Enerwatt WPHR12-48

Enerwatt WPHR12-48 High Rate AGM Battery User Manual

Model: WPHR12-48

1. Introduction

This manual provides essential information for the safe and efficient operation, installation, and maintenance of your Enerwatt WPHR12-48 High Rate AGM Battery. The WPHR12-48 is a 12V, 48Ah Absorbed Glass Mat (AGM) battery designed for high-rate discharge applications, offering reliable power in a compact form factor. Please read this manual thoroughly before using the battery to ensure proper handling and to maximize its lifespan.

Figure 1.1: Top-down view of the Enerwatt WPHR12-48 High Rate AGM Battery, showcasing its red casing and terminal design.

2. Safety Information

Always observe the following safety precautions when handling, installing, or maintaining the Enerwatt WPHR12-48 battery. Failure to do so may result in personal injury or damage to the battery and connected equipment.

- **Eye Protection:** Always wear appropriate eye protection (safety glasses or goggles) when working with batteries.
- **Gloves:** Wear insulated gloves to prevent accidental short circuits and protect against potential acid exposure, although AGM batteries are sealed.
- **Ventilation:** Ensure adequate ventilation when charging batteries to disperse any gases that may be produced.
- **No Smoking/Sparks:** Keep flames, sparks, and smoking materials away from the battery. Batteries can produce flammable gases.
- **Short Circuits:** Avoid short-circuiting the battery terminals. This can cause severe burns, fire, or explosion. Remove all metallic jewelry before working with batteries.

- **Lifting:** The battery is heavy (13.5 kg). Use proper lifting techniques or assistance to prevent injury.
- **Disposal:** Dispose of spent batteries according to local regulations. Do not incinerate.
- **Children:** Keep batteries out of reach of children.

3. Setup and Installation

Proper installation is crucial for the performance and longevity of your Enerwatt WPHR12-48 battery.

1. **Inspection:** Upon receiving the battery, inspect it for any signs of physical damage. Do not install a damaged battery.
2. **Mounting Position:** AGM batteries can be mounted in various positions (upright, side, or end) without loss of capacity or electrolyte leakage. However, mounting upside down is not recommended. Ensure the battery is secured to prevent movement or vibration.
3. **Ventilation:** While AGM batteries are sealed, ensure the installation area has adequate airflow to prevent heat buildup, especially during charging.
4. **Terminal Connections:**
   - Identify the positive (+) and negative (-) terminals. The positive terminal is typically marked with a plus sign and is slightly larger.
   - Clean the battery terminals and cable connectors thoroughly to ensure good electrical contact.
   - Connect the positive (+) cable to the positive (+) battery terminal first.
   - Then, connect the negative (-) cable to the negative (-) battery terminal.
   - Tighten all connections securely using appropriate tools. Do not overtighten, as this can damage the terminals.
5. **Charging:** Before initial use, it is recommended to fully charge the battery using a compatible AGM battery charger. Refer to the "Operating Instructions" section for charging guidelines.

Figure 3.1: Front view of the Enerwatt WPHR12-48 battery, showing the terminal configuration and product labeling.

4. Operating Instructions

The Enerwatt WPHR12-48 is a sealed, maintenance-free battery. However, proper charging and discharge practices are essential for optimal performance and lifespan.

4.1 Charging

- **Charger Type:** Use a charger specifically designed for AGM batteries. Avoid using chargers designed for flooded lead-acid batteries, as they may overcharge and damage the AGM battery.
- **Charging Voltage:** For cyclic applications, typical charging voltage is 14.4V to 14.7V. For float (standby) applications, it is 13.5V to 13.8V. Always refer to the charger's instructions.
- **Charging Current:** The recommended charging current is typically 0.1C to 0.3C (where C is the battery's capacity). For a 48Ah battery, this would be 4.8A to 14.4A. Higher currents can be used for faster charging but may reduce battery life.

