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Renogy RNG-INVT-3000-12V-P2-US

Renogy 3000W Pure Sine Wave Inverter and Rover 40 Amp MPPT Solar Charge Controller User Manual

Model: RNG-INVT-3000-12V-P2-US

1. Introduction

This manual provides detailed instructions for the safe and efficient operation of your Renogy 3000W Pure Sine Wave Inverter and Renogy Rover 40 Amp MPPT Solar Charge Controller. These devices are designed to provide reliable power conversion and solar charging for various off-grid applications, including RVs, trucks, cabins, and remote power systems. Please read this manual thoroughly before installation and use.

2. Safety Instructions

Adherence to these safety guidelines is crucial for preventing personal injury and damage to the equipment. Always follow local electrical codes and regulations.

- Installation should be performed by qualified personnel.
- Ensure all connections are tight and correct to prevent loose connections that can cause excessive heating.
- Do not operate the inverter or charge controller in wet environments or near flammable materials.
- Disconnect all power sources before performing any maintenance or wiring.
- Wear appropriate personal protective equipment, including eye protection and insulated gloves.
- The inverter and charge controller are ETL certified, indicating compliance with recognized safety standards.



Image: This diagram illustrates the comprehensive safety protections integrated into the Renogy system, including safeguards against over-temperature, ground fault circuit interruption (GFCI), overload, short circuits, and voltage fluctuations.

3. Renogy 3000W Pure Sine Wave Inverter

3.1. Overview and Features

The Renogy 3000W Pure Sine Wave Inverter converts 12V DC battery power into 120V AC household power. Its pure sine wave output ensures compatibility with sensitive electronics, providing smooth, continuous, and quiet operation. It is designed to handle high inductive loads efficiently.



Image: This graphic details the benefits of advanced pure sine wave technology, including 3000W continuous power, 6000W peak surge capability, smooth power delivery, quiet operation, and support for high inductive loads.

3.2. Installation

Mount the inverter in a dry, well-ventilated area, away from direct sunlight and heat sources. Ensure adequate clearance for cooling. Connect the inverter directly to a 12V battery bank using appropriate gauge cables. The inverter includes a remote control for convenient power management.

1. **DC Input Connection:** Connect the positive (+) and negative (-) terminals of the inverter to the corresponding terminals on your 12V battery bank. Use heavy-gauge cables to minimize voltage drop.
2. **AC Output Connection:** Plug your 120V AC appliances into the inverter's AC outlets. For permanent installations, use the AC hardwire port.
3. **Remote Control Connection:** Plug the remote control cable into the designated port on the inverter.



Image: The Renogy 3000W Pure Sine Wave Inverter is shown alongside its wired remote control, illustrating the complete package for power conversion and remote operation.



Image: This image highlights the inverter's robust battery connection points, indicating its compatibility with various battery chemistries such as AGM, GEL, and Lithium Iron Phosphate (LFP).

3.3. Operation

To operate the inverter, ensure it is properly connected to a 12V battery bank. Use the power switch on the inverter or the remote control to turn the unit on or off.

- **Power On/Off:** Toggle the main power switch or the remote switch to activate or deactivate the inverter.

- **AC Outlets:** The inverter provides three 120V AC outlets for connecting standard household appliances.
- **USB Port:** A built-in 5V/2.1A USB port is available for charging compatible USB devices.



Image: This image demonstrates the inverter's versatility, showing a smartphone charging via its USB port, alongside its multiple AC outlets capable of powering various appliances.



Image: A detailed view of the remote switch, emphasizing its simple on/off functionality for convenient control of the inverter from a distance.

4. Renogy Rover 40 Amp MPPT Solar Charge Controller

4.1. Overview and Features

The Renogy Rover 40 Amp MPPT Solar Charge Controller is designed to optimize power harvesting from your solar panels. It features Maximum Power Point Tracking (MPPT) technology, which can achieve up to 99% tracking efficiency, especially beneficial in varying light conditions. It supports Gel, Sealed, Flooded, and Lithium battery types.



