



# Installation and Operation Guide for PD4500 Series Power Control Center

## *LIMITED WARRANTY*

- I. **LIMITED WARRANTY:** Progressive Dynamics, Inc. warrants its power control center to be free from defects in material or workmanship under normal use and service; and limits the remedies to repair or replacement.
- II. **DURATION:** This warranty shall extend for a period of two years from the original date of purchase, and is valid only within the continental limits of the United States and Canada.
- III. **WARRANTY EXCLUSIONS:** This warranty specifically does not apply to:
  - A. Any product which has been repaired or altered in any way by an unauthorized person or service station;
  - B. Damage caused by excessive input voltage, misuse, negligence or accident; or an external force;
  - C. Any product which has been connected, installed or adjusted or used other than in accordance with the instructions furnished, or has had the serial number altered, defaced or removed;
  - D. Cost of all services performed in removing and re-installing the power converter; and
  - E. ANY LOST PROFITS, LOST SAVINGS, LOSS OF USE OF ENJOYMENT OR OTHER INCIDENTAL DAMAGES ARISING OUT OF THE USE OF, OR INABILITY TO USE, THE PRODUCT. THIS INCLUDES DAMAGES TO PROPERTY AND, TO THE EXTENT PERMITTED BY LAW, DAMAGES FOR PERSONAL INJURY. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.
- IV. **PROOF OF PURCHASE:** A warranty claim must be accompanied by proof of the date of purchase.
- V. **CLAIM PROCEDURE:** Upon discovery of any defect, Progressive Dynamics, Inc. shall be supplied the following information at the address listed in this manual:
  - A. Name and address of the claimant;
  - B. Name, model and serial number of the product;
  - C. Application in which product was installed. (Includes manufacturer, model and model year where applicable)
  - D. Date of purchase; and
  - E. Complete description of the claimed defect.

Upon determination that a warranty claim exists (a defect in material or workmanship occurring under normal use and service,) the converter section shall be shipped postage prepaid to Progressive Dynamics, Inc. together with proof of purchase. The product will be repaired or replaced and returned postage prepaid.

Extended warranties are  
available for purchase at  
[www.progressivedyn.com](http://www.progressivedyn.com)

Progressive Dynamics Inc.  
507 Industrial Rd.  
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[www.progressivedyn.com](http://www.progressivedyn.com)

# INSTALLATION INSTRUCTIONS

## **MOUNTING:**

- The PD4500 series POWER CONTROL CENTER should be installed vertically (converter section down) or horizontally (converter section to the right).
- Unit is NOT ignition protected. Do not mount in the LP gas or the battery compartment.
- The INTELI-POWER converters are not designed for zero clearance compartments.
- The POWER CONTROL CENTER is not designed for wet or damp locations. Install in an interior / dry location.
- Cut mounting hole to approximately 10-1/8" x 13-1/4".
- The OEM should test the POWER CONTROL CENTER converter under full load conditions in its intended location to ensure proper ventilation. Failure to provide adequate ventilation may prevent the converter from supplying full output power.

## **AC ELECTRICAL:**

- Connect wiring system using proper connections and appropriately sized cable clamp.
- Connect CONVERTER AC HOT (black) wire to a 15A circuit breaker (PD4560) or 20A circuit breaker (PD4575 & PD4590).
 

Approved breakers (main and branch): <ul style="list-style-type: none"> <li>○ ITE/Siemens – QP, QT</li> <li>○ Thomas &amp; Betts – TB &amp; TBBB series</li> <li>○ Square D – HOM &amp; HOMT series</li> <li>○ Cutler Hammer/Bryant – BR &amp; BRD series</li> <li>○ GE – HACR series</li> </ul>	Approved Filler Plates <ul style="list-style-type: none"> <li>○ ITE/Siemens – QF3</li> <li>○ GE – TQLFP1</li> </ul>
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- A closure plug kit for any unused Romex connectors may be purchased from Progressive Dynamics, Inc. Part Number PD812374.

