Converter / Charger
Main Board Assembly

Replacement Converter / Charger for PowerMax and WFCO Power Distribution Panels

PM3-XXX-MBALK

35A - 75A Models

Installation & Maintenance

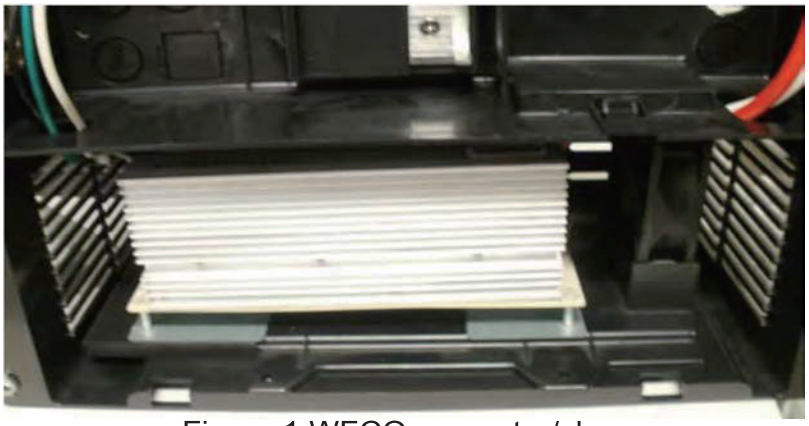

Figure 1 WFCO converter/charger

Figure 2 Powermax converter/charger

WFCO Wire Colors	Powermax Wire Colors	Remarks
Green	Green/Yellow	Chassis Ground
Black	Black	A.c. Line (Hot)
White (smaller)	White (smaller)	A.c. Neutral (Return)
Red	Red	D.c. Positive
White (Heavy)	White (Heavy)	D.c. Negative

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SAFTEY 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 warranted in aerospace, medical or life safety applications.

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 SRV series 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.

The Converter/Charger is integrated with a **120 VAC** and **12 VDC** Distribution Panel that allows easy installation and centralizes all power connections. Stab type AC breakers with branch circuits are used. The DC fuse block has individually fused branch circuits. The Converter/Charger can easily be removed without removing the Distribution Panel wiring.

WARNING - Avoid Personal Injury or Product Damagel

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.

1. **DISCONNECT RV DC POWER.** Disconnect the RV battery POS (+) wire at the battery end before connecting this Converter/Charger and Distribution Panel to any RV wiring.
2. **LOCATION.** The Main Board Assembly is mounted in the bottom compartment of the Power Distribution Panel cabinet.
3. **MOUNTING.** Flanges with holes are provided for ease of mounting using standard fasteners.
4. **ELECTRICAL REQUIREMENTS.** A **120 VAC** with 30 Amp source, preferably a separate breaker, is required to supply power.
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. **All PM3 Products must be installed by a certified electrician.**

WARNING - Avoid Possible Injury or Deathl

120 VAC Connection - First confirm that the **120 VAC** power source AC circuit breaker(s) are in the [OFF] position**. DO NOT** turn on AC circuit breakers until installation is complete. Connect the Neutral (white) wire to the Neutral terminal block (top left), the Line (black) wire to the appropriate circuit breaker and the Ground (green-yellow) wire to the chassis terminal block (side left).

12 VDC Wiring- It is important to use the correct wire gauge for the specific model **120 VAC** to **12 VDC** Converter/Charger selected. As an example, the model PM4B-55-MBA is a 55 Amp Converter/Charger that requires at least 10 AWG wire. Connect the positive (Blue) and negative (White) wires to the same terminals where the old unit positive (Red) and negative (White) wires were removed. The Converter/ Charger limits overall current output. However, with or without output current limits on the Converter/ Charger unit, all electrical connections must comply with the appropriate NEC codes.

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8. **3 STAGE CHARGING MODE:** This is the Factory Settings with the Smart Charging mode 'ON' with the Output Voltages preset to 14.6V / 13.6V and 13.2V. 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 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.

9. **FIXED VOLTAGE Mode: DESCRIPTION:** This mode can be used to charge a Lithium Battery, to directly power 12 Volt equipment and or to maintain the battery at a set voltage. To set in fixed mode, with the unit off, move switch A, right to "Fixed Voltage" then plug the unit into 110V power. Turn switch B gently up or down to adjust the voltage between 13~16.5V until reaching your required output. NOTE: The output voltage you set is now fixed constantly 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 14.6V. The unit is now back to the standard " 3 Stage Charging" Factory Setting

10. **BATTERY.** With the **120 VAC** disconnected, reconnect the 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!

11. **HI-POT TESTING.** (RV Manufacturing Facilities Only) DO NOT Hi-Pot DC wiring with any Converter/Charger connected to the RV wiring in order to prevent serious injury and/ordamage.

TROUBLESHOOTING

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

a. Disconnect the **120 VAC** power from the RV coach.

b. Disconnect all DC fuses and the Battery from the Distribution Panel.

c. Re-connect the **120 VAC** power to energize theConverter.

d. Using a voltmeter, measure the voltage between the Converter terminal and the 12 VDC distribution Negative bar.
> The Converter is OK if the voltage reading is between 13 voe and 14 voe (typically 13.6 VDC).
> Otherwise, check the table below:

CONDITION	POSSIBLE CAUSE
No 12 voe output	**120 VAC** not connected to coach or the coach AC circuit breaker is in the position. Reversed battery fuses blown. (Battery wiring connections are reversed), Severe overload or shorted load. Remove all loads and retest per above instructions. Converter internal failure.
Converter cycles On & Off	Fan air flow is inadequate or blocked. (Ensure 1" min. free air space at each end required.) Converter internal failure.
Reversed Battery fuses blown	Battery wiring connections are reversed. Defective battery, possible bad cells.
12 VDC output is too low	Attached load exceeds rating of the Converter. Defective battery, possible bad cells. Converter internal failure.

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