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POWLSOJX 80A

POWLSOJX MPPT Solar Charge Controller 80A User Manual

Model: 80A | Brand: POWLSOJX

1. Introduction

This manual provides essential information for the safe and efficient operation of your POWLSOJX MPPT Solar Charge Controller 80A. This controller is designed to optimize power conversion from solar panels to your battery system, supporting 12V, 24V, 36V, and 48V systems with automatic voltage identification. It features an intuitive LCD display and multiple protection mechanisms to ensure reliable performance.

2. Key Features

- **Versatile Operation Modes:** Offers seven distinct modes including charging, light control, time-delay control, general control, manual control, timing control, and factory test mode.
- **Intuitive LCD Display:** Provides real-time information on battery and solar panel status, mode control, load output status, and various parameters for easy monitoring.
- **Efficient MPPT Charging:** Automatic Maximum Power Point Tracking (MPPT) ensures optimal charging efficiency, maximizing power conversion from solar panels.
- **Flexible Discharge Control:** Multiple discharge modes allow for versatile management of the discharge process based on specific needs.
- **Wide Compatibility and Protection:** Compatible with 12V, 24V, 36V, and 48V systems and various battery types (Seal, GEL, Flooded, LiFePO4). Includes low-voltage protection and optional air switch integration.
- **Robust Design:** Features a die-cast aluminum heat sink for efficient heat dissipation, ensuring durability and stable operation.

3. Installation and Connection

Proper installation is crucial for the safe and efficient operation of the solar charge controller. Please follow the recommended connection sequence carefully.

3.1 Recommended Connection Sequence

1. **Connect the Battery:** First, connect the battery to the controller. Ensure correct polarity (positive to positive, negative to negative).
2. **Connect the Solar Panels:** Next, connect the solar panels to the controller. Verify correct polarity.
3. **Connect the DC Load:** Finally, connect your DC load to the controller.

Warning: Always connect the battery first and disconnect the load first when disassembling the system. Incorrect connection order can damage the controller.



Figure 3.1: Connection Steps Diagram. Shows the sequence: 1) Battery, 2) DC Load, 3) PV Panel. Note: The diagram shows DC Load connected before PV Panel, but the text instruction above follows the safer standard of Battery -> PV -> Load.



Figure 3.2: Correct Installation Sequence A. Details input voltage ranges and max input power for 12V, 24V, 36V, and 48V systems.