**Torque Data**  
 AC Breakers: see breaker mfg data  
 AC NEU & GND bars: #8 AWG – 30 IN LBS  
 #10-14 AWG – 25 IN LBS

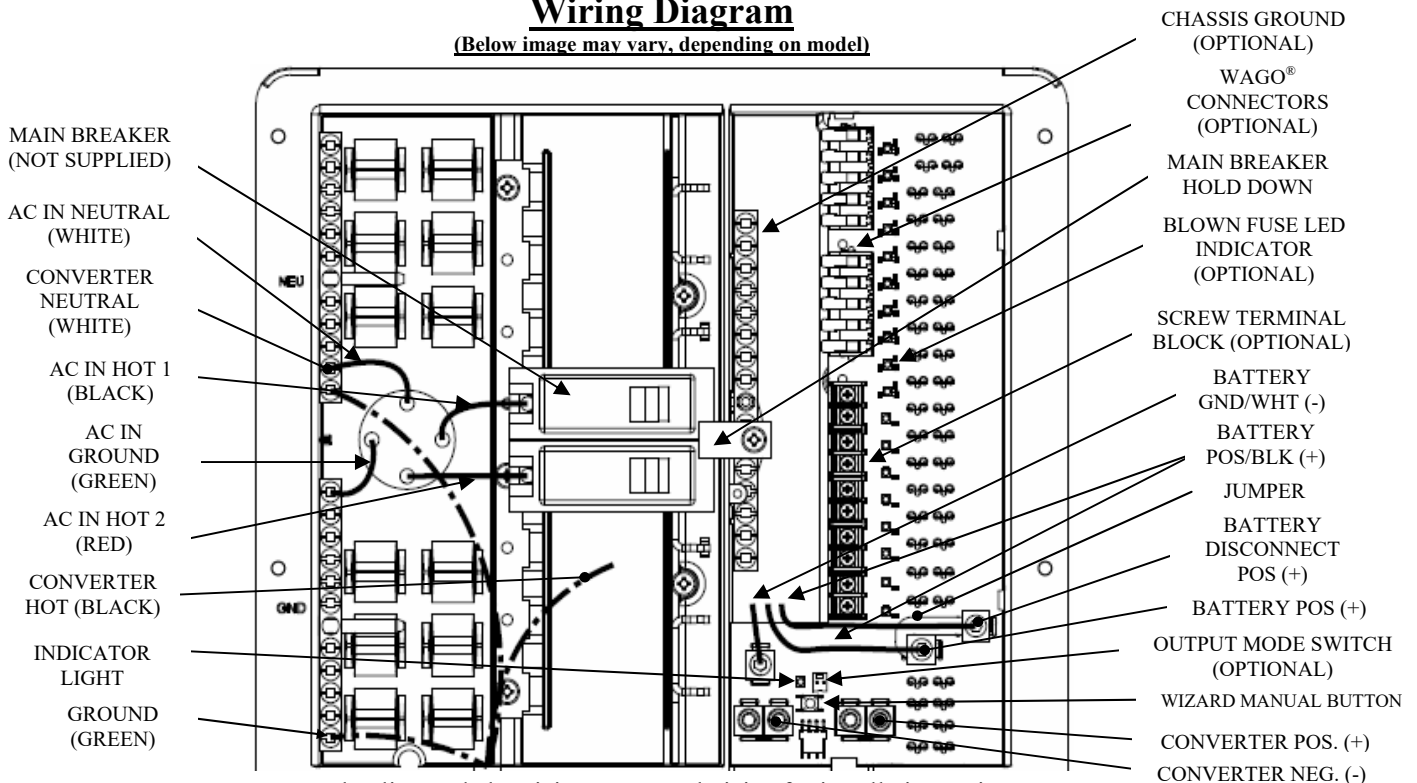
## **DC ELECTRICAL:**

- For installations without an external DC disconnect switch:
  1. Connect battery POS (+) lead to the BATTERY POSITIVE (+) lug.
  2. Connect battery NEG (-) lead to the BATTERY GND (-) lug.
  3. The BATTERY DISCONNECT (+) lug is not used.
- For installations incorporating an external DC disconnect switch:
  1. Remove the JUMPER. (if installed)
  2. Connect battery POS (+) lead and the BATTERY POSITIVE (+) lead to the same pole on the external disconnect switch.
  3. Connect the BATTERY DISCONNECT (+) lead to other pole on the external disconnect switch.
  4. Connect battery NEG (-) lead to the BATTERY GND (-) lug.

**Torque Data**  
 DC Lugs: 30 – 50 IN LBS  
 DC Terminal block: 7 – 9 IN LBS  
**DO NOT REMOVE TERMINAL BLOCK SCREWS**

## Wiring Diagram

(Below image may vary, depending on model)



Consult a licensed electrician or RV technician for installation assistance

## GENERAL OPERATION

The INTELI-POWER series converter will supply "clean" power from input voltages that range from 105 - 130VAC.

The INTELI-POWER series of converters are primarily designed for use with a battery, however, the output of the INTELI-POWER converters are a regulated, filtered DC voltage that can power sensitive electronics without the need for a battery or other filtering.

At normal input voltages (105 – 130VAC) the full load rated capacity is available. At input voltages less than 105 VAC the converter may not supply full rated output capacity.

**PD4500LI** - The full rated load is available for load, battery charging or both. When functioning as a regulated battery charger the converter has a nominal voltage output of 14.6 VDC. The system is designed to sense voltage on the battery and will taper the charging current as the battery becomes charged.

### CAUTION

**The 4500LI series converter/chargers are designed to recharge lithium iron phosphate (LiFePO4) batteries only.  
DO NOT USE TO RECHARGE LEAD/ACID BATTERIES!**

**PD4500** - The full rated load is available for load, battery charging or both. When functioning as a regulated battery charger the converter has a nominal voltage output of 13.6 VDC. The system is designed to sense voltage on the battery and automatically selects one of three operating modes (normal, boost and storage) to provide the correct charge level to the batteries.

**BOOST MODE:** If the converter senses that the battery voltage has dropped below a preset level the output voltage is increased to approximately 14.4 VDC to rapidly recharge the battery.

