

⚠ SAFETY ALERT

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 they warranted, in aerospace, medical, or life safety applications.

⚠ WARNING Avoid Possible Injury or Death.

120 VAC / 220 VAC is present. This Converter/Charger is designed to convert **120 VAC / 220 VAC** to 24 VDC. It also provides low-voltage power for charging onboard 24 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) are present. DO NOT mount or install the unit in compartments designed for storing batteries or flammable liquids.

GENERAL DISCLAIMER

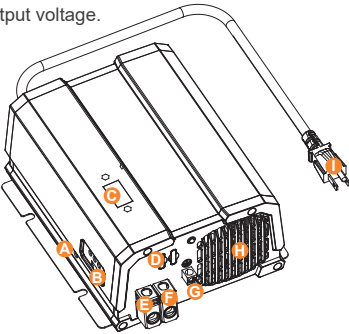
In accordance with our policy of continuous product improvement, Supplier reserves the right to make changes or improvements to the products, and specifications at any time without prior notice. Prices are also subject to change without notice.

Supplier makes every effort to ensure information provided in our technical literature is accurate and reliable. We cannot, however, assume responsibility for inadvertent errors, inaccuracies, omissions or subsequent changes. We assume no responsibility for the use of this information, and any and all such use of this information shall be entirely at the user's own risk. No patent rights or licenses applicable to any of the products of Supplier's intellectual property described herein are granted to any third party, either directly or by implication, or any other means. Furthermore, despite efforts to ensure otherwise, we make no representation that the information and/or circuitry described herein is free of infringement on any intellectual property rights or any other rights of third parties.

Installation & Maintenance

The Power Converter must be installed by a certified electrician.

- A. Output voltage adjustment – Adjustable range 26V~33V.
- B. Charging mode adjustment – Switch between fixed mode, 2-stage, and 3-stage.
- C. LCD display – Display the current output voltage.
- D. Fuse
- E. Negative DC output
- F. Positive DC output
- G. Grounding
- H. Fan
- I. AC Input



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. The chosen location 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 / 220 VAC** receptacle must 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 24 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.

120 VAC / 220 VAC Connection

First confirm that the **120 VAC / 220 VAC** power source AC circuit breaker(s) are in the [OFF] position. DO NOT turn on AC circuit breakers until installation is complete.

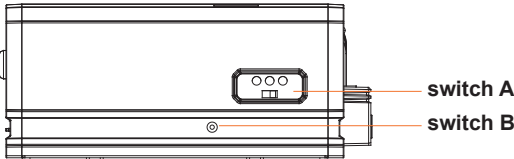
- Using a 10 AWG minimum size copper wire, attach from the vehicle/device chassis to the Converter/Charger Bonding Lug.
- Using the attached power cord on the Converter/Charger, connect firmly to the **120 VAC / 220 VAC** receptacle.

24 VDC Wiring

It is important to use the correct wire gauge. Use a minimum of 10 AWG size copper wire.

- The terminal marked [+] or [POS] is for the RV 24 VDC positive connection.
- The terminal marked [-] or [NEG] is for the RV 24 VDC negative connection.
- The 24 VDC output wiring does not require over-current protection because the Converter / Charger limits current output. However, all electrical connections need to comply with the appropriate NEC code.

*The fan will not run all the time. The fan is temperature-controlled and will only run when needed. Never leave the power converter unattended when plugged in.



6. FIXED VOLTAGE MODE

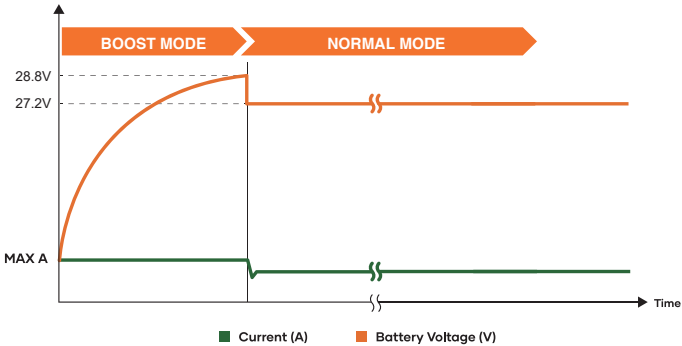
DESCRIPTION: This mode can be used to directly power 24 Volt equipment and or maintain the battery at that voltage.

To set the unit to Fixed Voltage Mode, power the unit OFF, move Switch A to Fixed Voltage, then connect the unit to AC power. Gently turn switch B upward or downward to adjust the voltage between 26~33V until reaching your required output.

NOTE: The output voltage you set is now now remain fixed at this level every time the unit is powered ON. To return the unit to its factory settings, power down the unit then move switch A, left to "Three Stage". Power up the unit and with a voltage meter attached to the output terminals, use switch B to gently turn the voltage up or down until you reach 28.8V. The unit is now back to the standard "3 Stage Charging" factory settings.

