SGPWOSAY SPH8048P

SUNGOLDPOWER UL1741 8000W DC 48V SPH8048P Hybrid Solar Inverter User Manual

Model: SPH8048P | Brand: SGPWOSAY

1. Introduction

The SUNGOLDPOWER SPH8048P is an 8000W DC 48V UL1741 certified hybrid solar inverter designed for efficient energy management. This pure sine wave inverter integrates a maximum 180A battery charger and two built-in MPPT solar controllers, supporting a maximum open circuit voltage of 500V DC. It offers configurable 120V/240V AC split-phase or 120V single-phase output. The inverter's input power can be sourced from both the photovoltaic (PV) system and the AC grid, providing power to AC loads and charging the battery bank. In the event of an AC grid outage, AC loads can be powered by the PV system and battery bank. It is suitable for common appliances such as TVs, computers, lights, and fans, as well as inductive loads like refrigerators, air conditioners, motors, pumps, compressors, and laser printers. A WiFi module is included for remote monitoring via a mobile application. The unit supports parallel operation for up to 6 units.

2. Safety Information

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. Keep this manual for future reference.

- Installation and wiring must be performed by qualified personnel in accordance with all local and national electrical codes.
- Ensure the inverter is properly grounded.
- Do not disassemble the inverter. There are no user-serviceable parts inside.
- Disconnect all power sources (PV, battery, AC grid) before performing any maintenance or wiring.
- Avoid exposing the inverter to rain, snow, spray, or any liquids.
- Ensure adequate ventilation around the inverter to prevent overheating.

3. Product Overview

The SPH8048P inverter is a comprehensive solution for solar power systems, offering robust performance and versatile

features.

Figure 3.1: SUNGOLDPOWER SPH8048P Hybrid Solar Inverter

Key Features:

- **All-in-one Solar Charge Inverter:** 8000W DC 48V pure sine wave inverter with max 180A battery charge and two integrated MPPT solar controllers.
- **Flexible AC Output:** Supports split-phase (120V/240V) or single-phase (120V) AC output.
- **High PV Input:** Maximum open circuit voltage of 500V DC.
- **WiFi Module:** Allows monitoring of operating status and parameters via a mobile application.
- **Parallel Capability:** Supports parallel connection of up to 6 units for increased capacity.
- **Stable AC Output & Smart Protection:** Rated output 8000W, peak 16000W. Includes protection against PV input over-voltage/current, AC input over-voltage, battery over-voltage, and overload.
- **Time-slot Charge/Discharge Function:** Allows setting different charge/discharge periods based on peak and off-peak electricity tariffs.
- **Battery Compatibility:** Compatible with AGM/sealed, gel, flooded, 48V lithium batteries, and a user-defined mode. Supports operation without a battery.

Figure 3.2: Key features of the 8KW Pure Sine Wave Inverter, including AC input/output configurations, maximum PV array power, open circuit voltage, and charge current.

Figure 3.3: The live LCD display provides real-time data and allows users to set system parameters, showing various operational metrics.

Figure 3.4: The inverter is compatible with various battery types including Flooded (FLD), AGM, Gel, Sealed Lead Acid (SLD), LiFePO4 (Li), and user-defined (USER) settings.

4. Setup and Installation

Proper installation is crucial for the safe and efficient operation of your SPH8048P inverter. Ensure all connections are secure and follow electrical codes.

4.1 Dimensions and Accessories

Before installation, familiarize yourself with the inverter's dimensions and ensure all necessary accessories are present.

Figure 4.1: The inverter measures approximately 25.6 inches in length, 17.7 inches in width, and 5.1 inches in height, with a net weight of 53.5 lbs. Included accessories typically consist of a user manual, warranty card, WiFi Box, parallel COM cable, communication cable, and cable lugs & screws.

4.2 Wiring Connections

Connect the AC input, AC output, PV arrays, and battery bank to the designated terminals on the inverter. Pay close attention to polarity and wire gauge requirements.

