DATOUBOSS DT-1218M

DATOUBOSS 12V 1800W Hybrid Solar Inverter User Manual

Model: DT-1218M (Model Number: DT-1218U-A)

1. Introduction

1.1 Product Overview

The DATOUBOSS DT-1218M is a 12V 1800W Pure Sine Wave Hybrid Solar Inverter designed for various applications including RVs, campers, boats, cabins, home backup, and small off-grid solar systems. This versatile unit integrates a pure sine wave inverter, an MPPT solar charge controller, and an AC battery charger into a single device. It provides a continuous output of 1800W at 110/120V AC, ensuring stable power for your appliances and electronics.

1.2 Key Features

- **1800W Pure Sine Wave Output:** Delivers clean and stable power suitable for sensitive electronics.
- **Integrated MPPT Solar Charger:** Supports up to 2500W PV input with a 30-240V DC MPPT operating range and 300V DC maximum open-circuit voltage.
- **High Charging Capacity:** Features a 100A solar charging current and a 65A AC charging current for efficient battery replenishment.
- **Flexible Battery Compatibility:** Compatible with lead-acid and lithium batteries, including LiFePO4 with RS485 BMS communication (GRD, VLO, PYL, PAC protocols).
- **Battery-Free Operation:** Capable of operating with or without a battery, depending on available PV and utility power.
- **Monitoring and Communication:** Equipped with an LCD display for operational data and two RS485 interfaces for optional WiFi expansion and BMS communication.
- **Multiple Energy Modes:** Offers flexible energy priority settings (solar, utility, battery) to optimize energy usage.
- **Comprehensive Protection:** Includes PV over-voltage, battery protection, overload, short circuit, over-temperature, AC voltage, and frequency protection.

2. Important Safety Instructions

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.

- **Qualified Personnel:** Installation and maintenance should only be performed by qualified personnel.
- **High Voltage:** The inverter operates with high voltages. Do not open the unit or attempt repairs unless specifically instructed.
- **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 ventilation openings.
- **Battery Safety:** Work with batteries carefully. Wear eye protection. Batteries can produce explosive gases.
- **DC Disconnect:** Always disconnect DC power from the solar array and battery bank before working on the inverter.
- **AC Disconnect:** Always disconnect AC power from the utility grid and AC loads before working on the inverter.
- **Environment:** The inverter is not waterproof. Install in an indoor, dry environment. Avoid direct sunlight, rain, and excessive dust.
- **Overload Protection:** Do not exceed the inverter's rated output power to prevent damage.

Image: Comprehensive 360° Protection features of the DATOUBOSS Hybrid Solar Inverter.

3. Product Components and Diagram

Familiarize yourself with the various components and connection points of your DATOUBOSS Hybrid Solar Inverter.

Image: Detailed view of the DATOUBOSS Hybrid Solar Inverter, highlighting its LCD display, LED indicators, function buttons, and various terminal ports.

3.1 Front Panel

- **LCD Display:** Shows real-time operating data, settings, and fault codes.
- **LED Indicators:** AC (utility), INV (inverter), CHG (charging), FAULT (error status).
- **Function Buttons:** DOWN, ESC, ENTER, UP for navigation and setting adjustments.

3.2 Side and Rear Panels

- **Power ON/OFF Switch:** Main power control for the inverter.
- **PV Input Terminal Port:** Connects to solar panels.
- **Battery Terminal Port:** Connects to the battery bank.
- **AC Input Terminal:** Connects to the utility grid or generator.
- **AC Output Terminal:** Connects to household loads.
- **Earth Terminal:** For grounding the unit.
- **RS485-1 Communication Interface:** For external communication (e.g., WiFi module for remote monitoring).
- **RS485-2 Communication Interface (BMS):** For communication with compatible lithium battery management systems.

4. Setup and Installation

4.1 Unpacking

Carefully unpack the inverter and inspect it for any shipping damage. Ensure all accessories are present. If any damage or missing parts are found, contact your dealer immediately.