3.2 Wiring Diagram Overview

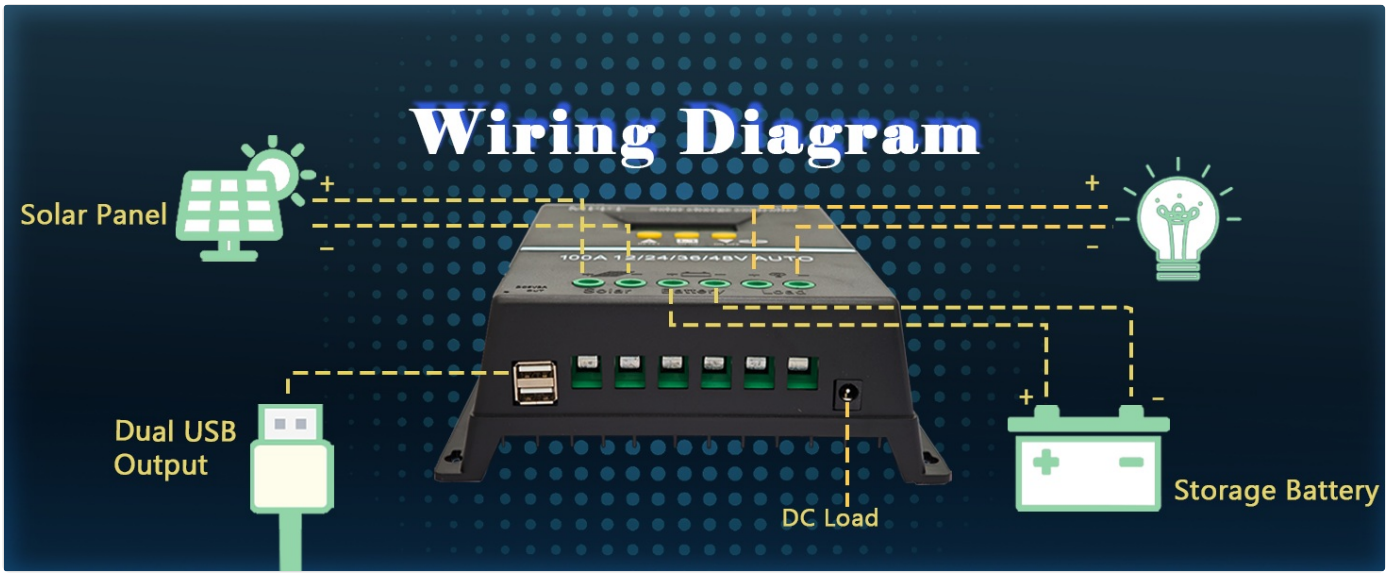


Figure 3.3: Simplified Wiring Diagram. Illustrates the connections for solar panel, battery, DC load, and USB outputs.

3.3 Installation Video

Watch this video for a visual guide on unboxing and initial setup of the solar charge controller.

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Video: POWLSOJX MPPT Solar Charge Controller Overview (17 seconds). This video demonstrates the physical appearance and basic connections of the controller.

4. Operating Modes

The controller supports seven different operating modes to suit various application requirements:



Figure 4.1: Seven Operating Modes. Each mode is designed for specific power management scenarios.

- **Charging Mode:** Standard battery charging.
- **Light Control Mode:** Load turns on/off based on ambient light levels.
- **Light and Time Delay Control Mode:** Load turns on with light, then off after a set time delay.
- **Universal Control Mode:** Load is continuously on.
- **Manual Control Mode:** Load is manually switched on/off.
- **Timing Control Mode:** Load operates for a set duration.
- **Testing Mode:** For factory testing purposes only.

5. LCD Display and Controls

The integrated LCD provides comprehensive system status at a glance. Use the buttons below the display to navigate menus and adjust settings.

