**SUN S-2330**

# SUN S-2330 3KVA Hybrid Solar Inverter User Manual

Model: S-2330

## 1. Introduction

Thank you for choosing the SUN S-2330 3KVA Pure Sine Wave Hybrid Solar Inverter. This manual provides essential information for the safe and efficient installation, operation, and maintenance of your inverter. Please read this manual thoroughly before installation and operation to ensure optimal performance and safety.

### 1.1 Safety Instructions

- Installation must be performed by qualified personnel.
- Ensure all wiring is correctly connected and securely fastened.
- Do not attempt to repair the inverter yourself. Contact qualified service personnel.
- Keep the inverter away from water, excessive heat, and flammable materials.
- Ensure proper ventilation around the inverter to prevent overheating.

## 2. Product Overview

The SUN S-2330 is a 3KVA hybrid solar inverter designed to seamlessly integrate solar power, utility power, and battery power to provide continuous power supply. It features a built-in MPPT (Maximum Power Point Tracking) charge controller to optimize solar input and multiple protection features for enhanced safety and reliability.

### 2.1 Key Features

- 3KVA / 3000VA Pure Sine Wave output.
- Integrated MPPT solar charge controller for optimized solar energy harvesting.
- Hybrid functionality for flexible power source management (solar, utility, battery).
- Multiple protection features: overload, short-circuit, battery low voltage.
- User-friendly LCD display and button interface for system monitoring and configuration.

### 2.2 Front Panel Components


**Figure 1:** Front panel of the SUN S-2330 Hybrid Solar Inverter. This image displays the front panel of the SUN S-2330 Hybrid Solar Inverter. It features a digital display screen, control buttons (ENTER, ESC, UP, DOWN), and indicators for system status. The branding 'SUN SOLAR INVERTER' and model 'S-2330 Hybrid Solar Inverter' are visible, along with 'MPPT solar controller+Ups' and 'Germany Technology'.

- **LCD Display:** Shows system status, input/output voltages, battery level, and other operational parameters.
- **ENTER Button:** Confirms selections and saves settings.
- **ESC Button:** Cancels current operation or exits a menu.
- **UP/DOWN Buttons:** Navigates through menu options and adjusts parameter values.
- **Status Indicators:** LEDs for various operational states (e.g., AC input, inverter output, fault).

## 3. Setup and Installation

Proper installation is crucial for the safe and efficient operation of the inverter. Please follow these guidelines carefully.

### 3.1 Mounting the Inverter

- Choose a dry, well-ventilated area, away from direct sunlight and heat sources.
- Mount the inverter vertically on a sturdy wall or surface.
- Ensure adequate clearance (at least 20 cm) around the inverter for proper airflow.
- Avoid mounting in areas with corrosive gases or excessive dust.

### 3.2 Wiring Connections

**WARNING:** Ensure all power sources (solar, utility, battery) are disconnected before making any wiring connections. Incorrect wiring can cause damage to the inverter, batteries, or connected appliances, and poses a risk of electric shock.

1. **Battery Connection:** Connect the battery bank to the inverter's battery terminals. Ensure correct polarity (+ to + and - to -). Use appropriate cable gauges for the current.
2. **Solar Panel Connection:** Connect the solar panel array to the inverter's PV input terminals. Observe correct polarity and ensure the open-circuit voltage (Voc) and maximum power current (Imp) of the solar array are within the inverter's specifications.
3. **AC Input Connection:** Connect the utility grid power to the AC input terminals. This connection provides power to charge batteries and supply loads when solar power is insufficient.
4. **AC Output Connection:** Connect your loads (appliances, distribution board) to the AC output terminals.
5. **Grounding:** Connect the inverter's ground terminal to a reliable earth ground.

## 4. Operating Instructions

Once the inverter is properly installed and wired, you can begin operation.

### 4.1 Powering On/Off

- **To Power On:** Ensure all connections are secure. Turn on the battery breaker first, then the solar array breaker, and finally the AC input breaker (if connected). Press and hold the power button (if available, otherwise the inverter may power on automatically upon battery connection).
- **To Power Off:** Disconnect AC input power, then solar array power, and finally the battery power.

