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Renogy Rover 20A

Renogy Rover 20A MPPT Solar Charge Controller User Manual

Model: Rover 20A | Brand: Renogy

1. INTRODUCTION

The Renogy Rover Series Charge Controller is designed for various off-grid solar applications. It effectively protects the battery from over-charging by solar modules and over-discharging by connected loads. The Rover's optimized charging process extends battery life and enhances overall system performance. Featuring a 4-stage battery charging algorithm, it ensures rapid, efficient, and safe charging. This controller is an essential component for any solar power system, maximizing energy utilization and minimizing waste.



Figure 1: Renogy Rover 20A MPPT Solar Charge Controller. This image shows the front view of the black charge controller with its LCD display and control buttons.

2. SAFETY INFORMATION

Always observe the following safety precautions during installation and operation:

- Ensure all connections are secure and properly insulated to prevent short circuits.
- Wear appropriate personal protective equipment (PPE), including gloves and eye protection, during installation.
- Do not attempt to disassemble or repair the controller. Refer to qualified personnel for servicing.
- Install the controller in a well-ventilated area, away from flammable materials and direct sunlight.
- Verify battery voltage and polarity before connecting to the controller. Incorrect connections can cause damage.

3. PRODUCT OVERVIEW

3.1 Key Features

- **Innovative MPPT Design:** Die-cast aluminum design for excellent heat dissipation and Renogy Maximum Power Point Tracking technology with up to 99% tracking efficiency and 98% peak conversion efficiency. Optimal charging even in cloudy conditions.
- **12V/24V Automatic Detection:** Automatically detects 12V or 24V DC system voltages (for Non-Lithium battery types). LCD screen and LED indicators display solar charging and battery operation information, customizable parameters, and error codes.
- **Full System Protection:** Self-diagnostic capability protects against reverse polarity, battery overcharging, battery over-discharging, overload, short-circuiting, and reverse current.
- **4-Stage Safe Charging:** Features 4-stage charging (Bulk, Absorption, Float, and Equalization) for Lead Acid Batteries and 2-stage charging (Bulk and Absorption) for Lithium batteries, including Lithium Reactivation.
- **Diverse Load Control:** Connect DC appliances directly to the optional Load Terminals to monitor consumption or set up timer controls.
- **Remote Monitoring:** RS232 communication port allows communication with the DC Home app and Renogy ONE M1 via the Renogy BT-1 Bluetooth module (sold separately).

3.2 What's in the Box

- Rover Li 20 Amp MPPT Charge Controller

4. SETUP AND INSTALLATION

4.1 Connecting to Battery

The first step in setting up the Rover is to connect it to a 12V or 24V battery. Ensure correct polarity. The controller will power on once connected.

Your browser does not support the video tag.

Video 1: Renogy Rover 20 Amp 12V/24V DC Input MPPT Charge Controller Setup. This video demonstrates the step-by-step process of connecting the Renogy Rover charge controller to a battery and solar panel, including setting the battery type and connecting the temperature sensor and optional Bluetooth module.

4.2 Setting Battery Type

The Rover controller can charge Sealed, Gel, Flooded, and Lithium batteries. To change the battery type, navigate to the main menu screen on the LCD display. Press and hold the right arrow button until the battery type screen appears. Use the down arrow button to cycle through the available battery options (SLD for Sealed, FLD for Flooded, GEL for Gel, LI for Lithium). Press the Enter button to save your selection.

Compatible with Various Battery Types

Automatically detects 12V/24V system voltage for Non-Lithium batteries



*Manual setting is required for a 24V Lithium battery.

Figure 2: Compatibility with Various Battery Types. This image illustrates the Renogy Rover's compatibility with different battery chemistries, including Flooded (FLD), Sealed (SLD), AGM, Gel, and Lithium (LI) batteries.

4.3 Connecting Remote Temperature Sensor

The Rover comes with a remote temperature sensor. Connect this sensor to the port labeled "Temp." on the controller. For accurate temperature compensation, place the sensor inside the battery compartment or tape it to one side of the battery.



Figure 3: Renogy Rover 20A MPPT Charge Controller with included temperature sensor. This image displays the charge controller alongside its temperature sensor and mounting accessories.

4.4 Connecting Solar Panel

After connecting the battery and temperature sensor, connect your solar panel(s) to the PV+ and PV- terminals on the controller. Ensure the solar panel voltage is within the controller's specifications. Once connected, the PV voltage will be displayed on the LCD screen.