7. 2 STAGE CHARGING MODE

This option provides an automatic charging system in two steps. 1. A fast-charge stage (Boost – 28.8V) to bring a discharged battery, drained battery back up to full voltage rapidly; 2. A trickle charge (Float 27.2V) to keep the battery both fresh during times of load inactivity to safely prolong the life of the battery and provide power to run 24V lighting and appliances in the vehicle/device. The charger automatically changes modes to accommodate changes in conditions. The chart below is for reference only, voltages may vary.

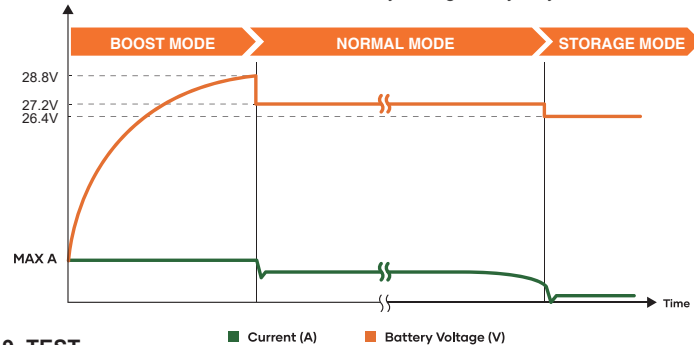


8. 3 STAGE CHARGING MODE

This is the factory setting with Smart Charging enabled with the Output Voltages preset to 28.8V / 27.2V and 26.4V.

DESCRIPTION: This mode 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 24V 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.



9. TEST

First, disconnect all loads and the battery on the Converter/Charger by removing all 24VDC connections from [+] or [POS]. 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 28.8 +/- 0.2 VDC. Add 24 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.

NOTE: If the charger's output voltage is set below the battery voltage the battery will not charge plus the LED will not come on.

10. TROUBLESHOOTING

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. Reconnect 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 26 VDC and 28 VDC (typically 27.2 VDC).
- Otherwise check the table below:

CONDITION	POSSIBLE CAUSE
No 24 VDC output	• 120 VAC / 220 VAC not connected to coach or the coach AC circuit breaker is in the off position. • Reversed battery fuses are blown (battery wiring connections are reversed). • Severe overload or shorted load. Remove all loads and retest as per the above instructions. • Converter/Charger internal failure.
Converter cycles On & Off	• Fan air flow is inadequate or blocked. (1" minimum free air space at each end required). • Converter/Charger internal failure.
Reversed Battery fuses blown	• Battery wiring connections are reversed. • Defective battery, possible bad cells.
24 VDC output is too low	• Attached load exceeds rating of the Converter/Charger. • Defective battery, possible bad cells. • Converter/Charger internal failure.
LED light is not on	The output voltage of the charger has dropped below the battery voltage. If charging a battery the unit is best to be in its factory starting at 28.8V, unless the Battery Manufacturer recommends otherwise. - Charger internal failure

11. BATTERY

With the 120 VAC / 220 VAC disconnected, reconnect the positive (+ / POS) terminal to a known good battery. With the converter 120 VAC / 220 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.

12. HI-POT TESTING (WARNING – Avoid Personal Injury / Product Damage)
(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.

TWO YEAR LIMITED WARRANTY

Limited Warranty and Remedy: Fieldstone Products ("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 warranty 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 determines 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.

LIMITATION ON THE USE OF PRODUCTS

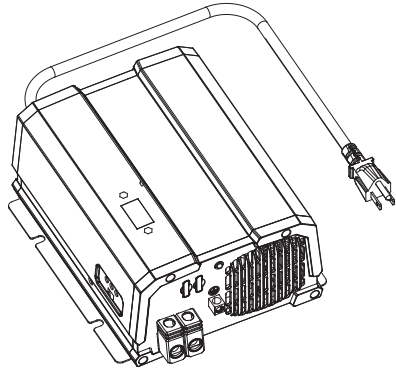
Products are not designed for, and should not be used in, life-support systems, nuclear facility applications, aircraft control applications, or any other applications where product failure could reasonably harm life, property, or the environment. Any such use requires the specific prior written consent of an officer of Supplier. A life support system is defined as a product or system intended to support or sustain life and whose failure can be reasonably expected to result in significant personal injury or death. Nuclear facility applications are defined as any application involving a nuclear reactor or the handling and processing of radioactive materials in which the failure of equipment, in any way, could reasonably result in harm to life, property or the environment.



AC to DC CONVERTER • CHARGER

PM3-50-24SME-UI
50A 24V Dual AC Input: 100-135VAC/190-240VAC

USER MANUAL



Fieldstone Products PMB 103 • 11161 E SR 70 STE 110 • Lakewood Ranch, FL 34202
Phone: 941-201-8041 • Fax: 941-405-4930
www.powermaxconverters.com