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Temank 60A MPPT Solar Controller

Temank 60A MPPT Solar Charge Controller User Manual

Model: 60A MPPT Solar Controller
Brand: Temank

1. Introduction

This manual provides detailed instructions for the installation, operation, and maintenance of your Temank 60A MPPT Solar Charge Controller. Please read this manual thoroughly before using the product to ensure proper function and safety.

Image 1.1: The Temank 60A MPPT Solar Charge Controller shown with red and black solar extension cables.

2. Safety Instructions

- Ensure all wiring is correctly polarized and securely connected to prevent damage to the controller or other components.
- Always disconnect the solar panel and battery power before installing or adjusting the controller.
- Install the controller in a well-ventilated area, away from flammable materials and direct sunlight.
- Do not disassemble or attempt to repair the controller yourself. Contact qualified personnel for service.
- Use appropriate wire gauges as recommended in the specifications to avoid overheating.
- The controller is designed for specific battery types. Ensure your battery type is compatible and correctly configured in the controller settings.

3. Product Features

- **Maximum Power Point Tracking (MPPT):** Advanced technology for up to 99% tracking efficiency and 97% peak conversion efficiency.

- **Parallel Capability:** Supports up to 12 units in parallel to increase total system capacity.
- **Dual Cooling System:** Features die-cast aluminum construction and a silent intelligent bladeless fan for efficient heat dissipation.
- **Multi-Battery Compatibility:** Compatible with 12V/24V/36V/48V systems and various battery types including Sealed, Gel, Flooded, and Lithium (LiFePO4), with user-customizable parameters.
- **Wide Voltage/Power Support:** Accepts PV input voltage up to 160V. Supports solar power up to 720W (12V), 1440W (24V), 2100W (36V), and 2800W (48V).
- **Negative Grounding Design:** Enhances safety.
- **Programmable Parameters:** User-programmable Absorption Voltage, Float Voltage, Low Voltage Cutoff, and Load Timer.
- **Real-time Energy Logging:** Monitors system performance.

Image 3.1: Overview of the Temank 60A MPPT Solar Controller's key features and power capabilities for different system voltages.

4. Package Contents

Verify that all items listed below are included in your package:

- Temank 60A Solar Charge Controller (x1)
- User Manual (x1)
- Temperature Sensor (x1)
- Mounting Brackets (x1 set)
- Terminal for parallel connection (x1)

Image 4.1: Visual representation of the items included in the product package.

5. Installation and Setup

5.1 Mounting the Controller

Mount the controller vertically on a non-flammable surface in a well-ventilated area. Ensure there is sufficient clearance around the unit for proper airflow and heat dissipation. Use the provided mounting brackets and screws.

5.2 Wiring Connections

Follow the wiring sequence carefully to prevent damage. Always connect the battery first, then the solar panels, and finally the load (if applicable).

1. **Connect the Battery:** Connect the battery to the controller's battery terminals. Ensure correct polarity (positive to positive, negative to negative). The controller will automatically detect the system voltage (12V/24V/36V/48V).
2. **Connect the Solar Panels:** Connect the solar panel array to the controller's PV terminals using the provided 10AWG solar extension cables. Ensure correct polarity. The controller will begin charging the battery.
3. **Connect the DC Load (Optional):** If using a DC load directly from the controller, connect it to the load terminals.

Recommended Wire Size: 9AWG for optimal performance. The included 10AWG solar extension cables are suitable for connecting solar panels to the controller.

