PowMr POW-M25-PRO

PowMr MPPT Solar Charge Controller User Manual

Model: POW-M25-PRO

1. Introduction

This user manual provides detailed instructions for the installation, operation, and maintenance of your PowMr MPPT Solar Charge Controller. Designed for optimal performance and efficiency, this controller utilizes advanced Maximum Power Point Tracking (MPPT) technology to maximize power harvest from your solar panels and ensure safe, efficient charging for various battery types.
Please read this manual thoroughly before installation and operation to ensure proper use and to prevent damage to the product or your solar power system.

2. Safety Instructions

Always observe the following safety precautions during installation and operation:

- Ensure all power sources are disconnected before installation or maintenance.
- Use appropriate personal protective equipment (PPE) such as insulated gloves and eye protection.
- Do not disassemble or attempt to repair the controller yourself. Refer to qualified personnel.
- Install the controller in a well-ventilated area, away from flammable materials and direct sunlight.
- Ensure correct polarity when connecting batteries and solar panels to prevent damage.
- Use cables of appropriate gauge for the current and distance to minimize voltage drop and overheating.
- This device is designed for indoor use only. Avoid exposure to water or excessive humidity.

3. Product Overview and Features

The PowMr MPPT Solar Charge Controller is a high-efficiency device designed to manage power flow from your solar panels to your battery bank. It features an intuitive LCD display and user-friendly buttons for easy configuration and monitoring.



Figure 3.1: Front view of the PowMr MPPT Solar Charge Controller.

Key Features:

- **MPPT Technology:** Advanced Maximum Power Point Tracking (MPPT) technology with up to 98% tracking efficiency and 97% peak conversion efficiency, maximizing solar panel output and enhancing charging efficiency.

- **Battery Support 12V/24V:** Compatible with a variety of batteries (lead-acid and lithium, user customizable); Sealed, Gel, Flooded, and LI (LFP) battery charging parameters pre-set.
- **Comprehensive Protection:** Includes Short Circuit, Overcurrent, Reverse Polarity, Over-discharging, Overcharging, Overload, Reverse Current, Temperature Compensation, and Reverse Polarity protections.
- **LCD Display:** Very detailed LCD screen and 4 buttons make this solar controller simple to use, providing real-time system status.
- **Multiple Load Work Modes:** Supports 00H (Load Turn OFF), 24H (Load always Turn ON), and 01H~23H (Time control for load duration).

