**Buachois Buachoisgg0ctbeof5**

# Buachois 60A MPPT Solar Charge Controller Instruction Manual

Model: Buachoisgg0ctbeof5

## Introduction

This manual provides essential information for the safe and efficient operation of your Buachois 60A MPPT Solar Charge Controller. Please read these instructions carefully before installation and use to ensure optimal performance and longevity of the product. This controller is designed to manage power flow from solar panels to batteries and DC loads in off-grid solar systems.

## Safety Information

Observe the following safety precautions during installation and operation:

- Ensure all connections are secure and correct polarity is observed to prevent damage to the controller and other components.
- Always connect the battery to the controller first, then the solar panel, and finally the load. Disconnect in the reverse order: load, then solar panel, then battery.
- Use appropriate wire gauges for all connections to handle the rated current.
- Install the controller in a well-ventilated area, away from flammable materials and direct sunlight.
- Do not attempt to disassemble or repair the controller yourself. Contact qualified personnel for service.
- Wear appropriate personal protective equipment, such as safety glasses and insulated gloves, when working with electrical systems.

## Product Features

- **Efficient MPPT Technology:** Achieves MPPT efficiency over 99.5% and overall efficiency up to 98% for optimal energy conversion. Supports a charging current rate of 60 amps.
- **RS485 Communication:** Enables seamless integration and management through a communication protocol for unified control and secondary development. Supports host computer software monitoring and Wi-Fi module expansion for app-based cloud monitoring.

- **User-Friendly Interface:** Features a high-definition LCD display for easy access to equipment data and operational status. Allows convenient modification of display parameters.
- **Versatile Solar Voltage Support:** Automatically identifies battery voltage (12V, 24V, 36V, 48V) and supports a wide range of solar voltage and power requirements. Compatible with sealed, gel, and flooded batteries, with customization options for other battery types.
- **Multiple Load Modes:** Offers four load modes: normally open/normally off mode, PV voltage mode, dual time period control mode, and PV + time control mode, providing flexibility in power distribution management.

## SPECIFICATIONS

| Parameter | Value |
|---|---|
| Rated Load Current | 60A |
| Voltage/Power Support (12V System) | DC9V~DC15V, 780W |
| Voltage/Power Support (24V System) | DC18V~DC30V, 1560W |
| Voltage/Power Support (36V System) | DC32V~DC40V, 2340W |
| Voltage/Power Support (48V System) | DC42V~DC60V, 3120W |
| No-load Static Loss | 0.5W~1.2W |
| PV Open Circuit Voltage (VOC) | DC150V |
| Start Charging Voltage Point | 3V higher than battery voltage |
| Input Low Voltage Conservation Pad | 2V higher than the current battery voltage |
| Input Overvoltage Conservation Point | DC150V |
| Input Overvoltage Recovery Point | DC145V |
| Temperature Compensation | -3mV/°C/2V (default) |
| Output Voltage Regulation Accuracy | ±1.5% |
| Working Temperature | -20°C~+50°C |
| Storage Temperature | -40°C~+75°C |
| IP (Ingress Protection) | IP21 |
| Noise | ≤40dB |
| Altitude | 0~3000m |
| Maximum Connection Size | 30mm² |
| Dimensions | 220mm x 180mm x 85mm (8.7 x 7.1 x 3.3 inches) |
| Weight | 2.6kg (5.73 lbs) |

## Package Contents

The package includes the following items:

- 1 x Buachois 60A MPPT Solar Charge Controller
- 1 x Temperature Sensing Wire
- 1 x Screwdriver
- 1 x Instruction Manual (this document)

## Setup and Installation

### System Overview

The Buachois MPPT Solar Charge Controller integrates into an off-grid solar system to efficiently charge batteries from solar panels and power DC loads. The general connection flow is from solar panels to the controller, then to the battery, and finally to the DC load.

