

EPÖCH

BATTERIES

PRODUCT MANUAL

LI-ION BATTERY SYSTEMS



Website: <https://www.epochbatteries.com>

Email: support@epochbatteries.com

Phone: +1 888 501 1846

Updated: 11/30/22

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THANK YOU

ON BEHALF OF OUR TEAM

Dear Valued Customer,

Thank you for choosing Epoch Batteries. We greatly appreciate your support. Our team works diligently behind the scenes to create advanced battery systems and provide top-notch service to our customers. Support and feedback from our customers along with the dedication of our staff allow us to deliver exceptional products, competitive prices, and an overall excellent experience. Thanks again for giving us your vote of confidence. We hope that you'll enjoy using our products as much as we've enjoyed creating them. Please feel free to reach out to us anytime.

Sincerely,



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PRODUCT REGISTRATION

WARRANTY INFORMATION

We offer warranty coverage for all of our battery systems. To ensure full coverage, please visit <https://www.epochbatteries.com/pages/product-registration> and register your product within 60 days of purchase to activate the warranty.

Battery Model:

Serial Number:

Purchase Date:

Vendor:

The Warranty section on page 16 contains important information regarding coverage.

Additional warranty information can be found on our website by visiting:

<https://www.epochbatteries.com/pages/11-year-warranty>

TABLE OF CONTENTS

- Battery Safety 5
- Product Overview
 - Battery System 6
 - Epoch Batteries app 7
- Installation 8
- Configuration
 - Series Configuration 9
 - Parallel configuration 10
- Operation 11
- Technical Data
 - Part I 12
 - Part II 13
- Frequently Asked Questions 14
- Troubleshooting 15
- Warranty 16

For additional information and the most up-to-date literature, please visit our website:

- <https://www.epochbatteries.com>

BATTERY SAFETY

PRECAUTIONS

WARNING

Failure to follow these safety guidelines can result in property damage, personal injury, or worse. Please read the following material carefully before installation or use:

- Do **NOT** use if the battery, cables, connections, or charger are damaged.
 - *If damaged upon arrival, please contact vendor for product support.*
- Do **NOT** place metal objects near battery terminals or connections.
- Do **NOT** operate battery near explosive or flammable materials.
- Do **NOT** attempt to disassemble or modify the battery.
- Do **NOT** leave batteries charging while unattended.
- Do **NOT** overcharge or over-discharge the battery.
- Do **NOT** charge the battery in freezing conditions.

DISCLAIMERS

1. Buyer is responsible for any damages resulting from the misuse of our products.
2. Mishandling and/or misuse of our products will void the warranty.

DISPOSAL

- This product contains lithium-ion batteries and other recyclable materials.
 - We strongly encourage our customers to recycle unused / retired batteries. Please feel free to contact us for information regarding how to do so.
- Ensure that unused / retired batteries are disposed of properly, in accordance with the laws and regulations in your area.

