

User Manual

Lithium Iron Phosphate Battery

12.8V | 100Ah | 1280Wh



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Safety Instructions



Please follow the safety instructions for operation, the damage caused by not following the safety instructions shall be borne by the individual.

Please save these instructions

If you need to use the PDF version of the manual, you can contact us:
support@bougerv.com

General Safety Information

1. Read all of the instructions and cautions in the manual before installation.
2. There are no repairable parts for this battery, do not disassemble or attempt to repair the battery.
3. Please keep the battery away from water, heat sources, sparks, and hazardous chemicals.
4. Make sure all connections with the battery are tight.
5. Please read the product installation steps to ensure all connections are correct.
6. Please make sure to set the battery type parameter of your solar charge controller to lithium iron phosphate battery (LiFePO₄) when charging the battery.
7. Store at 75% capacity and recharge every 6 months.
8. Do not expose the battery to extreme temperatures over 113°F.
9. Do not disassemble, cause a short circuit, crush, mutilate, reverse polarity, or dispose of it in fire.
10. When connecting multiple batteries, make sure each battery is fully charged and do not connect different brands or capacities of batteries.

Battery Safety

1. DO NOT connect or disconnect the battery terminals without disconnecting the load.
2. Please wear proper protective equipment when working on the battery.
3. DO NOT wear jewelry or other metal objects when working on or around the battery.
4. Please use insulated tools when working on the battery.
5. Please keep the battery out of the reach of children.
6. Do not install or use the battery upside down.
7. Do not mix the battery with other batteries.
8. Do not use the battery in unsuitable environments, such as high temperature, high humidity, high altitude, etc.
9. Do not drop or collide the battery during use to prevent battery leakage or fire.
10. Do not use this battery as a power battery.

Operation Before Use

Step1.

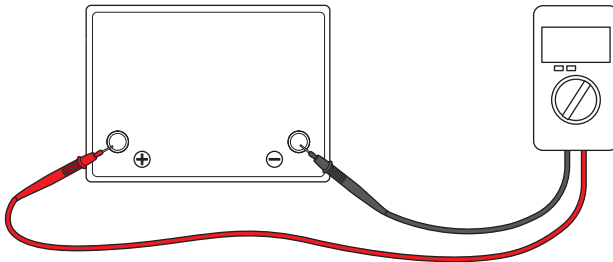
Open the outer box and inspect the appearance of the battery casing. If there is any damage, please contact **support@bougerv.com** to resolve the issue. If the appearance is normal, proceed to the second step.

Step2.

Measure the battery voltage with a multimeter.

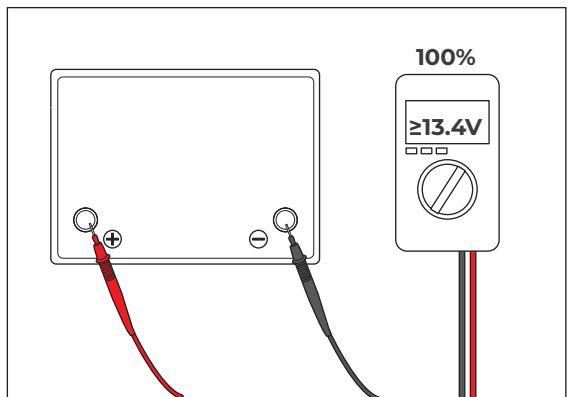
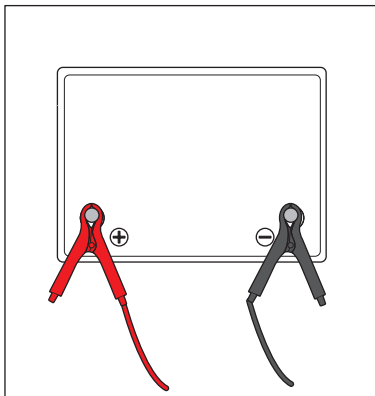
If it is $\geq 12V$, proceed to the step3.

If it is $< 12V$, please contact **support@bougerv.com** and provide the QR code on the back of the battery casing to resolve the issue.



Step3.

Charge the battery to full using the recommended charging voltage before use (battery voltage $\geq 13.4V$).

