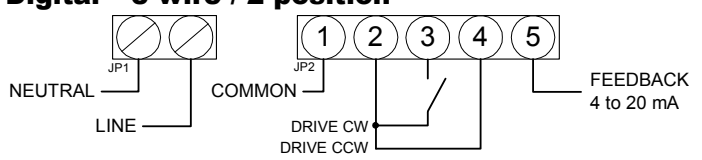
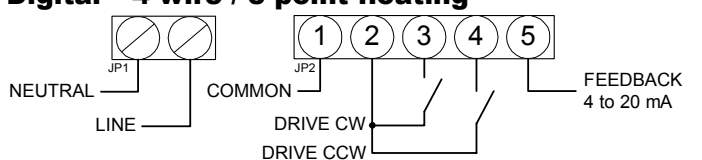
Wiring Diagrams MTM9...

<p>Analog</p> <p><i>For 4 to 20 mA control signal</i> Connect one of the supplied 500 ohm resistors between pins 1 and 3.</p>	<p>PWM</p>
<p>Digital – 3 wire / 2 position</p> <p><i>Special consideration for Digital control</i> 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.</p>	<p>Digital – 4 wire / 3 point floating</p>
<p>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.</p>	

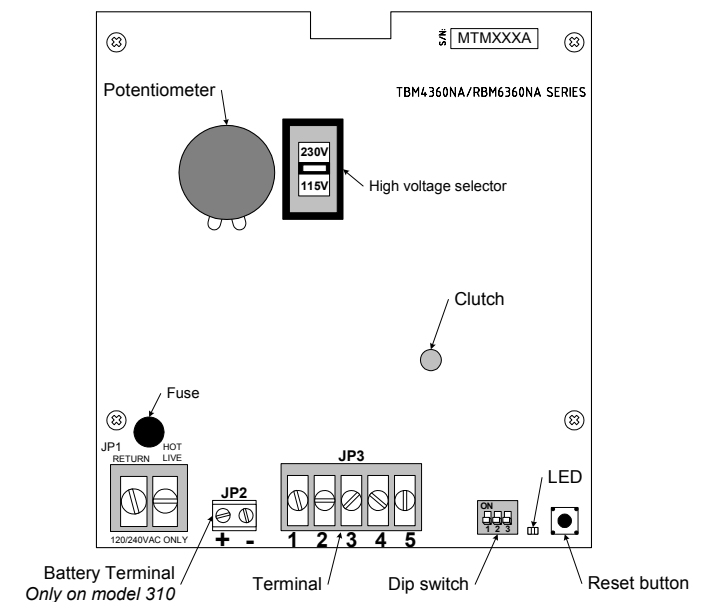
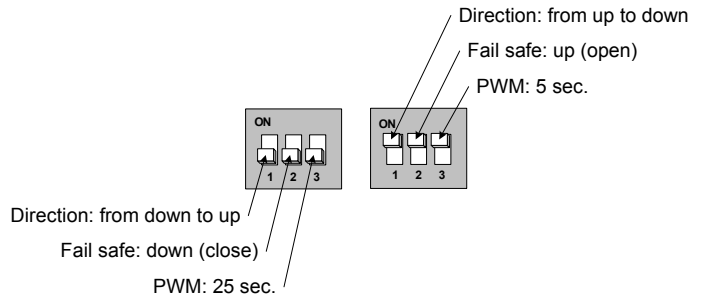
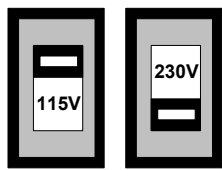
PC Board MTM9...

	<p>Dip switch settings</p>
<p>MTM940AV – Battery backup Ensure to connect battery located inside the casing.</p>	

Wiring Diagrams MM3...

<p>Analog</p>  <p><i>For 4 to 20 mA control signal</i> Connect one of the supplied 500 ohm resistors between pins 1 and 3.</p>	<p>PWM</p> 
<p>Digital – 3 wire / 2 position</p>  <p><i>Special consideration for Digital control</i> 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.</p>	<p>Digital – 4 wire / 3 point floating</p> 
<p>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.</p>	
<p>For 24 VAC or 30 VDC supply For any of above wiring configuration, do not connect on JP1. Wire 24 VAC or 30 VDC on pin 2 of JP2.</p>	

PC Board MM3...

	<p>Dip switch settings</p> 
<p>High voltage selector</p>  <p>Slide the high voltage selector as per voltage used.</p>	
<p>MM310 – Battery backup</p> <p>Ensure to connect battery located inside the casing.</p>	

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.