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› GLCE ENERGY 12V 100Ah LiFePO4 Battery Instruction Manual

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Model: 12V 100Ah

1. INTRODUCTION

This manual provides essential information for the safe and efficient use of your GLCE ENERGY 12V 100Ah LiFePO4 Battery. Please read this manual thoroughly before installation and operation to ensure optimal performance and longevity of your battery.

The GLCE ENERGY 12V 100Ah LiFePO4 battery utilizes Grade A cells, offering a lightweight, compact, and long-lasting energy storage solution. It is designed for various applications including RVs, marine systems, solar energy storage, backup power, and camping.



Figure 1: GLCE ENERGY 12V 100Ah LiFePO₄ Battery. This image shows the top and side view of the black battery unit with the GLCE ENERGY logo and 12.8V 100Ah Lithium Iron Phosphate Battery text.

2. SAFETY INFORMATION

WARNING: Failure to follow these safety instructions may result in fire, electric shock, or other injury or damage.

- **DO NOT** short-circuit the external terminals.
- **DO NOT** puncture, crush, or incinerate the battery.
- **DO NOT** expose the battery to temperatures over 50°C (122°F).
- Ensure the charger used is suitable for LiFePO₄ batteries.
- Always use a dedicated lithium battery charger to charge the battery.
- Wear appropriate personal protective equipment (PPE) during installation and handling.
- Keep away from children and pets.

3. KEY FEATURES

- **Advanced Technology:** Constructed with Grade A LiFePO₄ cells, offering safety, non-toxicity, and renewable energy. Provides advantages over sealed lead-acid batteries including lighter weight, compact size, longer lifespan, higher energy density, and enhanced safety.

- **Visible Internal Structure:** Innovative design features battery cells secured with metal aluminum shell brackets, preventing battery expansion issues.
- **Extended Lifespan:** Offers up to 10 years of service life with 4000 to 15000+ deep cycles. Operates efficiently in temperatures from -20°C to 55°C and charges from -5°C to 55°C. (4000 cycles @100% DOD, 8000+ cycles @80% DOD, and up to 15000+ cycles @60% DOD under ideal usage).
- **Built-in Smart BMS:** The integrated Battery Management System (BMS) protects the 12V LiFePO4 battery from common failures such as temperature volatility, ground faults, overcharge, over-discharge, overcurrent, and short circuits.



Figure 2: Smart BMS Protection. This image illustrates the various protections offered by the built-in BMS, including over-voltage, short circuit, over-discharge, over-current, over-charge, and over-heating protection.

4. SETUP AND INSTALLATION

The GLCE ENERGY 12V 100Ah LiFePO4 battery is designed as a direct replacement for many lead-acid batteries, simplifying the upgrade process. It comes with its own hardware for installation.

4.1 Unboxing and Initial Inspection

Carefully unbox the battery and inspect it for any signs of damage during transit. Ensure all included accessories, such as hardware and the product manual, are present.

Your browser does not support the video tag.

Video 1: GLCE ENERGY 12V 100Ah LiFePO4 Battery Unboxing. This video demonstrates the unboxing process of the GLCE ENERGY 12V 100Ah LiFePO4 battery, showing how it is securely packaged and revealing the battery unit and included product manual.

4.2 Battery Replacement Steps

1. **Remove Old Battery:** Disconnect the negative terminal first, then the positive terminal of your existing lead-acid battery. Carefully remove the old battery, noting its weight (a lead-acid battery can be significantly heavier).
2. **Position New Battery:** Place the GLCE ENERGY LiFePO4 battery into the battery box or designated area. The battery is lightweight (approximately 25 lbs), making installation easier.
3. **Connect Terminals:**
 - Connect the positive cable to the positive terminal (red). Use a 13mm wrench to torque it down securely.
 - Connect the negative cable to the negative terminal (black). Use a 13mm wrench to torque it down securely.
4. **Install Safety Caps:** Place the provided safety insulator caps over the terminals to protect them and prevent accidental short circuits.

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Video 2: LiFePO4 Battery Installation and Comparison. This video demonstrates the ease of replacing a heavy lead-acid battery with the lighter LiFePO4 battery, highlighting the weight difference, direct fit, and simple terminal connection process. It also compares the warranty and capacity of LiFePO4 versus lead-acid batteries.

