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DATOUBOSS

DATOUBOSS 3000W Hybrid Pure Sine Wave Inverter User Manual

Model: SP-24V-3000W

1. INTRODUCTION

This manual provides essential information for the safe and efficient operation of your DATOUBOSS 3000W Hybrid Pure Sine Wave Inverter. This advanced device converts 24V DC power to 230V AC, integrating a high-efficiency 80A MPPT solar charge controller. It is designed for various applications, including RVs, camping boats, home emergency power, and off-grid systems. Please read this manual thoroughly before installation and use to ensure optimal performance and safety.



Figure 1: DATOUBOSS 3000W Hybrid Pure Sine Wave Inverter

The image displays the front view of the DATOUBOSS 3000W Hybrid Pure Sine Wave Inverter, a grey rectangular unit with a central black panel featuring an LCD screen and control buttons. Vents are visible on the side.

2. SAFETY INSTRUCTIONS

Adhering to these safety guidelines is crucial for preventing personal injury and damage to the inverter or connected equipment.

- **High Voltage Warning:** The inverter operates with high voltages. Do not attempt to open or service the unit unless you are a qualified professional.
- **Disconnect Power:** Always disconnect all power sources (solar panels, batteries, AC input) before performing any wiring, maintenance, or troubleshooting.
- **Proper Grounding:** Ensure the inverter is properly grounded according to local electrical codes.
- **Ventilation:** Install the inverter in a well-ventilated area to prevent overheating. Do not block the ventilation openings.
- **Environmental Conditions:** Avoid exposing the inverter to water, rain, snow, or excessive humidity. Do not install in direct sunlight or near heat sources.
- **Battery Safety:** Handle batteries with care. Wear appropriate personal protective equipment (PPE) such as gloves and eye protection. Ensure proper battery ventilation.
- **Correct Wiring:** Use appropriate cable gauges and ensure all connections are tight and secure to prevent loose connections and potential fire hazards.
- **Overload Protection:** Do not exceed the inverter's rated power output. Overloading can damage the unit and connected appliances.

3. PRODUCT OVERVIEW

3.1 Key Features

- **Pure Sine Wave Output:** Provides stable and high-quality AC power suitable for sensitive electronics.
- **Integrated MPPT Solar Charge Controller:** Features an 80A Maximum Power Point Tracking (MPPT) controller for efficient solar charging.
- **LCD Display:** Real-time system data and operating status are displayed on an intuitive LCD screen.
- **Multi-functional Protection:** Includes protection against short-circuit, overcurrent, overvoltage, undervoltage, overtemperature, and overload.
- **Configurable Settings:** Input voltage range, battery charging current, and AC/Solar charger priority can be adjusted via LCD settings.
- **Wide Application Range:** Suitable for RVs, camping, home backup, and various off-grid power solutions.
- **Auto Restart:** Automatically restarts when AC power is restored.
- **Cold Start Function:** Allows the inverter to start directly from batteries without AC input.

3.2 Components and Indicators

The inverter features a user-friendly interface and clearly labeled connection points.

Appearance Description



Figure 2: Inverter Front, Side, and Rear Views with Labels

This image provides a detailed breakdown of the inverter's external features, including the LCD display, status indicators (AC/INV, CHG, FAULT), control buttons (ESC, UP, DOWN, ENTER), power ON/OFF switch, communication ports (BMS/RS485, RS232), dry contact, AC input/output, battery input, PV input, and cooling fans.

- **LCD Display:** Shows real-time operational data such as input/output voltage, battery status, and charging information.
- **Status Indicator:** Lights indicate AC/Inverter operation, charging status, and fault conditions.
- **Function Keys (ESC, UP, DOWN, ENTER):** Used for navigating menus and adjusting settings on the LCD.
- **Power ON/OFF Switch:** Controls the main power to the inverter.
- **Communication Ports (RS232, BMS/RS485):** Allow for external communication, such as connecting a WiFi module for remote monitoring (RS232) or battery management system (BMS/RS485).
- **AC Input/Output Terminals:** For connecting to the grid/generator and supplying power to AC loads.
- **Battery Input Terminals:** For connecting to the 24V battery bank.
- **PV Input Terminals:** For connecting solar panel arrays.
- **Cooling Fans:** Automatically activate to dissipate heat during operation.

