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Renogy RNG-50DB-H

Renogy Flexible Solar Panel 50W 12V Monocrystalline Instruction Manual

Model: RNG-50DB-H

1. PRODUCT OVERVIEW

The Renogy 50 Watt 12 Volt Monocrystalline Flexible Solar Panel is designed for versatile off-grid power solutions. Unlike traditional rigid panels, its ultra-flexible and lightweight design allows for installation on curved surfaces, making it ideal for marine, RV, cabin, van, car, and boat applications. This panel provides efficient solar charging for your 12V systems.



Figure 1: The Renogy 50W Flexible Solar Panel is suitable for a variety of applications including RVs, boats, camping setups, and trailers, demonstrating its adaptability to curved surfaces.

2. KEY FEATURES

- **Extremely Flexible:** Capable of flexing up to 248 degrees, allowing installation on a wide range of curved surfaces where standard panels are impractical.
- **Ultra Lightweight:** Weighs only 2.87 pounds (approximately 1.3 kg), making transportation and installation significantly easier compared to conventional solar panels.
- **Super Thin Lamination:** With a thickness of only 0.16 inches (4mm), it is approximately 95% thinner than rigid counterparts, enabling a discreet solar setup.
- **Highly Durable:** Rigorously tested to withstand extreme wind loads of up to 2400 Pa and snow loads of up to 5400 Pa, ensuring long-term reliability.
- **High Efficiency:** Features monocrystalline cells with 22% efficiency for optimal power generation.

EXTREMELY FLEXIBLE



RV



Boat



Camping

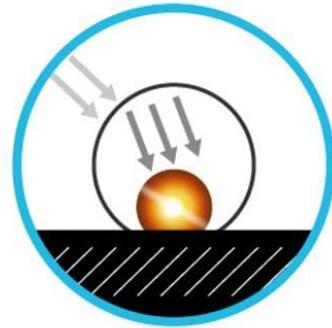


Trailer

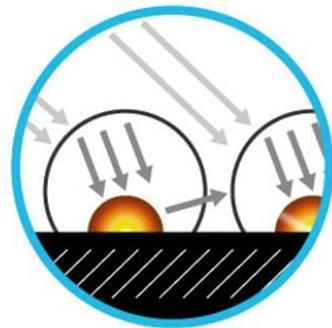
Perfect for curvy surface, No crack on solar panel

Figure 2: The Renogy Flexible Solar Panel showcases its extreme flexibility, making it perfect for curved surfaces on RVs, boats, and other mobile applications without cracking.

EXCELLENT SUNLIGHT CAPTURE AND ENERGY CONVERSION EFFICIENCY



The transparent dots on the surface can gather sunlight from different angles. this unique feature can sufficiently utilize sunlight and increase solar conversion rate



The matrix distributed dots can cause refraction and utilize sunlight twice thus increase conversion rate

Figure 3: This image highlights the panel's excellent sunlight capture and energy conversion efficiency through transparent dots that gather sunlight from different angles and matrix distributed dots that cause refraction for increased conversion rates.

EXCELLENT QUALITY PRODUCT FEATURES



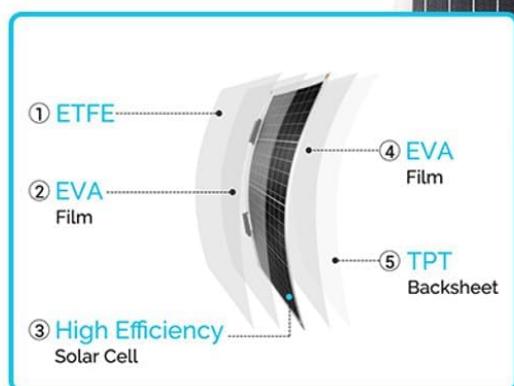
Solar Panel Connectors

Connectors with-cables



IP68

Rated waterproof junction box



Four Metal Reinforced Mounting Holes

Figure 4: Detailed view of the panel's quality features, including robust solar panel connectors with cables, an IP68 rated waterproof junction box, and four metal-reinforced mounting holes for secure installation.

