

BLUE NOVA energy

USER MANUAL



MOBILE POWER SERIES

INTRODUCTION

Congratulations on purchasing a high quality BlueNova® product.

This document covers product installation, operation, troubleshooting, safety & maintenance instructions, storage guidelines as well as emergency & first aid procedures.

Please do not discard this document as it contains valuable information that might have to be referenced at a later stage.

Should you have any queries, kindly contact BlueNova® Technical Support:

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BATTERY SCHEMATIC



THE LITHIUM DIFFERENCE

- Quick Recharge Time
- 100% maintenance free.
- High sustained discharge Voltage and Amps.
- Extremely low self-discharge rate.
- Light Weight (14kgs).
- High Cycle lifespan (50% discharge – 5,000 cycles).
- No gassing. No ventilation required.

BATTERY DO'S

- Think Safety First.
- Do read entire User Manual.
- Do regular inspections of battery terminals.
- Do keep out of direct sunlight.
- Do use good quality charging systems with accurate voltage set-points.

BATTERY DON'TS

- Do not attempt to open the battery.
- Don't let a battery get hot to the touch when charging.
- Don't mix BlueNova LiFePO₄ batteries with other types or brands, as they may not be compatible.
- Don't over-charge or over-discharge your batteries, as this may void your warranty.
- Don't connect battery cables to the wrong battery terminals. Red to Red (+) / Black to Black (-).

SIZING A BATTERY BANK

It is advisable to use your battery to an 80% discharge level. This will promote long battery life and also reduce the amount of recharge time.

MULTIPLE BATTERIES

If there is more than one battery in the battery bank, the following guidelines should be used:

- Always use batteries of identical make and model.
- Do not mix different types or brands of batteries.
- Make sure the battery cable is not undersized for the battery system.
- Make sure the battery cables are connected to the terminals correctly. If unsure, professional assistance is recommended.

BATTERY CHARGING

For maximum battery life, a battery must be recharged with a precision charger with accurate 14.2V bulk/absorption and 13.6V float settings. BlueNova batteries are not covered under warranty if they are not recharged correctly and properly. Once the battery is fully charged, disconnect it from the charger.

The following charging voltages are recommended for maximum battery life for all BlueNova 13V battery models.

	Bulk Voltage	Absorption Voltage	Float Voltage
Single Stage Charger	14.2V	N/A	N/A
2-Stage Charger	14.2V	N/A	13.6V
3-Stage Charger	14.2V	14.2V	13.6V

BATTERY CHARGERS

It is advisable to use fully automatic Lithium LiFePO₄ battery chargers with the correct profile when charging BlueNova batteries. Failure to do so can lead to over- or under charging and premature battery failure. BlueNova can recommend high quality Lithium LiFePO₄ battery chargers. Call BlueNova if you have any charging inquiries.

ALTERNATORS

Vehicle alternators (boat, car, truck, etc.) should be fitted with the correct Lithium LiFePO₄ profiled DC-DC charger when in a dual battery arrangement. The DC-DC charger is to ensure the correct charging profile and voltage. An automatic switch should be fitted to isolate the Lithium battery as soon as the vehicle engine is turned off. Contact BlueNova for more information.

SOLAR POWER

Solar power can be used to easily recharge BlueNova batteries, when conventional AC mains power is unavailable. It should be kept in mind that a solar power regulator must be used as the voltage output of solar panels is in the range of 16-22vdc depending on panel construction and weather conditions. We do not recommend self-regulation as this method can lead to undercharging or overcharging of the battery and cause damage to the battery. We recommend that the regulator is suitable for LiFePO₄ batteries at the correct charging profile.

GENERATORS

A petrol- or diesel-powered generator may be used in conjunction with a suitable precision battery charger for recharging. We do not recommend that the battery be recharged from the "Charge Outlet" of the generator (if fitted) as the charge regulation on many generators is insufficient. Recharging a BlueNova LiFePO₄ battery from the "Charge Outlet" will void your warranty should the battery be damaged.

KNOWING WHEN TO RECHARGE

For maximum battery life in deep cycle applications, do not discharge the battery bank below 80%. Continually discharging the battery bank below 80% will shorten the battery life.

FOR INVERTER/CHARGER APPLICATIONS

Refer to your Inverter/Charger user's manual to ensure that correct voltages have been set.

BATTERY DISCHARGING

The following cycle life can be achieved with your BlueNova LiFePO₄ battery:

- <50% discharge – 5000 cycles
- <80% discharge – 3000 cycles
- 100% discharge – 2000 cycles

LiFePO₄ batteries do not hold a memory. If the maximum discharge rate (Amps) is exceeded, the internal BMS (Battery Management System) will switch the battery off. Refer to the battery's specification sheet for the maximum A/h draw.

PROCEDURE FOR REACTIVATING BATTERY'S INTERNAL BMS

If battery voltage drops below 10V, the internal battery management system (BMS) will switch off. The battery will not accept a charge until the battery's BMS is reactivated. Depending on the battery's voltage, this procedure can take a few seconds.

The following options can be used to reactivate the battery if the above parameters have been exceeded:

- Attach jumper cable leads from a 12V vehicle crank battery to your BlueNova LiFePO₄ battery's terminals.
- Attach leads from a 12V charger to your BlueNova LiFePO₄ battery's terminals.
- Attach leads from another 12-13V battery to your BlueNova LiFePO₄ battery's terminals.
- When using a multifunction charger, disconnect the battery leads and then reconnect to the AC charging source.

SAFETY & MAINTENANCE

- Do not short-circuit the battery terminals.
- Do not disassemble, pierce, cut or in any way physically alter any part of the battery.
- Do not burn, incinerate or otherwise subject the battery to extreme heat.

BATTERY STORAGE GUIDELINES

- Always store batteries in a cool and well-ventilated area – ideally 25°C ± 3°C.
- Store away from moisture and heat.
- Do not store batteries upside down for overly long periods.
- Check the open circuit voltage of stored batteries at least once per month. In order to prevent Deep Discharge Lockout (DDL) mode, recharge batteries sufficiently and frequently enough to prevent the open circuit voltage falling below 10V.
- Ensure that the stored battery's state of charge is above 50% at all times. 100% SOC is optimal.

EMERGENCY & FIRST AID

In case of fire:

- Evacuate danger zone. Open ventilation in the room.
- Extinguish fire with a CO₂ fire extinguisher.

Skin contact – Should battery contents come into contact with skin:

- Wash immediately with soap and water.
- If irritation persists, seek medical attention.

Eye contact – Should battery contents come into contact with eyes:

- Rinse eyes immediately with clean water for at least 15 minutes.
- Seek medical attention immediately afterwards.

Ingestion – Should battery contents be ingested:

- Refrain from taking any emetic or vomit-inducing medicine.
- Seek medical attention immediately.