4. SETUP AND INSTALLATION

Proper installation is critical for the inverter's performance and safety. It is recommended that installation be performed by a qualified electrician.

4.1 Choosing an Installation Location

- Install the inverter indoors, in a dry, cool, and well-ventilated area.
- Avoid locations with direct sunlight, high temperatures, or excessive dust.
- Ensure sufficient clearance around the unit for proper airflow, especially around the cooling fans.
- Mount the inverter vertically on a sturdy surface capable of supporting its weight (6.5 kg).

4.2 Wiring Connections

Follow the wiring diagram carefully. Always ensure all power sources are disconnected before making any connections.

With a variety of loads



Kettle



Television



Refrigerator



Air-conditioning



This solar inverter can power a variety of electrical devices in your home or office including electrical devices such as tube lights, fans, refrigerators and air conditioners.

Figure 3: Typical System Wiring Diagram

This diagram illustrates the connections for the DATOUBOSS inverter within a solar power system, showing solar panels (PV input), a 24V battery bank (battery input), AC input from the grid or generator, and AC output to household loads. It also specifies suggested cable gauges and torque values for connections.

1. **Grounding:** Connect the inverter's ground terminal to a reliable earth ground. This is a critical safety step.

- Battery Connection:** Connect the 24V battery bank to the inverter's battery input terminals. Ensure correct polarity (+ to + and - to -). Recommended cable size for 24V batteries is 1*4AWG with a torque value of 2Nm.
- PV Input Connection:** Connect your solar panel array to the PV input terminals. The maximum PV open circuit voltage is 450V DC, and the maximum PV power is 3000W. It is recommended to connect solar panels in series. Suggested cable is 16 AWG with a torque value of 1.2 Nm.
- AC Input Connection:** If connecting to a grid or generator, connect the AC input to the inverter's AC input terminals. Nominal input voltage is 230Vac, max AC input voltage is 300Vac. Suggested cable is 12 AWG with a torque value of 1.2 Nm. Ensure PE protective conductor Ground is connected first.
- AC Output Connection:** Connect your AC loads to the inverter's AC output terminals. The AC output is 3000W 230V. Suggested cable is 12 AWG with a torque value of 1.2 Nm. Ensure PE protective conductor Ground is connected first.

4.3 Communication Interface

The inverter includes communication ports for enhanced monitoring and control.

