Renogy RIV2430HCS-2SS

Renogy 24V 3000W All-in-One Hybrid Solar Inverter Instruction Manual

Model: RIV2430HCS-2SS

1. Introduction

The Renogy All-in-One Hybrid Solar Inverter integrates a 24V 3000W inverter, an 80A AC charger, and an 80A MPPT charge controller. It features high-efficiency MPPT technology (up to 99.9%) for maximum solar energy harvesting. With four charging modes and three output modes, it caters to diverse power needs. Comprehensive electronic protection functions ensure system safety and stability.

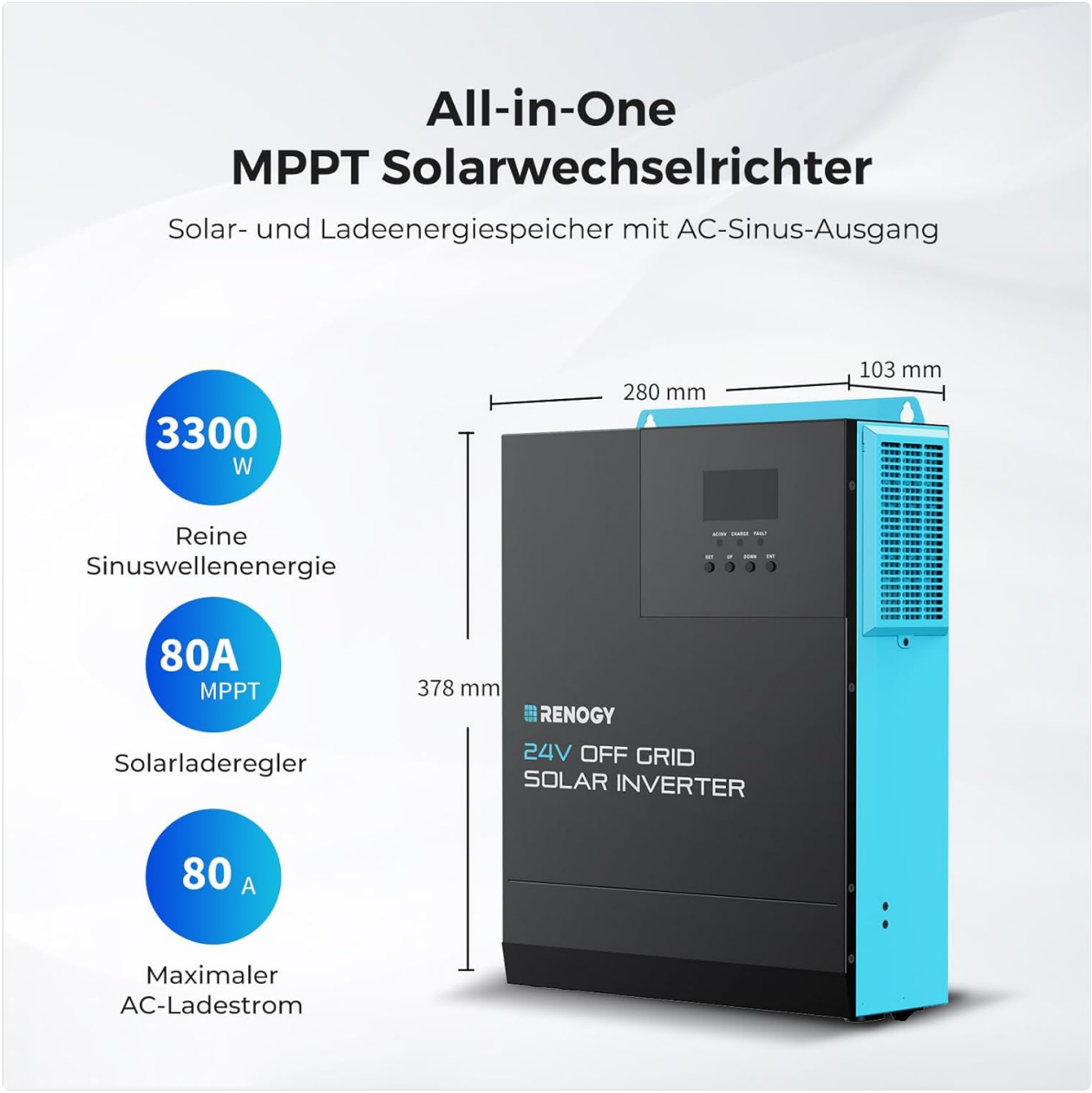

Figure 1: Renogy 24V 3000W All-in-One Hybrid Solar Inverter with key specifications and dimensions. This image displays the Renogy 24V 3000W All-in-One Hybrid Solar Inverter, highlighting its 3300W pure sine wave output, 80A MPPT solar charge controller, and 80A maximum AC charger. The dimensions are shown as 378 mm (height), 280 mm (width), and 103 mm (depth).

2. Safety Information

Please read all instructions and warnings carefully before installation and operation. Failure to follow these instructions may result in electric shock, fire, severe injury, or death. Keep this manual for future reference.

- Installation must be performed by qualified personnel.
- Ensure all wiring is correctly sized and properly connected.
- Do not disassemble or attempt to repair the unit yourself. Contact qualified service personnel.
- Keep the unit away from water, flammable materials, and corrosive substances.
- Ensure adequate ventilation around the inverter to prevent overheating.
- Always disconnect power sources before performing any maintenance or wiring.

3. Product Features

- **All-in-One Hybrid Solar Solution:** This system combines solar power and AC power input. It integrates an 80A MPPT solar charge controller, an AC/generator battery charger, and a battery inverter, providing a comprehensive solution for off-grid systems and Uninterruptible Power Supply (UPS) functionality.
- **Universal Battery Compatibility:** Supports various battery types including AGM/Sealed, Gel, Lead-Acid, and Lithium, with a customizable user mode for optimal performance.
