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Rebel RB-4003

Rebel POWER-1000 Pure Sine Wave UPS Inverter User Manual

Model: RB-4003 | Brand: Rebel

1. INTRODUCTION

Thank you for choosing the Rebel POWER-1000 Pure Sine Wave UPS Inverter. This device is designed to provide stable and safe emergency power for various applications, including central heating furnaces, heat pumps, refrigerators, and other RTV/AGD systems. It features a pure sine wave output, ensuring compatibility with sensitive electronic and inductive loads, and offers three operating modes: emergency power supply (UPS), rectifier (charger), and inverter.

This manual provides essential information for the safe and efficient operation, installation, and maintenance of your POWER-1000 inverter. Please read it thoroughly before use and retain it for future reference.

2. SAFETY INSTRUCTIONS

Always observe the following safety precautions to prevent injury or damage to the device:

- **Electrical Safety:** Ensure the device is connected to a properly grounded power outlet. Do not open the casing; there are no user-serviceable parts inside. Refer all servicing to qualified personnel.
- **Battery Connection:** Connect the battery with correct polarity (red to positive, black to negative). Incorrect connection can cause severe damage to the inverter and battery. Use a 12V DC battery with a capacity between 50-200 Ah (55 Ah suggested).
- **Ventilation:** Ensure adequate ventilation around the unit. Do not block the fan or ventilation openings. Overheating can lead to device malfunction or damage.
- **Environment:** Operate the device within the specified temperature range of 0 - 40°C and humidity of 10 - 90%. Avoid direct sunlight, moisture, dust, and corrosive environments.
- **Overload Protection:** Do not exceed the rated power of 700 W. The device is equipped with overload protection, but continuous overloading can shorten its lifespan.
- **Liquid Contact:** Keep the device away from liquids. In case of accidental liquid contact, immediately disconnect power and consult a service technician.
- **Children and Pets:** Keep the device out of reach of children and pets.

3. PRODUCT COMPONENTS

Familiarize yourself with the main components of your Rebel POWER-1000 UPS Inverter:



Figure 3.1: Front Panel

This image displays the front of the Rebel POWER-1000 inverter, featuring the LED display which shows operational status, battery charge, and load level. Below the display is the main ON/OFF switch.



Figure 3.2: Rear Panel Overview

This image shows the rear panel of the inverter. Visible components include the cooling fan, circuit breaker, two output sockets, battery connection terminals (red and black cables), and the AC input socket.



Figure 3.3: Rear Panel Connections Detail

A closer view of the rear panel, highlighting the 'OUTPUT' sockets for connecting appliances, the 'BATTERY +12V' terminals for external battery connection, the 'AC INPUT 230V' for mains power, and the 'CIRCUIT BREAKER' for protection.

Key Components:

- **LED Display:** Provides real-time information on operating status, battery charge level, and load level.
- **Main ON/OFF Switch:** Controls the power to the inverter.
- **AC Output Sockets:** Two 230V AC sockets for connecting your devices.
- **Battery Terminals (12V DC):** Connect to an external 12V DC battery. Ensure correct polarity.
- **AC Input (230V):** Connects the inverter to the mains power supply for charging the battery and providing power in UPS mode.
- **Cooling Fan:** Dissipates heat generated during operation.

- **Circuit Breaker:** Provides protection against overcurrent.

4. SETUP

Follow these steps to set up your Rebel POWER-1000 UPS Inverter:

1. **Unpacking:** Carefully remove the inverter from its packaging. Inspect for any signs of damage.
2. **Placement:** Place the inverter on a stable, flat surface in a well-ventilated area, away from direct sunlight, heat sources, and moisture. Ensure sufficient space around the unit for airflow.
3. **Battery Connection:**
 - Ensure the inverter is switched OFF.
 - Connect the **red** battery cable to the **positive (+)** terminal of your 12V DC battery.
 - Connect the **black** battery cable to the **negative (-)** terminal of your 12V DC battery.
 - Tighten all connections securely to prevent arcing.
4. **AC Mains Connection:** Plug the inverter's AC input cable into a standard 230V AC wall outlet.
5. **Device Connection:** Plug the devices you wish to power into the 230V AC output sockets on the rear of the inverter. Ensure the total power consumption of connected devices does not exceed 700 W.

