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› ROXIFETA XH-M601/M602/M603/M604/M609/M611 Digital Control Battery Protection Board Module User Manual

ROXIFETA XH-M601, XH-M602, XH-M603, XH-M604, XH-M609, XH-M611

ROXIFETA XH-M601/M602/M603/M604/M609/M611 Digital Control Battery Protection Board Module User Manual

Model Series: XH-M601, XH-M602, XH-M603, XH-M604, XH-M609, XH-M611

1. INTRODUCTION

This user manual provides comprehensive instructions for the installation, operation, maintenance, and troubleshooting of the ROXIFETA XH-M60x series Digital Control Battery Protection Board Modules. These modules are designed to manage battery charging and discharging processes, ensuring optimal performance and longevity for various battery types, including lithium batteries, within a 6V-60V range. Please read this manual thoroughly before using the product to ensure safe and correct operation.

2. SAFETY INSTRUCTIONS

- **Power Disconnection:** Always disconnect power before making any connections or disconnections to prevent electric shock or damage to the module.
- **Voltage Range:** Ensure the input voltage and battery voltage are within the specified 6V-60V range. Exceeding this range can cause irreversible damage.
- **Polarity:** Observe correct polarity for all connections. Incorrect polarity will damage the module and connected components.
- **Environment:** Install the module in a dry, well-ventilated area, away from flammable materials, moisture, and extreme temperatures.
- **Professional Installation:** If you are unfamiliar with electronic wiring, seek assistance from a qualified professional.
- **Battery Type:** Verify the module is compatible with your specific battery chemistry (e.g., lithium-ion, lead-acid) before use.

3. PRODUCT OVERVIEW

The ROXIFETA XH-M60x series modules are versatile digital control boards designed for battery charge and discharge management. They typically feature a relay for switching power, a digital display for voltage monitoring, and control buttons for setting parameters. Specific functionalities may vary between models (e.g., XH-M601, XH-M602, XH-M603, XH-M604, XH-M609, XH-M611).



Figure 1: Assortment of ROXIFETA XH-M60x series battery protection board modules. These modules are designed for various battery management tasks, featuring different layouts and components depending on the specific model.

4. KEY FEATURES

- **Digital Voltage Display:** Provides real-time monitoring of battery voltage.
- **Adjustable Charge/Discharge Parameters:** Allows users to set upper and lower voltage limits for battery protection.
- **Relay Control:** Integrates a relay for automatic power cutoff or connection based on set voltage thresholds.
- **Wide Voltage Compatibility:** Operates within a 6V to 60V DC range, suitable for various battery systems.
- **Robust Electronic Components:** Constructed with durable components for reliable and stable performance.

- **User-Friendly Interface:** Designed for straightforward installation and parameter configuration.

5. TECHNICAL SPECIFICATIONS

Note: Specifications may vary slightly between different models (XH-M601, XH-M602, etc.). Refer to the product labeling for precise details of your specific module.

Parameter	Value
Input Voltage Range	DC 6V - 60V
Output Voltage	Equal to Input Voltage (via relay)
Control Precision	0.1V
Display Type	Digital LED Display
Output Current (Max)	Typically 10A (Relay dependent)
Operating Temperature	-20°C to 50°C
Dimensions	Varies by model

6. SETUP AND WIRING

Before proceeding, ensure all power sources are disconnected. Refer to the specific wiring diagram for your XH-M60x model, usually printed on the module itself or provided with the packaging.

1. **Identify Terminals:** Locate the input power terminals (typically labeled "VIN+" and "VIN-"), battery terminals (typically "BAT+" and "BAT-"), and load/charger terminals (if applicable, often connected via the relay).
2. **Connect Input Power:** Connect your DC power supply (6V-60V) to the "VIN+" and "VIN-" terminals, observing correct polarity.
3. **Connect Battery:** Connect your battery to the "BAT+" and "BAT-" terminals, observing correct polarity.
4. **Connect Load/Charger (if applicable):** Depending on the module's function (charge control or discharge protection), connect your charger or load through the relay terminals as indicated by the module's diagram. For charge control, the charger output typically connects to the relay, and the relay output connects to the battery. For discharge protection, the battery connects to the relay, and the relay output connects to the load.
5. **Verify Connections:** Double-check all wiring for correct polarity and secure connections.
6. **Apply Power:** Once all connections are verified, apply power to the module. The digital display should illuminate, showing the current battery voltage.

7. OPERATING INSTRUCTIONS

The XH-M60x series modules typically feature buttons for setting voltage parameters. Common buttons include "SET", "UP", and "DOWN".

7.1. Setting Voltage Thresholds

1. **Enter Setting Mode:** Press and hold the "SET" button for a few seconds until the display starts

flashing or shows a parameter code (e.g., "U1", "L1").

2. **Select Parameter:** Use the "SET" button to cycle through different parameters. Common parameters include:
 - **Upper Voltage Limit (e.g., "U1" or "OP"):** The voltage at which the relay will open (stop charging or start discharging).
 - **Lower Voltage Limit (e.g., "L1" or "CL"):** The voltage at which the relay will close (start charging or stop discharging).
 - **Voltage Correction (e.g., "CA"):** For fine-tuning the voltage reading.
3. **Adjust Value:** Once a parameter is selected, use the "UP" and "DOWN" buttons to adjust its value.
4. **Save Settings:** After setting all desired parameters, press and hold the "SET" button again until the display stops flashing or returns to normal operation. This saves the settings.

7.2. Operation Modes (Example: Charge Control)

- When battery voltage drops below the **Lower Voltage Limit**, the relay closes, and charging begins.
- When battery voltage reaches the **Upper Voltage Limit**, the relay opens, and charging stops.
- The module continuously monitors the battery voltage and activates/deactivates the relay accordingly.

8. MAINTENANCE

- **Cleaning:** Keep the module clean and free from dust and debris. Use a soft, dry cloth for cleaning. Do not use liquids or abrasive cleaners.
- **Connections:** Periodically check all wiring connections to ensure they are secure and free from corrosion.
- **Environmental Conditions:** Ensure the operating environment remains within the specified temperature and humidity ranges.
- **Firmware Updates:** These modules typically do not support user firmware updates.

9. TROUBLESHOOTING

Problem	Possible Cause	Solution
Module not powering on / Display off	No input power; Incorrect polarity; Faulty wiring.	Check power supply connection; Verify polarity; Inspect wiring for breaks or loose connections.
Relay not switching	Voltage thresholds not met; Incorrect settings; Faulty relay.	Check current battery voltage against set limits; Reconfigure settings; If relay is faulty, module replacement may be necessary.
Inaccurate voltage reading	Voltage calibration needed; Loose connections.	Perform voltage correction (refer to "CA" setting); Secure all connections.
Module overheating	Excessive current; Poor ventilation.	Ensure current draw is within module's limits; Improve ventilation around the module.

10. WARRANTY AND SUPPORT

ROXIFETA products are manufactured to high standards. This product comes with a money-back guarantee, reflecting our commitment to quality. For any questions, technical assistance, or support, please contact ROXIFETA customer service. Our knowledgeable team is available to assist you.

For customer support, please refer to the contact information provided with your purchase or visit the official ROXIFETA website.