



BATTERY USER MANUAL



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IMPORTANT — READ BEFORE INSTALLATION

To ensure safe and proper use of your Big Beard Battery lithium battery, it is essential that you carefully read and understand this user manual before installation and operation. Failure to follow the guidelines and safety instructions provided may result in damage to the battery, your system, or personal injury.

By using this product, you acknowledge your responsibility to adhere to all installation, usage, and safety precautions outlined in this manual. If you have any questions or uncertainties, consult a qualified professional or contact Big Beard Battery customer support before proceeding.

Your safety and the optimal performance of your battery depend on it. Read this manual thoroughly!

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Big Beard Battery reserves the right to modify this document and the product specifications without prior notice.





GENERAL SAFETY INFORMATION

To ensure safe use of your **Big Beard Battery**, please follow these guidelines:

1. Keep the battery away from water, heat sources, sparks, and hazardous chemicals.
2. **DO NOT** puncture, drop, crush, burn, shake, strike, or otherwise damage the battery.
3. **DO NOT** open, dismantle, or modify the battery in any way.
4. Avoid contact with the terminals or connectors without properly disconnecting power first.
5. If the casing is damaged and electrolyte or powder is exposed to skin or eyes, flush the affected area with plenty of clean water and seek medical attention right away.

The manufacturer of **Big Beard Battery** is not responsible for any damage resulting from:

- **Acts of nature or force majeure:** Including but not limited to fire, typhoon, flood, earthquake, war, or terrorism.
- **Misuse or negligence:** Such as intentional or accidental misuse, abuse, neglect, improper maintenance, or operation under abnormal conditions.
- **Improper use or improper installation:** Including incorrect installation, improper operation, or malfunction of connected devices.
- **Exposure to hazardous elements:** Including contamination by hazardous substances, diseases, pests, vermin, or radiation.
- **Alteration:** Altering the product without prior written consent from the manufacturer.





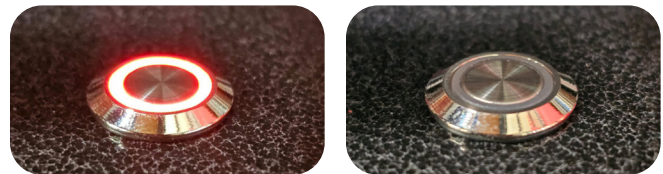
HANDLING AND USAGE PRECAUTIONS

1. Disconnect any chargers or controllers before working on the battery.
2. **DO NOT** connect or disconnect wires from terminals while loads are still connected.
3. Avoid placing tools or objects on top of the battery.
4. Keep the battery out of reach of children.
5. Always wear appropriate protective equipment when handling the battery.
6. Use insulated tools to prevent accidental short circuits.
7. Remove jewelry or metal objects when working with or near the battery.
8. Securely mount the battery to prevent movement during use.
9. Use proper equipment for safe transportation of the battery.
10. **DO NOT** dispose of the battery with household waste. Recycle it according to local, state, and federal regulations.
11. By adhering to these precautions, you can maximize safety and ensure the long-term performance of your Big Beard Battery.

KEY FEATURES

Power Button - Big Beard Battery features an on/off button. The batteries are shipped in the off position making the shipment safer. To turn the battery on, press and hold the button until it beeps (2-3 seconds). The light will turn RED. Leave the battery on when in use. The off feature will be for servicing your system or if you are stowing your camper and not in need of 12volts for an extended time. To turn off the battery, press and hold the button for 4-5 seconds. The battery will once again beep and the RED light will turn off.

Red Light = On No Light = Off



Bluetooth - for Apple users you can download the **Big Beard Battery** app in the Apple Store. Pair code: 1234. For Android users, please download the JKBMS app from the Google Play Store. Advanced settings are protected by password.

Active Balancing - The lithium Battery Management System (BMS) features advanced active balancing technology, which redistributes energy dynamically between cells in real time. This ensures all cells remain at consistent charge levels, maximizing overall battery capacity, extending battery lifespan, and enhancing performance efficiency. The active balancing system is particularly advantageous for high-capacity battery packs, minimizing energy loss compared to traditional passive balancing methods.

