ProPower

DC Power Supply

Accurate
TECHNOLOGY INC.
Linear Digital Measuring Systems

SAFETY WARNING

To avoid injury: Before installing ProPower™ on a machine, turn off the machine and disconnect it from its power source

Warranty

Accurate Technology, Inc., warrants **ProPower™** against defective parts and workmanship for three years, commencing from the date of original purchase. Upon notification of a defect, Accurate Technology, Inc., shall have the option to repair or replace any defective part. Such services shall be the customer's sole and exclusive remedy. Expenses incidental to repair, maintenance, or replacement under warranty, including those for labor and material, shall be borne by Accurate Technology, Inc. Freight or transportation charges to Accurate Technology, Inc., shall be paid by the customer.

Except as expressly provided in this warranty, Accurate Technology, Inc., does not make any warranties in respect to the product, either expressed or implied, including implied warranties of merchantability or fitness for a particular purpose, except as expressly provided in this agreement.

Accurate Technology, Inc., shall not be liable for any special, incidental, or consequential damages or for loss, damage or expense directly or indirectly arising from the customer's use of or inability to use the equipment either separately or in combination with other equipment, or for personal injury or loss or destruction of other property, or from any other cause.

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Introduction

ProPower is a multi-output DC power supply for use with the ProScale™ line of electronic measurement products. It provides 24 volts DC at 500 mA to power ProScale ABS panel mount displays and 3.3 volts DC at 100 mA to power stand-alone battery operated displays*.

ProPower can be connected to various AC line voltages including 110-120 VAC 60 Hz, 220-240 VAC 50 Hz, 24 VAC 50/60 Hz or 24 VDC. When connected to primary AC power or 24 VAC low voltage, ProPower supplies both 24 VDC and 3.3 VDC. When using 24 VDC as the primary power input, only the 3.3-volt DC option is available.

ProPower can also be used as a centralized battery powered 3-volt supply as an alternative to batteries in individual ProScale displays. In this mode, ProPower can house up to (2) 6-volt dry cell lantern batteries inside the housing and operate without primary power connections.

Specifications

- Input Power
- 110-120 VAC 60Hz.
- 220-240 VAC 50Hz.
- 24 VAC 50/60Hz.
- 24 VDC (3.3 volt DC output mode only).
- 6 volt dry cell battery only operation (3.3 volt DC output mode only).

- Output Power
- Regulated 24 VDC @ 1000 mA.
- Regulated 3.3 VDC @ 100 mA.
- Regulated 6 VDC @ 100mA to charge sealed lead acid battery.

- Solid-state over-current protection on all outputs.
- Transformer secondary over-current protection.
- Multi-stage transient voltage protection.
- 24 VDC and 3.3 VDC LED operation indicators.
- Industrial enclosure rated:
- NEMA 4
- CSA LR 59132
- IP 66

- Physical: Width 200mm Height 200mm Depth 120mm

*Battery operated displays must be equipped with an optional external power connection.

Installation

Choose a centralized location for the ProPower enclosure that is both convenient to access and away from any moving parts of the machine which might interfere with normal operation.

Mounting

After a suitable location has been selected, complete the following steps to properly install the ProPower enclosure:

1. Loosen the four bolts that secure the enclosure cover to the cabinet and remove the cover.

2. Remove the four M5 bolts that secure the ProPower circuit board in the metal enclosure. Gently lift the circuit board by the edges and remove it from the cabinet.

3. Position the enclosure at the desired location and mark the location of the mounting holes in the rear of the cabinet on the mounting surface.

