SGPWOSAY SPH10K48V

SUNGOLDPOWER 10000W DC48V Solar Inverter & LiFePO4 Battery Kits User Manual

Model: SPH10K48V
Brand: SGPWOSAY

1. Introduction

This manual provides essential information for the safe and efficient operation of your SUNGOLDPOWER 10000W DC48V Solar Inverter and accompanying 48Vdc 100Ah LiFePO4 battery kits. This all-in-one system features a pure sine wave inverter, built-in MPPT solar controllers, and supports both 120V and 240V AC output, with parallel capability for up to 6 units. Please read this manual thoroughly before installation and use.

1.1 What's in the Box

- 1 x SUNGOLDPOWER 10000W Solar Inverter
- 2 x SUNGOLDPOWER 48V 100Ah LiFePO4 Batteries
- 1 x User Manual (for inverter)
- 1 x User Manual (for battery)
- 1 x Warranty Card
- 1 x WiFi BOX
- 1 x Parallel COM Cable
- 1 x Communication Cable
- Cable lugs & Screws
- Positive and negative output lines (for battery)
- RS485 cascade communication line (for battery)
- RS485 USB/RS232 USB (optional, for battery)
- Hanging ear screw (for battery)
- Dry contact terminal (for battery)

Figure 1.1: SUNGOLDPOWER 10000W Solar Inverter and two 48V 100Ah LiFePO4 battery kits.

Figure 1.2: Inverter dimensions (26.0 x 17.9 x 4.9 inches, 54 lbs) and accessories including user manual, warranty card, WiFi box, cables, and screws.

Figure 1.3: Battery dimensions (19.3 x 18.9 x 5.5 inches, 93 lbs) and accessories including user manual, positive/negative output lines, communication cables, and mounting hardware.

2. Safety Instructions

Please observe the following safety precautions during installation, operation, and maintenance of the inverter and battery system. Failure to comply may result in electric shock, fire, or severe injury.

- Installation must be performed by qualified personnel.
- Ensure all wiring is correctly sized and properly insulated.
- Disconnect all power sources (PV, battery, AC grid) before performing any maintenance or wiring.
- Do not disassemble the inverter or battery. There are no user-serviceable parts inside.
- Keep the system away from flammable materials, moisture, and direct sunlight.
- Ensure adequate ventilation around the inverter and batteries to prevent overheating.
- Wear appropriate personal protective equipment (PPE), including insulated gloves and eye protection, when working with the system.

- Verify correct polarity for all DC connections.
- Do not connect the inverter to a public utility grid without proper anti-islanding protection and local utility approval.

3. Installation and Wiring

3.1 Site Selection

Choose a cool, dry, and well-ventilated location for installation. Avoid areas with excessive dust, corrosive gases, or high humidity. The inverter should be mounted vertically on a sturdy surface.

3.2 System Connection Diagram

The SUNGOLDPOWER inverter supports various configurations including split-phase (120V/240V) and single-phase (120V) output, as well as parallel operation. The following diagrams illustrate typical system connections.

Figure 3.1: General system connection illustrating PV input, generator input, mains input, inverter, external battery packs, and load connections for both split-phase and single-phase modes.

3.3 Parallel Function Wiring

The inverter supports parallel connection of up to 6 units for increased power output. Below are wiring diagrams for common parallel configurations.