Integrated Self-Heating for Cold Weather

Performance - Our BMS includes an advanced self-heating function, designed to maintain optimal battery performance in low-temperature environments. Utilizing intelligent thermal management, the system activates heating elements to warm the battery cells to safe operating temperatures, ensuring reliable charging, discharging, and extending overall battery lifespan. This feature is ideal for applications in cold climates, where temperature fluctuations can compromise battery efficiency and safety.



INSTALLATION

TOOLS NEEDED

Open socket 13mm or short well socket 13mm

CONNECTING BATTERIES IN BANKS

Proper configuration of battery banks is crucial for safety and optimal performance. Adhering to these guidelines will enhance the safety, efficiency, and longevity of your battery system. For complex setups, consult a professional or the manufacturer's technical support.

Follow these guidelines to ensure a reliable and efficient setup:

PARALLEL CONNECTIONS

- **DO NOT** connect batteries in parallel if they differ in chemistry, brand, model, rated capacity, or nominal voltage. Mismatched batteries can lead to system imbalances and potential damage over time.
- Balance the state of charge of each battery before connecting in parallel. Assure both batteries are charged. Installation of a dead battery and a charged battery will lead to potential damage and balancing issues.
- Use cables of **equal length** between batteries in a parallel configuration. This ensures all batteries share loads evenly and operate uniformly.

SERIES CONNECTIONS

- **Max of 3** in series for 12 volt batteries.

CABLE SIZING

The Big Beard Battery can produce from 200 to 250 amps through the internal BMS. We recommend a good quality stranded cable, commonly identified as welding cable. The strands of wire are smaller allowing for more surface area overall.

To determine the size of the wire you can either size it based on the maximum output of the individual battery or by the total demand of your loads from the battery. We recommend using 2/0 cable which will ensure you have large enough cable to exceed the limitations of the battery's BMS.

BATTERY INSTALLATION LOCATION

Install the battery in a clean, cool, and dry environment, ensuring it is protected from water, oil, and dirt. Contaminants can accumulate on the battery surface, leading to current leakage, self-discharge, or even short circuits.

To maintain optimal performance and safety:

- Ensure adequate airflow around the battery to prevent heat buildup.
- Minimize temperature variations between batteries in the system to avoid imbalances and reduced efficiency.





SECURING CABLE CONNECTIONS

Follow these instructions to ensure safe and reliable cable connections:

TORQUE SETTINGS

- Secure all cable connections to the specified torque settings. This ensures proper contact between the cable lugs and the terminals.
- Avoid **over-tightening**, as this may damage the terminals. Conversely, **loose connections** can lead to terminal meltdown or even fire.
- 12-volt 300ah 14NM (10.3 foot-pounds)
- 24-volt 300ah 12NM (8.8 foot-pounds)
- 12-volt 600ah 12NM (8.8 foot-pounds)

TOOLS

- Use an insulated socket or a properly sized wrench. To avoid accidental short circuits make sure nothing comes in contact with the socket or wrench when tightening or losing the terminal lugs.



WASHER USAGE

- To achieve good contact between the cable lugs and terminals use the appropriate number of washers. This ensures maximum thread engagement without bottoming out the terminal bolt.
- Determine the correct number of washers by hand-tightening the bolt with only the cable lug in place and observing the gap. Add washers so the washer stack slightly exceeds the gap.



PLACEMENT OF WASHERS

- Ensure the cable lug is in direct contact with the terminal's top surface. Place the washer(s) **on top of the battery cable lug**, not between the battery terminal and the lug.
- Incorrect washer placement can cause high resistance leading to overheating and potential damage.

Properly securing cable connections is essential for the safety and performance of your battery system.



CHARGING BATTERIES

To ensure safe and efficient charging of your battery, please follow the guidelines below:

DO NOT EXCEED THE MAXIMUM CHARGE CURRENT

Always adhere to the recommended charge current to avoid damaging the battery.

USE COMPATIBLE CHARGERS

Only use a charger or charge controller that is specifically designed for **lithium iron phosphate (LiFePO4) batteries**. Incompatible equipment may cause damage or malfunction.

