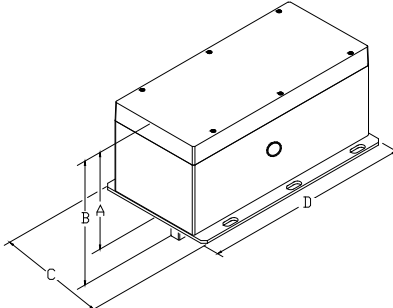**neptronic®**

Features:

- Up to 4000 in.lb [450Nm].
- Clutch for manual adjustments.
- Maintenance free.
- Control signal fully programmable.
- Fail safe (battery backup) (on model 110 & 130).
- Auxiliary switches (on model 120 & 130).
- IP56 enclosure.

UM100
UM120
UM110
UM130
WM100
WM110

Technical Data	UM100	UM120	UM110	UM130	WM100	WM110
Auxiliary switches	No	Yes (2)	No	Yes (2)	No	No
Fail safe	No	No	Yes	Yes	No	Yes
Torque	2500 in.lb. [280 Nm] at rated voltage				4000 in.lb. [450 Nm] at rated voltage	
Running time through 90º	4 min.				8 min.	
Feedback	4 to 20 mA or 2 to 10 VDC adjustable					
Power consumption	40 VA					
Power supply	28 to 32 VDC or 22 to 26 VAC, 110 to 130 VAC 50/60Hz					
Electrical connection	18 AWG [0.8 mm^2] minimum					
Inlet bushing	3 inlet bushing of 7/8 in [22.2 mm]					
Control signal	Analog or Digital or PWM programmable (factory set with Analog control signal)					
Angle of rotation	0 to 110 degrees, electronically adjustable (factory set with 110º stroke)					
Direction of rotation	Reversible, Clockwise (CW) or Counterclockwise (CCW) (factory set with CW direction)					
Ambient temperature	0ºF to +122ºF [-18º C to +50º C]					
Storage temperature	-22ºF to +122ºF [-30º C to +50º C]					
Relative Humidity	5 to 95 % non condensing.					
Weight	29 lbs. [13 kg]					
Warning: Do not press the clutch when actuator is powered						

Dimensions

Dimension	Inches	Metric (mm)
A	6.75	169.4
B	7.95	201.9
C	7.85	199.4
D	14.45	367.0

Caution

C E (UL)

Exploded view

Labels: TOP COVER, WIRING ACCESS, PC BOARD, KEYWAY, MAIN SHAFT, BATTERY

Wiring Diagrams

Analog line voltage

TB1: ① ② ③ ④ ⑤
COMMON (-) — INPUT SIGNAL — FEEDBACK
TB4: ① ②
NEUTRAL — LINE

Analog low voltage

TB1: ① ② ③ ④ ⑤
COMMON (-) — 24Vac or 30Vdc (+) — INPUT SIGNAL — FEEDBACK
TB4: ① ②
Not used