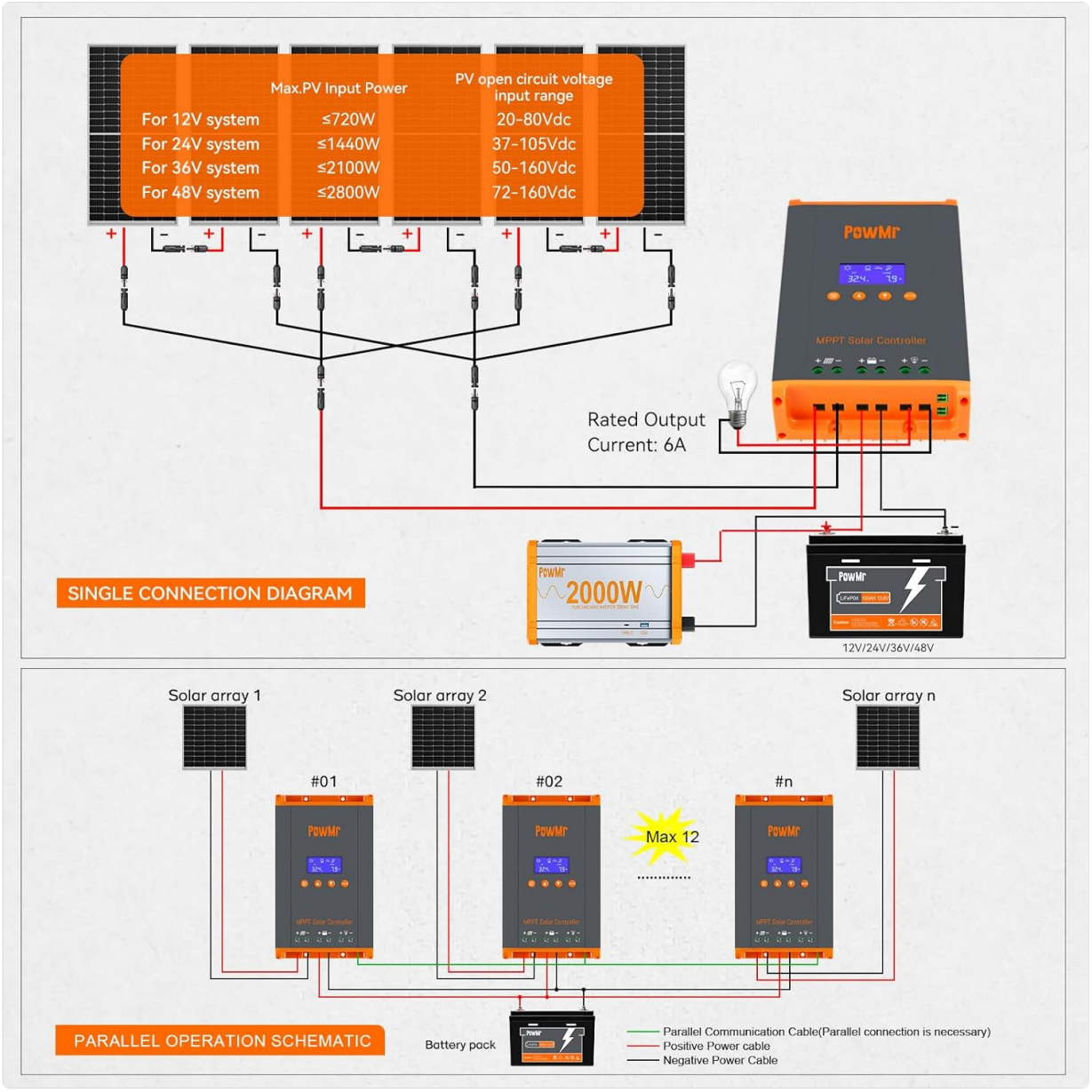


Image 5.1: Diagrams illustrating both single controller and parallel controller wiring configurations for a solar power system.

5.3 Solar Extension Cable Features

The included 10AWG solar extension cables are designed for robust outdoor use:

- **IP67 Waterproof Grade:** Ensures durability and protection against water and dust ingress.
- **Pure Copper Core:** Provides excellent conductivity and minimal power loss.
- **PPO+PA Material:** Offers high resistance to UV, ozone, and harsh weather conditions.
- **Tinned Copper:** 84 strands of 0.295 mm tinned copper wire for enhanced corrosion resistance and conductivity.

