**Nairtech Sml Iii 3.5kw**

# Nairtech Sml Iii 3.5kw Hybrid Solar Inverter User Manual

## 1. Introduction

This manual provides essential information for the safe and efficient operation of your Nairtech Sml Iii 3.5kw Hybrid Solar Inverter. Please read this manual thoroughly before installation and use, and retain it for future reference. This inverter is designed to convert direct current (DC) from solar panels into alternating current (AC) for household or commercial use, offering both grid-tied and off-grid capabilities with battery support and direct PV power supply.

## 2. Safety Instructions

Observe the following safety precautions to prevent injury and damage to the inverter:

- Installation must be performed by qualified personnel in accordance with local electrical codes.
- Ensure all power sources, including solar panels and batteries, are disconnected before installation or maintenance.
- Do not attempt to disassemble or repair the inverter. Refer all servicing to authorized service personnel.
- Avoid contact with live terminals. High voltages are present inside the inverter.
- Install the inverter in a well-ventilated area, away from flammable materials and direct sunlight.
- Ensure proper grounding of the inverter.

## 3. Product Overview

The Nairtech Sml Iii 3.5kw Hybrid Solar Inverter is a versatile power solution integrating a pure sine wave inverter, a 100A MPPT solar charger, and a battery charger in one compact unit. It is designed for optimal energy management in various solar power systems.

### Key Features:

- Pure sine wave output for sensitive electronics.
- Integrated 100A MPPT solar charge controller for maximum power point tracking.
- Wide PV input voltage range of 120-500VDC.
- Supports various battery types, including lithium batteries.
- Capable of operating without a battery, directly supplying power from PV to load.
- High PV to AC conversion efficiency.
- Built-in WiFi for remote monitoring and control.

## Components:

The inverter features a robust casing, an LCD display for system status, and various connection terminals for PV input, battery, AC input, and AC output.

Figure 1: Front view of the Nairtech Sml Iii 3.5kw Hybrid Solar Inverter, showing the display and control panel.


Figure 2: The inverter unit highlighting key specifications such as 3.5KW rated power, 230VAC voltage, 80A max charge current, and 500VDC max PV array voltage.

