OAE FT-2000W12V

OAE FT-2000W12V Pure Sine Wave Inverter User Manual

Model: FT-2000W12V

1. Introduction

This manual provides detailed instructions for the installation, operation, and maintenance of your OAE FT-2000W12V Pure Sine Wave Inverter. This device combines the functions of an inverter, a battery charger, and an AC auto-transfer switch, designed to provide reliable AC power for various applications including off-grid solar systems, RVs, boats, and home backup systems. Please read this manual thoroughly before using the inverter to ensure safe and efficient operation.

2. Safety Information

Always observe the following safety precautions to prevent injury and damage to the inverter or connected equipment:

- Ensure proper ventilation around the inverter to prevent overheating.
- Do not expose the inverter to water, rain, snow, or spray.
- Do not operate the inverter if it has been damaged in any way.
- Keep children away from the inverter.
- Ensure all wiring is correctly sized and properly connected to avoid electrical hazards.
- Disconnect all power sources before performing any maintenance or cleaning.
- This inverter generates high voltage. Do not open the casing unless you are a qualified technician.

3. Product Overview

3.1 Key Features

- Integrated inverter, battery charger, and AC auto-transfer switch.
- High transfer efficiency exceeding 93%.
- Pure sine wave output for sensitive electronics.
- Built-in AVR stabilizer for continuous stable output.

- Supports various battery types: SLA, AGM, GEL, Li-ion, LiFePO4, and Flooded batteries.
- Adjustable charging current from 0-35A.
- Five selectable working modes: AC Priority, Battery Priority, ECO, Generator, and Unattended mode.
- Comprehensive protection features: battery low/high voltage alarm, over temperature, overload, and short circuit protection.

3.2 Product Components

The OAE FT-2000W12V inverter features a robust design with clearly labeled connections and an intuitive display. Refer to the images below for a visual guide to the inverter's front and rear panels.

Figure 1: Front and Rear Panel Diagram of the OAE FT-2000W12V Inverter, showing LED indicators, LCD display, function keys, battery terminals, AC input/output, and AC fuse.

Figure 2: Overall view of the OAE FT-2000W12V Pure Sine Wave Inverter.

4. Setup and Installation

4.1 Mounting the Inverter

Mount the inverter in a dry, well-ventilated area, away from direct sunlight and heat sources. Ensure there is sufficient clearance around the unit for airflow. The inverter can be wall-mounted using the integrated mounting brackets.

4.2 Wiring Connections

Follow the connection diagram carefully to ensure correct and safe installation. All wiring should be performed by a qualified individual.

