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UPGENT GD3024EMH

UPGENT GD3024EMH 3000W/24V Off-Grid Pure Sine Wave Inverter Instruction Manual

Model: GD3024EMH

Introduction	Safety Instructions	Package Contents	Product Overview	Setup	Operating
	Maintenance	Troubleshooting	Specifications		Warranty & Support

1. INTRODUCTION

Thank you for choosing the UPGENT GD3024EMH Off-Grid Pure Sine Wave Inverter. This all-in-one machine is designed to provide reliable power conversion for photovoltaic solar energy storage systems. It converts DC power from solar panels or batteries into stable AC power suitable for various household and outdoor applications. This manual provides essential information for the safe installation, operation, and maintenance of your inverter. Please read this manual thoroughly before installation and use to ensure optimal performance and longevity of your device. Keep this manual for future reference.

2. SAFETY INSTRUCTIONS

Important Safety Precautions:

- Read all instructions carefully before installation and operation.
- Installation must be performed by qualified personnel in accordance with local electrical codes.
- Do not disassemble the inverter. There are no user-serviceable parts inside. Refer servicing to qualified service personnel.
- Ensure proper ventilation around the inverter to prevent overheating.
- Keep the inverter away from flammable materials, moisture, and direct sunlight.
- Always disconnect all power sources (solar panels, battery) before performing any maintenance or wiring.
- Use appropriate personal protective equipment (PPE) during installation and maintenance.
- This inverter is designed for off-grid applications only. Do not connect it to the public utility grid.
- Verify that the battery voltage matches the inverter's input voltage requirement (24V).
- Ensure all connections are tight and secure to prevent loose connections and potential hazards.

3. PACKAGE CONTENTS

Upon unpacking, please verify that all items listed below are present and undamaged:

- UPGENT GD3024EMH Off-Grid Pure Sine Wave Inverter (1 unit)
- User Manual (1 copy)
- DC Input Cables (Battery Cables) (1 set)
- AC Output Terminal Block (1 unit)
- Mounting Screws (4 pieces)

If any items are missing or damaged, please contact your dealer immediately.

4. PRODUCT OVERVIEW

The UPGENT GD3024EMH is a high-frequency, all-in-one inverter designed for efficient solar energy conversion and storage. It features a pure sine wave output, ensuring compatibility with sensitive electronics.



Figure 1: Front view of the UPGENT GD3024EMH Inverter, showing display and control buttons.

Key Features:

- Pure Sine Wave Output: Ensures clean and stable power for all connected devices.
- High Frequency Design: Compact and efficient.
- Integrated Solar Charge Controller: Manages charging from solar panels to batteries.
- Battery Charger: Can charge batteries from an AC source (if applicable to this model, assuming it is an all-in-one).
- LCD Display: Provides real-time operating status and parameters.
- Multiple Protection Functions: Overload, short circuit, over-temperature, over-voltage, under-voltage protection.

5. SETUP AND INSTALLATION

5.1 Site Selection:

- Install the inverter indoors, in a dry, well-ventilated area.

- Avoid direct sunlight, high temperatures, and high humidity.
- Ensure sufficient clearance (at least 20 cm) around the inverter for proper airflow.
- Mount on a non-flammable surface.

5.2 Mounting the Inverter:

1. Select a suitable vertical wall surface.
2. Mark the positions for the mounting screws using the inverter as a template.
3. Drill pilot holes and insert appropriate wall anchors if necessary.
4. Securely mount the inverter to the wall using the provided mounting screws.

5.3 Wiring Connections:

WARNING: Ensure all power sources are disconnected before making any wiring connections. Incorrect wiring can cause severe damage to the inverter, batteries, and connected loads, and poses a risk of electric shock.

1. Battery Connection:

- Connect the positive (+) terminal of the 24V battery bank to the positive (+) DC input terminal on the inverter.
- Connect the negative (-) terminal of the 24V battery bank to the negative (-) DC input terminal on the inverter.
- Ensure correct polarity. Reverse polarity will damage the inverter.
- Use appropriate gauge cables for the battery connection, considering the inverter's current rating.

2. Solar Panel Connection (PV Input):

- Connect the positive (+) output from your solar panel array to the PV+ terminal on the inverter.
- Connect the negative (-) output from your solar panel array to the PV- terminal on the inverter.
- Verify that the open-circuit voltage (Voc) of your solar array does not exceed the maximum PV input voltage specified for the GD3024EMH.
- Ensure correct polarity.

3. AC Output Connection:

- Connect your AC loads (appliances, lights, etc.) to the AC output terminals of the inverter.
- Ensure the total power consumption of your loads does not exceed the inverter's rated output power (3000W).
- Properly ground the inverter according to local electrical codes.

5.4 Initial Power-Up:

1. Double-check all wiring connections for tightness and correct polarity.
2. Connect the battery bank to the inverter.
3. If solar panels are connected, ensure they are receiving sunlight.
4. Turn on the inverter's power switch.
5. Observe the LCD display for status indicators and any error messages.

