

## Manuals+

[Q & A](#) | [Deep Search](#) | [Upload](#)

manuals.plus /

- › [PowMr](#) /
- › [PowMr 60A MPPT Charge Controller User Manual](#)

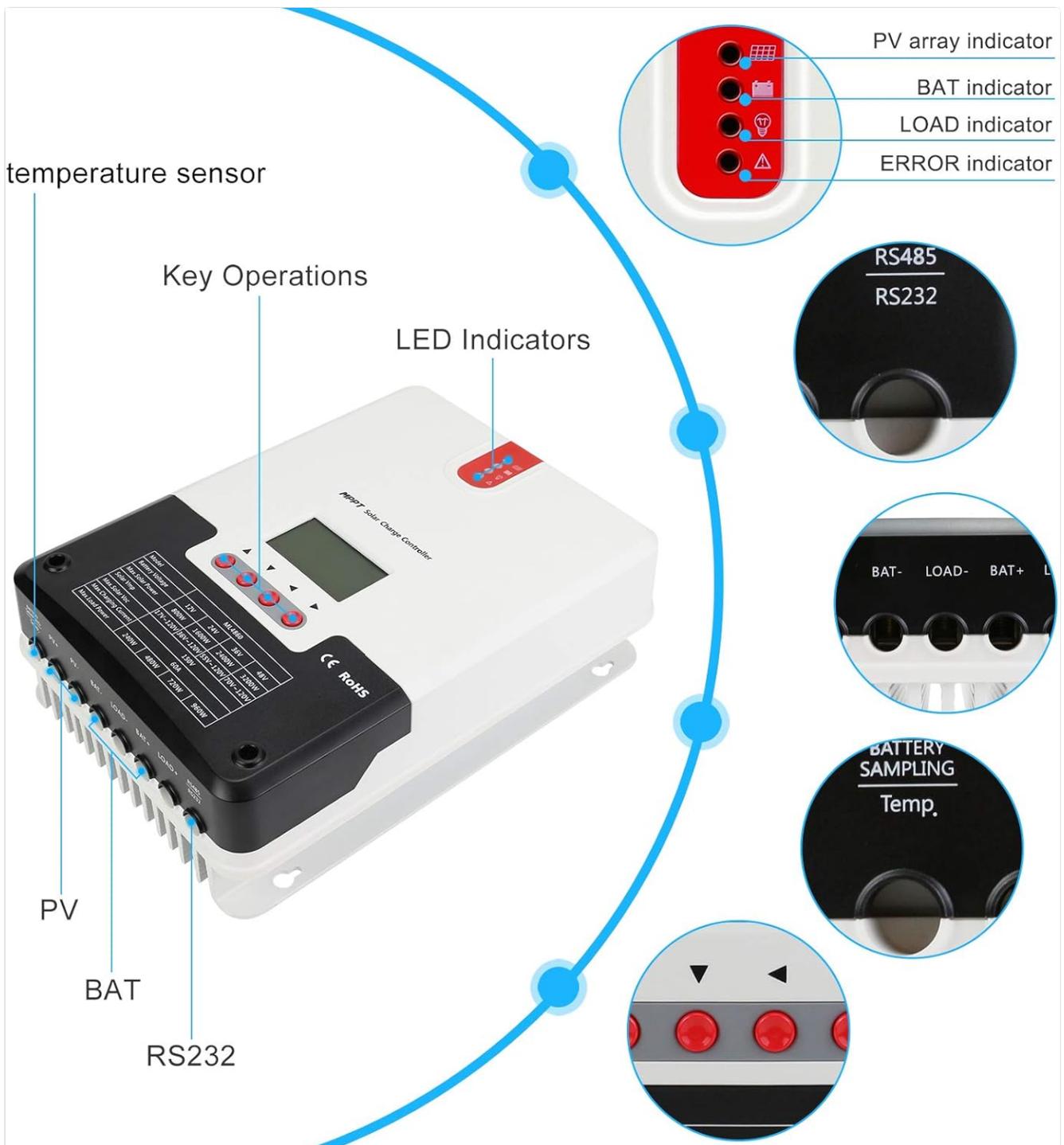
## PowMr 60A MPPT Charge Controller

# PowMr 60A MPPT Charge Controller

### INSTRUCTION MANUAL

## 1. Product Overview

The PowMr 60A MPPT Charge Controller is designed for solar power systems, supporting 12V, 24V, 36V, and 48V battery systems. It features Maximum Power Point Tracking (MPPT) technology for efficient solar energy conversion and a negative ground design. This controller is compatible with various battery types including Lithium, Sealed, Gel, and Flooded batteries.



