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POWLAND SMG-II-6,2KW-48V-WiFi(no en paralelo)

POWLAND SMG II 6.2KW Hybrid Solar Inverter User Manual

Model: SMG-II-6,2KW-48V-WiFi (Non-Parallel)
Brand: POWLAND

1. Introduction

This manual provides detailed instructions for the installation, operation, and maintenance of your POWLAND SMG II 6.2KW Hybrid Solar Inverter. This 6200W, 48V pure sine wave off-grid inverter is designed to efficiently convert DC power from solar panels and batteries into AC power for your household or office loads. It features a wide PV input voltage range of 60-500VDC and includes a WiFi module for remote monitoring.
Please read this manual thoroughly before installation and operation to ensure safe and optimal performance of the inverter.

2. Safety Information

Always observe the following safety precautions to reduce the risk of injury and to prevent damage to the inverter or other equipment:

- Installation must be performed by qualified personnel.
- Ensure all wiring is correctly sized and properly connected.
- Do not expose the inverter to rain, snow, spray, or any liquids.
- Do not disassemble the inverter. There are no user-serviceable parts inside.
- Ensure proper ventilation around the inverter to prevent overheating.
- Disconnect all power sources (PV, battery, AC input) before performing any maintenance or wiring.
- This inverter is designed for off-grid use and cannot inject power back into the utility grid.
- For inductive loads, select an inverter with a rated power 3 to 5 times higher than the nominal power of the load.

3. Product Features

The POWLAND SMG II 6.2KW Hybrid Solar Inverter offers a range of advanced features for efficient power management:

- **High Power Output:** 6200W continuous power output with 230V AC pure sine wave.
- **Wide PV Input:** Supports PV input voltage from 60VDC to 500VDC, with a maximum open circuit voltage of

500VDC.

- **Battery Compatibility:** Compatible with 48V lead-acid batteries (sealed, AGM, gel, flooded) and lithium batteries.
- **Battery-Less Operation:** Can operate without a connected battery if PV voltage is above 150V.
- **Integrated MPPT Charger:** Maximum PV charging current of 120A.
- **Programmable LCD Display:** Allows configuration of battery charging current, AC/solar charging priority, and output source priority.
- **Multiple Charging Modes:** Solar Only, Utility Grid Priority, Solar Priority, Hybrid Solar/Utility Grid.
- **Multiple Output Modes:** Solar First, Utility Grid First (Standard), SBU (Solar-Battery-Utility Grid), SUB (Solar-Utility Grid-Battery).
- **Remote Monitoring:** Includes a WiFi module for remote monitoring via a mobile application.
- **Comprehensive Protection:** Features short-circuit protection, overload protection, over-temperature protection, and dust protection.
- **Dust-Proof Design:** Designed to prevent dust from entering the interior, extending service life.



Figure 3.1: Key parameters of the 6200W Hybrid Inverter, highlighting 6200W AC output, 120A max PV charging current, 60-500Vdc

wide PV input voltage, and 27A max PV input current. This all-in-one inverter includes a built-in MPPT solar charger controller and is suitable for 48V lead-acid and lithium batteries.



Figure 3.2: Overview of advanced features including remote monitoring via SmartESS APP, automatic lithium battery activation, multiple protection mechanisms (overload, over temperature, short circuit), and a dust-proof grid design for extended lifespan.

4. Setup and Installation

Proper installation is crucial for the safe and efficient operation of your hybrid inverter. Follow these steps carefully:

4.1 Unpacking and Inspection

Upon receiving the inverter, carefully unpack it and inspect for any shipping damage. Ensure all components listed in the packing list are present:

- Hybrid Inverter (SMG II 6.2KW) x 1
- English Manual x 1
- WiFi Module (Data Logger) x 1

4.2 Mounting the Inverter

Choose a suitable location for mounting the inverter. It should be:

- Indoors, protected from direct sunlight, rain, and moisture.
- Well-ventilated to allow for heat dissipation.
- On a solid surface capable of supporting the inverter's weight (8.7 kg).
- Away from flammable materials.

4.3 Wiring Connections

Refer to the wiring diagram below for proper connection of PV input, battery, AC input (utility grid or generator), and AC output (loads). Ensure all circuit breakers are open before making connections.