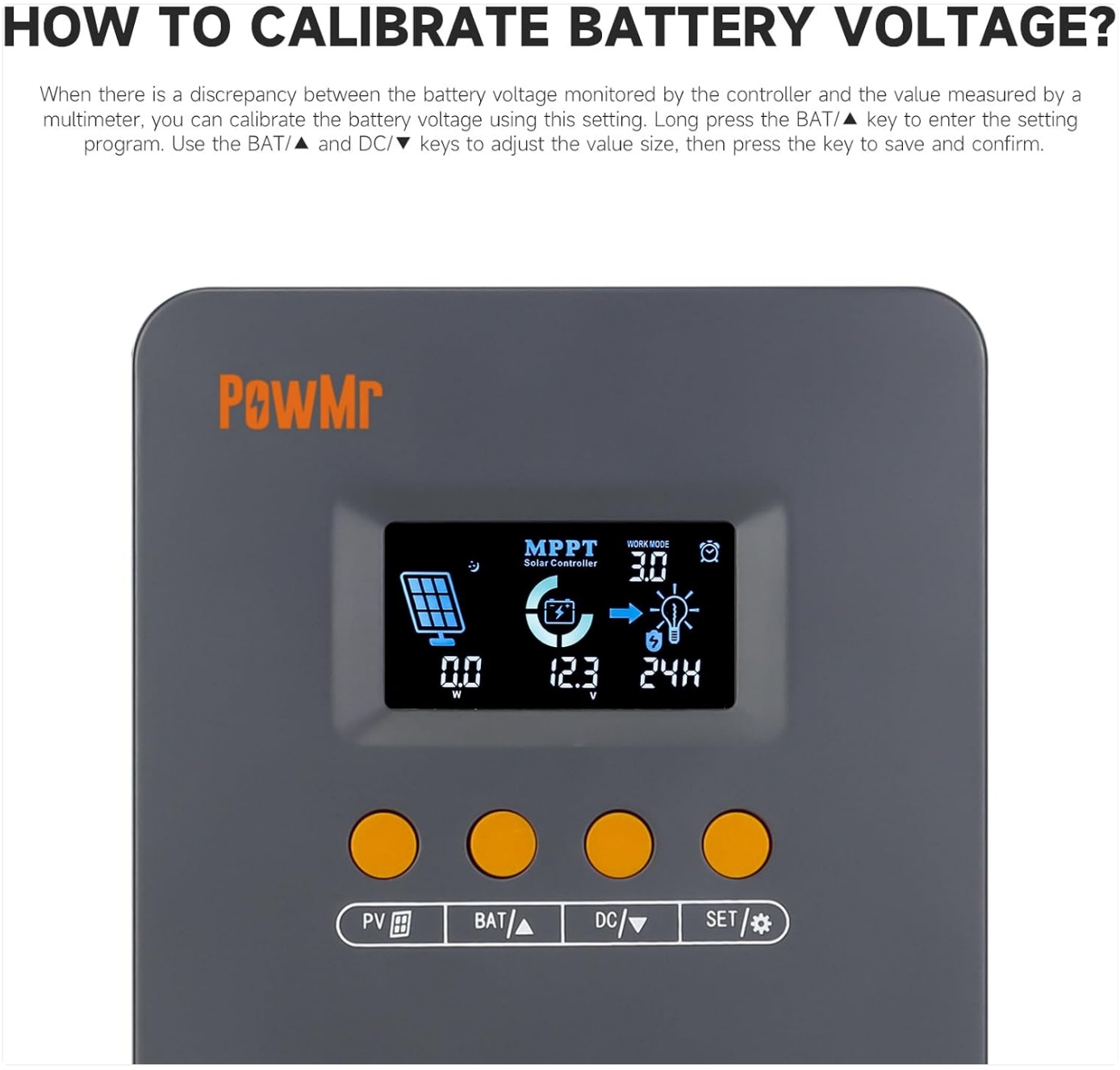


Figure 3.2: Certified Protections of the PowMr Solar Charge Controller.

4. Specifications

Attribute	Value
Model Number	POW-M25-PRO
Display Type	LCD

Max PV Input (12V Battery)	300W
Max PV Input (24V Battery)	600W
Max. PV Open-Circuit Voltage	<60V
Battery Voltage	12V/24V Auto
Dimensions	6.3 x 4.53 x 2.01 inches (160 x 115 x 51 mm)
Item Weight	1.1 pounds (500 Grams)
Country of Origin	China



Figure 4.1: Model specifications and basic wiring diagram.

5. Installation Guide

Follow these steps for proper installation of your solar charge controller. It is crucial to connect components in the specified order to prevent damage.

5.1 Wiring Sequence:

1. **Connect the Battery:** First, connect the battery to the charge controller. Ensure correct polarity (positive to positive, negative to negative). The controller will power on once the battery is connected.
2. **Connect the Solar Panels (PV Array):** Next, connect the solar panels to the charge controller. Again, observe correct polarity.
3. **Connect the DC Load (Optional):** Finally, connect any DC loads to the designated load terminals on the controller.

Important: Disconnect components in the reverse order (Load, then PV, then Battery) when uninstalling or performing maintenance.