3. SETUP AND INSTALLATION

Proper installation is crucial for optimal performance and longevity of your Renogy Flexible Solar Panel. Follow these guidelines for secure and efficient setup.

3.1 Unboxing and Inspection

1. Carefully remove the solar panel from its packaging.
2. Inspect the panel for any signs of physical damage during transit.
3. Ensure all components, including connectors and cables, are intact.

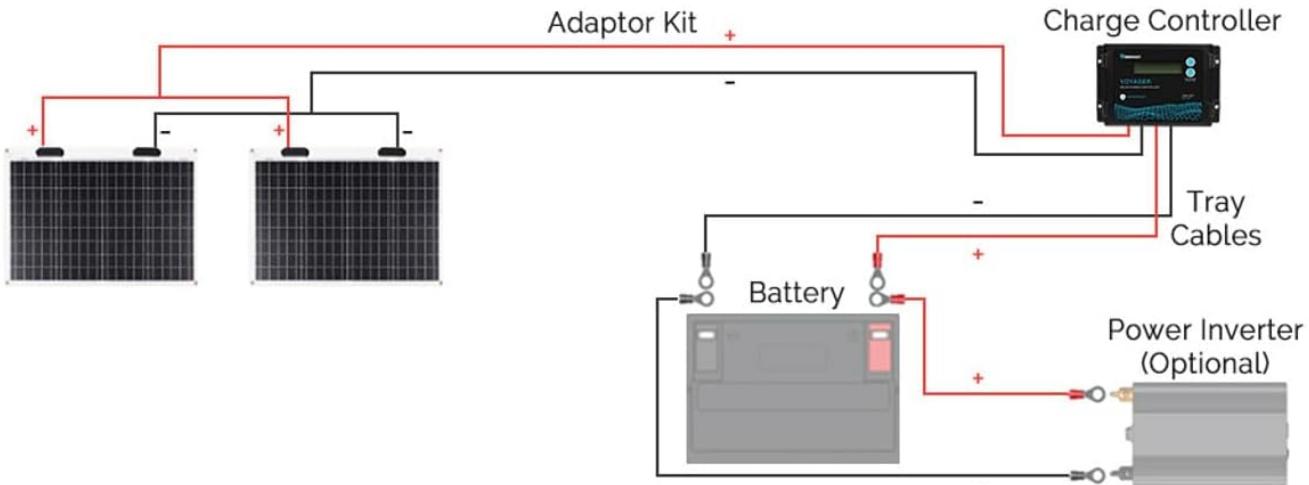
3.2 Mounting Recommendations

For detailed installation methods, it is recommended to consult a local contractor for guidance, especially for mobile applications. Modules must be mounted using silicone structural adhesive on the backside of the panel. Grommets are primarily for non-mobile applications.

3.3 Wiring Configurations

The Renogy Flexible Solar Panel can be wired in series or parallel depending on your system's voltage and current requirements. Always ensure correct polarity (+ to + and - to -) when making connections.

