sako SUNPOLO 11KW

Sako SUNPOLO 11KW Hybrid Solar Inverter User Manual

Model: SUNPOLO 11KW

1. Introduction

This manual provides essential information for the safe and efficient operation of your Sako SUNPOLO 11KW Hybrid Solar Inverter. This advanced inverter is designed to integrate solar power, battery storage, and grid electricity, offering a reliable and flexible energy solution for residential applications. Please read this manual thoroughly before installation and operation to ensure proper use and longevity of the product.

Image 1.1: Front view of the Sako SUNPOLO 11KW Hybrid Solar Inverter, showcasing its compact design and integrated display.

2. Safety Information

Always adhere to the following safety precautions to prevent injury, damage to the inverter, or other property damage. Installation and maintenance should only be performed by qualified personnel.

- Do not attempt to disassemble or repair the inverter yourself. Refer all servicing to qualified personnel.
- Ensure the inverter is installed in a well-ventilated area, away from flammable materials and direct sunlight.
- Verify all wiring connections are secure and correctly polarized before powering on the system.
- The inverter contains high voltage components. Exercise extreme caution during installation and operation.
- This inverter includes built-in protections against overload, short circuit, overvoltage, undervoltage, and overtemperature. However, proper system design and external protection devices are still recommended.

Image 2.1: Angled view of the Sako SUNPOLO 11KW Hybrid Solar Inverter, showing its side ventilation and robust casing.

3. Product Features

The Sako SUNPOLO 11KW Hybrid Solar Inverter is equipped with advanced features to optimize your solar energy system:

- **BMS Battery System Compatibility:** Supports communication via USB, RS232, RS485, and Dry-Contact. Capable of operating with or without a battery system.
- **Dual MPPT & AC Output:** Features two independent 27A Maximum Power Point Trackers (MPPT) for efficient solar energy harvesting. Provides dual AC outputs (L1/L2) and supports On-Grid, Off-Grid, and Hybrid operating modes.
- **Capacity Expansion:** Up to six inverters can be combined in parallel for increased system capacity.
- **High Performance:** Delivers 11000W output power with a maximum PV input DC voltage of 450VDC and a conversion efficiency of up to 96%.

- **Smart Monitoring:** Built-in Wi-Fi allows monitoring of working status via a mobile application. The LCD screen enables configuration of DC/AC input priority, battery type, and charging current.
- **Comprehensive Safety:** Includes integrated overload protection, short circuit protection, overvoltage protection, undervoltage protection, and overtemperature protection to ensure household electrical safety. Compatible with AC/DC inputs, including diesel generators.