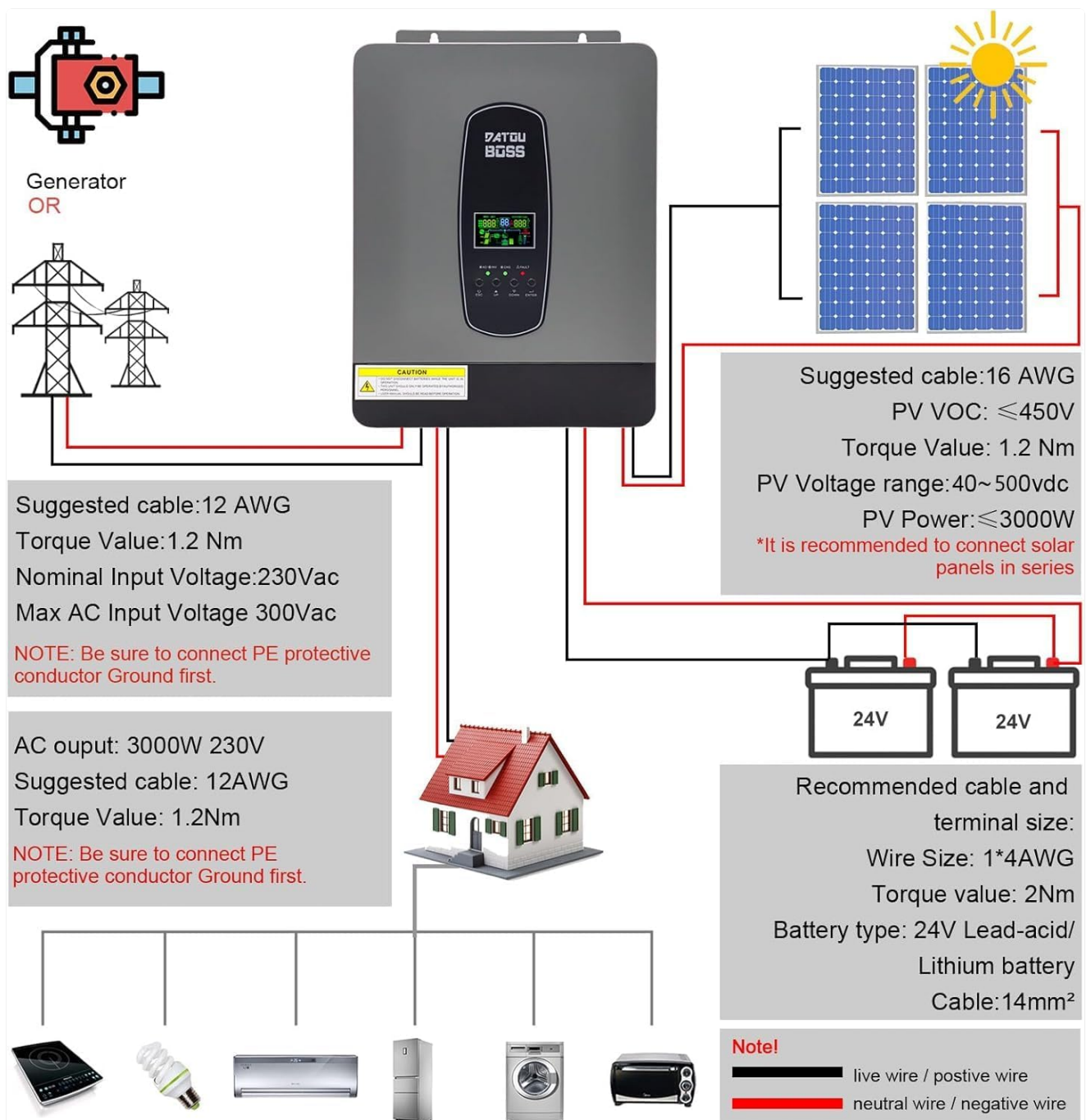


Figure 4: Communication Ports Detail

This image highlights the RS-232 and BMS/RS485 communication ports on the inverter. The RS-232 port can be connected to a WiFi module for wireless communication and data monitoring. The RS485 interface allows communication with compatible battery management systems (BMS).

- **RS-232 Port:** Can be connected to an optional WiFi module for remote viewing of inverter data. Note that the WiFi module typically supports monitoring but not remote modification of parameters.
- **BMS/RS485 Port:** Used for communication with compatible Battery Management Systems (BMS) to optimize battery charging and discharge. Ensure correct pin connections (e.g., 485A to 485A, 485B to 485B).

5. OPERATING INSTRUCTIONS

5.1 Initial Startup

1. After all wiring connections are securely made, turn on the battery breaker first.
2. Next, turn on the solar panel breaker (if applicable).
3. Finally, turn on the AC input breaker (if applicable).
4. Press the Power ON/OFF switch on the inverter. The LCD display will light up, and the inverter will begin its startup sequence.

5.2 LCD Display and Settings

The LCD provides real-time information and allows for configuration of various operating parameters.



Figure 5: Detailed LCD Display

A close-up view of the inverter's colorful LCD display, showing various icons and numerical readings for input, battery, and output status, including solar panel activity, battery charge level, and load indication.

- Use the **UP** and **DOWN** buttons to scroll through different display screens and menu options.
- Press **ENTER** to select an option or confirm a setting.
- Press **ESC** to exit a menu or return to the previous screen.
- Refer to the detailed settings section in the full product manual (if available) for specific parameter adjustments, such as battery type, charging current, and output voltage range.

5.3 Application Examples

The DATOUBOSS inverter can power a wide range of electrical devices.