5. OPERATING INSTRUCTIONS

The Rebel POWER-1000 operates in three main modes:

- **UPS Mode (Emergency Power Supply):** When connected to mains power, the inverter charges the external battery and simultaneously supplies power to connected devices. In case of a power outage, it automatically switches to battery power within <4 ms, providing uninterrupted power.
- **Rectifier Mode (Battery Charger):** When connected to mains power without any load, the inverter functions as a battery charger, replenishing the external battery.
- **Inverter Mode:** When not connected to mains power, the inverter converts 12V DC battery power into 230V AC pure sine wave power for your connected devices.

Starting the Inverter:

1. Ensure all connections (battery, AC input, loads) are secure.
2. Press the main ON/OFF switch on the front panel. The LED display will illuminate, indicating the current operating status, battery charge, and load level.
3. The inverter will automatically select the appropriate operating mode based on the presence of mains power and connected loads.

LED Display Information:

The clear LED display provides crucial information:

- **Input Voltage:** Shows the incoming AC voltage from the mains.
- **Output Voltage:** Displays the 230V AC output voltage.
- **Battery Voltage:** Indicates the current voltage of the connected 12V battery.
- **Load Level:** Shows the percentage of the inverter's capacity being used by connected devices.
- **Operating Status:** Icons or indicators for mains power, battery power, charging, and fault conditions.

6. MAINTENANCE

Regular maintenance ensures optimal performance and longevity of your inverter:

- **Cleaning:** Periodically clean the exterior of the inverter with a soft, dry cloth. Ensure the cooling fan and ventilation openings are free from dust and debris. Do not use liquid cleaners.
- **Battery Inspection:** Regularly check battery terminals for corrosion and ensure connections are tight. If using a lead-acid battery, check electrolyte levels if applicable and top up with distilled water as needed (refer to battery manufacturer's instructions).
- **Ventilation:** Always ensure the inverter has adequate ventilation. Do not place objects on top of the unit or block its air vents.
- **Storage:** If storing the inverter for an extended period, disconnect it from both mains power and the battery. Store in a cool, dry place. For optimal battery health, fully charge the battery before storage and recharge it every 3-6 months.

7. TROUBLESHOOTING

If you encounter issues with your Rebel POWER-1000, refer to the following table:

Problem	Possible Cause	Solution
Inverter does not turn on	No battery connected or battery discharged; Main switch off; Blown circuit breaker.	Connect a charged battery; Turn on the main switch; Check and reset the circuit breaker on the rear panel.
No AC output	Overload; Short circuit; Battery low; Inverter fault.	Reduce connected load; Check for short circuits in connected devices; Recharge or replace battery; If problem persists, contact support.
Battery not charging	AC input not connected; AC input voltage too low/high; Battery fault.	Ensure AC input cable is securely plugged in; Check mains voltage; Test battery or replace if faulty.
Overload warning on display	Total power of connected devices exceeds 700 W.	Disconnect some devices to reduce the load below 700 W.
Unit is unusually hot	Blocked ventilation; Excessive load; High ambient temperature.	Ensure vents are clear; Reduce load; Move unit to a cooler environment.

If the problem persists after attempting these solutions, please contact Rebel customer support or your retailer.

8. SPECIFICATIONS

Technical specifications for the Rebel POWER-1000 UPS Inverter (Model RB-4003):

Feature	Specification
Rated Power	700 W (1000 VA)
Battery Type	12 V DC
Max Battery Voltage	15 V DC
Input Voltage Range	190 - 260 V AC

Feature	Specification
Input Frequency	45 - 60 Hz
Output Voltage (AC)	230 V AC +/-5% (Inverter: 230 V AC +/-3%)
Output Frequency	50/60 Hz +/-0.5 Hz
Output Waveform	Pure Sine Wave
Output Efficiency	>= 85% (DC to AC)
Battery Charging Current	Max. 10 A
Suggested Battery Capacity	50-200 Ah (suggested: 55 Ah)
Estimated Charging Time	4-14 hours (dependent on battery capacity)
Switching Time	=<4 ms
Protections	Overload, Short Circuit, Over/Under Voltage
Operating Temperature	0 - 40°C
Operating Humidity	10 - 90%
Dimensions (L x W x H)	336 x 143 x 178 mm
Weight	4.3 kg

9. WARRANTY AND SUPPORT

The Rebel POWER-1000 UPS Inverter is manufactured by Rebel. For warranty information, please refer to the warranty card included with your product or consult the retailer from whom you purchased the device. Keep your proof of purchase for warranty claims.

For technical support or service inquiries, please contact your local Rebel distributor or the point of purchase. Ensure you have your product model (RB-4003) and serial number (if applicable) ready when contacting support.