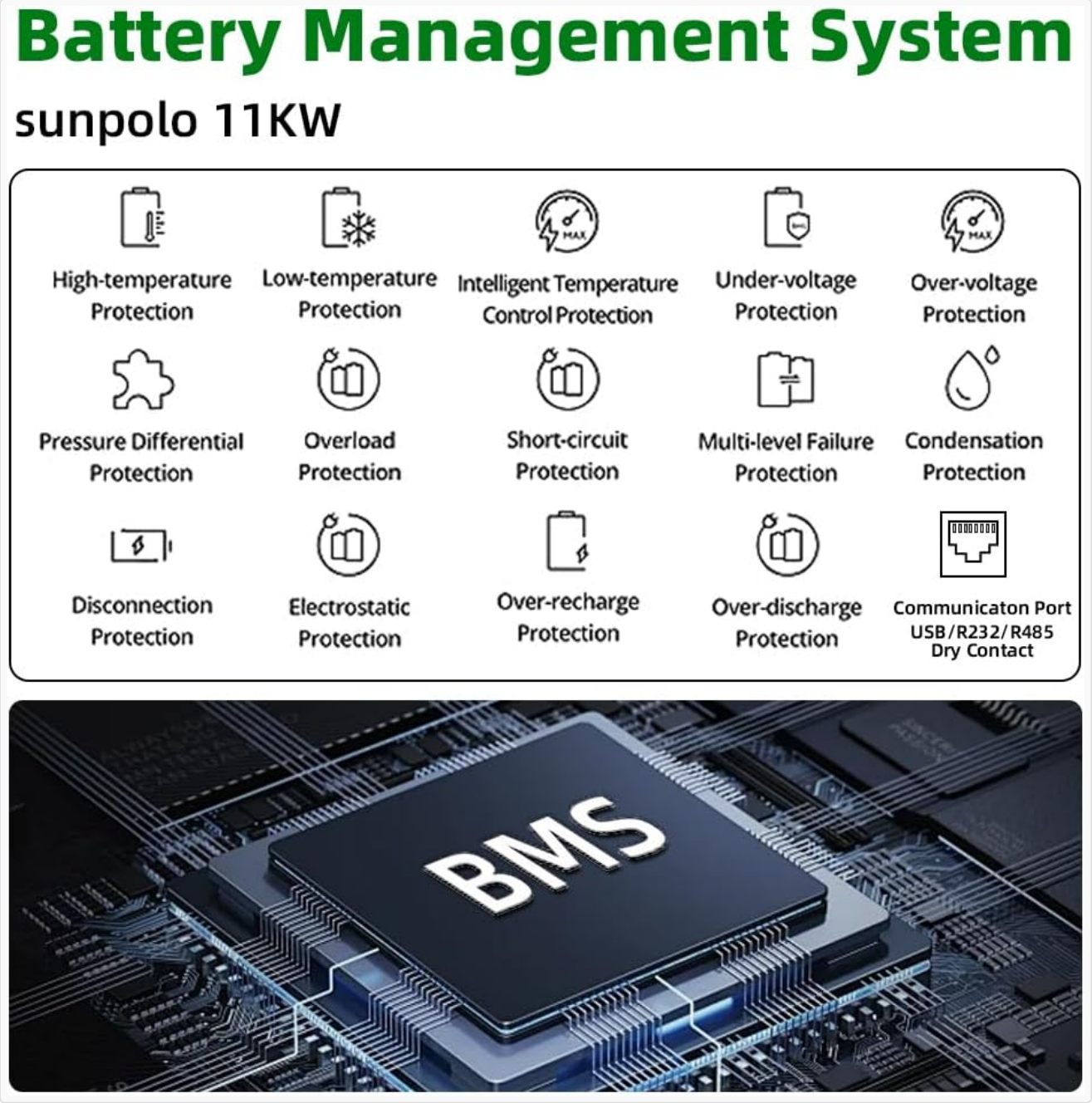

Image 3.1: Diagram detailing the various protections offered by the integrated Battery Management System (BMS) in the SUNPOLO 11KW inverter, including high/low temperature, over/under voltage, overload, short-circuit, and communication ports.

4. Setup and Installation

The installation of the Sako SUNPOLO 11KW Hybrid Solar Inverter requires careful planning and execution. It is strongly recommended that installation be performed by a certified electrician or solar professional.

4.1 Site Selection

- Choose a location that is cool, dry, and well-ventilated.
- Avoid direct sunlight, high humidity, and dusty environments.
- Ensure sufficient clearance around the inverter for proper airflow and heat dissipation.
- Mount the inverter vertically on a sturdy wall or support structure.

4.2 Wiring Connections

Connect the following components to the inverter:

1. **PV Input:** Connect solar panels to the designated PV input terminals. Observe correct polarity and voltage limits.
2. **Battery Connection:** Connect the battery bank to the battery terminals. Ensure correct polarity and use appropriate cable gauges.
3. **AC Input (Grid/Generator):** Connect the utility grid or a compatible generator to the AC input terminals.
4. **AC Output (Load):** Connect your household loads to the AC output terminals.
5. **Grounding:** Ensure the inverter is properly grounded according to local electrical codes.

4.3 Parallel Operation

For systems requiring higher power output, up to six Sako SUNPOLO 11KW inverters can be connected in parallel. Consult the detailed parallel installation guide for specific wiring diagrams and configuration steps.

