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Progressive Dynamics PD9145ALV

PROG DYNAMIC Progressive Dynamics PD9145ALV 12V Lithium Ion Battery Converter/Charger - 45 Amp User Manual

Model: PD9145ALV | Brand: Progressive Dynamics

INTRODUCTION

This manual provides essential information for the safe and efficient operation of your Progressive Dynamics PD9145ALV 12V Lithium Ion Battery Converter/Charger. Please read all instructions carefully before installation and use to ensure proper function and to prevent damage to the unit or connected equipment.

The PD9145ALV is designed to provide a Constant Current/Constant Voltage (CC/CV) charge profile, specifically recommended for lithium battery manufacturers. It features advanced protection mechanisms including reverse battery protection, filtered DC power for Battery Management System (BMS) operation, electronic current limiting, and automatic thermal protection.

IMPORTANT SAFETY INFORMATION

- **Read all instructions:** Before operating the converter/charger, thoroughly read and understand all safety and operating instructions.
- **Electrical Safety:** Installation should be performed by a qualified technician. Ensure all AC and DC connections are secure and correctly polarized. Disconnect AC power before making or breaking any connections.
- **Ventilation:** Do not cover or obstruct ventilation openings. Do not mount in zero-clearance compartments. Overheating may result. Ensure adequate airflow around the unit.
- **Battery Type:** This unit is specifically designed for 12V Lithium Ion batteries. Do not use with other battery chemistries unless explicitly stated by the manufacturer.
- **Reverse Polarity Protection:** The unit includes reverse battery protection. However, always double-check battery connections to prevent damage.
- **Environmental Conditions:** Do not expose the unit to rain, moisture, or excessive dust. Operate within specified temperature ranges.

CAUTION:

To prevent fire, do not cover or obstruct ventilation openings. Do not mount in zero-clearance compartments. Overheating may result. Provided with integral protection against overloads.

ATTENTION: Ne pas installer dans un coffret sans espace libre. Afin de ne pas provoquer la surchauffe, ne pas recouvrir ou obstruer les ouvertures de ventilation avec protection intégrale contre les surcharges.

PRODUCT OVERVIEW

The Progressive Dynamics PD9145ALV is a high-performance 12V Lithium Ion Battery Converter/Charger. It is engineered to provide reliable power conversion and efficient charging for lithium battery systems.

Key Features:

- **Constant Current/Constant Voltage (CC/CV) Charge Profile:** Optimized for lithium battery charging.
- **Parallel and Series Connection Capability:** Units can be connected in parallel and in series for increased capacity or voltage.
- **Reverse Battery Protection:** Safeguards the charger from damage due to incorrect battery connections.
- **Filtered DC Power:** Ensures proper operation of the Lithium Battery Management System (BMS).
- **Electronic Current Limiting:** Automatically reduces output voltage to prevent overheating.
- **High and Low Voltage Protection:** Protects against AC input voltage fluctuations.
- **Automatic Thermal Protection:** Reduces charger output if internal temperature exceeds safe limits.
- **Intelligent Cooling Fan:** Operates only under high load conditions, reducing noise and power consumption.



Figure 1: This image displays a Progressive Dynamics Intelli-Power 9100 series converter/charger, specifically showing Model PD9160AL. It illustrates the general design, including the cooling fan, input/output terminals, and product labeling. The PD9145ALV shares a similar physical design and connection layout within this series.

SETUP AND INSTALLATION

1. Unpacking and Inspection:

- Carefully remove the converter/charger from its packaging.
- Inspect the unit for any signs of shipping damage. If damage is found, contact your dealer immediately.
- Ensure all components listed in the packing list are present.

2. Mounting Location:

- Choose a dry, well-ventilated location, free from moisture, dust, and flammable materials.
- Ensure adequate clearance around the unit for proper airflow, especially around the cooling fan. Do not mount in a sealed or zero-clearance compartment.
- Mount the unit securely to a solid surface using appropriate fasteners.

3. Wiring Connections:

WARNING: Disconnect all AC power before making any wiring connections. Failure to do so can result in serious injury or death.

1. DC Output Connections:

- Connect the positive (+) DC output terminal of the converter/charger to the positive (+) terminal of your 12V lithium battery bank.
- Connect the negative (-) DC output terminal of the converter/charger to the negative (-) terminal of your 12V lithium battery bank.
- Ensure all DC wiring is of appropriate gauge for the current draw and is properly fused. The unit has internal fuse protection, but external fusing for the battery bank is recommended.
- Double-check polarity before applying power.

2. AC Input Connections:

- Connect the AC input wiring (Line, Neutral, Ground) from your AC power source (e.g., shore power, generator) to the designated AC input terminals on the converter/charger.
- Ensure AC input voltage is within the specified range of 105-130 VAC, 50/60 Hz.
- All AC wiring must comply with local electrical codes and standards.

