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EcoSolLi SMXLV-3KW-W-ECO-Q

EcoSolLi 3000W All-in-One Solar Hybrid Inverter User Manual

Model: SMXLV-3KW-W-ECO-Q

Brand: EcoSolLi

1. Introduction

The EcoSolLi 3000W All-in-One Solar Hybrid Inverter is a versatile power solution designed for off-grid solar systems in homes, RVs, and various other applications. This pure sine wave inverter integrates a 60A MPPT solar charge controller and a battery charger, providing a comprehensive system for converting solar energy into usable AC power. It supports 24V lithium, lead-acid, and gel batteries, offering flexible charging and output modes to meet diverse energy needs. With advanced SPWM technology and dual closed-loop control, it ensures stable and safe power delivery.



Figure 1.1: EcoSolLi 3000W All-in-One Solar Hybrid Inverter with WiFi module.

2. Safety Precautions

Please read all instructions and warnings carefully before installation and operation. Failure to follow these instructions may result in electric shock, fire, or severe injury.

- **Qualified Personnel:** Installation and wiring must be performed by qualified personnel in accordance with all applicable electrical codes.
- **Disconnect Power:** Always disconnect all power sources (solar, battery, utility) before performing any maintenance or wiring.
- **Proper Grounding:** Ensure the inverter is properly grounded to prevent electric shock.

- **Ventilation:** Install the inverter in a well-ventilated area to prevent overheating. Do not block ventilation openings.
- **Battery Safety:** Work with batteries carefully. Wear eye protection and avoid contact with battery acid. Ensure proper battery type and voltage compatibility.
- **Environmental Conditions:** Do not expose the inverter to rain, snow, spray, or any liquids. Avoid installation in direct sunlight or near heat sources.
- **Overload Protection:** Do not exceed the inverter's rated output power. The inverter includes built-in overload protection.



Figure 2.1: The inverter features comprehensive 360° protection against various electrical faults.

3. Product Features

The EcoSolLi 3000W Solar Hybrid Inverter is equipped with advanced features for efficient and reliable power management:

- **All-in-One Design:** Combines a 3000W pure sine wave inverter, a 60A MPPT solar charge controller, and a battery charger into a single unit.
- **Pure Sine Wave Output:** Ensures maximum safety and compatibility for sensitive home circuits and appliances.
- **High MPPT Efficiency:** Built-in 60A MPPT controller achieves up to 99% efficiency for optimal solar energy harvest.
- **Real-Time WiFi Monitoring:** Supports WiFi/GPRS remote monitoring, allowing users to check inverter status anytime, anywhere via a mobile application.
- **Comprehensive Protection:** Features 360° protection against short circuits, over/under voltage, overloads, reverse polarity, overcurrent, over-temperature, and overcharge.
- **Flexible Charging Modes:** Offers four distinct charging modes: Solar Only, Mains Priority, Solar Priority, and Mains & Solar hybrid charging.
- **Multiple Output Modes:** Provides two output modes: Mains Bypass and Inverter Output.
- **Wide Compatibility:** Compatible with 24V Lead-Acid (Sealed, AGM, Gel, Flooded) and Lithium batteries.
- **Smart LCD Display:** View real-time data and set various parameters directly on the inverter's LCD screen.
- **Dual Intelligent Cooling Fans:** Equipped with fans for optimized heat dissipation, ensuring prolonged lifespan and stable operation.

