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ZLPOWER LW-3000W 12V Pure Sine Wave Inverter Charger Instruction Manual

MODEL: LW-3000W 12V

1. Introduction

This manual provides essential information for the safe and efficient operation of your ZLPOWER 3000W 12V DC Pure Sine Wave Inverter Charger. Please read all instructions carefully before installation and use to ensure optimal performance and safety.

2. Safety Instructions

- Always ensure the inverter is turned off before connecting or disconnecting batteries.
- Be careful not to reverse the polarity when connecting battery cables; doing so may damage the inverter.
- Turn off the mains power before connecting AC wiring.
- If using a generator, ensure it's compatible with the inverter's input voltage and frequency.
- Use appropriate size and length of wires with NEC color code.
- The maximum output power of each AC socket is 1200W. If it exceeds 1200W, please use the dedicated output port for wiring.
- When wiring, quickly tap the terminal with the terminal lug, or connect the mains first, which can effectively avoid sparks.

3. Package Contents

Your ZLPOWER Inverter Charger package includes the following items:

- ZLPOWER 3000W 12V Pure Sine Wave Inverter Charger Unit
- Battery Cables (Red for Positive, Black for Negative)
- Remote Control Panel with Cable

- AC Input/Output Wiring Accessories (Terminal Block Cover, Screws)
- Instruction Manual
- Battery Terminal Covers (Red and Black)
- Installation Tools (e.g., wrench)
- Resistor for Pre-Charge Circuit (for safe battery connection)

4. Product Overview

The ZLPOWER LW-3000W 12V Inverter Charger is designed for robust performance and ease of use. Below is an overview of its key components and features.



Figure 1: ZLPOWER 3000W 12V Pure Sine Wave Inverter Charger. This image shows the overall design of the inverter with its front panel featuring the LCD display and output ports.

PRODUCT DETAILS



Figure 2: Product details and dimensions of the ZLPOWER 3000W 12V Inverter. This image highlights the physical dimensions and various connection points on the unit.

Front Panel Features:

- **LCD Display:** Shows real-time data for voltage, load, power, and battery status.
- **Power Switch:** ON/OFF button for the inverter.
- **AC Output Sockets:** For connecting various AC appliances.
- **USB Ports:** For charging USB-powered devices.

Rear Panel Features:

- **DC Input Terminals:** Positive (red) and Negative (black) terminals for battery connection.
- **AC Input/Output Terminals:** Terminal block for hardwiring AC input from grid/generator and AC output to loads.
- **Remote Control Port:** For connecting the external remote control panel.
- **Cooling Fans:** Integrated fans for thermal management.

5. Installation

5.1 DC Connection (Battery)

Proper battery connection is crucial for safety and performance. Always ensure the inverter is turned off before proceeding.

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Video 1: Low frequency inverter wiring video. This video demonstrates the step-by-step process of connecting battery cables to the inverter, including safety precautions for polarity.

1. **Prepare the Inverter:** Ensure the inverter's power switch is in the OFF position. Remove the protective covers and nuts from the DC input terminals (positive red, negative black) on the inverter.
2. **Connect Positive Cable:** Connect one end of the positive (red) battery cable to the inverter's positive terminal. Secure it tightly with the nut. Connect the other end of the positive cable to the positive terminal of your battery.
3. **Connect Negative Cable:** Connect one end of the negative (black) battery cable to the inverter's negative terminal. Secure it tightly with the nut. Connect the other end of the negative cable to the negative terminal of your battery.
4. **Verify Polarity:** Double-check that positive terminals are connected to positive and negative to negative. Reversing polarity will damage the inverter.
5. **Pre-Charge Circuit (Recommended):** For safe connection, especially with LiFePO4 batteries, use a pre-charge resistor to prevent sparks. Refer to your full manual for detailed instructions on installing a permanent pre-charge circuit.
6. **Secure Connections:** Ensure all connections are tight and secure. Replace the protective terminal covers.

