

POWOXI UK-RX-MPPT-parent

POWOXI 30W Solar Battery Charger with MPPT Controller User Manual

Model: UK-RX-MPPT-parent

1. INTRODUCTION

Thank you for choosing the POWOXI 30W Solar Battery Charger. This device is designed to efficiently maintain and charge your 12V batteries using solar power, featuring an advanced MPPT (Maximum Power Point Tracking) controller for optimal performance. This manual provides essential information for safe and effective use, including setup, operation, maintenance, and troubleshooting.

2. PRODUCT OVERVIEW

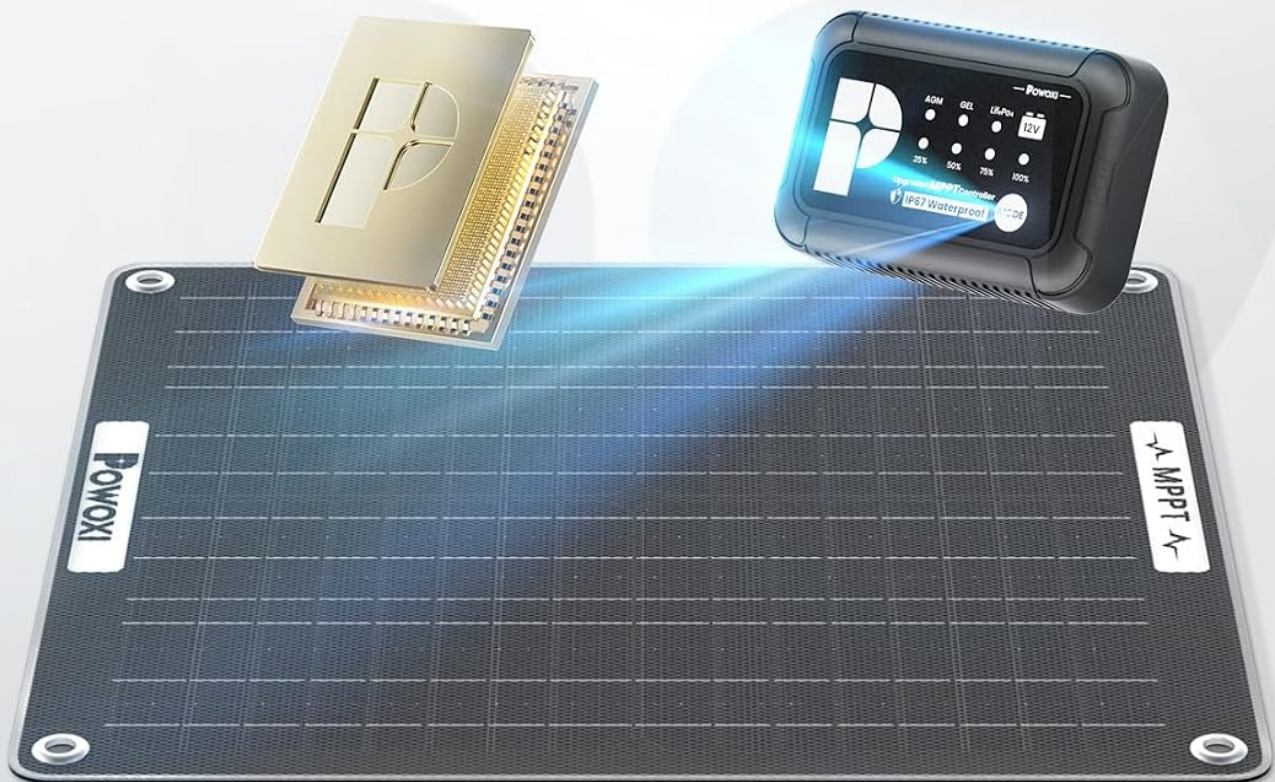
The POWOXI 30W Solar Battery Charger is a versatile 12V solar trickle maintainer equipped with an integrated MPPT charge controller. Its key features include:

