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Renogy Wanderer Li 30A PWM

Renogy 12V 30A PWM Solar Charge Controller – Wanderer Li User Manual

Model: Wanderer Li 30A PWM

Brand: Renogy

1. INTRODUCTION

The Renogy Wanderer Li 30A PWM Solar Charge Controller is designed to optimize the charging process for various battery types, including Lithium, AGM, Gel, and Flooded batteries. It features advanced PWM technology with a 4-stage charging algorithm to maximize battery lifespan and efficiency. This controller is equipped with comprehensive protection features against common electrical issues, making it suitable for RVs, boats, and off-grid solar setups.



Figure 1.1: Renogy Wanderer Li 30A PWM Solar Charge Controller, front view showing LED indicators and connection ports.

2. KEY FEATURES

- **Universal Battery Compatibility:** Optimizes charging for Lithium, AGM, Gel, and Flooded batteries.
- **4-Stage PWM Charging:** Features Bulk, Boost, Float, and Equalization stages for efficient and prolonged battery life.
- **Comprehensive Protection:** Built-in safeguards against reverse polarity, overcharging, overload, short circuits, reverse current, and includes temperature compensation.
- **Compact and Durable Design:** Ultra-compact size (5.5"x3.9"x1.8") with IP32-rated waterproof casing and corrosion-resistant materials.
- **Temperature Sensing:** Supports external temperature sensor (BT-1 module, sold separately) for climate-resilient charging.
- **Bluetooth Monitoring:** Compatible with BT-1 module (sold separately) for real-time monitoring via the DC Home App.
- **Functional Versatility:** Includes Timer Mode, Manual Mode, Test Mode, Always-On Mode, and Auto-On/Off (Dawn-to-Dusk) Mode.



Figure 2.1: The charge controller is compatible with various battery types including Lithium, Sealed Lead Acid (SLD), Flooded (FLD), Gel, and AGM batteries.

All-round Protection for Your Batteries



-  Overcharging Protection
-  Over-discharging Protection
-  Short-circuit Protection
-  Overload Protection
-  Reverse Current Protection
-  Temperature Compensation
-  Reverse Polarity Protection

Figure 2.2: Overview of the controller's functional versatility, including operating modes and certifications.

3. SETUP

3.1 Mounting

The Wanderer Li controller can be mounted using its pre-drilled holes for tool-free DIN rail or wall mounting. Ensure the mounting location is dry, well-ventilated, and protected from direct sunlight and extreme temperatures. Allow sufficient space around the controller for air circulation.

3.2 Wiring Connections

Follow the connection order carefully to prevent damage to the controller or battery. Always connect the battery first, then the solar panel, and finally the load (if applicable). Disconnect in the reverse order.

1. **Connect the Battery:** Connect the positive and negative terminals of your battery to the corresponding battery terminals on the charge controller. Ensure a secure connection.
2. **Connect the Solar Panel:** Connect the positive and negative terminals of your solar panel(s) to the corresponding PV (solar panel) terminals on the charge controller.
3. **Connect the Load (Optional):** If using the load terminals, connect your DC load to the corresponding load terminals on the charge controller.
4. **Connect Temperature Sensor (Optional):** For optimal battery charging, especially in varying climates, connect the optional BT-1 module (sold separately) to the RS232 port. This enables dynamic temperature compensation.

Recommended Wire Size: Use wires with a gauge of 10 AWG or larger for optimal performance and safety.

The Indispensable Component for Your Solar System

Works Right out of the Box



Figure 3.1: Diagram showing the connection of solar panel, charge controller, and battery.

Multiple Types Charging Ports

5V 2A USB Ports to Charge Your Devices Directly



Figure 3.2: Close-up view of the charge controller's connection ports for temperature sensor, solar panel, battery, and RS232.

4. OPERATING INSTRUCTIONS

4.1 LED Indicators

The controller features intuitive LED indicators to display the charging status and selected battery type:

- **PV LED:** Indicates solar panel input status.
- **BATT LED:** Indicates battery charging status.
- **Battery Type LED:** Changes color to indicate the selected battery type (Green: Sealed, Orange: GEL, Red: Flooded, Blue: Li).

4.2 4-Stage Charging Process

The controller employs a 4-stage PWM charging process to ensure optimal battery health and longevity:

- **Bulk Charge:** Charges the battery at maximum current until it reaches approximately 80% capacity.
- **Boost Charge:** Stabilizes the voltage for 120 minutes to ensure the battery is fully charged.
- **Float Charge:** Maintains the battery at a full state of charge with a micro-current, preventing overcharging.
- **Equalization Charge:** Automatically performs an equalization charge every 25 days for Flooded batteries to balance cell voltages.



Figure 4.1: Visual representation of the 4-stage charging process.

4.3 Battery Type Selection

The controller automatically detects and optimizes charging for various battery types. You can manually switch battery types if needed by pressing the button on the controller. Refer to the LED indicator for the currently selected battery type.

4.4 Bluetooth Monitoring (Optional)

For advanced monitoring capabilities, pair the BT-1 module (sold separately) with your Wanderer Li controller. This allows you to monitor solar input, battery State of Charge (SOC), and receive fault alerts via the Renogy DC Home App on your smartphone or tablet.

Impeccable Output Efficiency

Wanderer 10 gives you stable power output.



Figure 4.2: Illustration of real-time monitoring setup using the BT-1 module and DC Home App.