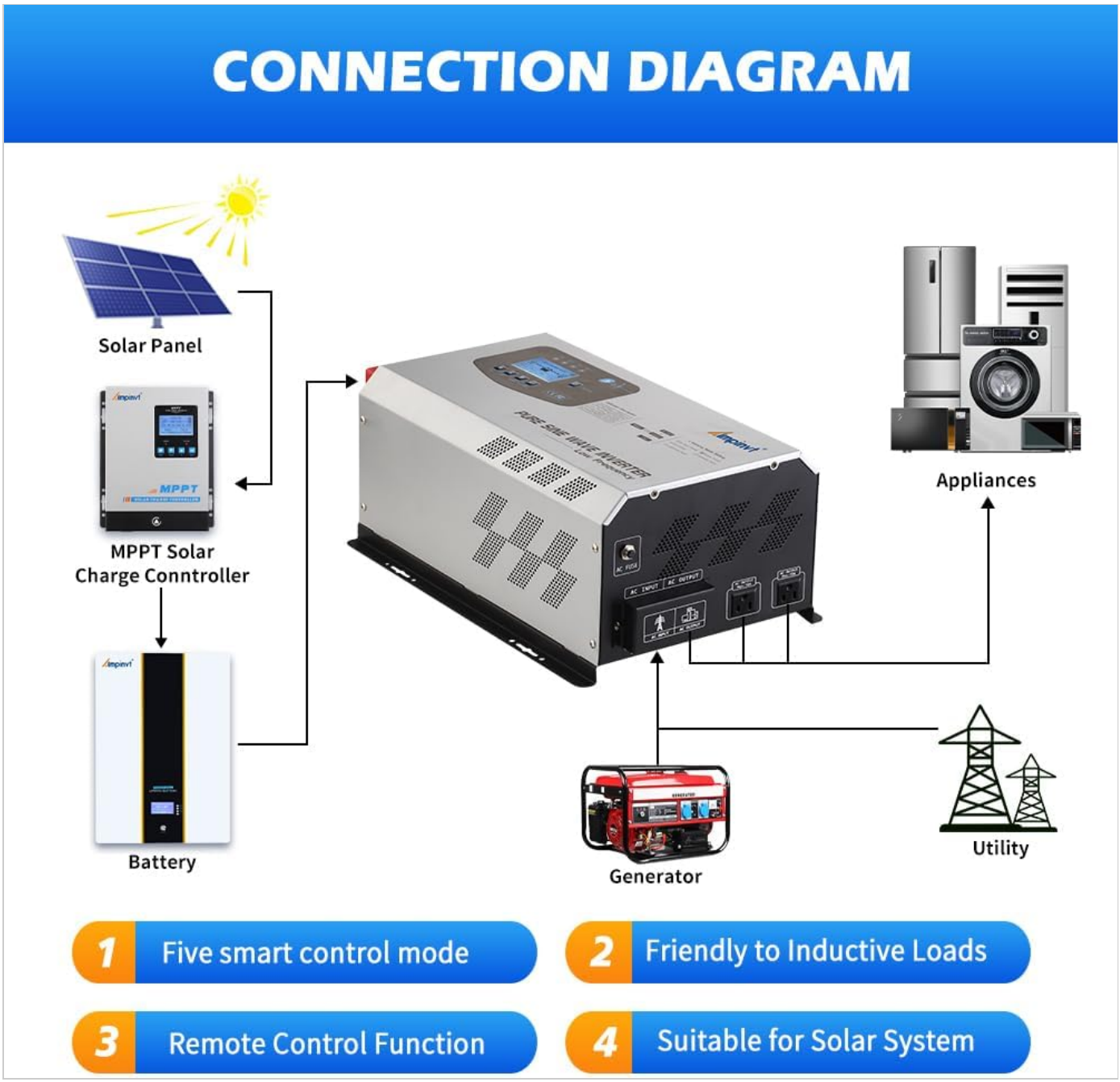

Figure 3: Connection diagram illustrating the integration of the inverter with solar panels, MPPT charge controller, battery, generator, utility grid, and household appliances.

4.3 Battery Type Selection

The inverter supports various battery chemistries. Select the appropriate battery type in the inverter's settings to optimize charging and discharge parameters.

