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Renogy N-Type 16BB 100W Solar Panel

Renogy 100W N-Type Solar Panel Instruction Manual

Model: N-Type 16BB 100W Solar Panel

1. INTRODUCTION

This manual provides essential information for the safe and efficient use of your Renogy 100W N-Type Solar Panel. Designed for high efficiency and durability, this solar panel is suitable for various off-grid applications including RVs, marine vessels, boats, trailers, campers, rooftops, farms, and other remote power systems.

Key Features

- **Unmatched Cell Efficiency:** Features Grade A+ cells, delivering an impressive conversion efficiency of 25%. This provides 20W more power output compared to conventional PERC panels of the same design.
- **16BB for Higher Conversion Efficiency and Longer Lifespan:** Utilizes advanced 16BB cell technology, enhancing photoelectric conversion efficiency while mitigating hot spots and hidden cracks, ensuring a longer service life and superior module performance.
- **Enhanced Performance in High Temperatures:** Features a low temperature coefficient, minimizing power loss in high-temperature conditions for superior product performance. This allows for increased power generation, particularly beneficial in summer months or extremely hot areas.
- **Built to Last:** Equipped with IP65 protection, designed to endure snow, rain, and heat for decades. With low-iron tempered glass and corrosion-resistant aluminum frames, it ensures exceptional performance in all weather conditions.
- **Long-Term Reliability:** Exhibits low degradation ($\leq 1\%$ in the first year, $\leq 0.4\%$ annually). It's backed by a 10-year material and workmanship commitment, plus a 25-year performance guarantee at 80% output.

2. SETUP AND INSTALLATION

This section provides guidance on setting up your Renogy 100W N-Type Solar Panel. Proper installation ensures optimal performance and longevity.

Components

- Renogy 100W N-Type Solar Panel
- Integrated Plug-and-Play Solar Connectors (MC4 compatible)
- Pre-drilled mounting holes (mounting hardware not included)

Installation Steps

1. **Step 1: Unboxing and Inspection:** Carefully unbox the solar panel. Inspect for any physical damage.
2. **Step 2: Mounting:** The panel features 20 pre-drilled mounting holes for secure installation. Use appropriate mounting brackets (not included) for your specific application (e.g., RV, marine, rooftop). Ensure the panel is securely fastened to withstand environmental conditions.
3. **Step 3: Electrical Connections:** Connect the plug-and-play solar connectors to your charge controller. Ensure all connections are secure and properly sealed to prevent moisture ingress.
4. **Step 4: System Integration:** Connect the charge controller to your battery bank and inverter as per your system design.



Image showing the dimensions of the 100W N-Type solar panel (34.1 inches L x 22.8 inches W x 1.2 inches H) and highlighting its

plug-and-play solar connectors and 20 pre-drilled mounting holes for easy setup. It also notes it is 11% smaller and 14% thinner than previous models.

Video Guide: Renogy N-Type 16BB 100W Solar Panel Overview

This video provides an overview of the Renogy N-Type 16BB 100W Solar Panel, detailing its advanced features like the tunneling layer for improved electron transport, 25% cell efficiency, 16 busbars for higher output, and superior performance in high temperatures. It also highlights the panel's durability and long-term warranty.

3. OPERATING PRINCIPLES

The Renogy 100W N-Type Solar Panel converts sunlight into electrical energy. Understanding its operating principles helps maximize energy harvest.

N-Type Technology

N-Type solar cells utilize a tunneling layer to minimize energy loss and electronic recombination, leading to higher efficiency and consistent performance over time. This technology allows for better electron transport and collection, resulting in a 25% cell efficiency.

