

SUNGOLDPOWER SPH10K48SP-P

SUNGOLDPOWER SPH10K48SP-P 10000W 48V Solar Inverter Instruction Manual

1. INTRODUCTION

This manual provides essential information for the safe and efficient operation of your SUNGOLDPOWER SPH10K48SP-P 10000W 48V Solar Inverter. Please read all instructions and warnings carefully before installation and use. Retain this manual for future reference.

Safety Precautions:

- Ensure all electrical connections are made by qualified personnel.
- Always disconnect power before performing any maintenance or service.
- The inverter is heavy; use proper lifting techniques or assistance during installation.
- Install in a well-ventilated area to prevent overheating.

2. PACKAGE CONTENTS

Verify that all items listed below are included in your package:

- SUNGOLDPOWER SPH10K48SP-P 10000W 48V Solar Inverter
- WiFi module
- WiFi monitoring components
- User manual
- Warranty Card
- Parallel COM cable
- Communication cable
- Cable lugs & Screws

Dimensions and Accessories



Figure 2.1: SUNGOLDPOWER SPH10K48SP-P Inverter and included accessories, including the WiFi module, cables, and mounting hardware.

3. PRODUCT OVERVIEW

The SUNGOLDPOWER SPH10K48SP-P is an all-in-one solar charge inverter designed for robust off-grid and hybrid solar systems. It integrates a 10000W pure sine wave inverter, two MPPT solar controllers, and a 200A battery charger, offering flexible AC input/output options (120V/240V settable).



Figure 3.1: Front view of the SUNGOLDPOWER SPH10K48SP-P 10000W 48V Solar Inverter, showcasing its blue casing and integrated LCD display.

Key Features:

- **All-in-one Design:** Combines inverter, MPPT solar controllers, and battery charger.

- **High Power Output:** 10000W rated power, 20000W peak power.
- **Dual MPPT Solar Controllers:** Max 200A battery charging, 500VDC open circuit voltage.
- **Flexible AC Output:** Settable 120V/240V split phase or 120V single phase.
- **Pure Sine Wave Output:** Ensures compatibility with sensitive electronics.
- **WiFi Module:** Allows remote monitoring and parameter adjustment via mobile app.
- **BMS Communication:** Supports various battery types including Lithium with CAN, USB, and RS485.
- **Multiple Operating Modes:** Four charging and four output modes for diverse energy management.
- **Time-Slot Function:** Optimizes charging/discharging based on tariff rates.
- **UL1741 Certified:** Ensures safety and reliability.



Figure 3.2: Visual representation of the inverter's key specifications, including 11000W Max PV Array Power, 500V Max Open Circuit Voltage, and 200A Max Charge Current.



Figure 3.3: The inverter's LCD HD display, showing real-time data and options for setting various parameters.

4. SETUP

4.1 Physical Installation

The inverter should be mounted securely in a location that is dry, well-ventilated, and protected from direct sunlight and extreme temperatures. Due to its weight (54 lbs), ensure the mounting surface can support the load. Consider accessibility for future adjustments and maintenance.

4.2 Electrical Connections

All electrical wiring must comply with local and national electrical codes. Use appropriate wire gauges for all connections to ensure safety and optimal performance.

4.2.1 Battery Connections

Connect the battery cables to the inverter's battery terminals. Ensure correct polarity: positive (+) to positive and negative (-) to negative. Tighten all connections securely to prevent loose contacts and potential hazards.



Figure 4.1: A comprehensive system connection diagram illustrating how PV panels, generator, mains, external battery packs, and home appliances connect to the SUNGOLDPOWER inverter in both split-phase and single-phase modes.

4.2.2 PV Input Connections

Connect your solar PV array to the designated PV input terminals on the inverter. Observe correct polarity and ensure the open circuit voltage of the PV array does not exceed 500VDC.

4.2.3 AC Input/Output Connections

Connect the AC input from your utility grid or generator, and the AC output to your loads. The inverter supports both 120V/240V split-phase and 120V single-phase configurations. Refer to the wiring diagram for specific connections.

4.3 Initial Power-Up and Configuration

After all physical and electrical connections are made, proceed with the initial power-up. The inverter's LCD display allows for configuration of various settings, including battery type, charging modes, and output priorities.