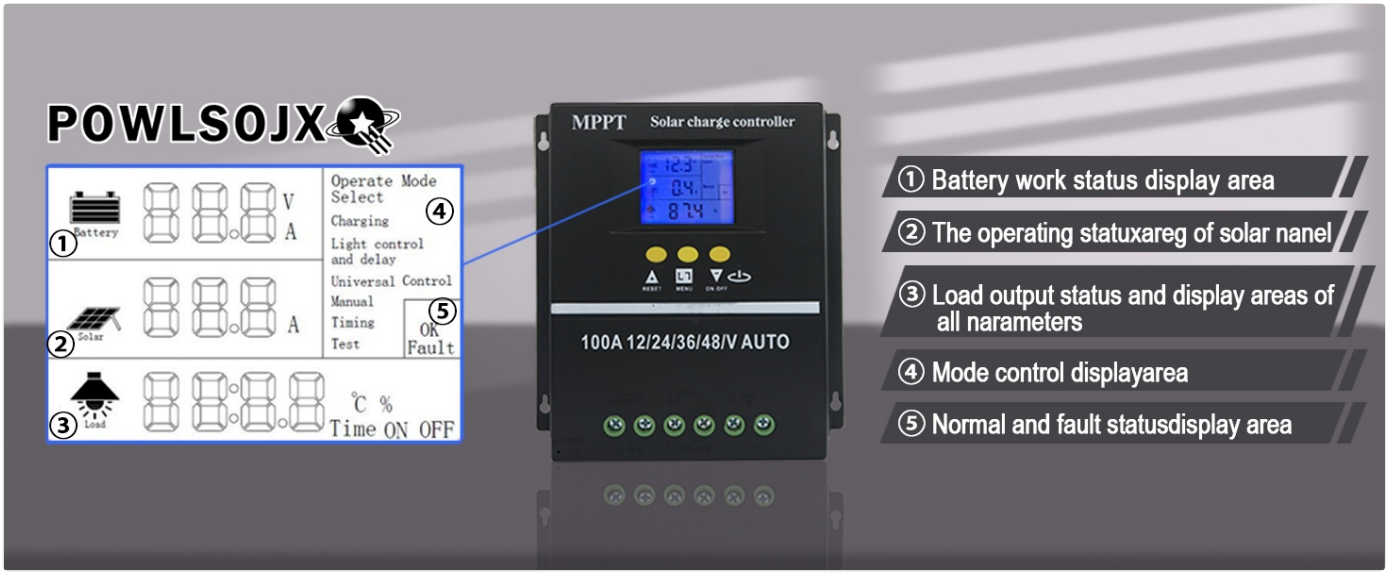


Figure 5.1: LCD Display Areas. The display shows (1) Battery work status, (2) Solar panel operating status, (3) Load output status, (4) Mode control, and (5) Normal and fault status.

The display typically shows:

- Battery voltage and charging current.

- Solar panel voltage and current.
- Load output status (on/off) and current.
- Selected operating mode.
- System fault indicators.

6. Protection Functions

The POWLSOJX MPPT Solar Charge Controller is equipped with multiple protection features to ensure the safety and longevity of your system.

