EPEVER IP3000-12 Plus

EPEVER IPower-Plus Series IP3000-12 Plus Pure Sine Wave Inverter User Manual

Model: IP3000-12 Plus | Brand: EPEVER

1. Introduction

Welcome to the EPEVER IPower-Plus Series IP3000-12 Plus Pure Sine Wave Inverter. This manual provides essential information for the safe and efficient operation of your inverter. The IPower-Plus series is designed to convert 12V DC battery power into 230V AC pure sine wave electricity, suitable for various applications including off-grid home emergency lighting and vehicle-mounted systems.

Key features include a 180-degree rotatable LCD display, compatibility with lithium batteries, and a USB output port. The inverter incorporates surge current suppression technology to protect lithium battery cells and the Battery Management System (BMS) from damage caused by high inrush currents. It also features low idle loss and a sleep mode for enhanced energy efficiency.

2. Safety Instructions

WARNING: Failure to follow these safety instructions may result in serious injury, death, or damage to the inverter and other equipment.

- Read this entire manual before installation and operation.
- Installation should be performed by qualified personnel.
- Ensure proper ventilation around the inverter to prevent overheating.
- Do not expose the inverter to water, rain, snow, or any liquids.
- Connect the inverter to a battery bank with the correct voltage (12V DC).
- Observe correct polarity when connecting DC input cables (+ to + and - to -). Reverse polarity will cause damage.
- Ensure all connections are tight and secure to prevent loose connections and arcing.
- Do not connect the inverter to an AC utility grid or other AC power sources.
- Avoid short-circuiting the AC output.

- Keep flammable materials away from the inverter.
- Do not open the inverter casing; there are no user-serviceable parts inside.
- Always disconnect power before performing any maintenance or cleaning.

3. Product Overview

3.1 Features

- **Pure Sine Wave Output:** Provides high-quality AC power suitable for sensitive electronics.
- **180-Degree Rotatable LCD Display:** Allows for flexible viewing angles of operational data.
- **Lithium Battery Compatibility:** Designed to work effectively with lithium battery systems.
- **USB Output:** Integrated 5VDC / Max.1A USB port for charging small devices.
- **Surge Current Suppression:** Protects battery cells and BMS from high inrush currents.
- **Low Idle Loss / Sleep Mode:** Minimizes power consumption when no load or light load is present.
- **Isolated RS485 Communication Interface:** (Optional) Enables remote monitoring, management, and settings adjustment via PC software or mobile app.

3.2 Components

The EPEVER IPower-Plus Series IP3000-12 Plus inverter includes the main unit and necessary connection accessories.

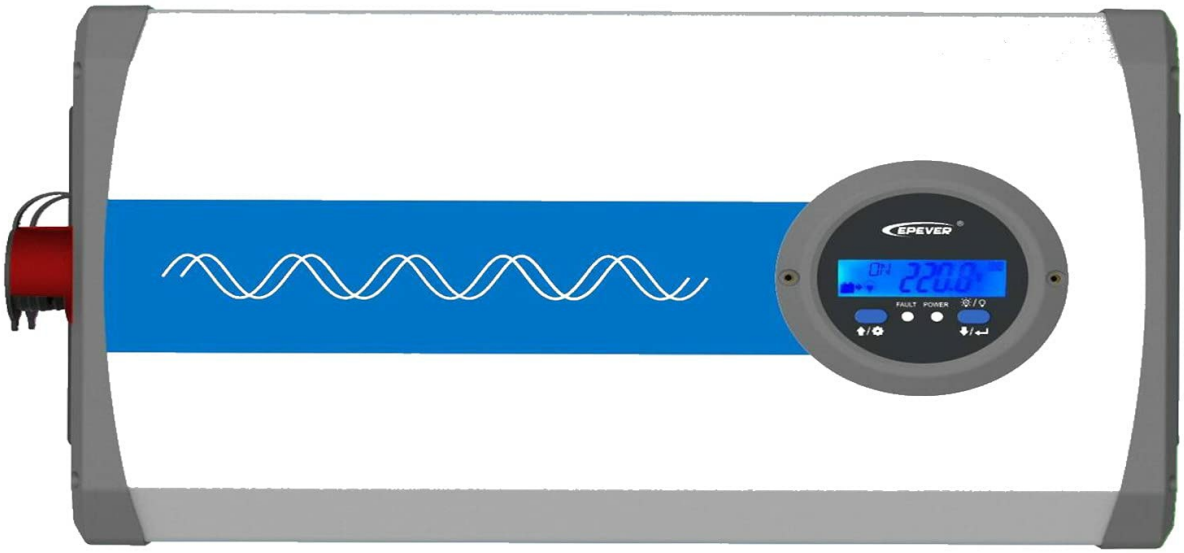

Figure 1: Front view of the EPEVER IPower-Plus Series IP3000-12 Plus Pure Sine Wave Inverter. This image shows the main body of the inverter with its LCD display and branding.

