RENOGY Trolling Motor

Deep Cycle Lithium Iron Phosphate Battery w/ Bluetooth

12.8V | 100Ah

RBT12100LFP-TM-BT

VERSION A0
January 13, 2025

USER MANUAL

Before Getting Started

The user manual provides important operation and maintenance instructions for RENOGY 12.8V 100Ah Trolling Motor Deep Cycle Lithium Iron Phosphate Battery w/ Bluetooth (hereinafter referred to as battery).

Read the user manual carefully before operation and save it for future reference. Failure to observe the instructions or precautions in the user manual can result in electrical shock, serious injury, or death, or can damage the battery, potentially rendering it inoperable.

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Online Manual

User Manual

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Symbols Used

The following symbols are used throughout the user manual to highlight important information.

WARNING: Indicates a potentially dangerous condition which could result in injury or death.

CAUTION: Indicates a critical procedure for safe and proper installation and operation.

NOTE: Indicates an important step or tip for optimal performance.

Introduction

RENOGY 12.8V 100Ah Trolling Motor Deep Cycle Lithium Iron Phosphate Battery w/ Bluetooth is designed for the drop-in replacement of deep-cycle lead-acid batteries with its standard Battery Council International (BCI) group (Group24), specially designed for your RVs, solar setups, trolling motors, wind and marine applications, camping, off-grid systems, and more.

Weighing only one third of sealed lead acid (SLA) counterparts, the battery can be safely discharged to 100% Depth of Discharge (DOD), delivering twice the energy. Manufactured with automotive grade battery cells, the battery features the highest safety standards and an extended 6000+ cycle life. In addition, the smart Battery Management System (BMS) provides comprehensive protection to the battery.

Key Features

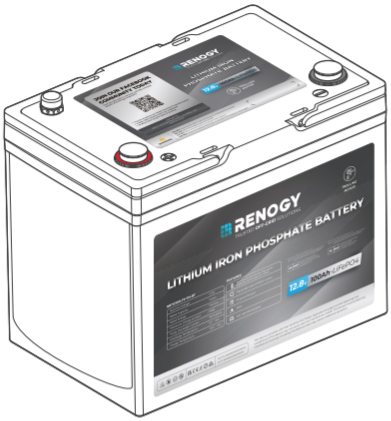
- **Unparalleled Performance**
  Features a greater energy density, a deeper discharge capability, a higher round-trip efficiency, and a faster charging speed in a smaller size over counterparts in the market.
- **Uncompromising Quality**
  Ensures an exceptional lifespan with more than 6000 cycles (80% DOD), a maximum continuous charge current of 100A and continuous discharge current of 150A, and a wide range of operating temperatures with the automotive grade battery cells.
- **Reliable Protection Mechanisms**
  Designed with a sturdy internal structure for RV use, and includes multiple levels of protection such as low temperature cut-off and precise balancing through the battery management system.
- **Equal Capacity in a Compact Size**
  Provides equal capacity in a more compact size than its counterparts.
- **Easy to Expand**
  Upgrades to lithium batteries seamlessly with the standard BCI group sizes; up to 16 batteries in 4 series and 4 parallels system connection delivering a maximum of 48V (51.2V) 400Ah with 20.48 kWh.

SKU

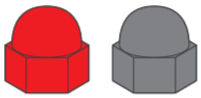
RENOGY 12.8V 100Ah Trolling Motor Deep Cycle Lithium Iron Phosphate Battery w/ Bluetooth	RBT12100LFP-TM-BT-G1

What's In the Box?

RENOGY 12.8V 100Ah
Trolling Motor Deep Cycle Lithium Iron Phosphate Battery
w/ Bluetooth × 1

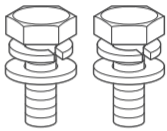


User Manual × 1



Insulating Sleeve × 2

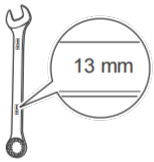
M8*1.25*12 mm



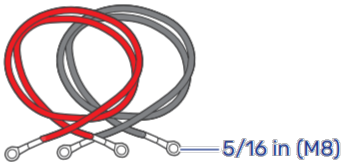
Long Terminal Bolt × 2

Make sure that all accessories are complete and free of any signs of damage.

