

BATTLE BORN®

Unstoppable Power Solutions

Product Manual and Installation Guide

Legacy Version

For HUB Models 0.0–0.9 and Battle Born Mobile App 0.0–1.9

Model: HUB



For Technical Support, please contact: 855.292.2831 | info@battlebornbatteries.com

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Product Name and Model

- HUB

Certifications

CE

Manufacturer Contact Information – Dragonfly Energy

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Customer Support – Battle Born

855.292.2831 | info@battlebornbatteries.com | Battlebornbatteries.com

Information About Your System

As soon as you open your product, record the following information and be sure to keep your proof of purchase.

Serial Number: _____

Purchased From: _____

Purchase Date: _____

Welcome to the Battle Born Family!

Thank you for selecting Battle Born Batteries® for your lithium power needs. We appreciate your confidence in our products and are committed to delivering advanced battery systems that meet your energy needs with reliability and performance.

This manual is designed to provide you with essential information for the installation, operation, and maintenance of your battery system. Whether you are a returning customer or using our products for the first time, this guide serves as a valuable resource to help you get the most from your investment.

If you have any questions or require further assistance, please don't hesitate to contact our technical support team.

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For additional information and the latest technical literature, please refer to our website: battlebornbatteries.com



Product Overview

Expands the Capabilities of Your Battle Born Smart Lithium Power System

The Battle Born Hub commissions all smart battery packs into a single system for both full system and single battery interpretation, monitoring, and diagnostics (patent pending). Please note, the Hub is only compatible with Battle Born Smart LiFePO4 Deep Cycle Battery models, which are equipped with Dragonfly Intelligence® smart communication technology. Look for the  icon on your battery to confirm compatibility.



Features

- Connects All Smart Batteries in System
- Receives Wireless Signal from Smart Batteries
- Increases Accessibility to Advanced Communication Features
- Enables Full Power System Monitoring
- Powerful Intermediary Tool for Accessories

Dragonfly Intelligence® Smart Communication Technology

Dragonfly Intelligence® is the proprietary communication technology inside Battle Born Smart LiFePO4 Batteries and Smart Power System Accessories.

- Robust Wireless Mesh Network & Bluetooth® Connectivity
- Quick Setup & Easy Configuration via the Battle Born® Mobile App
- Hub Enables Remote Monitoring of Entire Smart Power System
- Alerts, Error Detection & Warning Notifications



Battle Born® Mobile App
Available for iOS and Android.



HUB Technical Specifications

Device Specifications

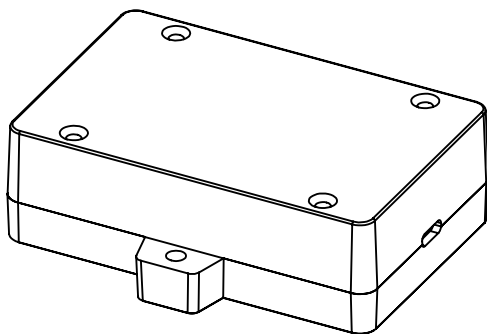
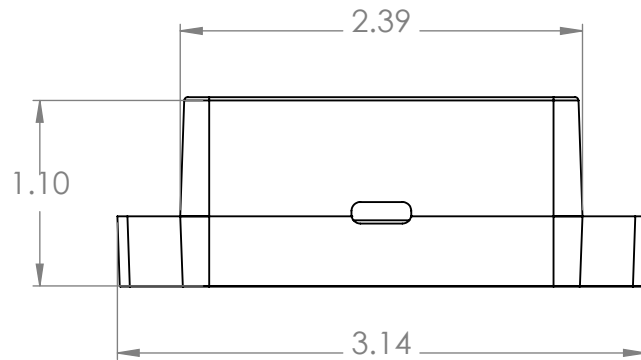
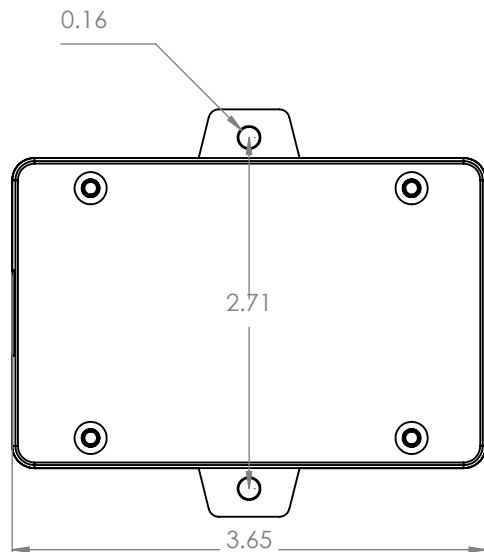
Dimensions	3.65" x 3.14" x 1.1" (w/ Mounting Points)
Weight	2.6 oz
Case	Polycarbonate / ABS Blend
Port	RJ45, USB-C
Power Draw (USB-C Port)	150mA
Power Draw (DC-DC Converter at 13.8V)	65mA
Power Draw (DC-DC Converter at 27.6V)	37mA
Bluetooth Range	~15m/50ft
Wireless Mesh Network Range (To Smart Battery)	Recommended – Within 3 ft
Data Transmission Frequency	5 sec
Communication Protocols	Bluetooth
Listings	CE