Digital signal from internal source

Digital – 3 wire / 2 position

TB1: ① ② ③ ④ ⑤
COMMON (-) — DRIVE CW — DRIVE CCW — FEEDBACK
TB4: ① ②
NEUTRAL — LINE

Digital – 4 wire / 3 point floating

TB1: ① ② ③ ④ ⑤
COMMON (-) — DRIVE CW — DRIVE CCW — FEEDBACK
TB4: ① ②
NEUTRAL — LINE

Digital signal

Digital – 3 wire / 2 position

2.2 KΩ
2.2 KΩ
TB1: ① ② ③ ④ ⑤
COMMON (-) — DRIVE CW — DRIVE CCW — FEEDBACK
24 Vac (+)
TB4: ① ②
NEUTRAL — LINE

Digital – 4 wire / 3 point floating

2.2 KΩ
2.2 KΩ
TB1: ① ② ③ ④ ⑤
COMMON (-) — DRIVE CW — DRIVE CCW — FEEDBACK
24 Vac (+)
TB4: ① ②
NEUTRAL — LINE
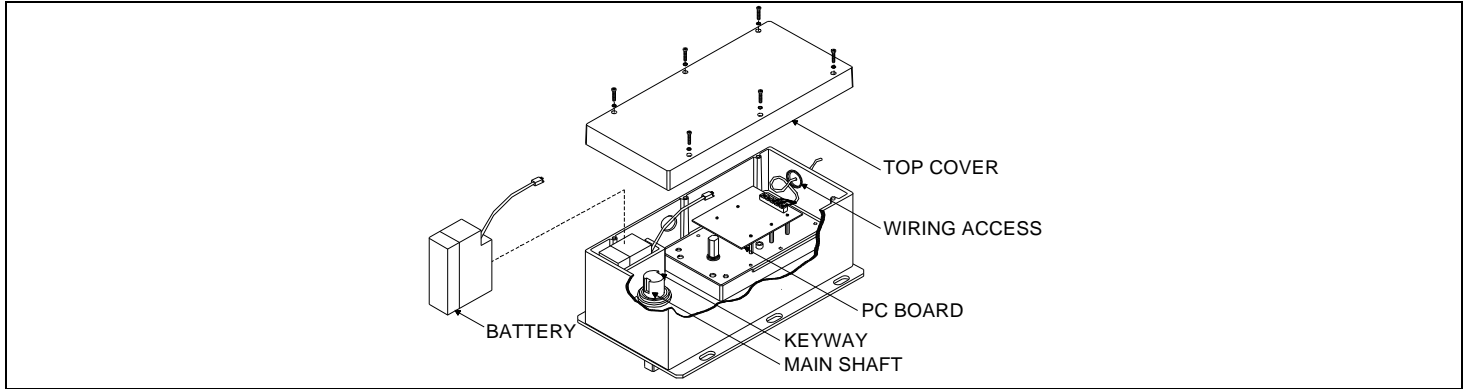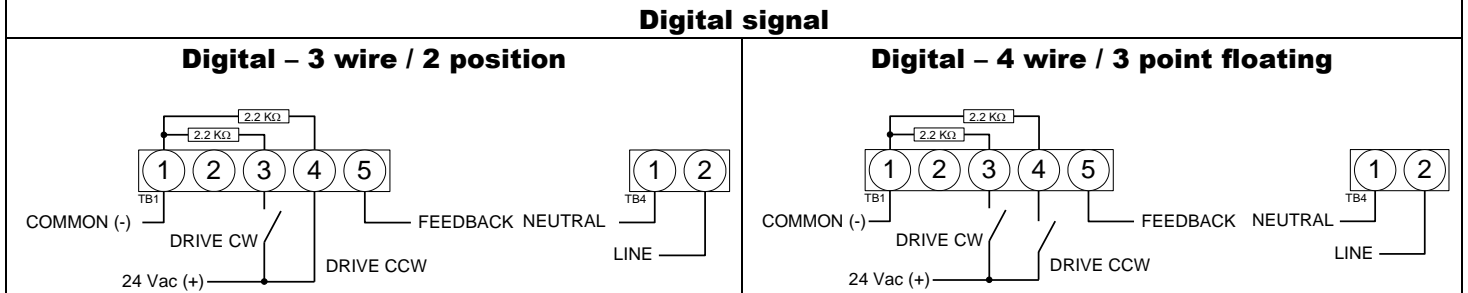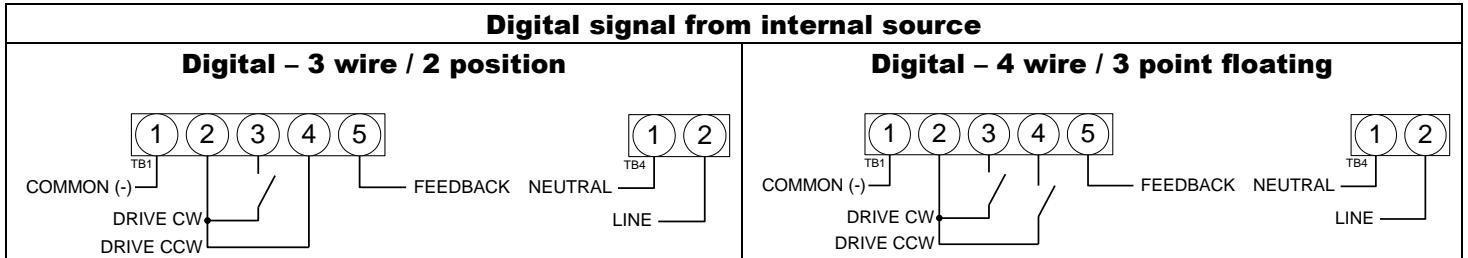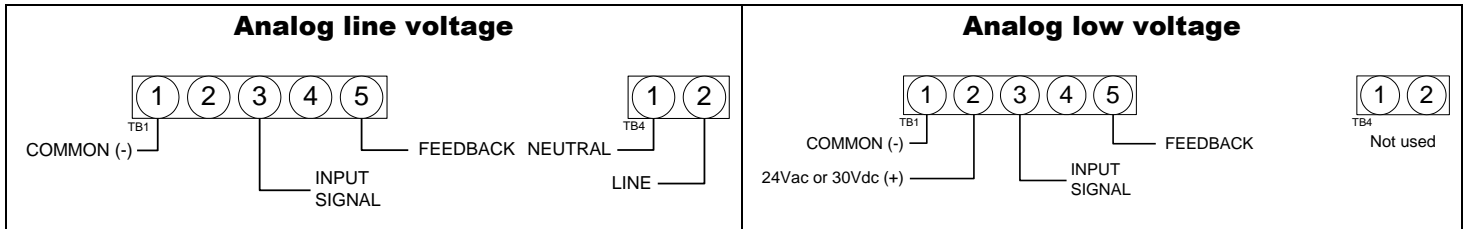
Special consideration for Digital control
In this mode, the actuator is sensitive to induced electrical voltages **from external sources**. To prevent such interference, if the signal on pins 4 and 3 on TB1 are from an **external 24 Vac source**, install a resistor 2.2kOhm, 0.5W between pins 4 and 1 and another 2.2kOhms, 0.5W between pins 3 and 1 of TB1. These resistors are included.
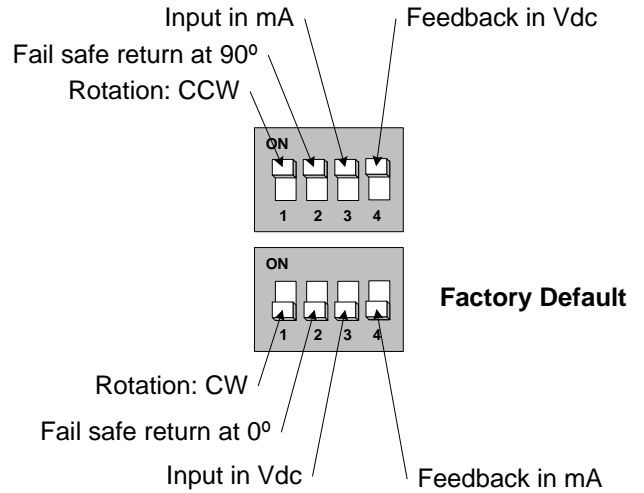
Input Signal and Feedback setup