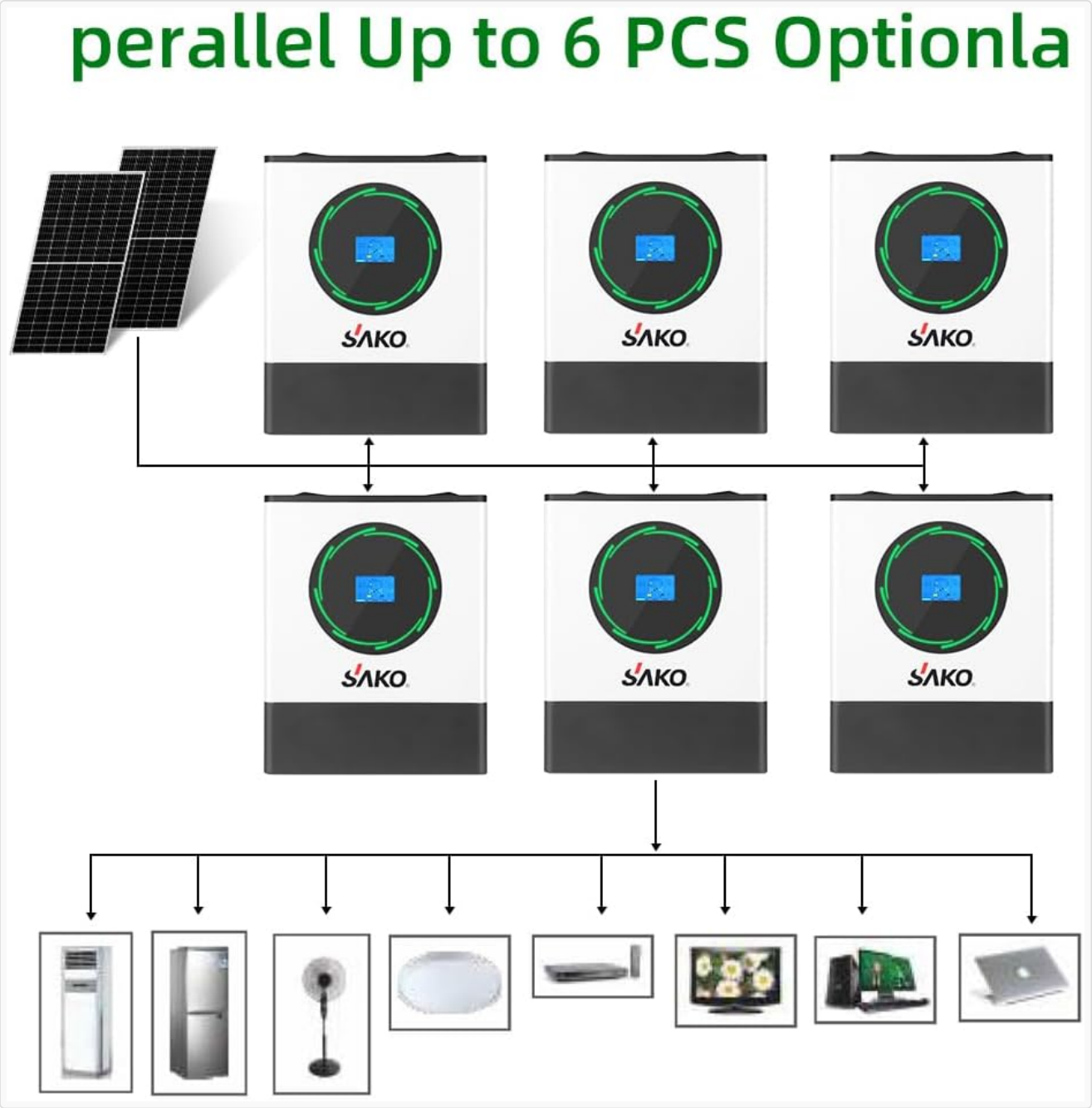

Image 4.1: Illustration of a parallel system setup, demonstrating how multiple Sako SUNPOLO inverters can be combined to increase total power capacity for larger loads.