4.2 Mounting

- Choose a suitable location that is dry, well-ventilated, and protected from direct sunlight, rain, and dust.
- Ensure there is sufficient clearance around the inverter for proper airflow and heat dissipation.
- Mount the inverter vertically on a sturdy wall or surface using appropriate fasteners.

4.3 Wiring Connections

All wiring must comply with local and national electrical codes. Use appropriate wire gauges for all connections.

Image: Typical system connection diagram for the DATOUBOSS Hybrid Solar Inverter, illustrating connections for solar panels, batteries, utility grid, generator, and household loads.

1. **Grounding:** Connect the inverter's earth terminal to a reliable ground point.
2. **Battery Connection:**
    - Connect the positive (+) terminal of the battery bank to the positive (+) battery terminal on the inverter.
    - Connect the negative (-) terminal of the battery bank to the negative (-) battery terminal on the inverter.
    - Ensure correct polarity. Incorrect connection will damage the inverter.
3. **PV Input Connection:**
    - Connect the positive (+) output from your solar array to the positive (+) PV input terminal on the inverter.
    - Connect the negative (-) output from your solar array to the negative (-) PV input terminal on the inverter.
    - Ensure the PV open-circuit voltage does not exceed 300V DC. Solar panels are recommended to be connected in series.
4. **AC Input Connection (Utility/Generator):**
    - Connect the Live (L), Neutral (N), and Ground (G) wires from your utility grid or generator to the corresponding

AC input terminals on the inverter.

5. **AC Output Connection (Loads):**
    - Connect the Live (L), Neutral (N), and Ground (G) wires for your household appliances or loads to the corresponding AC output terminals on the inverter.

Image: Detailed connection points for battery, mains power, and solar input on the DATOUBOSS Hybrid Solar Inverter.

5. Operation

5.1 Initial Power-Up Sequence

1. Ensure all wiring connections are secure and correct.
2. Turn on the battery breaker/switch.
3. Turn on the PV array breaker/switch.
4. Turn on the AC input breaker (if connected to utility/generator).
5. Turn on the inverter's main power ON/OFF switch.
6. The inverter will perform a self-test, and the LCD display will light up.
7. Turn on the AC output breaker to power your loads.

5.2 LCD Display and Buttons

The LCD provides critical information about the inverter's status and allows for configuration changes. Use the function buttons to navigate menus and adjust settings.

- **DOWN:** Scrolls down through menu options or decreases a value.
- **ESC:** Exits the current menu or cancels a setting change.
- **ENTER:** Confirms a selection or enters a menu.
- **UP:** Scrolls up through menu options or increases a value.

5.3 Operating Modes

The inverter supports various charging and discharge modes to optimize energy usage based on your preferences and available power sources.

Image: Overview of the four charging modes and three discharge modes available on the DATOUBOSS Hybrid Solar Inverter for energy optimization.

5.3.1 Four Charging Modes

- **Priority of Mains Power Supply:** Utility power is prioritized for charging.
- **Solar Priority:** Solar power is prioritized for charging.
- **Mixed Loading:** Combines solar and utility power for charging.
- **Solar Only:** Only solar power is used for charging.

5.3.2 Three Discharge Modes

- **SUB Solar First (Default):** Solar power is used first, then battery, then utility.
- **USB Utility First:** Utility power is used first, then solar, then battery.
- **SBU Priority:** Solar power is used first, then utility, then battery.

5.4 BMS Communication

The inverter supports RS485 communication with compatible LiFePO4 batteries that have a Battery Management System (BMS). This allows the inverter to exchange operating and charging information with the battery, optimizing performance and extending battery life. Supported protocols include GRD, VLO, PYL, and PAC.

5.5 Remote Monitoring (Optional)

The RS485-1 interface supports optional WiFi expansion modules for remote monitoring of the inverter's performance and status via a dedicated application.