RS-232 port, can be connected to WIFI module, realize wireless communication, and monitor the data of inverter

Note: WiFi module can provide remote viewing of inverter data monitoring information, but does not support remote modification of inverter parameters or remote control.

The RS485 interface of the hybrid inverter can realize communication with the battery. There are many thin wires in it, commonly known as pins. Connect the communication pins of the battery and the hybrid inverter accordingly.



The RS485 pins of our hybrid inverter correspond to:

- 1 corresponds to 485B
- 2 corresponds to 485A

Check which two pins of the battery correspond to 485A and 485B. Just connect the battery and 485A and 485B of the hybrid inverter to communicate successfully.

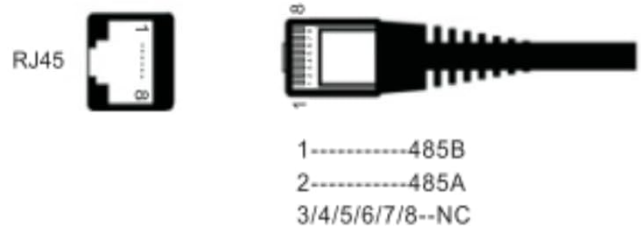


Figure 6: Inverter Powering Household Appliances

This image shows the inverter connected to various common household appliances such as a kettle, television, refrigerator, and air conditioner, demonstrating its versatility in powering different types of loads.

6. MAINTENANCE

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

- **Cleaning:** Periodically clean the inverter's exterior and ensure the ventilation openings are free from dust and debris. Use a soft, dry cloth. Do not use liquid cleaners.
- **Connection Check:** Annually inspect all electrical connections (battery, PV, AC input/output) for tightness and corrosion. Tighten any loose connections.
- **Battery Inspection:** If using lead-acid batteries, check electrolyte levels and terminal cleanliness as per battery manufacturer guidelines.
- **Environmental Check:** Ensure the installation environment remains within the specified temperature and humidity ranges.
- **Performance Monitoring:** Regularly check the LCD display for any unusual readings or fault indicators.

7. TROUBLESHOOTING

This section provides basic troubleshooting steps for common issues. For complex problems, contact technical support.

Problem	Possible Cause	Solution
Inverter not turning on	No battery connection; Battery voltage too low; Power switch off; Blown fuse/breaker.	Check battery connections; Charge batteries; Turn on power switch; Check and reset breakers/fuses.
No AC output	Overload; Over-temperature; Battery voltage too low/high; AC output breaker tripped.	Reduce load; Allow inverter to cool down; Check battery voltage; Reset AC output breaker.
Solar charging not working	PV input voltage too low/high; PV connection issue; MPPT controller fault.	Check PV array voltage; Verify PV connections; Contact support if MPPT fault persists.
Fault indicator lit	Internal error; Specific fault condition (e.g., short circuit, overvoltage).	Note the error code on the LCD (if any); Refer to the full manual for specific error codes; Disconnect power and restart; Contact support.

8. SPECIFICATIONS

Detailed technical specifications for the DATOUBOSS 3000W Hybrid Pure Sine Wave Inverter.



Figure 7: Inverter Dimensions (Approximate)

This image shows the approximate dimensions of the inverter: 39cm (15.4in) height, 30.5cm (12in) width, and 11cm (4.3in) depth.

Parameter	Value
Model Number	SP-24V-3000W
Rated Power	3000W
Input Voltage (DC)	24 Volts
Output Voltage (AC)	230 Volts
MPPT Solar Charge Controller	80A
Max PV Open Circuit Voltage	450V DC
Max PV Power	3000W
Dimensions (L x W x H)	39 x 29 x 15 cm
Item Weight	6.5 Kilograms
Operating Temperature	-10°C to 50°C
Protection Degree	IP21
Efficiency	A+

9. WARRANTY AND SUPPORT

For technical assistance, troubleshooting beyond this manual, or warranty inquiries, please contact DATOUBOSS customer service or your authorized dealer. Please have your product model number (SP-24V-3000W) and purchase information ready when contacting support.

Keep your purchase receipt as proof of purchase for warranty claims.