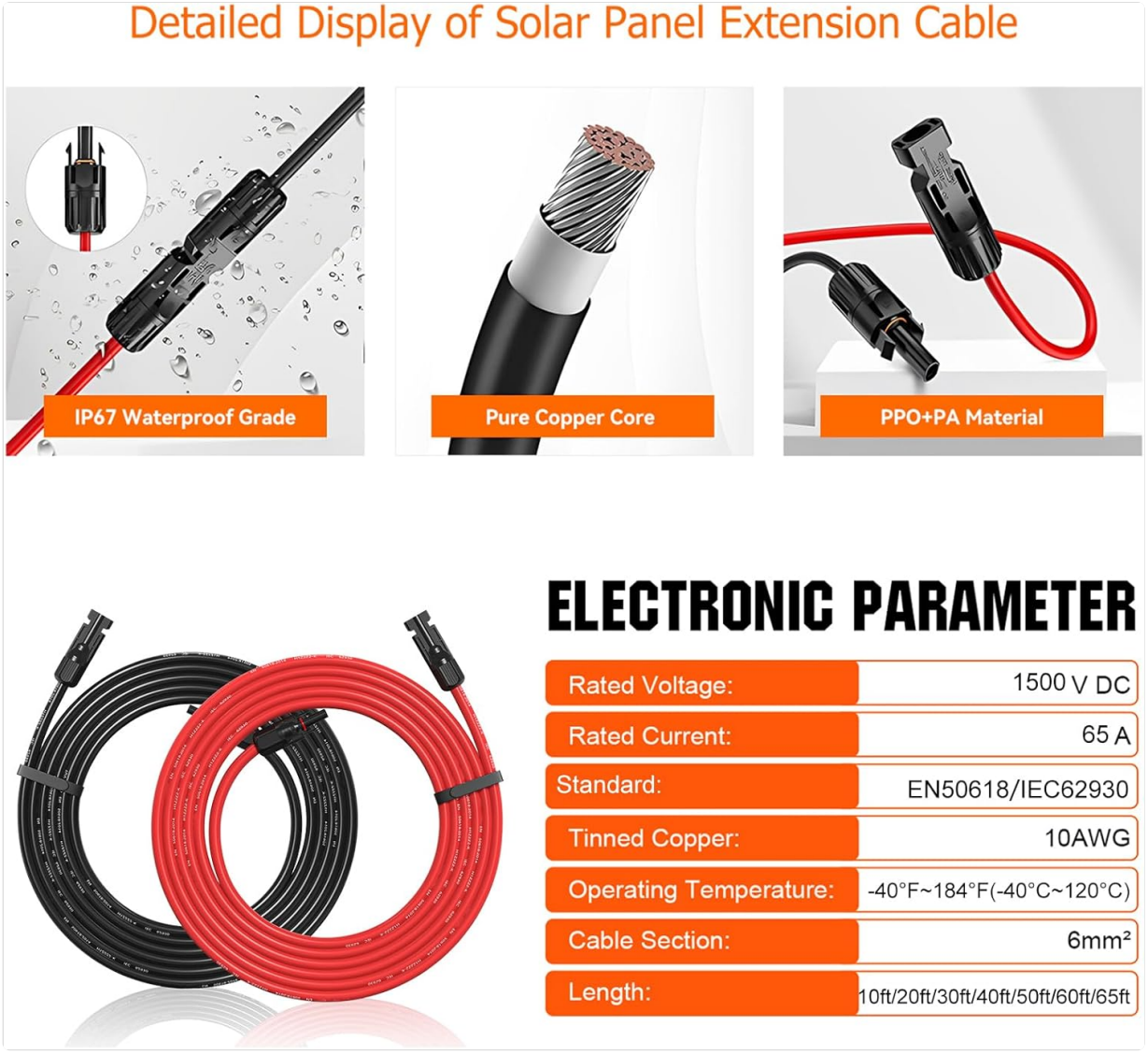


Image 5.2: Close-up view of the solar extension cable highlighting its waterproof rating, pure copper core, and durable PPO+PA outer material.

