



USER MANUAL

Suitable for 12V Series LiFePO₄ Batteries



RECYCLING

- Risk of Fire, Explosion or Burns
- DO NOT short circuit
- DO NOT crush
- DO NOT Reverse connections from the charger to the battery
- DO NOT Disassemble without seller's guidance
- DO NOT Throw into fire or incinerate
- DO NOT Heat above 70°C/158°F
- DO NOT immerse the battery in water
- Use the appropriate tools when handling the battery
- When connecting batteries in series/parallel, do not use batteries from other brands/types (BMS may not be compatible)
- Keep the battery away from fire, hazardous materials, or substance

NOTICE BEFORE USING

Step1: TIGHTLY SCREW IN Post Bolts

please tightly screw in the post bolts, having loose battery terminals will cause the terminals to build up heat resulting in damage to the battery

Step2: TEST the battery voltage with Multimeter

If you have any question about the battery you received, you can contact us by message under order, we will reply you within 24 hours.

Step3: FULLY CHARGE the battery separately

Step4: Connect to use

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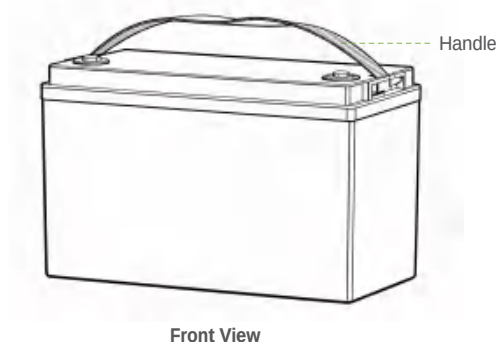
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PRODUCT OVERVIEW

FEATURES

- A** Lithium Iron Phosphate(LiFePO₄)chemistry provides exceptional stability and consistent performance
- B** Advanced Battery Management System(BMS) ensures product safety and long lifespan
- C** Supports fast charging and discharging
- D** Constant voltage and full usable capacity at any state of charge IP65 Rated (Dust and Water Resistant)
- E** Grade UL94V-0(Fireproof)

EXTERNAL FEATURES



* Taking a 12V100Ah battery as an example

BATTERY PARAMETERS

Model	Nominal Voltage	Nominal Capacity	Usable Capacity	Energy	Max.Continuous Current
LFP6-12	12.8V	6Ah	6Ah	76.8Wh	6A
LFP7-12	12.8V	7Ah	7Ah	89.6Wh	12A
LFP8-12	12.8V	8Ah	8Ah	102.4Wh	12A
LFP10-12	12.8V	10Ah	10Ah	128Wh	20A
LFP12-12	12.8V	12Ah	12Ah	175.2Wh	12A
LFP15-12	12.8V	15Ah	15Ah	192Wh	20A
LFP20-12	12.8V	20Ah	20Ah	256Wh	20A
LFP25-12	12.8V	25Ah	25Ah	320Wh	20A
LFP30-12	12.8V	30Ah	30Ah	384Wh	20A
LFP50-12	12.8V	50Ah	50Ah	640Wh	50A
LFP100-12	12.8V	100Ah	100Ah	1280Wh	100A
LFP200-12	12.8V	200Ah	200Ah	2560Wh	200A
LFP280-12	12.8V	280Ah	280Ah	3584Wh	200A
LFP300-12	12.8V	300Ah	300Ah	3840Wh	200A

Internal impedance	<20m Ω
Battery Pack Case	ABS
Protection Class	IP65
Charge Temperature Range	0°C to 45 °C/ 32°F to 113°F @60±25% Relative Humidity
DischargeTemperature Range	-20°C to 60°C/-4°F to 140°F @60±25% Relative Humidity
Storage Temperature Range	-10°C to 50°C/14°F to 122°F @60±25% Relative Humidity