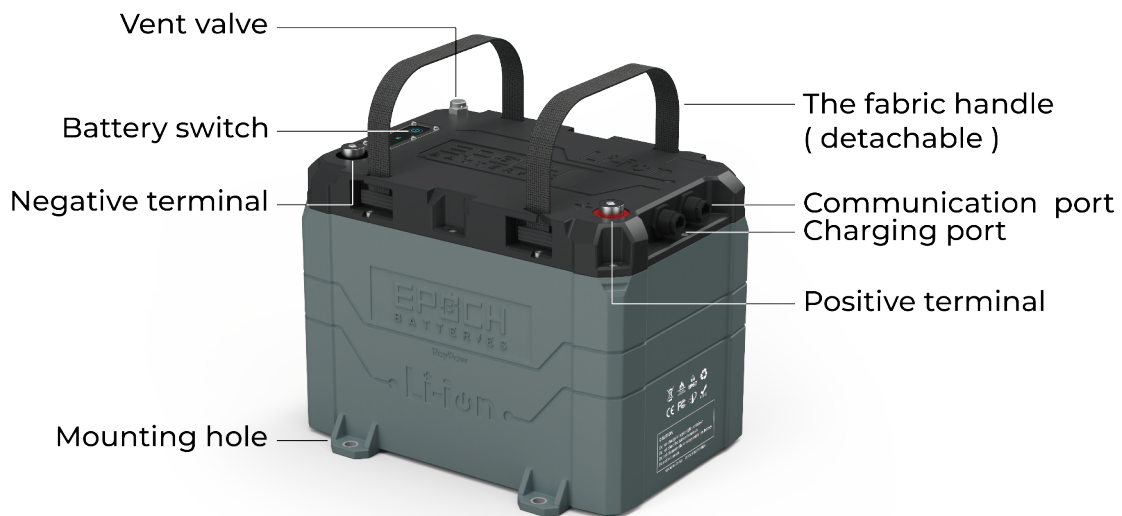
PRODUCT OVERVIEW

BATTERY SYSTEM

KEY FEATURES

- Lithium Iron Phosphate (LiFePO₄) Chemistry.
 - Maximum stability & consistent performance.
- Advanced battery management system.
 - Equipped with safety features and protections.
- Bluetooth connectivity.
 - Connect and monitor battery information via the Epoch Batteries app.
- Built for extreme conditions.
 - IP67 Rated, Grade V-0 Fireproof, and corrosion resistant.
- Internal heating function.
 - Built to withstand harsh cold environments.
- Zero required maintenance.
- Designed & engineered in the USA.

EXTERNAL FEATURES



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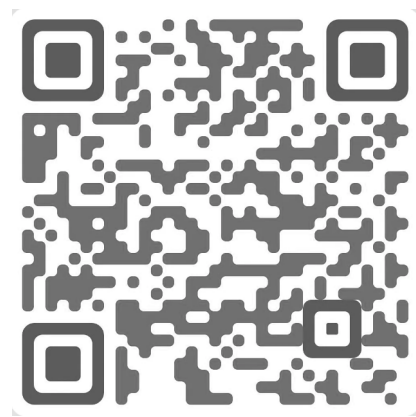
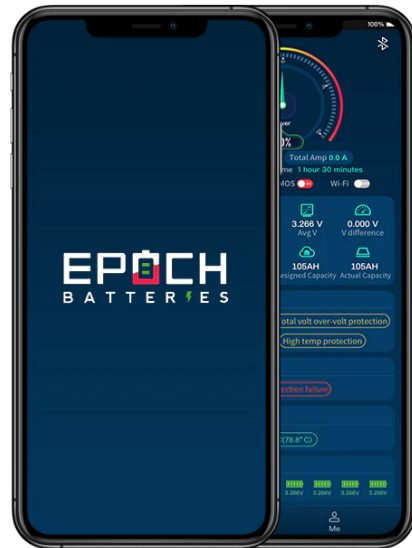
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PRODUCT OVERVIEW

EPOCH BATTERIES APP

KEY FEATURES

- Available as an ad-free download via App Store & Play Store
- Convenient access to battery system data, including:
 - Cycle Count
 - Current (Amperage)
 - State of Health (SoH)
 - State of Charge (SoC)
 - Temperatures (for each cell)
 - Voltage (minimum, maximum, and average)
 - Capacity (design capacity & actual capacity)
- Alerts for safety features and protections.
- Quick links to our website and contact information.
- Access to product literature (documentation, guides, manuals, etc.)



INSTALLATION

INSTRUCTIONS

Note: The following instructions are for single battery and accessory installation.

PREPARATION

- Ensure that all power and accessories are turned off and key is removed from ignition.
- It may also be helpful to take note / pictures of existing setup for reference.

DISCONNECTING EXISTING BATTERY

1. Locate the main 12V negative (-) and main 12V positive (+) connections.
 - (Optional) Take note/picture of accessory connections for reference.
2. Disconnect the main 12V negative (-) connection and negative (-) accessory connections.
3. Disconnect the main 12V positive (+) connection and positive (+) accessory connections.
4. Remove the old battery and prepare for storage or recycling.

