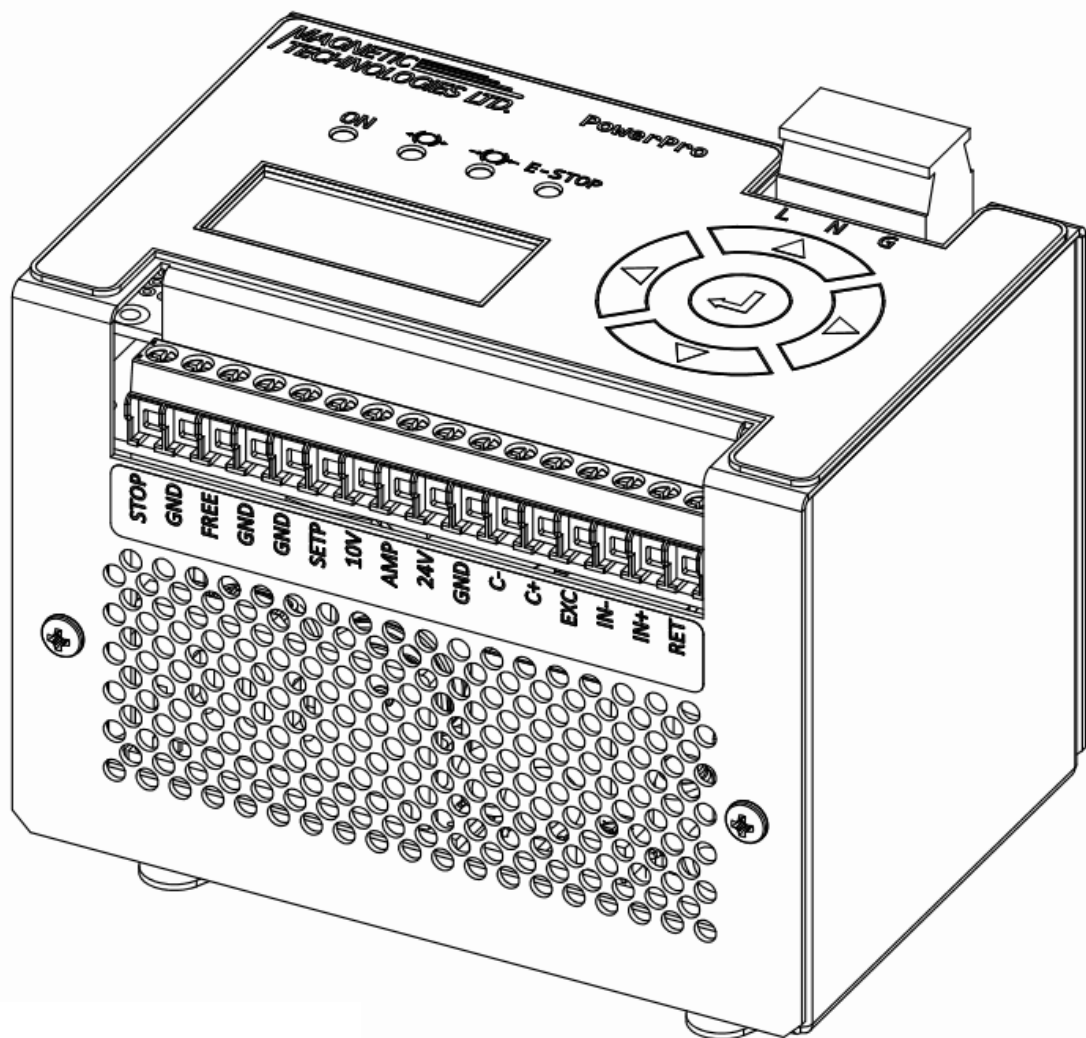


ANDANTEX MAGNETIC TECHNOLOGIES LTD.

