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### Temank MPPT 60A-Parallel

# User Manual for Temank MPPT 60A-Parallel Solar Charge Controller

Model: MPPT 60A-Parallel | Brand: Temank

## 1. INTRODUCTION

This manual provides comprehensive instructions for the installation, operation, and maintenance of the Temank MPPT 60A-Parallel Solar Charge Controller. This device is designed to efficiently manage power flow from solar panels to batteries, ensuring optimal charging and system performance. It supports various battery types and offers advanced features for enhanced energy management.





Figure 1: Temank MPPT 60A-Parallel Solar Charge Controller with LCD display.

## 2. SAFETY INSTRUCTIONS

- Ensure all wiring is performed by qualified personnel in accordance with local electrical codes.
- Always disconnect power from solar panels and batteries before installation or maintenance.
- Wear appropriate personal protective equipment (PPE), including insulated gloves and eye protection.
- Do not attempt to disassemble or repair the controller. Refer to qualified service personnel.
- Install the controller in a well-ventilated area, away from flammable materials and direct sunlight.
- Ensure proper grounding of the system.

## 3. PRODUCT OVERVIEW

### 3.1 Key Features

- **Maximum 12 Units in Parallel:** Allows for expansion of solar system capacity and improved overall power output, suitable for large solar systems.
- **Dual Cooling, Efficient Heat Dissipation:** Constructed with die-cast aluminum and features a silent intelligent bladeless fan for effective cooling (activates  $>45^{\circ}\text{C}$ , turns off  $<40^{\circ}\text{C}$ ).
- **Compatible with Multiple Battery Types:** Supports 12V/24V/36V/48V lead-acid (Sealed, Gel, Flooded) and Lithium (LFP) batteries. User-customizable charging parameters.
- **Wide Range Voltage/Power Support:** Supports high PV input power/voltage. For 12V systems,

suggested solar power is 720W (DC20V~DC80V); for 24V, 1440W (37~105V); for 36V, 2100W (50~160V); for 48V, 2800W (72~160V).

- **99% Tracking Technology:** Advanced Maximum Power Point Tracking (MPPT) technology ensures continuous tracking of the array's maximum power point for optimal battery charging, with tracking efficiency not less than 98.1% and peak conversion efficiency up to 97%.
- **Negative Grounding Design:** Enhances safety.

# MPPT 60A SOLAR CONTROLLER

- 12V/24V/36V/48V Auto
- Fit for Lead-acid and Lithium Battery
- Supports Up to 12 Units in Parallel
- Dual cooling with a fan and heat sink for efficient heat dissipation.
- Tracking efficiency of up to 99.9% , peak conversion efficiency of up to 97%.

**720W**  
For 12V System

**1440W**  
For 24V System

**2100W**  
For 36V System

**2800W**  
For 48V System



The image shows a rectangular solar controller with a black body and orange top and bottom sections. The front panel features the 'POWMr' logo in orange, a blue LCD display showing '32.4' and '7.9', and four orange buttons (power, up, down, enter). Below the buttons, it says 'MPPT Solar Controller'. At the bottom, there are four green indicator lights and terminal symbols for PV (+/-), battery (+/-), and load (+/-).

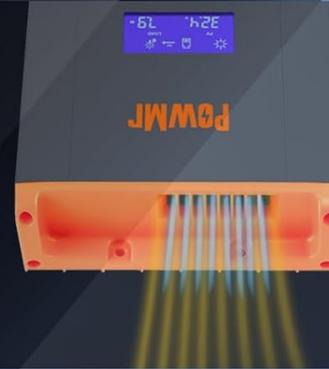
Figure 2: Overview of MPPT 60A Solar Controller features including voltage support and cooling.