Installation and Wiring Overview

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Video 4.1: This video demonstrates the unboxing and initial wiring process for the SUNGOLDPOWER inverter, including connecting battery wires and grounding. It highlights the importance of secure connections and proper placement.

Battery and Inverter Communication Setup

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Video 4.2: This video provides a detailed guide on connecting the battery pack to the inverter and configuring communication settings. It covers positive and negative terminal connections, RS485/CAN communication, and initial startup procedures, including setting DIP switches and verifying voltage.

5. OPERATING MODES

The SPH10K48SP-P inverter offers versatile operating modes to optimize energy usage based on your specific needs:

5.1 Charging Modes:

- **Hybrid Charging:** Utilizes both solar and utility power for battery charging.
- **Utility Priority Charging:** Prioritizes utility power for charging, with solar as a supplement.
- **Solar Priority Charging:** Prioritizes solar power for charging, with utility as a backup.
- **Only Solar Charging:** Charges batteries exclusively from solar power.

5.2 Output Modes:

- **Utility Priority:** Loads are primarily powered by the utility grid.
- **Solar and Utility Hybrid:** Dynamically uses solar and utility to power loads.
- **Solar Priority:** Loads are primarily powered by solar, then batteries, then utility.
- **Inverter Priority:** Loads are primarily powered by the inverter (from batteries/solar), then utility.