3. Grounding:

- Ensure the unit is properly grounded according to local electrical codes.



Figure 2: Detailed view of the wiring terminals on a Progressive Dynamics converter/charger. The image shows the DC output terminals labeled "POS +" and "NEG -" with fuse holders, and the AC input terminals. Proper connection of these terminals is crucial for safe operation.

OPERATING INSTRUCTIONS

1. Initial Power-Up:

- After all connections are made and verified, apply AC power to the converter/charger.
- The unit will begin its charging cycle, providing a Constant Current/Constant Voltage (CC/CV) charge to the connected lithium battery bank.
- The intelligent cooling fan may activate under high load conditions to maintain optimal operating temperature.

2. Charging Process:

The PD9145ALV automatically manages the charging process for 12V lithium-ion batteries. It delivers a stable 14.6 VDC output at up to 45 Amps, ensuring efficient and safe charging as recommended by lithium battery manufacturers.

- The unit will provide full output current until the battery voltage reaches the absorption voltage (typically 14.6V for lithium).
- Once the absorption voltage is reached, the charger will maintain this voltage while the current gradually decreases

as the battery approaches full charge.

- The filtered DC power output also supports the proper functioning of the battery's internal Battery Management System (BMS).

3. Power Supply Mode:

In addition to charging, the PD9145ALV can also supply filtered DC power directly to your 12V DC loads, even if the battery is fully charged or disconnected (though a battery is recommended for stable operation and surge protection).

MAINTENANCE

The Progressive Dynamics PD9145ALV is designed for minimal maintenance. However, periodic checks are recommended to ensure optimal performance and longevity.

- **Ventilation:** Periodically inspect the cooling fan and ventilation openings for dust or obstructions. Clean as necessary using compressed air or a soft brush. Ensure nothing is blocking the fan or vents.
- **Connections:** Annually check all AC and DC wiring connections for tightness and corrosion. Loose connections can cause overheating and poor performance.
- **Fuses:** The unit contains internal fuses for protection. If the unit fails to operate, check the fuses. Refer to the troubleshooting section for fuse replacement instructions.
- **Environment:** Ensure the operating environment remains dry and free from excessive dust or corrosive fumes.

TROUBLESHOOTING

Before contacting customer support, review the following common issues and solutions:

Problem	Possible Cause	Solution
No output voltage/Unit not operating	No AC input power Blown internal fuse Reverse battery connection Thermal shutdown	Check AC breaker and power cord. Disconnect AC and DC, check/replace internal fuses (refer to product label for specific fuse rating). Verify correct battery polarity. Allow unit to cool down; ensure proper ventilation.
Low or intermittent output	Loose wiring connections Overheating Low AC input voltage	Check and tighten all AC and DC connections. Ensure adequate ventilation; clean fan/vents. Verify AC input voltage is within 105-130 VAC.
Cooling fan constantly running or very loud	High ambient temperature Heavy load Obstructed fan/vents	This is normal under high load or hot conditions. Ensure proper ventilation; clean fan/vents.
Battery not charging fully	Incorrect battery type selected (if applicable) Battery fault Excessive load on DC system	Ensure unit is connected to a 12V lithium battery. Test battery independently. Reduce DC loads during charging.

If the problem persists after attempting these solutions, please contact Progressive Dynamics customer support.

SPECIFICATIONS

Feature	Specification
Model	PD9145ALV
Input Voltage	105-130 VAC, 50/60 Hz
Input Power	725 Watts
Output Voltage	14.6 VDC
Output Current	45 Amps
Battery Type	12V Lithium Ion (LiFePO4)
Dimensions (L x W x H)	14 x 10.63 x 4.75 inches
Weight	1 pound
Protection Features	Reverse Battery Protection, Electronic Current Limiting, High/Low Voltage Protection, Automatic Thermal Protection

WARRANTY INFORMATION

Progressive Dynamics products are manufactured to high-quality standards. For specific warranty terms and conditions, please refer to the warranty card included with your product or visit the official Progressive Dynamics website. Keep your proof of purchase for warranty claims.

CUSTOMER SUPPORT

If you have any questions, require technical assistance, or need to report an issue with your Progressive Dynamics PD9145ALV converter/charger, please contact Progressive Dynamics customer support.

- **Website:** Visit the official Progressive Dynamics website for FAQs, product documentation, and contact information.
- **Contact:** Refer to your product packaging or the manufacturer's website for the most current customer service contact details (phone number, email).

When contacting support, please have your product model number (PD9145ALV) and serial number (if applicable) ready.