What is in the Box?

Included with Your Purchase:

- (1) HUB
Model: HUB
- (1) Finishing Hardware Kit
 - (2) '18-8 Stainless Steel' 5/16-18 x 1" bolts
 - (2) '18-8 Stainless Steel' 5/16-18 x 1 1/4" bolts
 - (4) Washers
 - (2) Nylok nuts





Dragonfly IntelliGence: Smart Battery Technology

Overview of Dragonfly Intelligence Technology



Dragonfly Intelligence® is the proprietary communication system that enables seamless integration and advanced features in Battle Born® Smart LiFePO4 Batteries and accessories.

Communication Range

Bluetooth | Hub → *Within 3 ft.* → User Mobile Device

The Battle Born Mobile App, when paired with the Battle Born Hub, offers seamless communication with your Battle Born Smart Batteries via Bluetooth. The app provides real-time monitoring of your battery system's performance, including charge levels, temperature, and health, with a comfortable Bluetooth range of up to **within 3 ft.**

Wireless Mesh Network | Batteries → *Within 3 ft.* → Hub

The Battle Born Mobile App, when paired with the Battle Born Hub, offers seamless communication with your Battle Born Smart Batteries via Bluetooth. The app provides real-time monitoring of your battery system's performance, including charge levels, temperature, and health, with a comfortable Bluetooth range of up to **within 3 ft.**

System Update Frequency

The Battle Born Smart Batteries provide data updates from the Battery Management System (BMS) every 5 seconds, delivering near-instantaneous insights into key performance metrics like state of charge (SOC), battery health (SOH), temperature, and voltage. This high-frequency data refresh rate ensures you have real-time visibility into your battery's status. Additionally, any issues reported by the BMS, such as over-temperature or overload conditions, are immediately relayed to the app, allowing for proactive monitoring and quick response to potential problems. This rapid data flow empowers you to keep your energy system running efficiently and reliably.

Power Draw

The Bluetooth Dongle integrated into your Battle Born Smart Batteries has a nominal power draw of approximately 10mA, ensuring minimal impact on your battery's overall performance. This low-energy consumption enables the Bluetooth connection to remain active for extended periods without significantly draining your battery, facilitating seamless real-time monitoring and communication. It's important to note that while there may be slight power draw increases during specific operations, such as initial configuration or firmware updates (peaking around 30mA and 50mA, respectively), these events are typically brief and have negligible impact on battery life. The power draw remains relatively consistent regardless of whether the battery is configured as a standalone unit or part of a larger system, with a maximum observed increase of approximately 0.5mA. **Make sure to account for this constant power draw when planning your battery storage to ensure optimal performance and longevity.**

Battle Born HUB

The Battle Born HUB is equipped with Dragonfly Intelligence technology and allows users to wirelessly receive signals from smart batteries, providing increased accessibility to new features and comprehensive system monitoring.