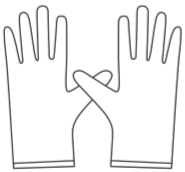
Required Tools & Accessories



Wrench (17/32 in)



Battery Adapter Cables × 2



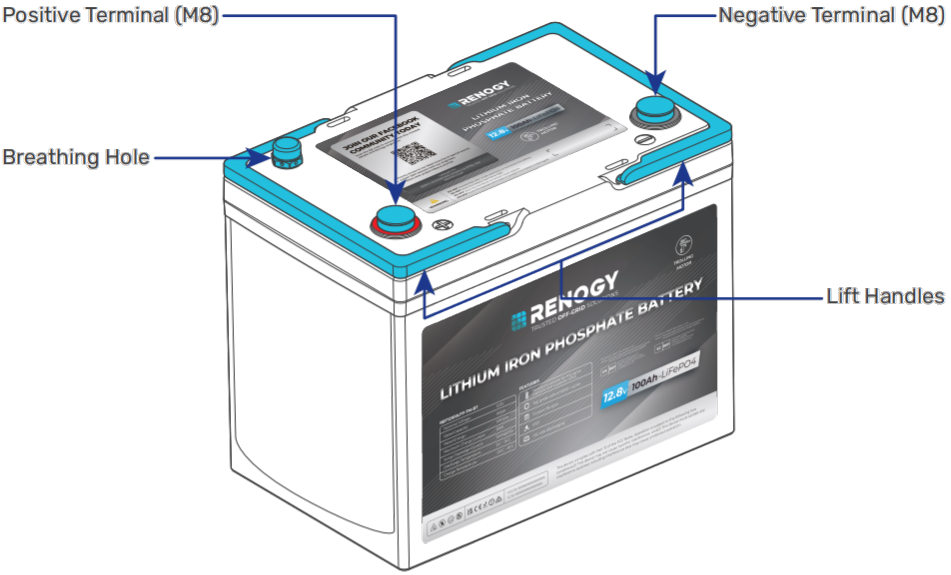
Insulating Gloves

Multimeter

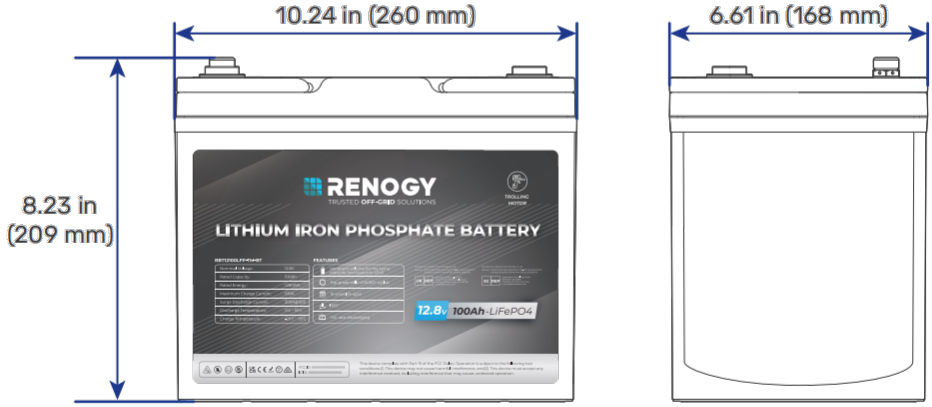
Prior to installing and configuring the battery, prepare the recommended tools, components, and accessories.

For how to size battery adapter cables, refer to "How to Size Battery Adapter Cables?" in this manual.

Get to Know Lithium Iron Phosphate Battery



Dimensions



Weight 22.71 lbs / 10.3 kg

Dimension tolerance: ±0.2 in (0.5 mm)

How to Size Battery Adapter Cables?

Use appropriately sized Battery Adapter Cables (sold separately) based on expected loads. Refer to the table below for copper cable ampacities with different gauge sizes for up to 13 feet (4 m) cables. Cables longer than 13 feet (4 m) may require thicker gauge wires to prevent excessive voltage drop in undersized wiring.