**Figure 1.1: Controller Components.** This image displays the PowMr 60A MPPT Charge Controller with key components labeled, including PV input terminals, Battery terminals, RS232 and RS485 communication ports, LED indicators for PV array, Battery, Load, and Error status, and control buttons for operation. A temperature sensor port is also visible.

### Key Components:

- **PV Input Terminals:** Connect to solar panel array.
- **BAT Terminals:** Connect to battery bank.
- **LOAD Terminals:** Connect to DC loads.
- **RS232/RS485 Ports:** For communication with external devices or parallel operation.
- **LED Indicators:** Provide visual status for PV array, battery, load, and error conditions.
- **Key Operations:** Buttons for navigating menus and adjusting settings on the LCD.
- **Temperature Sensor Port:** For connecting an external temperature sensor to enable temperature compensation for battery charging.

## 2. Setup and Installation

### 2.1 Mounting the Controller

Mount the charge controller vertically on a non-flammable surface in a well-ventilated area. Ensure adequate clearance around the unit for proper heat dissipation. Maintain a minimum clearance of 150mm (approximately 6 inches) above and below the controller for optimal airflow.



**Figure 2.1: Mounting Clearance.** This diagram illustrates the recommended minimum clearance of 150mm (6 inches) above and below the charge controller to ensure proper air circulation for cooling.

### 2.2 Wiring Connections

Follow the wiring diagram carefully. Always connect the battery first, then the solar panels, and finally the DC load. Disconnect in the reverse order.

1. **Connect Battery:** Connect the battery bank to the BAT+ and BAT- terminals. Ensure correct polarity.
2. **Connect Solar Panels:** Connect the solar panel array to the PV+ and PV- terminals. Observe correct polarity and ensure the open-circuit voltage of the solar array does not exceed the controller's maximum input voltage (150V).
3. **Connect DC Load (Optional):** Connect your DC loads to the LOAD+ and LOAD- terminals.
4. **Connect Temperature Sensor (Optional):** If using, connect the external temperature sensor to the designated port for accurate battery temperature compensation.
5. **Connect Inverter (Optional):** If an inverter is used, connect it directly to the battery bank, not through the load terminals of the controller.

