LVSEDTAL HSI5000U

LVSEDTAL HSI5000U 5KW Hybrid Solar Inverter

Instruction Manual

1. Introduction

This manual provides essential information for the safe and efficient operation of your LVSEDTAL HSI5000U 5KW Hybrid Solar Inverter. This high-frequency inverter is designed for reliable power conversion, offering both mains bypass and inverter output modes for an uninterrupted power supply. It features a rated power of 5000W/5500W at 48VDC and supports MPPT PV input ranging from 120V to 450V DC, with a maximum VOC of 500V. Please read this manual thoroughly before installation and use.

2. Product Overview

The LVSEDTAL HSI5000U is a compact and lightweight hybrid solar inverter, designed for stability and long-term performance. It integrates solar charging, AC charging, and inverter functions into a single unit.

Figure 2.1: Front view of the LVSEDTAL HSI5000U Hybrid Solar Inverter, highlighting key electrical specifications such as maximum solar charging current (80A), maximum AC charging current (60A), and maximum PV input VOC (500V).

2.1 Component Identification

Refer to the diagram below for a detailed view of the inverter's components and their respective functions.

Figure 2.2: Detailed component layout of the LVSEDTAL HSI5000U Hybrid Solar Inverter, showing the front panel and bottom connections.

1. **LCD Screen:** Displays operational parameters, battery status, and operating temperature.
2. **Indicator Lights:** Provide visual status of the inverter's operation.
3. **Touch Buttons:** For navigating menus and adjusting settings.
4. **AC Input Port:** Connection for grid power or generator AC input.
5. **AC Output Port:** Connection for AC loads.
6. **USB Port:** For communication and data transfer.
7. **RS485 Port:** For advanced communication and monitoring.
8. **Dry Node Port:** For external control or signaling.
9. **Grounding Screw Hole:** Essential for safety grounding.
10. **Overload Protection:** Circuit breaker for overload protection.
11. **Cooling Fan:** Temperature-controlled fan for heat dissipation.
12. **Battery Port:** Connections for the 48V DC battery bank.
13. **PV1 Port:** Connection for solar panel input.
14. **ON/OFF Rocker Switch:** Main power switch for the inverter.

3. Key Features

- **Rated Power:** 5000W/5500W, 48VDC.
- **MPPT PV Range:** 120V~450V DC, with a maximum 500V Voc input.
- **Maximum PV Charge Current:** 80A.
- **High Frequency Inverter:** Compact size and light weight design.
- **Pure Sine Wave AC Output:** Ensures compatibility with sensitive electronics.
- **Dual Output Modes:** Mains bypass and inverter output for uninterrupted power supply.
- **Four Charging Modes:** Only Solar, Mains Priority, Solar Priority, and Mains & Solar hybrid charging.
- **Power Saving Mode:** Reduces no-load loss for increased efficiency.
- **Compatible with Various Batteries:** Supports charging from solar, utility, or generator power.
- **LCD Display Controller:** Easy access to operating parameters, including battery status and operating temperature.
- **Multiple Protections:** Includes temperature-controlled cooling fan, low and high voltage, overload, short circuit, internal fuse, and battery reverse connection protection.

4. Setup and Installation

Safety First: Before beginning any installation, ensure all power sources are disconnected. Installation should be performed by qualified personnel in accordance with local electrical codes.

4.1 Mounting

- Mount the inverter vertically on a non-flammable surface.
- Ensure adequate clearance around the inverter for proper ventilation (at least 20 cm on all sides).
- Avoid direct sunlight, high temperatures, and high humidity environments.

4.2 Wiring Connections

Refer to Figure 2.2 for port locations. Ensure all connections are secure and correctly polarized.

1. **Grounding:** Connect the grounding screw hole (9) to a reliable earth ground.
2. **Battery Connection:** Connect the 48V DC battery bank to the Battery Port (12). Observe correct polarity (positive to positive, negative to negative).
3. **PV Input Connection:** Connect your solar panel array to the PV1 Port (13). Ensure the PV voltage is within the specified MPPT range (120V~450V DC) and does not exceed the maximum VOC of 500V.
4. **AC Input Connection:** Connect the utility grid or generator AC power to the AC Input Port (4).
5. **AC Output Connection:** Connect your AC loads to the AC Output Port (5).
6. **Communication Ports:** Connect USB (6) or RS485 (7) cables if external monitoring or communication is required.

Warning: Incorrect wiring can cause damage to the inverter, batteries, and connected devices, and poses a risk of electric shock. Always double-check all connections before powering on the unit.

5. Operating Modes

The inverter offers four distinct charging modes to optimize power management based on your preferences and available power sources. These modes can be configured via the LCD display and touch buttons.

- **Only Solar:** The inverter prioritizes charging the battery exclusively from solar power. Grid power is only used if

solar power is insufficient or unavailable.

- **Mains Priority:** The inverter prioritizes charging the battery from the utility grid (mains). Solar power is used as a secondary source if mains power is unavailable or to supplement charging.
- **Solar Priority:** The inverter prioritizes using solar power to supply loads and charge the battery. Grid power is only used when solar power is insufficient to meet load demands or charge the battery.
- **Mains & Solar Hybrid Charging:** This mode allows for simultaneous charging from both mains and solar power, optimizing charging speed and efficiency.

Consult the LCD screen (1) and touch buttons (3) to select and configure the desired operating mode.

6. Maintenance

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

- **Cleaning:** Periodically clean the exterior of the inverter with a dry, soft cloth. Ensure ventilation openings and cooling fans (11) are free from dust and debris. Do not use liquid cleaners.
- **Connection Check:** Annually inspect all wiring connections (battery, PV, AC input/output) to ensure they are tight and free from corrosion.
- **Environmental Check:** Ensure the installation environment remains within specified temperature and humidity ranges.
- **Battery Inspection:** Follow the manufacturer's maintenance guidelines for your battery bank.

Caution: Disconnect all power sources before performing any maintenance or cleaning.

7. Troubleshooting

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

Problem	Possible Cause	Solution
Inverter not powering on	Battery not connected or low voltage; ON/OFF switch off; no AC input.	Check battery connections and voltage; ensure ON/OFF switch (14) is on; verify AC input.
No AC output	Overload protection tripped; battery low; inverter fault.	Reduce load; check battery charge; check for error codes on LCD (1); reset overload protection (10).
PV charging not working	PV panels not connected; insufficient sunlight; PV voltage out of range.	Check PV connections (13); ensure adequate sunlight; verify PV voltage on LCD (1).
Unusual noise or smell	Internal component issue; overheating.	Immediately disconnect all power sources. Do not attempt to repair. Contact support.

8. Specifications

Parameter	Value
Model	HSI5000U
Rated Power	5000W / 5500W

Parameter	Value
Battery Voltage	48V DC
MPPT PV Voltage Range	120V ~ 450V DC
Max. PV Open Circuit Voltage (VOC)	500V DC
Max. PV Charge Current	80A
Max. AC Charge Current	60A
AC Output Waveform	Pure Sine Wave
Output Voltage (AC)	110V / 120V / 220V (Configurable)
Manufacturer	LVSEDTAL

9. Warranty and Support

For warranty information and technical support, please refer to the warranty card included with your product or contact your point of purchase. Keep your purchase receipt as proof of purchase for warranty claims.
For further assistance, please visit the official LVSEDTAL website or contact their customer service department.