

# Understanding the PD91xxALV

## Two-stage lithium converter/charger.

Progressive Dynamics has added a two-stage lithium (LiFePO4) charging profile to some of our lithium rated converter chargers. The new converter/charger now incorporates our “Charge Wizard” technology designed to optimize your lithium charging experience. Our engineers and technologists working with lithium battery manufacturers and by observing customer usage have developed a comprehensive Charge Wizard profile to allow the converter/charger to safely power your RV and charge your lithium batteries.

Charging Specifications:

Charge voltage            14.6 VDC

Idle voltage                13.6 VDC

### **Charging operation:**

When power is initially applied at the converter/charger DC terminals, the Charge Wizard (CW) will run a startup routine then begin providing a 14.6 VDC charging voltage to the battery. The CW will begin to monitor both the current and the voltage of the converter to determine the correct output voltage required.

The charging will continue for at least 1 hour. If the current generated from the converter remains high, the charging will continue for up to a maximum 8 hours. Once the charging current drops off or a total of 8 hours has transpired, the CW will reduce the output to an idle voltage of 13.6 VDC.

When you are connected to AC power for extended periods of time, such as full time with hookup or seasonal storage with hookup, the CW will initiate the charge voltage to top off your battery and then return to idle. This will occur at 3 week intervals.

The CW can be powered from any voltage present in the converter output circuit. This voltage could be supplied from either the converter or the battery. As long as the voltage is above 5 VDC, the CW will turn on. The CW will monitor current and voltage at the output terminals without AC power applied and tries to adjust the output accordingly. However, there will be no actual voltage change until AC power is applied to the converter. If the battery voltage drops below 90% static charge, the CW will switch to the charge mode and recharge the battery once AC power is restored.

## **Why didn't my battery charge?**

Like any computerized device, data in affects the data out. Influences from outside the converter may cause the CW to operate in an unexpected mode.

A large battery bank, a high current demand from the RV or additional charging sources such as an alternator or solar will influence the operation of the CW.

If the battery bank isn't full after 8 hours of charging, the CW won't know this. Your bank may be too big for your charger or some of the charging current is taken up by the RV and

is not allowing enough current to fully charge the bank.

Voltage from the alternator or your solar controller will also influence the CW and appear to indicate a fully charged bank. When you supply AC power to the converter, the CW will stay in idle mode.

## **Well that just stinks, what's a person supposed to do?**

The PD9100 series two-stage lithium charger is equipped with an accessory port on the side of the unit and will accept the PD92201 Charge Wizard remote pendant. As with our PD9200 series converters, this pendant allows the user to see in which mode the CW is operating and can manually change modes if needed.

The LED is on a two second cycle. Long on and short off for charge. Long off and short on for idle.

Mode selection is archived by pressing and holding the "Mode" button. Pressing the button from 0 to 3 seconds will activate "Charge mode". Holding the button for more than 3 seconds will activate "Idle" mode. The charger will stay in "Idle" for as long as the button is pressed. Once the button is released the CW will resume automatic operation.