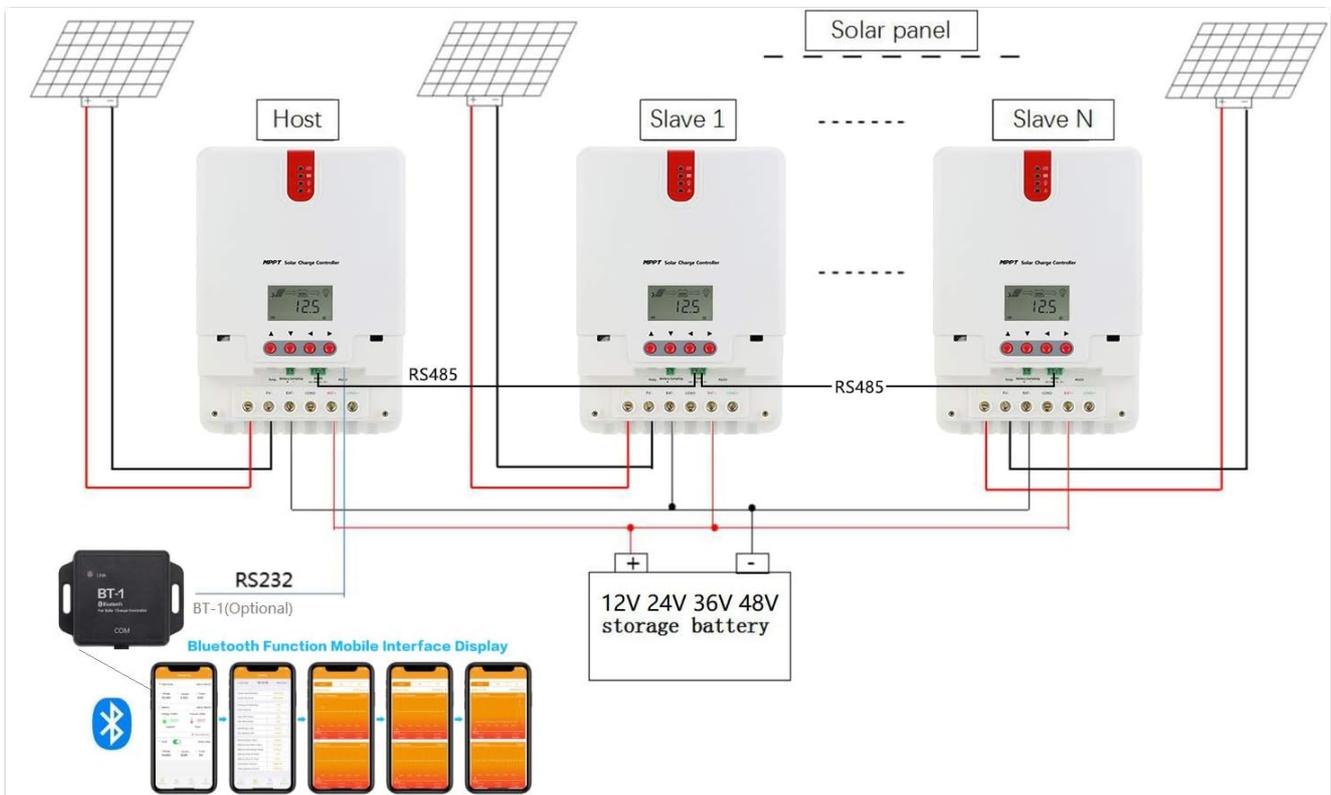
# TEMPERATURE COMPENSATION



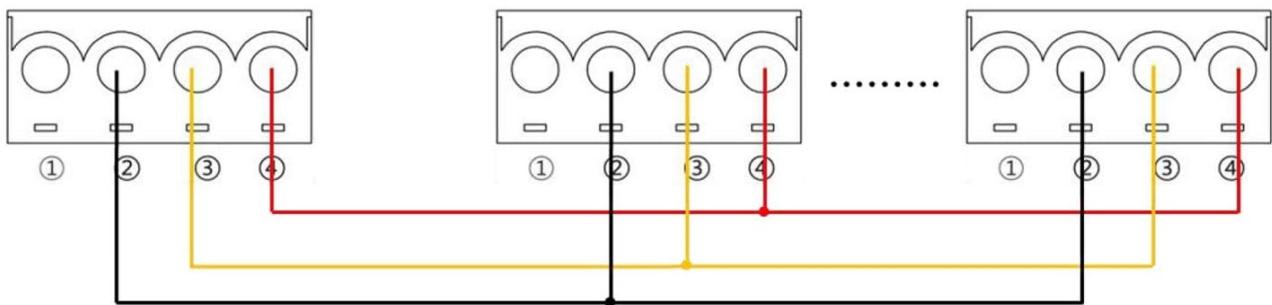
**Figure 2.2: Main Wiring Diagram.** This diagram shows the correct connection sequence: 1. Battery, 2. Solar Panels (PV Array), 3. Optional DC Load, and 4. Optional Inverter. It also indicates various battery type options (SLD, FLD, GEL, LI, USER) and the flow of information on the LCD display.

## 2.3 Parallel Operation (Optional)

Multiple charge controllers can be connected in parallel using the RS485 communication ports for larger solar systems. Ensure all controllers are properly configured for parallel operation according to the specific system requirements.



RS485 wiring diagram (parallel operation)



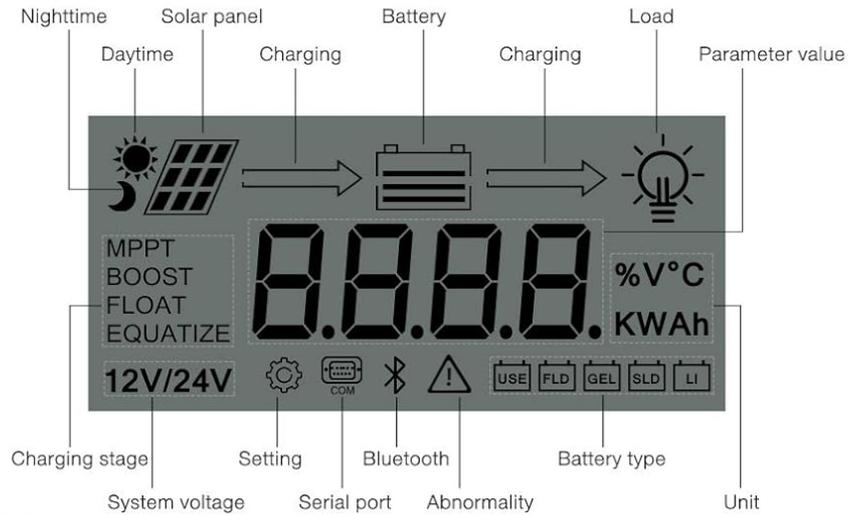
**Figure 2.3: RS485 Parallel Wiring Diagram.** This diagram illustrates how to connect multiple MPPT charge controllers (Host, Slave 1, ..., Slave N) in parallel using RS485 communication for a shared 12V, 24V, 36V, or 48V storage battery system.