INITIAL CHARGING

If the battery is received at a partial state of charge (due to time elapsed between manufacturing and shipping), fully charge the battery before its first use.

CHARGING PROCESS

During the standard charging cycle:

- The battery is first charged at a constant current of **40A** until the voltage reaches **14.4V**.
- After reaching 14.4V, the battery switches to **constant voltage** mode at 14.4V while the charge current tapers off.
- Charging is considered complete when the charge current drops below **2A**.
- Note that leaving the battery on float after charging will continue to balance the cells and will not damage the battery.

CHARGING DURATION

The standard charging process typically takes **3 hours**.

SAFE CHARGING TEMPERATURE

For optimal safety and performance, charge the battery only within the temperature range of **50°F to 113°F (10°C to 45°C)**. Charging outside of this range may lead to overheating or reduced battery life.

By following these guidelines, you ensure safe charging and help maximize the lifespan of your battery.



12 Volt Battery
Lithium Iron Phosphate
WITH ACTIVE BALANCE



Do not short the battery terminals. Do not crush, set fire to, puncture, or otherwise destroy the battery.

Max discharge Rate: 300 amps
Max Charge Rate: 300 amps
Absorption Voltage: 14.4 volts
Float Voltage: 13.6 volts
Absorption Time: 2.5 hours

Internal Heat Protection
High/Low Volt Protection
Cold Charging Protection
Short Circuit Protection
Active Balancing and Passive Balancing

DISCHARGING BATTERIES

To ensure safe and effective discharging, follow these guidelines:

DO NOT EXCEED MAXIMUM DISCHARGE CURRENT

Operating above the recommended discharge current can damage the battery and compromise its performance.

AVOID HEAVY LOADS ON LOW BATTERY

Do not connect large loads to the battery when the state of charge (SOC) is low, as this may cause the system to shut down or damage the battery.

RESPONDING TO LOW SOC SHUTOFF

If the battery shuts off due to a low state of charge (SOC), immediately disconnect it from all discharge equipment to prevent parasitic loads. Recharge the battery as soon as possible to avoid irreversible damage.

USE LOW VOLTAGE DISCONNECT (LVD) EQUIPMENT

It is recommended to pair the battery with discharge equipment that includes a low voltage disconnect feature to prevent over-discharge.

SAFE DISCHARGE TEMPERATURE RANGE

For safe operation, discharge the battery only within the temperature range of **0°F to 113°F (-18°C to 45°C)**. Discharging outside this range can lead to performance issues or damage.



BATTERY INSPECTION GUIDELINES

Regular inspections are essential for ensuring the safety, performance, and longevity of your battery. Follow these steps and additional suggestions to maintain your battery:

INSPECTION STEPS

1. Visual Inspection:

- Examine the external condition of the battery. Ensure the top of the battery and its terminals are clean, dry, and free of corrosion.
- Look for physical damage such as cracks, bulges, or signs of leaking. Address any issues promptly.

2. Cables and Connections:

- Inspect all battery cables and connections for wear or damage. Replace any cables that show fraying, cuts, or exposed wiring.
- Tighten any loose connections to maintain optimal conductivity and prevent electrical issues.

ADDITIONAL SUGGESTIONS

• Inspection Frequency:

Perform these inspections monthly or more frequently if the battery is used in demanding environments or under high load conditions.

• Voltage Monitoring:

Use a multimeter or battery monitor to check the voltage regularly. Significant drops may indicate issues requiring attention.

• Temperature Checks:

Ensure the battery operates within the recommended temperature range. Excessive heat or cold can accelerate wear or cause performance degradation.

• Storage Areas:

Inspect the area surrounding the battery for signs of contamination, such as spilled fluids or accumulated dust, which can affect the battery's environment.



STORAGE MODE BEST PRACTICES

OPTIMAL STATE OF CHARGE FOR STORAGE

Before storing the battery for an extended period, charge it to a **partial state of charge (30-50%)**. This helps prevent damage caused by self-discharge or over-discharge during storage.

STORAGE TEMPERATURE

Store the battery in a temperature-controlled environment between **0°F to 114°F (-17°C to 45°C)** to preserve its condition.