- **Reliable Pure Sine Wave Output:** Built on a fully digital intelligent design, the DC-AC inverter module utilizes advanced SPWM technology to produce a pure sine wave output, ensuring stable and clean power for sensitive electronics.
- **Four Charging Modes:** Offers four selectable charging modes: Solar Only, Mains Power Priority, Solar Priority, and Hybrid (Mains & Solar) Charging.
- **Uninterruptible Power Supply (UPS) Function:** Features an integrated UPS function, allowing the device to seamlessly switch to battery power during a grid outage, preventing interruptions to connected computers and other critical appliances.

4. Setup and Installation

Proper installation is crucial for the safe and efficient operation of your Renogy Hybrid Solar Inverter. Refer to the diagrams below for connection details.

Figure 2: Complete System Overview. This diagram shows how the Renogy Hybrid Solar Inverter integrates into a complete system. It depicts solar charging from PV panels, AC/grid charging, 24V battery storage, and AC output to various household appliances like refrigerators, lights, TVs, and fans. This illustrates the inverter's role in managing power flow from multiple sources to loads.

4.1 Connection Ports

Identify the various connection points on the back panel of the inverter as shown in Figure 3.

Figure 3: Back Panel Connections. This image provides a detailed view of the inverter's rear panel, clearly labeling all connection ports and controls. These include: 1. AC Input, 2. AC Output, 3. CAN Communication, 4. USB Communication, 5. RS485 Communication, 6. Dry Contact, 7. Grounding Terminal, 8. Overload Protection, 9. Fan, 10. Battery Connection, 11.

Fan, 12. ON/OFF Rocker Switch, 13. PV Connection, 14. Touch Buttons, 15. LED Indicators, and 16. LCD Screen. This visual guide is essential for proper installation and wiring.

4.2 Battery Connection

The inverter supports various battery types. Ensure your battery type is correctly configured in the settings for optimal charging and discharge performance.