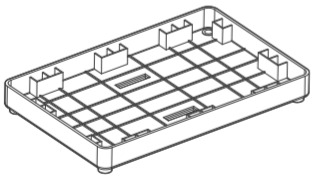
Cable Gauge Size	Ampacity	Cable Gauge Size	Ampacity
14 AWG (2.08 mm²)	25A	1 AWG (42.41 mm²)	145A
12 AWG (3.33 mm²)	30A	1/0 AWG (53.49 mm²)	170A
10 AWG (5.26 mm²)	40A	2/0 AWG (67.43 mm²)	195A
8 AWG (8.37 mm²)	55A	3/0 AWG (85.01 mm²)	225A
6 AWG (13.3 mm²)	75A	4/0 AWG (107.22 mm²)	260A
4 AWG (21.15 mm²)	95A	300 kcmil (152.1 mm²)	320A
3 AWG (26.67 mm²)	115A	400 kcmil (202.8 mm²)	380A
2 AWG (33.62 mm²)	130A	500 kcmil (253.5 mm²)	430A

The above values are from the NEC Table 310.16 for copper cables rated at 194°F (90°C), operating at an ambient temperature of no more than 86°F (30°C). Please note that wire gauge standards may vary due to factors such as temperature and installation conditions. In actual applications, it is recommended to refer to the latest NEC standards.

Secure the Battery (Optional)

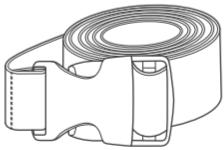
Securing the battery prevents damage to the battery from loose cables and bumps. You can purchase the following accessories and components on demand.

Recommended Components & Tools



Battery Tray

Mounting Screws

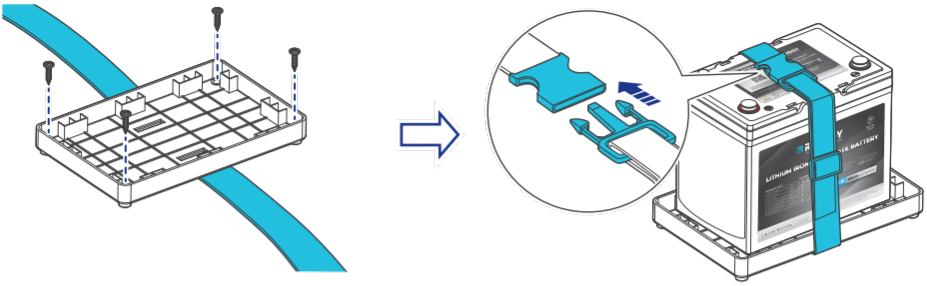


Tie Down Strap

Phillips Screwdriver (#2)

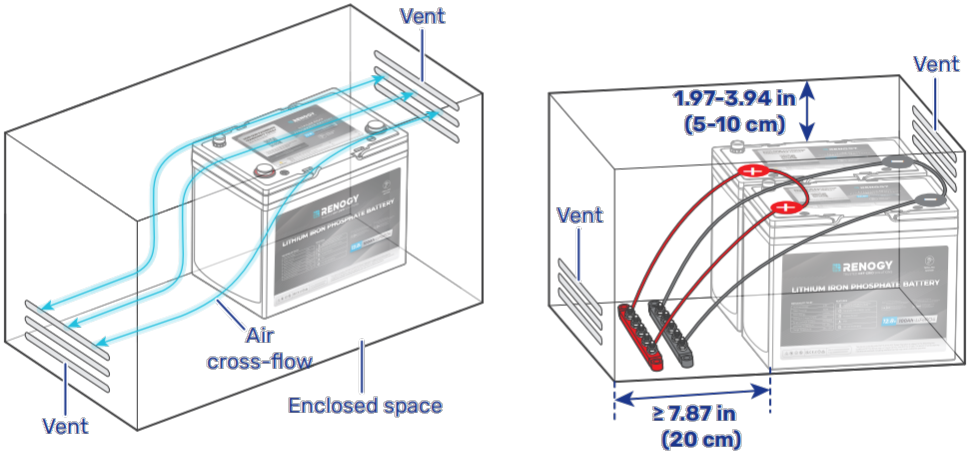
Alternative mounting methods are allowed to meet the requirements of specific applications.

We recommend installing the battery on the bottom. However, you can also mount it on all sides of the battery except the top side that has two terminals.



Step 1. Plan a Mounting Site

For optimal battery performance, it is recommended to install the battery in a clean, cool, and dry location, free from any accumulation of water, oil, or dirt. Accumulation of such materials on the battery can lead to current leakage, self-discharge, and even short-circuiting.