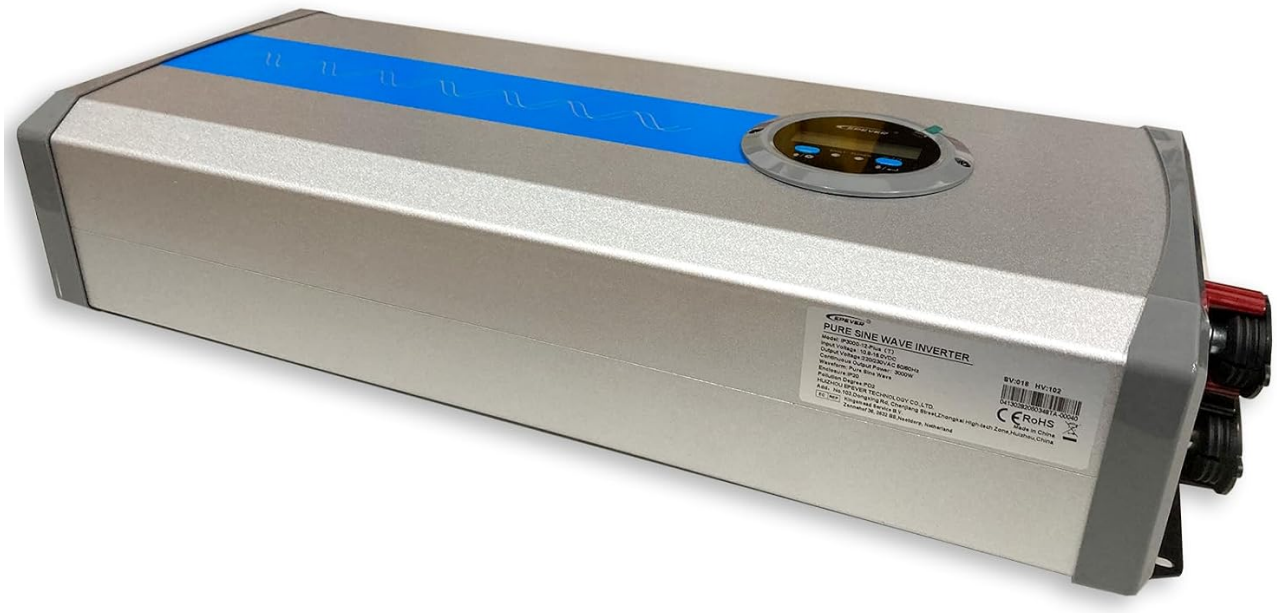

Figure 2: Rear panel of the EPEVER IPower-Plus Series IP3000-12 Plus inverter. This view highlights the DC input terminals, AC output terminals, USB port, and RS485 communication port.

Figure 3: Bottom view of the EPEVER IPower-Plus Series IP3000-12 Plus inverter, showing the integrated cooling fans for thermal management.

Included Components:

- Inverter Unit
- RS485 Communication Port (integrated)
- USB Output (integrated)
- Ground Cable
- DC Input Cable
- AC Output Cable

4. Setup

4.1 Unpacking and Inspection

- Carefully unpack the inverter and all accessories.
- Inspect the unit for any visible damage that may have occurred during shipping. Contact your supplier if any

damage is found.

- Verify that all components listed in Section 3.2 are present.

4.2 Mounting

- Choose a dry, well-ventilated location away from direct sunlight, heat sources, and moisture.
- Ensure there is sufficient clearance around the inverter for proper airflow, especially around the cooling fans.
- Mount the inverter securely to a stable surface using appropriate fasteners. The mounting dimensions are 532 x 145mm.

4.3 Wiring Connections

CAUTION: Before making any connections, ensure the inverter is switched OFF and the battery bank is disconnected or fused.

1. **Grounding:** Connect the ground terminal of the inverter to an earth ground point using the provided ground cable. This is crucial for safety.
2. **DC Input Connection:**
    - Connect the positive (+) terminal of your 12V DC battery bank to the positive (+) DC input terminal on the inverter.
    - Connect the negative (-) terminal of your 12V DC battery bank to the negative (-) DC input terminal on the inverter.
    - Use appropriate cable gauge for the DC input to minimize voltage drop and ensure safe operation.
3. **AC Output Connection:**
    - Connect your AC loads (appliances) to the AC output terminals of the inverter.
    - Ensure the total power consumption of your AC loads does not exceed the inverter's continuous power rating (3000W).
4. **Optional Connections (RS485 & USB):**
    - If using the RS485 communication feature, connect the RS485 cable to the designated port for remote monitoring.
    - The USB port can be used to charge compatible 5VDC devices.

