

4.0 Maintenance and Troubleshooting

Recommended Inverter and Battery Care

The MM-AE Series inverter/charger is designed to provide you with years of trouble-free service. Even though there are no user-serviceable parts, it is recommended that every 6 months you perform the following maintenance steps to ensure optimum performance and extend the life of your batteries.



WARNING: Prior to performing these checks, switch both the AC and DC circuits OFF.

- Visually inspect the batteries for cracks, leaks, or swelling – replace if necessary.
- Use baking soda to clean and remove any electrolyte spills or buildups.
- Check and tighten all battery holddown clamps.
- Clean and tighten (10 to 12 foot-pounds) all DC terminals (battery and inverter) and connecting cables.
- Check and fill battery water levels (Liquid Lead Acid batteries only).
- Check individual battery voltages (replace those that vary more than 0.3 VDC of each other).
- Check all cable runs for signs of chafing – replace if necessary.
- Check the inverter’s cooling vents – clean as necessary.

Resetting the Inverter

Under some fault conditions (i.e., an internal fault), the inverter will need to be reset.

To reset the inverter:

1. Press and hold the Power ON/OFF pushbutton for approximately 15 seconds, or until the status LED comes on and flashes rapidly (see Figure 2, Items 1 and 2).
2. Release the Power ON/OFF pushbutton once the rapid flashing has begun. The status LED will go off.
3. Press the Power ON/OFF pushbutton again to turn the inverter on.



Info: The Power ON/OFF pushbutton is a small *momentary* type switch which operates by lightly pressing and releasing.

Troubleshooting

The MM-AE Series inverter/charger is a fairly simple device to troubleshoot. There are only two active circuits (AC and DC), as well as a charging circuit. The following chart is designed to help you quickly pinpoint the most common inverter and charger faults.

Table 7, Troubleshooting Guide

Symptom	Possible cause	Recommended Solution
Low Battery Voltage (the status indicator blinks on 1 time every 4 secs)	The battery voltage level has dropped below the Low Battery Cut Out (LBCO) set-point for more than one minute (10.0VDC = LBCO default setting).	Battery voltage is too low. Check fuses/circuit-breakers and cable connections. Check battery voltage at the inverter's terminals. Your batteries may need to be charged, this fault condition will automatically clear when the battery voltage exceeds 12.5VDC.
High Battery Voltage (the status indicator blinks on 2 times every 4 secs)	The battery voltage is above 15.5 VDC. The inverter automatically resets and resumes operation when the battery voltage drops below 15.5 VDC.	This condition usually occurs only when an additional charging source (alternator, solar panels or other external charging sources) is used to charge the battery bank. Reduce or turn off any other charger to the inverter batteries to allow the voltage level to drop.
Over-temperature condition (the status indicator blinks on 3 times every 4 secs)	The internal temperature of the inverter has risen above acceptable limits; caused by loads too great for the inverter to operate continuously, or by lack of ventilation to the inverter. When the unit has cooled, it will automatically reset and resume operation.	Reduce the number of electrical loads that you are operating, this will avoid a repeat Over-temp shutdown if the cause was too many loads for the ambient
		Check ventilation around the inverter, ensure cool air is available to pass-thru the inverter.
AC Overload (the status indicator blinks on 4 times every 4 secs)	The inverter has turned off because the connected loads are larger than the inverter's output capacity or the output wires are shorted.	Reduce the AC loads connected to the inverter or remove all AC output wiring and restart the inverter.
Internal fault (the status indicator blinks on 5 times every 4 secs)	This fault occurs when an internal fault is detected.	To clear this fault, an inverter reset is required. Remove DC power to the inverter or press and hold down the power switch on the inverter for 15 seconds (until the green Status LED comes on). If this fault does not clear, the unit will need to be serviced.
Inverter's status light is off.	Inverter is switched OFF or there is no DC voltage (battery) connected to inverter.	Switch the inverter ON. Connect a battery with correct voltage to the inverter.
AC input won't connect (AC IN on remote blinks)	The incoming AC voltage will not be accepted if it is below the VAC Dropout setting (80VAC = VAC Dropout default setting).	Check the incoming AC voltage to the input of the inverter, ensure it is present and above the VAC dropout level.
Appliances turn off and on; or there is low AC output power.	Loose AC output connections.	Tighten AC output connections.
	Loose / corroded battery cables.	Clean and tighten all cables.
Inverter AC output voltage is too low or too high when using an AC voltmeter.	Wrong type of voltmeter used (will display 90 VAC to 130 VAC depending on the battery voltage).	Most meters are made to read Average AC voltage. The AC output of the MM is a "modified" waveform which requires using a "true" RMS voltmeter to correctly read the output voltage.
While charging, the DC charge voltage is higher or lower than expected.	If the Battery Temperature Sensor is installed, it will increase or decrease the DC voltage level depending on temperature around the battery sensor.	This is normal.