THINGS TO KNOW BEFORE USING

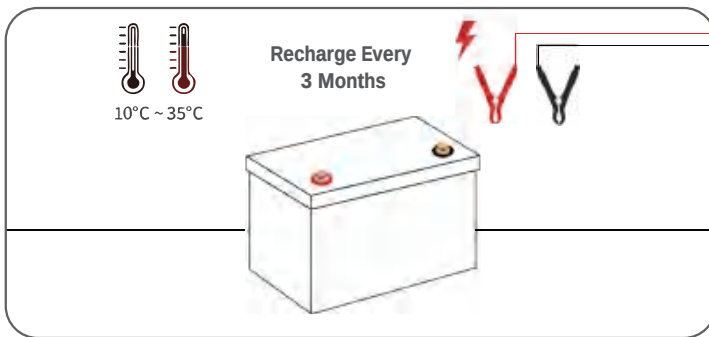
- A** Always put on the insulating covers on the post bolts to avoid metal or conductive objects touching the positive and negative terminals of the battery at the same time, otherwise it is likely to cause a short circuit.
- B** Install the battery upright with post bolt facing up, and it could not be mounted upside down. if you need to mount the battery at its side, please contact us to confirm the direction.
- C** Tightly screw in the post bolts. Loose battery terminals will cause heat buildup resulting in damage to the battery.
- D** Constant voltage and full usable capacity at any state of charge IP65 Rated (Dust and Water Resistant)
- E** Recommendations for Long-Term Storage

Temperature

The battery can be operated at a temperature of -20°C to 60°C/-4°F to 140°F, storage store in a fire proof container and keep away from children

Capacity

To maximize battery life during extended storage, we recommend storing the battery with a 50% charge. Please recharge it every three months if it remains inactive.

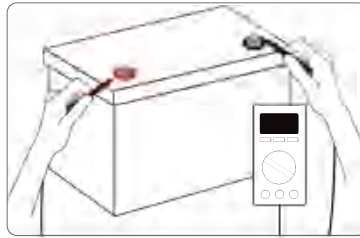


CHARGING METHODS

THE VOLTAGE WHEN CHARGING & DISCHARGING

Due to the characteristics of Lithium Iron Phosphate (LiFePO₄) batteries, the voltage measured during charging or discharging is not the true open-circuit voltage. After disconnecting from the power source, the battery voltage will relax and gradually return to its true, stable value.

if you need to test the real voltage of the battery please disconnect all the connections to the battery and test the voltage after putting it aside for over 30 mins.



Tips when Testing The Battery voltage by A Multimeter

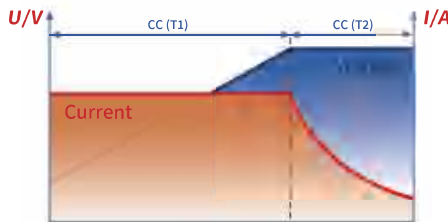
- 1.put the red probe(+)tightly on the positive terminal (not the post bolts) and the black probe(-)on the negative terminal.
2. not touch the metal part of the probes with your hands during use.

BATTERY CHARGING LOGIC

The material characteristics of the LiFePO₄ battery determine that its charging curve is obviously different from that of a lead-acid battery. Compared with a lead-acid battery, the LiFePO₄ battery has a simpler charging process and mode. Therefore, it is recommended to select LiFePO₄ for your charging mode.

If LiFePO₄ mode is not available, please refer to the recommended parameters on page 05 for setting.

LiFePO₄ Battery charging Mode



LiFePO₄ Battery Charging Curve

Cc(constant current)phase(T1)

In the beginning, a discharged battery will be charged with a constant current and voltage will be climbing steadily until reaching the constant voltage set point which varies for different charging methods.

Cv(constant voltage) phase(T2)

The battery maintains a constant voltage during this phase while the current gradually decreases to (0.02c) which is also known as tail current. At this point, the charging is cut off and the battery is fully charged.

Tail current(A)=Battery capacity×0.02c.(E.g: 100Ah×0.02c=2A tail current.)

CONTROLLER

Controller

Recommend charging current:**0.2C-0.5C**

0.2C	The battery will be fully charged in around 5 hrs to 100%
0.5C	The battery will be fully charged in around 2 hrs to around 97% capacity

Recommend charging Mode:12V(14.6V)Li(LiFePO4)for 12V LiFePO4 Battery

Recommend charging current: 0.2c to 0.5c

Controller settings

Refer to the below parameters if you need to manually set up your controller. As different types of batteries have different charging modes,it is recommended to set only the following parameters for LiFePO4 batteries, The settings for other types of batteries do not apply to LiFePO4 batteries except for the following settings

12V battery		
Charging	Charge/Bulk/Boost voltage	14.6V
	Absorption voltage	14.6V
	Over voltage Disconnect	14.8V
	over voltage Reconnect	14.2V
	Tail current	0.02C
Discharging	Under voltage warning	11.8V
	Under voltage Recover	12.6V
	Low voltage Disconnect	9.2V
	Low voltage Reconnect	10.8V

BATTERY CHARGER

Use lithium iron phosphate LiFePO4 battery charger to maximize the capacity.

