

Thank you for purchasing the **Bioenno Power** BLF-1212AS LiFePO4 Battery

## Introduction

LiFePO4 chemistry is an evolution in rechargeable battery technology. It is safer, non-toxic, higher performing, and longer lasting compared to lead-acid batteries. Bioenno Power provides the highest quality LiFePO4 battery from our ISO9001 certified production facility that guarantees maximum performance. Please carefully review the information below as they are vital to the safety and performance of the battery.

## Typical Applications

- Solar energy storage
- Small electric motor
- Backup power supply (UPS)
- Ham radio
- Portable electronic equipment power (audio, visual, networking, power tools etc.)
- Drop in replacement for sealed lead acid battery (SLA)
- LED lighting

## Specifications (summary)

<b>Dimensions</b>	6.0 in. x 3.9 in. x 3.8 in. (152 mm x 100 mm x 95 mm)
<b>Weight</b>	3.6 lbs. (1.6 kg)
<b>Battery nominal voltage and capacity</b>	12V, 12Ah
<b>Charging Voltage</b>	14.6V
<b>Charging Current</b>	2A-5A
<b>Open Circuit Voltage Range</b>	10-14.6VDC
<b>Maximum Continuous Discharge Current</b>	20A
<b>Maximum Peak Pulse Current</b>	40A (2 seconds)
<b>Operating Temperature</b>	- 10°C to 60°C
<b>Protection: PCM/BMS</b>	Overcharge, overdischarge, overcurrent, temperature, balancing
<b>Terminal / connector type</b>	Faston F2

For the full specification, please visit [www.bioennopower.com](http://www.bioennopower.com)

## Caution

- Do not disassemble.
- Do not short circuit positive and negative terminals.
- Use only LiFePO4 compatible chargers. Do not use Lead Acid battery chargers, especially ones with “anti-sulfation” features
- Do not submerge in water, the seal on the battery is not intended to withstand water pressure
- Do not throw in fire or dispose of improperly. Recycle the battery at a facility that accepts lithium battery

## Instructions for Use

### Charging

1. Only use **14.6V, LiFePO4 compatible** chargers to charge the battery. The charging current should be between **2A to 5A**. If you need a charger, please contact us.
2. Fully charge the battery **before first use**. This depends on the output of the charger but is typically between 3-6 hours.
3. If your battery came with a Bioenno Power charger, please note that the **LED light on the battery does NOT indicate the state of charge**. A red LED light means the battery is under constant current (CC) charging and green LED means constant voltage (CV) charging. Always charge for at least 6 hours to ensure full capacity.
4. LiFePO4 does not suffer “memory effect” so please keep the battery fully charged for daily use. Cell balancing only occurs when the battery is fully charged (top-end balancing).
5. **Do not** charge the battery in temperatures below 0°C. This can cause damage to the cells.

### Discharging

1. Make sure your load accepts 12V nominal voltage.
2. Ensure the connection between the battery and the load can handle the current draw. Please consult references for the appropriate wire type.
3. The maximum continuous discharge current is **20A**. Please make sure your electrical load consumes a current **less than 20A continuous and 240 watts of power**.
4. The battery outputs a steady voltage around 12.8V until very little capacity remain, **do NOT** rely on voltage as an indicator of remaining capacity.

### Series and Parallel Connection

We do not recommend using our LiFePO4 batteries in series or parallel connection if a single battery of equivalent size can be used instead. The PCM/BMS built into each battery is intended only for operation with a single battery and we do not guarantee the operability of multiple batteries in series or parallel configuration. Please take the information below into consideration if you must use a series or parallel configuration.

Series: **Each battery must be charged separately**, all batteries should be fully charged before connecting in series.

Parallel: **Only connect batteries with equal state of charge in parallel**. Also, measure the internal resistance of each battery and only use batteries with closely matched internal resistance. It is highly recommended that resistors be used to achieve equal internal resistance among multiple batteries. It is also highly recommended to add fuse(s) to the circuit for safety reasons.

Please keep in mind a series or parallel connection can fail with a number of consequences, from early cut off to possibly a fire. Always exercise caution and observe closely at all times. The customer assumes all responsibility in the event of a series or parallel connection or connections.

### Maintenance and Storage

The battery requires no manual maintenance due to the included PCM/BMS. However, please follow the below guideline for best life cycle.

1. Even though the LiFePO4 chemistry is relatively stable, protect the battery from shocks and drops to prevent internal short circuit.
2. For long term storage, fully charge the battery and then discharge to 50% of the full capacity. **Do NOT** leave the battery unattended for more than 6 months.
3. For the best life cycle, avoid using the battery in extreme temperatures and avoid highly variable pulsing loads.

## Troubleshooting

Since the battery can be used in many different configurations and equipment, we cannot provide a general troubleshooting guide. Please contact us so a technician can provide you with individualized support.

## FAQ

Q. *The terminals/connectors on the battery do not fit my application, what do I do?*

A. You can change the terminal/connector to whatever type you need without voiding the warranty so long as you do not open the battery or modify the casing.

Q. *I have a universal lead acid charger with high charging current, can I use it instead?*

A. Not recommended. Lead acid battery charges at 2.30V to 2.45V per cell whereas LiFePO4 needs 3.60V per cell. Your battery would be undercharged so you won't get full capacity nor will balancing be triggered, both of which are not desired. Furthermore, the floating charge of the lead acid charger is not expected by the battery and can cause problems.

Q. *Can I buy another of the same LiFePO4 battery to double the voltage or capacity?*

A. Not recommended. Refer to the series and parallel connection section. You should always get a single battery that meets your voltage and capacity requirement to avoid problems.

Q. *How come the battery stops working a few seconds after a high current draw?*

A. Make sure the load is not exceeding the rated continuous output current else the PCM shuts off the battery after 2 sec. To reset, disconnect the load and attach the charger for a few seconds. If you need more current output, please contact us for an exchange or a custom solution.

Q. *I need more help with the battery I bought.*

A. Please contact us using the information below

## Contact Us

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## Warranty

Please see the included warranty pamphlet for warranty information. You can also check [www.bioennopower.com](http://www.bioennopower.com) for more information.



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