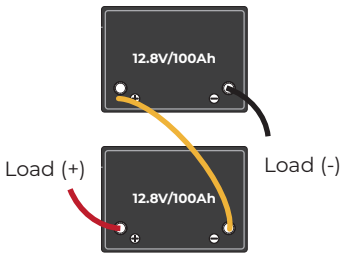


Battery Pack System Connection

Battery Series And Parallel Considerations

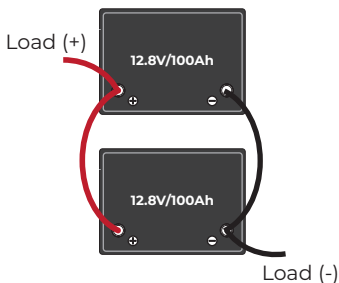
1. First make sure that each battery is fully charged.
2. When using, it is best to ensure that each battery is of the same brand and specification. If you need to use different batteries for connection, please contact us (✉ support@bougerv.com) in advance, and our technical team will confirm whether different batteries can be connected together.
3. After connecting the batteries in parallel, you need to wait at least 12-24 hours before charging and discharging the batteries.

Battery Pack In Series



1. After the series connection is completed, the battery pack system becomes 24V/ 100Ah, and the series circuit can connect up to 4 batteries in series to reach a system voltage of 48V.

Battery Pack In Parallel

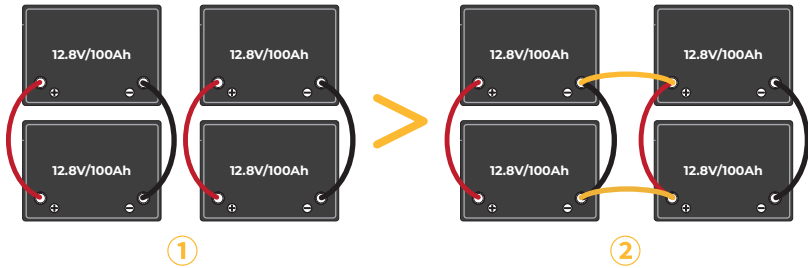


1. After the parallel connection is completed, the battery pack system becomes 12V/ 200Ah, and the parallel circuit can connect up to 4 batteries in parallel to reach a system current of 400Ah.

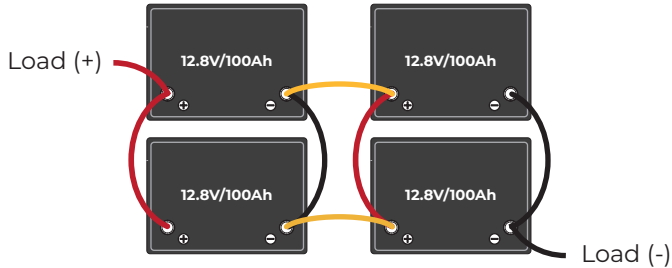
Note: After connecting the batteries in parallel, they must be left idle for 12-24 hours before charging or discharging.

Battery Pack In Series And Parallel

1. When connecting in series and parallel at the same time, ① the batteries should be connected in parallel first, and ② the battery packs that have been connected in parallel should be connected in series.



2. After completing the series and parallel connection, the battery pack system becomes 24V/ 200Ah.



Battery Pack Series And Parallel Daily Maintenance Operation

Using multiple batteries connected for more than 6 months can easily result in inconsistent capacity and voltage, which can reduce batteries performance and shorten its lifespan. It is recommended to perform a balance circuit operation every 6 months for the series and parallel battery pack system. After each battery is fully charged (battery voltage $\geq 13.4V$), let the battery sit for 12-24 hours before charging and discharging.

Battery Usage Tips

Unable To Start The Electrical Appliance (Inverter)

If the battery fails to power the device (inverter), the possible reasons

- are:
- ① **the battery is low on charge;**
 - ② **the battery is in overcurrent protection mode.**

Solution: Disconnect all connections from the battery, let it sit for 30 minutes, and then measure the battery voltage with a multimeter.

① If the voltage recovers to $\geq 10V$, restart the device (inverter). If the problem persists, it is likely that the BMS is in overcurrent protection mode. Please check if the discharge current of the device (inverter) exceeds the maximum discharge current of the BMS.

② If the battery voltage is $< 10V$, recharge the battery using the following steps:

Step 1: Charge the battery with an 18V-36V solar panel for 10-15 seconds on a sunny day.

Step 2: Charge the battery to full with a 0V charger.

Note: If the above operations fail to make the battery work normally, please contact us at **support@bougerv.com**.