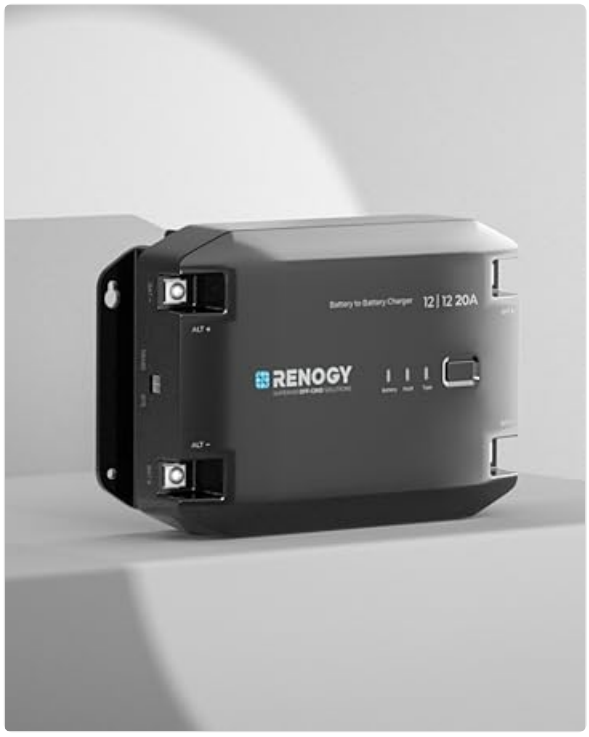

Figure 4: Battery Compatibility. This image highlights the inverter's compatibility with different battery types, including Flooded (FLD), GEL, Lithium Iron Phosphate, Lithium-ion, AGM/Sealed (SLD), and a customizable User-defined battery mode. This versatility ensures the inverter can be integrated into a wide range of solar power systems.

- Connect the battery cables to the Battery Connection terminals (10) on the inverter. Observe correct polarity.
- Ensure battery voltage matches the inverter's operating voltage (24V).

4.3 PV (Solar Panel) Connection

- Connect your solar panel array to the PV Connection terminals (13).
- Ensure the open-circuit voltage and short-circuit current of your solar array are within the inverter's specifications.

4.4 AC Input/Output Connection

- Connect the AC grid power to the AC Input Connection (1).
- Connect your AC loads to the AC Output Connection (2).
- Ensure all AC wiring is properly grounded and protected by circuit breakers.

5. Operating Instructions

The inverter features an intuitive LCD display and various operating modes to suit your power needs.

5.1 LCD Display and Indicators

The LCD screen (16) and LED indicators (15) provide real-time status and information about the system.

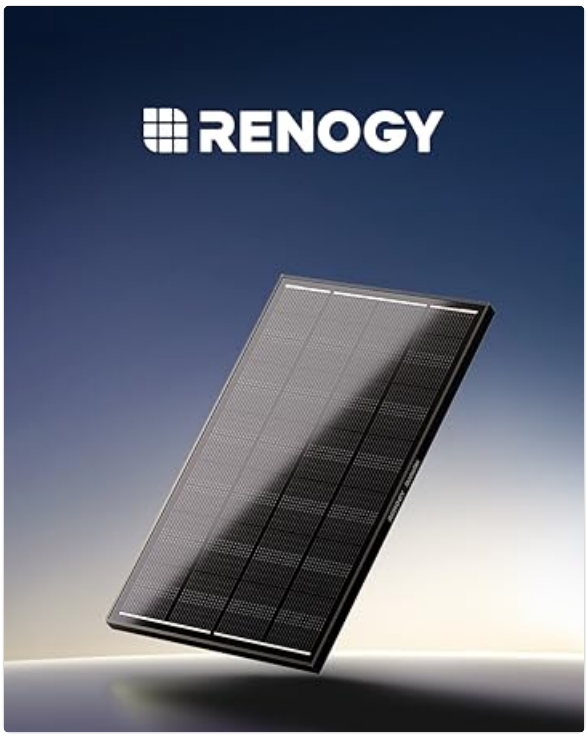

Figure 5: LCD Display and LED Indicators. A detailed view of the inverter's dynamic LCD display and intelligent LED indicators. The LCD provides critical system information such as input/output data, load status, and battery voltage. The LEDs indicate AC/Inverter status, Charge status, and Fault conditions, allowing for quick identification of operational status and potential issues.

5.2 Charging and Output Modes

Select the appropriate charging and output modes using the touch buttons (14) on the control panel.