# Dual Cooling for Efficient Heat Dissipation!

## Stay Cool with Quiet Bladeless Fan

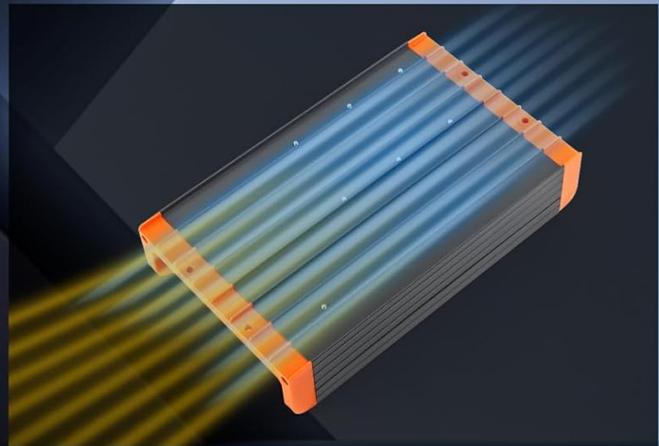
Intelligent fan-on temperature  $>45^{\circ}\text{C}$  and off  $<40^{\circ}\text{C}$ .

Updated Heat Dissipation system with bladeless fan, much more quiet and efficient.



## Strong Build, High Thermal Conductivity

Made of robust die-cast aluminum, the heat sink that comes with the 60A Solar Charge Controller allows the heat flow away through tubes to ensure maximum charging efficiency and safety of critical components.



Fits for RVs, commercial vehicles, boats, yachts, and solar systems

Figure 3: Illustration of the dual cooling system with die-cast aluminum and bladeless fan for efficient heat dissipation.

# COMPATIBLE WITH ALL POPULAR BATTERIES

12V/24V/36V/48V AUTO



GEL Battery



Flooded Battery



Sealed Lead-acid  
Battery



LiFePO4 Battery



User-Defined

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

Figure 4: The controller is compatible with various battery types including GEL, FLD, SLA, LI (LiFePO4), and user-defined settings.

# MULTIPLE PROTECTIONS

## Lithium Battery Activation



**Overvoltage Protection for Batteries**  
Protection



**Over-temperature Protection**  
Protection



**Reversed PV Polarity**  
Protection



**Overdischarge Protection**  
Protection



**Short Circuit**  
Protection



Figure 5: The controller includes multiple protection features such as overvoltage, over-temperature, reversed PV polarity, overdischarge, and short circuit protection.

## 4. SETUP AND INSTALLATION

### 4.1 Mounting the Controller

Securely mount the controller on a wall using four screws. Ensure adequate clearance around the controller for proper airflow and heat dissipation. A minimum of 75mm (approximately 3 inches) clearance is recommended on the top, bottom, left, and right sides.

# ADDING MPP TRACKERS BY PARALLELING

Breaking through installation environment limitations



Figure 6: Recommended mounting clearances (75mm on all sides) for optimal air circulation and heat dissipation.

## 4.2 Wiring Connections

Follow the wiring diagrams carefully. Loosen the terminal screws before inserting wires, then tighten them securely. Recommended wire size: 9AWG.

- Connect the battery wires first (positive and negative).
- Connect the solar input wires (positive and negative).
- Connect the DC load wires (positive and negative).