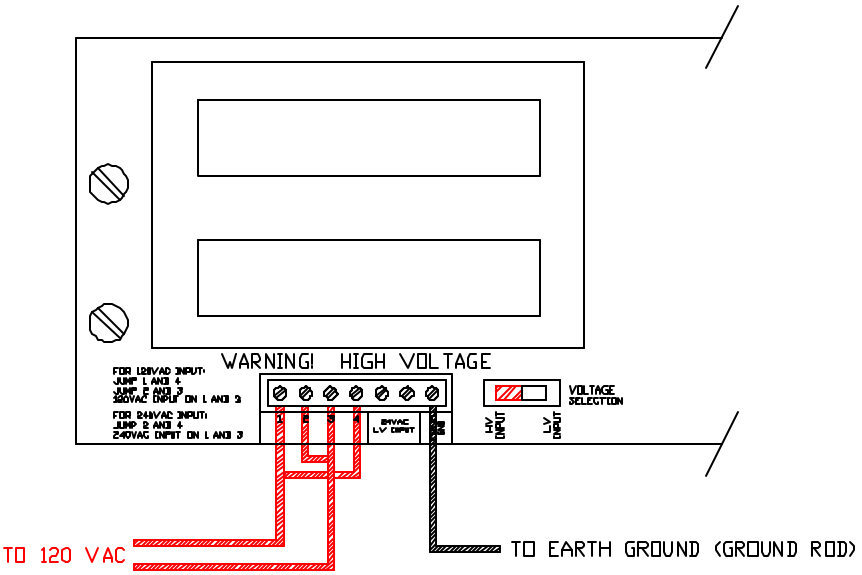
4. Drill and tap four mounting holes for either M6 or ¼20 bolts. Secure the enclosure to the mounting surface using the bolts.

5. Re-install the ProPower circuit board, handling the board by the edges whenever possible.

Primary Electrical Supply Connections

If the ProPower unit is to be supplied from primary AC power, it will be necessary to route power lines from a local power limited electrical distribution panel to the unit. Typically, this will involve the installation of electrical conduit or other power distribution protective materials. Contact your local electrical inspector or other *authority having jurisdiction (AHJ)* for specific details. The diagrams on the next page illustrate the various primary power connections that can be made to the ProPower DC power supply.

NOTE: DO NOT ENERGIZE PRIMARY POWER UNTIL ALL ELECTRICAL CONNECTIONS HAVE BEEN COMPLETED TO THE POWER SUPPLY UNIT.

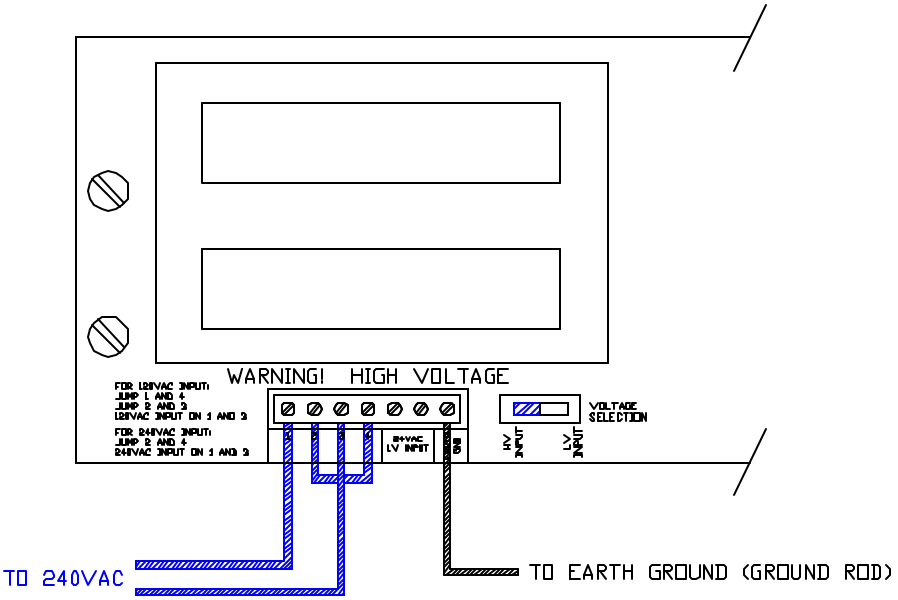


Connecting ProPower to 120 VAC

120 VAC connection requires the installation of two jumpers. One jumper should be installed between terminals 1 and 4. The other jumper to be installed between terminals 2 and 3. The primary power connections are to be installed on terminals 1 and 3.
Be sure the voltage selection switch (S2) is set to the HV INPUT setting.

