

Renogy Rover 30A

Renogy Rover 30A MPPT Solar Charge Controller User Manual

Model: Rover 30A

1. INTRODUCTION AND OVERVIEW

The Renogy Rover 30A MPPT Solar Charge Controller is designed to optimize the power harvest from your solar panels and efficiently charge your battery bank. Utilizing Maximum Power Point Tracking (MPPT) technology, it ensures maximum energy conversion, even under varying light conditions. This controller is compatible with 12V and 24V battery systems and supports various battery types including Gel, Sealed, Flooded, and Lithium.

2. SAFETY INFORMATION

Please read all instructions and warnings carefully before installation and operation. Failure to follow these instructions may result in electric shock, fire, or severe injury. Keep this manual for future reference.

- Ensure all wiring is correctly sized and connections are secure to prevent overheating and damage.
- Install the controller in a well-ventilated area, away from flammable materials and direct sunlight.
- Always connect the battery to the charge controller first, then the solar panels, and finally the load. Disconnect in the reverse order.
- The controller features TVS surge protection to guard against lightning strikes and other voltage spikes.
- Avoid short-circuiting the battery or solar panel terminals.
- Do not attempt to disassemble or repair the controller. Contact Renogy support for assistance.

3. PRODUCT FEATURES

- **Dual-Peak MPPT Technology:** Achieves 99.9% tracking efficiency and 98% conversion efficiency, optimizing solar harvest even in partial shading or cloudy conditions.
- **Wide Temperature Range:** Operates reliably from -40°F to 149°F (-40°C to 65°C) with smart temperature compensation for charging.
- **Advanced Battery Charging:** Features 4-stage charging (Bulk, Absorption, Float, Equalization) for lead-acid batteries and includes exclusive lithium reactivation technology for deeply discharged lithium batteries.
- **Automatic System Voltage Detection:** Automatically detects 12V or 24V DC system voltages for non-lithium batteries.
- **Integrated LCD Display:** Provides real-time monitoring of voltage, current, and error codes. Stores up to one year of

performance data.

- **Modbus Protocol Support:** Allows integration into smart home solar kits and remote monitoring systems.
- **Direct DC Appliance Power:** Capable of powering DC appliances like fans and lights, and handles capacitive load surges from pumps or motors.
- **Load Scheduling:** Timer function for efficient management of connected loads.
- **Bluetooth Monitoring (Optional):** Compatible with the BT-2 module (sold separately) for monitoring via the Renogy DC Home App on your smartphone, providing real-time alerts and performance data.

4. PACKAGE CONTENTS

Verify that all components are present upon unpacking:

- Renogy Rover 30A MPPT Solar Charge Controller (x1)
- User Manual (x1)
- Remote Temperature Sensor (x1)
- Mounting Brackets (x4)
- *Optional:* BT-2 Bluetooth Module (sold separately)



Image: Renogy Rover 30A MPPT Solar Charge Controller with its dimensions and a visual representation of the included accessories: the controller, user manual, remote temperature sensor, and mounting brackets. The optional BT-2 Bluetooth module is also shown.

5. SETUP AND INSTALLATION

Proper installation is crucial for the safe and efficient operation of your solar charging system.

1. **Mounting:** Choose a dry, well-ventilated location for mounting the controller. Ensure there is adequate airflow around the unit for heat dissipation. Use the provided mounting brackets and hardware to secure the controller to a stable surface.
2. **Wiring Order:** Follow the correct wiring sequence to prevent damage to the controller and other components.
 - Connect the battery to the charge controller first. Ensure correct polarity.
 - Connect the solar panels to the charge controller. Ensure correct polarity.
 - Connect the DC load (if applicable) to the charge controller. Ensure correct polarity.
3. **Battery Type Selection:** The controller automatically detects 12V or 24V system voltages for non-lithium batteries. For lithium batteries, you may need to manually adjust the battery voltage settings prior to charging. Refer to the detailed user manual for specific battery type configuration.

4. **Remote Temperature Sensor:** Connect the remote temperature sensor to the designated port on the controller and place the sensor near the battery. This allows the controller to accurately compensate charging voltage based on battery temperature, extending battery lifespan.



Image: A diagram illustrating the connection of a solar panel to the Renogy Rover 30A MPPT Solar Charge Controller, which then connects to a lithium iron phosphate battery. Red and blue lines indicate positive and negative connections, respectively, showing the flow of power.