How to Connect in Parallel



How to Connect in Series

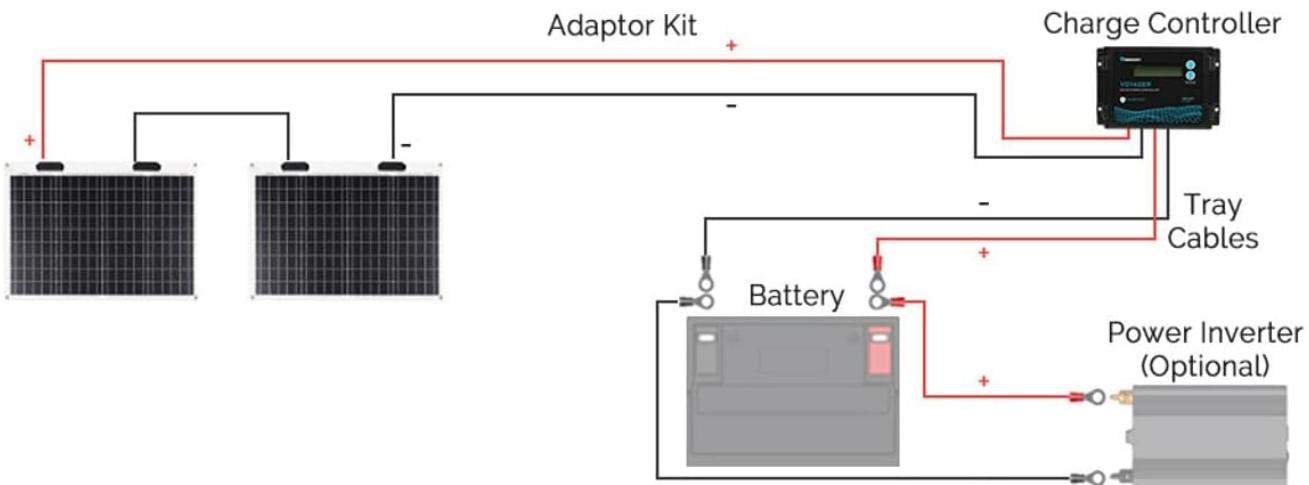


Figure 5: This diagram illustrates the correct methods for connecting multiple solar panels in parallel or series configurations to a charge controller, battery, and an optional power inverter.

3.4 Installation Video Guide

For a visual guide on installing flexible solar panels, refer to the official Renogy installation video:

Video 1: This video provides a comprehensive installation guide for Renogy Flexible Solar Panels, demonstrating the steps for secure mounting and wiring.

4. OPERATING INSTRUCTIONS

Once installed, your Renogy Flexible Solar Panel will begin converting sunlight into electricity. To maximize performance:

- Ensure the panel is exposed to direct sunlight for the majority of the day.
- Avoid shading from trees, buildings, or other obstructions, as even partial shading can significantly reduce output.
- Connect the panel to a compatible charge controller and battery bank for efficient power storage and usage.

5. MAINTENANCE

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

- **Cleaning:** Periodically clean the panel surface with a soft cloth and mild, non-abrasive cleaner to remove dirt, dust, and debris. Ensure the panel is cool before cleaning.
- **Inspection:** Regularly check for any physical damage, loose connections, or corrosion on the wiring and connectors.
- **Shading:** Monitor the installation area for new sources of shading (e.g., growing trees) and address them to maintain full sun exposure.

6. TROUBLESHOOTING

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

- **Low Power Output:** Check for shading on the panel surface. Verify all connections are secure and free from corrosion. Ensure the charge controller settings are appropriate for your battery type.
- **No Power Output:** Confirm that the panel is receiving direct sunlight. Check all wiring for disconnections or damage. Test the open-circuit voltage (Voc) of the panel to ensure it is generating power.
- **Battery Not Charging:** Verify the charge controller is functioning correctly. Check battery health and connections.

For further assistance, refer to the product's official support channels.

7. SPECIFICATIONS

Attribute	Value
Brand	Renogy
Model Number	RNG-50DB-H
Maximum Power	50 Watts
Material	Glass (Monocrystalline)
Product Dimensions	28.03" L x 18.11" W x 0.16" H
Item Weight	2.98 Pounds
Efficiency	22%
AC Adapter Current	2.75 Amps
Maximum Voltage	1000 Volts (DC)
Included Components	Solar Panel