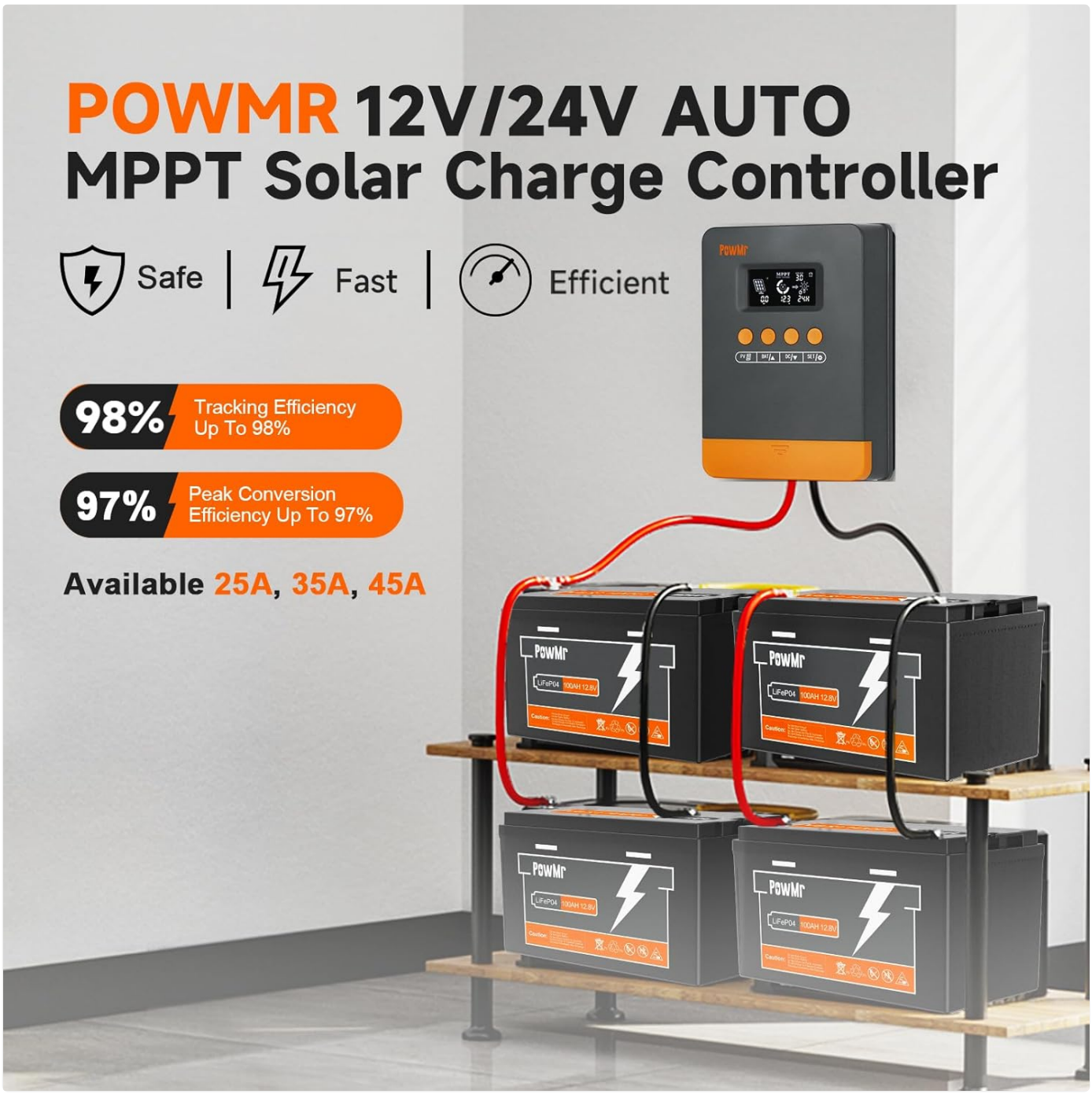


Figure 5.1: System wiring diagram for the PowMr MPPT Solar Charge Controller.