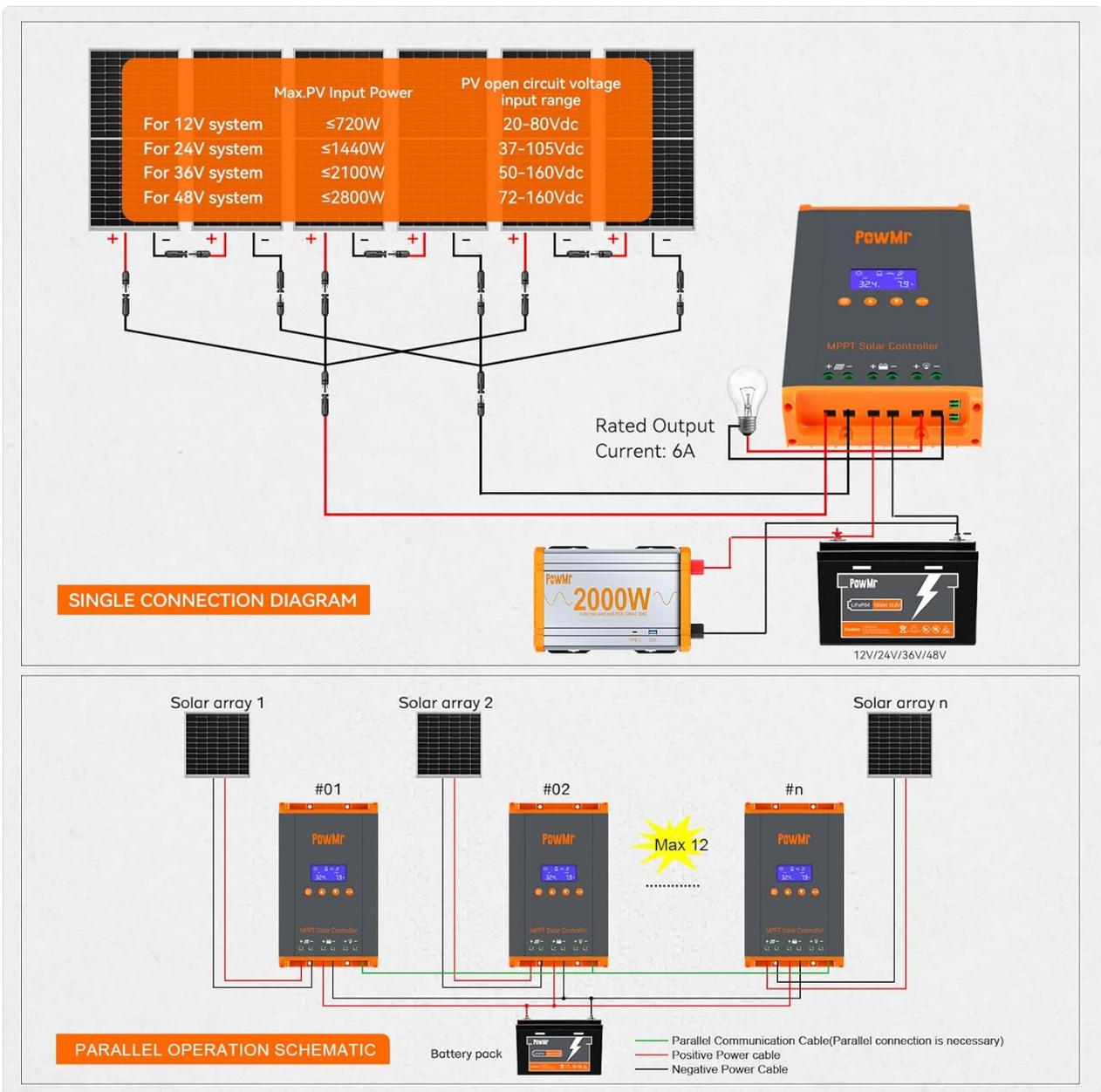
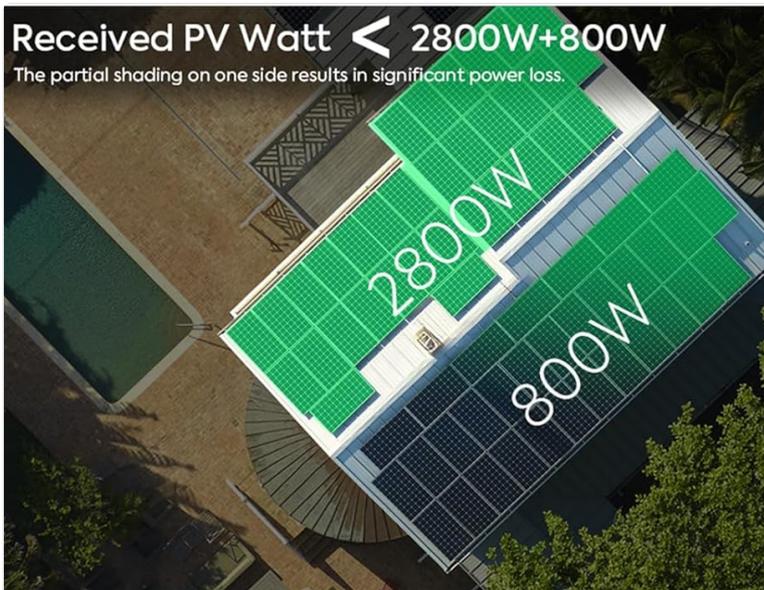