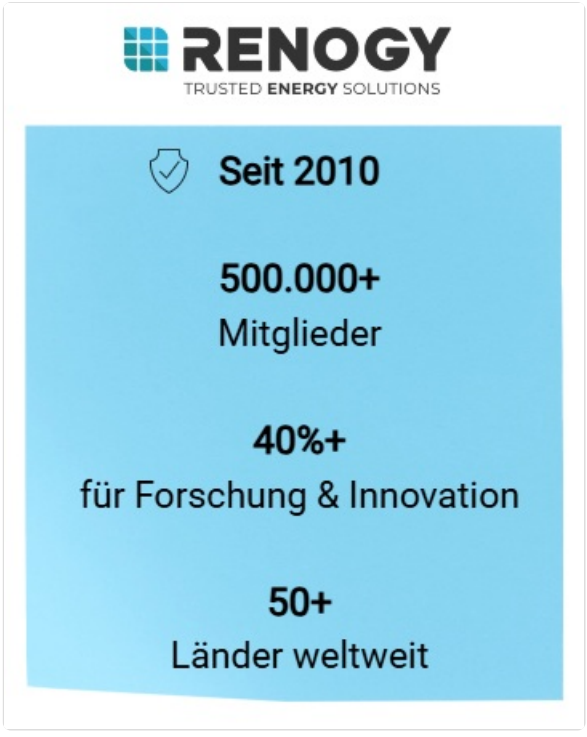

Figure 6: Charging and Output Modes. This diagram illustrates the four available charging modes: PV Priority, Grid Priority, Hybrid Charging, and Solar Only. It also shows three output modes: PV Priority, Grid Priority, and Inverter Priority. These modes allow users to select the most suitable power management strategy for their system.

Charging Modes:

- **Solar Only:** Prioritizes solar power for battery charging.
- **Mains Power Priority:** Prioritizes AC grid power for battery charging.
- **Solar Priority:** Prioritizes solar power for both charging and supplying loads.
- **Hybrid (Mains & Solar) Charging:** Uses both solar and grid power for charging as needed.

Output Modes:

- **PV Priority:** Prioritizes solar power for loads.
- **Grid Priority:** Prioritizes AC grid power for loads.
- **Inverter Priority:** Prioritizes battery power (via inverter) for loads.

6. Maintenance

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

- **Cleaning:** Keep the inverter's exterior clean and free from dust. Ensure ventilation openings are not blocked.
- **Connections:** Periodically check all electrical connections for tightness and corrosion.
- **Environment:** Ensure the inverter is operating within its specified temperature and humidity ranges.
- **Battery Health:** Monitor battery voltage and health according to battery manufacturer guidelines.

7. Troubleshooting

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

Problem	Possible Cause	Solution
No power output from inverter	Battery low/disconnected, Overload, Inverter fault, AC input issue	Check battery connections and voltage. Reduce load. Check for fault codes on LCD. Verify AC input power.
Batteries not charging from solar	PV panels disconnected/damaged, Incorrect PV voltage, Charge controller fault, Incorrect charging mode selected	Verify PV panel connections and voltage. Ensure PV voltage is within range. Check charge controller settings and selected charging mode.
LCD display not working	No power to inverter, Display fault	Check main power switch and battery connection. If power is present, contact support.
Overload warning/shutdown	Too many appliances connected, Short circuit in load	Disconnect some loads. Check for short circuits in connected appliances. Restart the inverter.

8. Specifications

Key technical specifications for the Renogy 24V 3000W All-in-One Hybrid Solar Inverter.

Specification	Value
Item Model Number	RIV2430HCS-2SS
Manufacturer	Renogy
Voltage	24 Volts
Power Output	3000W
MPPT Charge Controller	80A
AC Charger	80A
Display Type	LCD
Product Dimensions (L x W x H)	37.8 x 28 x 10.3 cm
Item Weight	7.4 Kilograms
Color	Black, Blue
Batteries Required	No
UPC	840315216822
ASIN	B0CBJTPY5P
Date First Available	July 10, 2023

9. Warranty and Support

Renogy products are designed for reliability and performance. For warranty information, product registration, or technical support, please visit the official Renogy website or contact their customer service department.

- **Official Website:** www.renogy.com
- **Customer Support:** Refer to the contact section on the official website for phone numbers or email support.