For proper transient voltage protection, the terminal labeled EARTH GND should be connected to a known good earth ground, preferably a copper ground rod near the location. Connecting an electrical ground to this terminal may not provide adequate grounding protection.
Note: This ground connection is for transient voltage protection ONLY.

NOTE: DO NOT ENERGIZE PRIMARY POWER UNTIL ALL CONNECTIONS ARE COMPLETED!

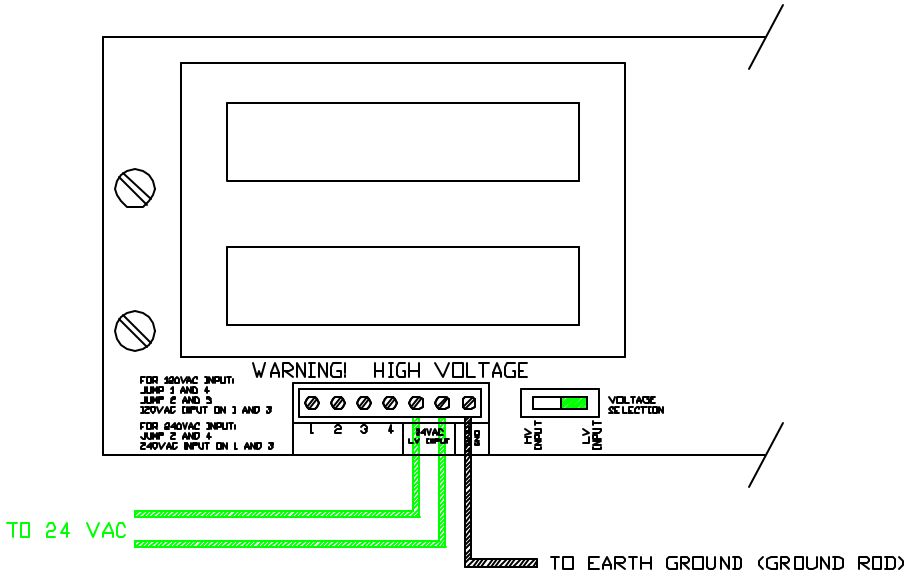


Connecting ProPower to 240 VAC

240 VAC connection requires the installation of one jumper. This jumper should be installed between terminals 2 and 4. The primary power connections are to be installed on terminals 1 and 3.
Be sure the voltage selection switch (S2) is set to the HV INPUT setting.

For proper transient voltage protection, the terminal labeled EARTH GND should be connected to a known good earth ground, preferably a copper ground rod near the location. Connecting an electrical ground to this terminal may not provide adequate grounding protection. Note: This ground connection is for transient voltage protection ONLY.

NOTE: DO NOT ENERGIZE PRIMARY POWER UNTIL ALL CONNECTIONS ARE COMPLETED!