- **AC Input/Output:** The inverter features screw-down terminals for AC In and AC Out. It is critical to use appropriate wire gauges and circuit breakers. While some documentation may suggest 8 gauge wire, for safety and compliance, especially with 63 amp breakers, using 6 gauge wire is recommended if it fits the terminals. Consult a qualified electrician to ensure proper sizing and installation.
- **PV Input:** Connect your solar panel arrays to the PV1 and PV2 terminals. Ensure the maximum open circuit voltage does not exceed 500V DC.
- **Battery Connection:** Connect your 48V battery bank to the BAT+ and BAT- terminals. Ensure correct polarity.

4.3 Parallel Function

The SPH8048P supports parallel connection of up to 6 units to increase total power output. Refer to the wiring diagrams for

split-phase and three-phase parallel connections.

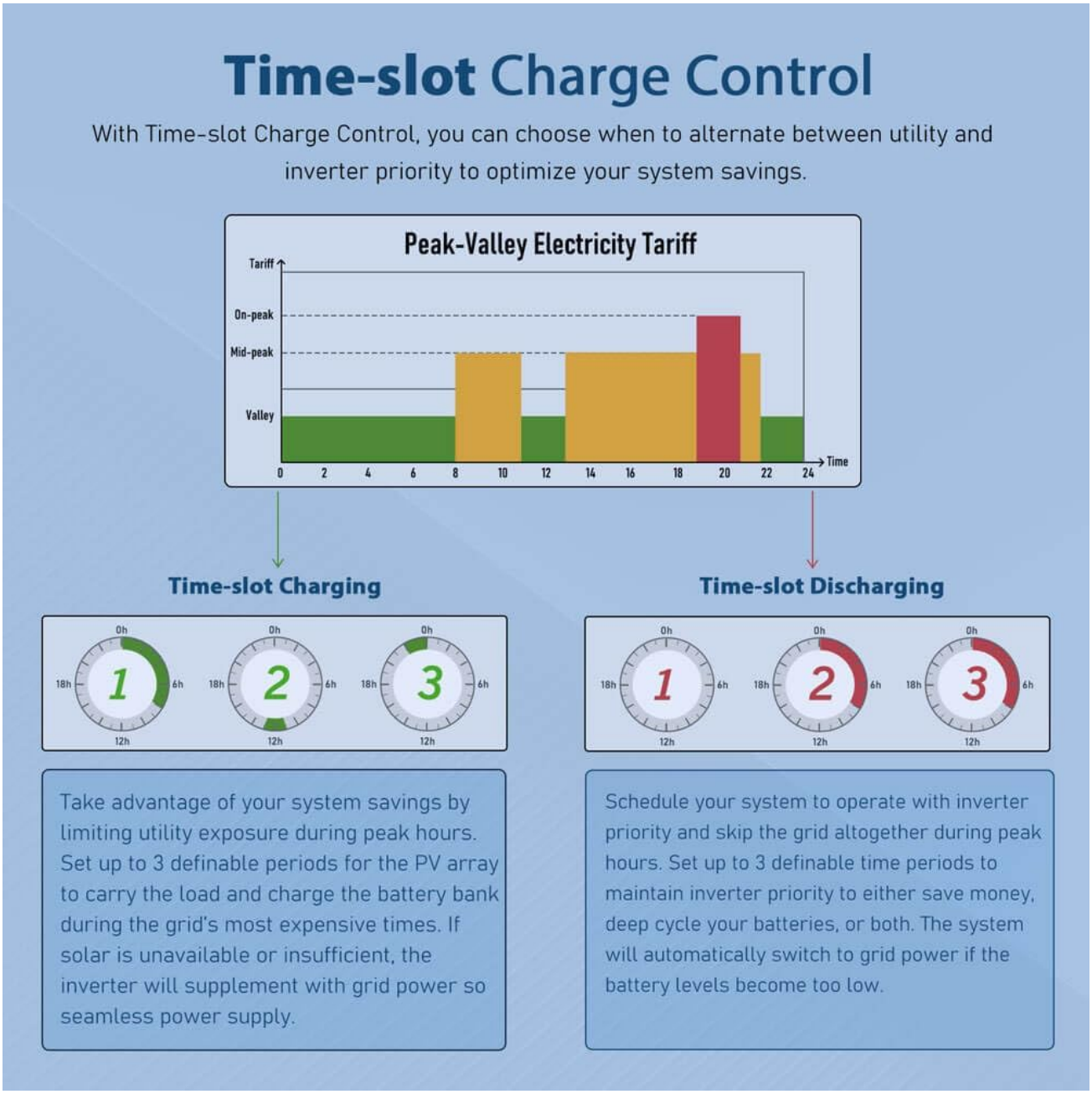

Figure 4.2: Wiring diagrams illustrate parallel connections for split-phase systems (two inverters) and three-phase systems (three or more inverters, e.g., 1+1+1 or 2+2+2 configurations).