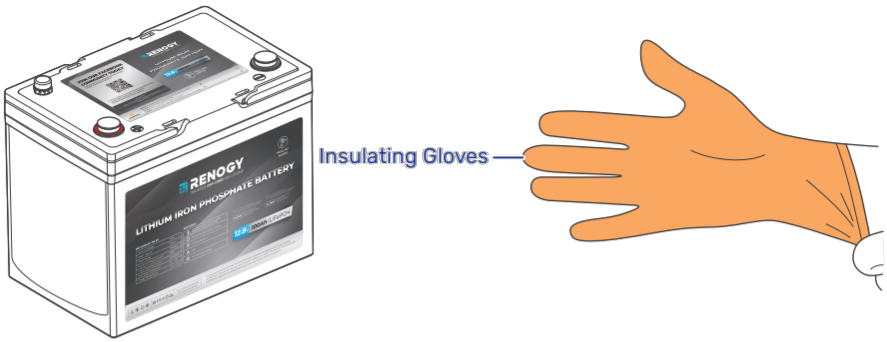
Charge: 32°F to 131°F / 0°C to 55°C
Discharge: -4°F to 131°F / -20°C to 55°C

5% to 95%

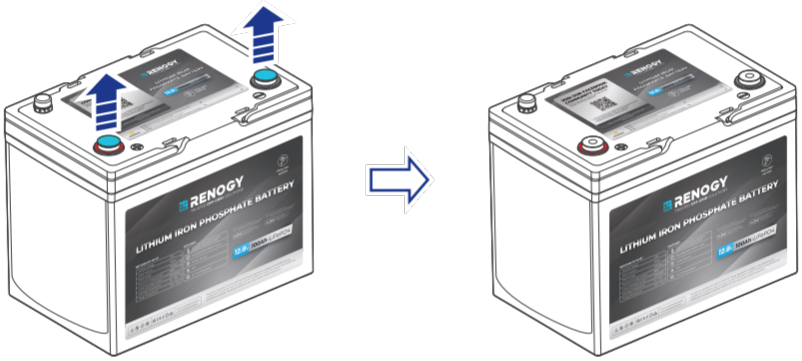
Sufficient air flow must be provided to prevent excessive heat build-up and to minimize temperature variation between the connected batteries.

This user manual takes a battery as an example to illustrate how to install the battery. Similar rules apply to scenarios involving multiple batteries.

Step 2. Wear Insulating Gloves



Step 3. Remove the Dust Cover

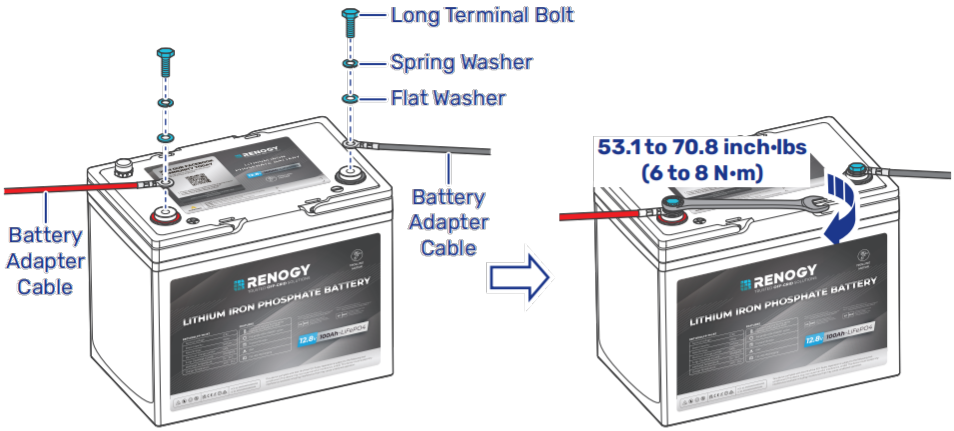


Step 4. Check the Battery

Inspect the battery for any visible damage including cracks, dents, deformation, and other visible abnormalities. All connector contacts shall be clean, free of dirt and corrosion, and dry.