HUB Installation Guide

- A HUB is a necessary component for any Battle Born Smart Battery system that includes two or more batteries. It enables configuration, monitoring, and optimal performance of the entire battery bank system.
- To power the HUB, connect the included HUB Power Cable (12V/24V to 5V DC-DC Converter) directly to a true 12V or 24V power source.
- The network output protocol includes Bluetooth.

Location

1. When installing the HUB, you have flexibility in its placement, as it can be located up to 15 meters away from your battery bank.

Connect the 5V Power Cable to the HUB:

2. Take the 5V side of the included HUB Power Cable.
3. Insert the 5V connector into the designated power input port on the HUB. Ensure it is securely plugged in, making sure the connection is firm and there is no loose contact.

Connect the 12V/24V Power Cable to the Power Source:

4. Now, take the 12V/24V side of the included HUB Power Cable.
5. Plug the 12V/24V connector into a reliable, true 12V or 24V power source. This could be your vehicle's electrical system, a dedicated 12V/24V battery, or another 12V/24V power supply.
6. Ensure that the power source is stable and capable of providing the correct voltage for the HUB to function properly. Make sure the 12V/24V connection is secure and properly insulated to avoid any short circuits.

Configuring Your System

7. On the home screen, select "Configure".
 - a. Alternatively, choose "Add a New System" at the bottom of the "My Systems" page.

Scanning Your HUB

8. Select Multi-Battery System, then scan the QR Code on your HUB
 - i. For the most seamless pairing, we recommend using the View Discoverable Devices feature. Simply select "Multi-Battery System" and choose your HUB from the list of available devices. Ensure your device is within Bluetooth range.
 - ii. If you prefer to use the QR code, you can scan the code on your HUB.

Identifying Your Smart Battery

To connect your Battle Born Smart Battery to the app, you'll need to commission it through the HUB. There are a couple ways you can identify the batteries before adding them into your system.

1. **Search Discoverable Devices:** Use the app to search for discoverable devices by serial number.
2. **Scan the QR Code:** If needed, locate the QR code etched onto the battery or the additional sticker in the box and scan it.

You can find the serial number below the QR code on the battery.

Battle Born Mobile App

The Battle Born Mobile app is an intuitive, user-friendly tool designed to monitor and manage your Battle Born Smart Batteries from the palm of your hand. Whether you're powering an off-grid cabin, an RV, or critical equipment in the field, this app gives you real-time insight into your battery system's performance. With the app, you can easily track important metrics like battery state of charge (SOC), voltage, and temperature—ensuring your batteries are operating at peak efficiency. The app provides push notifications and alerts for any potential issues, such as abnormal temperature spikes or low charge levels, so you can take proactive action to protect your investment. Seamlessly integrate the app with your Battle Born Smart Batteries for complete control over your energy storage system—whether you're at home, on the road, or in remote locations.



Battle Born® Mobile App

Available for iOS and Android.



System Connectivity and Configuration

Commissioned and Connected:

- When your system is commissioned and you're actively connected to the HUB via Bluetooth, your system is exclusively accessible to you.
- Other users cannot see or connect to your HUB

Not Connected:

- If you're not actively connected to the HUB, other users within Bluetooth range may be able to see and potentially connect to it.

HUB Internal Storage and Memory:

- The system configuration is stored internally within the HUB.
- A HUB can only store a single system configuration at a time.

Smart Battery Setup Guide (Single Battery System)

Note: HUB is compatible with but not required for a Single Battery System.

When first configuring your system, a step by step video tutorial will prompt within the app.



Account Setup

1. Go to "My Account" to create a new account or log in to an existing one.

Configuring Your System

2. On the home screen, select "Configure".
 - a. Alternatively, choose "Add a New System" at the bottom of the "My Systems" page.