5. Operating Modes

The inverter offers various operating modes to optimize energy usage based on your specific needs and grid conditions.

5.1 AC Output Modes

The SPH8048P provides four distinct AC output modes:

- **Utility Priority Output:** Grid power is the primary source for loads. Solar and battery act as backup.
- **Solar and Utility Hybrid Output:** Solar power is prioritized, supplemented by utility power when solar is insufficient.
- **Solar Priority Output:** Solar power is the primary source for loads. Utility power is used only when solar and battery are insufficient.
- **Inverter Priority Output:** Battery power (charged by solar) is the primary source. Utility power is used only when battery is low.

5.2 Charging Modes

The inverter supports four charging modes for the battery bank:

- **Hybrid Charging:** Utilizes both solar and utility power to charge batteries.
- **Utility Priority Charging:** Prioritizes utility power for battery charging.
- **Solar Priority Charging:** Prioritizes solar power for battery charging.
- **Only Solar Charging:** Batteries are charged exclusively by solar power.

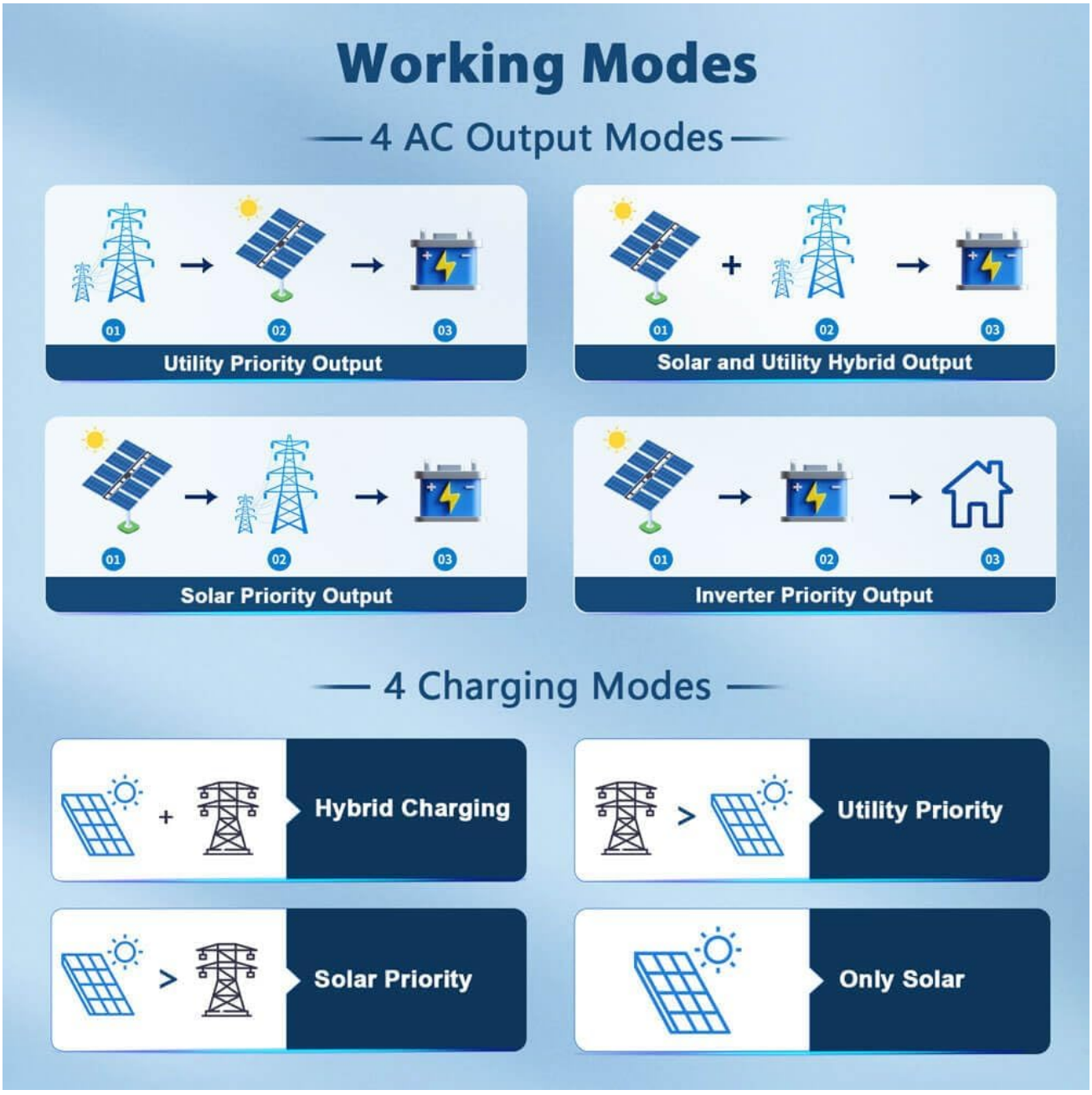

Figure 5.1: Visual representation of the four AC Output Modes and four Charging Modes, illustrating the energy flow from solar, utility, and battery to loads and for charging.

5.3 Time-slot Charge Control

The time-slot charge and discharge function allows users to configure specific periods for charging and discharging batteries, optimizing energy usage based on local peak and off-peak electricity tariffs.