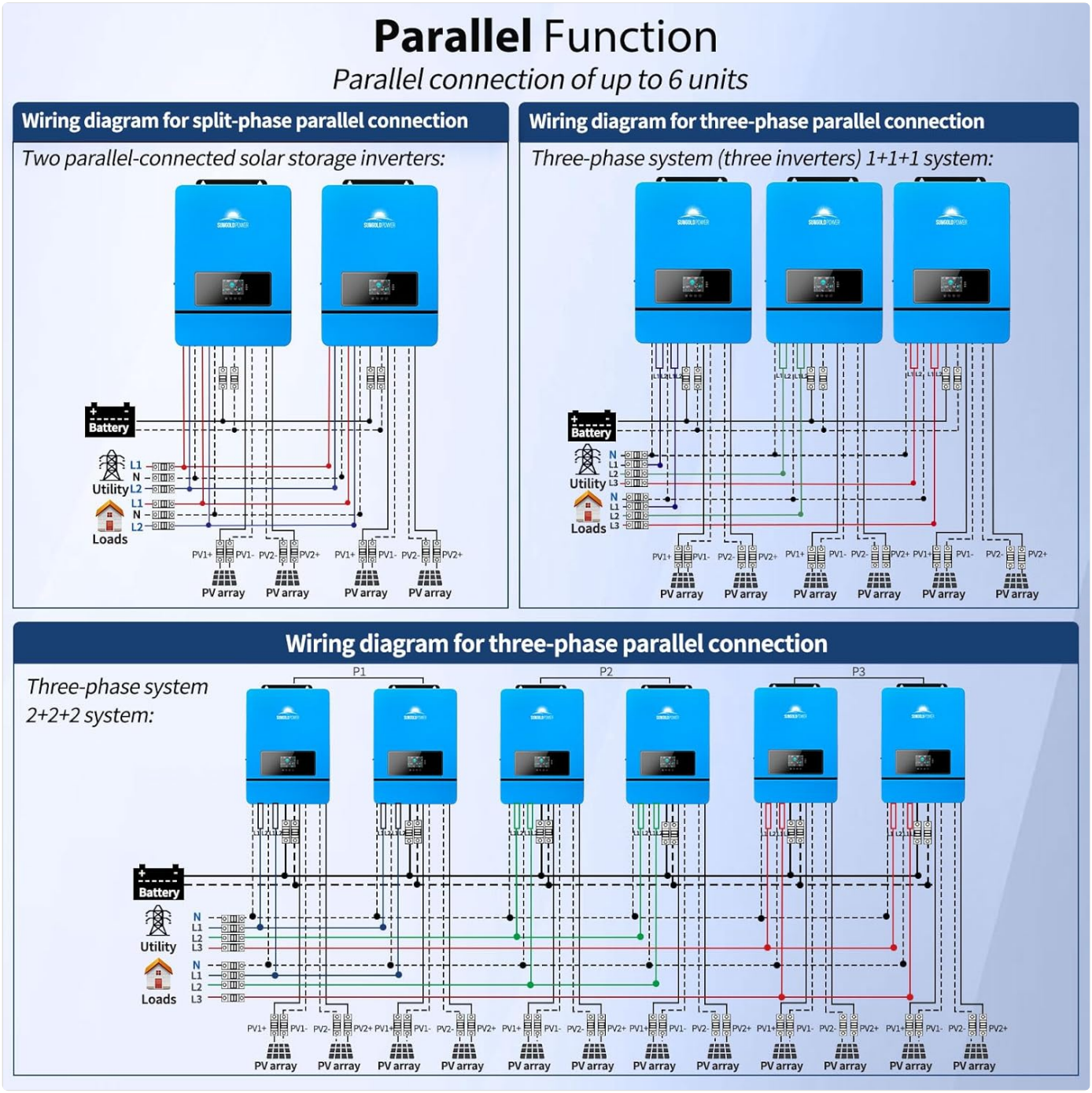

Figure 3.2: Parallel wiring diagrams for two parallel-connected solar storage inverters (split-phase) and three-phase systems (1+1+1 and 2+2+2 configurations).

3.4 Battery Connection

Connect the LiFePO4 batteries to the inverter's battery terminals. Ensure correct polarity. The batteries support CAN/RS485/RS232 communication for integrated management with the inverter.

Figure 3.3: Detailed view of the battery's front panel, indicating reset button, DIP switch, load output port, LCD display, function buttons, battery negative/positive terminals, and communication ports (RS485, RS232, CAN).

4. Operating Instructions

4.1 LCD HD Display

The inverter features an LCD HD display for viewing real-time data and setting various parameters. Use the navigation buttons to browse menus and adjust settings.

Figure 4.1: The inverter's LCD HD display, illustrating various screens for monitoring PV input, battery status, AC input/output, and system parameters.