Recommend charging voltage:14.6v for 12V LiFePO4 Battery

Recommend charging current:0.2 c to 0.5 c



ALTERNATOR/GENERATOR

LiFePO4 battery can be charged by an alternator or generator, and it needs to connect a Dc to Dc charger between the battery and the alternator or generator.

Recommend charging voltage:14.6v for12V LiFePO4 Battery

Recommend charging current:0.2c to 0.5c



BATTERY PERFORMANCE

Model	Product Parameter	
LFP6-12	Nominal Voltage	12.8V
	Nominal Capacity	6Ah@0.2C
	Nominal Energy	76.8Wh
	Charge Voltage	14.6V±0.2V
	Max. Charge Current	≤6A
	Max. Continuous Current	6A
	Max. Discharge Current	20A (3S)
LFP7-12	Nominal Voltage	12.8V
	Nominal Capacity	12Ah@0.2C
	Nominal Energy	89.6Wh
	Charge Voltage	14.6V±0.2V
	Max. Charge Current	≤6A
	Max. Continuous Current	12A
	Max. Discharge Current	20A (3S)
LFP8-12	Nominal Voltage	12.8V
	Nominal Capacity	8Ah@0.2C
	Nominal Energy	102.4Wh
	Charge Voltage	14.6V±0.2V
	Max. Charge Current	≤6A
	Max. Continuous Current	12A
	Max. Discharge Current	20A (3S)
LFP12-12	Nominal Voltage	12.8V
	Nominal Capacity	12Ah@0.2C
	Nominal Energy	175.2Wh
	Charge Voltage	14.6V±0.2V
	Max. Charge Current	≤10A
	Max. Continuous Current	12A
	Max. Discharge Current	20A (3S)

Model	Product Parameter	
LFP10-12 LFP10-12 MINI	Nominal Voltage	12.8V
	Nominal Capacity	10Ah@0.2C
	Nominal Energy	128Wh
	Charge Voltage	14.6V±0.2V
	Max. Charge Current	≤6A
	Max. Continuous Current	20A
	Max. Discharge Current	40A (3S)
LFP20-12	Nominal Voltage	12.8V
	Nominal Capacity	20Ah@0.2C
	Nominal Energy	256Wh
	Charge Voltage	14.6V±0.2V
	Max. Charge Current	≤12A
	Max. Continuous Current	20A
	Max. Discharge Current	80A (3S)
LFP15-12	Nominal Voltage	12.8V
	Nominal Capacity	15Ah@0.2C
	Nominal Energy	192Wh
	Charge Voltage	14.6V±0.2V
	Max. Charge Current	≤10A
	Max. Continuous Current	20A
	Max. Discharge Current	40A (3S)
LFP25-12	Nominal Voltage	12.8V
	Nominal Capacity	25Ah@0.2C
	Nominal Energy	300Wh
	Charge Voltage	14.6V±0.2V
	Max. Charge Current	≤20A
	Max. Continuous Current	40A
	Max. Discharge Current	80A (3S)

Model	Product Parameter	
LFP30-12	Nominal Voltage	12.8V
	Nominal Capacity	30Ah@0.2C
	Nominal Energy	384Wh
	Charge Voltage	14.6V±0.2V
	Max. Charge Current	≤20A
	Max. Continuous Current	40A
	Max. Discharge Current	80A (3S)
LFP50-12	Nominal Voltage	12.8V
	Nominal Capacity	50Ah@0.2C
	Nominal Energy	640Wh
	Charge Voltage	14.6V±0.2V
	Max. Charge Current	≤25A
	Max. Continuous Current	50A
	Max. Discharge Current	120A (3S)
LFP100-12 LFP100-12-G24 LFP100-12-MINI LFP100-12-Pro	Nominal Voltage	12.8V
	Nominal Capacity	100Ah@0.2C
	Nominal Energy	1280Wh
	Charge Voltage	14.6V±0.2V
	Max. Charge Current	≤50A
	Max. Continuous Current	100A
	Max. Discharge Current	200A (3S)
LFP200-12	Nominal Voltage	12.8V
	Nominal Capacity	200Ah@0.2C
	Nominal Energy	2560Wh
	Charge Voltage	14.6V±0.2V
	Max. Charge Current	≤100A
	Max. Continuous Current	200A
	Max. Discharge Current	600A (3S)