- **Enhanced Independent MPPT Controller:** The built-in IP67 waterproof MPPT controller intelligently adapts to battery temperature and sunlight conditions, delivering precise charging voltage through a three-stage process (Bulk, Absorption, Float) for superior safety and extended battery life.
- **Advanced P&O Incremental Conductance Algorithm:** This technology optimizes charging efficiency by up to 36% compared to non-MPPT chargers, ensuring effective performance even on cloudy days.
- **ETFE Anti-solar Refraction Material:** The ETFE material offers exceptional light transmittance (up to 95%) and robust UV resistance, preventing degradation and ensuring long-term transparency and durability in harsh temperatures and corrosive environments.
- **Comprehensive Battery Protection:** Compatible with all 12V lead-acid batteries (flooded, gel, AGM, SLA, VRLA, maintenance-free) and 12V LiFePO4/Lithium batteries. Features include over-charge, over-discharge, over-voltage, over-current, over-load, short circuit, polarity inversion, and over-temperature protection.
- **Intuitive Charging & Maintenance:** A 4-stage battery indicator (25%-50%-75%-100%) provides clear monitoring of charge level and progress. The unit automatically stops charging when the battery reaches full capacity and will resume when needed, ensuring continuous maintenance without overcharging.

2-in-1 Solar Power

Independent MPPT for Total Control & Effortless Energy

Introducing the POWOXI M-Series Independent MPPT ControllerEdition. Featuring the advanced POWOXI-M Series algorithm, it significantly boosts solar charging efficiency. Plus, with 6 safety protections you get truly worry-free charging



Over Temperature Protection



Reverse Current Protection



over charge Protection



Over Current Protection



Short Circuit Protection



Discharge Protection

Figure 2.1: The POWOXI 30W Solar Panel with its integrated MPPT controller, highlighting its compact 2-in-1 design and safety features.



Figure 2.2: Close-up view of the solar panel surface, illustrating the ETFE anti-solar refraction material that enhances sunlight conversion efficiency and durability.