Scanning Your Battery

3. Select Single Battery System then scan the QR Code on your battery
 - a. If you have any issues scanning the QR code, you can select "View Discoverable Devices" and select your battery from the list. You must be in the bluetooth range of the device in order for it to appear on this screen.

Battery Naming

4. Before continuing, you have the option to edit the name of your battery by selecting "Edit Name"
5. Once finished, select "Continue".

Configuration

6. Select "Complete System Setup". This may take a few minutes.
7. Upon System Setup completion, you can then name your system.

Conclusion

8. Your System is now successfully configured. You can access and monitor it via the "My Systems" page.

Smart Battery Setup Guide (Multi-Battery System)

Note: HUB is required for all Multi Battery Systems.

When first configuring your system, a step by step video tutorial will prompt within the app.



Account Setup

1. Go to "My Account" to create a new account or log in to an existing one.

Configuring Your System

2. On the home screen, select "Configure".
 - a. Alternatively, choose "Add a New System" at the bottom of the "My Systems" page.

Scanning the Hub

3. Select Multi-Battery System then, scan the QR Code of the system's Dragonfly Intelligence HUB
 - i. If you have any issues scanning the QR code, you can select "View Discoverable Devices" and select your hub from the list. You must be in the bluetooth range of the device in order for it to appear on this screen.

System Specifications

4. Next, input the specifications of your system
 - i. Once finished, select "Continue".
 - a. System Voltage
 - b. The model of your batteries
 - c. And how many batteries you have in your system
 - d. A preview of your system will appear. Press "Continue"

Scanning Batteries

5. After completing this information, you'll need to scan each battery into your system. Please do this in the order in which they are or will be wired.
6. Scan the QR code of the first battery.
 - i. If unable to scan, use "View Discoverable Devices" to select the battery by serial number.
 - a. An optional QR code sticker is also included with your battery. You can keep this somewhere safe or adhere to somewhere more accessible for future use.
 - ii. Each battery will appear in a list below the scanning box as it is scanned in.
7. Scan the remaining batteries into your system.