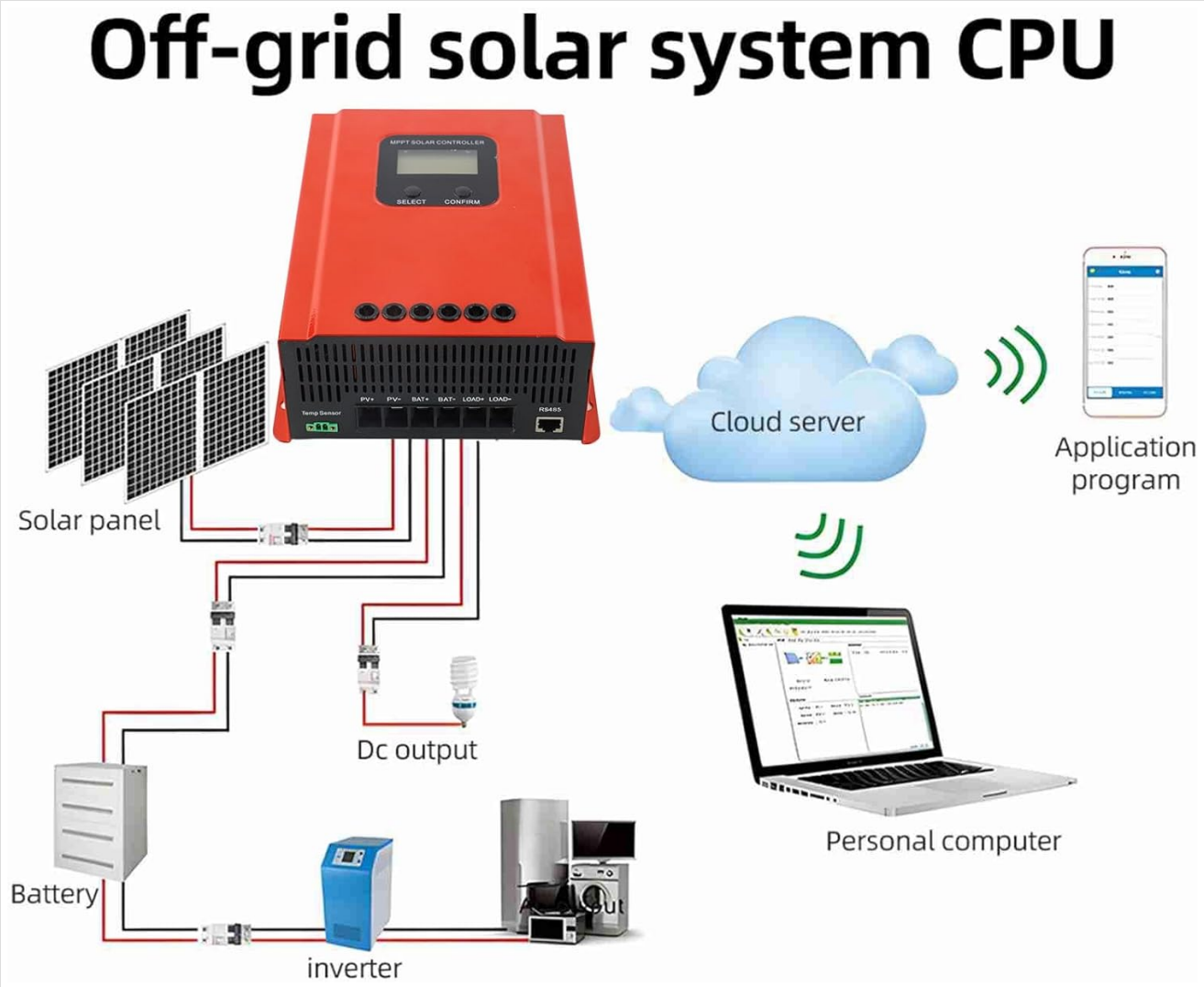


Figure 1: Off-grid solar system wiring diagram. This diagram illustrates the connection sequence from solar panels to the MPPT controller, then to the battery, and finally to an inverter and various DC loads.

### Wiring Connections

Follow these steps for proper wiring. Always ensure power is disconnected before making any connections.