CONNECTING NEW BATTERY

1. Place new battery in desired location.
 - (Optional) Secure the new battery in place with included mounting screws.
2. Ensure that the new battery is powered off.
3. Connect positive (+) accessory connections and main 12V positive (+) connection to the positive (+) terminal of the new battery.
 - Note: If using an Epoch Batteries charger, connect the positive (+) lead to the positive (+) terminal as well.
4. Connect negative (-) accessory connections and main 12V negative (-) connection to the negative (-) terminal of the new battery.
 - Note: If using an Epoch Batteries charger, connect the negative (-) lead to the negative (-) terminal as well.
5. Connect the included battery meter and route to desired location.

That concludes the installation process. You can now proceed to Operation (page 11).

CONFIGURATION

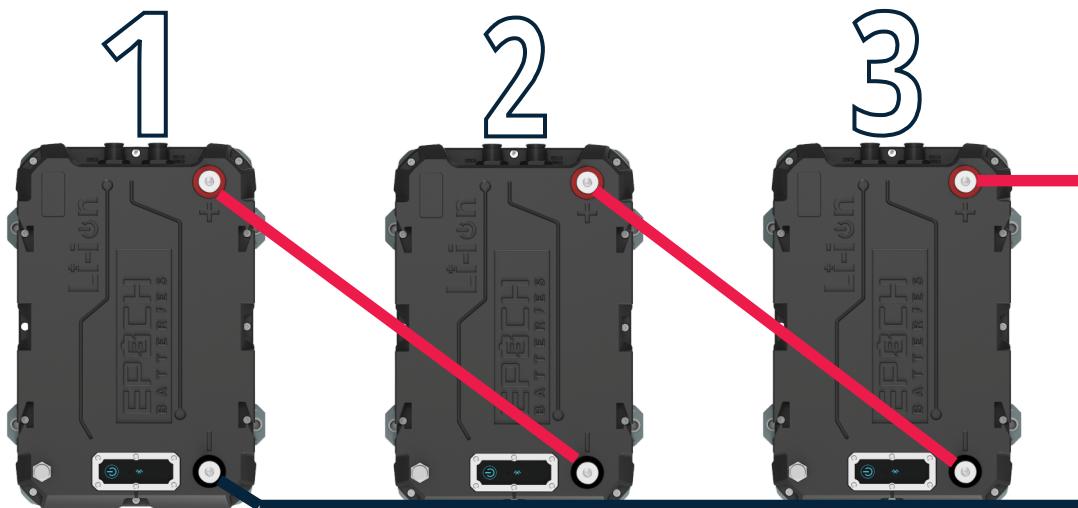
SERIES CONFIGURATION

WARNING

Improper configuration, installation, and/or usage can result in permanent damage to the batteries themselves, any electrical system they're connected to, or worse. Please ensure the batteries are properly installed in the configuration that best suits your needs.

Note: Series configurations are used to achieve higher overall system voltage. We'll demonstrate a 3S series configuration (using three 12V 100Ah batteries) for a 36V 100Ah system. Your setup may vary with additional accessories, the basic example below is for demonstration purposes only.

1. Ensure the batteries are powered off.
2. Mount the batteries in desired location.
3. Connect the positive (+) terminal of your first battery to the negative (-) terminal of your second.
4. Connect the positive (+) terminal of your second battery to the negative (-) terminal of your third.
5. Connect the main positive (+) load cable to the positive (+) terminal of the third battery.
6. Connect the main negative (-) load cable to the negative (-) terminal of the first battery.