- **Temperature Compensation:** Charging voltage should be adjusted based on ambient temperature. Consult your charger's manual for temperature compensation settings.
- **Overcharging:** Avoid prolonged overcharging, which can lead to premature battery failure.

4.2 Discharging

- **Depth of Discharge (DOD):** While AGM batteries tolerate deep discharges better than flooded batteries, repeatedly discharging below 50% DOD will significantly reduce cycle life.
- **Low Voltage Cut-off:** Implement a low voltage cut-off in your system to prevent over-discharge. For a 12V battery, avoid discharging below 10.5V under load.
- **High Rate Discharge:** This battery is designed for high-rate discharge. Ensure your application's current draw is within the battery's specified limits to prevent excessive heat generation.

5. Maintenance

The Enerwatt WPHR12-48 is a maintenance-free battery, meaning it does not require electrolyte replenishment. However, periodic checks can help ensure optimal performance and safety.

- **Cleaning:** Keep the battery casing and terminals clean and free of dirt, dust, and corrosion. Use a damp cloth to wipe the casing. For terminals, use a wire brush if corrosion is present, ensuring the battery is disconnected first.
- **Terminal Tightness:** Periodically check that all terminal connections are tight and secure. Loose connections can cause resistance, heat buildup, and power loss.
- **Storage:** If storing the battery for an extended period, ensure it is fully charged. Store in a cool, dry place away from direct sunlight and extreme temperatures. Recharge the battery every 3-6 months to prevent sulfation and maintain charge.
- **Temperature:** Operate and store the battery within its specified temperature range (refer to specifications). Extreme temperatures can negatively impact battery life and performance.

6. Troubleshooting

This section provides solutions to common issues you might encounter with your Enerwatt WPHR12-48 battery.

Problem	Possible Cause	Solution

Problem	Possible Cause	Solution
Battery not holding charge / Low capacity	◦ Undercharging or improper charger ◦ Frequent deep discharges ◦ Old battery / End of life ◦ Parasitic drain from connected devices	◦ Ensure charger is compatible with AGM and set correctly. ◦ Avoid discharging below 50% DOD. ◦ Consider battery replacement if it's several years old. ◦ Check for devices drawing power when not in use.
Battery not charging	◦ Loose or corroded connections ◦ Faulty charger ◦ Battery deeply discharged (below charger's detection threshold)	◦ Check and clean all terminal connections. ◦ Test charger with another battery or use a different charger. ◦ Some smart chargers may not detect very low voltage batteries. Try a simpler charger or a "boost" function if available.

Problem	Possible Cause	Solution
Battery overheating during charge/discharge	◦ Overcharging or excessive charging current ◦ Excessive discharge current ◦ Poor ventilation ◦ Internal short circuit (rare)	◦ Reduce charging current or check charger settings. ◦ Ensure load is within battery's specifications. ◦ Improve airflow around the battery. ◦ Disconnect immediately and contact support if overheating persists.

7. Specifications

Detailed technical specifications for the Enerwatt WPHR12-48 High Rate AGM Battery.

Attribute	Value
Model	WPHR12-48
Brand	Enerwatt
Voltage	12 Volts
Capacity	48 Ah
Battery Cell Composition	Lead Acid (AGM)
Number of Cells	6
Product Dimensions (L x W x H)	19.61 x 16.61 x 17.09 cm
Item Weight	13.5 kg
Manufacturer	TCED INTL Inc.
UPC	777986018298