Model	Product Parameter	
LFP280-12	Nominal Voltage	12.8V
	Nominal Capacity	280Ah@0.2C
	Nominal Energy	3584Wh
	Charge Voltage	14.6V±0.2V
	Max. Charge Current	≤100A
	Max. Continuous Current	200A
	Max. Discharge Current	600A (3S)
LFP300-12	Nominal Voltage	12.8V
	Nominal Capacity	300Ah@0.2C
	Nominal Energy	3840Wh
	Charge Voltage	14.6V±0.2V
	Max. Charge Current	≤150A
	Max. Continuous Current	200A
	Max. Discharge Current	600A (5S)

SERIES/PARALLEL CONNECTION

THE PREMISE OF CONNECTION

To connect in series or/and parallel, batteries should meet the below charging/ discharging voltage. As there are subtle differences in the conditions:

- Identical batteries with the same battery capacity (Ah) and BMS (A);
- From the same brand (as lithium battery from different brands has their special BMS)
- Purchased in near time (within one month).

LIMITATION FOR SERIES/PARALLEL CONNECTION

12V LiFePO4 battery supports series connections of up to 4 identical units.

HOW TO CONNECT BATTERIES

Accessory Recommendation

- Cable Size Size cables appropriately, based on amperage and length of cable. Allow a margin of safety when sizing cables. Reduce length of run, to the extent possible. When connecting cables, always double check polarity is correct, before final connection.
- Total Input&output connection: Adding two copper bars except for the cables

Cable Size

Cable size should be selected based on the expected load.
Refer to the table below for the amperage of copper cables of different sizes

Cable Specification and Capacity (AWG/mm2)	Current Capacity (A)
14 (2.08)	20
12 (3.31)	25
10 (5.25)	35
8 (8.36)	50
6 (13.3)	65
4 (21.1)	85
2 (33.6)	115
1 (42.4)	130
1/0 (53.5)	150
2/0 (67.4)	175
4/0 (107)	230

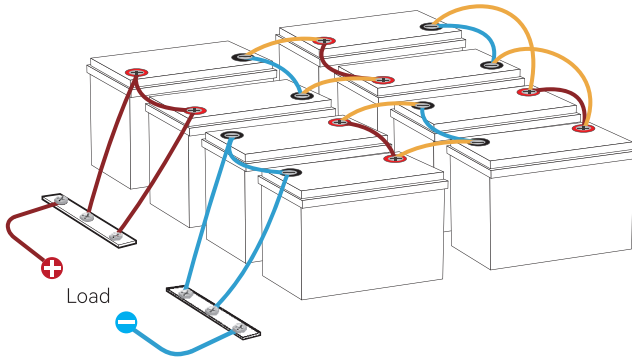
Connect Steps

- Step1: Wear Insulating Gloves
- Step2: Voltage Balancing Before connection
- Step3: Battery-to-battery connection
- Step4: Rebalancing Every 6 Months

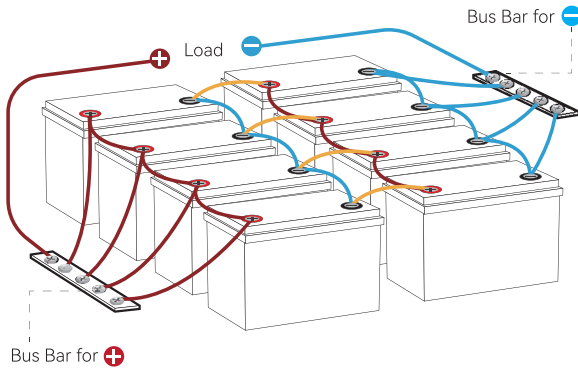
Wiring Diagrams (Taking a 12V100Ah battery as an example)

2P2S	Battery system	24V(25.6)200Ah
	Energy	5120Wh
	Max. continuous Discharge current	200A
	Max. continuous Load power	5120W

2P4S	Battery system	48V(51.2V)200Ah
	Energy	10240Wh
	Max. continuous Discharge current	200A
	Max. continuous Load power	10240W



4P2S	Battery system	24V(25.6V)400Ah
	Energy	10240Wh
	Max. continuous Discharge current	400A
	Max. continuous Load power	10240W