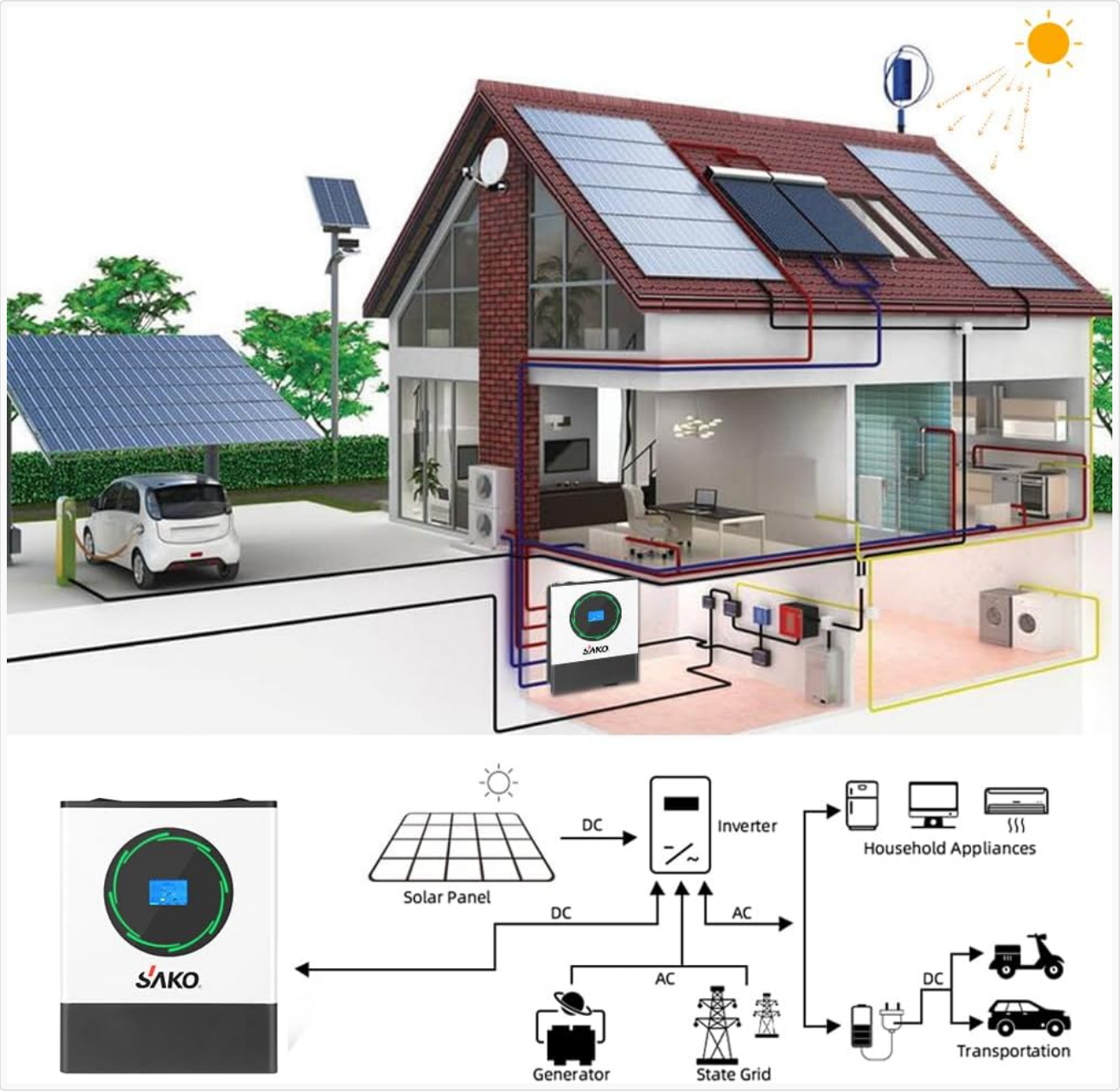

Image 4.2: Comprehensive system diagram showing the integration of the Sako SUNPOLO inverter within a typical residential solar power setup, connecting solar panels, batteries, the utility grid, and household loads.