5.2 AC Connection (Input/Output)

The inverter can be connected to an AC input source (grid or generator) and provides AC output for your loads.

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Video 2: Low frequency inverter wiring video. This video also demonstrates the AC input and output wiring process, showing how to connect live, neutral, and ground wires.

1. **Safety First:** Turn off the mains power or generator before making any AC connections.
2. **Access Terminal Block:** Remove the protective cover from the AC wiring terminal block on the inverter.
3. **AC Input Wiring:** Use a 3-core AC cable (Live (L), Neutral (N), Ground (G)). Connect the Live (L) wire to the terminal labeled 'AC Input L', Neutral (N) to 'AC Input N', and Ground (G) to the grounding screw. This connection enables battery charging from the grid/generator and AC pass-through.
4. **AC Output Wiring:** Use another 3-core AC cable for your loads. Connect the Live (L) wire to 'AC Output L', Neutral (N) to 'AC Output N', and Ground (G) to the grounding point. This is where your home appliances or other loads will receive power.
5. **Secure and Cover:** Ensure all wires are securely fastened within their respective terminals. Replace the protective cover over the terminal block.

6. Operation

Once installed, operating your ZLPOWER inverter is straightforward. The LCD display provides all necessary

information.

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Video 3: How to Use Your Low Frequency Solar Hybrid Inverter. This video demonstrates the basic operation and display functions of the inverter.

1. **Power On:** Press the ON/OFF button on the inverter unit or the connected remote control panel to power on the unit.
2. **LCD Display:** The LCD display will illuminate and show real-time operational data, including input/output voltage, load percentage, battery status, and frequency.
3. **Connecting Loads:** Plug your AC appliances into the AC output sockets on the inverter's front panel or connect them to the hardwired AC output terminals.
4. **Remote Control:** Use the remote control panel for convenient monitoring and control from a distance.

7. System Settings

The inverter offers customizable settings to optimize its performance for your specific setup.

LCD SCREEN DISPLAY

LCD digital display show voltage, load and battery info in real time.

LCD

The image displays the ZPOWER LW Series / LW3000-12-E Pure Sine Wave Inverter / Charger. The unit is blue and features a digital LCD screen. The LCD screen shows real-time operational data, including input/output voltage, load percentage, battery status, and frequency. The screen is shown in three different modes:

- Battery inverter mode 02:** Shows battery status (88%), input voltage (888 VAC), output voltage (888 VAC), and load percentage (88%).
- AC mode 01:** Shows input voltage (230 VAC), output voltage (230 VAC), and load percentage (00%).
- AC mode 01 (another view):** Shows input voltage (242 VDC), output voltage (00 VDC), and load percentage (00%).

Figure 3: Detailed view of the LCD screen display on the ZLPOWER Inverter. This image illustrates the various data points and menu options available for configuration.

1. **Access Settings:** Press and hold the setting button (usually labeled 'Confirm' or 'Enter') for 3 seconds to enter the main settings interface on the LCD display.
2. **Navigate Menus:** Use the UP/DOWN arrow buttons to navigate through the different setting options.
3. **Adjust Parameters:** Select a parameter and use the arrow buttons to adjust its value. Confirm your selection to save changes.
4. **Adjustable Charging Current:** The charging current can be adjusted from 0-100% to suit your battery's requirements.
5. **AC/Battery Priority Selector:** Choose whether the inverter prioritizes AC input (grid/generator) or battery power.
6. **Automatic Generator Start (AGS):** Configure the inverter to automatically start a connected generator when battery levels are low.
7. **Frequency Switching:** The inverter supports both 50Hz and 60Hz output frequencies, which can be selected via the settings.

8. Battery Compatibility

The ZLPOWER inverter is designed to be compatible with a wide range of battery types, offering flexibility for various power systems.