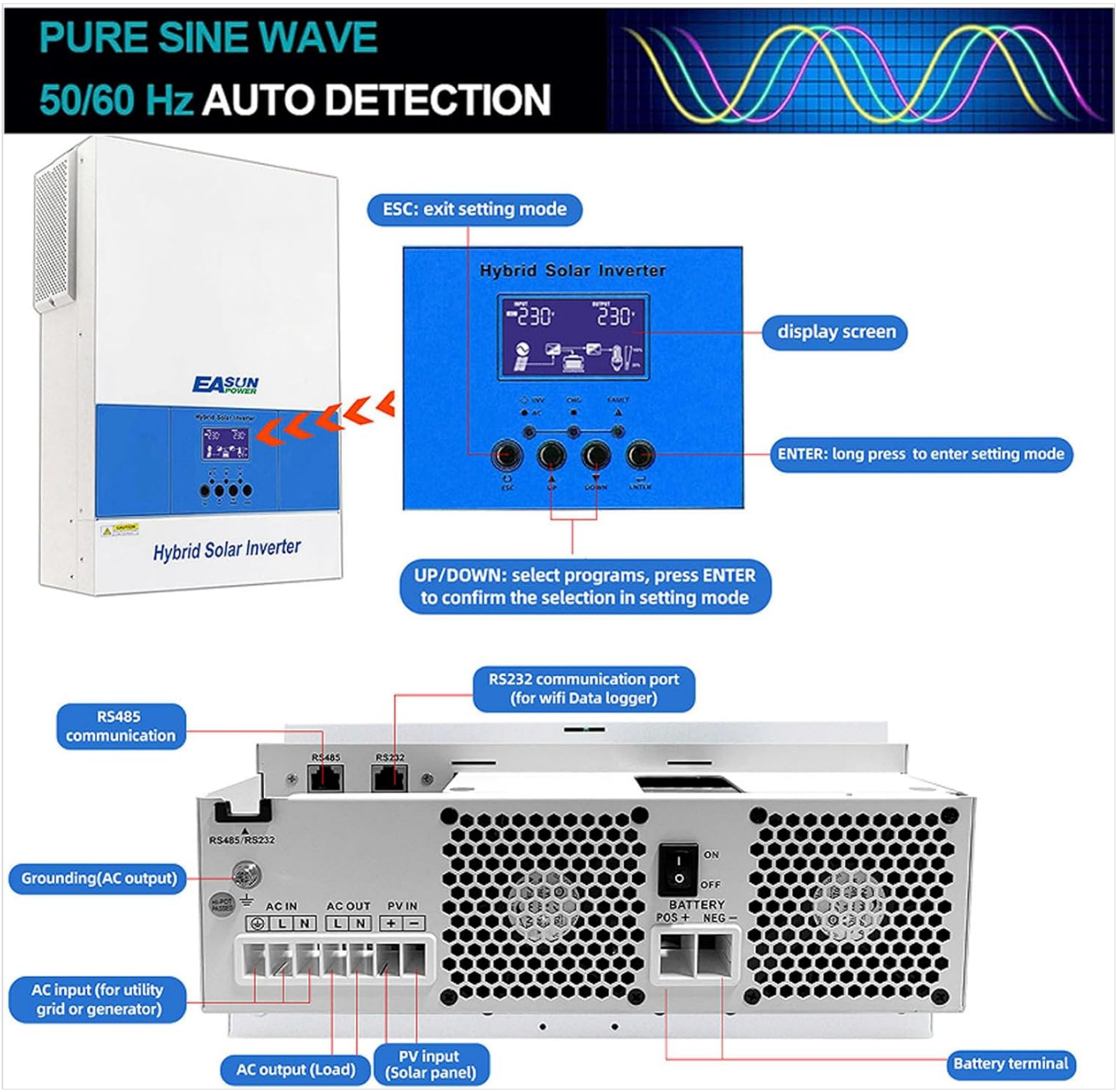

Figure 4.1: Front panel display and rear connection ports. This image details the display screen, UP/DOWN/ENTER buttons for settings, RS232/RS485 communication ports (for WiFi Data logger), AC input, AC output, PV input (solar panel), and battery terminals.