MPP24-I User Manual



Contents

Introduction	2
Wiring Specifications	3
MPP24-I Dimensions.....	4
MPP24-I Controls Layout	5
MPP24-I Wiring Diagram	6
Menu Layout Flow Chart.....	7
Setup.....	8
Operation	
Constant Current	10
0-10 VDC	10
Ultrasonic.....	11
Strain Gage	11
Ultrasonic Probe Setup	12
Voltage Follower Setup.....	12
Quick Reference Technical Data	13

Introduction

The Magnetic Technologies Power Pro 24 is a 0-60 VDC programmable, constant current power supply. The Power Pro 24 is designed to be used with Magnetic Technologies LTD. Electric Hysteresis Brakes. Control is provided by a Digital Signal Processor (DSP) and a precision 10VDC internal power supply.

Max. Current Output: 2 Amperes
 Input Voltage: 90-264 VAC, 47-63 Hz.

There are 4 operating modes:

Constant Current:

- Current is set via keypad entry.

0-10 VDC Follower:

- Current is controlled from either an external 0-10 VDC input or voltage divider follower arm using the internal 10 VDC supply.

Ultrasonic:

- Current is controlled from 0-10 VDC input from ultrasonic probe. Keypad entry required for max. & min. spool diameter, and desired tension.

Strain Gage:

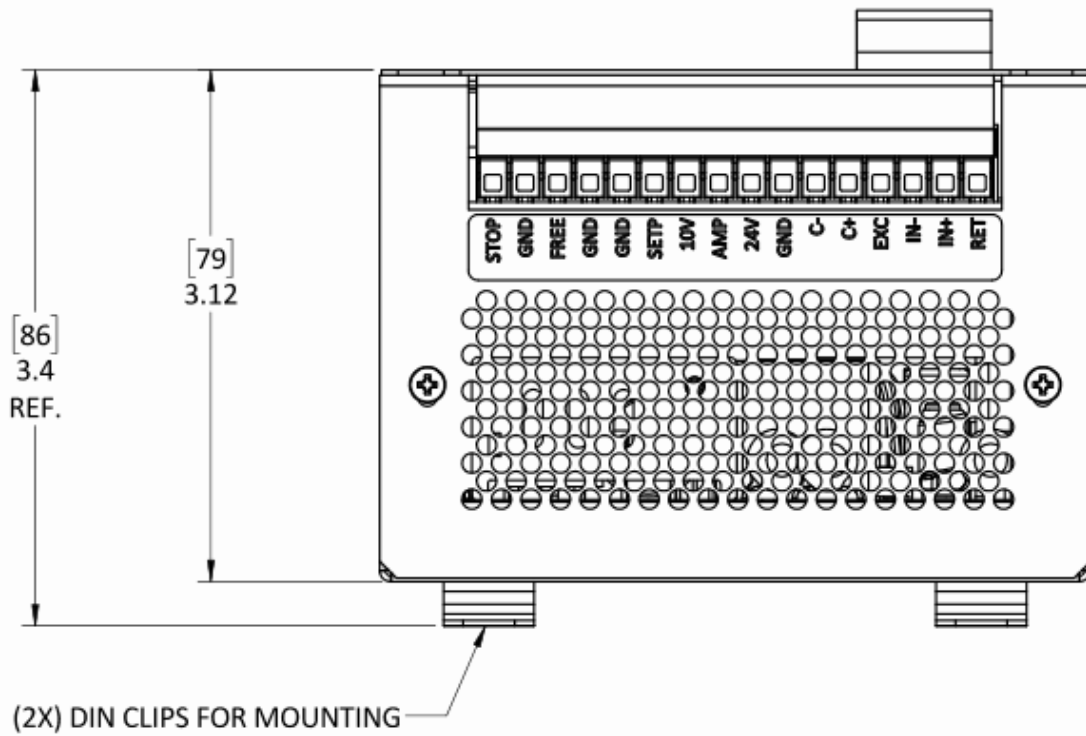
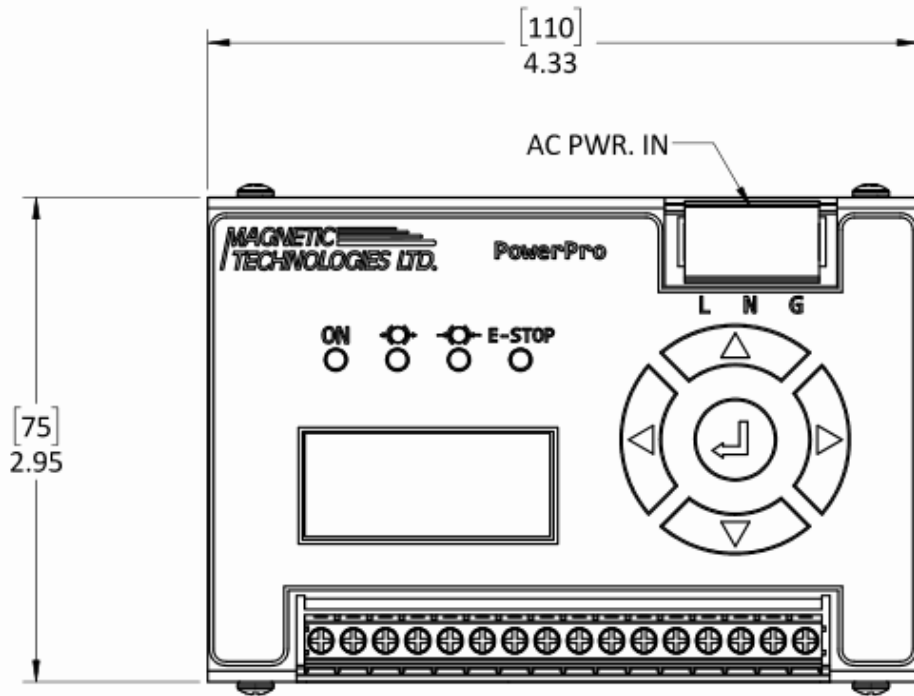
- Current is controlled from strain gage input. Keypad entry required for desired tension.