1. **Battery Connection:** Connect the battery to the controller's BAT+ and BAT- terminals. Ensure correct polarity. The controller will automatically detect the battery voltage.
2. **Solar Panel Connection:** Connect the solar panel array to the controller's PV+ and PV- terminals. Ensure correct polarity.
3. **DC Load Connection:** Connect your DC loads to the controller's LOAD+ and LOAD- terminals. Ensure correct polarity.
4. **Temperature Sensor Connection:** Plug the provided temperature sensing wire into the 'Temp Sensor' port on the controller. This allows for accurate battery temperature compensation during charging.
5. **RS485 Communication (Optional):** If using RS485 communication for monitoring or parameter setting, connect the RS485 cable to the designated RS485 port.


Figure 2: Connection Terminals. This image highlights the various input and output terminals on the controller for solar panels, battery, load, temperature sensor, and RS485 communication.

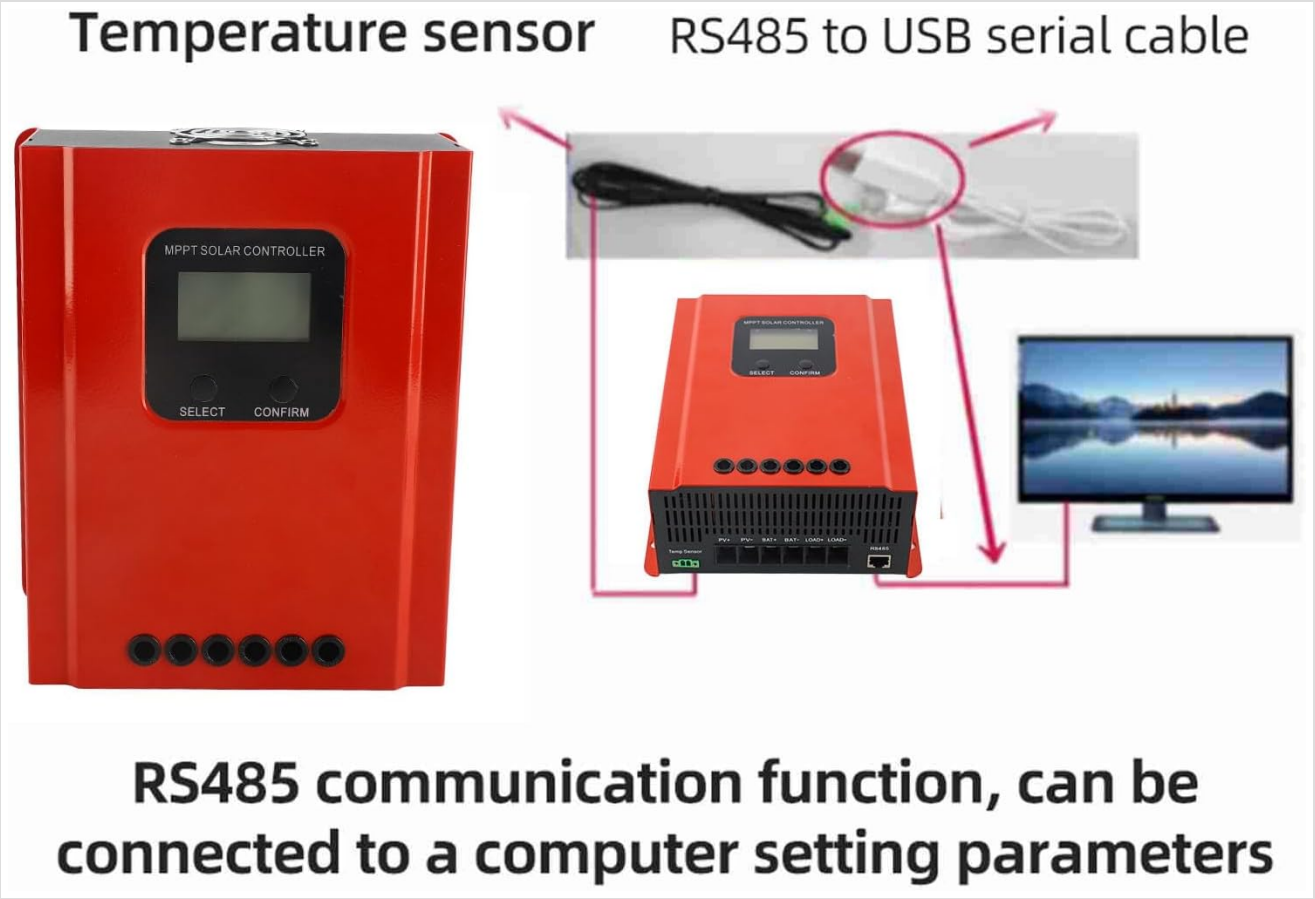


Figure 3: Temperature Sensor and RS485 Communication. This image illustrates the temperature sensor and an RS485 to USB serial cable, demonstrating their connection points for enhanced monitoring and parameter adjustment.