### 3. Operating Instructions

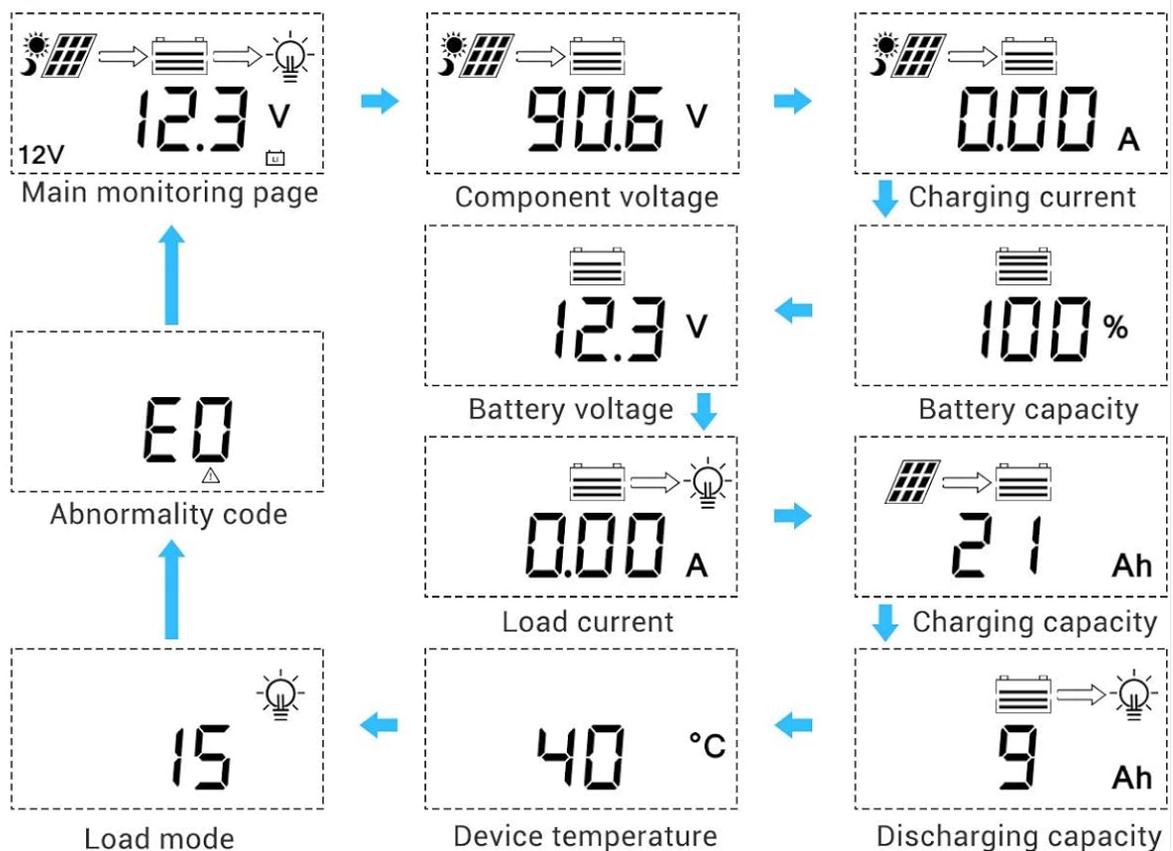
#### 3.1 LCD Display and Navigation

The controller features an LCD backlight display that shows real-time system status and parameters. Use the control buttons to navigate through the various display interfaces and adjust settings.