Unable To Charge

If the battery fails to charge, the possible reasons are:

- ① **the battery is in overcharge protection mode;**
- ② **the internal circuit of the battery is disconnected.**

Solution: Discharge the battery for more than 30 seconds with a device that has a power output of 5W or higher, and then test if the battery can continue to charge. If the battery can be charged normally, it means that the battery is just in overcharge protection mode.

Note: If the above operations fail to make the battery work normally, please contact us: **support@bougerv.com**.

To help us diagnose the problem more quickly, please provide the following information: **Disconnect all connections from the battery, and measure the voltage at both ends of the battery with a multimeter.**

Battery Voltage And Capacity

- Due to its characteristics, the voltage of a lithium battery during the charging and discharging process is not the true voltage.
- During charging, the voltage of the lithium battery will be falsely high. After disconnecting all connections and letting it sit for 30 minutes, the voltage will drop.
- During discharging, the voltage of the lithium battery will be falsely low. After disconnecting all connections and letting it sit for 30 minutes, the voltage will rise.

The following data was obtained after disconnecting all charging connections and load connections, with no current passing through, and testing after 2 hours of rest.

SOC (%)	Voltage (V)
100%	13.4V
90%	13.3V
80%	13.25V
70%	13.2V
50%	13.15V
40%	13.1V
30%	13V
20%	12.9V
10%	12.8V
1%	10.8V
0%	10.4V

Battery Cable Specifications

The copper wire used to connect the battery must be selected according to the approved current to avoid voltage drop or overheating of the wire, which may cause damage.

PVC Copper Wire Size(AWG/mm²)	Current (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
3 (36.7)	100
2 (33.6)	115
1 (42.4)	130
1/0 (53.5)	150
2/0 (67.4)	175
3/0 (85)	200
4/0 (107)	230

Battery Specification

Item	Parameter
Model	BV12100
Nominal Voltage	12.8V
Nominal Capacity	100Ah
Energy	1280Wh
Charge Voltage	14.4~14.6V
Charge current:	
Standard charge	20A (0.2C, recommend charge current)
Maximum charge	100A (1C)
Maximum Continuous Charge Current	100A (25°C, 77°F)
Discharge current:	
Maximum Continuous Discharge Current	100A (1C)
Maximum Discharge Current	330A (2.5s)
Cycle Life	4000 times (25°C, 0.2C, 100%DOD)
Over-Charging Protection Voltage	14.6V
Over-Charging Recovery Voltage	14.0V
Over-Discharging Protection Voltage	8.8V
Over-Discharging Protection Recovery Voltage	10.4V
Charge Temperature Range	0°C~65°C (32°F~149°F)
Discharge Temperature Range	-20°C~75°C (-4°F~167°F)
Low Temperature Charging Protection	0°C (32°F), after the low temperature protection is activated, the battery temperature returns to 2°C (35.6°F) for recharging.
Short Term	-20°C~45°C (-4°F~113°F)
Long Term	10°C~35°C (50°F~95°F)
Maximum Series Voltage Of Battery Pack	48V(4S)
Maximum Parallel Current Of Battery Pack	400Ah(4P)
Charge Method	CC/CV
Protection Rating	IP65
Demension/inch	L10.24*W6.61*H8.23

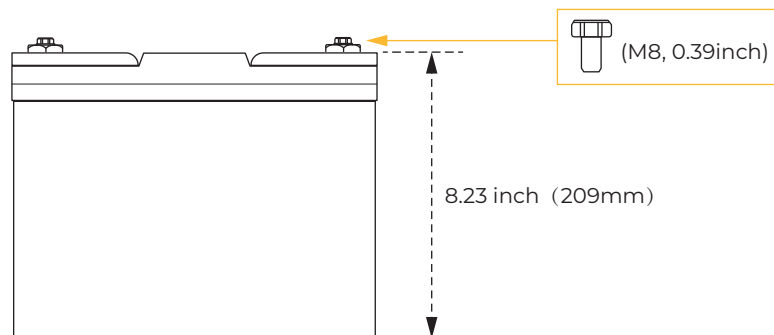
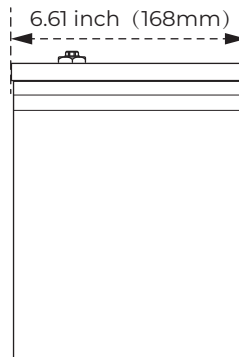
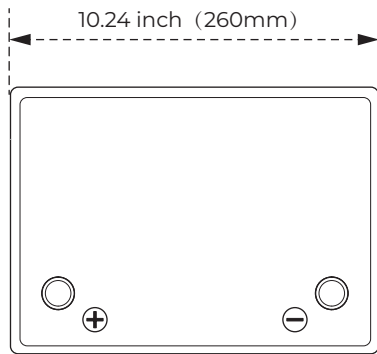
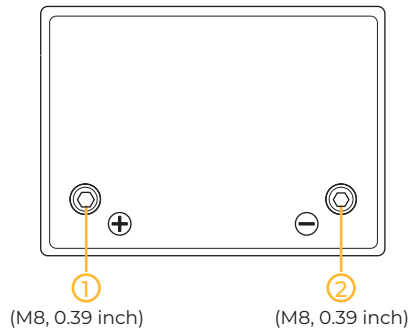
Product Appearance