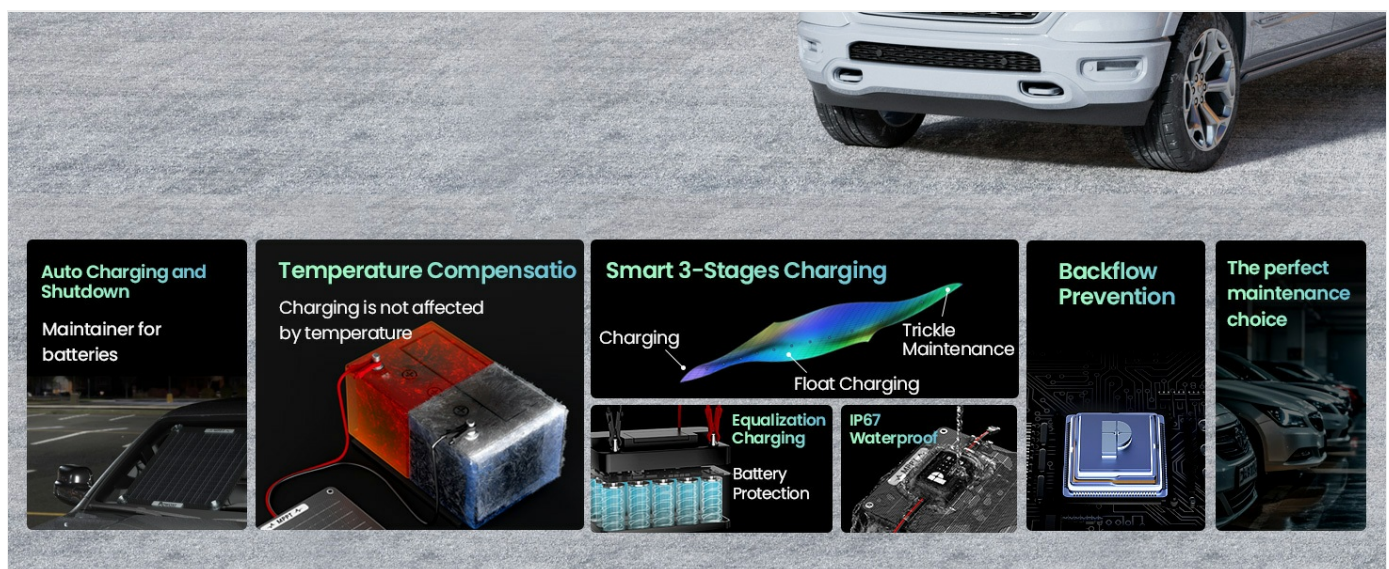


Figure 2.3: A graph demonstrating the MPPT controller's "Perturb and Observe" algorithm, which continuously adjusts charging voltage to maximize power output from the solar panel under varying sunlight intensities.

3. PACKAGE CONTENTS

Verify that all items are present in your package:

- 1 x 30W Solar Panel
- 1 x 12V/24V Solar Charge Controller (integrated)
- 1 x 12V Battery Clamp Cable
- 1 x 12V Car Adapter Cable
- 1 x 12V Battery Cable (with ring terminals)
- 1 x User Manual
- Suction Cups (for mounting)

