DATOUBOSS 48V-6200W-SQ

DATOUBOSS 48V 6200W Hybrid Solar Inverter

Model: 48V-6200W-SQ

User Instruction Manual

1. Introduction

This manual provides essential information for the safe and efficient operation of your DATOUBOSS 48V 6200W Hybrid Solar Inverter. Please read this manual thoroughly before installation and use, and retain it for future reference. This inverter is designed to convert 48V DC power to 220/230V AC, suitable for various applications including residential, office, and off-grid systems.

Figure 1: DATOUBOSS 48V 6200W Hybrid Solar Inverter. Key specifications include 6200W rated output, 8500W max PV input, 48V 120A DC input, 27A max PV input current, 230VAC 50/60Hz AC output, 500V max solar voltage, -10°C to 50°C operating temperature, 100A/120A DC max charging/discharging current, and IP54 ingress protection.

2. Safety Instructions

Observe all safety warnings and instructions in this manual. Improper installation or operation can lead to electric shock, fire, or serious injury. Only qualified personnel should perform installation and maintenance.

- Ensure the inverter is installed in a well-ventilated area, away from flammable materials.
- Do not expose the inverter to rain, snow, or liquids.
- Before any wiring or maintenance, disconnect all power sources (PV, battery, and AC grid).
- Use appropriate personal protective equipment (PPE) during installation.
- Verify correct polarity for all DC connections.
- Ensure proper grounding of the inverter.

Figure 2: The inverter includes safety features such as overvoltage protection, IP54 dust protection, overload protection, and short circuit protection. These features are designed to prevent overload, short circuit, and surge hazards.

3. Product Overview

3.1 Key Features

- **Pure Sine Wave Output:** Provides stable and clean power suitable for sensitive electronics.
- **Integrated MPPT Charge Controller:** 120A MPPT for efficient solar charging, supporting up to 8500W PV input and 500V DC.
- **Battery Compatibility:** Operates with 48V lithium or lead-acid batteries, and supports battery-free operation.
- **Zero Injection Function:** Prevents excess solar power from being fed back into the public grid using a CT sensor.
- **Multiple Charging Modes:** Configurable modes including Solar Priority, AC Priority, Solar & AC, and Solar Only.
- **Comprehensive Protection:** Includes overvoltage, overload, short circuit, and surge protection with EMI filtering.

- **LCD Display:** Real-time system data, operating status, and error codes.