5. OPERATING INSTRUCTIONS

5.1 Charging the Battery

The GLCE ENERGY LiFePO4 battery can be charged using various methods. Always use a dedicated lithium battery charger.

- **Solar Panels:** Connect to a solar panel system with an appropriate MPPT controller.
- **Generator:** Use a generator to power a compatible LiFePO4 charger.
- **Dedicated Charger:** Connect a dedicated LiFePO4 battery charger to a power outlet.

The battery supports a maximum continuous charge current of 100A, allowing for rapid charging from empty to full in approximately one hour with a suitable charger.

3 ways to charge



Solar+Panel



Generator



Charger

Figure 3: Charging Methods. This image displays three common methods for charging the battery: via solar panels, a generator, or a dedicated battery charger.

5.2 Serial and Parallel Connections

For increased capacity or voltage, multiple GLCE ENERGY LiFePO₄ batteries can be connected in parallel or series. It is recommended to connect batteries of the same capacity and brand, purchased within 3 months of each other.

- **Parallel Connection:** Connect up to 4 batteries in parallel to increase total amp-hour capacity while maintaining 12V (12.8V 400Ah with 4 batteries).
- **Series Connection:** Connect up to 4 batteries in series to increase total voltage (e.g., 48V (51.2V) 100Ah with 4 batteries).

Serial&Parallel for more capacity

Tips: The same capacity & brand batteries can be wired in Parallel or Serial.
We suggest the batteries bought within 3 months.