PERIODIC MAINTENANCE

During long storage periods, check the battery's state of charge every **3-6 months**. Recharge it as needed to maintain the optimal charge level.

Proper storage is essential to maintain battery health and extend its lifespan. Follow these guidelines and additional suggestions to store your battery safely and effectively:

STORAGE PREPARATION AND ENVIRONMENT

1. State of Charge (SoC):

- Charge/Discharge the battery to **30%-50%** before storage. This prevents over-discharge while minimizing stress on the cells.
- Use the Power Button to switch the battery to **storage mode (off)** for reduced energy consumption.

2. Disconnect from Equipment:

- Ensure the battery is disconnected from all discharge equipment to eliminate potential parasitic loads, which can drain the battery over time.

3. Temperature Control:

- Store the battery in a location with temperatures between **0°F to 114°F (-17°C to 45°C)**
- Avoid **extreme temperatures above 140°F** as this can damage the battery and reduce its lifespan.

4. Ventilation and Cleanliness:

- Place the battery in an **open, well-ventilated, dry, and clean area**.
- Keep the battery away from **heat sources, direct sunlight, moisture, or precipitation**.

5. Handling Precautions:

- **Avoid Physical Damage:** Handle the battery carefully to prevent sharp impacts, drops, or excessive pressure on the casing, which may compromise safety or performance.

6. Maintenance During Storage:

- **Periodic Charging:** Recharge the battery at least once every 3-6 months to prevent over-discharge and maintain cell health.

7. Post-Storage Usage:

- After storage, fully charge the battery before putting it back into operation to ensure optimal performance.



LIMITED WARRANTY

Our Limited Warranty applies to all products sold and shipped within the United States and Canada. We stand behind the quality and performance of our batteries, and in the unlikely event that you experience any issues, your Big Beard Battery is covered by an 11-year manufacturer's defect warranty from the date of shipment.

It is important to note that this warranty does not cover damages caused by negligence or misuse of the battery. If it is determined that improper usage contributed to the issue, a repair charge of \$100 per hour, along with applicable parts and shipping costs, will be incurred.

In addition to our commitment to Big Beard Battery, we also provide warranty support for third-party products that we resell, such as inverters, converters, chargers, cabling, solar panels, and various other accessories. Please refer to the following information for the specific terms and conditions of the Limited Warranty for your Big Beard Battery.

LIMITED WARRANTY ON BIG BEARD BATTERY LITHIUM DEEP CYCLE BATTERIES

This Limited Warranty provides you with specific legal rights, and additional rights may vary from state to state. The complete Limited Warranty can be found in the product documentation provided. We guarantee that the product will be free from defects in materials and workmanship during the designated Warranty Period. Our responsibility for defective goods is limited to repair, replacement, or refund as specified in this Warranty Statement.

All implied warranties, including but not limited to the warranties of merchantability and fitness for a particular purpose, are limited to the duration of this express Limited Warranty. Some states do not allow limitations on the duration of an implied warranty, so the above limitation may not apply to you.

WARRANTY COVERAGE

This limited warranty is provided by Road Life Project LLC, operating under the name Big Beard Battery, and it applies exclusively to the original consumer purchaser ("you") of products sold within the United States and Canada. This warranty is not transferable to any subsequent owner or recipient of the product, and it does not cover batteries that are used outside of the United States and Canada.

WHAT IS COVERED BY THIS WARRANTY?

This limited warranty covers any defects in materials and workmanship found in the LiFePO4 deep cycle batteries (referred to as the "product") during the period known as the Warranty Period, which is defined below.

WHAT IS NOT COVERED BY THIS WARRANTY?

This limited warranty does not cover any damage resulting from: (a) transportation; (b) storage; (c) improper use; (d) failure to follow the product instructions or perform necessary maintenance; (e) modifications; (f) unauthorized repair; (g) normal wear and tear; or (h) external factors such as accidents, abuse, or events beyond our control. For customer damaged equipment returns, we are not responsible for covering shipping and handling fees for returning the repaired or replaced product to you. The shipping and handling costs are your responsibility if you are found to be at fault for the damage.

WHAT IS THE DURATION OF THE WARRANTY?