4.2 Time-Slot Charging/Discharging Function

The SPH series inverter is equipped with a time-slot function, allowing users to optimize energy usage based on local peak and valley electricity tariffs. This function enables setting specific periods for utility charging/carrying and battery discharging.

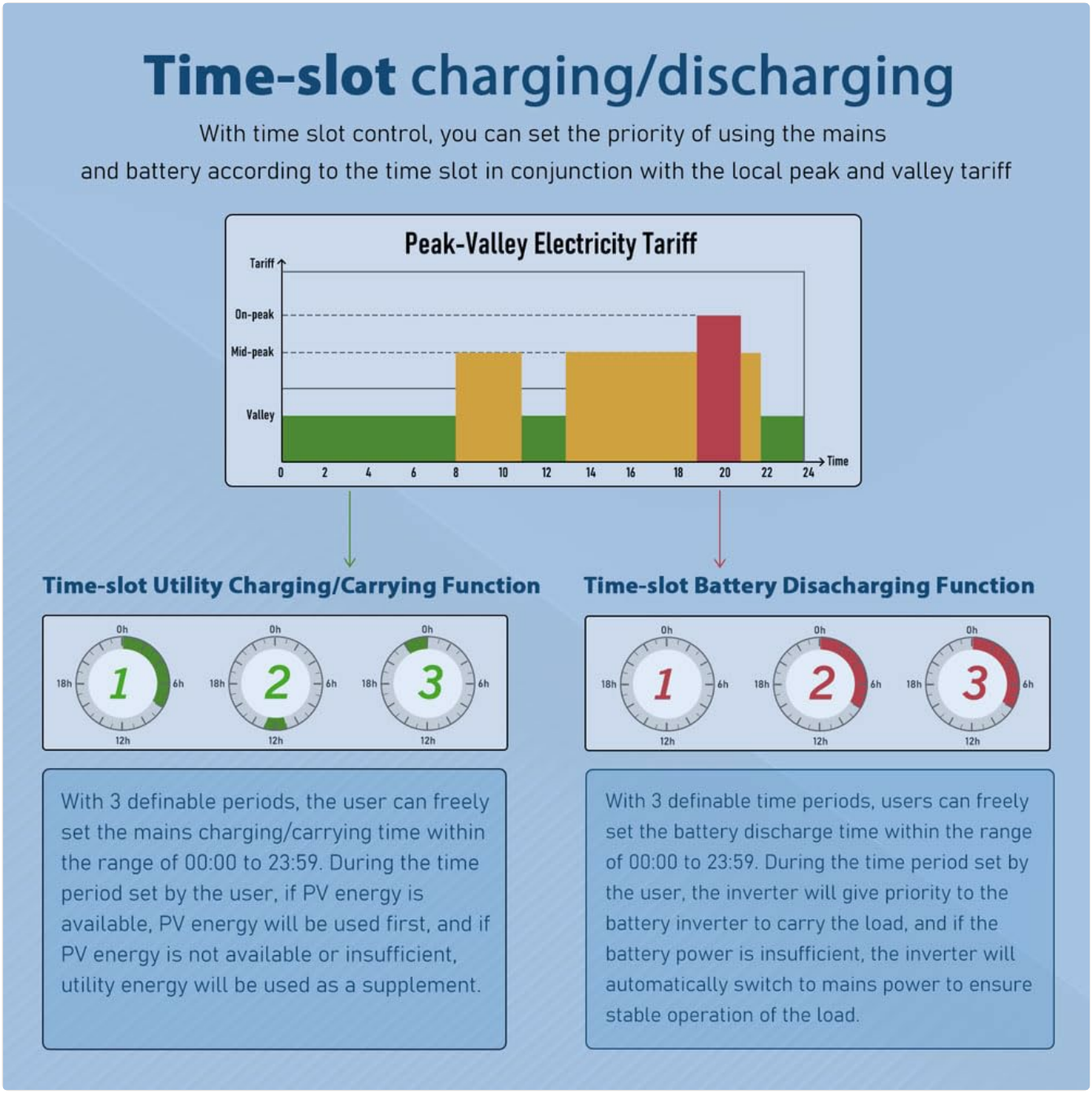

Figure 4.2: Explanation of time-slot utility charging/carrying function and time-slot battery discharging function, allowing users to define up to three periods for optimized energy management.