Image: The Renogy Rover 40 Amp MPPT Solar Charge Controller is displayed, showcasing its front panel with an LCD screen and intuitive control buttons for monitoring and adjusting settings.

4.2. Installation

Install the charge controller in a cool, dry, and well-ventilated location. Ensure proper wire sizing for all connections to prevent overheating and maximize efficiency. The maximum terminal size for wiring is 8AWG.

1. **Battery Connection:** Connect the charge controller to your battery bank first. Ensure correct polarity.
2. **Solar Panel Connection:** Connect your solar panels to the PV input terminals of the charge controller. Observe correct polarity.
3. **Load Connection (Optional):** If using, connect your DC loads to the load terminals of the charge controller.



Image: This diagram illustrates the typical wiring setup for the Rover MPPT charge controller, connecting solar panels to the controller and then to a lithium iron phosphate battery, demonstrating the flow of power in a solar charging system.

4.3. Operation

The Rover charge controller features an LCD display for monitoring system status and adjusting parameters. Use the control buttons to navigate menus and set battery type, charging parameters, and load control settings.

- **LCD Display:** Provides real-time information on battery voltage, charging current, solar panel voltage, and load status.
- **Parameter Adjustment:** Access the menu to select your battery type (Gel, Sealed, Flooded, Lithium) and customize charging parameters for optimal battery health.
- **Load Control:** The controller can manage DC loads, offering timer and dusk-to-dawn settings.

5. Maintenance

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

- **Inspect Connections:** Periodically check all electrical connections for tightness and corrosion. Tighten any loose connections.
- **Clean Devices:** Keep the inverter and charge controller free from dust and debris. Ensure cooling vents are unobstructed.
- **Battery Health:** Monitor your battery bank's health and ensure it is properly maintained according to the battery manufacturer's guidelines.
- **Environmental Check:** Ensure the installation environment remains dry and within the specified operating temperature range.

6. Troubleshooting

If you encounter issues, refer to the following common troubleshooting steps. For persistent problems, contact Renogy customer support.

- **No Power Output from Inverter:** Check battery connections, ensure battery voltage is within operating range, verify inverter is switched on, and check for any fault indicators.
- **Charge Controller Not Charging:** Verify solar panel connections and polarity, check for sufficient sunlight, ensure battery is connected, and confirm battery type settings are correct.
- **Overload/Short Circuit:** Disconnect loads, reset the device (if applicable), and check for faulty appliances or wiring.
- **Error Codes:** Consult the specific product manual for detailed explanations of any displayed error codes.

7. Specifications

7.1. Renogy 3000W Pure Sine Wave Inverter

Feature	Specification
Output Power (Continuous)	3000 Watts
Peak Output Power	6000 Watts
Input Voltage	12 Volts DC
Output Voltage	120 Volts AC
Electrical Output Waveform	Pure Sine Wave
Frequency	60 Hz
Total Power Outlets	3 AC Outlets
USB Port	5V/2.1A
Model Number	RNG-INVT-3000-12V-P2-US
Certifications	ETL

7.2. Renogy Rover 40 Amp MPPT Solar Charge Controller

Feature	Specification
Rated Battery Current	40A

Feature	Specification
Rated Load Current	20A
Max. PV Input Short Current	50A
Max. Battery Voltage	32V
Max. Solar Input Voltage	100VDC
Charge Circuit Voltage Drop	≤ 0.26V
Discharge Circuit Voltage Drop	≤ 0.15V
Working Temperature	-35°C to +45°C
Max. Terminal Size	8AWG
Overall Dimension	9.37 x 6.81 x 2.85 inches



Image: This image provides a visual representation of the Renogy Rover 40A MPPT Charge Controller, detailing its physical dimensions for installation planning.

8. Warranty Information

For detailed warranty terms and conditions, please refer to the official Renogy website or the warranty card included with your product. Warranty coverage typically includes defects in materials and workmanship under normal use.

9. Customer Support

If you have any questions, require technical assistance, or need to report an issue, please contact Renogy customer support. Contact information can be found on the official Renogy website or in your product packaging.

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