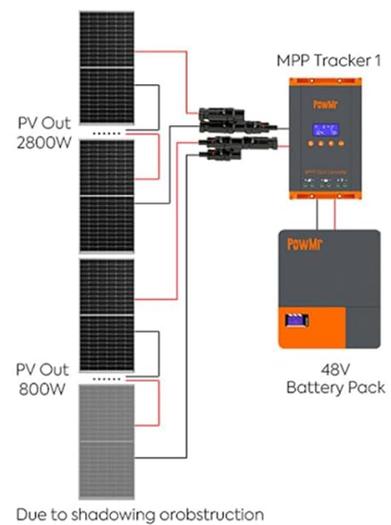
Figure 7: Detailed diagrams for single controller connection and parallel operation schematic, showing battery, solar array, and load connections.

### 4.3 Parallel Operation Setup

For parallel operation, multiple controllers can be connected to the same battery bank. Each controller should have individual connections to separate photovoltaic arrays. Communication lines must be configured between controllers for proper synchronization.



### Parallel Operation -1 MPPT



### Parallel Operation -2 MPPT

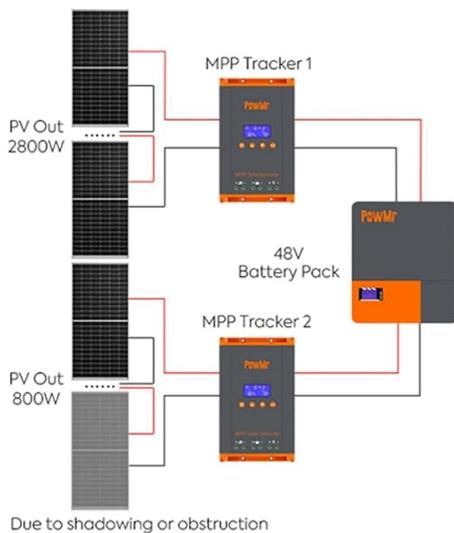


Figure 8: Comparison of power reception with one MPPT vs. two MPPTs in parallel operation, demonstrating increased electricity generation.

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Video 1: HHJ60-PRO Paralleling Guide. This video demonstrates the physical installation and wiring for parallel operation of multiple controllers.

## 5. OPERATING INSTRUCTIONS

### 5.1 Display Interface

After startup, the controller's LCD display shows various parameters. Use the "Up" and "Down" buttons to navigate through the main loop interfaces:

- **Interface 1:** Solar input voltage (PV) and load power consumption (LOAD).
- **Interface 2:** Battery voltage (BATT) and charging current (CHARGE).
- **Interface 3:** Operating mode and device temperature (TEMP).
- **Interface 4:** Fault codes (FAULT) and parallel operation code.

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Video 2: HHJ60-PRO Complete Operating Guide. This video provides a detailed walkthrough of the controller's display interfaces and settings.

## 5.2 Parameter Settings

Press the "PRG/ESC" button to enter the settings interface loop. Use "Up" and "Down" to navigate and "ENTER" to confirm changes.

