

sako E-SUN 3KVA/2700W

SAKO E-SUN Off Grid Pure Sine Wave Solar Inverter

Model: E-SUN 3KVA/2700W

1. INTRODUCTION

This manual provides essential information for the installation, operation, and maintenance of your SAKO E-SUN Off Grid Pure Sine Wave Solar Inverter. This inverter is designed to provide reliable power for various applications, including RVs and home use, by converting DC power from solar panels and batteries into stable AC power. Please read this manual thoroughly before installation and operation to ensure optimal performance and safety.

2. SAFETY INFORMATION

Always observe the following safety precautions to reduce the risk of injury or damage to the inverter.

- **Electrical Safety:** Installation must be performed by qualified personnel. Ensure all wiring complies with local and national electrical codes. Disconnect all power sources before performing any maintenance or wiring.
- **Ventilation:** Install the inverter in a well-ventilated area to prevent overheating. Do not block ventilation openings.
- **Environment:** Avoid installing the inverter in direct sunlight, near heat sources, or in environments with excessive dust, humidity, or corrosive substances.
- **Battery Safety:** Work with batteries carefully. Wear eye protection. Batteries can produce explosive gases.
- **Handling:** The inverter is heavy. Use proper lifting techniques or assistance during installation.

3. PRODUCT OVERVIEW

The SAKO E-SUN inverter is a versatile device integrating an MPPT solar charge controller, pure sine wave inverter, and AC charger. It offers multiple charging and output modes to suit various power needs.