N-Type Panel: A Class on Its Own

Renogy 100W 12V N-Type Solar Panel

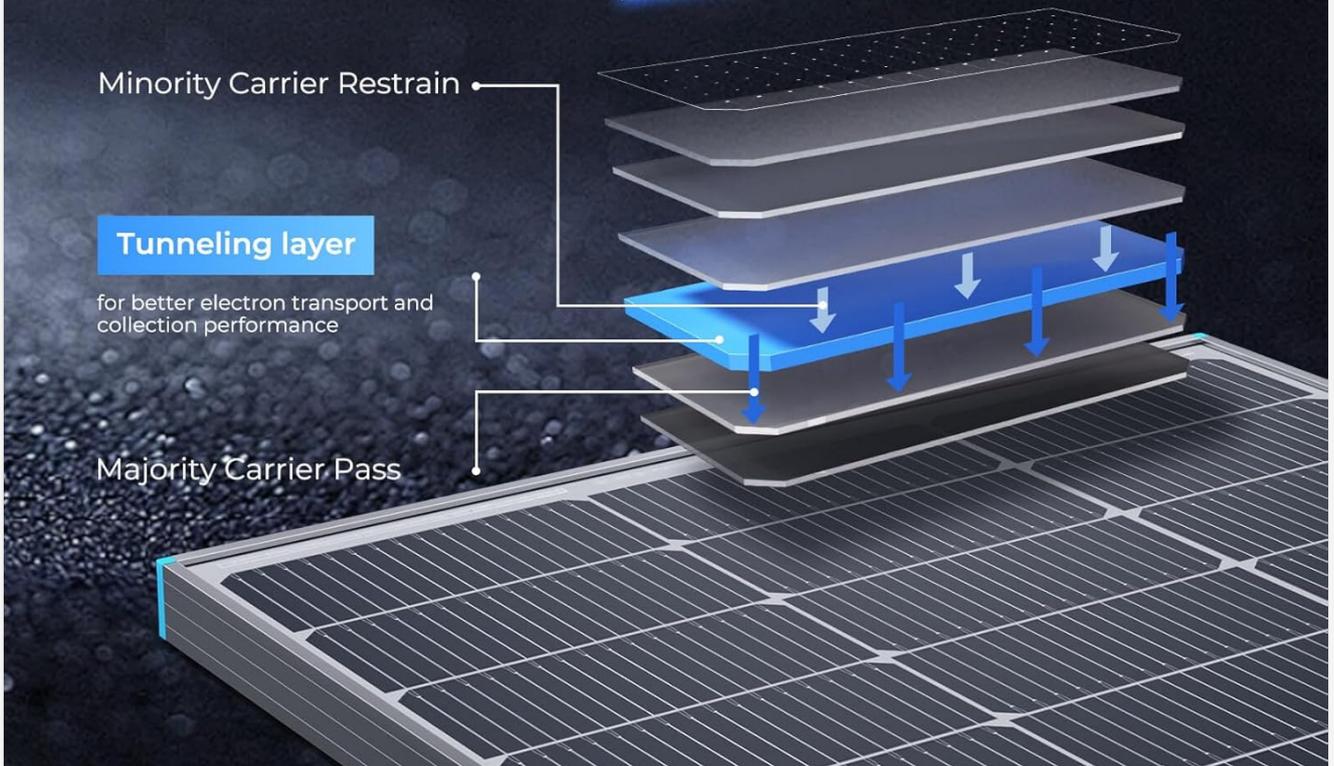
25%

Minority Carrier Restrain

Tunneling layer

for better electron transport and collection performance

Majority Carrier Pass

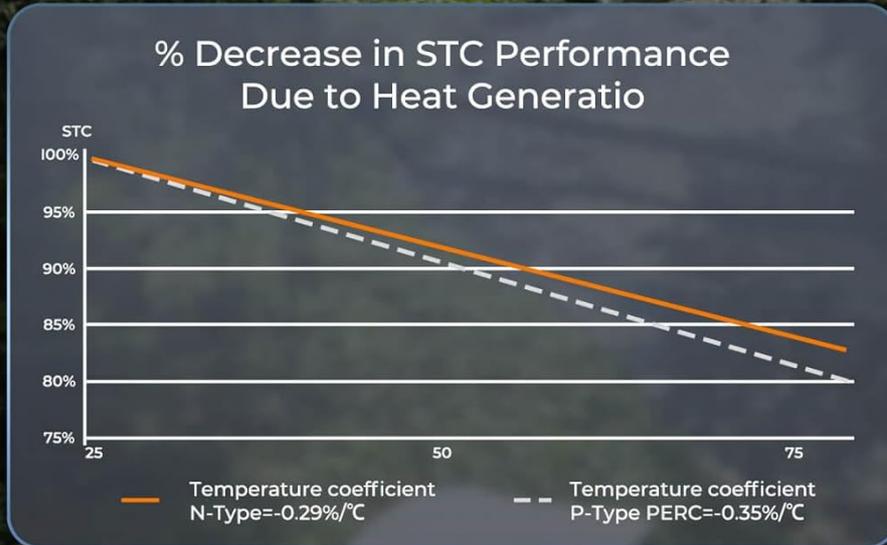


A diagram showing the internal structure of an N-Type solar panel, highlighting the tunneling layer that facilitates better electron transport and collection, leading to a 25% cell efficiency.

Performance in Various Conditions

These panels are designed for enhanced performance, especially in high-temperature environments, due to a low temperature coefficient. They also exhibit slower degradation compared to P-Type panels, ensuring sustained power output over their lifespan. The 16BB cell technology further contributes to consistent, higher output performance.

2% Power Increase in High Temperatures



A graph comparing the performance decrease of N-Type and P-Type PERC solar panels at higher temperatures, demonstrating the N-Type's superior performance with a lower temperature coefficient.

4. MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your solar panel.

Cleaning

Periodically clean the surface of the solar panel to remove dust, dirt, leaves, and other debris that may obstruct sunlight. Use a soft cloth and mild, non-abrasive cleaning solution with water. Avoid harsh chemicals or abrasive materials that could scratch the glass.

Connection Checks

Regularly inspect all electrical connections, including MC4 connectors and wiring, for any signs of corrosion, damage, or looseness. Ensure they are securely fastened and properly sealed to prevent moisture ingress.

Long-Term Storage

If storing the solar panel for extended periods (e.g., over 3 months), it is recommended to disconnect it from the battery system. Maintain the battery at approximately 80% charge during storage and consider a trickle charge if storing for 3-9 months. The panels themselves are designed to withstand various weather conditions.

5. TROUBLESHOOTING

If your solar panel system is not performing as expected, consider the following common issues:

- **No Power Output:** Check all connections for looseness or corrosion. Ensure the panel surface is clean and free from shading. Verify the charge controller is functioning correctly.
- **Low Power Output:** Clean the panel surface. Check for partial shading from trees, buildings, or debris. Ensure the panel is oriented correctly towards the sun. Verify battery health and charge controller settings.
- **Battery Not Charging:** Confirm all wiring is correct and secure. Check the charge controller for error codes or indicators. Inspect the battery terminals for corrosion.

For persistent issues, consult the Renogy support resources or contact customer service.

6. TECHNICAL SPECIFICATIONS

Feature	Detail
Brand	Renogy
Material	Monocrystalline Silicon
Product Dimensions	34.1"L x 22.8"W x 1.2"H
Item Weight	13 Pounds
Efficiency	25% High Efficiency
Included Components	Solar Panel
AC Adapter Current	5.31 Amps
Maximum Voltage	22.79 Volts
Maximum Power	100 Watts
Special Feature	High-efficiency 16BB cell technology, low temperature coefficient, and durable construction
UPC	840315228535
Item model number	N-Type 16BB 100W Solar Panel

7. WARRANTY AND SUPPORT

Warranty Information

The Renogy 100W N-Type Solar Panel is backed by a 10-year material and workmanship commitment, and a 25-year performance guarantee at 80% output. This ensures long-term reliability and peace of mind.

25 Years

1%
First year degradation

0.4%
Linear degradation

10-Year Service Plan for Material & Workmanship

This image highlights the long-term reliability of Renogy solar panels, featuring a 25-year performance warranty with only 1% first-year degradation and 0.4% annual linear degradation, alongside a 10-year material and workmanship warranty.

Customer Support

For technical assistance, product inquiries, or warranty claims, please visit the official Renogy website or contact their customer support team.

- [Visit the Renogy Store](#)
- Professional Technical Guidance
- 24 Hours Prompt Response
- Local Warehouses in the US

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