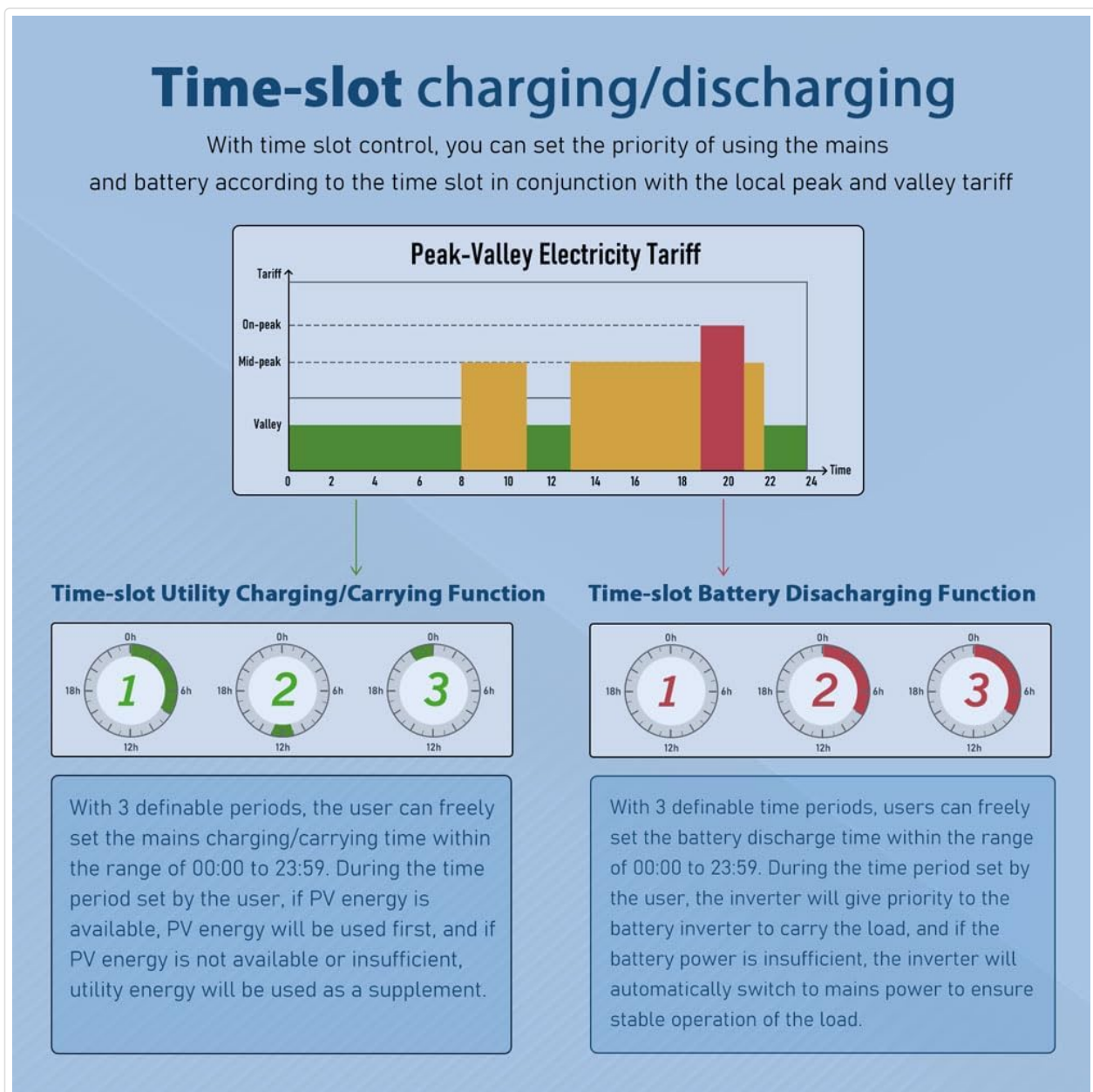


Figure 5.1: Visual guide to the various working modes, detailing how power flows from utility, solar, and battery to loads under different priority settings.

6. TIME-SLOT CHARGING/DISCHARGING FUNCTION

The inverter features a time-slot function, allowing users to configure specific charging and discharging periods. This is particularly useful for optimizing energy usage based on local peak and off-peak electricity tariffs, maximizing savings and efficient use of PV energy.

- **Time-slot Utility Charging/Carrying:** Set up to three definable periods for utility charging. If PV energy is unavailable or insufficient, utility energy will be used as a supplement.
- **Time-slot Battery Discharging:** Set up to three definable periods for battery discharging. During these periods, the inverter prioritizes battery power for loads, switching to mains power if battery power is insufficient.