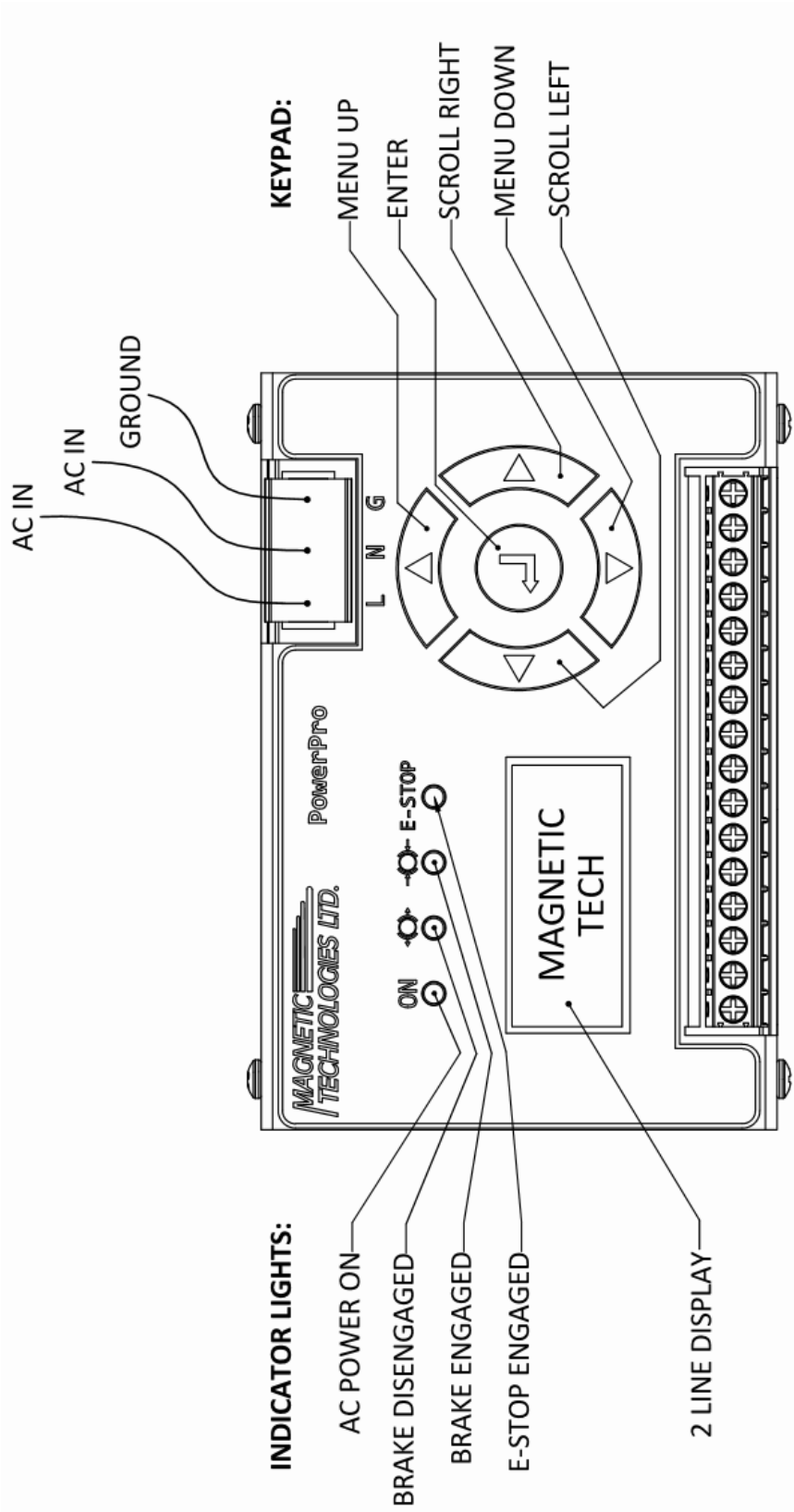
Features	Operating Modes			
	Constant Current	0-10 VDC Follower	Ultrasonic	Strain Gage
Maximum brake current determined by selection of MTL Electric Hysteresis Brake	✓	✓	✓	✓
“On The Fly” current change is allowed	✓		✓	✓
Displays brake current and approx. brake torque based on stored tabular data	✓	✓	✓	
Multiple brakes in parallel accommodated	✓	✓	✓	✓
Displays tension set point & actual tension				✓