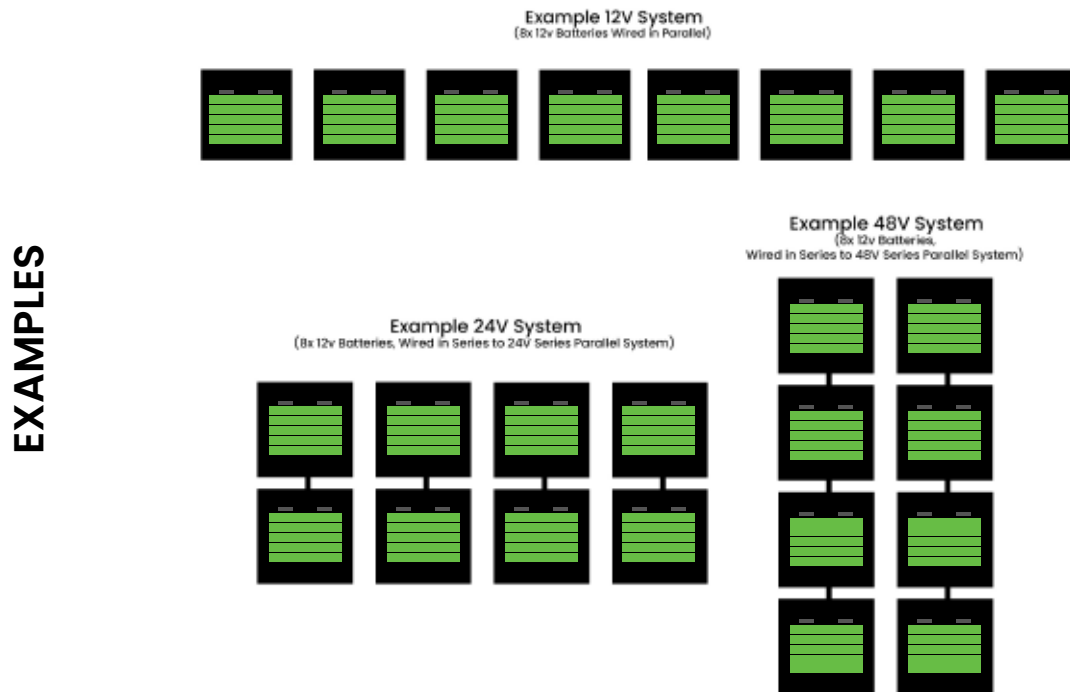
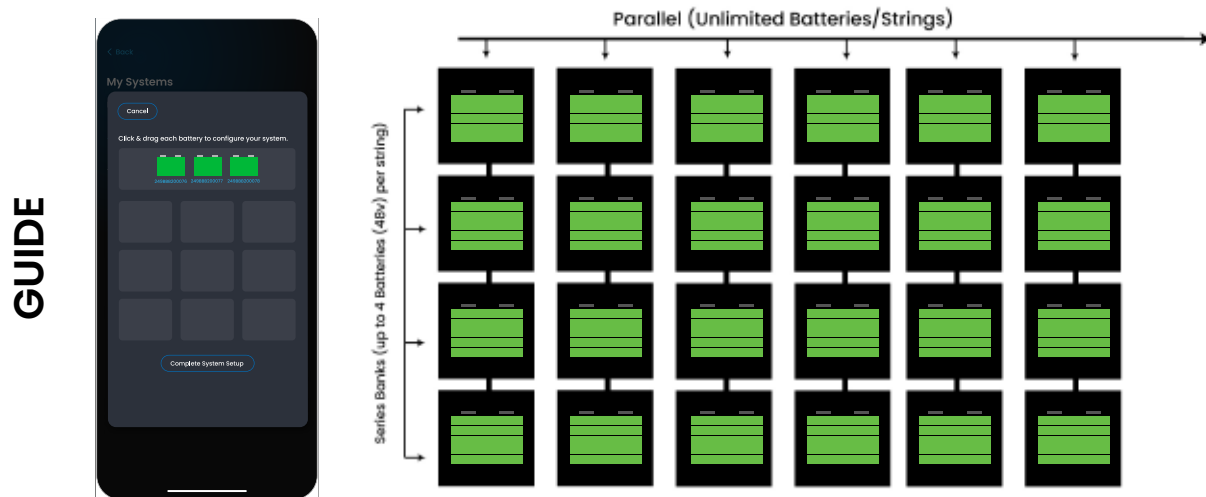
Battery Naming

8. Before continuing, you have the option to edit the name of each battery by selecting "Edit Name"
9. Once finished, select "Continue".

Configuration

- On the next page, drag and drop batteries into the system configuration, following the systems wiring order (especially important for series configurations).

Columns represent series groups, and each column is in parallel with all other columns.



- Select "Complete System Setup". This may take a few minutes.
- Upon System Setup completion, you can then name your system.

Conclusion

Battle Born Mobile App Overview

Status Legends

	No Errors or Warnings Present		No error or warning detected
	Warnings Present in System		Warning detected for this status item
	Errors Present in System		Error detected for this status item
			Battery status unknown due to a monitoring error



Systems Monitoring

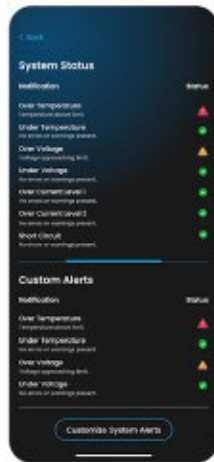
State of Charge	Percentage of remaining capacity for entire system
Remaining Amp Hours	Remaining capacity of system
Voltage	Real time system voltage
Current	Real time load on system
Temperature	Average temperature across the entire system



Battery Details

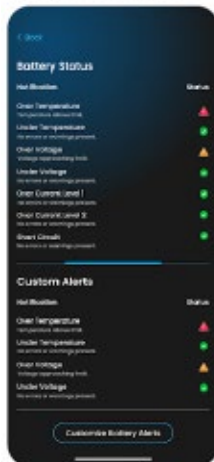
State of Charge	Percentage of remaining capacity for individual battery
Remaining Amp Hours	Remaining capacity of battery
Voltage	Real time battery voltage
Current	Real time load on individual battery
Temperature	Internal temperature of battery