5.2 Installation Steps Visual Guide:

For a visual demonstration of the wiring process, please refer to the official wiring guide video:

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Video 5.1: Official PowMr Solar Charge Controller Wiring Guide. This video demonstrates the physical installation and wiring steps for the controller.

6. Operating Instructions

The controller features an LCD display and four buttons for easy operation and setting adjustments.

6.1 Button Functions:

- **PV Button:** Toggles display to show PV panel information.
- **BAT/▲ Button:** Used to enter setting programs and increase values.
- **DC/▼ Button:** Used to toggle through options and decrease values.
- **SET/⚙ Button:** Used to save and confirm settings.

6.2 Battery Type Settings:

The controller supports various battery types. To set the battery type:

1. Long press the **BAT/▲** key to enter the setting program.
2. Use the **BAT/▲** and **DC/▼** keys to toggle through the battery type options.
3. Press the **SET/⚙** key to save and confirm your selection.



Figure 6.1: Compatible battery types and setting options.

6.3 Calibrating Battery Voltage:

If there is a discrepancy between the battery voltage monitored by the controller and a multimeter, you can calibrate it:

1. Long press the **BAT**/▲ key to enter the setting program.
2. Use the **BAT**/▲ and **DC**/▼ keys to adjust the voltage value.
3. Press the **SET**/⚙ key to save and confirm.