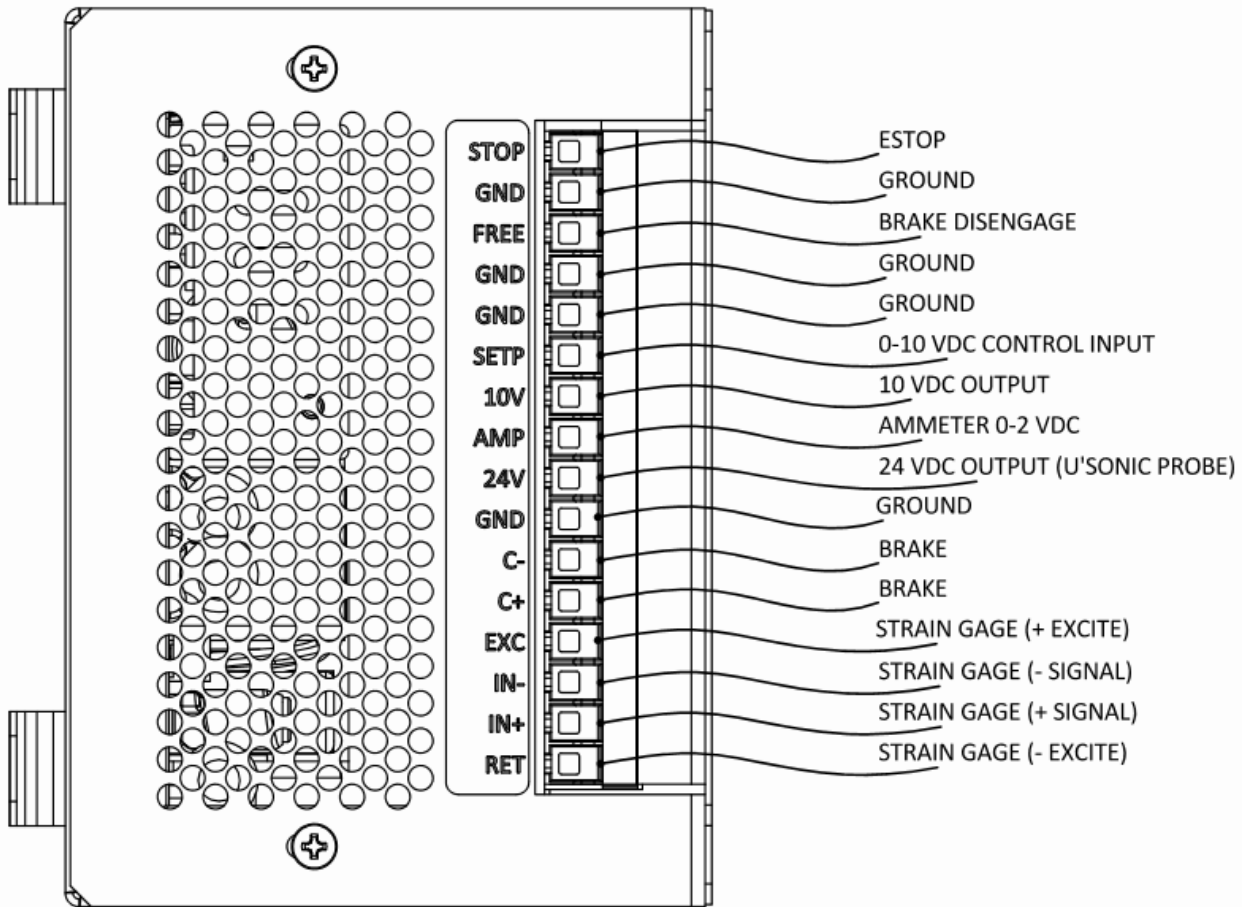
Wiring Specifications