Attribute	Value
Color	Black/White
Style	Flexible
Power Source	Solar-Powered

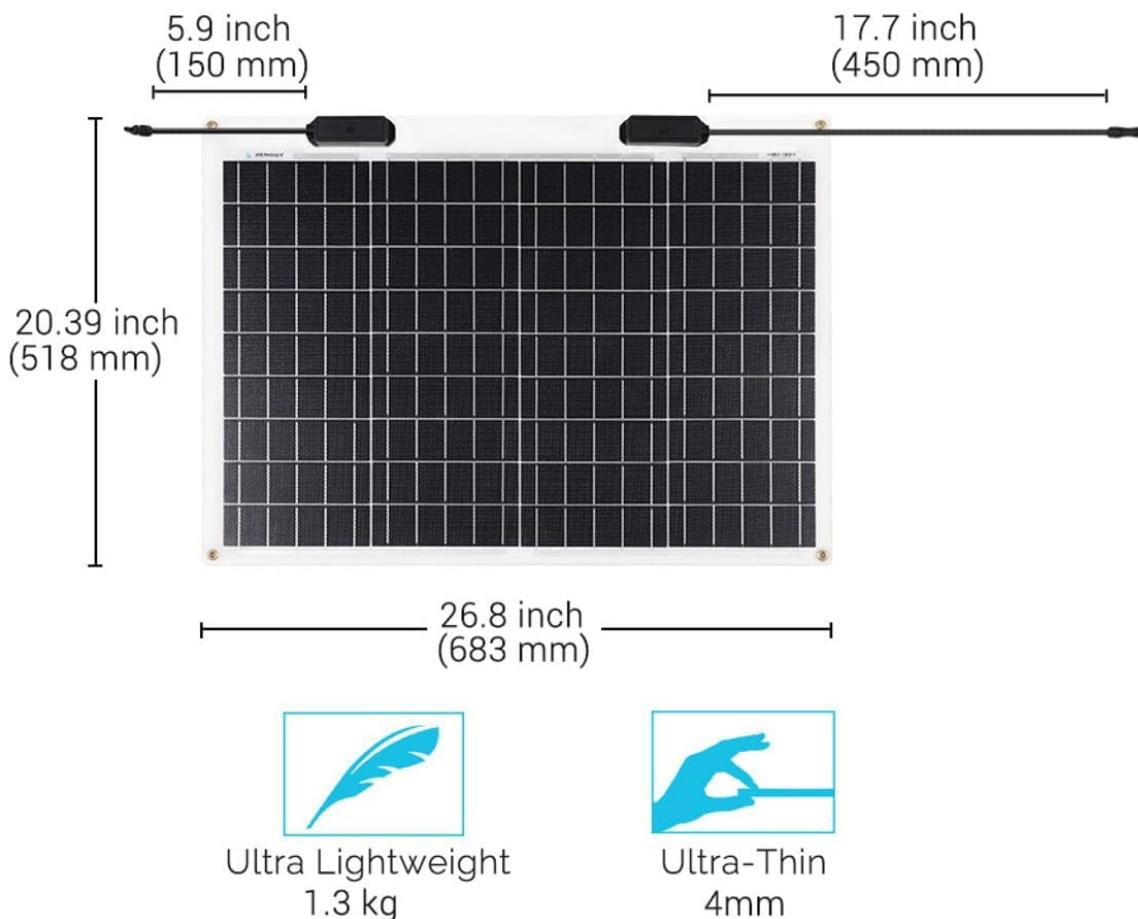


Figure 6: This image provides key dimensions of the Renogy 50W Flexible Solar Panel, emphasizing its compact size, ultra-lightweight nature (1.3 kg), and ultra-thin profile (4mm), making it easy to handle and install.

8. DURABILITY AND TESTING

The Renogy Flexible Solar Panel undergoes rigorous testing to ensure its durability and performance in various conditions.

8.1 Solar Panel Stress Testing

Video 2: This video demonstrates various stress tests performed on solar panels, including bending, treading, smashing, and lifting, to showcase their durability and power retention under extreme conditions.

8.2 Product Overview Video

Video 3: A brief product overview highlighting the features and benefits of the flexible solar panel, including its lightweight and durable design, and ease of installation on various surfaces.

9. WARRANTY AND SUPPORT

The Renogy Flexible Solar Panel comes with a **5-year warranty**. For any questions, technical support, or warranty claims, please contact Renogy customer service directly.

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