	Input Signal	**Feedback**
Analog Mode	Input Signal is set with Dipswitch # 3 DS1-3 at OFF = 2 – 10Vdc (default setting) DS1-3 at ON = 4 – 20mA	Feedback is set with Dipswitch #4 DS1-4 at OFF = 4 – 20mA (default setting) DS1-4 at ON = 2 – 10Vdc
Digital Mode	No Input Signal Setting ⚠️ *DS1-3 MUST be at OFF*	

PC Board
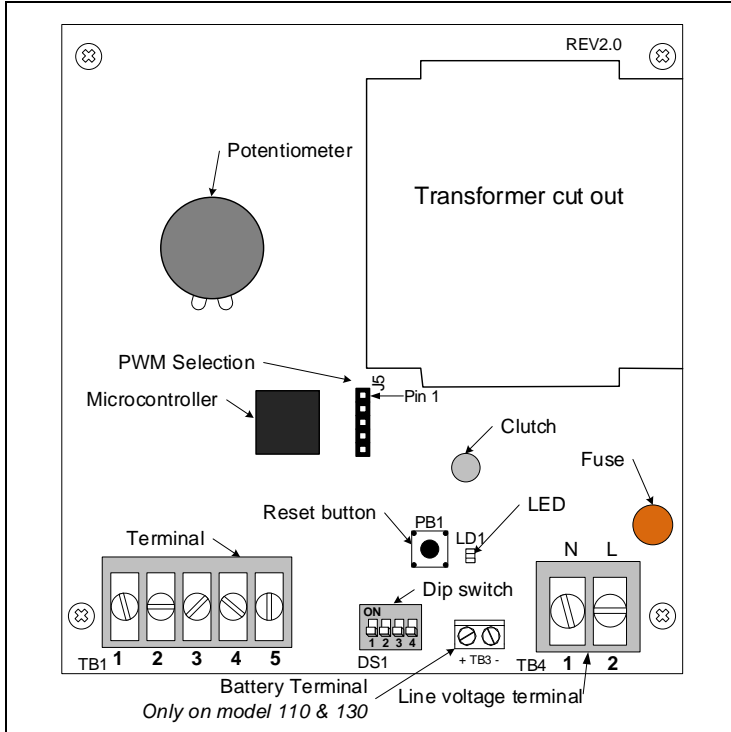
Stroke adjustment – No control signal change

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's reaches the original position)
     The LED will extinguish, the process is complete.

Programming – Change of control signal & PWM pulse setting

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 or Analog Modes	**PWM Mode**
Move switch **No1** "ON" and then "OFF".	**Digital** (On/Off or 3 point floating)	5 sec. pulse (factory preset)
Move switch **No2** "ON" and then "OFF".	**Analog** (Default)	25 sec. pulse

1. **Stroke adjustment**
   see the stroke adjustment section above.

Enabling or disabling PWM mode

1. Remove power supply to actuator
2. Install jumper between pin 3 & 4 of J5
3. Select the desired action using the dipswitches (DS1):

DS1-1	DS1-2	Action
OFF	ON	Enable PWM Mode
ON	OFF	Disable PWM Mode

4. Re-apply power supply to actuator
5. **Wait 5 seconds**
6. Remove power supply to actuator
7. Remove jumper between pin 3 & 4 of J5, re-install it between pin 4 & 5.
8. Re-apply power supply to actuator
   PWM is factory preset at 5 sec. pulse,
   refer to programming section above to change pulse setting.

J5

Pin 1 ■
Pin 2 ■
Pin 3 ■
Pin 4 ■
Pin 5 ■

When not used for programming,
jumper is placed between pin 4 & 5

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.
   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.

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.
   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.

Wiring Diagrams for auxiliary switches (on model 120 & 130)

BLACK   LOWER COMMON
RED   LOWER CLOSED 10-90º
GREEN   LOWER CLOSED 0-10º

BROWN   UPPER COMMON
WHITE   UPPER CLOSED 0-80º
BLUE   UPPER CLOSED 80-90º

Auxiliary switch rating:
5 Amp resistive, 250 Vac