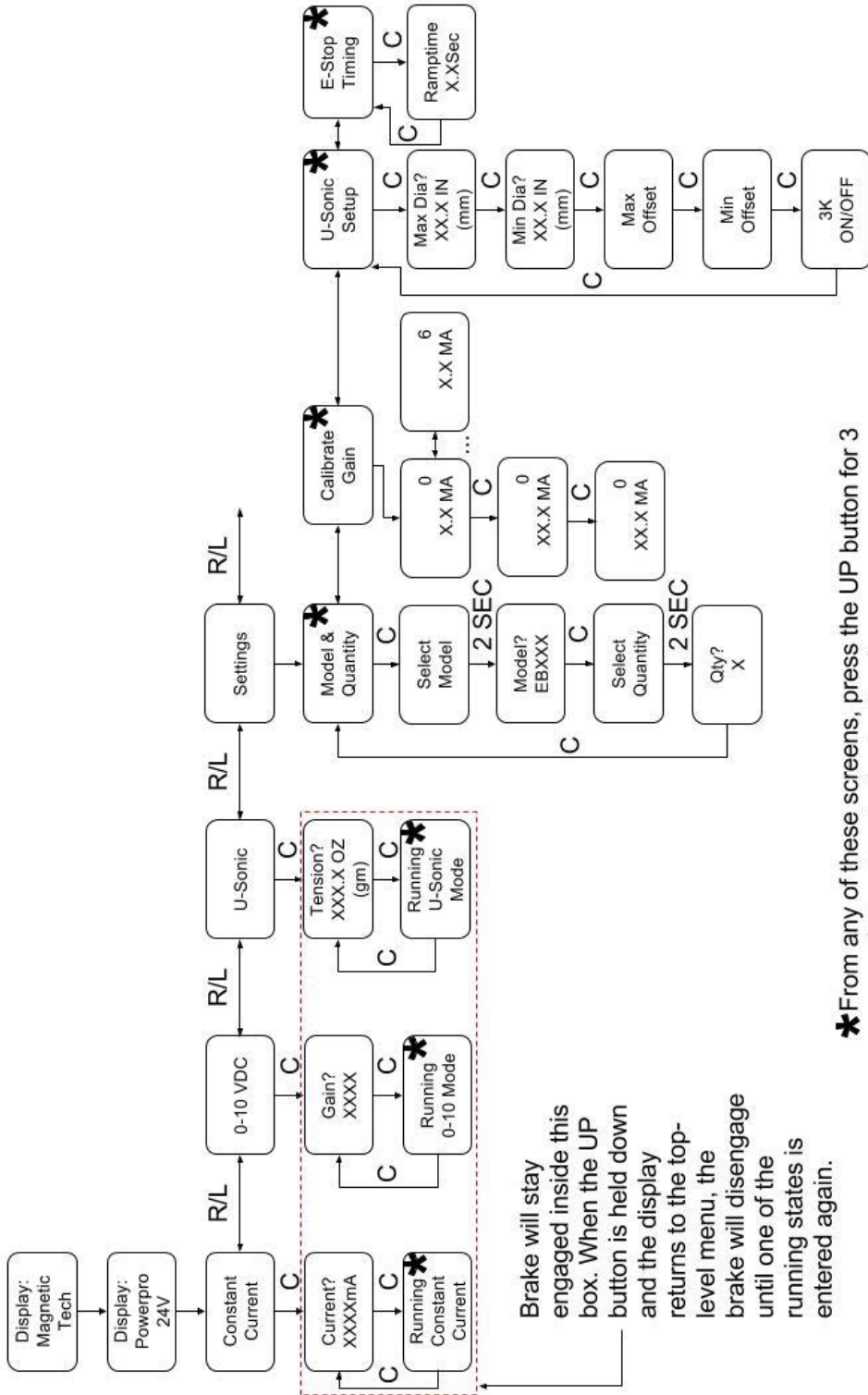
Note: Refer to pg. 5 & 6 for wiring diagram