## Mounting the Controller

Mount the controller vertically on a non-flammable surface. Ensure there is sufficient clearance around the controller for proper heat dissipation, especially around the cooling fins.


Figure 4: Mounting Points. The rear view of the controller shows the designated mounting holes for secure wall installation.


Figure 5: Product Dimensions. This image provides the physical dimensions of the controller: 220mm (8.66in) in height, 180mm (7.08in) in width, and 85mm (3.34in) in depth.

## Operating Instructions

### LCD Display and Navigation

The controller features a high-definition LCD display to show real-time system data and operational status. Use the 'SELECT' and 'CONFIRM' buttons to navigate through menus and modify parameters.


Figure 6: LCD Display and Control Buttons. This image shows a detailed view of the controller's LCD screen and the 'SELECT' and 'CONFIRM' buttons used for navigation and parameter adjustment.

## Automatic Voltage Identification

The controller automatically identifies the connected battery system voltage (12V, 24V, 36V, or 48V) upon initial connection. Ensure the battery is connected first for proper detection.

## Load Modes

The controller offers four distinct load modes to manage power distribution to your DC loads:

- **Normally Open/Normally Off Mode:** Allows the load to be continuously on or off, based on user settings.
- **PV Voltage Mode:** Controls the load based on the solar panel voltage, typically turning on when PV voltage is sufficient and off when it drops.
- **Dual Time Period Control Mode:** Enables setting two distinct time periods for load operation, useful for evening and morning usage.
- **PV + Time Control Mode:** Combines PV voltage detection with a timed operation, allowing the load to operate during specific hours only if sufficient solar power is available.

## Maintenance

Regular maintenance ensures the longevity and optimal performance of your solar charge controller:

- **Check Connections:** Periodically inspect all wiring connections for tightness and corrosion. Loose connections can lead to power loss or overheating.
- **Inspect Wiring:** Examine all cables for signs of wear, damage, or fraying. Replace any damaged wiring immediately.
- **Clean Controller:** Keep the controller's exterior clean and free of dust and debris. Ensure the cooling vents and fan (if present) are unobstructed to maintain proper airflow.
- **Monitor Performance:** Regularly check the LCD display for system status and parameters to ensure normal operation.


Figure 7: Cooling Fan. This image displays the side of the controller, highlighting the cooling fan and ventilation grilles essential for heat dissipation.

## Troubleshooting

If you encounter issues with your controller, refer to the following common troubleshooting steps:

| Problem | Possible Cause | Solution |
|---|---|---|
| Controller display is off | Battery not connected or low voltage; loose battery connection. | Check battery connections and ensure battery voltage is above the minimum operating threshold. |
| No charging from solar panels | Solar panels not connected; insufficient sunlight; PV voltage too low or too high; damaged solar panel. | Verify solar panel connections and polarity. Check for adequate sunlight. Measure PV voltage to ensure it's within the controller's operating range (DC15V-DC150V). |
| Load is not working | Load not connected; load mode setting incorrect; battery voltage too low; overloaded load. | Check load connections and polarity. Verify the selected load mode on the LCD. Ensure battery voltage is sufficient. Reduce load if it exceeds the controller's rated current. |
| Controller is overheating | Poor ventilation; excessive ambient temperature; overloaded system. | Ensure the controller is installed in a well-ventilated area. Check for obstructions around cooling fins. Reduce system load if consistently overheating. |

## Warranty and Support

Specific warranty details for this product are not provided within the available information. For warranty claims, technical support, or any inquiries regarding your Buachois 60A MPPT Solar Charge Controller, please contact Buachois customer service directly through your point of purchase or the official Buachois support channels.