4.3 Battery Management

The inverter is compatible with various 48V battery types, including AGM/Sealed, Gel, Flooded, and Lithium. A User Mode is available for custom battery settings. The system supports battery-free operation. When lithium batteries are dormant, both mains power and photovoltaics can activate them via the inverter.

5. Maintenance

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

- **Cleaning:** Periodically clean the exterior of the inverter and batteries with a dry, soft cloth. Ensure ventilation openings are free from dust and debris.
- **Connections:** Annually inspect all electrical connections for tightness and signs of corrosion. Re-tighten if necessary.
- **Environment:** Ensure the installation environment remains within specified temperature and humidity ranges.

- **Battery Health:** Monitor battery voltage and performance via the LCD display or mobile app.
- **Firmware:** Check the manufacturer's website for any available firmware updates for the inverter and WiFi module.

6. Troubleshooting

This section provides solutions to common issues. For problems not listed here, please contact SUNGOLDPOWER customer support.

Problem	Possible Cause	Solution
Inverter not turning on	No DC input from battery/PV; Battery voltage too low; AC input not connected (if applicable)	Check battery connections and voltage; Ensure PV input is sufficient; Verify AC input connection.
No AC output	Overload; Short circuit; Inverter fault; Output breaker tripped	Reduce load; Check for short circuits in wiring; Reset output breaker; Consult manual for error codes.
Battery not charging	PV input too low; AC input not present; Battery temperature too high/low; Battery fault	Check PV array and connections; Verify AC grid connection; Ensure battery is within operating temperature range; Check battery status.
Communication issues (WiFi/CAN/RS485)	Incorrect wiring; Software/APP issue; Module fault	Verify communication cable connections; Restart inverter/module; Reinstall APP; Check for firmware updates.