6. OPERATING INSTRUCTIONS

Once installed, the Renogy Rover 30A MPPT controller operates largely automatically. However, understanding its functions will help you optimize your system.

- **LCD Display:** The integrated LCD provides real-time information about your system's performance, including battery voltage, charging current, and any operational errors. Use the navigation buttons to cycle through different display screens and settings.
- **Load Control:** The controller can manage a connected DC load. You can program load on/off times using the timer function accessible via the LCD display.
- **Lithium Activation:** The controller features a lithium activation function. When enabled, it allows charging of deeply

discharged lithium batteries. This setting can be toggled ON or OFF.

Lithium Activation ON

Turn ON the lithium activation function allows charging of lithium batteries at low voltages, which can bring dead batteries to life and extend their lifespan.



Image: A screenshot of the Renogy DC Home App interface on a smartphone, displaying the 'Lithium Activation' setting turned ON. This feature allows the charging of lithium batteries at low voltages, which can revive deeply discharged batteries and extend their lifespan.

Lithium Activation OFF

To prevent over-activation and unnecessary activation, you can turn OFF the lithium activation function, which helps avoid potential damage to the battery.



Image: A screenshot of the Renogy DC Home App interface on a smartphone, displaying the 'Lithium Activation' setting turned OFF. Turning this function off helps prevent over-activation and potential damage to the battery.

- **Bluetooth Monitoring (with BT-2 module):** If you have the optional BT-2 module, connect it to the controller's RS485 port. Download the Renogy DC Home App to your smartphone. Pair the device via Bluetooth to monitor charging data, receive real-time alerts, and customize settings from up to 82 feet away.

Real-Time Monitoring over a large range

You can use the BT-2 to monitor your charging data, reaching up to 82ft, or monitor the system status through Renogy One



Image: A person monitoring their solar charging system using the Renogy DC Home App on a smartphone, connected to the Rover charge controller via a BT-2 Bluetooth module. This setup allows for real-time data viewing and system management.

7. MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your Renogy Rover 30A MPPT Solar Charge Controller.

- **Visual Inspection:** Periodically inspect the controller and all connections for any signs of damage, corrosion, or loose wiring. Ensure all terminals are tight.
- **Cleaning:** Keep the controller clean and free from dust and debris. Use a dry cloth to wipe down the exterior. Do not use liquids or solvents.
- **Ventilation:** Ensure that the ventilation openings on the controller are not obstructed to allow for proper heat dissipation.
- **Battery Health:** Monitor your battery's health and ensure it is properly maintained according to the battery manufacturer's guidelines.

8. TROUBLESHOOTING

If you encounter issues with your Renogy Rover 30A MPPT Solar Charge Controller, consider the following basic

troubleshooting steps:

- **No Power/Display:** Check all wiring connections, especially the battery connection, for looseness or incorrect polarity. Ensure the battery has sufficient voltage.
- **No Charging:** Verify that solar panels are connected correctly and receiving adequate sunlight. Check for any shading on the panels. Confirm the battery type settings on the controller match your battery.
- **Error Codes:** If the LCD displays an error code, refer to the detailed user manual for a list of codes and their corresponding solutions.
- **Inconsistent Performance:** Ensure the remote temperature sensor is properly connected and placed near the battery. Check for any external factors affecting the system, such as extreme temperatures or heavy loads.

For more complex issues or if troubleshooting steps do not resolve the problem, contact Renogy customer support.

9. SPECIFICATIONS

Feature	Specification
Model Number	Rover 30A
Brand	Renogy
Manufacturer	RENOGY
Display Type	LCD
Item Weight	4.4 pounds
Package Dimensions	10.94 x 8.27 x 5.28 inches
Color	Black
Material	Acrylonitrile Butadiene Styrene (ABS), Plastic
Batteries Required	No
Included Components	MPPT Solar Charge Controller
UPC / GTIN	840315237452

10. WARRANTY AND SUPPORT

The Renogy Rover 30A MPPT Solar Charge Controller comes with a **3-year material and workmanship warranty**. For technical assistance, warranty claims, or any questions regarding your product, please contact Renogy customer support. Renogy is committed to providing prompt responses and professional technical guidance.

- Visit the official Renogy website for support resources, FAQs, and contact information.
- Refer to the contact details provided in your product packaging or on the Renogy website for direct support.