3.2 Components and Interfaces

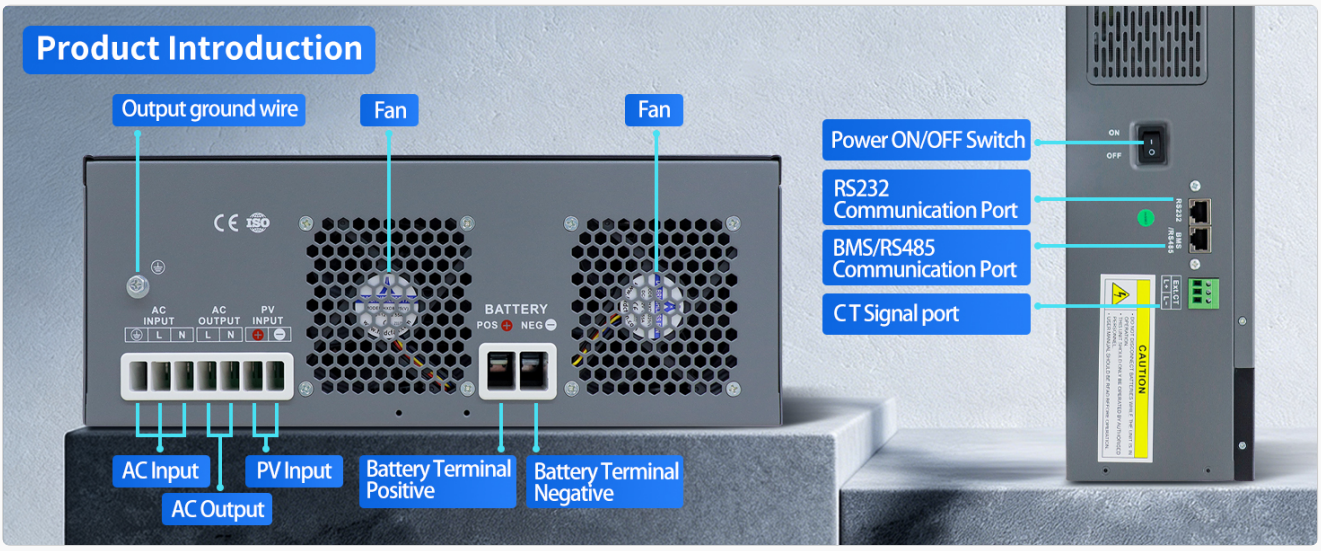

Figure 3: Front, left, and rear views of the inverter showing various ports and the LCD display. The front panel features the LCD display and control buttons. The left side includes the Power ON/OFF Switch, RS232 Communication Port, BMS/RS485 Communication Port, and CT Signal Port. The rear panel includes the Output Ground Wire, Fans, AC Input, AC Output, PV Input, Battery Terminal Positive, and Battery Terminal Negative.

Figure 4: Detailed view of the Smart LCD Display Screen. It shows the LCD display (1), Status indicator (2), Charging indicator (3), Fault indicator (4), ESC button (5), UP button (6), DOWN button (7), and ENTER button (8). These elements provide real-time system information and allow for configuration adjustments.

4. Setup

4.1 Installation Location

Install the inverter indoors in a dry, cool, and well-ventilated area. Ensure adequate clearance around the unit for proper airflow and heat dissipation. Avoid direct sunlight, high humidity, and corrosive environments.

4.2 Electrical Connections

All electrical connections must be performed by a qualified electrician in accordance with local electrical codes and regulations.

1. **Grounding:** Connect the inverter to a reliable earth ground.

2. **Battery Connection:** Connect the 48V battery bank to the Battery Terminal Positive (+) and Negative (-) ports. Ensure correct polarity.
3. **PV Input Connection:** Connect the solar panel array to the PV Input terminals. Observe the maximum PV input voltage (500V DC) and current (27A).
4. **AC Input Connection:** Connect the AC grid power to the AC Input terminals.
5. **AC Output Connection:** Connect your AC loads to the AC Output terminals.
6. **CT Sensor Connection:** For zero injection functionality, connect the provided CT sensor to the CT Signal Port and install it on the main AC input line to monitor grid consumption/export.
7. **Communication Ports:** Use RS232 or BMS/RS485 ports for communication with external devices or battery management systems, if applicable.