- **d00 (Load Operating Mode):**
  - **24H:** Load is continuously on.
  - **00H:** Light control mode (load output determined by sufficient solar energy).
  - **1H to 23H:** Timed light-on and constant-off mode (load output activated upon detecting photovoltaic input and remains on for the set duration).
- **d01 (Charging Voltage):** Configures the voltage the controller maintains after the battery completes the boost charging stage.
- **d02 (Boost Charging Voltage):** Sets the charging voltage during the boost charging stage.
- **d03 (Low Voltage Protection):** Sets the low voltage protection voltage of the battery.
- **d04 (Battery Voltage Calibration):** Used to calibrate the battery voltage value displayed by the controller. If the displayed value differs from a multimeter reading at the battery port, use this program to calibrate.
- **d05 (Parallel Communication Code):** Configures the communication address of the controller in parallel operation. The controller with the lowest communication code acts as the master. If the main controller (code 1) fails, functions will cascade to the next valid operating controller.
- **d06 (Battery Type Setting):** Sets the battery type with options including sealed lead-acid batteries, gel-sealed lead-acid batteries, flooded lead-acid batteries, 4-string lithium iron phosphate batteries, 8-string lithium iron phosphate batteries, 15-string lithium iron phosphate batteries, 16-string lithium iron phosphate batteries, and custom options ("USE"). Choosing "USE" allows manual settings for "d01", "d02", and "d03".
- **d07 (System Voltage Configuration):** Configures the system voltage.

After completing the settings, press the "ESC" key to exit and return to the main page.

# THREE-STAGE CHARGING



Boost Charge → Bulk Charge → Float Charge  
Note: Equalization charge is once a month.

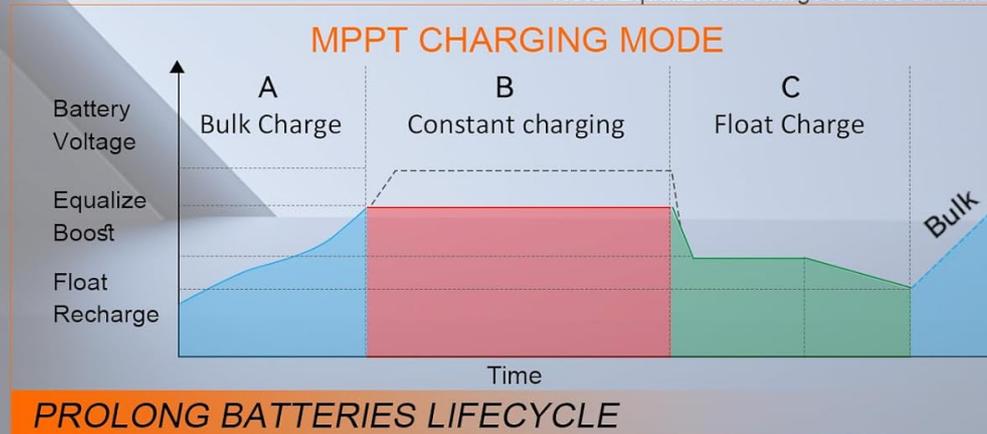


Figure 9: Illustration of the MPPT three-stage charging mode: Boost Charge, Constant Charging, and Float Charge, designed to prolong battery lifecycle.

## 6. MAINTENANCE

- Regularly inspect all wiring connections for tightness and corrosion.
- Keep the controller clean and free from dust and debris to ensure proper heat dissipation.
- Check the fan for obstructions and ensure it operates correctly when activated.
- Monitor the display for any fault codes and address them promptly.

## 7. TROUBLESHOOTING

If the controller is not functioning as expected, consider the following:

- **No Display/Power:** Check battery connections and ensure the circuit breaker is on.
- **No Charging:** Verify solar panel connections and ensure sufficient sunlight. Check for any fault codes on the display.
- **Overheating:** Ensure adequate ventilation and clearance around the controller. Clean any dust or debris from the cooling fins.

- **Incorrect Readings:** Calibrate battery voltage using the d04 setting if necessary.
- For persistent issues, refer to the detailed troubleshooting section in the full product manual or contact customer support.

## 8. SPECIFICATIONS

Attribute	Value
Manufacturer	Temank
Charging Port Type	Serial
Package Dimensions	9.96 x 7.17 x 2.83 inches
Item Weight	2.81 pounds
Country of Origin	China
Batteries required	No
Included Components	solar controller
Color	Orange
Brand	Temank
Voltage	35 Volts (DC)
Display Type	LCD
Operating Temperature	45 Degrees Celsius

## 9. WARRANTY AND SUPPORT

For warranty information, technical support, or service inquiries, please refer to the contact details provided with your product packaging or visit the official Temank website. Keep your purchase receipt for warranty claims.