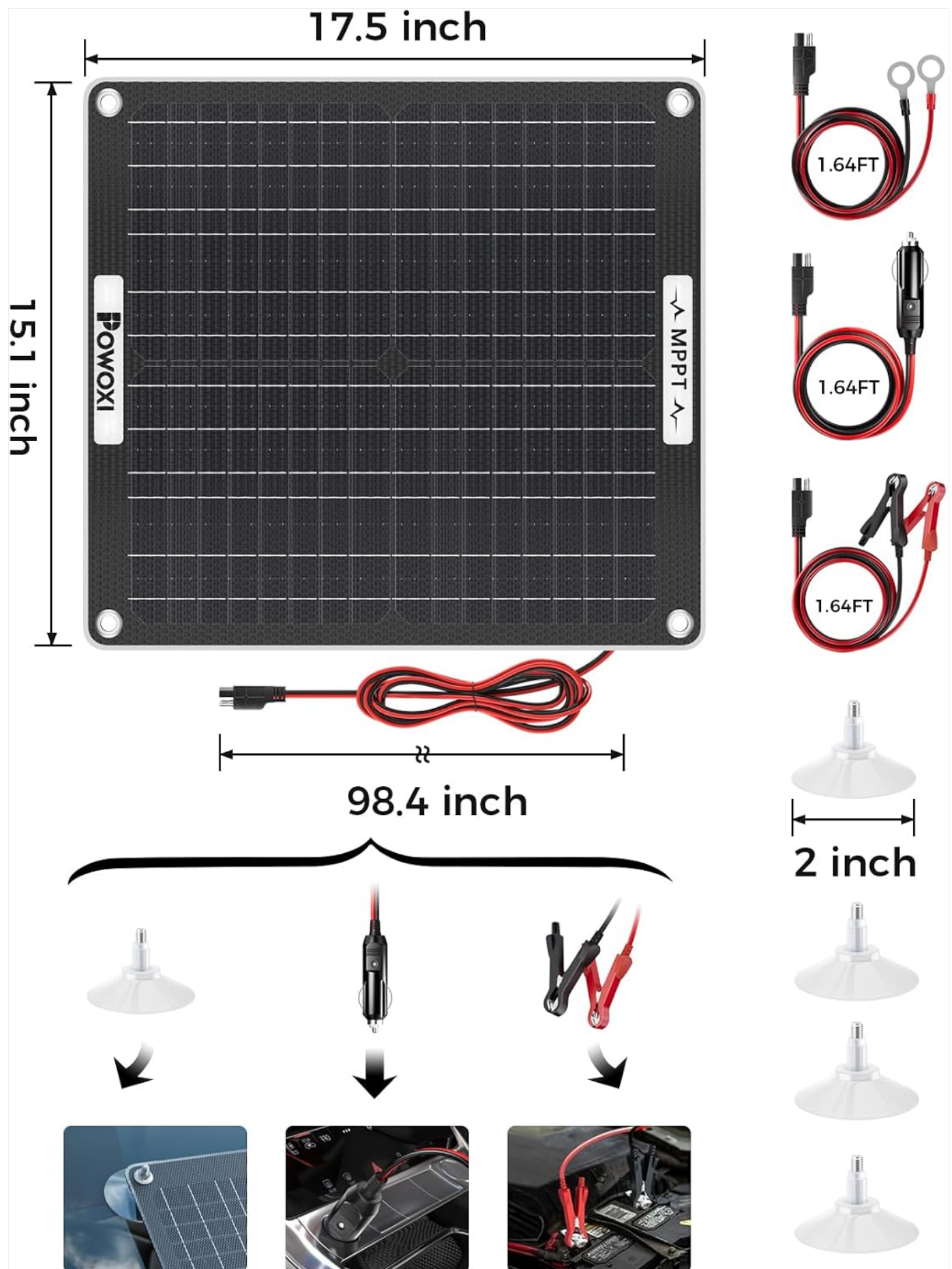


Figure 3.1: All components included with the POWOXI 30W Solar Battery Charger, showing the solar panel, integrated controller, and various connection cables (battery clamps, car adapter, ring terminals) along with suction cups for mounting.

4. SETUP

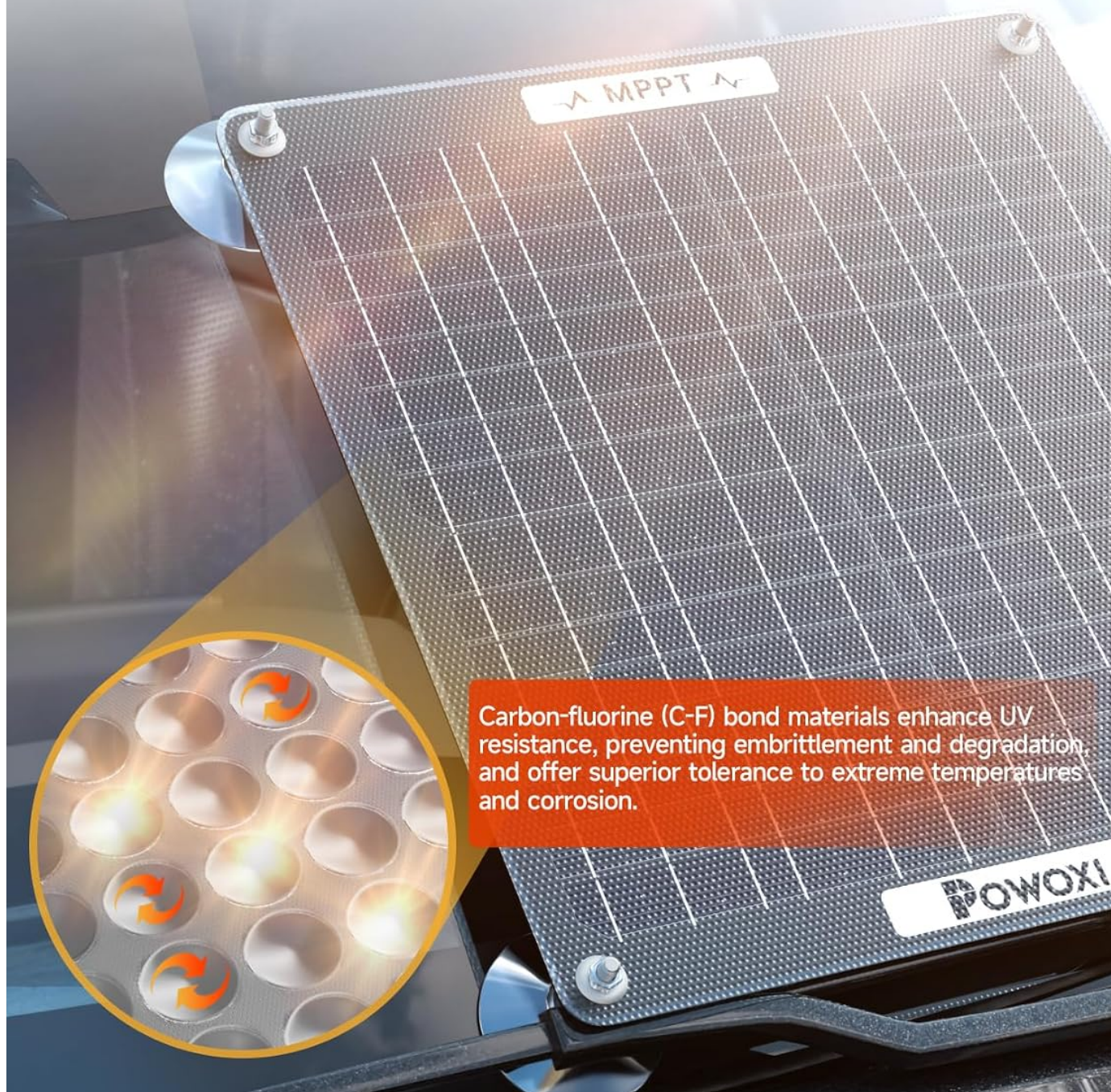
Follow these steps to set up your POWOXI Solar Battery Charger:

1. **Choose a Location:** Select a location for the solar panel that receives maximum direct sunlight throughout the day. The panel is designed for outdoor use and can withstand various weather conditions.
2. **Mounting the Panel:**
 - For windshield or window mounting, attach the provided suction cups to the designated holes on the solar panel. Ensure the surface is clean and dry for optimal adhesion.
 - Alternatively, the panel can be placed flat on a surface or secured using other appropriate mounting hardware (not included) through its corner eyelets.
3. **Connect the Controller:** The MPPT charge controller is integrated with the solar panel. Ensure the connection between the solar panel cable and the controller is secure.
4. **Connect to Battery:**
 - **Using Battery Clamps:** Connect the red clamp to the positive (+) terminal of your 12V battery and the black clamp to the negative (-) terminal.
 - **Using Ring Terminals:** For a more permanent connection, attach the ring terminals directly to your battery posts (red to positive, black to negative) and secure them with the battery nuts.
 - **Using Car Adapter:** Plug the car adapter into your vehicle's 12V auxiliary power outlet (cigarette lighter socket). This method is suitable for maintaining the battery while the vehicle is parked.

Ensure all connections are firm and correct polarity is observed to prevent damage.

ETFE Anti-solar refraction Sunlight conversion efficiency is improved

ETFE offers excellent light transmittance (up to 95%), boosting solar cell efficiency by maximizing light delivery. Crucially, its high transparency remains stable long-term



Carbon-fluorine (C-F) bond materials enhance UV resistance, preventing embrittlement and degradation, and offer superior tolerance to extreme temperatures and corrosion.

Figure 4.1: The POWOXI solar panel mounted on a car windshield with suction cups, and the controller connected to the car battery under the hood using battery clamps.

Your browser does not support the video tag.

Video 4.1: Official product video demonstrating the unboxing and setup of the POWOXI 30W Solar Battery Charger, including connecting it to a vehicle battery.

5. OPERATING INSTRUCTIONS

Once connected, the POWOXI Solar Battery Charger operates automatically. Observe the indicator lights on the controller for status updates:

1. **Battery Type Selection:** Press the "MODE" button on the controller to select the appropriate battery type (AGM, GEL, LiFePO4, or Lithium). Ensure the correct type is selected for optimal charging and battery longevity.
2. **Charging Status Indicators:** The controller features a 4-stage battery indicator (25%, 50%, 75%, 100%).
 - When charging, the light for the next charge stage will flash.
 - Once a stage is complete, its indicator light will remain solid.
 - All lights solid indicate a fully charged battery.
3. **Automatic Maintenance:** The charger will automatically stop charging when your battery reaches full capacity and will resume charging if the battery level drops, ensuring continuous maintenance without overcharging.