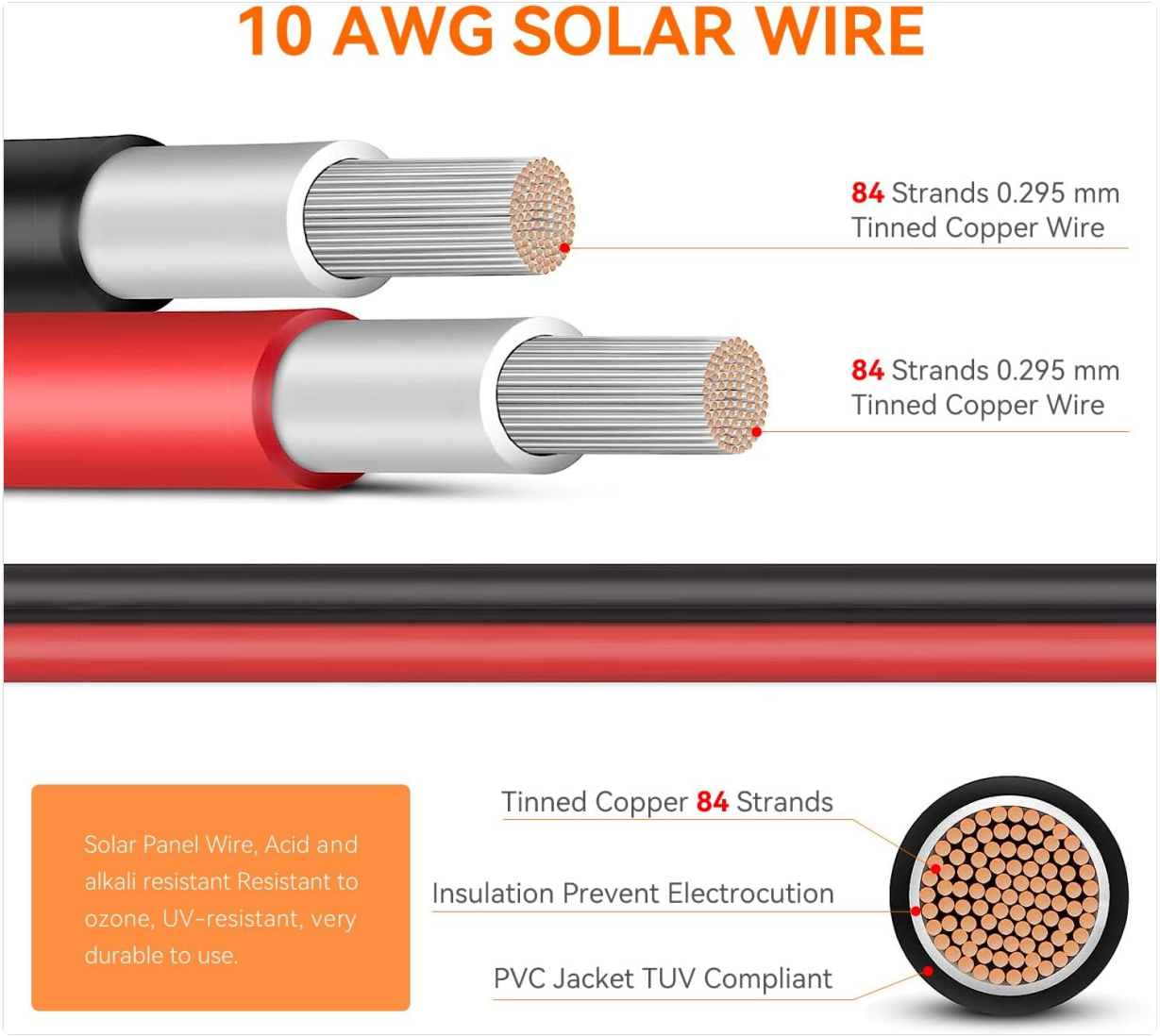


Image 5.3: Further detail on the 10 AWG solar wire, illustrating its tinned copper strands and TUV compliant PVC jacket for safety and durability.