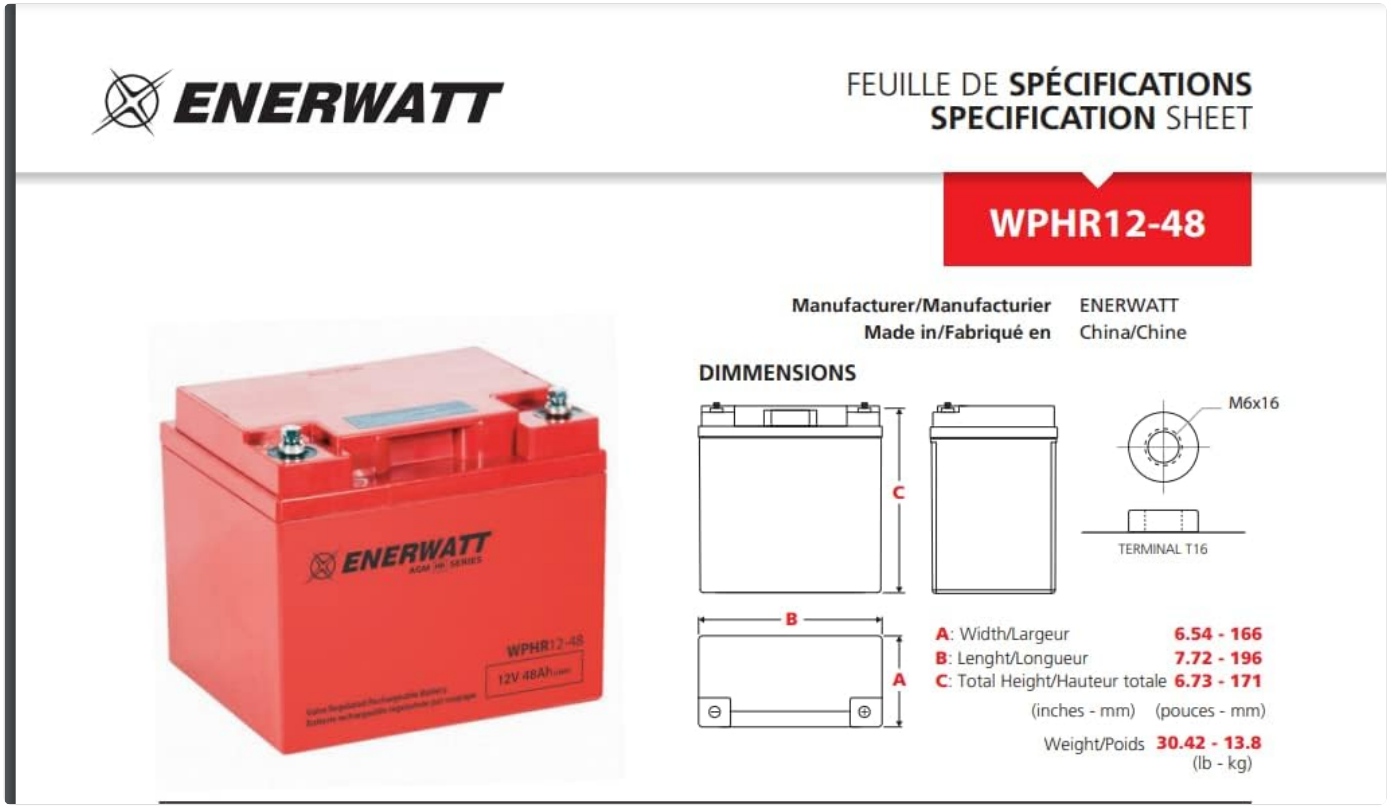

Figure 7.1: Specification sheet for the WPHR12-48, detailing dimensions and terminal type (M6x16, Terminal T16).

8. Warranty and Support

For warranty information, technical support, or service inquiries regarding your Enerwatt WPHR12-48 High Rate AGM Battery, please contact the manufacturer or your point of purchase.

- **Manufacturer:** TCED INTL Inc.
- **Brand Website:** For general information and potential support contacts, please visit the official Enerwatt website (if available).
- **Purchase Support:** Contact the retailer from whom you purchased the battery for assistance with returns, exchanges, or warranty claims.

Always provide your product model number (WPHR12-48) and date of purchase when seeking support.