7. Technical Specifications

7.1 SUNGOLDPOWER 10000W Solar Inverter (SPH10K48V)

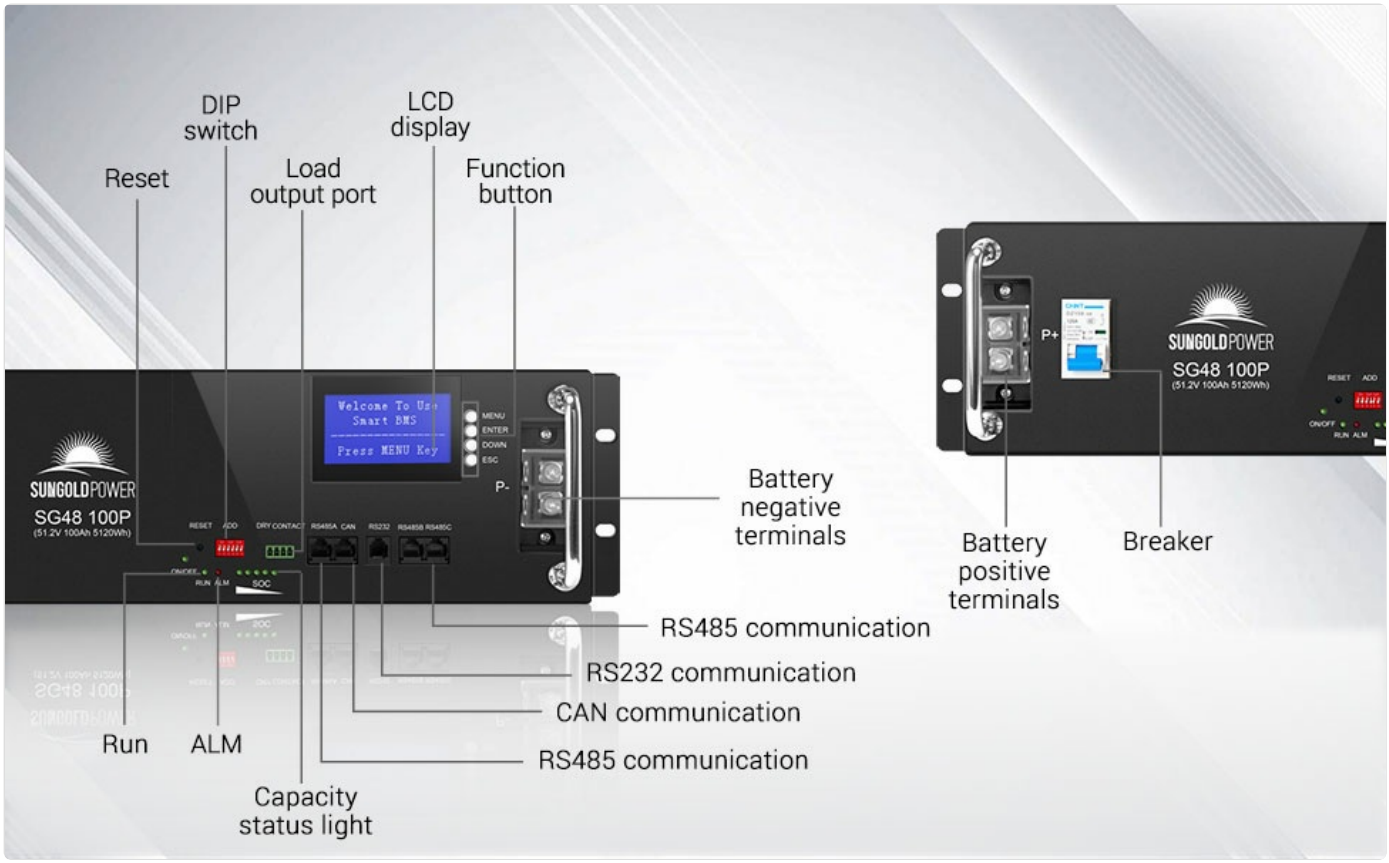

Figure 7.1: Key specifications for the SUNGOLDPOWER 10000W 48V Split Phase Solar Inverter.

Parameter	Value
Rated Output Power	10000W
Max. Peak Power	20000W
Output Waveform	Pure Sine Wave
AC Output	120V/240V (split phase/single phase)
Efficiency	92%
Max Charging Current	200A
Maximum PV Array Power	11,000W
Voltage Range (Battery)	40-60Vdc
MPPT Voltage Range	125-425Vdc
Bypass Overload Current	63A
Dimensions (L x W x H)	26.0 x 17.9 x 4.9 inches
Weight	54 lbs

7.2 SUNGOLDPOWER 48V 100Ah LiFePO4 Battery (SG48100P)

Figure 7.2: Key specifications for the SUNGOLDPOWER 48V 100Ah Server Rack LiFePO4 Lithium Battery.

Parameter	Value
Nominal Voltage	51.2V

Parameter	Value
Nominal Capacity	100Ah
Energy	5.12KWH
Charge Cut-off Current	5A
MAX Continuous Charge Current	100A
Discharge Cut-off Voltage	43.2V
Cycle Life	≥7000 cycles
Communication Protocol	RS232/RS485/CAN (Support multiple protocols)
Storage Temperature	14 to 113°F (-10 to +45°C)
Dimension (L x W x H)	19.3 x 18.9 x 5.5 inches
Weight	93 lbs

8. Warranty Information

SUNGOLDPOWER products are covered by a limited warranty. Please refer to the warranty card included with your product for specific terms, conditions, and duration. Retain your proof of purchase for warranty claims. The LiFePO4 batteries are designed for 7000+ deep cycles and up to a 15-year lifetime.

9. Customer Support

For technical assistance, troubleshooting, or warranty inquiries, please contact SUNGOLDPOWER customer support. Contact details can typically be found on the manufacturer's official website or on the product packaging.
You can also refer to the official User Manual (PDF) provided by the manufacturer for more detailed information:
Download User Manual