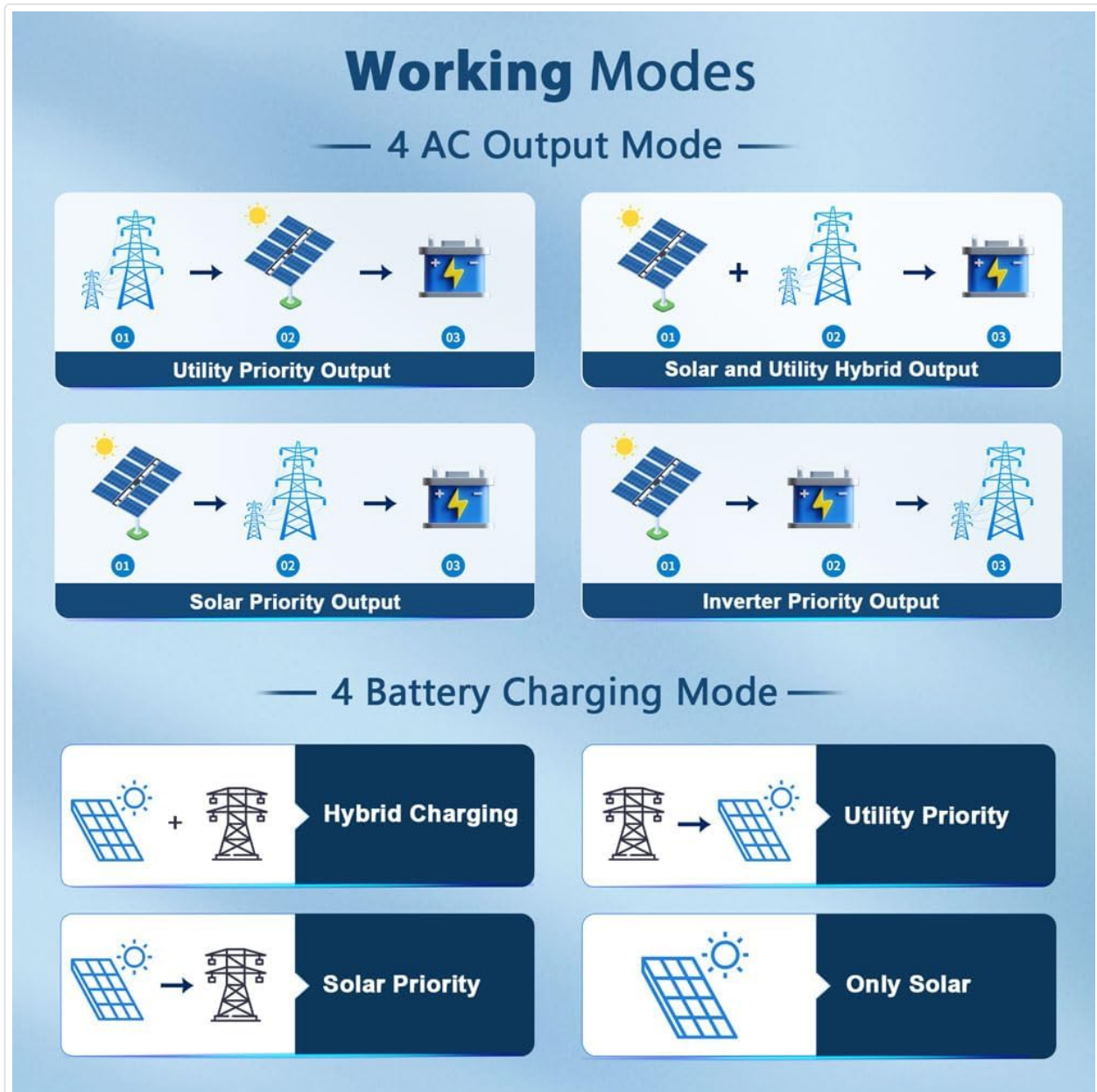


Figure 6.1: Illustration of the time-slot charging and discharging feature, showing how users can set periods to utilize mains and battery power according to peak and valley tariffs.

7. BATTERY COMPATIBILITY

The SPH10K48SP-P inverter is compatible with a wide range of 48V battery types, including:

- AGM/Sealed

- Gel
- Flooded
- Lithium (LiFePO4)
- User-defined (for custom battery parameters)

It also supports battery-free operation. For lithium batteries, the mains power and photovoltaics can activate a dormant battery. The inverter supports CAN, USB, and RS485 communication with SUNGOLDPOWER batteries for enhanced management.



Figure 7.1: Diagram showing the inverter's compatibility with different battery chemistries, including Flooded, AGM, GEL, Sealed Lead Acid, LiFePO4, and user-defined settings.

8. PARALLEL FUNCTION

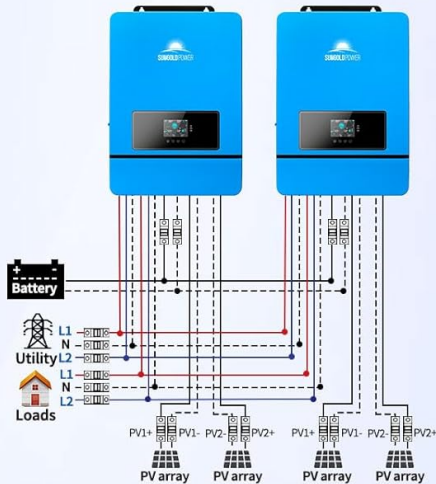
For increased power output or to create a three-phase system, the SPH10K48SP-P inverter supports parallel connection of up to 6 units. This allows for scalable power solutions to meet diverse energy demands.

Parallel Function

Parallel connection of up to 6 units

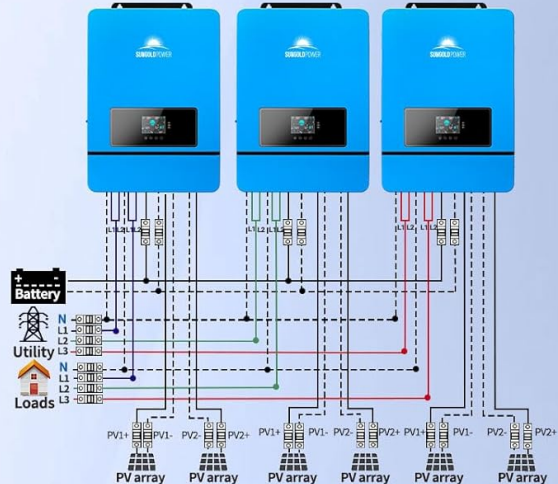
Wiring diagram for split-phase parallel connection

Two parallel-connected solar storage inverters:



Wiring diagram for three-phase parallel connection

Three-phase system (three inverters) 1+1+1 system:



Wiring diagram for three-phase parallel connection

Three-phase system
2+2+2 system:

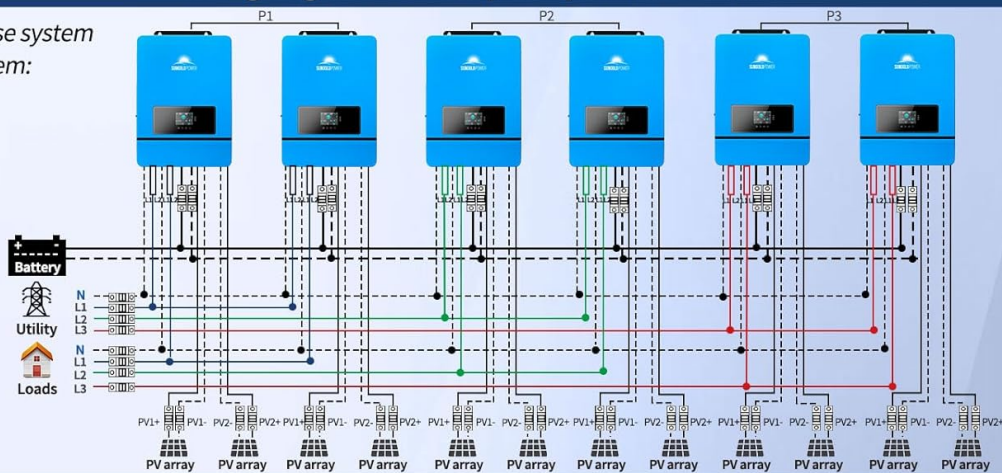


Figure 8.1: Detailed wiring diagrams for connecting multiple inverters in parallel for both split-phase (two units) and three-phase (three or more units) configurations.

9. COMMUNICATION & MONITORING

The integrated WiFi module allows users to monitor the inverter's operating status and parameters remotely via a mobile application. BMS communication (CAN, USB, RS485) ensures seamless integration and optimized performance with compatible battery systems.

MODEL	SPH8048P	SPH10048P
Rated Output Power	8,000W	10,000W
Max.Peak Power	16,000W	20,000W
Rated Output Voltage	120/240Vac(split phase/single phase)	
Load Capacity of Motors	5HP	6HP
Rated AC Frequency	50/60Hz	
Parallel capacity	6	
Overload	(102%<load<110%) ±10%: error and output shutdown after 5min; (110% < load < 125%) ±10%: error and output shutdown after 10s. Load > 125% ±10%: error reported and output switched off after 5s.	
Battery Type	Li-ion / Lead-Acid / User Defined	
Rated Battery Voltage	48Vdc	
Voltage Range	40-60Vdc	
Max.MPPT Charging Current	200A	
Max.Mains/Generator Charging Current	100A	120A
Max.Hybrid Charging Current	180A	200A
Num. of MPP Trackers	2	
Max.PV array power	11,000W	
Max.input current	22/22A	
Max.Voltage of Open Circuit	500Vdc	
MPPT Voltage Range	125-425Vdc	
Bypass Overload Current	63A	
MPPT Tracking Efficiency	99.9%	
Support Communication	WiFi Modules/RS485 /CAN/USB/Dry contact	
Dimensions	25.6X17.7X5.1inch	17.9X26X4.9inch
Weight	53.5lbs	54lbs

Figure 9.1: The inverter connected to a WiFi module, illustrating remote monitoring of solar, battery, and home energy usage via a smartphone application.

10. MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your inverter. Perform the following checks periodically:

- **Visual Inspection:** Check for any visible damage, loose connections, or signs of overheating.
- **Cleaning:** Keep the inverter's ventilation openings clear of dust and debris to ensure proper airflow. Use a dry cloth for cleaning.
- **Connection Checks:** Periodically verify that all electrical connections (battery, PV, AC) are tight and secure.
- **Environment:** Ensure the installation environment remains within the specified temperature and humidity ranges.

11. TROUBLESHOOTING

If the inverter displays an error code or exhibits unusual behavior, consult the user manual for specific troubleshooting steps. Common issues and general solutions include:

- **No Power:** Check all circuit breakers, battery connections, and input power sources.
- **Low Output Power:** Verify PV array performance, battery state of charge, and load requirements.
- **Overload Warning:** Reduce connected loads. Ensure total load does not exceed the inverter's rated capacity.
- **Communication Error:** Check communication cables and settings for BMS or WiFi modules.