## LCD Display



## Browse interface



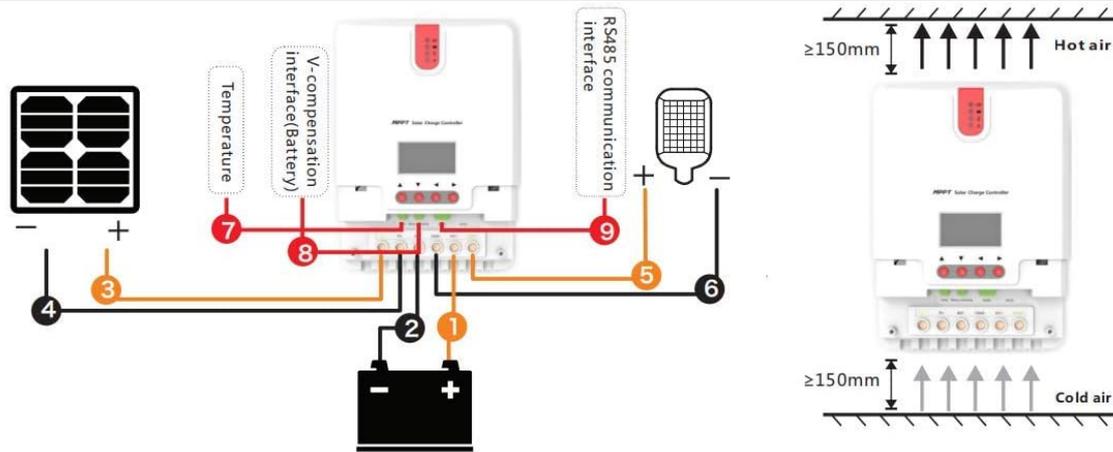
**Figure 3.1: LCD Display and Browse Interface.** This image details the LCD screen, showing icons for Nighttime, Solar Panel, Battery, Load, Charging Stage, Settings, Bluetooth, Battery Type, and Units. It also illustrates the navigation flow through various parameters like Main Monitoring Page, Component Voltage, Charging Current, Battery Voltage, Battery Capacity, Load Current, Charging Capacity, Device Temperature, Discharging Capacity, Load Mode, and Abnormality Codes.

### 3.2 Battery Charging Stages

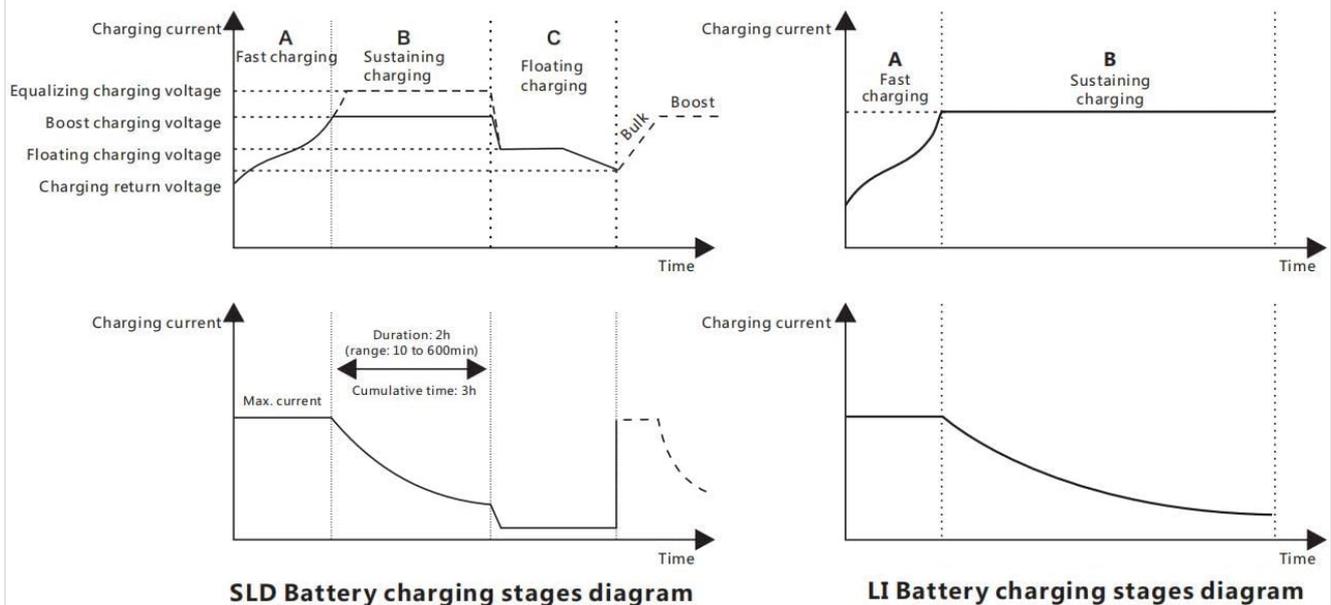
The MPPT charge controller employs advanced charging algorithms to optimize battery life and performance. The charging process typically involves several stages:

- **Fast Charging (Bulk):** Delivers maximum current to rapidly charge the battery.
- **Sustaining Charging (Absorption):** Maintains a constant voltage to fully charge the battery without overcharging.
- **Floating Charging:** Reduces voltage to a lower level to maintain the battery at full charge and compensate for self-discharge.

- **Equalizing Charging (for specific battery types):** Periodically overcharges the battery at a controlled rate to balance cell voltages and prevent sulfation.



### MPPT Charging Stages Introduction



**Figure 3.2: MPPT Charging Stages.** This graph illustrates the different charging stages (Fast Charging, Sustaining Charging, Floating Charging, Equalizing Charging, Boost Charging) for both SLD (Sealed Lead-Acid) and LI (Lithium) battery types, showing current and voltage profiles over time.

### 3.3 Battery Type Selection

The controller supports various battery types. It is crucial to select the correct battery type in the settings to ensure proper charging parameters and prevent damage to the battery. Options typically include:

- **SLD:** Sealed Lead-Acid Battery
- **FLD:** Open Lead-Acid Battery (Flooded)
- **GEL:** Gel Battery
- **LI:** Lithium Battery
- **USER:** User-defined parameters for custom battery types.

### 3.4 Bluetooth Module (Optional)

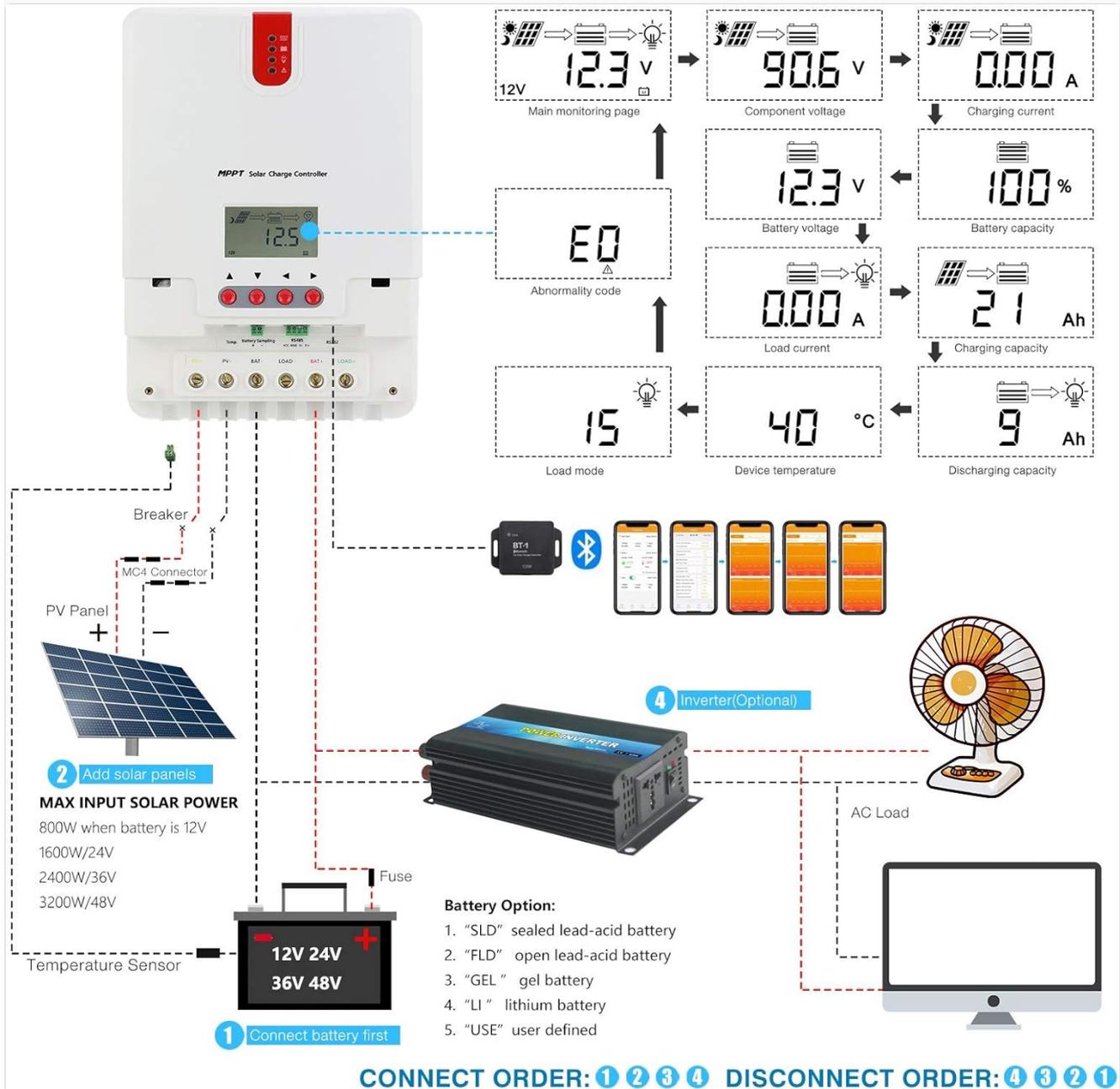
An optional Bluetooth module (BT-1) can be connected to the controller for remote monitoring and parameter adjustment via a mobile application. Refer to the Bluetooth module's specific instructions for pairing and app usage.

