AC to DC Converter/Charger

PM3 models 15, 35, 45, 55, 60, 65, 75, 100 and 120 Amp and 3 Stage Charging Option

Installation & Maintenance

1. **DISCONNECT DC POWER.** Disconnect the battery POS (+) wire at the battery end before connecting this Converter/Charger to any vehicle/device wiring.

2. **LOCATION.** The mounting location may be on any interior (out of direct weather) surface. Location chosen must be accessible after installation. When mounted inside a cabinet, the cabinet must be large enough to allow dissipation of heated air. Make sure that there is a minimum of 1" (one inch) free air space at each end of the unit so that cooling air can move through the unit properly. AVOID foreign contaminants such as dirt, metal particles or moisture.

3. **MOUNTING.** Flanges with holes are provided for ease of mounting using standard fasteners. Confirm that the surface that the converter is mounted to is solid and will hold the weight (6 lbs) during vehicle operation.

4. **ELECTRICAL REQUIREMENTS.** A 120 VAC receptacle needs to be located within 36 inches of the Converter/Charger to supply power. Electrical consideration should also be given to mounting near the locations of the batteries and the 12-volt DC distribution panel.

5. **ELECTRICAL CONNECTIONS.** Be sure to tighten all connections securely. A loose connection can quickly cause terminals and wires to overheat. Review unit labels for recommended terminal torque values.

6. **THE FAN WILL NOT RUN ALL THE TIME. THE FAN RUNS ONLY WHEN NEEDED.**

7. Never Leave the PowerMax PM3-XX unattended when plugged in.

8. All PM3 Products must be installed by a certified electrician.

FOR YOUR SAFETY, READ ALL INSTRUCTIONS BEFORE INSTALLATION AND OPERATION.

INSTALLER: Provide these instructions to the end user or consumer.
CONSUMER: Keep these instructions for future reference.

NOTICE: Products are not to be used nor are warranted in aerospace, medical or life safety applications.

**SAFETY ALERT**

**WARNING – Avoid Possible Injury or Death**

120 VAC is present. This Converter/Charger is designed to convert 120 VAC to 12 VDC. It also provides low voltage power for charging on-board 12 VDC batteries. The Converter/Charger is a "switch mode" type and is designed to be maintenance-free with no user serviceable components. The Converter/Charger power output is "current limiting" by design.

**WARNING – Avoid Personal Injury or Product Damage**

NEVER store electrical devices in compartments where flammable liquids (such as gasoline) exist. DO NOT mount/install unit in compartments designed for storage of batteries of flammable liquids.
9. **3 STAGE CHARGING OPTION DESCRIPTION.**
   This optional system provides an automatic charging system in three steps. 1. A fast charge to bring a good, drained battery back up to full voltage rapidly ("Boost"). 2. A standard charge to bring the battery up to a full charge at a safe rate to prolong the life of the battery and provide power to run 12V lighting and appliances in the vehicle/device ("Normal"). 3. A trickle charge to keep the battery fresh during times of load inactivity ("Storage"). The charger automatically changes modes to accommodate changes in conditions. The chart below is for reference only, voltages may vary.

![Three Stage Charging Chart](chart.png)

10. **ADJUST FIXED VOLTAGE DESCRIPTION:** The unit is on the three stage charging mode firstly. 1. move the switch A to "Adjust Fixed Voltage", move switch B gently to adjust voltage from 13~16.5V, and get a fixed output voltage. 2. make sure the voltage as 14.6V, move the switch A to "Three stage charging", then the unit back to standard "Three Stage Charging", run 14.6V almost 0.5 hour, 13.6V almost 12 hours and then to 13.2V. The voltage value of 3 stage charging will be changed with fixed voltage changed when the unit on "Three stage charging".
11. **TEST.** First, disconnect all loads and battery on the Converter/Charger by removing all 12 VDC connections from + or – . Second, attach a multimeter instrument between the positive and negative terminals of the Converter/Charger. Then energize the 120 VAC converter circuit. Test for proper output power using the multimeter. Measure the output voltage from the positive and negative terminals. The voltage should read **14.6 +/- 0.2 VDC**. Add 12 VDC load connections to about 2/3 of the rated capacity of the converter. Recheck the voltage, which should remain approximately the same as at no load.