- Do not touch the exposed electrolytes or powder if the battery is damaged.
- If any uncovered electrolyte or powder comes into contact with your skin or eyes, flush the area immediately with plenty of clean water and seek medical attention.

Step 5. Install Battery Terminals



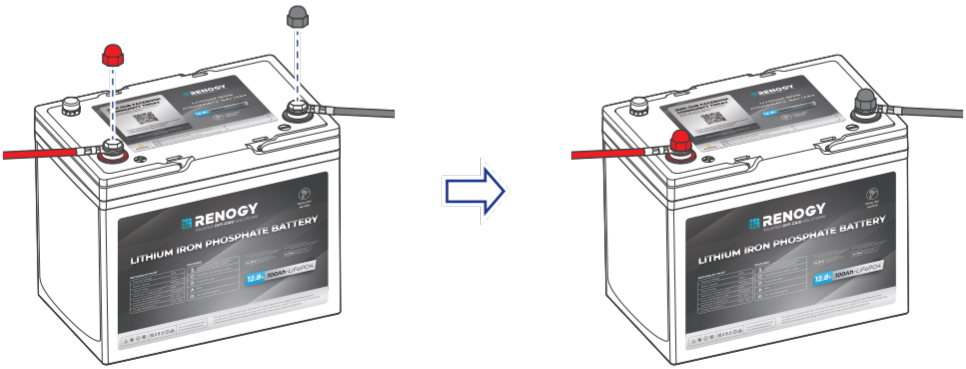
⚠ Ensure the cable lug and the top surface of the terminal are in contact, and place the washers on top of the lug. Do not place a washer between a battery terminal and a cable lug to avoid high resistance and excessive heating.

⚠ Avoid short-circuiting the battery terminals to prevent irreversible damage to the system and battery caused by current bursts.

⚠ Verify polarity before wiring to avoid irreversible battery damage due to polarity reversal.

ℹ To ensure safe and reliable operation of the system, please follow the manufacturer's recommended torque specifications when securing cable connections. Over-tightening can result in terminal breakage, while loose connections can lead to terminal meltdown or fire. When securing multiple cable lugs on a single battery terminal, use the included Long Terminal Bolts.

Step 6. Install the Insulating Sleeves



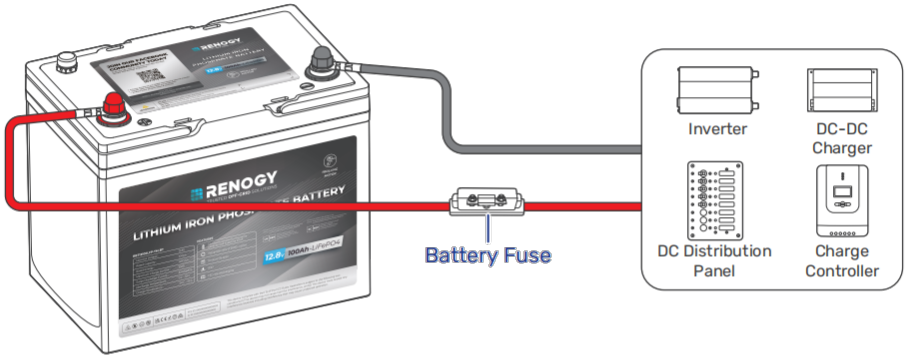
Step 7. Connect the Battery to Power Supply Devices

You can connect the battery to a distribution panel or power supply devices such as an inverter, a DC-DC battery charger, and a charge controller.

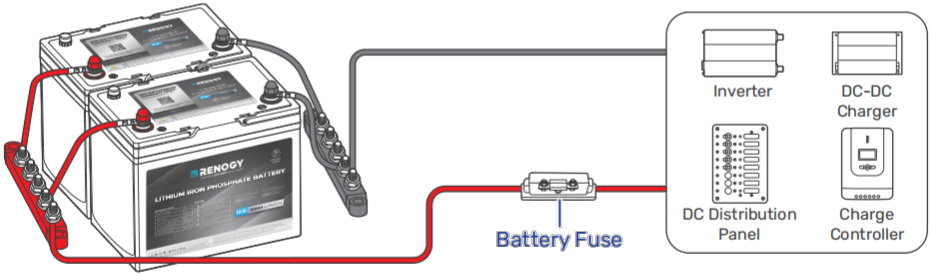
⚠ Please use circuit breakers, fuses, or disconnects appropriately sized by a certified electrician, licensed installers, or regional code authorities to protect all electrical equipment.