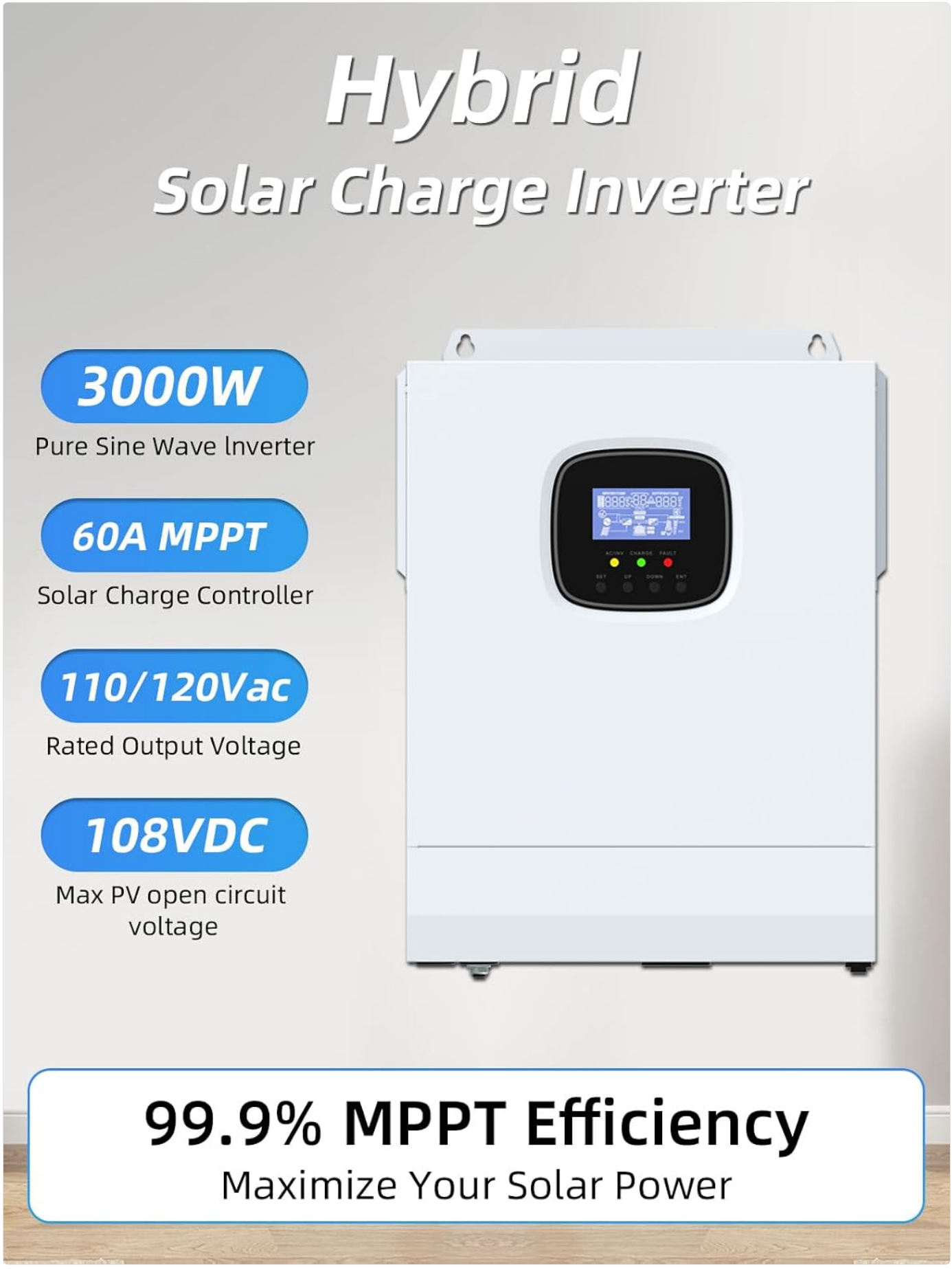


Figure 3.1: Key specifications and efficiency of the Hybrid Solar Charge Inverter.



Figure 3.2: Enhanced safety features including a dust-proof cover and dual intelligent cooling fans.

4. Components and Controls

The inverter features a user-friendly interface and clearly labeled connection points.

4.1. Front Panel and Display

The front panel includes an LCD display and control buttons for monitoring and configuration.



Figure 4.1: Smart LCD Display for viewing real-time data and setting parameters.

- **LCD Display:** Shows real-time operational data, system status, and error codes.
- **LED Indicators:** Typically include indicators for AC/Inverter status, Charge status, and Fault warnings.
- **Control Buttons:** Used to navigate menus, adjust settings, and confirm selections (e.g., SET, UP, DOWN, ENT).

4.2. Connection Ports

The inverter's rear or side panels house the necessary connection terminals for solar panels, batteries, AC input, and AC output.

- **PV Input Terminals:** For connecting solar panel arrays.
- **Battery Terminals:** For connecting the 24V battery bank.
- **AC Input Terminal:** For connecting to the utility grid or a generator.
- **AC Output Terminal:** For connecting to household loads.
- **Communication Port:** For connecting the WiFi/GPRS module for remote monitoring.