12. **BATTERY.** With the 120 VAC disconnected, reconnect the or POS positive terminal to a known good battery. With the converter 120 VAC energized, measure the voltage at the converter and at the battery. The voltage should be about the same in both locations. As with any battery it is important that the fluid level be checked on a regular basis. When continuously connected to any charging source all batteries will “Gas” and lose some fluid.

> **WARNING – Avoid Personal Injury / Product Damage**

13. **HI-POT TESTING.** (Vehicle/device Manufacturing Facilities Only) **DO NOT** Hi-Pot DC wiring with the Converter/Charger connected to the vehicle/device wiring in order to prevent serious injury and/or damage.

### NOTE: Before removing and replacing the Converter/charger, perform the following checks:

a. Disconnect the AC power from the vehicle/device.
b. Disconnect the wiring and Battery from the Converter Positive output terminal.
c. Re-connect the AC power to energize the Converter.
d. Using a voltmeter, measure the voltage at the Converter and Output terminals.  
   > The Converter is OK if the voltage reading is between 13 VDC and 14 VDC (typically 13.6 VDC).
   > Otherwise check the table below:

<table>
<thead>
<tr>
<th>CONDITION</th>
<th>POSSIBLE CAUSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>No 12 VDC output</td>
<td>- 120 VAC not connected to coach or the coach AC circuit breaker is in the OFF position.</td>
</tr>
<tr>
<td></td>
<td>- Reversed battery fuses blown. (Battery wiring connections are reversed),</td>
</tr>
<tr>
<td></td>
<td>- Severe overload or shorted load. Remove all loads and retest per above instructions.</td>
</tr>
<tr>
<td></td>
<td>- Converter/Charger internal failure.</td>
</tr>
<tr>
<td>Converter cycles On &amp; Off</td>
<td>- Fan air flow is inadequate or blocked. (1” minimum free air space at each end required)</td>
</tr>
<tr>
<td></td>
<td>- Converter/Charger internal failure.</td>
</tr>
<tr>
<td>Reversed Battery fuses blown</td>
<td>- Battery wiring connections are reversed.</td>
</tr>
<tr>
<td></td>
<td>- Defective battery, possible bad cells.</td>
</tr>
<tr>
<td>12 VDC output is too low</td>
<td>- Attached load exceeds rating of the Converter/Charger.</td>
</tr>
<tr>
<td></td>
<td>- Defective battery, possible bad cells.</td>
</tr>
<tr>
<td></td>
<td>- Converter/Charger internal failure.</td>
</tr>
</tbody>
</table>

**TROUBLESHOOTING**

- AIR FLOW FAN (on back-side)
  - Blows air out of front grill vents.
TWO YEAR LIMITED WARRANTY

Limited Warranty and Remedy: Fieldstone Products, Inc (“Supplier”) warrants products it sells against faulty workmanship or the use of defective materials and that such products will conform to published specifications, drawings and other descriptions for a period of two years.

This warranty is the only warranty made by Supplier and is in lieu of all other warranties, express or implied, except as to title, and can be amended only by a written instrument signed by an officer of Supplier.

The liability of Supplier under this warranty is limited solely to replacing, repairing or, at Supplier's discretion, issuing credit for any devices which are returned by Buyer during the schedule period, provided that (a) Supplier is promptly notified in writing upon discovery of any defect by Buyer with a detailed explanation of any alleged deficiencies; (b) the defective product is returned to Supplier, transportation charges prepaid by Buyer; and (c) Supplier's examination of such product discloses to its satisfaction that such defect was not caused by misuse, neglect, improper installation, repair, alteration or accident. In no event shall Supplier be liable to Buyer for loss of profits, loss of use, or damages of any kind based upon a claim for breach of warranty. All PowerMax products must be installed by a certified electrician.

GENERAL DISCLAIMER

In accordance with our policy of continuous product improvement, Supplier reserves the right to make changes or improvements to the products and specifications at any time without prior notice. Prices are also subject to change without notice.

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