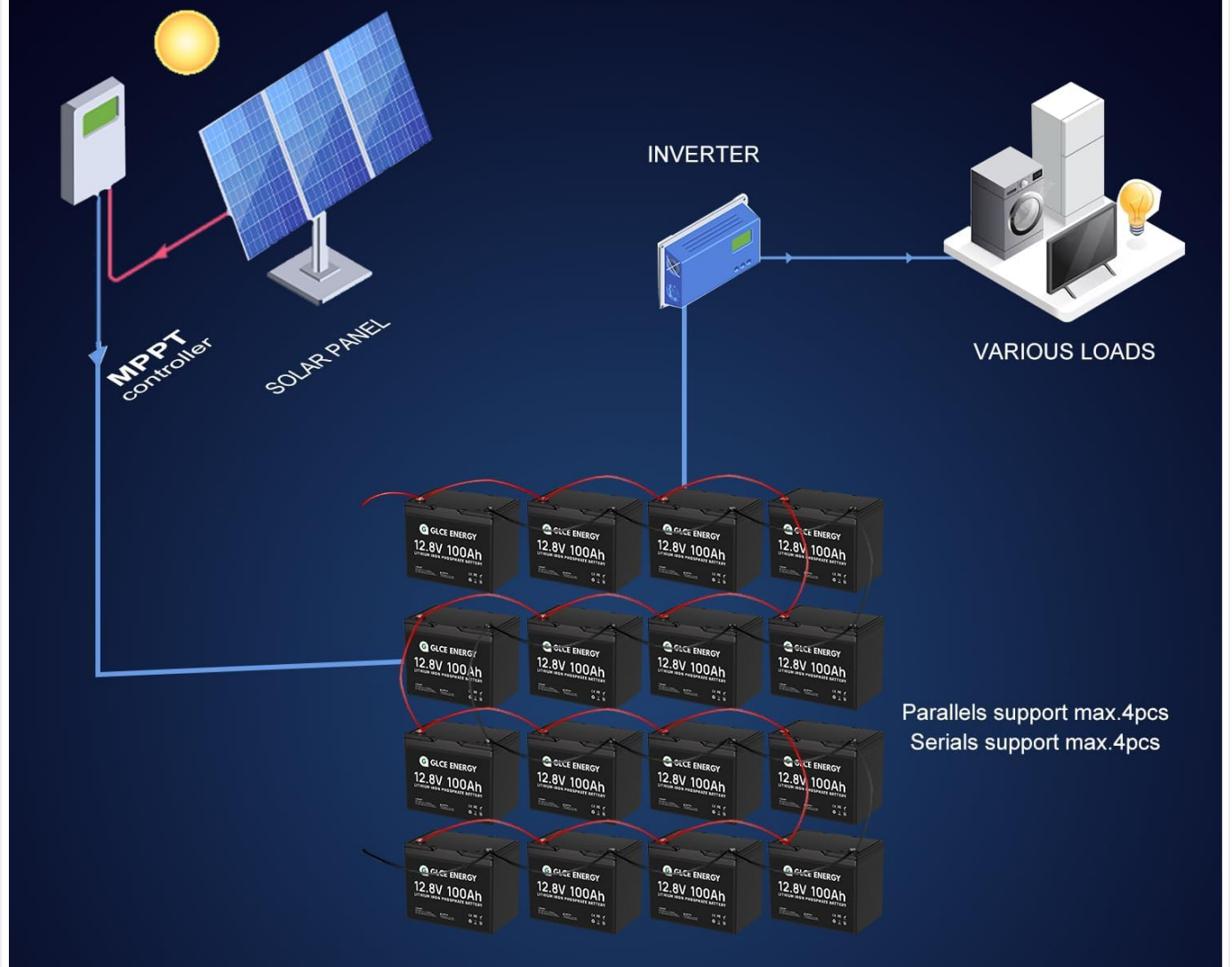


Figure 4: Serial and Parallel Connections. This diagram illustrates how multiple batteries can be wired in series to increase voltage or in parallel to increase capacity, with a maximum of 4 units for each configuration.

6. MAINTENANCE

The GLCE ENERGY LiFePO4 battery requires minimal maintenance compared to traditional lead-acid batteries.

- **No Water Addition:** Unlike lead-acid batteries, LiFePO4 batteries do not require water addition.
- **BMS Protection:** The built-in Smart BMS actively manages and protects the battery, reducing the need for manual intervention. It prevents over-voltage, under-voltage, over-current, over-temperature, and short-circuit conditions.
- **Cleaning:** Keep battery terminals clean and free from corrosion. Use a dry cloth to wipe the battery casing as needed.
- **Storage:** If storing the battery for an extended period, ensure it is charged to approximately 50% state of charge and stored in a cool, dry place.

7. SPECIFICATIONS



Figure 5: Product Detailed Parameters. This image provides a summary of the battery's key specifications including battery type, voltage, capacity, weight, cycle life, energy, and physical dimensions.

GLCE ENERGY 12V 100Ah LiFePO4 Battery Specifications

Parameter	Value
Brand	GLCE ENERGY
Model	12V 100Ah
Battery Type	LiFePO4 (Lithium Iron Phosphate)
Voltage	12.8 Volts
Capacity	100 Amp Hours
Energy	1280 Wh

Parameter	Value
Item Weight	25 pounds (approx. 11.3 kg)
Product Dimensions	7.4 x 12.8 x 8.66 inches (approx. 18.8 x 32.5 x 22 cm)
Cycle Life	4000~15000+ deep cycles
Operating Temperature	-20°C to 55°C
Charging Temperature	-5°C to 55°C
Max. Continuous Charge Current	100 Amps
Built-in BMS	Yes (100A)

8. APPLICATIONS

This 100Ah LiFePO4 battery is suitable for a wide range of applications:

- Trolling motors
- Solar energy systems
- Household appliances
- Marine applications
- Caravans and RVs
- Sump pump battery backup
- Fishing boats
- Industrial tools
- Hunting and outdoor activities
- Lawn and garden equipment
- Travel trailers
- Kayaks
- Motorcycles
- Off-grid applications



Figure 6: Wide Applications. This image displays several common uses for the battery, including children's electric vehicles, kayaks, solar energy systems, and camping setups.

9. WARRANTY

The GLCE ENERGY 12V 100Ah LiFePO₄ Battery comes with a **5-year warranty**, demonstrating confidence in its quality and durability. This is significantly longer than the typical 24-month warranty offered on many lead-acid deep cycle batteries.

10. SUPPORT

For any questions or assistance regarding your GLCE ENERGY LiFePO₄ battery, please feel free to contact us. Refer to the product packaging or the GLCE ENERGY website for specific contact details.