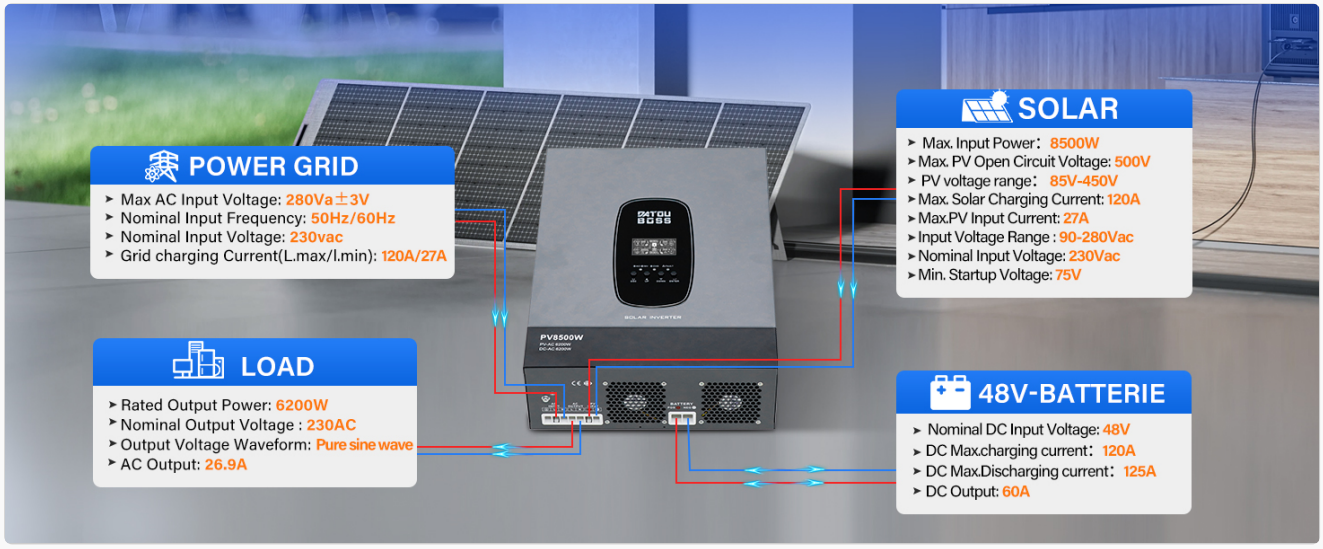

Figure 5: Wiring diagram illustrating connections for Power Grid, Load, Solar, and 48V Battery. The inverter connects to the AC grid (Max AC Input Voltage: 280V±3V, Nominal Input Frequency: 50/60Hz, Nominal Input Voltage: 230Vac), solar panels (Max Input Power: 8500W, Max PV Open Circuit Voltage: 500V, PV voltage range: 85V-450V), 48V battery (Nominal DC Input Voltage: 48V, DC Max.charging current: 120A, DC Max.Discharging current: 125A), and AC loads (Rated Output Power: 6200W, Nominal Output Voltage: 230Vac, AC Output: 26.9A).

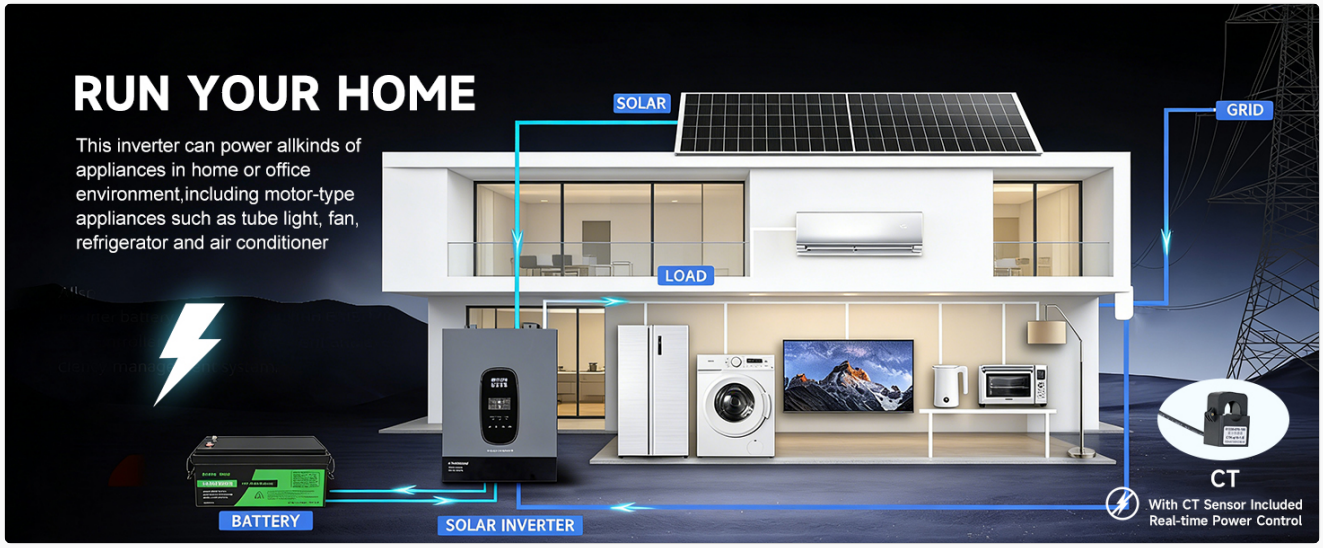

Figure 6: System diagram showing the inverter integrating solar, battery, grid, and home loads. The inverter powers various appliances like tube lights, fans, refrigerators, and air conditioners. A CT sensor is included for real-time power control and zero injection functionality.