5. Installation Guide

Proper installation is crucial for the safe and efficient operation of your solar hybrid inverter. Always adhere to local electrical codes and safety guidelines.

5.1. Mounting the Inverter

- Choose a suitable mounting location that is dry, well-ventilated, and protected from direct sunlight, moisture, and dust.
- Ensure sufficient clearance around the inverter for proper airflow and cooling.
- Mount the inverter vertically on a sturdy wall using appropriate screws and anchors.

5.2. Wiring Connections

Follow the wiring diagram carefully. All wiring must be done with the inverter and all power sources disconnected.

1. **Battery Connection:** Connect the 24V battery bank to the inverter's battery terminals. Ensure correct polarity (+ to + and - to -).
2. **PV Array Connection:** Connect the solar panel array to the PV input terminals. Observe correct polarity and ensure the PV open-circuit voltage does not exceed 108Vdc.
3. **AC Input Connection:** Connect the utility grid or generator to the AC input terminal.
4. **AC Output Connection:** Connect your household loads to the AC output terminal.
5. **Grounding:** Connect the inverter's ground terminal to a reliable earth ground.

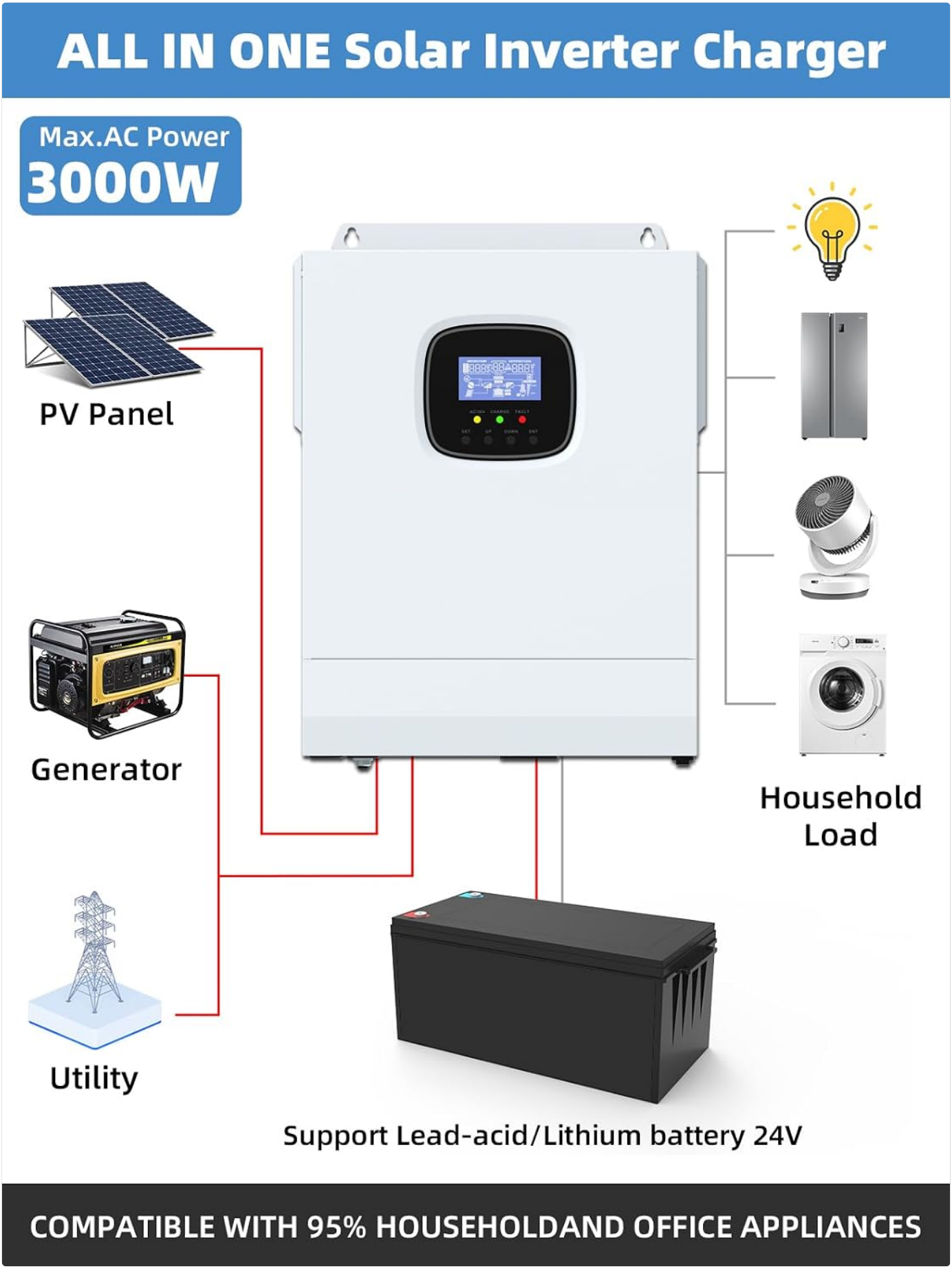


Figure 5.1: System diagram illustrating connections for PV, generator, utility, battery, and household loads.

5.3. Initial Startup

1. After all connections are secure, turn on the battery breaker first.
2. Next, turn on the PV array breaker (if applicable).

3. Finally, turn on the AC input breaker (if connected to utility/generator) and then the AC output breaker.
4. Observe the LCD display for system status and ensure no fault indicators are present.

6. Operating Instructions

This section details how to operate your EcoSolLi solar hybrid inverter, including display navigation and mode selection.

6.1. LCD Display and Button Operation

Use the SET, UP, DOWN, and ENT buttons on the front panel to navigate through the display menus and configure settings. The LCD provides real-time information on input/output voltage, battery status, load power, and more.

6.2. Charging Modes

The inverter offers four charging modes to optimize battery charging based on available power sources:

- **Solar Only:** Prioritizes solar power for charging.
- **Mains Priority:** Prioritizes utility/grid power for charging.
- **Solar Priority:** Prioritizes solar power for charging, supplementing with utility if solar is insufficient.
- **Mains & Solar Hybrid Charging:** Uses both utility and solar power for charging simultaneously.

6.3. Output Modes

The inverter supports two output modes for powering your loads:

- **Mains Bypass:** Loads are powered directly by the utility grid.
- **Inverter Output:** Loads are powered by the inverter, drawing from batteries or solar.