ⓘ For details about series and parallel battery connections, refer to "How to Connect Batteries in Series or Parallel" in this manual.

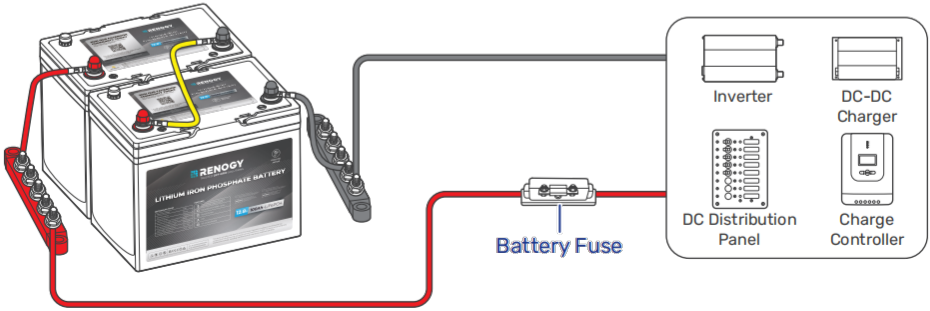
For a Single Battery



For Batteries in Parallel



For Batteries in Series



How to Connect Batteries in Series or Parallel

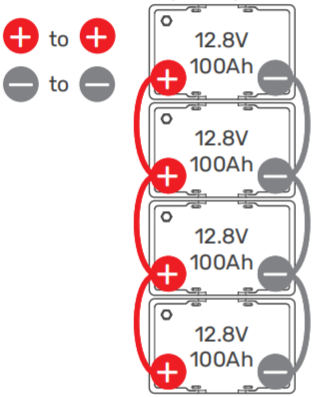
Calculate Battery Voltage and Current in Series and Parallel Connections

You can connect up to four batteries in a series group.

When connecting batteries in series or parallel, the following conditions must be satisfied:

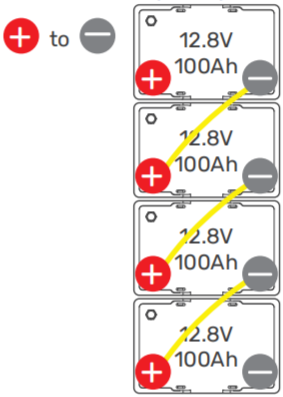
1. All batteries should be from the same brand, as lithium batteries from different brands may have distinct BMS designs.
2. All batteries must be identical, with matching capacity (Ah) and BMS specifications (A).
3. All batteries should have been purchased around the same time (within one month).
4. The cables between each connected battery should be of equal length to ensure that all batteries can work equally together.

Parallel Connection
12V(12.8V) 400Ah



System Voltage	System current
12.8V	Sum of the individual battery currents

Series Connection
48V(51.2V) 100Ah



System Voltage	System current
Sum of the individual battery voltages	100A

⚠ Do not connect batteries with different chemistries, rated capacities, nominal voltages, brands, or models in parallel or in series. This can result in potential damage to the batteries and the connected devices, and can also pose safety risks.

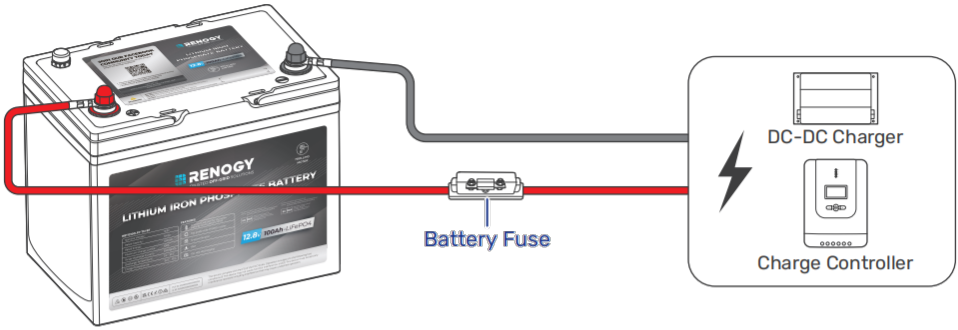
⚠ Avoid connecting batteries that have been purchased for more than half a year. Over time, batteries can degrade and their performance may decrease, which can affect their ability to deliver reliable power and may lead to safety hazards.