90-264VAC, 47-63 Hz Power:	Supplied to PL-1. Note: Line, Neutral, Ground connections.
Brake:	Connected to terminals C+, C-
Ultrasonic Probe (if required):	Connected to 24VDC supply & Ground. 0-10VDC output of probe connected to SETP.
Follower – Voltage Divider:	Requires 10K Ω minimum resistance. Connect across 10V & Ground terminals with wiper Connected to SETP.
External Ammeter:	0-2VDC is available from AMP to GND as an analog to current output.
E-Stop:	Connection between STOP and GND will cause power supply to ramp output current to maximum allowed for particular brake size selected. Ramp time is controlled from 0-4 seconds via keypad controls.
Free:	Disables current output when connection across Free and GND is made. When connection is released, power supply returns to previous mode.









*From any of these screens, press the UP button for 3 seconds to return to the top level menu.

Setup

Follow these steps for initial set-up of your MPP24-I Power Supply:

Note: Refer to flow chart (Pg. 7) for assistance.

1. **Power Up Sequence:** Message “POWER PRO 24VDC” appears, unit is in command mode and initially set to EB-3, QTY. 1, Imperial Units (Unless otherwise specified).

Note: If units of measure [Imperial/Metric] need to be changed, this must be done prior to inputting parameters. All user-entered parameters will be cleared when changing units. To change units of measure see instructions on *page 9*.

2. **Configure Brake Model & Quantity:**

- a. Press **▶** to scroll to “Settings Menu”. Press **↵**
- b. “MODEL & QUANTITY” will display. Press **↵**
- c. Press **◀ or ▶** to select model (ex. EB-3, EB-10) Press **↵**
- d. “SELECT QUANTITY” will display. After 2 seconds, “QTY?” will display. Press **▲ or ▼** to select number of brakes in parallel. Press **↵**

3. **Calibrate Gain:** (If not required, Press **▲** button for 3 seconds to return to main menu)

- a. Gain calibration is preformed at the factory. If recalibration is required please contact Magnetic Technologies.

Note: The following menus are optional. Press **▲** for 3 seconds to return to main menu.

4. **Ultrasonic Probe:**

Note: Ultrasonic Probe must be calibrated prior to running through these settings. Refer to Page 12 for more info.

