AMPINVT FT-6000W24V

AMPINVT 6000W 24V Split Phase Pure Sine Wave Power Inverter User Manual

Model: FT-6000W24V

1. Introduction

This manual provides detailed instructions for the installation, operation, and maintenance of your AMPINVT 6000W 24V Split Phase Pure Sine Wave Power Inverter. This device combines an inverter, battery charger, and AC auto-transfer switch, designed to provide reliable power for various applications, including off-grid solar systems and home backup power.
Please read this manual thoroughly before installation and operation to ensure proper use and to prevent damage to the unit or connected equipment.

2. Important Safety Instructions

Failure to follow these safety instructions may result in electric shock, fire, or serious injury.

- **Installation:** All electrical work must be performed by qualified personnel in accordance with local electrical codes.
- **Battery Connection:** Always connect the battery first. Ensure correct polarity. This inverter is designed for 24V battery systems only.
- **Ventilation:** Install the inverter in a well-ventilated area to prevent overheating. Do not block ventilation openings.
- **Environment:** Avoid exposure to water, excessive humidity, direct sunlight, or flammable materials.
- **Overload Protection:** Do not exceed the inverter's rated power output. Overloading can cause damage and fire.
- **Maintenance:** Disconnect all power sources before performing any maintenance or cleaning.
- **Internal Components:** Do not attempt to open or service the inverter yourself. Refer all servicing to qualified service personnel.

3. Product Overview

The AMPINVT FT-6000W24V inverter delivers a continuous 6000W pure sine wave output with a peak power of 18000W.

It features high transfer efficiency (above 90%), a built-in AVR stabilizer, and robust overload capacity.

3.1 Key Features

- Pure Sine Wave Output: Provides clean, stable power suitable for sensitive electronics.
- Integrated Design: Combines inverter, battery charger, and AC auto-transfer switch.
- Battery Compatibility: Supports SLA, AGM, GEL, Li-ion, and custom battery types (24V system).
- Adjustable Charging Current: Max 35A, adjustable from 0-100%.
- Multiple Working Modes: AC Priority, Battery Priority, ECO, Generator, Unattended.
- Comprehensive Protections: Low/high battery voltage, over-temperature, overload, short circuit.
- Split Phase Output: Provides 120V/240V AC output.

3.2 Product Components

Figure 1: Front view of the AMPINVT 6000W 24V Split Phase Pure Sine Wave Power Inverter.

This image displays the overall design of the inverter, highlighting its robust casing and integrated display panel on the front.

Figure 2: Detailed diagram of the inverter's front and rear panels.

The diagram illustrates the various connection points and controls. The rear panel includes battery negative and positive terminals, BMS and COMM ports, AC fuse, AC input, and AC output sockets. The front panel features LED indicators, an LCD display, and function keys for operation and settings adjustment.

4. Setup and Installation

Proper installation is crucial for the safe and efficient operation of the inverter. Ensure all connections are secure and correctly wired.