⚠ Carefully consider the number of batteries connected in parallel or series to avoid risks such as unbalanced charging or overcharging.

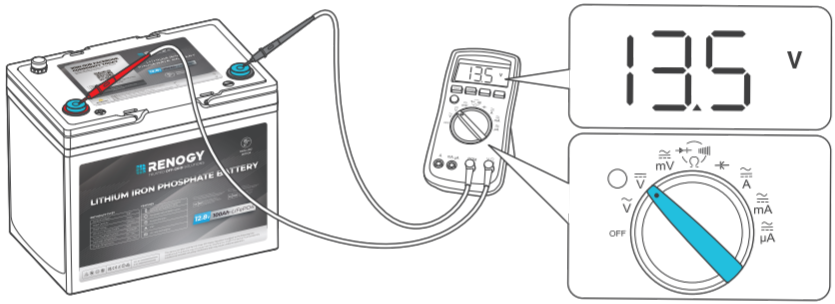
Balance Batteries Prior to Connection

Before connecting batteries in series or parallel, it is important to balance them to reduce voltage differences and optimize their performance. Follow these three steps:

Step 1: Charge each battery individually to its full capacity using a suitable charger.



Step 2: Use a voltmeter to measure the voltage of each battery. It is best to keep the voltage difference of each battery less than 0.1V.



Step 3: Connect all the batteries in parallel and allow them to rest together for 12 to 24 hours before use.

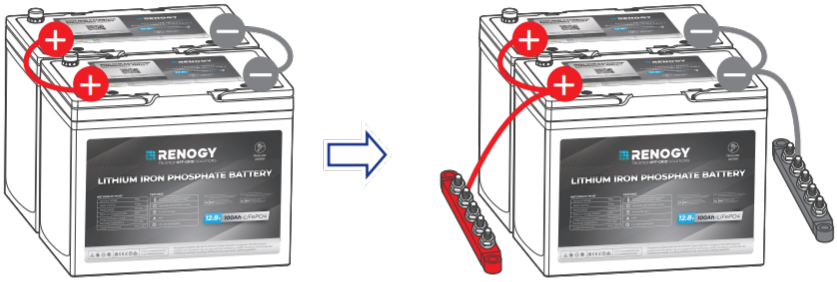
It is recommended to periodically rebalance the battery voltages every six months when connecting multiple batteries as a battery system. Slight voltage differences can occur among batteries over time due to factors like battery chemistry, capacity, temperature, and usage patterns.

Series Connection vs. Parallel Connection – Installation Steps

You can choose suitable busbars in series and parallel connections. Busbars help handle high currents and are typically arranged in a parallel or stacked configuration to distribute electrical power efficiently.

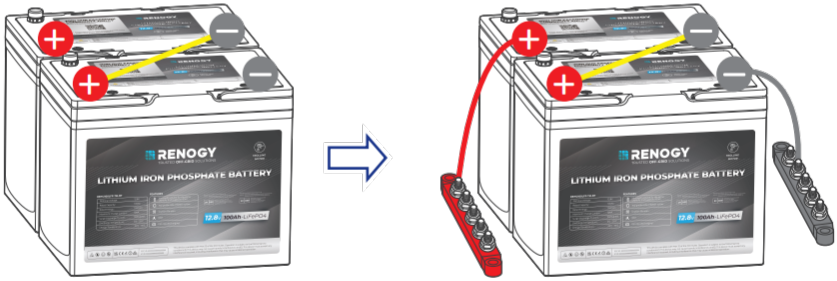
Note that the cable connection methods provided below are for reference purposes only, as the optimal approach may vary depending on the specific situation. It is essential to consider various factors, such as the cable size, equipment used, and environmental conditions.

Parallel Connection



2P	Battery System	12V (12.8V) 200Ah
	Energy	2560Wh
4P	Battery System	12V (12.8V) 400Ah
	Energy	5120Wh

Series Connection



2S	Battery System	24V (25.6V) 100Ah
	Energy	2560Wh
4S	Battery System	48V (51.2V) 100Ah
	Energy	5120Wh