Connection Diagram

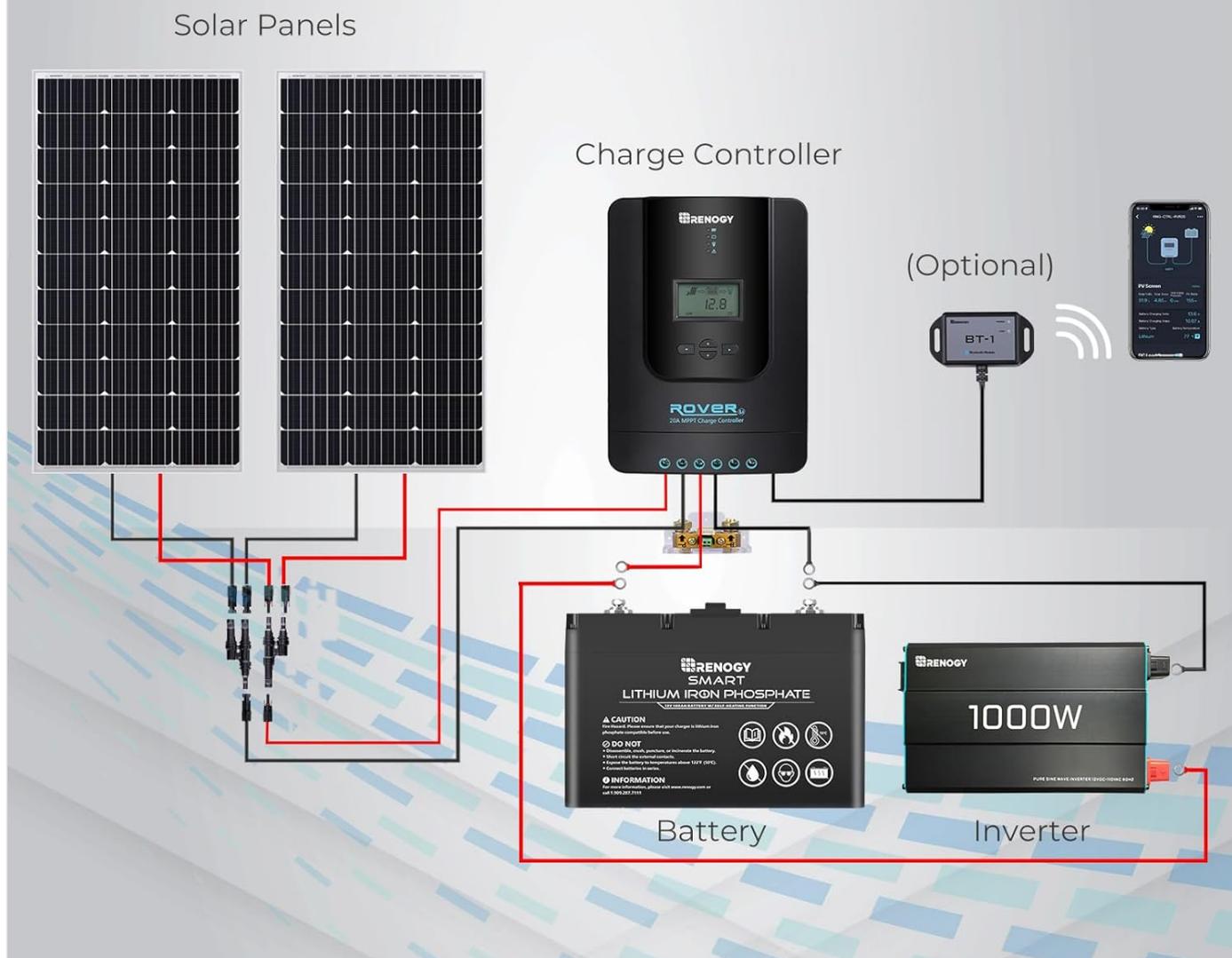


Figure 4: Connection Diagram. This diagram illustrates a typical solar power system setup, showing the connection of solar panels to the Renogy Rover charge controller, battery, and an optional inverter and Bluetooth module.

5. OPERATING INSTRUCTIONS

5.1 LCD Display Parameters

The Rover's LCD display provides real-time information about your solar system. You can cycle through 11 different parameters by pressing the Up or Down buttons. These parameters include:

- System Status
- Solar Panel Voltage
- Charging Current
- State of Charge (SOC)
- Battery Voltage
- Load Current

- Accumulated Amp Hours
- Discharged Amp Hours
- Ambient Temperature
- Load Mode
- Error Codes

Real-Time Monitoring

Seamlessly integrate with the BT-1 to provide instant data on your DC Home app & Renogy ONE M1.