The Warranty Period for this limited warranty begins on the date of product shipment and extends for a period of eleven years. Please note that the Warranty Period does not get extended if the product is repaired or replaced. We reserve the right to modify the availability of this limited warranty, but any changes made will not apply retroactively.

HOW TO REQUEST WARRANTY SERVICE

To initiate the warranty service process, please follow these steps: Contact us by emailing sales@bigbeardbattery.com. For the safe return of our hazardous products, it is crucial to use the original packaging when shipping them back to us. If you no longer have the original packaging, you have the option to purchase the necessary packaging from us. We strongly recommend insuring your return shipment and requesting proof of delivery to protect against any potential loss during transit.

If you are returning three or more batteries, please ensure that the batteries are securely packaged in their original packaging on a pallet to ensure a safe transportation.

RETURNS

For returns, please note the following guidelines:

If the item is new, unused, and in its original packaging, you can initiate a return within 90 days from the original purchase date and will incur a 10% restocking fee.

If the item is used and returned in its original packaging, you can initiate a return within 90 days from the original purchase date and will incur a 30% restocking fee. We do not accept returns of used products or products without their original packaging.

If you are returning product, you will mail your order back and once we've received the returned merchandise and have restocked the inventory, we will process the cancellation to calculate your refund. In addition, if you paid for your order using a debit or credit card, you will incur an additional 3% fee prior to your refund.

To process a return, you must first contact us to initiate the return request and provide a copy of the original receipt or invoice. Any returned product without this information will not be processed. Please note that ALL batteries must be returned on a pallet. We can provide the necessary return shipping materials at your expense. You will be responsible for the shipping costs associated with returning the items to Big Beard Battery.

For all returns, please follow these steps:

- Contact us to request a return. Include an explanation of why you are returning product. Include a copy of the original receipt or invoice for the purchase.
- Once the return is acknowledged by our team, you will receive return instructions. Be sure to follow the instructions and include a copy of your original invoice and ensure your complete contact information, including your phone number and shipping address are included within the shipment.

Please note that you will be responsible for covering all costs associated with return shipping and handling, as well as any associated claims that may arise during the return process.

WHAT ARE YOUR REMEDIES UNDER THIS WARRANTY?

Regarding any defective product within the initial eight years of the Warranty Period, we will exercise our sole discretion to either: (a) provide free repair or replacement of the product (or the defective part), or (b) offer a full refund of the purchase price.

For any defective product during the final three years of the Warranty Period, we will exercise our sole discretion to either: (a) provide free repair or replacement of the product (or the defective part), or (b) offer a new product discount of thirty percent (30%) based on the price listed at the time your Return Merchandise Authorization (RMA) is issued if you choose to replace the irreparable product. You will have a period of thirty (30) days from the date of notification regarding the irreparable status of the product to utilize your discount and purchase a replacement. We will cover the costs of shipping and handling for returning the repaired product to you. However, if the product is deemed irreparable and replaced at a discount, you will be responsible for customary shipping charges.

LIMITATION OF LIABILITY

The remedies stated earlier are the sole and exclusive remedies available to you, and they represent our entire liability for any breach of this limited warranty. Under no circumstances shall our liability exceed the actual amount you paid for the defective product. Furthermore, we shall not be held liable for any consequential, incidental, special, or punitive damages or losses, whether they are direct or indirect.

It is essential to note that some states may not allow the exclusion or limitation of incidental or consequential damages, and as such, the above limitation or exclusion may not apply to you.

DISCLAIMER

Our products at Big Beard Battery are designed to comply with most regulations and codes. However, it is essential that you verify whether our equipment aligns with your state or local laws before making a purchase. We strongly advise reviewing these regulations to ensure full compliance.

Please be aware that any return shipping costs or expenses incurred as a result of local regulations are the sole responsibility of the customer. Big Beard Battery will not be held liable for any such costs.

By purchasing our products, you acknowledge and agree to adhere to the relevant laws and regulations in your area. It is your responsibility to ensure that the use of our products complies with all applicable laws. If you have any questions or concerns regarding compliance, please reach out to our customer service department for assistance.

CONTACT

Feel free to email us if you have additional questions about our warranty. sales@bigbeardbattery.com