WIDE APPLICATION

Solar Energy

Storage Industrial Battery

Used to Replace Lead-acid Batteries

Home Energy storage & power Wall

Nautical Applications

Fishing, Boating Electronics

Lce Fishing

Recreational Vehicle

Off-grid Life

Deep circulation Application

Not Suitable For Starting Gasoline Engines

BLUETOOTH FUNCTION

- Search for “GreenOE ” in the App store or scan the QR code below, then install the app on your smart-phone.
- Open the app and enable Bluetooth and location services. Confirm that the app has obtained the Bluetooth permission.
- Navigate to the Bluetooth page. The system will automatically search for available Bluetooth devices. Select the battery's Bluetooth number for the list and click “Connect”. Or scan the QR code on the device to establish connection.
- Once the connection is complete, the battery's current information will be displayed on the Dashboard page.
- Support OTA remote upgrade (requires internet connection).
- Safety Precautions :
 - A Do not disassemble or modify the battery, damage to the Bluetooth module will void the warranty.
 - B Keep away from high temperature, humidity and flammable environment.
 - C If Bluetooth cannot be connected, please check:
 1. Whether the battery power is sufficient.
 2. Whether the Bluetooth of cell phone is on, whether the APP permission is allowed.
 3. Restart the battery or cell phone and retry.

Download GreenOE APP



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App Store

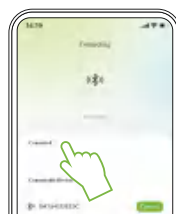


GET IT ON
Google Play

Step1: Scan the QR code above with your phone's camera to access our homepage. Scroll down to find the app download page. Then, Choose the correct download QR code for your phone's OS (iOS or Android).



Step2: Open the app, then find your device and connect to it. (The app will automatically search for nearby available devices.)

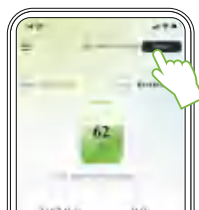


Step3: Access the main interface to view the battery information

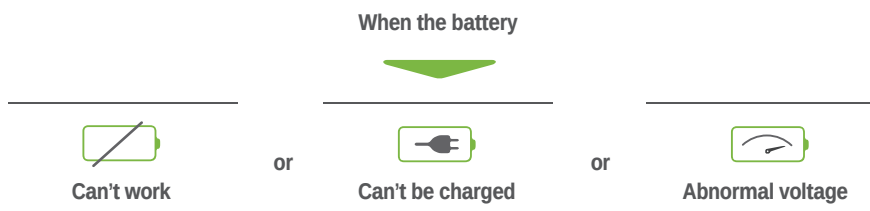


Step4: If you wish to change connected devices or disconnect:

1. Navigate to the Connections page.
2. Select your device to reconnect or disconnect.



WHAT TO DO WHEN THE BATTERY STOPS WORKING?



It has 85% chances that BMS has shut it off for protection, and you could try one of below ways to activate the battery.

GENERAL STEPS

- If the BMS has cut off the battery for protection, follow the below steps to activate it.

Step1: Cut off all the connections from the battery.

Step2: Leave the battery aside for 30 mins.

Then the battery will automatically recover itself to normal voltage and can be used after fully charged.

- If the battery is unable to recover itself after the above steps please try activating by one of below two METHODS

After activated and fully charged by the normal charging method, it can be used normally.

Method 1: Use a charger with a ovp charging function to fully charge the battery.

Method 2: Connect an solar pane directly to charge the battery without a controller for 10-30 mins on sunny day.

WARNING

• BATTERY DISPOSAL

The electrodes of the waste battery should be wrapped with insulating paper to prevent fire and explosion.

• DO NOT DISASSEMBLE

Disassembling the cell may cause an internal short circuit, resulting in gassing, fire, or explosion.

• ELECTROLYTE HAZARDS & FIRST AID

The electrolyte is harmful. If it comes into contact with skin or eyes, immediately flush thoroughly with plenty of clean water and seek medical attention without delay.

• DO NOT USE ABNORMAL CELLS

- Do not use cells that show any abnormal features, including damage to the plastic envelope, deformation, electrolyte odor, or leakage. Keep any cell that is leaking or has an electrolyte odor away from any source of fire to prevent ignition or explosion.

- **DO NOT DISPOSE OF BATTERIES IN WATER**

Do not immerse the battery in any liquid. This includes water, seawater, and beverages such as fruit juice, coffee, or other non-alcoholic drinks.

- **PROHIBITION OF USING IN BELOW PLACES**

DO not use the battery in a place with strong static electricity and a strong magnetic field, otherwise, it is easy to damage the battery safety protection device and pose hidden danger.

FCC

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- A Reorient or relocate the receiving antenna.
- B Increase the separation between the equipment and receiver.
- C Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- D Consult the dealer or an experienced radio/TV technician for help.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator & your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

The logo for GreenOE, featuring a stylized white 'G' followed by the text 'reenOE' in a sans-serif font. The background is a solid green color with decorative patterns of white dots in the corners.

GreenOE

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