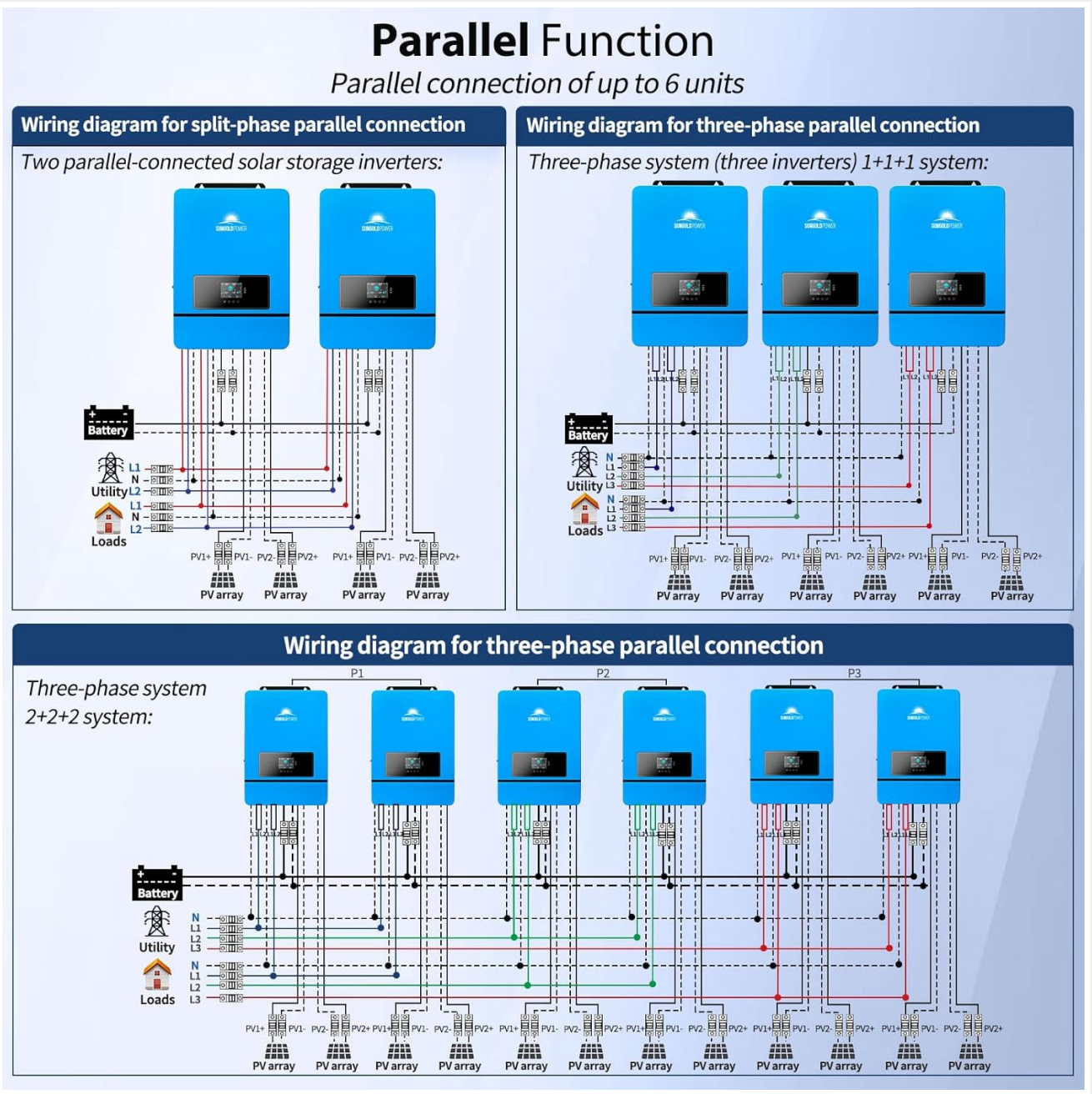

Figure 5.2: This diagram illustrates the concept of peak-valley electricity tariffs and how time-slot charging and discharging can be configured. Users can set up to three definable periods for PV array charging and battery discharge to maximize savings and rationalize energy use.

6. Maintenance

Regular maintenance ensures the longevity and optimal performance of your SPH8048P inverter.

- **Cleaning:** Periodically clean the exterior of the inverter with a dry cloth. Ensure ventilation openings are free from dust and debris.
- **Inspections:** Regularly check all wiring connections for tightness and signs of corrosion or damage. Inspect the inverter for any visible damage or unusual noises.
- **Firmware Updates:** Check the manufacturer's website for any available firmware updates to ensure your inverter has the latest features and bug fixes.
- **Battery Health:** Monitor your battery bank's health and performance according to the battery manufacturer's guidelines.

7. Troubleshooting

This section provides guidance for common issues you might encounter with your inverter.

7.1 Wiring Discrepancies

Some users have noted discrepancies in wire gauge recommendations between different versions of the manual (e.g., 6 gauge vs. 8 gauge for AC input/output). For safety, especially when using 63 amp breakers, it is strongly recommended to use 6 gauge wire for AC input and output connections if possible, and to consult with a certified electrician to ensure compliance with local electrical codes and safe operation. Incorrect wire sizing can lead to overheating and fire hazards.

7.2 General Issues