Figure 5: Real-Time Monitoring. This image shows the Renogy Rover charge controller connected to a BT-1 Bluetooth module and displaying real-time data on a smartphone app and a Renogy ONE M1 display.

5.2 Load Control

The Rover allows direct connection of DC appliances to its Load Terminals. This feature enables monitoring of power consumption and setting up timer controls directly from the controller, optimizing energy usage.

5.3 Remote Monitoring

For enhanced monitoring and control, the Renogy BT-1 Bluetooth module (sold separately) can be connected to the RS232 communication port. This allows you to monitor the status and productivity of your solar panels and adjust

parameters on the go via the Renogy DC Home app on your smartphone.

6. MAINTENANCE

Regular maintenance ensures optimal performance and longevity of your Renogy Rover charge controller:

- **Cleaning:** Periodically clean the controller's exterior with a dry cloth to remove dust and debris. Ensure ventilation openings are clear.
- **Connection Check:** Annually inspect all wiring connections for tightness and corrosion. Loose connections can lead to power loss or overheating.
- **Battery Inspection:** Regularly check your battery terminals for corrosion and ensure they are clean and tight.
- **Environmental Check:** Ensure the installation environment remains within the specified temperature and humidity ranges.

7. TROUBLESHOOTING

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

Problem	Possible Cause	Solution
Controller not powering on	Loose battery connection, discharged battery, incorrect polarity.	Check battery connections and ensure they are secure. Verify battery voltage. Correct polarity if necessary.
No solar charging	No sunlight, solar panel disconnected, incorrect PV wiring, panel shaded.	Ensure adequate sunlight. Check PV+ and PV- connections. Verify panel is not shaded.
Error code displayed	System fault (e.g., over-voltage, short circuit).	Refer to the specific error code in the full user manual for detailed resolution steps. Disconnect and reconnect power to reset.

8. SPECIFICATIONS

Attribute	Value
Brand	Renogy
Model Number	Charge Controller (Rover 20A)
Product Dimensions	5.94 x 8.27 x 2.34 inches; 1.5 Pounds
Voltage	12V/24V Auto Detect (24 Volts listed as primary)
Material	Plastic
Color	black
Country of Origin	China

9. WARRANTY AND SUPPORT

Renogy products are built with quality and reliability in mind. For detailed warranty information and technical support, please visit the official Renogy website or contact their customer service. Keep your purchase receipt for warranty claims. For additional resources, you may refer to the official [User Manual \(PDF\)](#) and [User Guide \(PDF\)](#).

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Related Documents - Rover 20A

	<p>Renogy Rover PG Series MPPT Solar Charge Controller Installation and Operation Manual</p> <p>Comprehensive guide to installing and operating the Renogy Rover PG Series MPPT Solar Charge Controllers (20A, 30A, 40A). Learn about features, safety, MPPT technology, and charging stages for efficient off-grid solar power management.</p>
	<p>Renogy Rover 100A MPPT Solar Charge Controller User Manual</p> <p>User manual for the Renogy Rover 100A Maximum Power Point Tracking (MPPT) Solar Charge Controller. Covers safety, installation, operation, features, troubleshooting, technical specifications, and battery charging parameters.</p>
	<p>Renogy Wanderer Series 30A PWM Solar Charge Controller and BT-2 Bluetooth Module User Manual</p> <p>Comprehensive user manual detailing the features, installation, operation, safety guidelines, and technical specifications for the Renogy Wanderer Series 30A PWM Solar Charge Controller and the Renogy BT-2 Bluetooth Module. Includes troubleshooting, compliance information, and app connection guides.</p>
	<p>Renogy Rover Series MPPT Charge Controller Manual</p> <p>This manual provides essential safety, installation, and operating instructions for the Renogy Rover Series MPPT Charge Controllers (20A, 30A, 40A). Learn about MPPT technology, charging stages, battery safety, and troubleshooting.</p>



[Renogy 100W Solar Suitcase with Voyager Charge Controller Manual](#)

Comprehensive user manual and technical specifications for the Renogy 100W Solar Suitcase with Voyager charge controller. Learn about installation, operation, safety guidelines, charging stages, troubleshooting, and detailed product specifications for portable off-grid solar power solutions.



[Renogy MPPT Tracer Series Solar Charge Controller Manual](#)

Comprehensive guide to Renogy's MPPT Tracer Series solar charge controllers (20A, 30A, 40A), covering safety instructions, installation, operation, troubleshooting, and technical specifications for off-grid solar applications.