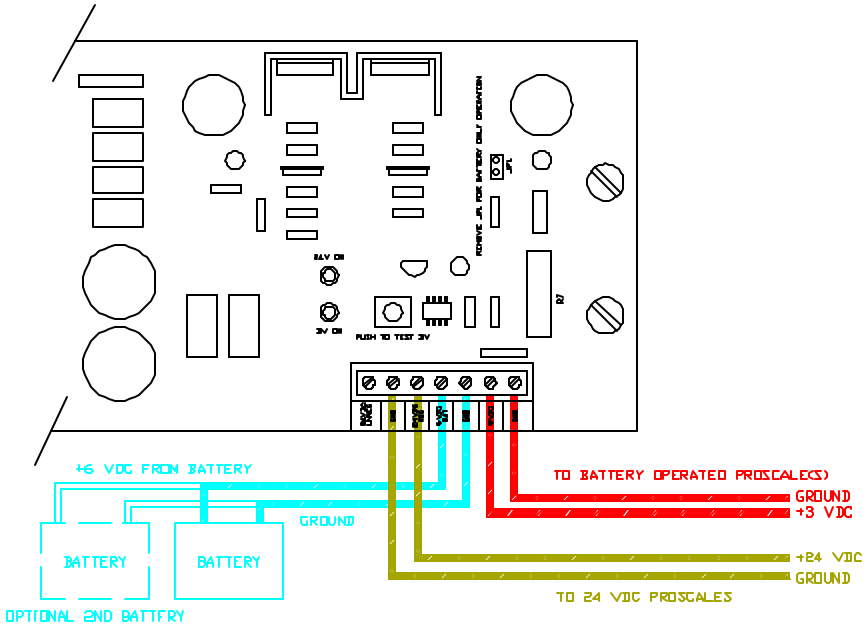


Connecting ProPower to 24 VAC

24 VAC operation requires primary power to be supplied to the terminals labeled 24 VAC LV INPUT.
WARNING: DO NOT SUPPLY A VOLTAGE GREATER THAN 24 VAC TO THESE TERMINALS!
Be sure the voltage selection switch (S2) is set to the LV INPUT setting.

For proper transient voltage protection, the terminal labeled EARTH GND should be connected to a known good earth ground, preferably a copper ground rod near the location. Connecting an electrical ground to this terminal may not provide adequate grounding protection. Note: This ground connection is for transient voltage protection ONLY.

NOTE: DO NOT ENERGIZE PRIMARY POWER UNTIL ALL CONNECTIONS ARE COMPLETED!



ProPower Output Connections

Battery Operated ProScales – If your ProScale has been equipped with an external power supply connection option, connect one end of the supplied power cable to the ProScale using the provided quick connector. The other end of the cable has flying leads colored RED and BLACK. Connect the RED conductor to the terminal labeled 3VDC. Connect the BLACK conductor to the terminal labeled GND. Additional ProScales may be connected in the same fashion. Up to 50 battery powered ProScales may be powered from the ProPower DC power supply.

24-Volt Panel Mount Displays – Panel mount ProScales are provided with terminal strip for power supply connections. Using a two conductor jacketed cable, connect one end of the cable to the ProScale unit. Typically, RED is used for the + input and BLACK is for the – input. Connect the other end of the cable to the ProPower unit with the RED wire connecting to the 24VDC REG terminal and the BLACK wire connecting to the GND terminal. NOTE: When

connecting the ProPower DC power supply to the ProScale LED panel mount, the RED and BLACK wires can be wired to either of the AC power input terminals. There is no polarity on this unit.
When connecting the power supply to the ProScale **LCD** panel mount, observe polarity with RED on + and BLACK on -.

Dry Cell Battery Connections – The ProPower DC power supply can be used to distribute power to multiple battery operated ProScale measurement units *without the use of primary power*. In this mode of operation, the batteries are removed from each individual ProScale unit and all units are powered from the common battery in the ProPower enclosure. Connect the positive battery terminal to the board terminal labeled 6VDC BAT. Connect the negative battery terminal to the board terminal labeled GND. NO PRIMARY AC POWER CONNECTIONS EXIST IN THIS CONFIGURATION.
NOTE: Be sure to remove the jumper JP1 on the circuit board. This configuration can ONLY be used to power 3-volt battery operated devices. No 24-volt output is available.

Rechargeable Battery Connections – The ProPower DC power supply can also be configured to provide power to 3 volt ProScale products using primary AC power and have a optional rechargeable sealed lead-acid battery available in case of power failure. In this mode, the battery + terminal is connected to the board terminal 6VDC BAT and the battery – terminal is connected to the board terminal GND. DO NOT REMOVE JP1. This configuration will provide 3 volt DC power via the primary AC power connection and recharge the stand-by battery. If AC power fails, the battery will automatically switch over to provide 3 volt DC power. *NOTE: In this mode, the stand-by battery CANNOT provide 24 volts DC while the primary AC power is off.*
NOTE: A dry cell battery can be used in place of the rechargeable lead acid battery if one side of resistor R7 is cut. This will prevent ProPower from attempting to recharge the dry cell battery.

WARNING: OBSERVE POLARITIES WHEN COMPLETING THE DC CONNECTIONS.

Voltage Output Indicators

ProPower incorporates two LED indicators to verify the presence of DC output voltage. The LED indicator marked 24V ON is illuminated when the 24 VDC output is active. During battery operation, this indicator will not be on.

A second LED indicator labeled 3V ON normally illuminates when the 3-volt test button (S1) is pressed.