- a. From Settings menu, navigate to “U-SONIC SETUP” Press **↵**
- b. “MAX DIA?” will appear. Significant figure to be adjusted will be blinking. Use **◀ and ▶** to change significant figure, and **▲ and ▼** to adjust maximum spool diameter. Press **↵**
- c. “MIN DIA?” will appear. Significant figure to be adjusted will be blinking. Use **◀ and ▶** to change significant figure, and **▲ and ▼** to adjust minimum spool diameter. Press **↵**

Note: Max. & Min. offset allow ultrasonic probes that do not supply 10VDC at max spool diameter and 0VDC at min spool diameter to be normalized.

- d. “MAX SET” will appear. With ultrasonic probe measuring the same max diameter as previously entered, Press **↵**
- e. “ZERO SET” will appear. With ultrasonic probe measuring the same min diameter as previously entered, Press **↵**
- f. “SET 3K” will appear. Toggle On/Off with **▶** (Toggle on if ultrasonic probe requires 3KΩ minimum impedance). Press **↵**

5. E-Stop Ramp Time:

- a. From Settings menu, navigate to “E-STOP TIMING” Press ←

Note: Factory default is set to 0

- b. “RAMPTIME” will appear. Significant figure to be adjusted will be blinking. Use ◀ and ▶ to change significant figure, and ▲ and ▼ to adjust ramp time up to 4 seconds. Press ←

6. Return to Main Menu to select operating modes:

- a. Press ▲ for 3 seconds to return to main menu
- b. Scroll left to operating modes: Strain Gage, Ultrasonic, 0-10VDC, Constant Current. Once appropriate mode selected press ←

Note: *If power is interrupted* all data is stored. Power supply program will return to last location when power is restored, and will re-engage at power up.

NOTICE: Resetting units will erase all user-entered parameters.

- **Reset to Imperial Units (ex. oz-in):** Press & Hold ▲ at startup until “WAIT 2 SEC TO SET” is displayed, next press ▶ to select imperial units. Unit will be restored to factory defaults and must go through setup process again. Unit is in command mode and initially set to EB-3, QTY. 1, Imperial Units (ex. oz-in).
- **Reset to Metric Units (ex. Nm):** Press & Hold ▲ at startup until “WAIT 2 SEC TO SET” is displayed, next press ◀ to select metric units. Unit will be restored to factory defaults and must go through setup process again. Unit is in command mode and initially set to EB-3, QTY. 1, Metric Units (ex. Nm).

Operation

Constant Current:

- a. From Main Menu, navigate to "CONSTANT CURRENT" Press \leftarrow
- b. Set desired current. Significant figure to be adjusted will be blinking. Use \blacktriangleleft and \blacktriangleright to change significant figure, and \blacktriangle and \blacktriangledown to adjust current. Press \leftarrow
- c. "Brake Engaged" green LED will be activated.
- d. Display will scroll thru: Model, Radius, Output Current (total), Output Current (per brake), & Calculated Torque.

Note: To increase/decrease current while running Press \leftarrow Significant figure to be adjusted will be blinking. Use \blacktriangleleft and \blacktriangleright to change significant figure, and \blacktriangle and \blacktriangledown to adjust current. Press \leftarrow when complete.

If the Free Contact is made: Current drops to zero, displayed torque is minimum drag torque from internal table. "Free" green LED will be activated. When contact is opened, power supply returns to previous mode.

If E-Stop contact is made: current increases to maximum allowable for brake. "E-Stop" red LED will be activated.

(Ramp time can be adjusted 0-4 seconds from Settings Menu See page 9)

When contact is opened, power supply returns to previous mode.

0-10 VDC:

- a. From Main Menu, navigate to "0-10 VDC" Press \leftarrow
- b. Use \blacktriangle and \blacktriangledown to set gain factor (200mA/V, 100mA/V, 50mA/V, 40mA/V, 25 mA/V, 20mA/V) Press \leftarrow when complete.
- c. "Brake Engaged" green LED will be activated.
- d. Display will scroll thru: Model, Radius, Output Current (total), Output Current (per brake), & Calculated Torque.