No More Charging Headaches

The Universal 12V Battery Solution, Suitable for
12v LiFePO₄, AGM, EFB, GEL, SLA, Lithium ion

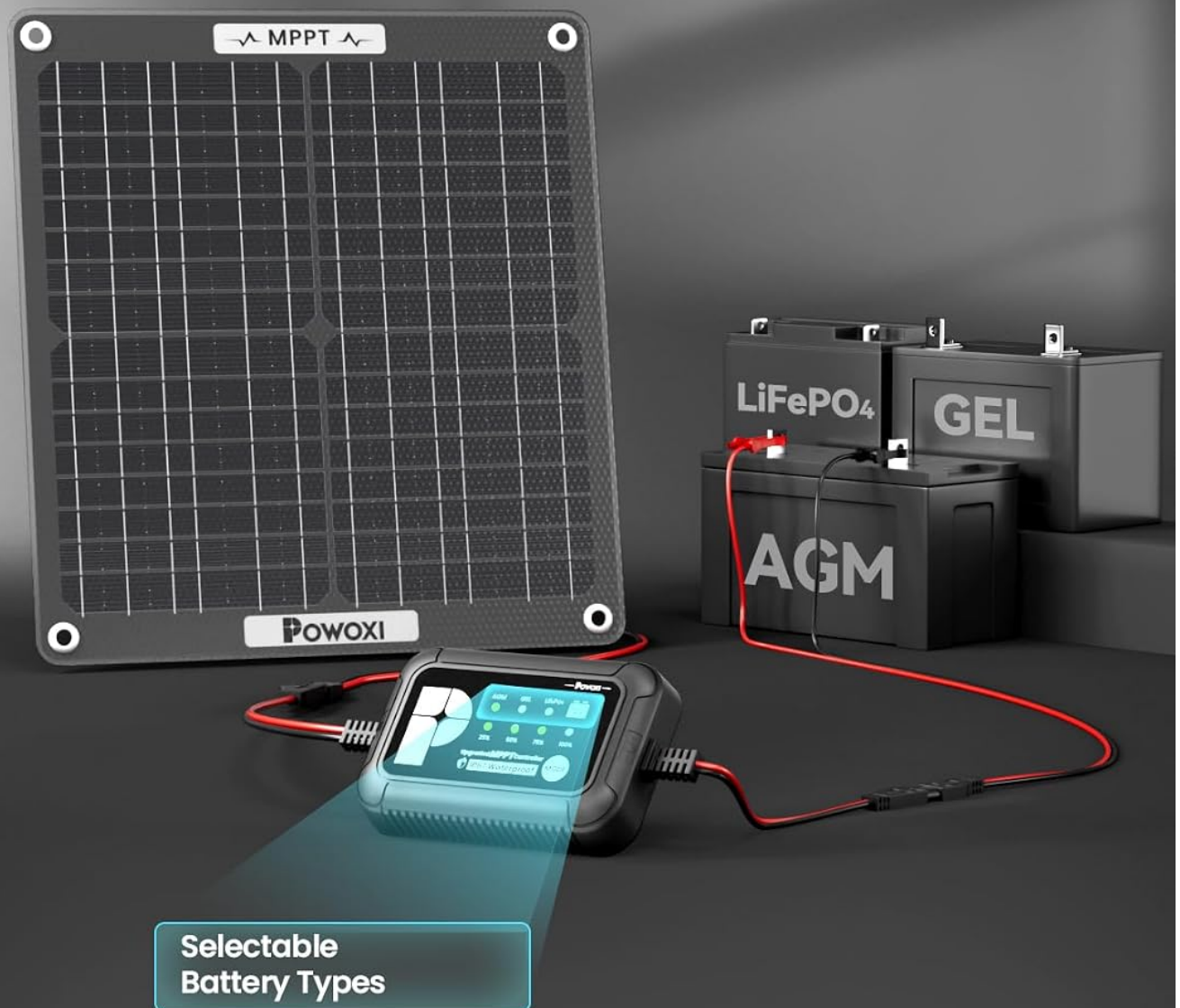


Figure 5.1: The MPPT controller displaying selectable battery types (AGM, GEL, LiFePO₄, Lithium) and charge level indicators, allowing users to choose the correct setting for their battery.