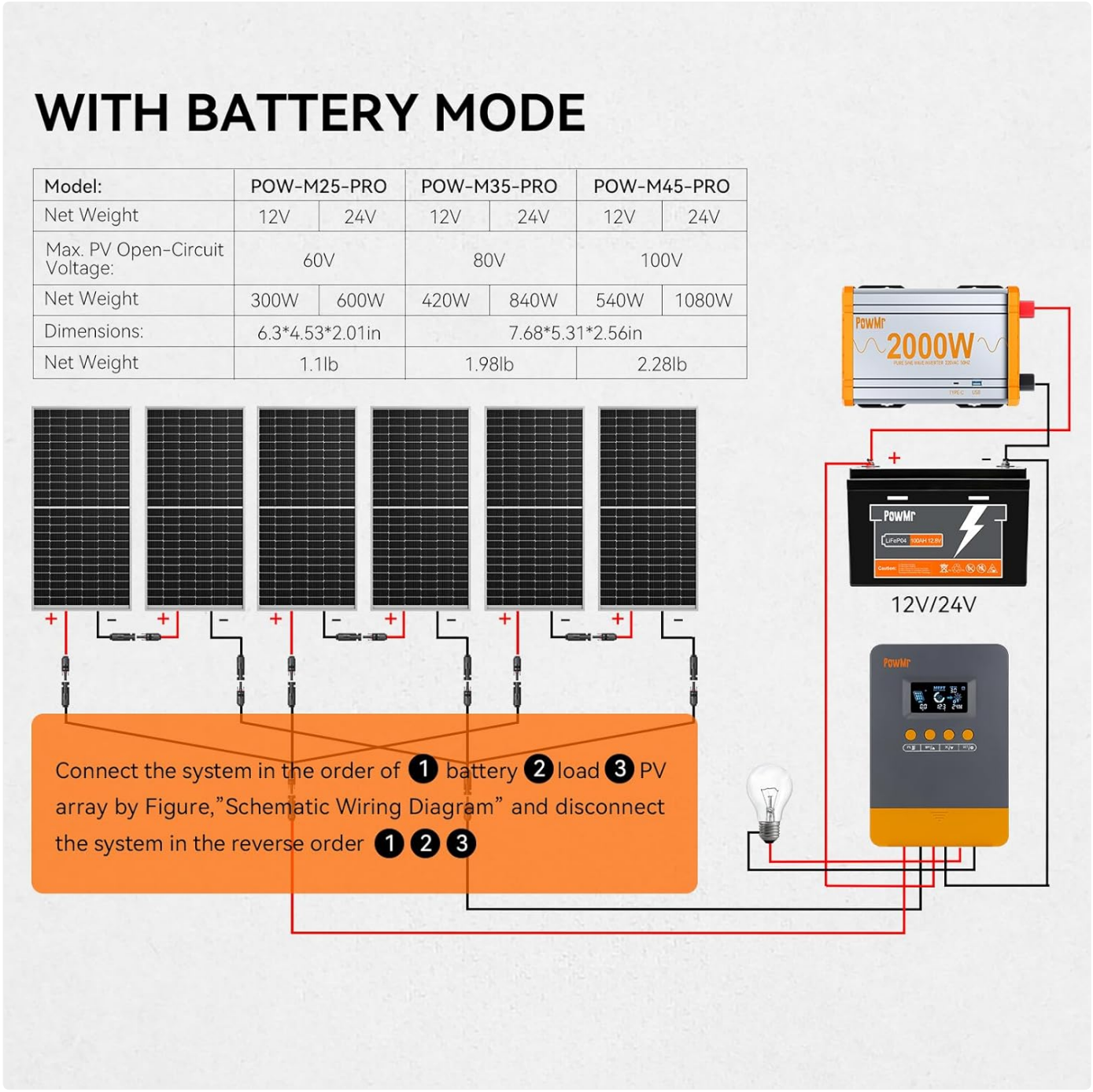


Figure 6.2: Battery voltage calibration on the LCD screen.

6.4 Load Work Modes:

The controller offers multiple modes for managing the DC load output:

- **00H:** Load is always OFF.
- **24H:** Load is always ON.
- **01H~23H:** Time control mode, allowing you to set the duration the load is ON.