4.1 Connection Diagram

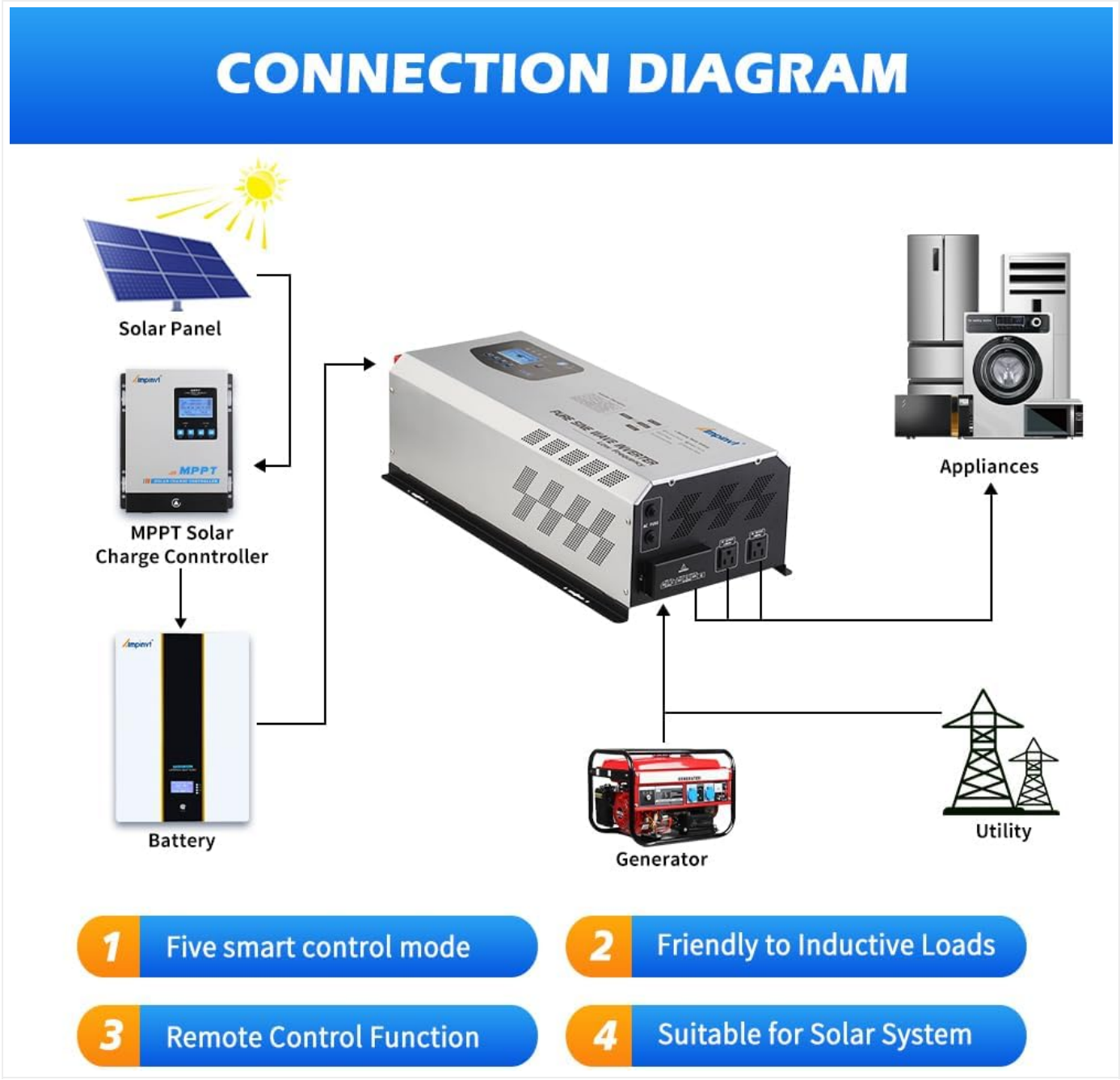

Figure 3: System connection diagram for the inverter.

This diagram shows how the inverter integrates into a complete power system, connecting to solar panels (via an MPPT solar charge controller), a battery bank, a generator, utility power, and household appliances. The inverter acts as the central hub for power management.

- **Solar Panel:** Connect to an MPPT Solar Charge Controller.
- **MPPT Solar Charge Controller:** Connects to the battery bank.
- **Battery:** Connects to the inverter's DC input terminals. Ensure it is a 24V battery system.
- **Generator:** Connects to the inverter's AC input for backup power and battery charging.
- **Utility:** Connects to the inverter's AC input for grid power and battery charging.
- **Appliances:** Connect to the inverter's AC output.

4.2 Battery Type Selection

The inverter supports various 24V battery types. Select the appropriate battery type in the inverter settings for optimal charging and discharge management.

