

Renogy 250 Watt Solar Panel N-Type 16BB

Renogy 250 Watt N-Type Bifacial Solar Panel Instruction Manual

Model: 250 Watt Solar Panel N-Type 16BB | Brand: Renogy

1. INTRODUCTION

This manual provides essential information for the safe and efficient operation of your Renogy 250 Watt N-Type Bifacial Solar Panel. The Renogy 250W N-Type Bifacial Solar Panel features grade A+ cells, delivering an impressive conversion efficiency of 25%. It boasts an impressive 80% bifaciality factor, allowing the rear side to deliver approximately 14% more power compared to p-PERC counterparts. Designed for various applications including RVs, marine, home roofs, and camping, this panel is built with advanced 16BB cell technology for enhanced performance and a longer lifespan.

2. SAFETY INFORMATION

Please read and understand all safety instructions before installing or operating the solar panel. Failure to follow these instructions may result in electrical shock, fire, or serious injury.

- **Electrical Hazard:** Solar panels generate electricity when exposed to light. Always cover the panel or work in low-light conditions during installation to prevent electrical shock.
- **Proper Handling:** Handle the solar panel with care. Do not drop, bend, or allow objects to fall on the panel.
- **Installation:** Installation should be performed by qualified personnel. Ensure all local and national electrical codes are followed.
- **Connections:** Ensure all electrical connections are tight and secure to prevent arcing and overheating. Use appropriate MC4 connectors.
- **Ventilation:** Ensure adequate ventilation around the panel to prevent overheating, especially for bifacial panels where the rear side also generates heat.
- **Maintenance:** Do not attempt to disassemble or repair the solar panel. Refer to qualified service personnel for any issues.

3. PRODUCT OVERVIEW

3.1 Components

The Renogy 250 Watt N-Type Bifacial Solar Panel package includes:

- 1 x Renogy 250 Watt N-Type Bifacial Solar Panel
- Integrated MC4 Connectors

3.2 Key Features

- **Unmatched Cell Efficiency:** Grade A+ N-Type cells provide 25% conversion efficiency, offering 20W more power output than conventional p-PERC panels.
- **High Bifaciality Factor:** An 80% bifaciality factor allows the rear side to generate approximately 14% more power, enhancing overall energy yield.
- **Enhanced Performance in High Temperatures:** Low temperature coefficient of $-0.29\%/^{\circ}\text{C}$ minimizes power loss, ensuring superior performance in hot climates.
- **16BB Technology:** Advanced 16BB cell technology improves photoelectric conversion efficiency and mitigates hot spots, leading to a longer service life.
- **Durable Construction:** Built to withstand various environmental conditions, suitable for RV, marine, home, and camping applications.
- **IP68 Waterproof:** Features an IP68 junction box and IP68 solar connectors for robust weather resistance.

3.3 Product Visuals



Figure 3.1: Front and back view of the Renogy 250W N-Type Bifacial Solar Panel, highlighting its dual-sided design for maximum light absorption.

Higher Efficiency with Bifacial Technology



1625Wh/Day

In 5 Hrs of Direct Sunlight



30%

Energy Yield

Generate Power from
Both Sides



Figure 3.2: An illustration detailing the N-Type solar cell technology, showcasing its tunneling layer for improved electron transport and a 25% conversion efficiency.

Performance Upgraded with New Technology

N-Type Technology

Significant Cell Efficiency and Power Output

GradeA+ Cell

No Microcracks



16 Busbar Design

Longer Lifespan
and Better performance

Figure 3.3: This diagram demonstrates the benefits of bifacial technology, indicating a potential energy yield of 1625Wh per day in 5 hours of direct sunlight and a 30% overall energy yield from both sides of the panel.



IP68 Waterproof

IP68 Junction Box

IP68 Solar Connectors

Figure 3.4: A close-up view highlighting the IP68 waterproof junction box and MC4 solar connectors, ensuring durability and protection against environmental elements.

3.4 Official Product Videos

There are no official seller-created videos available for this product at this time.

4. SETUP

Proper installation is crucial for optimal performance and safety.