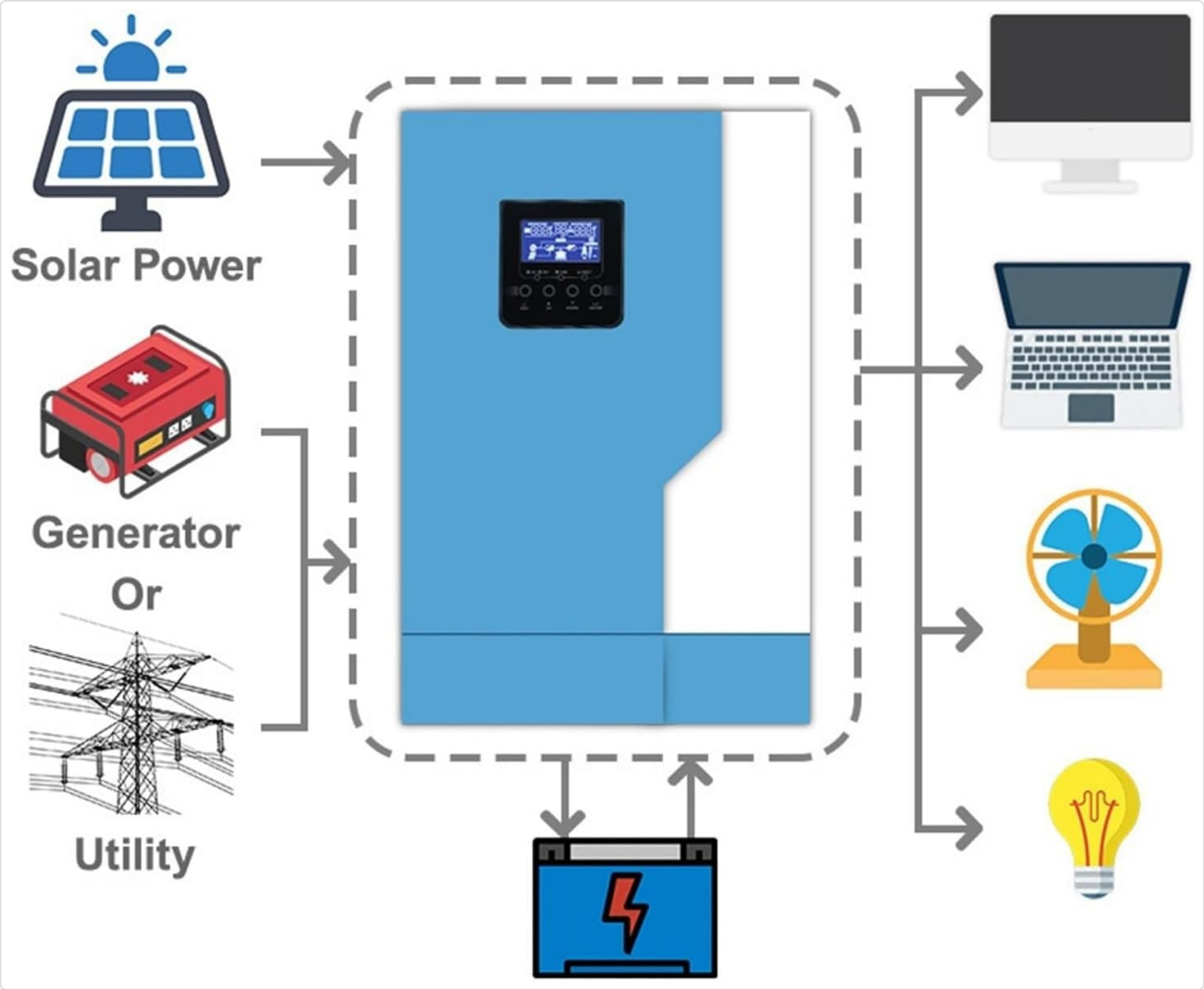


Figure 3: A system diagram illustrating the inverter's role in a hybrid solar setup, connecting solar panels, generator/utility, and battery to power various loads like computers and fans.

## 4. Setup

### 4.1 Mounting the Inverter

- Choose a suitable location that is dry, well-ventilated, and protected from direct sunlight and moisture.
- Ensure sufficient clearance around the inverter for proper heat dissipation.
- Mount the inverter vertically on a sturdy wall using appropriate fasteners.

### 4.2 Wiring Connections

All wiring must comply with local electrical codes and standards. Use appropriately sized cables for all connections.

1. **Battery Connection:** Connect the battery cables to the inverter's battery terminals, ensuring correct polarity (positive to positive, negative to negative).
2. **PV Array Connection:** Connect the solar panel array to the PV input terminals. Verify that the PV input voltage and current are within the inverter's specifications.
3. **AC Input Connection:** Connect the utility grid or generator AC input to the designated AC input terminals.
4. **AC Output Connection:** Connect your loads (appliances, circuits) to the AC output terminals.
5. **Grounding:** Ensure the inverter chassis is properly grounded to a reliable earth ground.

# 5. Operating

## 5.1 Powering On/Off

1. After all connections are secure, switch on the battery breaker (if applicable).
2. Switch on the PV array breaker (if applicable).
3. Switch on the AC input breaker (if applicable).
4. Finally, switch on the inverter's power button. The LCD display will illuminate, indicating system startup.
5. To power off, reverse the sequence: inverter off, then AC input, PV array, and battery.

## 5.2 LCD Display and Settings

The LCD display provides real-time information on system status, including input/output voltages, currents, power, battery status, and fault codes. Use the navigation buttons (UP, DOWN, ENTER, ESC) to browse menus and adjust settings. Refer to the detailed menu structure in the full manual for specific parameter adjustments, such as charging current, output voltage, and operating modes (e.g., Solar Priority, Utility Priority, SBU Priority).

## 5.3 WiFi Monitoring

The built-in WiFi module allows for remote monitoring and control via a dedicated mobile application or web interface. Follow the instructions provided with the WiFi module for initial setup and connection to your local network.

# 6. Maintenance

Regular maintenance ensures optimal performance and longevity of your inverter.

- **Cleaning:** Periodically clean the inverter's exterior and ventilation openings to prevent dust accumulation, which can hinder cooling. Use a dry, soft cloth.
- **Connections Check:** Annually inspect all electrical connections for tightness and signs of corrosion.
- **Environmental Check:** Ensure the installation environment remains within specified temperature and humidity ranges.
- **Battery Inspection:** If using lead-acid batteries, check electrolyte levels and terminal conditions as per battery manufacturer guidelines.

# 7. Troubleshooting

This section outlines common issues and their potential solutions. For complex problems, contact technical support.

| Problem | Possible Cause | Solution |
|---|---|---|
| Inverter not powering on | No battery connection, low battery voltage, or power switch off. | Check battery connections and voltage. Ensure power switch is ON. |
| No AC output | Overload, short circuit, or inverter in fault mode. | Reduce load. Check for short circuits. Restart inverter. |

| Problem | Possible Cause | Solution |
|---|---|---|
| PV charging not active | Insufficient PV input voltage/current, or PV connection issue. | Check PV array connections. Ensure adequate sunlight. Verify PV voltage. |
| WiFi connection failure | Incorrect network settings, weak signal, or module fault. | Verify WiFi settings. Ensure inverter is within router range. Consult WiFi module manual. |

## 8. Specifications

| Parameter | Value |
|---|---|
| Model | Sml Iii 3.5kw |
| Rated Power | 3500W |
| Inverter Type | Hybrid, Pure Sine Wave |
| Max PV Input Voltage | 500VDC |
| MPPT Charge Current | 100A |
| PV Input Power (Max) | 6000W |
| Battery Voltage | 24V (typical, check specific model) |
| Communication | WiFi |

## 9. Warranty and Support

For warranty information, please refer to the warranty card included with your product or contact your point of purchase. For technical support, troubleshooting assistance, or service inquiries, please contact Nairtech customer service through their official website or the contact details provided in your product packaging. When contacting support, please have your model number and purchase date available.