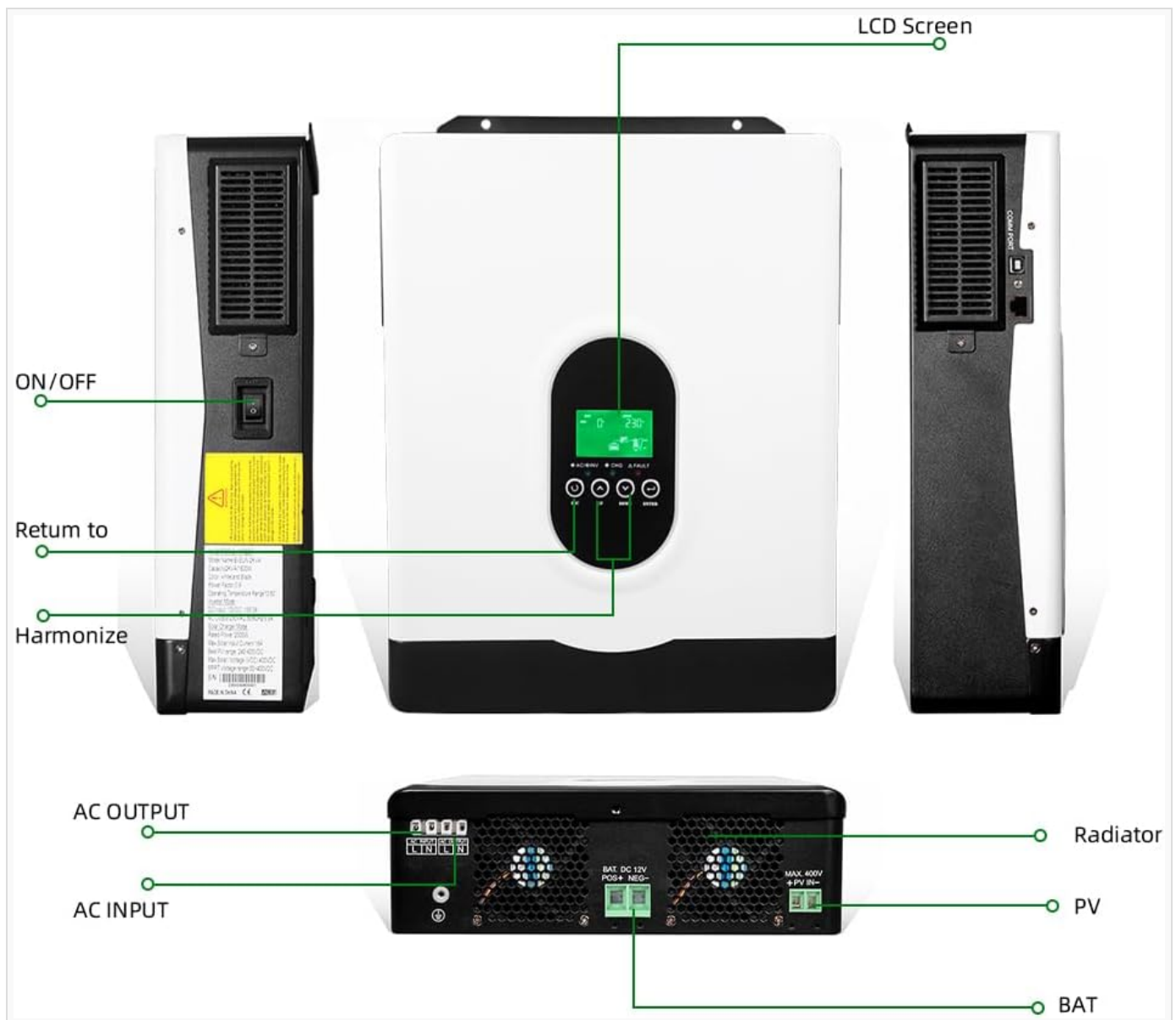


Figure 3.1: Front and side views of the SAKO E-SUN inverter with labeled components including the LCD screen, ON/OFF switch, AC output, AC input, radiator, PV input, and battery terminals.

Key Features:

- Integrated 80A MPPT Solar Charge Controller for high efficiency (up to 95% conversion).
- Wide PV Input Range (30-400VDC).
- Pure Sine Wave Output for sensitive electronics.
- Configurable AC/Solar priority via LCD setting.
- Multiple charging modes: Only Solar, Mains First, Solar First, Mains & Solar hybrid.
- Three output modes: Solar First, Mains First, SBU Priority.
- Built-in protections: Overload, Short Circuit, Overvoltage, Undervoltage.
- Compatible with LiFePo4 batteries.
- Economic design, can start with just one 36V solar panel.



Figure 3.2: Visual representation of the inverter's key attributes, including versatility, safety features, high power output, warranty support, ease of use, and factory quality.

4. SETUP AND INSTALLATION

Follow these steps carefully for proper installation of your SAKO E-SUN inverter.

4.1. Pre-installation Checklist:

- Ensure the mounting surface is strong enough to support the inverter's weight.
- Verify adequate clearance around the inverter for ventilation (at least 20 cm on all sides).
- Have all necessary tools and wiring ready.
- Confirm battery voltage matches the inverter's requirements (24V for E-SUN 3KVA/2700W).

4.2. Wiring Connections:

Refer to the system connection diagram below for proper wiring sequence.



Figure 4.1: Solar System Connection Diagram. This diagram illustrates how the solar panel, utility grid, generator, and lithium battery connect to the inverter, which then supplies power to home appliances.

1. **Battery Connection:** Connect the battery cables to the inverter's battery terminals. Ensure correct polarity (+ to + and - to -).
2. **AC Input Connection:** Connect the AC input from the utility grid or generator to the inverter's AC input terminals.
3. **AC Output Connection:** Connect your home appliances or load center to the inverter's AC output terminals.
4. **PV Array Connection:** Connect the solar panel array to the inverter's PV input terminals. Ensure the PV voltage is within the specified range (30-400VDC).

4.3. Initial Power-Up:

1. After all connections are secure, switch on the battery breaker (if applicable).
2. Switch on the inverter's ON/OFF switch. The LCD display should light up.
3. If connected, switch on the AC input breaker.
4. Finally, switch on the AC output breaker to power your appliances.