### 4.2 LCD Display and Button Functions

The LCD display provides real-time information about the inverter's status and allows for configuration of various parameters.

- **Navigating Menus:** Use the **UP** and **DOWN** buttons to scroll through different display screens or menu options.
- **Entering Settings:** Press the **ENTER** button to access a menu or confirm a selection.
- **Modifying Parameters:** Once in a setting, use **UP** and **DOWN** to change values. Press **ENTER** to save the new value.
- **Exiting Menus:** Press the **ESC** button to return to the previous screen or exit the settings menu.

### 4.3 Operational Modes

The inverter typically supports various operational modes, which can be configured via the LCD display. Common modes include:

- **Solar Priority:** Solar power is the primary source for loads and battery charging. Utility power is used only when solar is insufficient.
- **Utility Priority:** Utility power is the primary source. Solar power is used when utility power is unavailable or for charging batteries.
- **Battery Priority:** Batteries are the primary source. Utility or solar power is used only when battery voltage drops below a set level.

## 5. Maintenance

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

### 5.1 Routine Checks

- Periodically inspect all wiring connections for tightness and signs of corrosion.
- Check the inverter's ventilation openings for dust or obstructions. Clean as necessary.
- Monitor the LCD display for any error codes or unusual readings.

### 5.2 Cleaning

- Ensure the inverter is powered off and disconnected from all power sources before cleaning.
- Use a soft, dry cloth to wipe the exterior of the inverter.
- Use a vacuum cleaner or compressed air to remove dust from ventilation openings.
- Do not use liquid cleaners or solvents.

### 5.3 Battery Maintenance

Refer to your battery manufacturer's manual for specific maintenance instructions. Generally:

- Ensure battery terminals are clean and free of corrosion.
- Check battery electrolyte levels for flooded lead-acid batteries and top up with distilled water if necessary.
- Monitor battery voltage and health regularly.

## 6. Troubleshooting

This section provides solutions to common issues you might encounter.

| Problem | Possible Cause | Solution |
|---|---|---|
| Inverter not turning on | No battery connection or low battery voltage. | Check battery connections and ensure battery voltage is above the minimum operating level. |
| No AC output | Overload, short circuit, or fault condition. | Reduce load, check for short circuits in wiring, restart inverter. |
| Low solar charging current | Shaded solar panels, dirty panels, or incorrect PV wiring. | Clear shading, clean panels, verify PV connections and voltage. |
| Inverter beeping continuously | Overload warning, high temperature, or battery low alarm. | Check display for specific error code. Reduce load, ensure ventilation, check battery status. |

If the problem persists after attempting these solutions, please contact customer support.

## 7. Specifications

Technical specifications for the SUN S-2330 Hybrid Solar Inverter.

| Parameter | Value |
|---|---|

| Parameter | Value |
|---|---|
| Model | S-2330 |
| Rated Power | 3000VA / 3000W |
| Waveform | Pure Sine Wave |
| Battery Voltage | 24VDC (Typical) |
| Max. PV Array Power | Up to 4000W (Estimated) |
| MPPT Voltage Range | 60-115VDC (Estimated) |
| Max. PV Array Open Circuit Voltage | 145VDC (Estimated) |
| Max. Solar Charge Current | 80A (Estimated) |
| AC Input Voltage Range | 90-280VAC (Configurable) |
| AC Output Voltage | 230VAC ± 5% |
| Efficiency (Peak) | 90% - 93% (Estimated) |
| Protection | Overload, Short Circuit, Over Temperature, Battery Over/Under Voltage |

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

## 8. Warranty and Support

The SUN S-2330 Hybrid Solar Inverter comes with a standard manufacturer's warranty against defects in materials and workmanship. Please retain your proof of purchase for warranty claims.

For technical support, troubleshooting assistance, or warranty inquiries, please contact your local dealer or the product's customer service department. Provide your product model number (S-2330) and a detailed description of the issue when seeking support.