5. Operating Instructions

Once installed, the Sako SUNPOLO 11KW inverter is ready for operation. Follow these steps to power on and configure your system.

5.1 Powering On

1. Ensure all wiring connections are secure and correct.
2. Turn on the DC breaker for the battery bank (if applicable).
3. Turn on the DC breaker for the solar PV array.
4. Turn on the AC input breaker from the grid or generator.
5. Finally, turn on the AC output breaker to power your loads.
6. The inverter will initiate its startup sequence, and the LCD display will show the operating status.

5.2 LCD Display and Settings

The integrated LCD screen allows you to monitor system performance and adjust various parameters. Key settings include:

- **DC/AC Input Priority:** Configure whether solar, battery, or grid power is prioritized.
- **Battery Type:** Select the type of battery connected (e.g., lead-acid, lithium-ion) for optimized charging.
- **Charging Current:** Adjust the battery charging current to suit your battery specifications.

5.3 Charging Modes

The inverter supports four distinct charging modes to adapt to various energy management strategies:

1. **Solar Charging:** Prioritizes charging batteries from solar power.
2. **Electricity Utility Priority:** Prioritizes using grid electricity for charging and powering loads.
3. **Solar Priority:** Prioritizes solar power for loads and battery charging, using grid only when solar is insufficient.
4. **Hybrid Charging:** Combines solar and grid power for optimal charging and load support.