5.4 Parallel Operation

The Temank 60A MPPT Solar Charge Controller supports connecting up to 12 units in parallel to expand your solar system's capacity. This allows for increased power output and improved system reliability. Ensure proper communication cabling and power cabling are used for parallel connections as shown in the diagram.

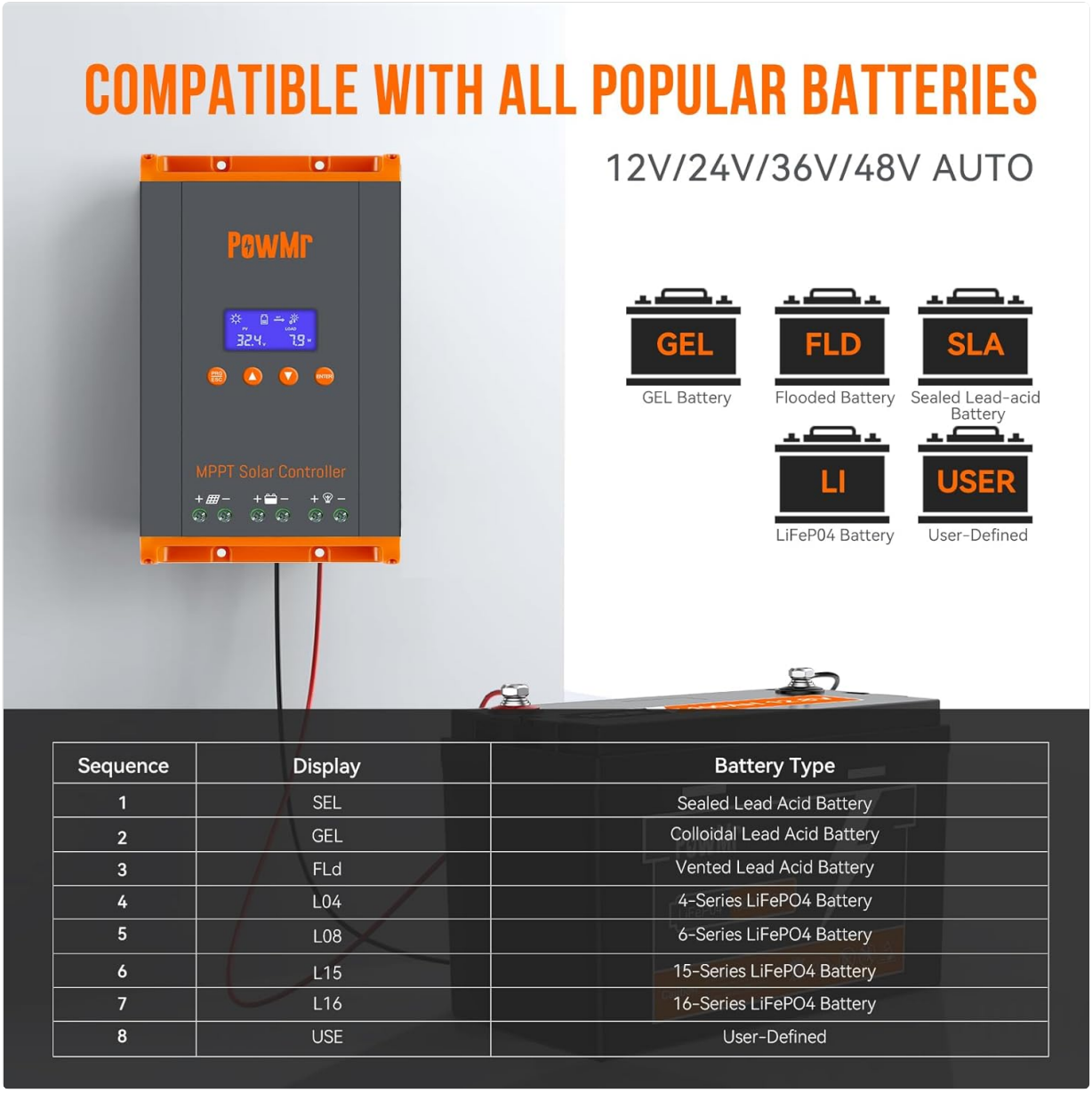
6. Operation

6.1 Display Interface

The controller features an LCD display that shows real-time system information, including PV voltage, battery voltage, charging current, and load status. Use the navigation buttons (PROG/ESC, UP, DOWN, ENTER) to view different parameters and adjust settings.