COMPATIBLE WITH MULTIPLE BATTERY TYPES



Figure 4: Illustration of the various battery types compatible with the ZLPOWER Inverter. This image shows icons for LiFePO4, Lithium-ion, Flooded, AGM, Sealed Lead Acid, and Gel batteries.

- **Supported Types:** The inverter supports 7 battery types, including LiFePO4, Lithium-ion, Flooded, AGM, Sealed Lead Acid, and Gel batteries.
- **5-Step Progressive Charging:** Features an advanced 5-step progressive charging algorithm to optimize battery health and lifespan.
- **Depleted Battery Startup:** The inverter allows for startup and continuous power even with depleted batteries.
- **Battery Temperature Sensor:** An included battery temperature sensor provides crucial data to prevent overheating during charging and discharging.

9. Protections and Features

The ZLPOWER inverter is equipped with multiple safety features and advanced functionalities to ensure reliable and secure operation.



Figure 5: Overview of the LCD display and key protection features of the ZLPOWER Inverter. This image highlights the various safeguards and operational indicators.

- **Pure Sine Wave Output:** Delivers clean, stable power suitable for sensitive electronics and appliances, preventing interference.
- **Overload Protection:** Automatically shuts down if connected loads exceed its capacity.
- **Over-Temperature Protection:** Prevents damage from excessive heat buildup.
- **Overcharge Protection:** Safeguards batteries from being overcharged.
- **Low Battery Safeguards:** Protects batteries from deep discharge.
- **Output Voltage Regulation:** Automatically adjusts output voltage to maintain stability under varying load conditions.
- **High Efficiency:** Achieves up to 97% efficiency in line mode and 88% in battery mode.
- **High Power Factor:** Operates with a power factor of 0.9-1.0, indicating efficient power usage.
- **Low Frequency Type:** Utilizes a transformer for robust and reliable power conversion.

10. Troubleshooting

If your ZLPOWER inverter is not functioning as expected, please follow these general troubleshooting steps:

- **Check Connections:** Verify all DC and AC cable connections for tightness and correct polarity. Loose connections can cause poor performance or faults.
- **Battery Status:** Ensure your battery bank has sufficient voltage and charge. A low battery can prevent the inverter from operating.
- **Load Capacity:** Confirm that the total wattage of connected appliances does not exceed the inverter's 3000W continuous rating or the 1200W maximum per AC socket.
- **LCD Display:** Observe the LCD display for any fault codes or warning messages, which can indicate specific issues.
- **Reset Inverter:** Try turning the inverter off, waiting a few minutes, and then turning it back on.
- **Consult Manual:** For detailed troubleshooting charts and specific fault code explanations, refer to the comprehensive instruction manual.
- **Contact Support:** If the issue persists after following these steps, contact ZLPOWER customer support for further assistance.

11. Specifications

Feature	Specification
Model Number	LW-3000W 12V
Continuous Power	3000W
Peak Power	9000W (for 20 seconds)
DC Input Voltage	12V DC
AC Output Voltage	120V AC Single Phase
Output Waveform	Pure Sine Wave
Line Mode Efficiency	Up to 97%
Battery Mode Efficiency	Up to 88%
Battery Charger Current	90A (Adjustable 0-100%)
Transfer Switch	30A
Output Frequency	50Hz/60Hz (Switchable)
Product Dimensions	18.1 x 7.48 x 8.7 inches
Item Weight	59.5 pounds
Manufacturer	ZLPOWER

12. Warranty and Support

ZLPOWER is a professional inverter manufacturer with over fifteen years of experience in the industry. We are committed to providing reliable products and excellent customer service.

- **Warranty:** Your ZLPOWER Inverter Charger comes with a 24-month warranty from the date of purchase.
- **Technical Support:** We offer lifetime technical support to assist you with any questions or issues you may encounter.
- **Contact Us:** For warranty claims, technical assistance, or any other inquiries, please contact ZLPOWER customer service through the provided channels in your purchase documentation.