6. Maintenance

Regular maintenance ensures optimal performance and longevity of your DATOUBOSS Hybrid Solar Inverter.

- **Cleaning:** Periodically clean the exterior of the inverter and ensure ventilation openings are free from dust and debris. Use a dry, soft cloth. Do not use liquid cleaners.
- **Connection Inspection:** Regularly check all electrical connections (PV, battery, AC input/output, ground) to ensure they are tight and free from corrosion.
- **Battery Health:** Monitor battery voltage and health according to the battery manufacturer's recommendations.

6.1 Intelligent Fan System

The inverter is equipped with variable-speed intelligent fans that adjust their speed based on the ambient temperature and internal conditions. This ensures efficient cooling and helps maintain optimal operating temperatures, extending the lifespan of the unit.

Image: Illustration of the intelligent fan system, showing airflow for effective cooling.

7. Troubleshooting

This section provides solutions to common issues you might encounter. For more complex problems, please contact customer support.

Problem	Possible Cause	Solution
Inverter does not power on	Battery not connected or low voltage; Power switch off; Loose connections.	Check battery connections and voltage; Ensure power switch is ON; Verify all wiring is secure.
No AC output	Overload; Short circuit; Inverter fault; AC output breaker off.	Reduce load; Check for short circuits; Check fault codes on LCD; Turn on AC output breaker.

Problem	Possible Cause	Solution
No solar charging	PV panels not connected; Insufficient sunlight; PV voltage too low/high; PV breaker off.	Check PV connections; Ensure adequate sunlight; Verify PV voltage is within range (30-240V DC); Turn on PV breaker.
Overload warning/fault	Connected loads exceed inverter capacity.	Disconnect some loads to reduce total power consumption.
Over-temperature fault	Poor ventilation; High ambient temperature; Blocked fan.	Ensure adequate ventilation; Clean fan and vents; Allow inverter to cool down.

7.1 Error Codes

Refer to the LCD display for specific error codes. Consult the full product manual (if provided separately) or contact customer support with the displayed code for detailed troubleshooting steps.

8. Technical Specifications

Below are the detailed technical specifications for the DATOUBOSS 12V 1800W Hybrid Solar Inverter (Model DT-1218M).

Image: Key specifications and physical dimensions of the DATOUBOSS 12V 1800W Hybrid Solar Inverter.

Feature	Specification
Brand	DATOUBOSS
Model Name	DT-1218M
Model Number	DT-1218U-A
Rated Output Power	1800 watts
Peak Power	3600 watts
Rated Voltage	12 volts
Input Voltage (DC)	12 volts_of_direct_current
Output Voltage (AC)	120 volts
Electrical Output Waveform	Pure Sine Wave
Frequency	60 hertz
PV Charging Mode	MPPT
Max PV Input Power	2500W
MPPT Input Voltage Range	30-240Vdc
Max PV Open-Circuit Voltage	300Vdc

Feature	Specification
Max Charging Current (Solar)	100A
Max Charging Current (AC)	65A
Item Weight	9.4 pounds (4.26 kg)
Recommended Uses	RVs, boats, cabins, campers, home backup, off-grid solar systems

9. Warranty Information

The DATOUBOSS 12V 1800W Hybrid Solar Inverter comes with a**3-Year Manufacturer Warranty**. This warranty covers defects in materials and workmanship under normal use. Please retain your proof of purchase for warranty claims. For specific terms and conditions, refer to the warranty card included with your product or contact DATOUBOSS customer support.

10. Customer Support

If you have any questions, require technical assistance, or need to report an issue with your DATOUBOSS Hybrid Solar Inverter, please contact DATOUBOSS customer support. Have your model number (DT-1218M or DT-1218U-A) and purchase information ready when contacting support.
For the most up-to-date contact information, please visit the official DATOUBOSS website or refer to the contact details provided in your product packaging.

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Example: How do I reset this device or fix this error?

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Model number, symptoms, what you tried, or the section of the manual you are using.

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