6.2 Battery Type Configuration

The controller is compatible with various battery types. It is crucial to select the correct battery type in the settings to ensure optimal charging and prolong battery life. The controller supports pre-set parameters for Sealed, Gel, Flooded, and LiFePO4 batteries, with an option for user-defined settings.



Sequence	Display	Battery Type
1	SEL	Sealed Lead Acid Battery
2	GEL	Colloidal Lead Acid Battery
3	FLd	Vented Lead Acid Battery
4	L04	4-Series LiFePO4 Battery
5	L08	6-Series LiFePO4 Battery
6	L15	15-Series LiFePO4 Battery
7	L16	16-Series LiFePO4 Battery
8	USE	User-Defined

Image 6.1: The controller's interface displaying various battery types (GEL, FLD, SLA, LI, USER) and a table detailing their sequence and display codes.

6.3 Three-Stage Charging

The Temank MPPT Solar Charge Controller utilizes a three-stage charging algorithm to optimize battery charging and extend battery lifespan:

- **Bulk Charge:** Charges the battery at the maximum current until the voltage reaches the boost voltage.
- **Boost Charge:** Charges at a constant voltage for a set period to ensure full charge.
- **Float Charge:** Maintains the battery at a lower voltage to compensate for self-discharge and keep it fully charged.

An equalization charge is performed once a month for lead-acid batteries to prevent sulfation.

Image 6.2: A graphical representation of the three-stage charging cycle, including Bulk Charge, Constant Voltage (Boost), and Float Charge, designed to prolong battery life.

7. Specifications

Parameter	Value
Model	60A MPPT Solar Controller
System Voltage	12V/24V/36V/48V Auto
Max. PV Input Voltage	160V DC
Max. PV Input Power (12V System)	720W
Max. PV Input Power (24V System)	1440W
Max. PV Input Power (36V System)	2100W
Max. PV Input Power (48V System)	2800W
Tracking Efficiency	≥98.1%
Peak Conversion Efficiency	Up to 97%
Battery Types Supported	Sealed, Gel, Flooded, LiFePO4, User-defined
Cooling Method	Die-cast aluminum heat sink, bladeless fan
Recommended Wire Size	9AWG
Parallel Capability	Up to 12 units

8. Maintenance

- **Regular Inspection:** Periodically check all wiring connections for tightness and corrosion.
- **Cleanliness:** Keep the controller clean and free from dust and debris to ensure proper heat dissipation.
- **Ventilation:** Ensure the installation area remains well-ventilated and free from obstructions.
- **Battery Check:** Monitor battery voltage and health regularly, especially for lead-acid batteries

requiring equalization.

9. Troubleshooting

This section provides solutions to common issues. If the problem persists, contact customer support.

Problem	Possible Cause	Solution
No display/Controller not powering on	Battery not connected or low voltage; reversed polarity; loose connection.	Check battery connections and voltage. Ensure correct polarity. Tighten all terminals.
No charging from solar panels	Solar panels not connected; low PV voltage; reversed PV polarity; shading on panels.	Verify solar panel connections and polarity. Check PV voltage. Ensure panels are not shaded.
Battery not fully charged	Incorrect battery type setting; insufficient solar input; battery degradation.	Confirm battery type setting. Increase solar panel capacity or reduce load. Test battery health.
Overheating	Poor ventilation; excessive load; high ambient temperature.	Ensure adequate airflow around the controller. Reduce load if possible. Relocate to a cooler area.

10. Warranty and Support

For warranty information and technical support, please refer to the contact details provided with your purchase or visit the official Temank website. Keep your purchase receipt as proof of purchase.