5. Operating Instructions

5.1 Powering On the Inverter

1. After all connections are securely made and verified, connect the battery bank (if not already connected).
2. Switch on the DC input breaker or fuse, if installed.
3. Press the power button on the inverter. The LCD display will illuminate, indicating the inverter is operational.
4. The inverter will begin converting DC power to AC power.

5.2 Powering Off the Inverter

1. Turn off all connected AC loads.
2. Press and hold the power button on the inverter until the display turns off.
3. Switch off the DC input breaker or fuse, and disconnect the battery bank if the inverter will not be used for an extended period.

5.3 LCD Display

The LCD display provides real-time operational data. It can be rotated 180 degrees for optimal viewing. Information typically displayed includes:

- Input DC Voltage
- Output AC Voltage
- Output Power (Watts)
- Output Frequency (Hz)
- Battery Status
- Error Codes (if any)

6. Maintenance

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

- **Cleaning:** Periodically clean the exterior of the inverter with a dry cloth to remove dust and debris. Ensure cooling vents are clear. Do not use liquid cleaners.
- **Connection Checks:** Annually inspect all electrical connections (DC input, AC output, ground) to ensure they are tight and free from corrosion. Loose connections can cause overheating and damage.
- **Ventilation:** Ensure the area around the inverter remains clear and well-ventilated. Check that the cooling fans are operating correctly when the inverter is under load.
- **Battery Maintenance:** Follow the manufacturer's guidelines for your specific battery type. Ensure batteries are properly charged and maintained to prolong their lifespan and ensure stable power supply to the inverter.

7. Troubleshooting

This section outlines common issues and their potential solutions. If the problem persists, contact customer support.

Problem	Possible Cause	Solution
No AC Output / Inverter not turning on	Low battery voltage Loose DC connections Inverter switch off Blown DC fuse/breaker	Charge battery or check battery health Check and tighten all DC connections Turn on the inverter switch Check and replace fuse/reset breaker
Overload Alarm / Shutdown	Connected load exceeds inverter rating High inrush current from inductive loads	Reduce total connected load Start inductive loads one at a time; consider a higher capacity inverter if frequent
Overheating Alarm / Shutdown	Poor ventilation Excessive ambient temperature Continuous high load	Ensure clear airflow around inverter Relocate inverter to a cooler environment Reduce load or operate intermittently
Abnormal AC Output Voltage/Frequency	Low DC input voltage Faulty inverter	Check battery voltage and connections Contact customer support
USB Port Not Working	Overload on USB port Faulty USB device	Disconnect and reconnect USB device Try a different USB device

7.1 Protection Functions

The inverter is equipped with extensive protection features:

- **Reverse Polarity Protection:** Prevents damage from incorrect DC input wiring.
- **Over-voltage Protection:** Shuts down if DC input voltage exceeds safe limits.
- **Under-voltage Protection:** Shuts down to protect batteries from over-discharge.
- **Overload Protection:** Shuts down if AC output load exceeds rated capacity.
- **Short-circuit Protection:** Protects against damage from AC output short circuits.
- **Over-temperature Protection:** Shuts down if internal temperature becomes too high.

8. Specifications

Parameter	Value
System Battery Voltage	12V DC
Continuous Power	3000W
Surge Power (5s)	6000W
Output AC Voltage	220VAC (±3%); 230VAC (-7% ~ +3%)
Output Frequency	50 / 60Hz ±0.2%
Maximum Efficiency	>94% (30% load)
No-Load Current	<1.6A
USB Output	5VDC / Max.1A
RS485 Interface Output	5VDC / 200mA
Protection Class	IP20
Dimensions (L x W x H)	557 × 231.5 × 123mm
Mounting Dimensions	532 x 145mm
Net Weight	10.5kg
Output Waveform	Pure Sine Wave
Certifications	CE, RoHS

9. Warranty and Support

9.1 Warranty Information

The EPEVER IPower-Plus Series IP3000-12 Plus Pure Sine Wave Inverter comes with a**2-year manufacturer's warranty** from the date of purchase. This warranty covers defects in materials and workmanship under normal use and service.

The warranty does not cover:

- Damage caused by improper installation or wiring.

- Damage caused by unauthorized repairs or modifications.
- Damage caused by natural disasters, accidents, or misuse.
- Damage from operating the inverter outside its specified environmental limits.

9.2 Technical Support

For technical assistance, troubleshooting beyond this manual, or warranty claims, please contact your EPEVER dealer or the official EPEVER customer support channel. Please have your product model number and purchase information ready when contacting support.