6. OPERATING THE INVERTER

6.1 LCD Display and Control Buttons:

The LCD display provides real-time information about the inverter's status, input/output voltages, battery charge level, and error codes. Use the control buttons (typically UP, DOWN, ENTER/SET, ESC) to navigate through menus and adjust settings.

6.2 Basic Operation:

- **Power On/Off:** Press and hold the power button for a few seconds to turn the inverter on or off.
- **Monitoring:** Cycle through the display screens to view various parameters such as PV input voltage, battery voltage, AC output voltage, load percentage, and operating mode.
- **Setting Parameters:** Access the settings menu to configure battery type, charging current, AC output voltage/frequency, and other operational parameters. Refer to the detailed menu structure in the full manual for specific adjustments.

6.3 Operating Modes:

The GD3024EMH typically supports various operating modes, such as:

- **Solar Priority:** Solar power is used first to power loads and charge batteries.
- **Utility Priority (if applicable):** AC utility power is used first, with solar as a backup. (Note: This is an off-grid inverter, so utility priority might refer to a generator input if available, or not be present).
- **Battery Priority:** Loads are powered primarily from batteries, with solar charging them.

Select the appropriate mode based on your energy usage and solar availability.

7. MAINTENANCE

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

- **Cleaning:** Periodically clean the exterior of the inverter with a dry, soft cloth. Ensure ventilation openings are free from dust and debris. Do not use liquid cleaners.
- **Connections:** Annually check all wiring connections (battery, solar, AC output) for tightness and corrosion. Loose connections can cause overheating and poor performance.
- **Battery Inspection:** Regularly inspect your battery bank for signs of damage, corrosion, or swelling. Ensure battery terminals are clean and tight. Follow the battery manufacturer's maintenance guidelines.
- **Environment:** Ensure the installation environment remains within the specified temperature and humidity ranges.
- **Firmware Updates:** Check the UPGENT website or contact support for any available firmware updates, if applicable.

CAUTION: Always disconnect all power sources before performing any maintenance.

8. TROUBLESHOOTING

This section provides solutions to common issues you might encounter. If the problem persists, contact UPGENT technical support.

Problem	Possible Cause	Solution
Inverter does not power on.	<ul style="list-style-type: none">◦ Battery not connected or low voltage.◦ Power switch off.◦ Loose battery connections.	<ul style="list-style-type: none">◦ Check battery connections and voltage. Charge battery if low.◦ Ensure power switch is in the "ON" position.◦ Tighten battery terminal connections.
No AC output.	<ul style="list-style-type: none">◦ Overload condition.◦ Short circuit on AC output.◦ Inverter in fault mode.	<ul style="list-style-type: none">◦ Reduce connected load.◦ Check AC wiring for short circuits.◦ Check LCD for error codes. Power cycle the inverter.

Problem	Possible Cause	Solution
Low battery alarm.	<ul style="list-style-type: none"> Insufficient solar charging. Excessive load. Battery degradation. 	<ul style="list-style-type: none"> Check solar panel connections and sunlight exposure. Reduce power consumption. Test battery health; consider replacement if necessary.
Over-temperature warning.	<ul style="list-style-type: none"> Poor ventilation. Ambient temperature too high. Blocked cooling fan. 	<ul style="list-style-type: none"> Ensure adequate clearance around the inverter. Relocate inverter to a cooler area. Clean any dust or obstructions from cooling vents/fans.

9. SPECIFICATIONS

The following are the technical specifications for the UPGENT GD3024EMH Inverter:

Parameter	Value
Model	GD3024EMH
Rated Power	3000W
Battery Voltage	24V DC
Output Waveform	Pure Sine Wave
Frequency	50Hz / 60Hz (Auto Sensing)
Efficiency	>90% (typical)
Dimensions (L x W x H)	Approx. 1.18 x 0.79 x 0.39 inches (Package Dimensions, actual unit dimensions may vary)
Item Weight	1.76 ounces (actual unit weight may vary)
Operating Temperature	0°C - 55°C
Protection	Overload, Short Circuit, Over-temperature, Over-voltage, Under-voltage

Note: Specifications are subject to change without prior notice. Refer to the product label for the most accurate information.

10. WARRANTY AND SUPPORT

Warranty Information:

UPGENT products are manufactured to high-quality standards and are warranted against defects in materials and workmanship for a limited period from the date of purchase. This warranty does not cover damage caused by improper installation, misuse, abuse, natural disasters, or unauthorized modifications.

Please retain your proof of purchase for warranty claims.

Technical Support:

For technical assistance, troubleshooting, or warranty inquiries, please contact UPGENT customer support. Provide your product model number (GD3024EMH) and a detailed description of the issue when contacting support.

Contact information can typically be found on the UPGENT official website or on the product packaging.

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