For persistent issues, contact SUNGOLDPOWER customer support.

12. SPECIFICATIONS

Detailed technical specifications for the SUNGOLDPOWER SPH10K48SP-P 10000W 48V Solar Inverter:

Feature	Specification
Model Name	10KW 48V Split Phase Solar Inverter
Rated Output Power	10,000W
Max. Peak Power	20,000W
Rated Output Voltage	120/240Vac (split phase/single phase)
Load Capacity of Motors	6HP
Rated AC Frequency	50/60Hz
Parallel Capacity	6 units
Battery Type	Li-ion / Lead-Acid / User Defined
Rated Battery Voltage	48Vdc
Voltage Range	40-60Vdc
Max. MPPT Charging Current	200A
Max. Mains/Generator Charging Current	120A
Max. Hybrid Charging Current	200A
Num. of MPPT Trackers	2
Max. PV Array Power	11,000W
Max. Input Current	22/22A
Max. Voltage of Open Circuit	500Vdc
MPPT Voltage Range	125-425Vdc
Bypass Overload Current	63A
MPPT Tracking Efficiency	99.9%
Support Communication	WiFi Modules/RS485 /CAN/USB/Dry contact
Product Dimensions	26 x 17.9 x 4.9 inches
Item Weight	54 pounds






Figure 12.1: A comparative table of specifications for the SPH8048P and SPH10048P models, detailing power, voltage, current, and communication features.

13. WARRANTY & SUPPORT

SUNGOLDPOWER products are backed by a manufacturer's warranty. Please refer to the included Warranty Card for detailed terms and conditions. For technical assistance, troubleshooting, or warranty claims, please contact SUNGOLDPOWER customer support through their official channels.

Related Documents - SPH10K48SP-P

	<p>SunGoldPower SPH Series All-in-One Solar Charge Inverter User Manual</p> <p>Comprehensive user manual for the SunGoldPower SPH series all-in-one solar charge inverters, covering installation, operation, maintenance, and technical specifications for models SPH8K48SP and SPH10K48SP.</p>
	<p>Sungoldpower Pure Sine Wave Inverter Charger Troubleshooting Guide</p> <p>A comprehensive troubleshooting guide for Sungoldpower Pure Sine Wave Inverter Chargers, covering common issues such as AC abnormal readings, battery charging problems, output failures, and fan operation.</p>
	<p>LFP Series Pure Sine Wave Inverter/Charger User Manual</p> <p>User manual for the LFP Series Pure Sine Wave Inverter/Charger, detailing safety information, introduction, installation, electrical performance, troubleshooting, and specifications.</p>

<div data-bbox="124 100 303 358"><p>USER MANUAL</p><p>All-in-one solar charge inverter</p><p>Product models: SPH8K48SP SPH10K48SP</p></div>	<p>Sungoldpower SPH8K48SP / SPH10K48SP All-in-One Solar Charge Inverter User Manual</p> <p>Comprehensive user manual for the Sungoldpower SPH8K48SP and SPH10K48SP all-in-one solar charge inverters, covering safety, installation, operation, communication, troubleshooting, and technical specifications.</p>
<div data-bbox="124 414 303 672"><p>All-in-one solar charge inverter User Manual</p><p>All-in-one solar charge inverter User Manual</p><p>Product models: SPH302480A</p></div>	<p>SunGoldPower SPH302480A All-in-One Solar Charge Inverter User Manual</p> <p>This user manual provides comprehensive instructions for the SunGoldPower SPH302480A all-in-one hybrid solar charge inverter, covering safety, installation, operation modes, LCD screen functions, other features, protection mechanisms, system maintenance, and detailed technical parameters.</p>
<div data-bbox="124 728 303 985"><p>USER MANUAL</p><p>Energy Storage System</p></div>	<p>SunGoldPower Energy Storage System User Manual</p> <p>User manual for the SunGoldPower Energy Storage System (ESS), covering installation, connection, operation, maintenance, and technical specifications for models SGN7.6K1HB-48 and SGN11.4KHB-48.</p>