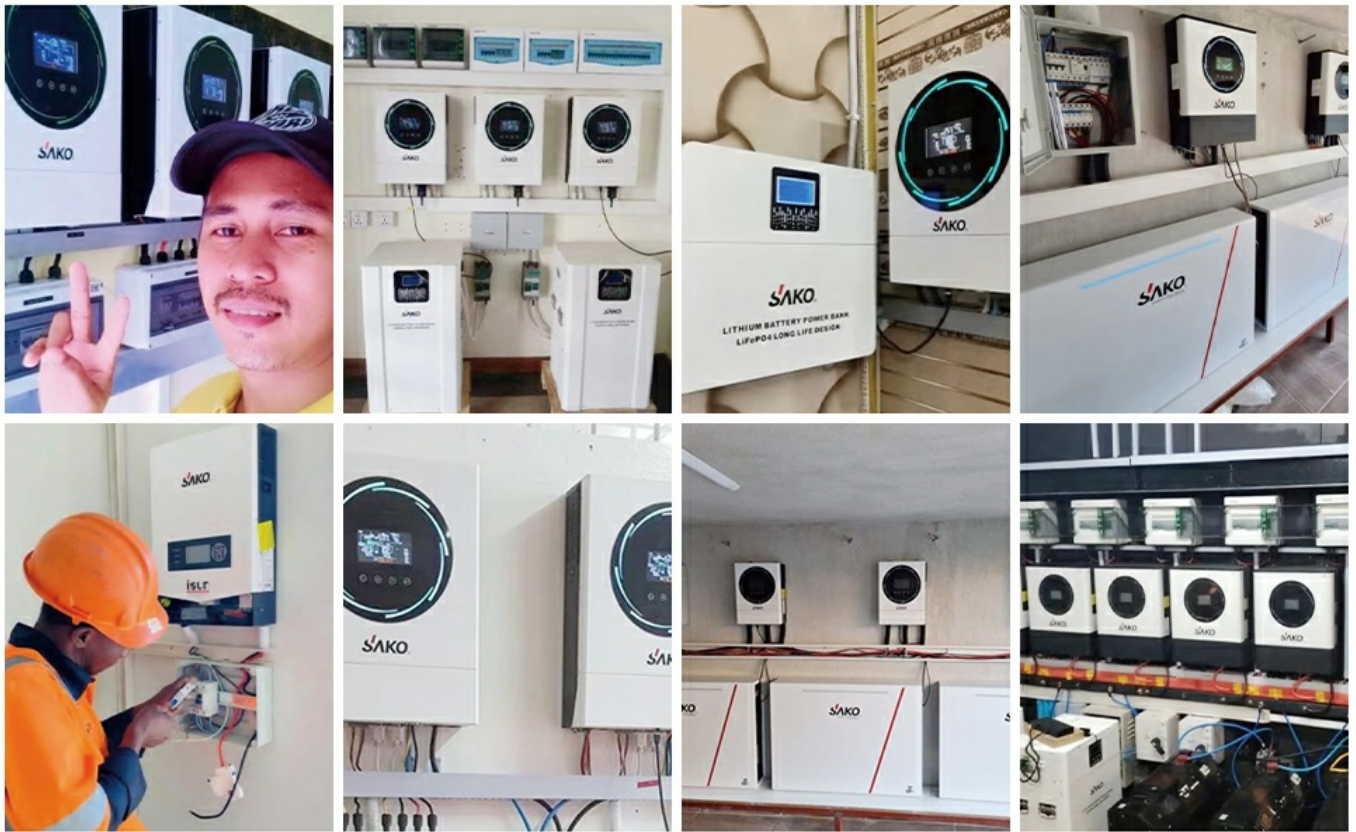


Figure 4.2: Examples of SAKO inverter installations in different settings, demonstrating typical mounting and wiring configurations.

5. OPERATING INSTRUCTIONS

The SAKO E-SUN inverter features an intuitive LCD display and buttons for configuration and monitoring.

5.1. LCD Display and Buttons:

The LCD screen provides real-time status information, including input voltage, output voltage, battery status, and operating mode. Use the buttons below the screen to navigate menus and adjust settings.

5.2. Setting Charging Modes:

The inverter supports various charging priorities to optimize energy usage:

- **Only Solar:** Prioritizes solar power for charging batteries.
- **Mains First:** Prioritizes utility grid power for charging, with solar as a backup.
- **Solar First:** Prioritizes solar power for charging, with utility grid as a backup.
- **Mains & Solar Hybrid:** Utilizes both mains and solar power for charging.

5.3. Setting Output Modes:

You can configure how the inverter supplies power to your loads:

- **Solar First:** Prioritizes solar power to supply loads. If solar is insufficient, it switches to battery, then to mains.
- **Mains First:** Prioritizes utility grid power to supply loads. If mains is unavailable, it switches to battery, then to solar.
- **SBU Priority (Solar-Battery-Utility):** Prioritizes solar power, then battery power, and finally utility grid power for loads.