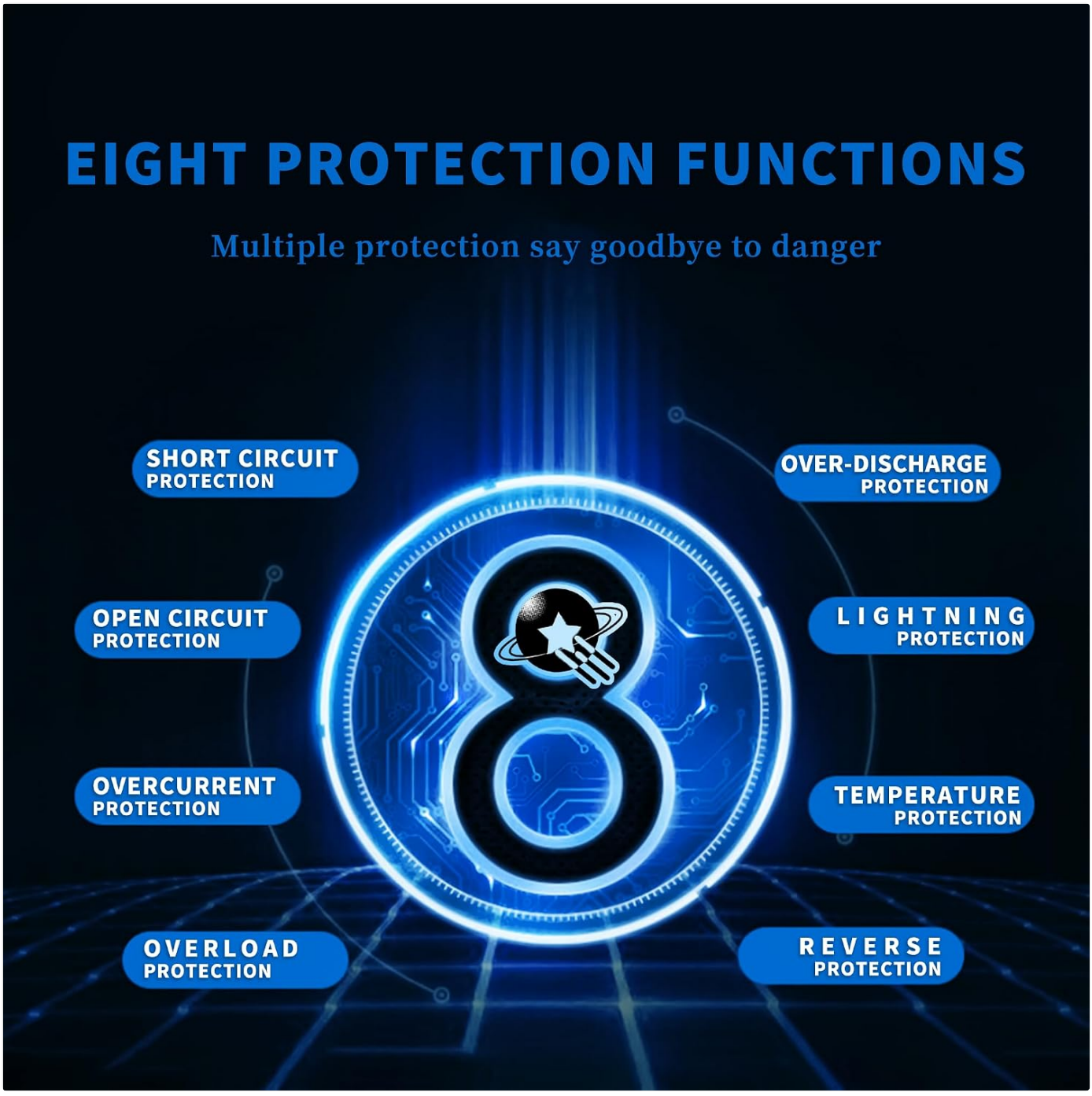


Figure 6.1: Eight Protection Functions. These safeguards protect the controller, battery, and connected loads.

- **Short Circuit Protection:** Prevents damage from short circuits in the system.
- **Over-Discharge Protection:** Protects the battery from excessive discharge, extending its lifespan.
- **Open Circuit Protection:** Safeguards against damage if a circuit becomes open.

- **Lightning Protection:** Offers protection against lightning strikes.
- **Overcurrent Protection:** Prevents damage from excessive current flow.
- **Temperature Protection:** Monitors and regulates internal temperature to prevent overheating.
- **Overload Protection:** Protects against excessive load on the output.
- **Reverse Protection:** Guards against damage from incorrect polarity connections.



Figure 6.2: Multiple Protections for Enhanced Security.

7. Battery Compatibility

The controller is compatible with various battery types, automatically identifying 12-48V batteries.



Figure 7.1: Compatible Battery Types. Supports Seal, GEL, Flooded, and LiFePO4 batteries.

8. Specifications

Technical specifications for the POWLSOJX MPPT Solar Charge Controller 80A:

Feature	Specification

Feature	Specification
Model	80A
Brand	POWLSOJX
System Voltage	12V / 24V / 36V / 48V Auto
Display Type	LCD
Color	Black
UPC	715748231233
Heat Dissipation	Die-cast aluminum heat sink