Battle Born Mobile App Overview



System Status

Monitoring Status	Green - The entire system connected Red - Component(s) in the system are not being monitored
Battery Status	Green - There are no warnings or errors in the battery Orange - Warning in the battery Red - Errors or warning in the system or the battery is not being monitored because it is not connected to hub

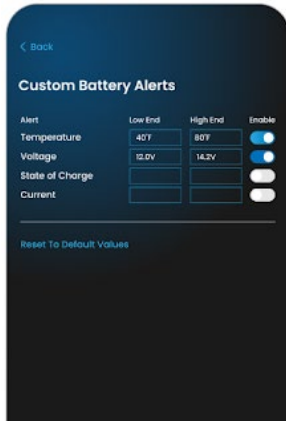


Battery Status

Monitoring Status	Green - Battery data is coming in as normal Red - Not getting data from the batter
Over Temperature	Green - battery in normal temperature range Red - BMS has detected the battery is over the temperature limit for the current state of the battery (charging/discharging/rest)
Under Temperature	Green - battery in normal temperature range Red - BMS has detected the battery is under the temperature limit for the current state of the battery (charging/discharging/rest)
Over Voltage	Green - battery in normal voltage range Red - BMS has detected the battery is over the voltage limit for the current state of the battery (charging/discharging/rest)
Under Voltage	Green - battery in normal voltage range Red - BMS has detected the battery is under the voltage limit for the current state of the battery (charging/discharging/rest)
Over Current Level 1	Green - battery in normal load range Red - BMS has detected the battery is over the load limit for continuous load longer than 30 seconds.
Over Current Level 2	Green - battery in normal load range Red - BMS has detected the battery is over the load limit.
Short Circuit	Green - battery in normal operation Red - BMS has detected the battery has short circuited

Setting Custom Alerts in the Mobile App

Within the app, you can set up custom alerts to receive notifications in the event of any issues with your battery system. These alerts help you stay informed about the health and performance of your system, ensuring you can take action promptly if something goes wrong. To configure this feature, follow the steps outlined below:



1. Open the App

- Launch the app on your device and log in to your account if necessary.

2. Navigate to My Systems > System Status

- From the homepage, go to "My Systems" and select your system. This will take you to the System Monitoring Page.
- Click on "System Status" to view an overview of your system's status.

3. Prepare for the Update

- At the bottom of the System Status page, click on "Customize System Alerts."

4. Choose the Alerts You Wish to Customize

- Select the types of issues you'd like to be alerted about, such as low battery voltage, state of charge, temperature fluctuations, or current.

5. Set Alert Thresholds

- For each alert type, set the specific thresholds that will trigger notifications, both for high and low limits. For example, you can set alerts for when battery voltage drops below a certain level or when temperature exceeds a safe range

6. Save and Activate the Alerts

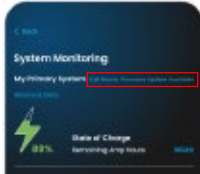
- Once you've configured your alerts, click the "Enable" button to activate them. The app will then monitor your battery system according to your settings and send push notifications if any of the conditions are met.

By setting up these custom alerts, you ensure proactive monitoring of your battery system, helping to prevent potential issues and maintain optimal performance.

Firmware Updates

Firmware updates are crucial for maintaining your battery system's performance, security, and functionality. They introduce new features, improve system performance, fix bugs, and ensure compatibility with other components. Keeping your firmware up to date ensures you benefit from the latest enhancements and configuration options.

Follow these steps to update your system's firmware:



1. Check for Available Updates

- Open the app and navigate to “My System.” If an update is available, you’ll see a notification saying “Firmware Update Available.”



