

Mint 12.8V Battery User Manual

1. Overview

1.1 Description

This manual provides detailed information regarding the installation, maintenance, storage, and troubleshooting of this product.

Please read this manual thoroughly before installation or use, and retain it in a safe place for future reference.

1.2 Purpose

The manual is intended to guide safe and effective use of the product and includes specifications, recommended tools, and safety information.

2. ⚠ Safety Precautions

WARNING:

Failure to follow the safety instructions in this manual may result in serious injury, electric shock, fire, or death.

Please observe the following safety instructions at all times:

1. Read all instructions and warning labels on the product, battery, and this manual before use.
2. Do not **disassemble** or attempt to **repair** the battery. Contact an authorised service centre for all servicing. Incorrect handling may cause **fire** or **explosion**.
3. Disconnect all power sources and wiring before carrying out any **maintenance** or **cleaning**.
4. Only qualified personnel should work on lithium battery systems.
5. Never charge a frozen battery.
6. Always use cables of **appropriate size** and **specification**.
7. Take extra care when using metal tools around the battery to avoid short-circuiting.
8. Only use approved LiFePO₄ (Lithium Iron Phosphate) chargers. **Do not use lead-acid or incompatible chargers.**
9. Never short-circuit the positive and negative terminals.
10. If issues persist after troubleshooting, return the unit to your local dealer or service centre.
11. Avoid excessive **shock**, **impact**, or **vibration** to the battery.
12. Ensure the battery is protected from **rain**, **flooding**, and **direct water exposure**.
13. Do not use the battery after submersion in water. **Cease use immediately.**
14. Handle the product gently to avoid mechanical damage. **Do not use the battery if dropped or struck.**
15. This battery is not suitable for use as a **starter battery**.
16. Do not connect directly to an **alternator** or **unregulated charging source**.
17. Avoid charging or discharging the battery in **confined or poorly ventilated spaces**.
18. Keep the battery out of direct sunlight during operation.
19. Ensure adequate ventilation during use to allow heat dissipation.

3. Installation and Operation

3.1 Installation Guidelines

Before installing the battery, please consider the following:

- Install in a well-ventilated area with ambient temperature between **0°C** and **45°C**. Avoid excessive heat or cold.
- Leave a minimum of **20mm** clearance around all sides for airflow.
- Keep out **of reach of children**.
- Avoid locations exposed to rain, water splashes, or high humidity.
- Do not install near **heat sources or open flames**.
- Battery must be **installed upright**.
- Secure the battery firmly to **prevent movement**, especially in mobile or vehicle-mounted applications.

3.2 Installation Steps

1. Place the battery in a suitable, secure location.
2. Connect the positive terminal of the load to the battery's positive terminal, and the negative terminal of the load to the battery's negative terminal, **using appropriate gauge cables**.
3. Secure cable lugs to the terminals using the provided screws. Torque to **7–8Nm**.
4. Switch on the load for operation.

Recommendation:

Install a fuse or circuit breaker between the battery and the load for additional protection.

3.3 Important Warnings During Installation

- Ensure the correct cable size and rating are used.
- Turn off the load before connecting or disconnecting the battery.
- Never connect the positive and negative terminals with any conductive material.
- **Polarity must not be reversed.** This may damage the battery and void the **warranty**.
- All cables must terminate in securely crimped or crimped-and-soldered lugs. Solder-only joints are not acceptable.
- Verify that the charger and **load voltage** is **compatible with the battery**.
- Ensure battery terminals are clean and free of corrosion to minimise connection resistance.

4. Maintenance and Storage

4.1 Routine Maintenance

- Regularly inspect the battery terminals and cables for corrosion, dirt, or damage.
- Clean terminals with a dry cloth; **do not use water or solvents**.
- Maintain usage within the recommended ambient temperature range.
- Store in a cool, dry, and well-ventilated area, away from moisture and heat sources.

4.2 Storage Guidelines

- Ideal storage temperature: **0°C to 25°C**.
- Ideal relative humidity: **65% ± 20% RH**.
- For long-term storage, charge the battery to approximately **50% capacity** before storage.
- Recharge the battery every **6 months** to prevent over-discharge from self-drain.
- Follow manufacturer specifications for charging/discharging cycles.
- Dispose of used batteries via an authorised recycling centre.

5. Battery Recovery from Undervoltage

If the battery has been left unused for an extended period and is no longer supplying power, it may have entered **undervoltage protection mode**. In this state, the battery requires a low-current “trickle charge” to safely restore normal operation.

What is Trickle Charge?

A **trickle charge** is a method of charging a battery using a **very low current** (typically 2A–4A), designed to slowly restore power without generating excess heat or triggering protection circuits.

Recommended Recovery Procedure

1. Disconnect all loads and charging sources

Ensure that all devices and chargers are disconnected from the battery.

2. Measure the battery voltage

Use a multimeter to check the battery’s output voltage.

- If the reading is above **10V**, the battery is likely in undervoltage protection mode.

3. Perform a low-current trickle charge

Use a charger specifically designed for **LiFePO₄ (Lithium Iron Phosphate)** batteries.

- Apply a **low current of 2A to 4A** for initial charging.
- This slow charge helps safely “wake up” the battery from protection mode.

4. Resume normal charging

Once the battery voltage rises to a normal level and protection is lifted, it can be charged using its standard charging parameters.

Note:

If the battery does not regain function after extended charging, it may be permanently damaged and should be returned for service or disposal.

Need Help?

For more maintenance and warranty information, visit our website at www.greeness.com.au and click on the **Support** Section in the top menu bar, or contact our after-sales team on **1300 69 69 50**.