5. Operating Instructions

5.1 Initial Power-Up

1. Ensure all connections are secure and correct.
2. Turn on the battery breaker (if applicable).
3. Turn on the PV array breaker (if applicable).
4. Turn on the AC input breaker (if applicable).
5. Switch the inverter's Power ON/OFF switch to the 'ON' position.
6. Observe the LCD display and LED indicators for normal operation.

5.2 LCD Display and Settings

The LCD display provides real-time operational data. Use the UP, DOWN, ESC, and ENTER buttons to navigate menus and adjust settings. Refer to Figure 4 for button locations.

- **Status Indicator:** Indicates the current operating status (e.g., charging, inverting).
- **Charging Indicator:** Shows battery charging status.
- **Fault Indicator:** Illuminates in case of an error or fault. Refer to the troubleshooting section for fault codes.

5.3 Charging and Discharge Modes

The inverter supports various configurable modes to optimize energy usage.

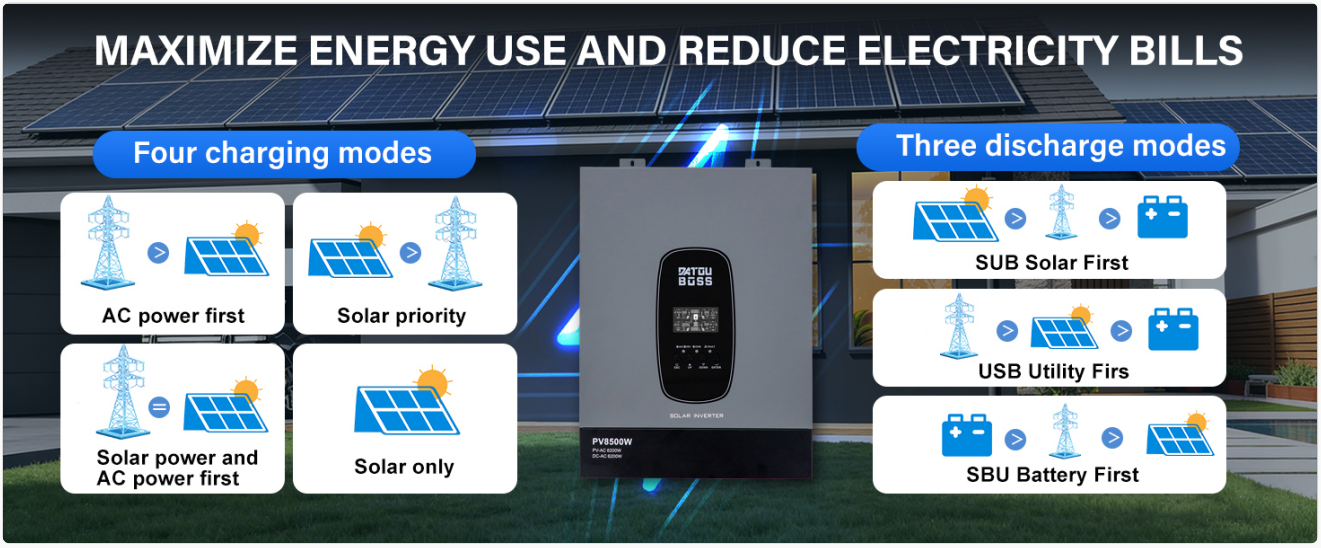

Figure 7: The inverter offers four charging modes and three discharge modes. Charging modes include AC power first, Solar priority, Solar power and AC power first, and Solar only. Discharge modes include SUB Solar First, USB Utility First, and SBU Battery First.