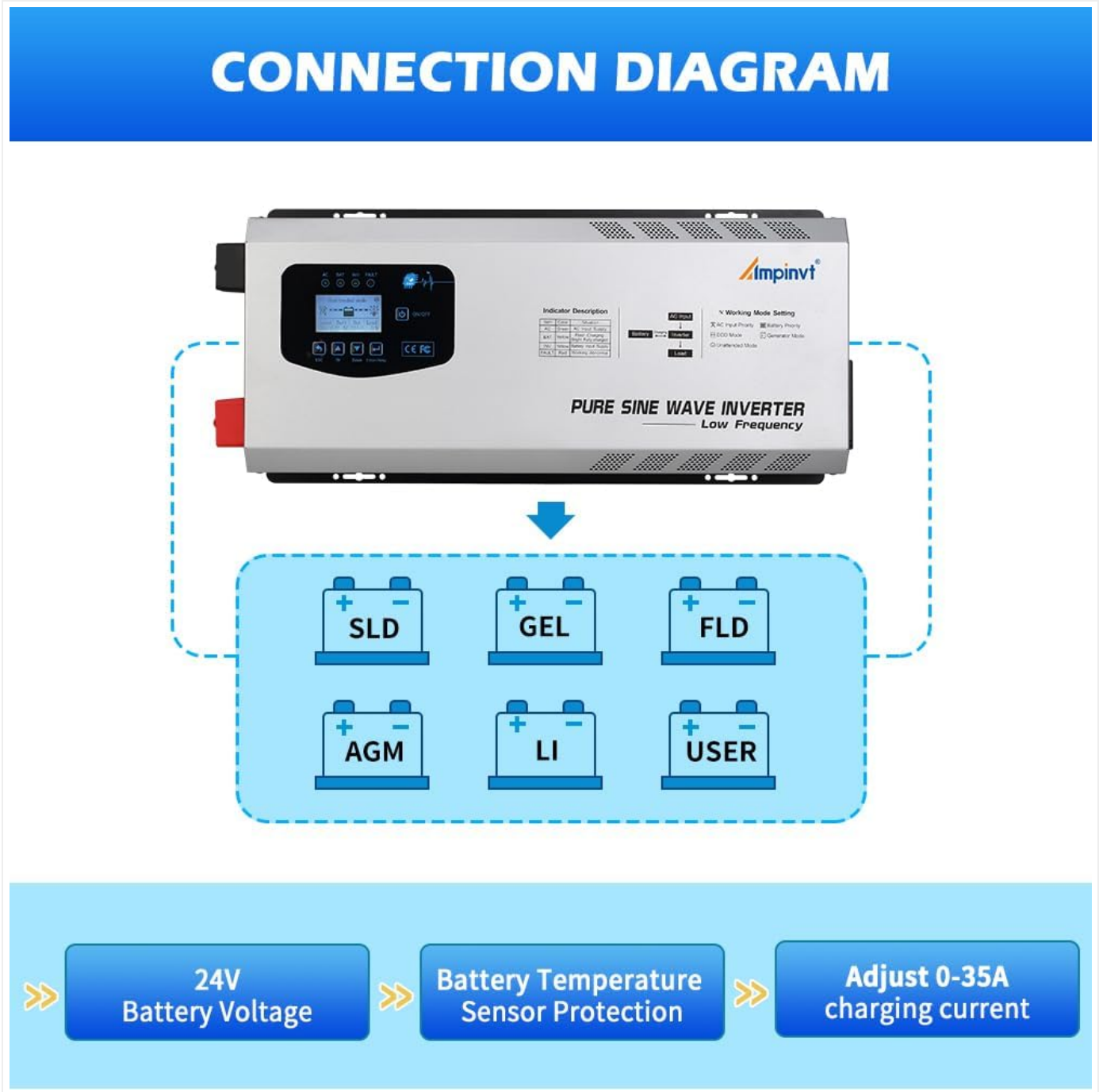

Figure 4: Supported battery types for the inverter.

The image displays icons for various battery types including SLD (Sealed Lead Acid), GEL, FLD (Flooded), AGM, LI (Lithium-ion), and USER (customizable settings). This highlights the inverter's versatility in battery compatibility.

- SLA (Sealed Lead Acid)
- AGM (Absorbent Glass Mat)
- GEL
- Li-ion (Lithium-ion, including LiFePO4)
- Customize (User-defined settings)

4.3 AC Wiring (Split Phase 120V/240V)

The inverter provides split-phase 120V/240V AC output. Ensure proper wiring for both input and output connections.