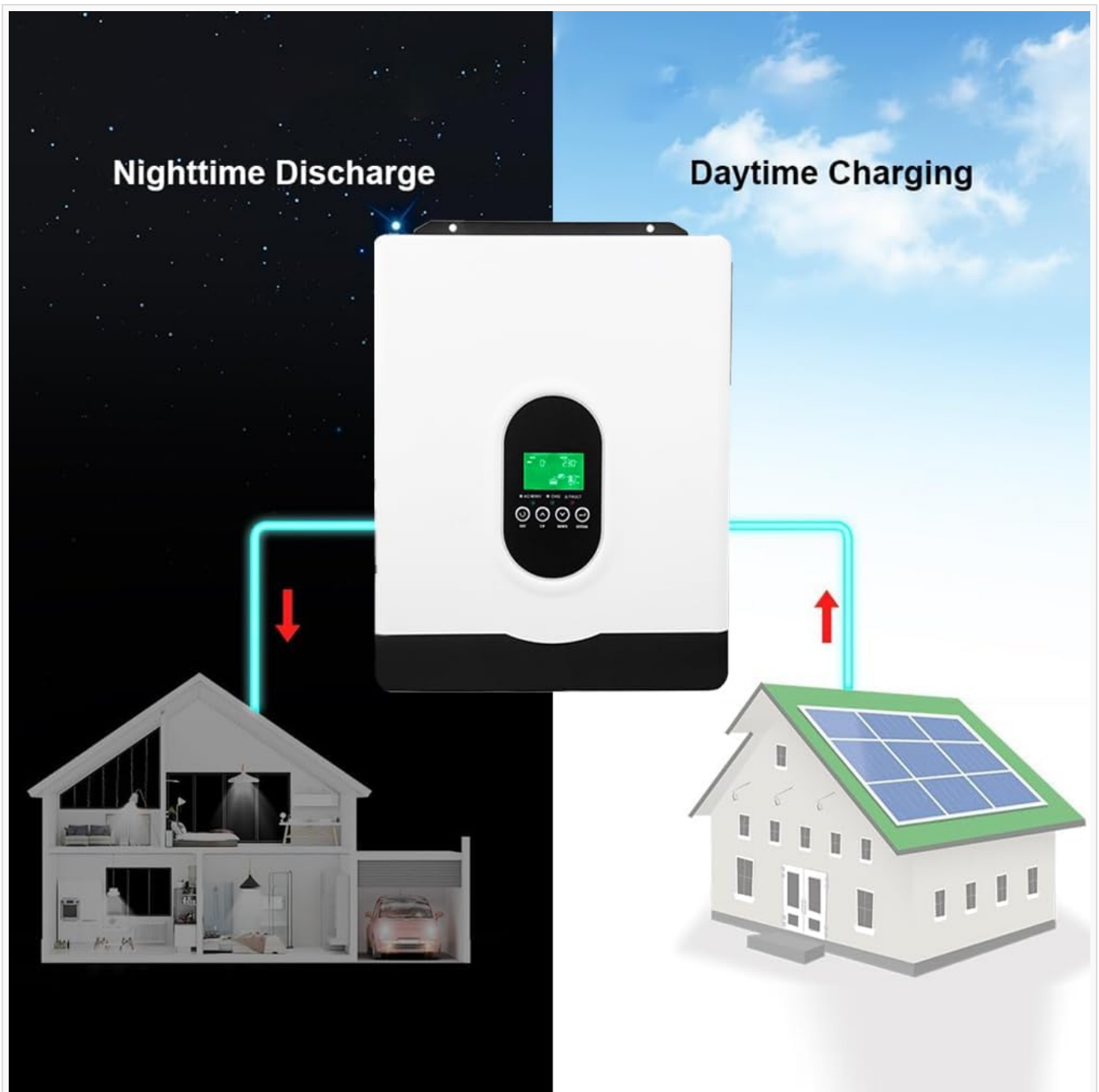


Figure 5.1: Operational concept showing how the inverter manages power flow for daytime charging from solar and nighttime discharge from batteries to power a home.

6. MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your SAKO E-SUN inverter.

- **Cleaning:** Periodically clean the inverter's exterior with a dry cloth. Ensure ventilation openings are free from dust and debris. Do not use liquid cleaners.
- **Connection Checks:** Annually inspect all wiring connections for tightness and signs of corrosion. Loose connections can cause overheating and damage.
- **Battery Inspection:** Regularly check battery terminals for corrosion and ensure proper ventilation around batteries. Follow battery manufacturer's maintenance guidelines.
- **Environmental Check:** Ensure the installation environment remains within specified temperature and humidity ranges.

7. TROUBLESHOOTING

If you encounter issues with your inverter, refer to the following common problems and solutions.

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 low voltage cut-off. Charge battery if necessary.
No AC output	Overload, short circuit, or high/low voltage alarm.	Reduce load, check for short circuits, or wait for voltage to stabilize. Check error codes on LCD.
Battery not charging from solar	PV input voltage too low/high, solar panel issues, or MPPT controller fault.	Check PV array connections and voltage. Ensure solar panels are clean and not shaded.
Unusual noise or smell	Internal component failure or severe overload.	Immediately disconnect all power sources. Do not attempt to repair. Contact customer support.

For persistent issues or error codes not listed, please contact customer support.