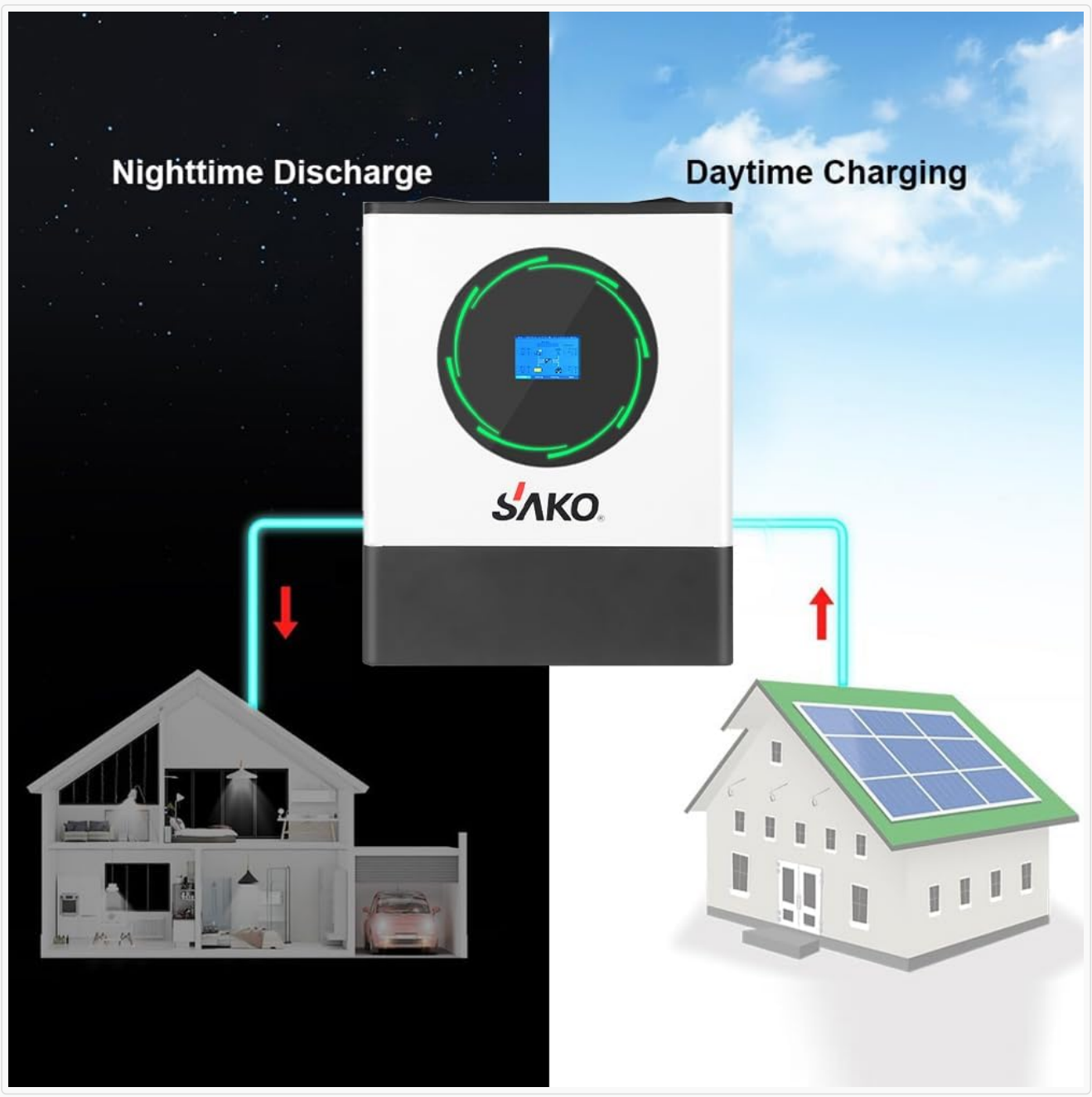

Image 5.1: Visual representation of the inverter's energy flow, showing solar panels charging the battery during the day and the battery discharging to power the house at night.

Image 5.2: Overview of the four selectable charging modes, allowing users to customize how the inverter manages power from solar, battery, and grid sources.

5.4 Wi-Fi Monitoring

Utilize the built-in Wi-Fi module to connect your inverter to a mobile application. This allows for remote monitoring of real-time performance data, historical records, and system status directly from your smartphone or tablet.

6. Maintenance

Regular maintenance ensures the optimal performance and longevity of your Sako SUNPOLO 11KW Hybrid Solar Inverter.

- **Cleaning:** Periodically clean the inverter's exterior and ventilation openings to prevent dust accumulation, which can hinder heat dissipation. Use a soft, dry cloth. Do not use liquids or abrasive cleaners.

- **Inspection:** Annually inspect all wiring connections for tightness and signs of corrosion or damage. Check for any unusual noises or odors during operation.
- **Environment:** Ensure the installation environment remains within the specified temperature and humidity ranges.
- **Firmware Updates:** Check the manufacturer's website or mobile app for any available firmware updates to ensure your inverter has the latest features and performance enhancements.

7. Troubleshooting

If you encounter issues with your Sako SUNPOLO 11KW Hybrid Solar Inverter, refer to the following general troubleshooting steps. For complex problems, contact technical support.

- **No Power Output:** Check all circuit breakers (AC input, AC output, PV, battery) to ensure they are in the ON position. Verify battery charge level and solar panel connections.
- **Inverter Not Charging Battery:** Confirm PV input voltage is within the operating range. Check battery connections and ensure the correct battery type is selected in the settings.
- **Error Codes on LCD:** Refer to the inverter's specific error code list (usually found in a more detailed technical manual or online resources) to diagnose the issue.
- **Overload Protection Triggered:** Reduce the connected load. The inverter will automatically attempt to restart after a cool-down period. Ensure total load does not exceed the inverter's rated output.
- **Communication Issues (Wi-Fi):** Verify the inverter's Wi-Fi connection to your network. Ensure the mobile app is updated and correctly configured.

8. Specifications

Feature	Specification
Brand	Sako
Model Name	SUNPOLO 11KW Hybrid
Item Model Number	SUNPOLO 11KW
Rated Power Output	11000 Watts (11 KW)
Peak Output Power	11000 Watts
Max PV Input Voltage	450 Volts (DC)
Efficiency	96%
Battery Capacity (Compatible)	Up to 2400 Amp Hours (external battery system)
Power Source	Solar Powered
Recommended Use	Home

Manufacturer	SAKO

9. Warranty and Support

For warranty information, please refer to the warranty card included with your product or visit the official Sako website. In case of technical issues, questions, or to request service, please contact Sako customer support through their official channels. Provide your product model number and purchase date for efficient assistance.