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CONFIGURATION

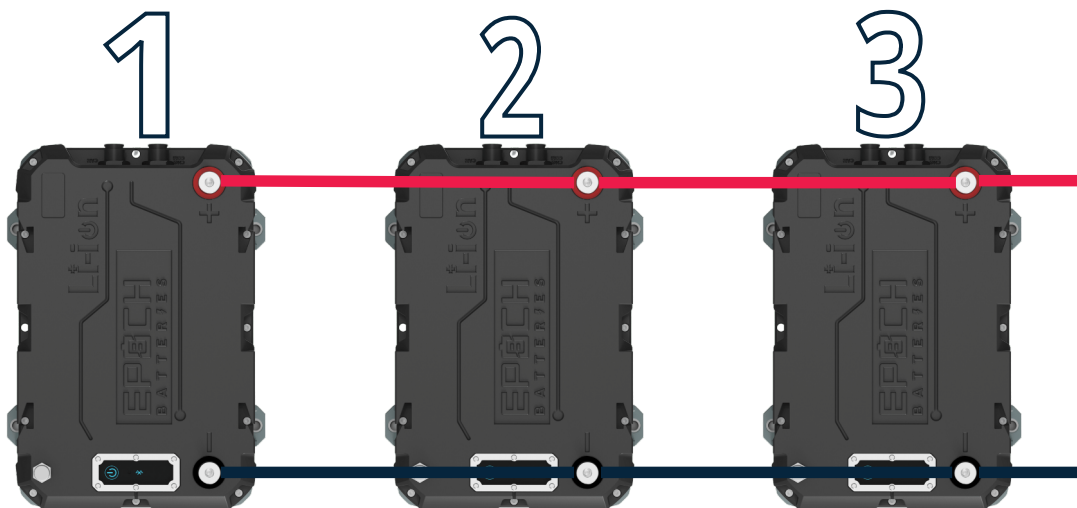
PARALLEL CONFIGURATION

WARNING

Improper configuration, installation, and/or usage can result in permanent damage to the batteries themselves, any electrical system they're connected to, or worse. Please ensure the batteries are properly installed in the configuration that best suits your needs.

Note: Parallel configurations are used to achieve higher overall system capacity. We'll demonstrate a 3P parallel configuration (using three 12V 100Ah batteries) for a 12V 300Ah system. Your setup may vary with additional accessories, the basic example below is for demonstration purposes only.

1. Ensure the batteries are powered off.
2. Mount the batteries in desired location.
3. Connect the positive (+) terminal of your first battery to the positive (+) terminal of your second.
4. Connect the positive (+) terminal of your second battery to the positive (+) terminal of your third.
5. Connect the negative (-) terminal of your first battery to the negative (-) terminal of your second.
6. Connect the negative (-) terminal of your second battery to the negative (-) terminal of your third.
7. Connect the main positive (+) load cable to the positive (+) terminal of the third battery.
8. Connect the main negative (-) load cable to the negative (-) terminal of the third battery.



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OPERATION

INSTRUCTIONS

CHARGING

Note: For best results, we recommend charging the battery before first use. The following instructions are for charging via Epoch Batteries charger. If using a third party charger: please ensure that the charger is compatible with Li-Ion/LiFePO4 chemistry and follow the installation instructions accordingly.

1. Ensure that the positive (+) and negative (-) charger leads are securely connected to their respective battery terminals.
2. Firmly connect the power cable to the charger's outlet plug.
3. Plug the connected power cable into an AC outlet.
 - You will notice a flashing LED indicating charge level.
 - **Red** = <80% Charge
 - **Yellow** = >80% Charge
 - **Green** = 100% Charge

Note: The included battery meter will also indicate remaining charge level in increments of 10%.

POWERING ON/OFF

- Press & hold the power button for a few seconds to turn the battery on. A blue LED will illuminate to indicate that the unit is fully powered.
- Press & hold the power button for a few seconds to turn the battery off. The blue LED will no longer be illuminated, indicating that the unit is powered off.

Note: The batteries are designed to be self-balancing. If the batteries are in the process of balancing, the BMS may prevent the unit from powering off in order to protect the cells. Please wait 10-15 minutes after disconnecting the battery from a charging source before powering the unit off.

CONNECTING TO EPOCH BATTERIES APP VIA BLUETOOTH:

- Download the Epoch Batteries app via App Store or Play Store.
- Power on the battery and open the Epoch Batteries app.
- Click the Bluetooth symbol in the top right corner of the app.
 - The app will then display all Bluetooth devices in range.
- Select your battery from the list of Bluetooth devices.
 - Information displayed within the app will be updated automatically.