8. SPECIFICATIONS

Detailed technical specifications for the SAKO E-SUN 3KVA/2700W model.

Off Grid MPPT Solar Inverter

TECHNICAL PARAMETER

TECHNICAL PARAMETER			
Model SUNON E series	E-SUN 1.2KVA	E-SUN 2KVA	E-SUN 3KVA
The rated power	1200VA/1200W	2000VA/1600W	3000VA/2700W
INPUT			
Voltage	230VAC		230VAC
Selectable Voltage Range	170-280VAC (UPS),90-280VAC (Appliances)		
Frequenecy Range	50Hz/60Hz (Auto sensing)		
OUTPUT			
AC Voltage Regulation (Batt. Model)	230VAC ± 5%		
Surge Power	2000VA		6000VA
Power factor	0.8		0.9
Efficiency(Peak)	> 90%		> 90%
Transfer Time	10ms (UPS), 20ms (Appliances)		
Wave form	Pure sine wave		
No load current	1.0A		

Figure 8.1: Technical Parameters (Part 1) - Model, Rated Power, Input, and Output specifications.

BATTERY			
Battery voltage	12VDC		24VDC
Low battery alarming voltage	11.0VDC		22.0VDC
Low battery cut off protection voltage	10.5VDC		21VDC
Low battery recovery voltage	11.5VDC		23.0VDC
Floating Charge Voltage	13.5VDC		27VDC
Overcharge Protection	16.0VDC		32VDC
MPPT SOLAR CHARGER & AC CHARGER			
Maximum PV Array Power	2000W		3200W
MPPT Range Operation Vol	30-400VDC		30-430VDC
Maximum PV Array Open Circuit Vol.	400VDC		450VDC
Number of MPPT trackers / Max output current	80A		80A
Maxmum AC Charge Current	60A		60A
Maxmum Efficiency	98%		98%
BEST PANEL CONFIGUTATION			
Maximum PV Array Power	2000W	2000W	3000W
Best Panel configuration	550W 2-3PCS in 1 S	550W 2-4 PCS in 1 S	550W 2-5 PCS in 1 S

Figure 8.2: Technical Parameters (Part 2) - Battery, MPPT Solar Charger & AC Charger, and Best Panel Configuration details.

PHYSICAL		
Products Dimension, D*W*H(mm)	350mm*270mm*98mm	350mm*270mm*98mm
Packing size, D*W*H(mm)	413mm*350mm*173mm	413mm*350mm*173mm
Net Weight (kgs)	4KG	5KG
G.W. kg	5KG	5.8KG
Communication Interface	RS232/GPRS/ Optional WIFI	
OPERATING ENVIRONMENT		
Humidity	5% to 95% Relative Humidity (Non-condensing)	5% to 95% Relative Humidity (Non-condensing)
Operation Temperature	-10°C-50°C	-10°C-50°C

Figure 8.3: Technical Parameters (Part 3) - Physical dimensions and Operating Environment specifications.

Specification	Value (E-SUN 3KVA/2700W)
Model Name	E-SUN 3KVA/2700W

Specification	Value (E-SUN 3KVA/2700W)
Wattage	3 KW
Power Source	Solar Powered
Recommended Uses	Home, RV
Manufacturer	SAKO
Country of Origin	United Arab Emirates
Date First Available	15 November 2024
Battery Voltage	24VDC
MPPT Range Operation Vol	30-430VDC
Maximum PV Array Open Circuit Vol.	450VDC
Maximum MPPT Output Current	80A
Maximum AC Charge Current	60A
Efficiency (Peak)	> 90%
Product Dimensions (D*W*H)	350mm*270mm*98mm
Net Weight	5KG
Operating Temperature	-10°C-50°C
Humidity	5% to 95% Relative Humidity (Non-condensing)

9. WARRANTY AND SUPPORT

Your SAKO E-SUN inverter comes with standard warranty coverage. For specific details regarding your warranty period and terms, please refer to your purchase documentation.

Extended Warranty Options:

- 1-Year Extended Warranty by Salama Care (E-mail delivery)
- 2-Year Extended Warranty by Salama Care (E-mail delivery)

For technical support, troubleshooting assistance, or warranty claims, please contact the seller or manufacturer directly. You can visit the [sako Store on Amazon](#) or contact the seller [Sako solar](#) for assistance.

© 2024 SAKO. All rights reserved.

ASK A QUESTION ABOUT THIS MANUAL

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page’s manual context to help answer it.

Name

Anonymous

Email

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. [Privacy details](#).

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question