2. Review Update Details

- If an update is available, review the details, which may include new features, bug fixes, or optimizations. If you’re comfortable with the changes, click “Yes” to begin the update process.

3. Prepare for the Update

- Ensure your battery system is properly connected and the power source is stable. It's best to perform the update when the system is not in use to avoid interruptions. Also, make sure your device (phone or tablet) has sufficient battery or is plugged in.

4. Initiate the Update

- Click the “Pair All” button on your screen. The system will begin downloading the necessary files and start the update process. This may take a few minutes, depending on the update size.



5. Set Alert Thresholds

- For each alert type, set the specific thresholds that will trigger notifications, both for high and low limits. For example, you can set alerts for when battery voltage drops below a certain level or when temperature exceeds a safe range.

6. Confirm the Update

- Once the update is complete, return to the “My System” page. If the update was successful, you’ll see “Firmware Up to Date” in the top right corner of your screen.

Best Practices: What to Avoid

- **Do NOT** walk away from your smart batteries or components with the mobile device performing or configuring the updates while they are in progress.
- **Do NOT** attempt to configure the same system across multiple accounts or use the same components in multiple configurations.

Troubleshooting

Issues Connecting to Components

- Ensure you are physically close to the components.
- Verify that the components are powered on and Bluetooth is enabled.
- Restart your bluetooth connection.
- Restart your mobile device.

Issues Monitoring After Configuration

- Allow at least 2 minutes for the HUB to fully connect to the batteries after configuration.
- Ensure the HUB is within a reasonable distance of the batteries and free from interference.
- If the issue persists, try the following steps in order:
 - Power cycle the HUB.
 - Close and reopen the app.
 - View the system in monitoring mode and wait 30 seconds for a potential firmware update. If available, proceed with the update.
- If the issue STILL persists, delete the system and reconfigure it.
- If the problem continues, contact support for further assistance.

Issues During Configuration

- Ensure you are within a reasonable distance of all components.
- Close and reopen the app.

Issues Signing In:

- Contact support for assistance with account recovery.



Warranty, Returns & Shipping

Limited Warranty

Please find Limited Warranty information online at www.battlebornbatteries.com/limited-warranty/ or via phone at (855) 292-2831.

Return Policy

You have 30 calendar days to return an item from the invoice date. To be eligible for a return, your item must be in the same condition that you received it in. You must have the receipt or proof of purchase. If an item is new, unused, and in the original packaging, we are happy to accept a return up to 30 days from the original invoice date with no restocking fee. The item must be returned with its original packaging. Original packaging must be in the same condition as it was received, otherwise you may be responsible for a restocking fee. If the item has been installed, used, or no longer has the original packaging, we will assess a restocking fee that will be shared when the return merchandise authorization (RMA) is issued. Items 60 days past the original invoice will be reviewed at Battle Born's discretion.

Returns will not be accepted without an RMA number, which can be obtained by filling out the return form at <https://battlebornbatteries.com/returns/>.

To avoid being charged restocking fees, review the full return/refund policy at www.battlebornbatteries.com/terms-conditions/#returns.

Refund Policy

You have 30 calendar days to return an item from the invoice date. Once we receive your item, we will inspect it and notify you that we have received your returned item. We will immediately notify you of the status of your refund after inspecting the item. If your return is approved, we will initiate a refund to your credit card (or original method of payment). You will receive the credit within a certain amount of days, depending on your card issuer's policies. No refund is guaranteed after the initial 30 days has passed or if the item has been used.

Shipping

You will be responsible for paying for your own shipping costs for returning your item. If you are returning prior to 30 days from the original ship date, you may be eligible for a free return. In order to be eligible for free shipping, you MUST have the original packing in which the order was shipped, including boxes, foam, wrapping, and pallets if necessary. Not all items will be eligible for free return shipping. Shipping costs are nonrefundable. If you receive a refund, the cost of return shipping may be deducted from your refund.

If you have any questions, please contact us by calling 855-292-2831 or email us at info@battlebornbatteries.com.

BATTLE BORN®

Unstoppable Power Solutions

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