- **Charging Modes:**
  - **AC Power First:** Prioritizes AC utility power for charging.
  - **Solar Priority:** Prioritizes solar power for charging.
  - **Solar Power and AC Power First:** Uses both solar and AC power for charging.
  - **Solar Only:** Charges batteries exclusively from solar power.
- **Discharge Modes:**
  - **SUB Solar First:** Prioritizes solar power, then battery, then utility.
  - **USB Utility First:** Prioritizes utility power, then solar, then battery.
  - **SBU Battery First:** Prioritizes battery power, then solar, then utility.

5.4 Battery-Free Operation

The inverter can operate without a battery connected, directly supplying power to loads from photovoltaic generation or the grid. This feature reduces initial investment and offers system flexibility.

Figure 8: Explanation of battery-free operation. The inverter can supply power without connecting batteries, provided there are other power sources (such as solar photovoltaic modules or the grid). It directly converts DC power from PV modules into AC power for loads without needing battery storage.

5.5 Zero Injection Function

The integrated zero injection function, combined with the CT sensor, prevents excess solar energy from being fed back into the public grid. This is crucial for installations with grid export restrictions and optimizes self-consumption.

6. Maintenance

Regular maintenance ensures optimal performance and longevity of your inverter.

- **Cleaning:** Periodically clean the inverter's exterior with a dry, soft cloth. Ensure ventilation openings are free from dust and debris.
- **Connections Check:** Annually inspect all electrical connections for tightness and signs of corrosion.
- **Environmental Check:** Ensure the installation environment remains within specified temperature and humidity ranges.
- **Firmware Updates:** Check the manufacturer's website for any available firmware updates.

7. Troubleshooting

If the inverter displays a fault code or exhibits abnormal behavior, refer to the following general troubleshooting steps. For specific fault codes, consult the detailed troubleshooting guide in the full product manual (if available) or contact technical support.

Problem	Possible Cause	Solution
Inverter not turning on	No DC input from battery/PV; Power switch off; Blown fuse	Check battery/PV connections and voltage; Ensure power switch is ON; Check internal fuses (qualified personnel only).
No AC output	Overload; Short circuit; AC output breaker tripped	Reduce load; Check for short circuits in wiring; Reset AC output breaker.

Problem	Possible Cause	Solution
Low battery voltage alarm	Battery discharged; Insufficient charging	Allow batteries to charge; Check solar panel output and MPPT settings.
Over-temperature warning	Poor ventilation; High ambient temperature; Blocked fan	Ensure adequate airflow; Clean ventilation openings and fans.

8. Specifications

Parameter	Value
Model Name	DT4862S
Output Power	6200 Watts
Peak Output Power	12000 Watts
Output Voltage	230 Volts (AC)
Output Waveform	Pure Sine Wave
Input Voltage	48 Volts (DC)
Max. PV Input Power	8500W
Max. PV Open Circuit Voltage	500V DC
MPPT Charge Controller Current	120A
Max. Charging/Discharging Current	100A/120A DC
Operating Temperature	-10°C to 50°C
Ingress Protection	IP54
Recommended Uses	Office, Home, Vehicle
Power Source	Solar Powered
Manufacturer Part Number	FBM-DT-4862SQ-A-EU
Country of Origin	China

9. Warranty and Support

9.1 Warranty Information

This DATOUBOSS Hybrid Solar Inverter comes with a**1 Year Warranty Against Manufacturer Defects**. Please retain your proof of purchase for warranty claims. The warranty does not cover damage caused by improper

installation, misuse, neglect, or unauthorized modifications.

9.2 Technical Support

For technical assistance, troubleshooting beyond this manual, or warranty inquiries, please contact DATOUBOSS customer support through the retailer where the product was purchased or visit the official DATOUBOSS website for contact information.