8.1 Dimensions

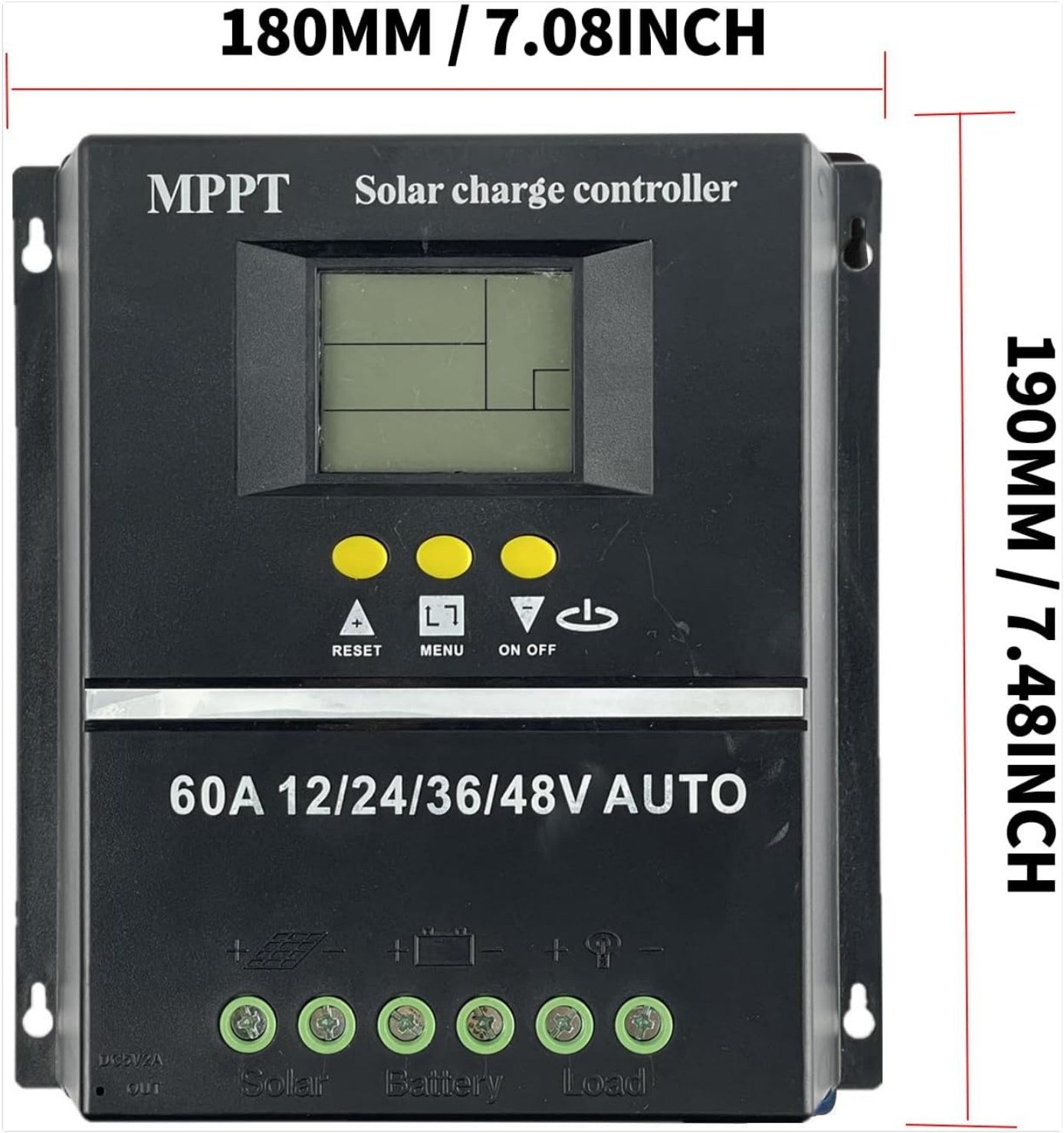


Figure 8.1: Controller Dimensions (approximate for 60A model, similar for 80A). Width: 180mm (7.08 inches), Height: 190mm (7.48 inches).

8.2 Efficient Heat Dissipation



Figure 8.2: Efficient Heat Dissipation Design. The die-cast aluminum heat sink ensures high heat dissipation efficiency.

9. Maintenance

To ensure optimal performance and longevity of your solar charge controller, regular maintenance is recommended:

- **Inspect Connections:** Periodically check all wiring connections for tightness and corrosion. Loose connections can cause overheating and poor performance.
- **Clean the Controller:** Keep the controller clean and free from dust and debris. Use a dry cloth to wipe the exterior. Ensure ventilation openings are not blocked.
- **Monitor Performance:** Regularly check the LCD display for normal operation and any error codes. Compare actual system performance with expected values.
- **Battery Health:** Monitor battery voltage and health. Ensure batteries are maintained according to their manufacturer's guidelines.
- **Environmental Conditions:** Ensure the controller is installed in a well-ventilated area, away from direct sunlight,

moisture, and corrosive environments.

10. Troubleshooting

If you encounter issues with your solar charge controller, refer to the following basic troubleshooting steps:

- **No Display/Power:**
  - Check battery connections and ensure the battery has sufficient charge.
  - Verify all wiring is correctly connected and secure.
- **Battery Not Charging:**
  - Ensure solar panels are connected correctly and receiving adequate sunlight.
  - Check solar panel voltage and current.
  - Verify battery type settings are correct on the controller.
- **Load Not Working:**
  - Check load connections and ensure the load is not faulty.
  - Verify the selected operating mode allows for load output.
  - Check for overcurrent or short circuit protection activation.
- **Error Codes:** Refer to the specific error code displayed on the LCD (if any) and consult the manufacturer's support for detailed solutions.

For persistent issues, contact customer support.

11. Warranty and Support

For warranty information, please refer to the documentation provided with your purchase or contact POWLSOJX customer service. Keep your purchase receipt as proof of purchase.
For technical support, product inquiries, or assistance with troubleshooting, please contact POWLSOJX directly through their official channels or the retailer where the product was purchased.

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