- ① Positive Terminal (M8, 0.39 inch)
- ② Negative Terminal (M8, 0.39 inch)

L: 10.24 inch (260mm)

W: 6.61 inch (168mm)

H: 8.23 inch (209mm)



FAQ

Q1: What should I do if my battery finds a problem when I receive it or during use?

A1: If this problem occurs, please provide the relevant information and send it to our email: support@bouge rv.com, please provide the relevant information to us, and our technical support team will quickly answer your questions as soon as possible.

- 1.** Provide the product order number and the factory barcode attached to the battery.
- 2.** Provide the device information (controller/ charger) for battery charging, preferably the brand name and device picture.
- 3.** The model information of the electrical appliance connected to the battery (inverter/ load electrical appliance).

Q2: What kind of equipment can charge this battery?

A2: **1.** Solar charge controller (MPPT/ PWM). You need to connect the solar panel to the controller to charge the battery. And you need to ensure that the system voltage of the controller is 12V. BougeRV sells different kinds of MPPT/PWM controllers to match your solar system.

2. Charger. You need to ensure that the selected the charger can support lithium battery/lithium iron phosphate battery charging.

Q3: How to maintain the battery in the daily process?

A3: **1.** Do not discharge the battery under 10V to avoid over-discharge shortening the battery life.

2. The battery needs to be changed every 3-6 months to prevent the battery from being over-discharged.

Q4: What should I do if the battery fails during use and the voltage is too low to charge?

A4: You can use a charger with a 0V function, it can charge the battery from 0V, and it can't be used normally after the battery is fully charged.

Q5: What should I do if the battery cannot be charged or discharged during use?

A5: Disconnect all connections on the battery, use a multimeter to measure the actual voltage of the battery, let it sit for 30 minutes, and test whether the battery has returned to normal. If it has not returned to normal, please contact us in time (provide us with the voltage data of the battery, and our technical staff can quickly determine the cause of the battery failure).

Warranty

BougeRV provides **5-year** warranty service for the battery. Please read and follow the **safety instructions** in the manual carefully. The warranty service takes effect from the date of purchase. Please provide the **order number/purchase receipt** of the purchased product and the serial number (**bar code**) attached to the back of the battery when applying for warranty.

The following terms are not covered by the warranty service:

1. Damage caused by improper installation; loose terminal connections, undersized cables, incorrect connections (series and parallel) required for voltage and Ah requirements, or reverse polarity connections.
2. Environmental damage: Inappropriate storage conditions as defined by the manufacturer; exposure to extreme heat or cold temperatures, fire or freezing, or water damage.
3. Damage caused by collision due to personal reasons.
4. Damage caused by improper maintenance, under or over-charging of the product, and dirty terminal connections.
5. Products that have been opened, modified, or tampered with.
6. Failure to properly store the product in accordance with the instructions for safe use, including storing the product in a low-power state.
7. If upon inspection the product is determined to be in normal service life, the warranty claim is rejected, even if Under warranty.
8. Damage to the battery and other accidents caused by failing to operate in accordance with the safety instructions in the manual.

BougeRV provides **1-on-1 Solar Solution**.

If you have any questions during use, please feel free to contact us:



service@bougerv.com(US/CA)
support@bougerv.com(Website)



1-408-656-8402
9:00AM-6:00PM(CST) Mon-Fri



www.bougerv.com

Warranty Information

Model Number _____

Purchase Date _____

BougeRV

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V1.0