Note that some users have reported intermittent connectivity issues with the mobile application.

## 4. Maintenance

Regular maintenance ensures optimal performance and longevity of your charge controller.

- **Visual Inspection:** Periodically check all wiring connections for tightness and signs of corrosion. Ensure no cables are frayed or damaged.
- **Cleanliness:** Keep the controller clean and free from dust and debris. Ensure ventilation openings are not obstructed.
- **Temperature Compensation:** The controller automatically adjusts charging parameters based on battery temperature if an external temperature sensor is connected. Ensure the sensor is properly installed and functioning for accurate compensation, especially in environments with significant temperature fluctuations.



**Figure 4.1: Temperature Compensation.** This image highlights the importance of temperature compensation for the charge controller, showing its operation in both hot and cold environments to optimize battery charging.

## 5. Troubleshooting

If you encounter issues with your charge controller, refer to the following common problems and solutions:

Problem	Possible Cause	Solution
Controller not powering on	No battery connection or incorrect polarity.	Verify battery connections and polarity. Ensure battery voltage is within operating range.
No charging from solar panels	PV array not connected, incorrect polarity, or insufficient sunlight.	Check PV connections and polarity. Ensure solar panels are receiving adequate sunlight. Verify PV open-circuit voltage.
Abnormality Code (e.g., E0) displayed	System fault or parameter out of range.	Refer to the controller's specific error code list in the full manual (if available). Check all connections and system parameters. Power cycle the controller.
Bluetooth module not connecting	Module not powered, app issues, or pairing problems.	Ensure Bluetooth module is correctly connected and powered. Restart the mobile app and try re-pairing. Some users report needing to re-add the device each time.
Inaccurate voltage/current readings	Loose connections or faulty sensor.	Check all wiring connections for tightness. Ensure the external temperature sensor (if used) is properly connected.

For persistent issues or error codes not listed, please contact PowMr customer support.

## 6. Specifications

Feature	Specification
Model	60A MPPT Charge Controller
Rated Charge Current	60A
System Voltage	12V / 24V / 36V / 48V Auto Recognition
Max PV Input Voltage	150V
Max PV Input Power	3200W (for 48V system)
Grounding	Negative Ground
Display Type	LCD Backlight Display
Compatible Battery Types	Lithium, Sealed, Gel, Flooded, User-defined
Manufacturer	PowMr
Item Weight	9.68 pounds
Package Dimensions	14.37 x 11.65 x 6.97 inches
UPC	655160052767

## 7. Warranty and Support

For warranty information and technical support, please refer to the documentation included with your product or visit the official PowMr website. Some users have reported a 6-month warranty period. It is recommended to retain your proof of purchase for warranty claims.

For assistance with product operation, troubleshooting, or warranty inquiries, please contact PowMr customer service directly.