TECHNICAL DATA

PART I

Model		B12100B	B1250B	B2450B
Technical Parameter	Nominal Voltage	12.8V	12.8V	25.6V
	Nominal Capacity	100Ah	50Ah	50Ah
	Stored Energy	1.28kWh	0.64kWh	1.28kWh
	Life Cycles	>3500 times	>3500 times	>3500 times
Charge Current	Continuous Charge	50A	50A	50A
Discharge Current	Continuous Discharge	120A	120A	120A
	Maximum Discharge	200(30S)	200(30S)	200(60S)
Environment Temperature	Charge	32°F~131°F (0°C~55°C)	32°F~131°F (0°C~55°C)	32°F~131°F (0°C~55°C)
	Discharge	-4°F~131°F (-20°C~55°C)	-4°F~131°F (-20°C~55°C)	-4°F~131°F (-20°C~55°C)
	Storage	-4°F~113°F (1 month) (-20°C~45°C) 32°F~95°F (1 year) (0°C~35°C)	-4°F~113°F (1 month) (-20°C~45°C) 32°F~95°F (1 year) (0°C~35°C)	-4°F~113°F (1 month) (-20°C~45°C) 32°F~95°F (1 year) (0°C~35°C)
General	Casing Material	ABS	ABS	ABS
	Weight	33.1 lbs (15kg)	22lbs (10 kg)	30.8 lbs (14kg)
	Dimension (L*W*H)	13.2*10.2*10.2" (335.8*260*260.5mm)		
	IP Rating	IP67	IP67	IP67

TECHNICAL DATA

PART II

Model		B24100B	B36100B	B3650B
Technical Parameter	Nominal Voltage	25.6V	38.4V	38.4V
	Nominal Capacity	100Ah	100Ah	50Ah
	Stored Energy	2.56kWh	3.84kWh	1.92kWh
	Life Cycles	>3500 times	>3500 times	>3500 times
Charge Current	Continuous Charge	50A	50A	50A
Discharge Current	Continuous Discharge	120A	120A	120A
	Maximum Discharge	200(60S)	200(60S)	200(60S)
Environment Temperature	Charge	32°F~131°F (0°C ~ 55°C)	32°F~131°F (0°C ~ 55°C)	32°F~131°F (0°C ~ 55°C)
	Discharge	-4°F~131°F (-20°C ~ 55°C)	-4°F~131°F (-20°C ~ 55°C)	-4°F~131°F (-20°C ~ 55°C)
	Storage	-4°F~113°F (1 month) (-20°C~45°C) 32°F~95°F (1 year) (0°C~35°C)	-4°F~113°F (1 month) (-20°C~45°C) 32°F~95°F (1 year) (0°C~35°C)	-4°F~113°F (1 month) (-20°C~45°C) 32°F~95°F (1 year) (0°C~35°C)
General	Casing Material	ABS	ABS	ABS
	Weight	48.5 lbs (22 kg)	74.8 lbs (34kg)	59.5 lbs (27kg)
	Dimension (L*W*H)	13.2*10.2*10.2" (335.8*260*260.5mm) 19.8*10.2*10.2" (503.8*260*260mm)		
	IP Rating	IP67	IP67	IP67

FREQUENTLY ASKED QUESTIONS

FROM OUR CUSTOMERS

- **Q:** How many batteries can be connected in a series configuration?
 - **A:** We've successfully tested up to a 4S series configuration.
 - **Note:** Internal heating feature may no longer function as intended.

- **Q:** How many batteries can be connected in a parallel configuration?
 - **A:** We've successfully tested up to a 4P configuration connected via **bus bar**.

- **Q:** Will the system notify when the battery level is low and needs charging?
 - **A:** Yes. Once remaining capacity reaches 10%, the included battery meter will sound an alarm and flash to indicate that the battery needs charging as soon as possible. We've also got an app update in development that will notify via push notification when remaining charge is low.