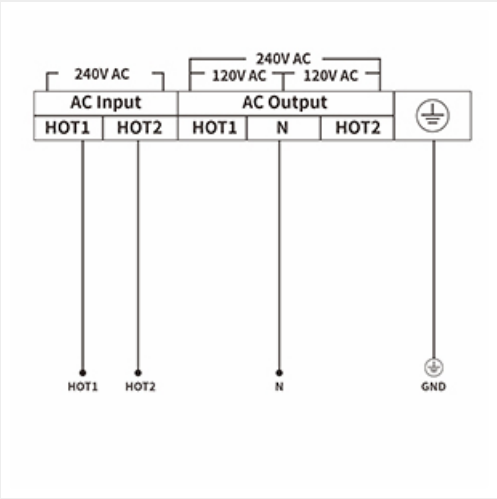

Figure 5: AC Wiring Diagram showing 240V AC input and 120V/240V AC output with Ground.

This diagram illustrates the connection of 240V AC input (HOT1, HOT2) and the corresponding 120V/240V AC output (HOT1, Neutral, HOT2) along with the Ground (GND) connection. This configuration is typical for split-phase systems.

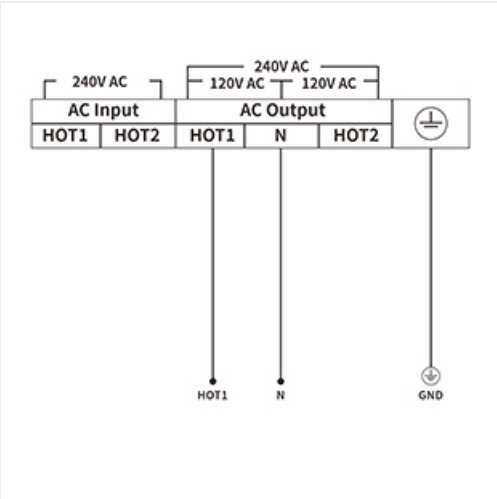

Figure 6: AC Wiring Diagram showing 240V AC input and 120V/240V AC output with Ground (alternative).

This diagram provides an alternative representation of the AC wiring, emphasizing the connections for HOT1, Neutral, HOT2, and Ground for both input and output, ensuring proper phase distribution.

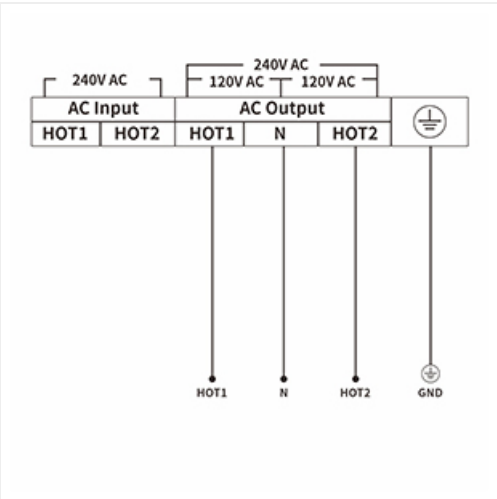

Figure 7: AC Wiring Diagram showing 240V AC input and 120V/240V AC output with Ground (simplified).

A simplified view of the AC wiring, reinforcing the connections for HOT1, Neutral, HOT2, and Ground, crucial for safe and functional split-phase operation.

5. Operating Modes

The inverter offers five distinct operating modes to optimize power management based on your specific needs.

1. **AC Priority Mode:**

   In this mode, the inverter prioritizes AC input (utility or generator) to power the load and automatically charges the battery. If AC input is lost, the inverter switches to battery power.

2. **Battery Priority Mode:**

   The inverter primarily uses battery power to supply the load. If the battery voltage drops below the low voltage protection threshold, it transfers to AC input. Once the battery is sufficiently recharged, it switches back to battery power.

3. **ECO Mode:**

   Designed for energy saving. If the load is less than 10% of the inverter's capacity, it enters an automatic sleep state and stops output. When the load exceeds 10%, it automatically restarts and resumes normal inversion.