Make Charging Become Simple

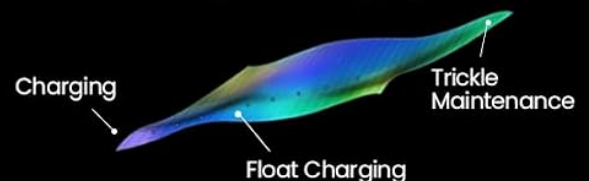
12V MPPT 15W / 30W / 50W
POWOXI M-series Solar Battery Charger



Temperature Compensation
Charging is not affected by temperature



Smart 3-Stages Charging



Equalization Charging
Battery Protection



IP68 Waterproof



Backflow Prevention



Figure 5.2: The POWOXI solar charger connected to a vehicle, demonstrating its ease of use for maintaining battery charge. This image also shows the smart 3-stage charging process and temperature compensation features.

6. MAINTENANCE

To ensure the longevity and optimal performance of your POWOXI Solar Battery Charger, follow these maintenance guidelines:

- **Cleaning:** Regularly wipe the solar panel surface with a soft, damp cloth to remove dust, dirt, and debris. A clean panel ensures maximum sunlight absorption. Avoid abrasive cleaners or harsh chemicals.
- **Connection Check:** Periodically inspect all cable connections (solar panel to controller, controller to battery) to ensure they are secure and free from corrosion. Clean any corroded terminals with a wire brush if necessary.
- **Storage:** If storing the charger for an extended period, disconnect it from the battery and store it in a cool, dry place away from direct sunlight and extreme temperatures.
- **Environmental Considerations:** While the unit is IP67 waterproof, prolonged submersion is not recommended. Ensure proper drainage around the unit if used in wet environments.

7. TROUBLESHOOTING

If you encounter issues with your POWOXI Solar Battery Charger, refer to the following common problems and solutions:

Problem	Possible Cause	Solution
No indicator lights on controller.	No sunlight, poor connection, or faulty unit.	Ensure panel is in direct sunlight. Check all cable connections for tightness and correct polarity. If problem persists, contact customer support.
Battery not charging or charging slowly.	Insufficient sunlight, dirty panel, incorrect battery type selected, or battery issue.	Relocate panel to direct sunlight. Clean panel surface. Verify correct battery type is selected on the controller. Check battery health.
Controller lights flashing erratically.	Unstable connection or internal fault.	Check all connections. Disconnect and reconnect the unit. If the issue continues, contact customer support.
Unit feels excessively hot.	Normal operation under direct sun, or potential overload.	Some warmth is normal. Ensure proper ventilation around the controller. If it's excessively hot or emitting smoke/smell, disconnect immediately and contact support.

For issues not listed above, please contact POWOXI customer support.

8. SPECIFICATIONS

Feature	Detail
Brand	POWOXI
Model Number	UK-RX-MPPT-parent
Material	ETFE
Product Dimensions (L x W x H)	9.06"L x 1.57"W x 18.7"H
Item Weight	450 Grams
Efficiency	High Efficiency (up to 36% more than standard panels)
Amperage Capacity	1.67 Amps
Maximum Voltage	18 Volts

Feature	Detail
Maximum Power	30 Watts
Output Voltage	14.4 Volts
Special Features	Portable, IP67 Waterproof, MPPT Controller, Multi-battery compatibility

9. WARRANTY AND SUPPORT

The POWOXI 30W Solar Battery Charger comes with a 12-month after-sales service guarantee. Its quality is assured by CE/ROHS certifications.

- **Technical Support:** Free lifetime technical support is available.
- **Contact Us:** If you have any questions, require assistance, or need to report an issue, please contact POWOXI customer support. Your feedback helps us improve our products and services.

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.

Name

Anonymous

Email

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. [Privacy details](#).

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.

Submit question