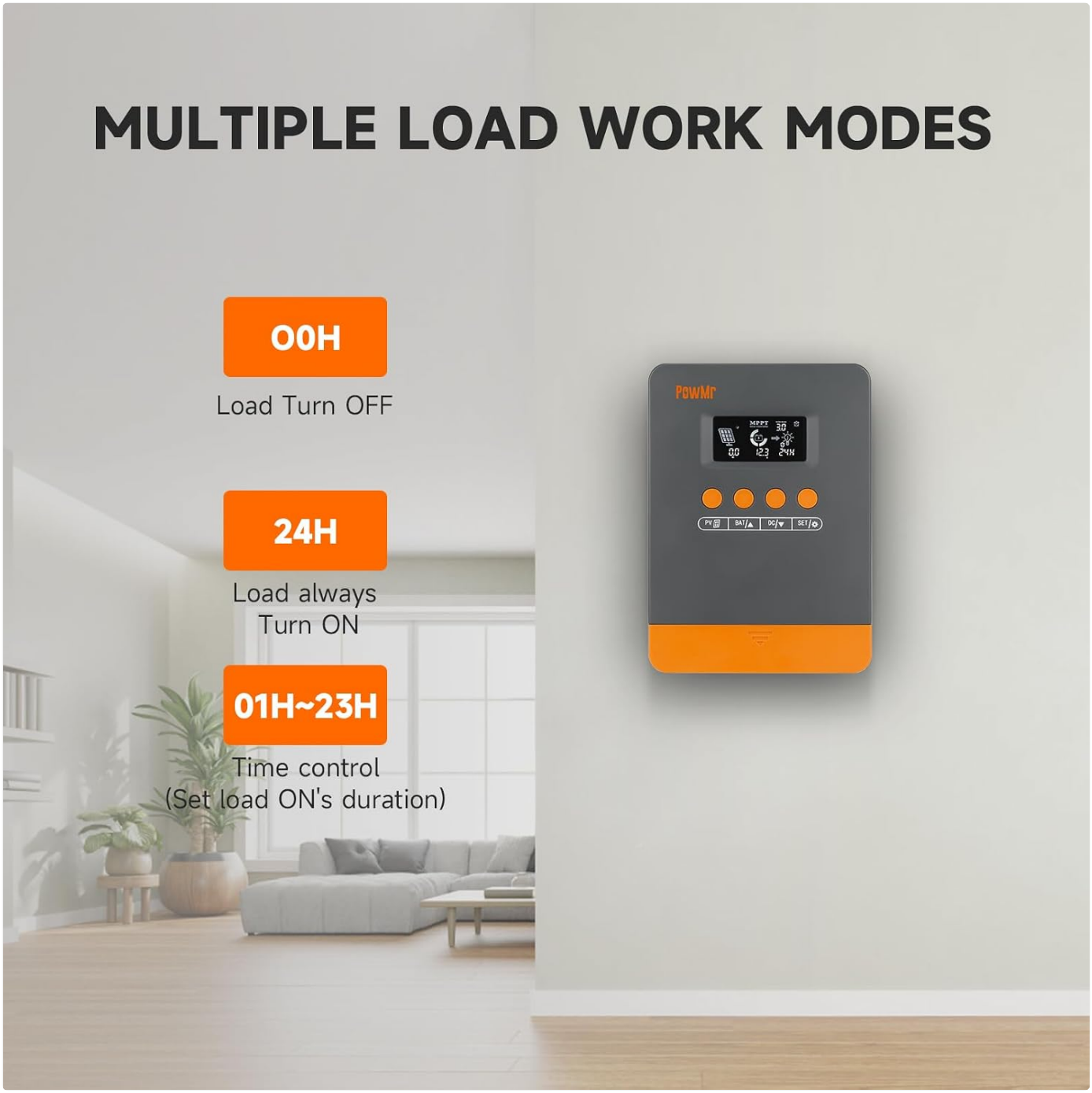


Figure 6.3: Multiple load work modes for the DC output.

7. Maintenance

Regular maintenance ensures the longevity and optimal performance of your solar charge controller:

- **Cleanliness:** Keep the controller clean and free from dust and debris. Use a dry cloth for cleaning.
- **Connections:** Periodically check all wiring connections to ensure they are tight and secure. Loose connections can lead to power loss or overheating.
- **Ventilation:** Ensure the installation area remains well-ventilated to prevent overheating of the controller.
- **Inspection:** Inspect the controller and wiring for any signs of damage, corrosion, or wear. Address any issues promptly.

8. Troubleshooting

The LCD display provides fault codes to help diagnose common issues. Refer to the table below for common fault codes and their solutions:



Figure 8.1: Troubleshooting guide with fault codes and solutions.

Fault Code	Cause	Solution
18	Input photovoltaic voltage too low	Increase the number of solar panels or connect them in series to raise the photovoltaic input voltage.
60	Overtemperature protection	Allow the equipment to cool to below the recovery temperature to resume normal charging and discharging.
63	Battery voltage too high	Measure to confirm if battery voltage exceeds rated voltage and disconnect photovoltaic array circuit breaker.
65	Battery voltage too low	Charge the battery until voltage exceeds the undervoltage recovery point. Refer to "5.7 Default Parameters for Different Battery Types" for details.

71	Input photovoltaic voltage too high	Reduce the number of photovoltaic arrays connected to the controller to lower photovoltaic input, or adjust series and parallel connections to reduce voltage or current values.
73	Overcharging current	Reduce output terminal load to ensure total load is within rated limits of the controller and battery.
72	Overdischarging current	Reduce output terminal load to ensure total load is within rated limits of the controller and battery.

If the issue persists after attempting the suggested solutions, please contact PowMr customer support.

9. Warranty and Support

For warranty information, technical support, or service inquiries, please contact PowMr customer service through their official channels or visit their store page on Amazon:
PowMr Official Amazon Store
Please have your product model number (POW-M25-PRO) and purchase details ready when contacting support.

Ask a question about this manual

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

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Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

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