5. MAINTENANCE

To ensure the longevity and optimal performance of your Renogy Wanderer Li Solar Charge Controller, regular maintenance is recommended:

- **Inspect Connections:** Periodically check all wiring connections for tightness and corrosion. Loose connections can lead to power loss or overheating.
- **Clean the Controller:** Keep the controller clean and free from dust, dirt, and debris. Use a dry cloth to wipe the surface. Do not use harsh chemicals or abrasive cleaners.
- **Ventilation:** Ensure that the area around the controller remains well-ventilated to prevent overheating. Do not block any ventilation openings.
- **Environmental Conditions:** While the controller is designed for durability, avoid exposing it to extreme moisture or temperatures beyond its operating range (-4°F to 140°F).

6. TROUBLESHOOTING

The Renogy Wanderer Li Solar Charge Controller is equipped with multiple protection features to prevent damage. If you encounter issues, refer to the following common problems and solutions:

6.1 Protection Features

- **Reverse Polarity Protection:** Protects the controller and battery from damage if the battery or solar panel connections are reversed.
- **Overcharging Protection:** Prevents the battery from being overcharged, extending its lifespan.
- **Overload Protection:** Shuts down the load output if the current exceeds the rated capacity.
- **Short Circuit Protection:** Protects against short circuits in the solar panel or load circuits.
- **Reverse Current Protection:** Prevents current from flowing back from the battery to the solar panel at night.
- **Temperature Compensation:** Adjusts charging parameters based on battery temperature (with optional sensor)

to prevent undercharge or overvoltage.



Figure 6.1: Infographic detailing the comprehensive protection features of the controller.

6.2 Common Issues

- **No Charging Indication:** Check solar panel connections, ensure sufficient sunlight, and verify battery voltage.
- **Load Not Working:** Check load connections, ensure the load current does not exceed the controller's rating, and verify battery charge level.
- **Incorrect Battery Type Indication:** Press the battery type selection button to cycle through options and ensure the correct type is selected.

7. SPECIFICATIONS

Attribute	Value
Display Type	LED
Operating Temperature	-4°F to 140°F (-20°C to 60°C)
UPC	840315237421
Manufacturer	RENOGY
Product Dimensions	6.45 x 4.31 x 1.76 inches (16.38 x 10.95 x 4.47 cm)
Item Weight	11.3 ounces (320 grams)
ASIN	B0DXF37VLR
Batteries required	No
Included Components	Wanderer 30A solar charge controller
Color	Black

Attribute	Value
Voltage	12 Volts
Material	Acrylonitrile Butadiene Styrene (ABS), Plastic

8. WARRANTY AND SUPPORT

8.1 Warranty Information

The Renogy Wanderer Li 30A PWM Solar Charge Controller comes with a **2-Year Material and Workmanship Warranty**. This warranty covers defects in materials and manufacturing under normal use. Please retain your proof of purchase for warranty claims.



Figure 8.1: The product is backed by a 2-year material and workmanship warranty.

8.2 Customer Support

For technical assistance, troubleshooting, or warranty inquiries, please contact Renogy customer service. You can find more information and support resources on the official Renogy website or their Amazon Brand Store:

[Visit the Renogy Brand Store on Amazon](#)

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Related Documents - Wanderer Li 30A PWM

<p>User Manual of Product 1: Renogy Wanderer Li 30A 12V PWM Negative Ground Solar Charge Controller Base Panel Regulator w/ Temp Sensor, Charger, LED Light, Remote, GPS, and Tracker/Bluetooth, Wanderer Li 30A</p> <p>User Manual of Product 2: Renogy Bluetooth Module R212 Communication Port Compatible with Wanderer/Robinson Charge Controllers, BT-1 R212R2</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>User Manual of Product 1: Renogy 10A 12V/24V PWM Negative Ground Solar Charge Controller Control Design w/LCD Display for AGM, Gel, Deep Cycle, and Other Batteries, Wanderer 10A</p> <p>User Manual of Product 2: Renogy Bluetooth Module R212 Communication Port Compatible with Wanderer/Robinson Charge Controllers, BT-1 R212R2</p>	<p>Renogy Wanderer 10A PWM Solar Charge Controller & BT-2 Bluetooth Module User Manual</p> <p>Comprehensive user manual for the Renogy Wanderer 10A PWM Solar Charge Controller and BT-2 Bluetooth Module. Covers installation, operation, safety, technical specifications, and app connectivity for off-grid solar systems.</p>
	<p>Renogy Wanderer LCD PWM Solar Charge Controller Manual</p> <p>User manual for the Renogy Wanderer LCD PWM Solar Charge Controller (10A, 12V/24V). Provides detailed guidance on installation, operation, safety, troubleshooting, and technical specifications for off-grid solar systems.</p>
	<p>Renogy 100W Solar Suitcase with Voyager Charge Controller Manual</p> <p>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.</p>

User Manual of Product 1:
Renogy 30A 12V 15A Monocrystalline Solar Panel Starter Kit with 2 100W Solar Panels and 30A PWM Charge Controller for RV, Boat, Trailer, Camper, Van, Off-Grid System

User Manual of Product 2:
Renogy 50A Battery Monitor with Smart, High-Low Low Voltage Programmable Alarm, Voltage Range 10V-120V and up to 50A, 50ft Braided Cable, Compatible with 12V Lithium Batteries, Gel, Flooded Batteries

[Renogy Wanderer 30A PWM Solar Charge Controller & 500A Battery Monitor User Manual](#)
Comprehensive user manual for Renogy's Wanderer 30A PWM Solar Charge Controller and 500A Battery Monitor, covering installation, operation, safety, and technical specifications for off-grid solar systems.

Renogy
WANDERER
PWM Solar Charge Controller
10A 12V/24V
REV: CHL-REV02-C1



[Renogy Wanderer 10A PWM Solar Charge Controller Manual | Installation & Operation Guide](#)
Comprehensive manual for the Renogy Wanderer 10A PWM Solar Charge Controller. Covers installation, wiring, operation, troubleshooting, technical specifications, and safety instructions for 12V/24V off-grid solar systems.