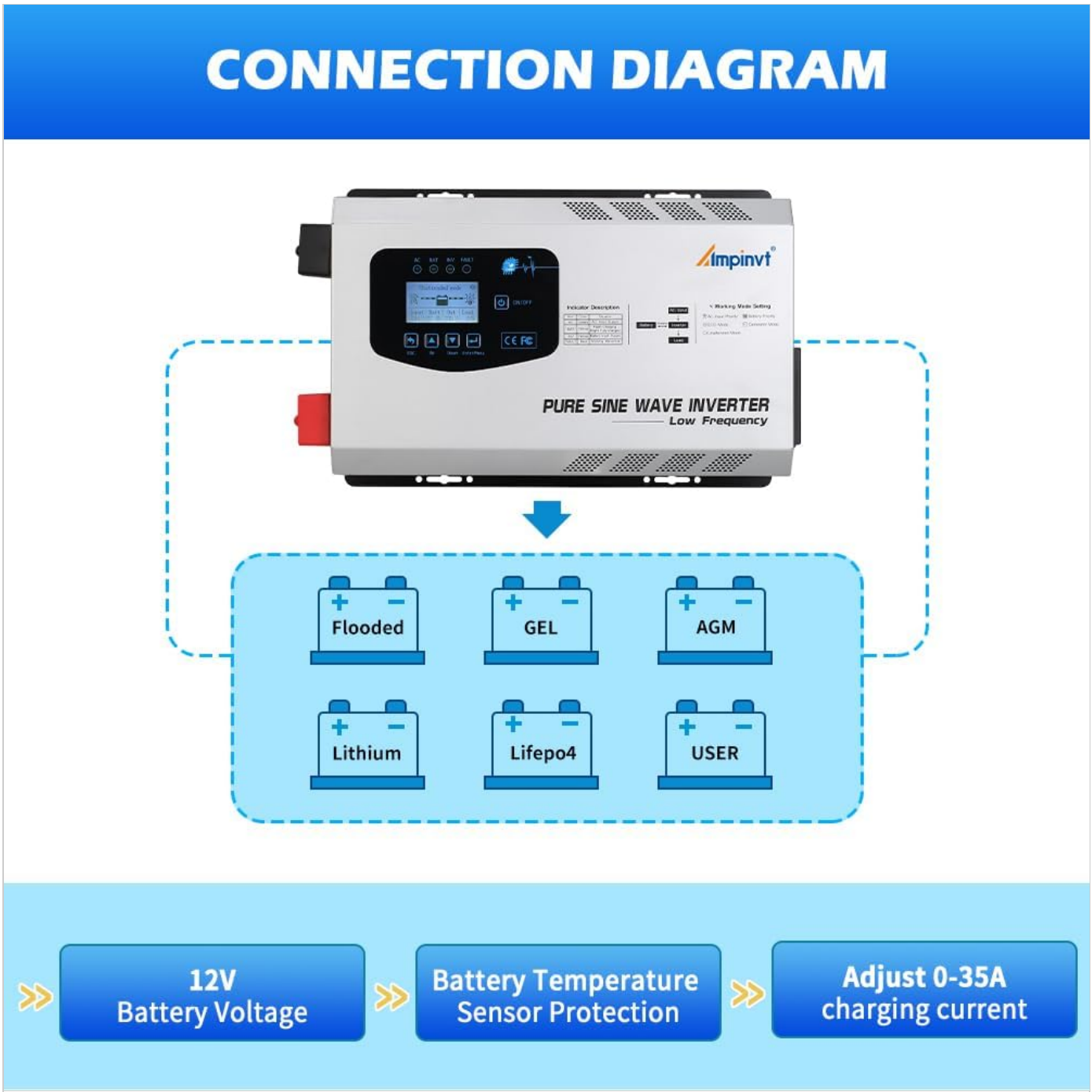

Figure 4: Diagram showing supported battery types including Flooded, GEL, AGM, Lithium, LiFePO4, and a customizable USER setting.

4.4 Adjustable Charging Current

The maximum charging current can be adjusted from 0-35A. Setting the value to 0A will disable the charging function. This setting allows for optimization based on battery capacity and type.

5. Operating Modes

The OAE FT-2000W12V inverter offers five distinct operating modes to suit various power management needs:

1. **AC/Line Priority Mode:** In this mode, the inverter prioritizes AC utility power as the primary input. It provides AC output to loads and automatically charges the connected battery. If AC utility power fails, the inverter seamlessly switches to battery power.
2. **Battery Priority Mode:** This mode prioritizes battery power supply. The inverter will draw power from the battery to supply loads. Upon reaching a low voltage protection threshold, it will transfer to AC utility power. Once the battery is sufficiently recharged, it will revert to battery power.

3. **ECO Mode:** Designed for energy saving, the inverter enters a sleep state and stops output when the load is less than 10% of its capacity. When the load exceeds 10%, it automatically reactivates and resumes normal inversion.
4. **Generator Mode:** This mode is used when an unstable generator (120V) is connected to the inverter's AC input. The inverter's built-in AVR (Automatic Voltage Regulator) stabilizes the input, automatically matching 50Hz/60Hz frequency, and regulates the output voltage within the normal operating range.
5. **Unattended Mode:** When the battery voltage drops to a low level, the inverter enters a standby (power-saving) state. It will automatically restore normal inverter output once the battery voltage recovers to a user-defined value (e.g., through solar charging), enabling fully automatic operation without manual intervention.

6. Maintenance

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

- Keep the inverter clean and free from dust. Use a dry cloth for cleaning.
- Ensure ventilation openings are not blocked.
- Periodically check all electrical connections for tightness and corrosion.
- Inspect battery terminals for corrosion and clean if necessary.
- Monitor the inverter's display for any error codes or warnings.

7. Troubleshooting

This section provides guidance for common issues. For problems not listed here, contact customer support.

Problem	Possible Cause	Solution
Inverter not turning on	No DC input from battery; Battery voltage too low; Loose connections.	Check battery connections; Charge battery; Verify battery voltage is within operating range.
No AC output	Overload; Short circuit; Over temperature; AC output breaker tripped.	Reduce load; Check for short circuits; Allow inverter to cool; Reset AC output breaker.
Battery not charging	AC input not present; Charging current set to 0A; Battery fault.	Verify AC input connection; Adjust charging current setting; Check battery health.
Overload Protection Activated	Connected load exceeds inverter's capacity.	Reduce the total load connected to the inverter. The inverter can sustain 110%-120% of output for 30s before bypassing, and over 160% for 303ms.

Important: Do not overload the inverter. Ensure the total wattage of connected appliances does not exceed the inverter's rated capacity.

Figure 5: Visual reminder to avoid overloading the inverter, showing various household appliances.

8. Specifications

Feature	Specification
Brand	OAE
Model	FT-2000W12V
Manufacturer	Top One
Rated Power	2000 Watts
Peak Power	6000 Watts
DC Input Voltage	12 Volts
AC Output Voltage	120 Volts
Output Waveform	Pure Sine Wave
Transfer Efficiency	Above 93%
Adjustable Charging Current	0-35A
Product Dimensions	16.7 x 10.2 x 6.7 inches (475mm x 300mm x 185mm)
Item Weight	46.2 pounds
Power Source	Battery Powered
Recommended Uses	Home, RV, Boat, Off-Grid Systems

Figure 6: Diagram illustrating the physical dimensions of the OAE FT-2000W12V Inverter.

9. Warranty and Support

For warranty information, technical support, or service inquiries, please contact the seller or manufacturer directly. Retain your purchase receipt for warranty claims. Specific warranty terms and conditions may vary.