Note: To increase/decrease gain while running Press \leftarrow use \blacktriangle and \blacktriangledown to adjust gain. Press \leftarrow when complete.

If the Free Contact is made: Current drops to zero, displayed torque is minimum drag torque from internal table. "Free" green LED will be activated. When contact is opened, power supply returns to previous mode.

If E-Stop contact is made: current increases to maximum allowable for brake. "E-Stop" red LED will be activated.

(Ramp time can be adjusted 0-4 seconds from Settings Menu See page 9)

When contact is opened, power supply returns to previous mode.

Ultrasonic:

Note: Ultrasonic Probe must be installed prior to setup. (See wiring specifications on Page 6)

- a. From main menu, navigate to “USONIC” Press \leftarrow
- b. Set desired tension. Significant figure to be adjusted will be blinking. Use \blacktriangleleft and \blacktriangleright to change significant figure, and \blacktriangle and \blacktriangledown to adjust tension. Press \leftarrow
- c. “Brake Engaged” green LED will be activated.
- d. Display will scroll thru: Model, Radius, Output Current (total), Output Current (per brake), & Calculated Torque.

Note: *To increase/decrease tension while running* Press \leftarrow Significant figure to be adjusted will be blinking. Use \blacktriangleleft and \blacktriangleright to change significant figure, and \blacktriangle and \blacktriangledown to adjust current. Press \leftarrow when complete.

If the Free Contact is made: Current drops to zero, displayed torque is minimum drag torque from internal table. “Free” green LED will be activated. When contact is opened, power supply returns to previous mode.

If E-Stop contact is made: current increases to maximum allowable for brake. “E-Stop” red LED will be activated.

(Ramp time can be adjusted 0-4 seconds from Settings Menu *See page 9*)

When contact is opened, power supply returns to previous mode.

Strain Gage:

(Available in MPP24-III)

Ultrasonic Probe Setup

- Follow Manufacturer instructions concerning minimum distance from full spool to probe.
- If probe requires high impedance be sure to toggle on in Power Pro Settings (*pg. 8*)

Refer to probe manufacturer's instructions regarding training mode.

With probe in training mode:

- Be sure that minimum voltage output (i.e. 0V nominal) occurs at maximum set distance (This could be minimum spool diameter or shaft diameter) Program this diameter into Power Pro (*see pg. 9*).
- Be sure that max voltage output (i.e. 10V nominal) occurs at maximum possible spool diameter. Program this diameter into Power Pro (*see pg. 9*).
- *Note: Maximum/minimum spool diameter cannot exceed maximum/minimum value input.*

Voltage Follower Setup

- 0-10 VDC is supplied from external source (PLC). Source voltage from PLC may need to be adjusted such that voltage times gain factor gives the required current output.
- 0-10 VDC may also be supplied from the internal Power pro power supply. Source voltage may need to be adjusted with a voltage divider circuit such that voltage times gain factor gives required current output.

Quick Reference Technical Data

Input	90 – 264 VAC, 47 – 63 Hz
Output Voltage	0-60 VDC
Output Power	80W Max.
Output Current	0-2A, 0-1A, 0-500 mA, 0-400 mA, 0-250 mA, 0-200 mA
Overload Protection	Short circuit or overload: unit switches off, attempts to switch on within a short period of time.
Current Ramp	Adjustable 0-Full load from 0-5 seconds
Operating Temperature	-15C - +40C
Control Voltage	0 – 10 VDC
Additional Fixed Voltage	24 VDC (Power ultrasonic probe)
Display	2 line x 8 character backlit LCD
Unit Display	Imperial (or) Metric
Temperature Control	Unit will switch off during thermal overload, and switch back on again after cool down.
Power Failure Reset	Control settings are retained in non-volatile memory. When power is restored unit returns to previous operating state.
Safety	UL 60950-1
Emission	EN61000-3-2 class A, EN55022B Class B, FCC part 15 Class B
Directives	Low voltage directive 2006/95/EC ROHS Directive 2011/65/EU
Ripple & Noise	1%
Full Load Efficiency	90%
Switching Frequency	100kHz