**NORMAL MODE:** Output voltage set at approximately 13.6 VDC.

**STORAGE MODE:** When there has been no significant battery usage for 30 hours the output voltage is reduced to 13.2 VDC for minimal water usage. When in storage mode, the output voltage will periodically increase to 14.4 VDC to help prevent sulfation of the battery plates.

### CAUTION

**IT IS IMPORTANT THAT THE FLUID LEVELS OF ANY CONNECTED BATTERIES BE CHECKED ON A REGULAR BASIS. ALL BATTERIES WILL "GAS" AND LOSE SOME FLUID WHEN CONTINUOUSLY CONNECTED TO ANY CHARGING SOURCE**

See website for detailed explanation of Charge Wizard<sup>®</sup> function

## DC SECTION FEATURES

The optional **OUTPUT MODE SWITCH** sets the converter output to either a constant 14.6VDC with the Charge Wizard<sup>®</sup> disabled (switch in 'LI' position) or a nominal 13.6VDC with full Charge Wizard<sup>®</sup> function (switch in 'LA' position). 'LI' mode is intended for use with lithium batteries with a BMS requiring a constant converter output. 'LA' mode is intended for use with lead/acid batteries where the Charge Wizard<sup>®</sup> will optimize battery charging.

**NOTE: The OUTPUT MODE SWITCH should only be switched when new batteries are installed. Verify battery type before adjusting the output mode switch.**

The **REVERSE BATTERY PROTECTION CIRCUIT** protects the converter in the event a battery is accidentally hooked up backwards. Easily accessible ATC type fuses will blow when a battery is connected in reverse. Correct battery wiring and replace fuses with same type and rating to restore proper operation.

The use of optional, genuine **WAGO**<sup>®</sup> quick-flip connectors offers a more secure wire connection than the traditional screw terminal block connections. When using a PD4500A (**WAGO**<sup>®</sup>) series unit, DC positions 1 thru 14 can hold a 24 ga min / 12 ga max wire size. DC positions 15 thru 18 can hold a 24 ga min / 10 ga max wire size.

The DC panel features up to 18 fused positions rated for up to 30 amps, depending on model, for accessories including ten low-to-full current rated branches. These can be used for lower current devices such as smoke and CO detectors. Each branch has an optional LED to indicate a blown branch fuse.

**NOTE: Disconnect all power to the converter prior to checking or changing fuses!**

### CAUTION

FOR CONTINUED PROTECTION AGAINST RISK OF FIRE OR ELECTRICAL SHOCK, REPLACE ONLY WITH SAME TYPE AND RATING FUSE.

Consult a licensed electrician or RV technician for installation assistance

<b>Specifications</b> (Specifications subject to change without notice)			
<b>Model</b>	PD4560(LI)	PD4575(LI)	PD4590(LI)
<b>AC Section</b>	240/120 VAC 50 Amps Maximum* 120 VAC 50 Amp Maximum* – 12 Branch Circuits		
<b>DC Section</b>	12 VDC 100 Amp Max. - 18 Branch Circuits		
<b>Converter Section</b>	Input: 105-130VAC 50/60 Hz 1000 Watts Output: 13.6-14.6 VDC (14.6 VDC) 60 Amps Weight: 8 lbs	Input: 105-130VAC 50/60 Hz 1250 Watts Output: 13.6-14.6 VDC (14.6 VDC) 75 Amps Weight: 8.5 lbs	Input: 105-130VAC 50/60 Hz 1550 Watts Output: 13.6-14.6 VDC (14.6 VDC) 90 Amps Weight: 10 lbs

\* Maximum continuous loads on main or branch circuits not to exceed 80% of the circuit breaker ratings

## **TROUBLESHOOTING GUIDE**

<u><b>PROBLEM</b></u>	<u><b>POSSIBLE CAUSES</b></u>	<u><b>ACTION</b></u>
No Output	Proper AC power not connected	Connect power supply Check AC distribution panel for proper operation
	Reverse battery fuses blown	Check for reverse battery connection. Replace fuses with same type and rating
	Short circuit	Trace circuits for possible fault
	Unit has shutdown due to overheating	Check air flow Allow unit to cool
	Unit has shutdown due to over voltage (Converter will shut down if the input voltage exceeds 132 VAC)	Check input voltage Correct input voltage
Low Output	Compartment gets too hot	Check air flow to the converter Improve ventilation to the compartment
	Excessive load for converter	Reduce load requirements or install larger converter
	Input voltage not between 105-130 VAC	Correct input supply voltage
	Bad battery cell(s)	Replace battery
Intermittent or no Output on Generator, works on Shore Power	Unit has shutdown due to over voltage.	Add another load to the generator, this may reduce the “spikes” to an acceptable level
	Some generators exhibit excessive voltage spikes on the AC power output, this may cause the over voltage protection to shut the unit down	Contact generator manufacturer for possible defect in the generator
Battery does not charge but circuits have power	Reverse battery fuses blown.	Check battery polarity. Correct if necessary. Replace fuses.
	No battery connection.	Check wiring to battery including possible inline fuse.

See website [www.progressivedyn.com](http://www.progressivedyn.com) for more troubleshooting information and return instructions

**NOTES:**