- **No Power Output:** Check all input power sources (PV, battery, AC grid). Ensure all circuit breakers are ON. Verify battery voltage is within the operating range.
- **Inverter Alarms:** Refer to the inverter's LCD display for specific error codes. Consult the detailed manual (if provided separately) for a list of alarm codes and their solutions.
- **Reduced Performance:** Check PV array for shading or dirt. Verify battery health and charge levels. Ensure proper ventilation to prevent thermal derating.
- **WiFi Connectivity Issues:** Ensure the WiFi module is correctly installed and configured. Check your network settings and signal strength.

8. Specifications

Feature	Specification
Brand	SGPWOSAY
Model	SPH8048P
Rated Power Output	8000 W
Peak Power Output	16000 W
DC Voltage	48 V
AC Input/Output Voltage	120V/240V (Configurable)
Max PV Array Power	11000 W
Max Open Circuit Voltage	500 V DC
Max Charge Current	200 A
Battery Compatibility	AGM/Sealed, Gel, Flooded, 48V Lithium, User-defined
Display Type	LCD
Product Dimensions	65.02 x 44.96 x 12.95 cm (25.6 x 17.7 x 5.1 inches)
Product Weight	24.27 kg (53.5 lbs)

9. Warranty and Support

SUNGOLDPOWER is committed to customer satisfaction. While specific warranty details are not provided in this document, the manufacturer generally offers support for their products.

- **Customer Service:** Users have reported positive experiences with SUNGOLDPOWER's customer service, noting prompt and knowledgeable responses to inquiries regarding parameter settings and installation.
- **Contact Information:** For detailed warranty information, technical support, or service requests, please refer to the contact information provided on the SUNGOLDPOWER official website or the warranty card included with your product.