4. **Generator Mode:**

   This mode is used when an unstable generator (e.g., 240V) is connected to the AC input. The inverter's built-in AVR regulator stabilizes the voltage and frequency (matching 60Hz) to provide a stable output within the normal operating range.

5. **Unattended Mode:**

   When the battery voltage is low, the inverter enters a power-saving standby state. It will automatically restore normal output once the battery voltage reaches a user-defined restore value (e.g., after solar charging), enabling fully automatic operation without manual intervention.

5.1 Adjustable Settings

- **Charging Current:** The maximum charging current can be adjusted from 0% to 100% (max 35A). Setting it to 0% disables the charging function.
- **Low Voltage Restore/Protect:** In Battery Priority and Unattended modes, you can set specific low voltage restore and low voltage protection thresholds for your battery bank.

6. Maintenance

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

- **Cleaning:** Keep the inverter clean and free from dust. Use a dry cloth to wipe the exterior. Do not use liquid cleaners.
- **Ventilation:** Periodically check that the ventilation openings are clear and unobstructed.
- **Connections:** Inspect all electrical connections (DC and AC) regularly to ensure they are tight and free from corrosion.
- **Battery Health:** Monitor your battery bank's health and charge levels. Ensure the battery type setting in the inverter matches your installed batteries.
- **Environmental Conditions:** Ensure the inverter is operating within its specified temperature and humidity ranges.

7. Troubleshooting

This section addresses common issues you might encounter. For problems not listed here, contact customer support.

Problem	Possible Cause	Solution

Problem	Possible Cause	Solution
Inverter not turning on	No battery connection, low battery voltage, power switch off.	Check battery connections, ensure battery is charged, turn on power switch.
No AC output	Overload, short circuit, high/low battery voltage, inverter fault.	Reduce load, check for short circuits, verify battery voltage, restart inverter.
Overload alarm	Connected load exceeds inverter capacity.	Disconnect some loads. Ensure total load is within continuous power rating (6000W).
Battery not charging	AC input not present, charging current set to 0%, battery fault.	Verify AC input, adjust charging current setting, check battery health.
Inverter shuts down in cold temperatures	Operating outside specified temperature range.	Ensure inverter is installed in an environment within its operating temperature range. Avoid extreme cold.

Figure 8: Examples of appliances and an important overload warning.

This image displays various household appliances such as air conditioners, drills, water pumps, TVs, washing machines, laptops, and kettles, which can be powered by the inverter. A prominent warning "Do not overload!" emphasizes the importance of staying within the inverter's capacity to prevent damage.

8. Specifications

Feature	Detail
Model Name	FT-6000W24V
Continuous Output Power	6000W
Peak Output Power	18000W
DC Input Voltage	24V DC
AC Output Voltage	120V / 240V AC Split Phase
Waveform	Pure Sine Wave
Transfer Efficiency	>90%
Max Charging Current	35A (Adjustable)
Product Dimensions	23.8 x 6.7 x 10.2 inches (60.45 x 17.02 x 25.91 cm)

Feature	Detail
Item Weight	60.9 pounds (27.62 kg)
Manufacturer	Top One Power

Figure 9: Physical dimensions of the inverter.

This image provides a visual representation of the inverter's dimensions: 650mm (length), 300mm (width), and 185mm (height), aiding in planning for installation space.

9. Warranty and Support

AMPINVT provides a warranty for this product. For specific warranty terms and conditions, please refer to the documentation included with your purchase or contact AMPINVT customer service.

- **Warranty Period:** One year for free maintenance or product replacement services.
- **Customer Service:** AMPINVT has established Customer Service Centers in the USA. For technical assistance or warranty claims, please contact the seller or AMPINVT directly.

10. Applicable Scenarios

This inverter is suitable for a variety of applications requiring reliable off-grid or backup power.

Figure 10: Examples of environments where the inverter can be used.

The image illustrates common application environments for the inverter, including residential homes, recreational vehicles (RVs), office settings, and boats, demonstrating its versatility for various power needs.