1. **Site Selection:** Choose a location that receives maximum direct sunlight throughout the day, free from shading by trees or buildings. For bifacial panels, consider surfaces that reflect light to the rear side.
2. **Mounting:** Securely mount the solar panel using appropriate mounting hardware (not included). Ensure the mounting structure is strong enough to support the panel's weight and withstand wind loads. The panel dimensions are 60.9 x 30 x 1.2 inches and it weighs 33.9 pounds.
3. **Orientation and Tilt:** Orient the panel to face true south (in the Northern Hemisphere) or true north (in the Southern Hemisphere).

Hemisphere). Adjust the tilt angle for seasonal variations to maximize energy harvest.

4. **Electrical Connections:**

- Connect the MC4 connectors from the solar panel to your charge controller. Ensure correct polarity (positive to positive, negative to negative).
- If connecting multiple panels, ensure they are wired correctly in series or parallel according to your system's voltage and current requirements.
- Always connect the solar panel to the charge controller first, then connect the charge controller to the battery. Disconnect in reverse order.

5. **Grounding:** Properly ground the solar panel frame according to local electrical codes to prevent electrical hazards.

5. OPERATING

Once installed and connected, the Renogy 250 Watt N-Type Bifacial Solar Panel operates automatically when exposed to sunlight.

- **Sunlight Exposure:** Ensure the panel is exposed to direct sunlight for optimal power generation. Any shading, even partial, can significantly reduce output.
- **Monitoring:** Use a compatible charge controller with a display or monitoring app to track the panel's performance, including voltage, current, and power output.
- **Battery Charging:** The solar panel will charge your connected battery bank via the charge controller. Ensure your battery bank is compatible with the panel's voltage output (12V system).

6. MAINTENANCE

Regular maintenance helps ensure the longevity and efficiency of your solar panel.

- **Cleaning:** Clean the surface of the solar panel periodically with a soft cloth and water to remove dust, dirt, and debris. Avoid abrasive materials or harsh chemicals.
- **Inspection:** Regularly inspect the panel for any physical damage, such as cracks in the glass, loose frames, or damaged cables. Check electrical connections for corrosion or looseness.
- **Shading:** Periodically check for new sources of shading (e.g., growing trees, new structures) that might impact the panel's performance.
- **Snow Removal:** In snowy regions, gently remove snow accumulation from the panel surface to allow for power generation.

7. TROUBLESHOOTING

If you experience issues with your Renogy solar panel, refer to the following common problems and solutions:

Problem	Possible Cause	Solution
Low or No Power Output	Shading on the panel surface.	Remove any shading.
	Dirty panel surface.	Clean the panel surface.
	Loose or incorrect wiring connections.	Check all connections for tightness and correct polarity.
	Faulty charge controller or battery.	Test charge controller and battery independently.
	Insufficient sunlight.	Ensure panel is in direct sunlight.

Problem	Possible Cause	Solution
Panel Overheating	Poor ventilation around the panel. Excessive ambient temperature.	Ensure adequate airflow around and behind the panel. Consider relocating if consistently exposed to extreme heat without airflow.
Physical Damage	Impact from falling objects or severe weather.	Contact Renogy customer support for assistance. Do not attempt self-repair.

For further assistance, please contact Renogy customer support.

8. SPECIFICATIONS

Attribute	Value
Brand	Renogy
Model Number	250 Watt Solar Panel N-Type 16BB
Maximum Power	250 Watts
Efficiency	High Efficiency (25% conversion)
Bifaciality Factor	80%
Temperature Coefficient	-0.29%/°C
Connector Type	MC4
Included Components	1 x Solar Panel
Item Weight	33.9 pounds
Product Dimensions	60.9 x 30 x 1.2 inches
UPC	840315237087

9. WARRANTY AND SUPPORT

Renogy stands behind the quality of its products. The Renogy 250 Watt N-Type Bifacial Solar Panel comes with a **10-year service plan for materials and workmanship**. Additionally, Renogy commits to a **25-year period to maintain 80% output**, providing long-term peace of mind for your solar energy investment.

For technical support, warranty claims, or any inquiries, please visit the official Renogy website or contact their customer service department. You can find more information and support resources at the [Renogy Store on Amazon](#).

ASK A QUESTION ABOUT THIS MANUAL

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

Name

Anonymous

Email

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. [Privacy details](#).

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question