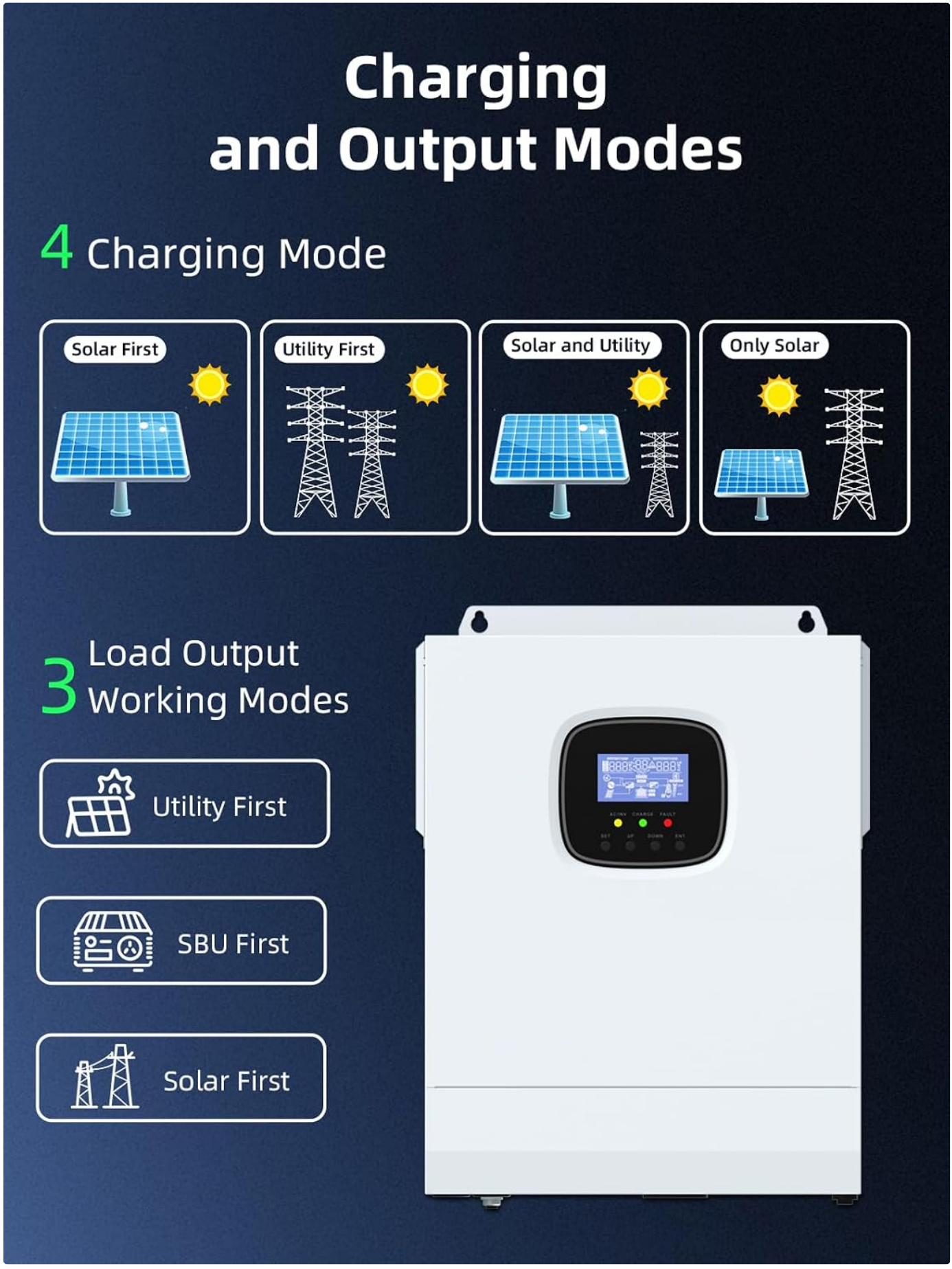


Figure 6.1: Overview of available charging and load output modes.

6.4. WiFi Monitoring

The included WiFi module allows for remote monitoring of your inverter's performance. Install the dedicated mobile application on your smartphone or tablet and follow the instructions provided with the WiFi module to connect it to your home network and the inverter. This enables real-time data viewing and remote control of certain settings.



Figure 6.2: Real-time monitoring of the inverter via the mobile application.

7. 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 are free from dust and debris.
- **Connections Check:** Annually inspect all electrical connections for tightness and signs of corrosion.
- **Battery Inspection:** Check battery terminals for corrosion and ensure battery health according to the battery manufacturer's guidelines.
- **Environmental Check:** Ensure the installation environment remains within specified temperature and humidity ranges.

8. Troubleshooting

This section provides solutions for common issues you might encounter. For complex problems, contact technical support.

Problem	Possible Cause	Solution
Inverter not turning on	No battery connection or low battery voltage.	Check battery connections and ensure battery voltage is above 22V.
No AC output	Overload, short circuit, or fault condition.	Reduce load, check for short circuits, and restart the inverter. Check fault codes on LCD.
Battery not charging	PV input issue, charging mode setting, or battery fault.	Check PV connections, ensure sufficient sunlight, verify charging mode settings, and inspect battery health.
WiFi monitoring not working	WiFi module not connected, network issue, or app configuration error.	Ensure WiFi module is properly installed, check home network connection, and reconfigure app settings.

9. Technical Specifications

Specification	Value
Rated Output Power	3000W
Output Voltage	110V/120V AC
Output Frequency	50Hz/60Hz (Auto-adapting)
Max PV Input Power	1600W
Max PV Open-Circuit Voltage	108Vdc
Rated Battery Input Voltage	24V (Minimum starting voltage 22V)
MPPT Voltage Range	30-85Vdc

Specification	Value
MPPT Controller Current	60A
Inverter Type	Pure Sine Wave
Dimensions (Package)	27 x 19 x 7 inches
Item Weight	55 pounds
Model Number	SMXLV-3KW-W-ECO-Q
Manufacturer	EcoSolLi

10. Warranty and Support

For warranty information, please refer to the documentation included with your purchase or contact EcoSolLi customer support directly. If you encounter any issues not covered in this manual, or require further assistance, please reach out to our technical support team. Contact details can typically be found on the manufacturer's website or your purchase invoice.

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