- **Q:** Does the app allow monitoring of series and parallel configurations?
 - **A:** The app is deigned for single battery usage. The app will see updates which may expand upon this capability in the future. We have a hardware solution in development which is designed to work around this limitation.

- **Q:** Does Epoch Batteries offer pro staff or sponsorship opportunities?
 - **A:** Occasionally. We consider applicants on a case by case basis. Send application / resume to: support@epochbatteries.com for consideration.

TROUBLESHOOTING

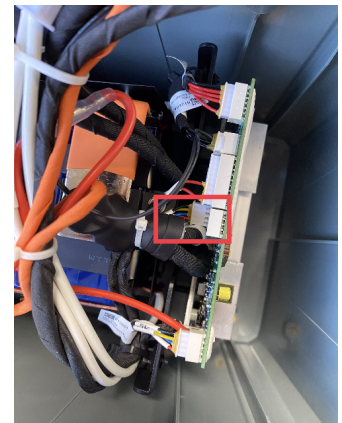
INFORMATION

Note: Our batteries are inspected and tested after production and before leaving our warehouse to ensure full functionality. Rough handling during transport however can occasionally result in a loose connection.

Following these troubleshooting instructions will not void your warranty.

Common Symptoms

- Connectivity issues.
- No LED power indication.
- Battery will not accept a charge.
- Temperature display on the Epoch Batteries app shows 120°C.

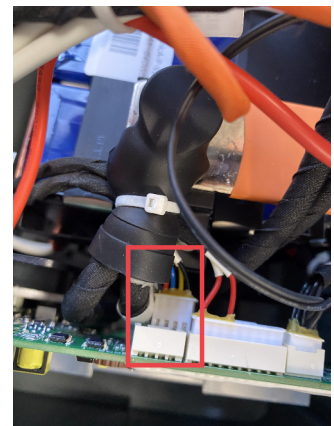


Diagnosis

- Ensure the battery is powered off.
- Using an Allen wrench, remove the 12 bolts securing the top of the battery to the body.
- Visually inspect the battery for loose connections.

Repair

- Ensure that the battery is powered off.
- Replace any loose connections.
- Realign the battery top to body.
- Re-secure 12 bolts with Allen wrench.



WARRANTY

INFORMATION

WARRANTY REPAIRS/REPLACEMENTS

Your battery is warranted for a total of eleven (11) years from the date of purchase against defective material or workmanship. We make no warranty other than this limited warranty and expressly exclude any implied warranty including any warranty for consequential damages. This limited warranty is not transferable.

Seller warrants this product, if used in accordance with all applicable instructions, to be free from original defects in material and workmanship within the warranty period. If the product has any failure within the warranty period, the seller will repair or replace the product at its sole discretion according to the failure.

LIMITED WARRANTY

WARRANTY MUST BE REGISTERED AT <https://www.epochbatteries.com/pages/product-registration> WITHIN 60 DAYS OF PURCHASE TO RECEIVE FULL WARRANTY COVERAGE. Any Epoch Batteries system not registered within 60 days from date of purchase shall be covered by the conditions of this warranty policy for a period of one (1) year from date of purchase. This warranty is extended to the original purchaser only and is non-transferable.

For months 1 – 36, if any malfunction due to defects in materials or workmanship, we will repair or replace the unit at our discretion after inspection.

For months 37 – 132, a pro-rated amount will be applied for the repair or replacement of your system. The warranty replacement value (item price on proof of purchase) will start from the date of purchase and subsequently decrease at a monthly rate of 0.76% until the end of year 11 is reached.

WARRANTY IS INVALIDATED BY THE FOLLOWING

- Extended storage without charging (batteries should be charged periodically to maintain cell health).
- Battery used for applications other than which it was designed and intended for.
- Unreasonable use, misuse, mishandling, overcharging or overloading.
- Damage caused by impact, accident, collision or drop
- Unauthorized modifications or repairs.
- Reverse polarity connections

This warranty is in lieu of all other warranties. Epoch will not be liable for consequential or incidental damages. For additional information, please visit: <https://www.epochbatteries.com/pages/11-year-warranty>