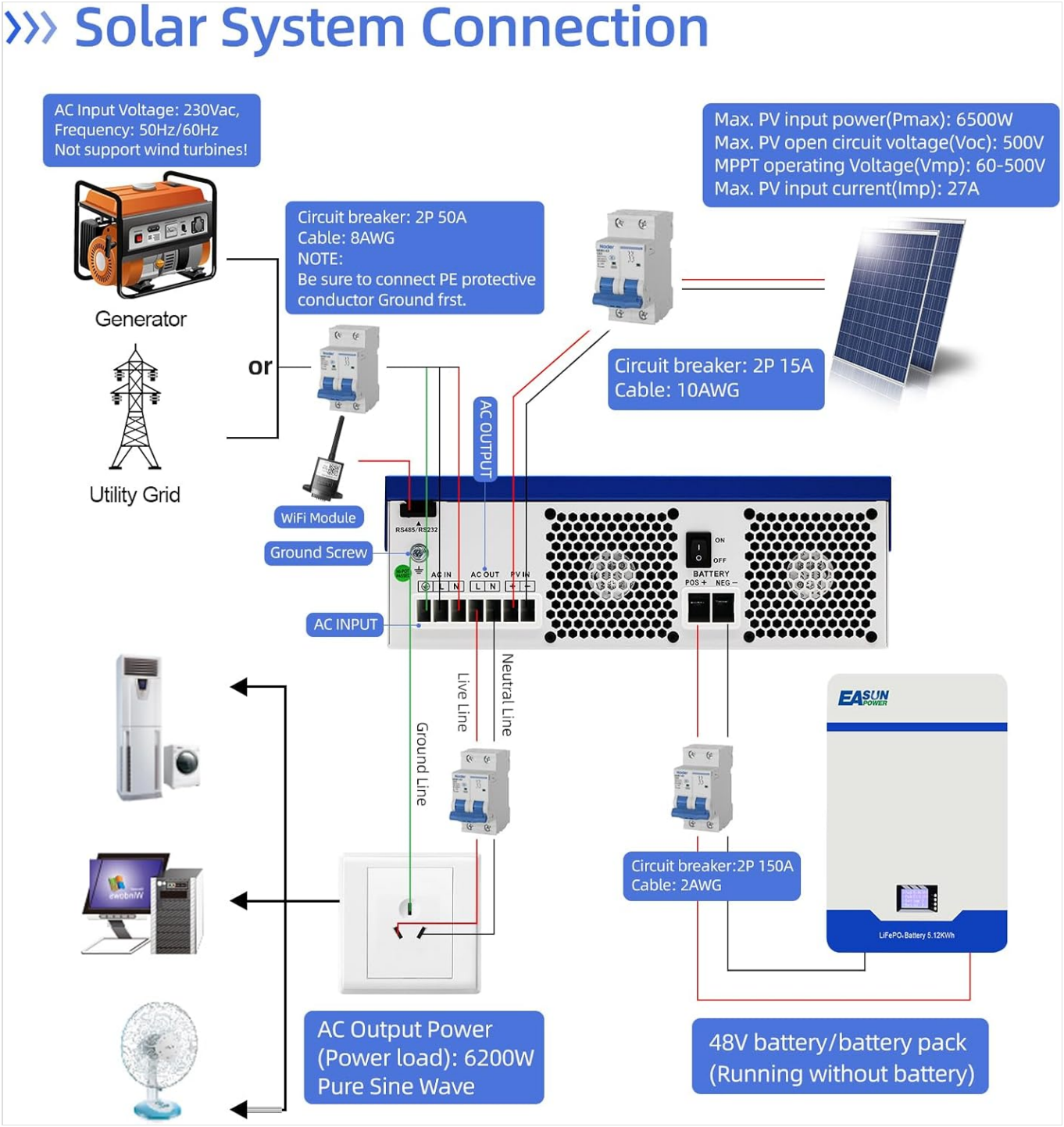

Figure 4.2: Comprehensive solar system connection diagram. This diagram illustrates how to connect the PV array (Max. PV input power 6500W, Voc 500V DC, Vmp 60-500V), 48V battery/battery pack, AC input from utility grid or generator, and AC output to various home appliances. It also shows the placement of circuit breakers and the WiFi module connection.

- **Battery Connection:** Connect the 48V battery bank to the battery terminals. Ensure correct polarity. The inverter is compatible with lead-acid (sealed, AGM, gel, flooded) and lithium batteries.
- **PV Input Connection:** Connect your solar panels to the PV input terminals. Ensure the PV voltage is within the 60-500VDC operating range. If operating without a battery, the PV voltage must be above 150V.
- **AC Input Connection:** Connect the utility grid or a generator to the AC input terminals.
- **AC Output Connection:** Connect your household or office loads to the AC output terminals.
- **Grounding:** Ensure the inverter is properly grounded.
- **WiFi Module:** Connect the included WiFi module to the RS232 communication port for remote monitoring.



Figure 4.3: The inverter is compatible with various 48V battery types including GEL, AGM, FLD (Flooded), and LI (Lithium). It also illustrates the four charging modes: Solar first, Utility Grid first, Solar & Utility Grid, and Solar only. Note that the inverter can work without a battery if the PV input voltage is 150V or higher.

5. Operating Instructions

The inverter features a programmable LCD display for easy configuration and monitoring.

5.1 LCD Display and Buttons

The LCD display shows real-time operating status and data. Use the buttons below the display to navigate and configure settings:

- **ESC:** Exit setting mode.
- **ENTER:** Long press to enter setting mode; short press to confirm selection.
- **UP/DOWN:** Select programs or adjust values.

5.2 Programmable Settings

You can configure various parameters through the LCD display, including:

- **Battery Charging Current:** Adjust the maximum charging current for your battery bank.
- **AC/Solar Charging Priority:**
  - Solar Only
  - Utility Grid Priority
  - Solar Priority
  - Hybrid Solar/Utility Grid
- **Output Source Priority:**
  - Solar First (SOL)
  - Utility Grid First (UEI) - Standard
  - SBU (Solar-Battery-Utility Grid)
  - SUB (Solar-Utility Grid-Battery)
- **Lithium Battery Activation:** For lithium batteries, set program 05 to "LI" and 41 to "RLO" when the battery is not detected. The unit will automatically activate the lithium battery once.



Figure 5.1: The 6200 Watt pure sine wave output inverter supports four output source priorities: Solar first (SOL), Utility grid first (UEI), Solar>battery>utility grid (SBU), and Solar>utility grid>battery (SUB). It is suitable for powering various household appliances such as electric kettles, refrigerators, air conditioners, microwave ovens, coffee machines, and bread makers.

5.3 Remote Monitoring (WiFi Module)

The included WiFi module allows you to monitor the inverter's operating status and data remotely via the SmartESS APP on your mobile phone. Refer to the WiFi module's separate instructions for setup and usage.

6. Maintenance

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

- **Cleaning:** Periodically clean the exterior of the inverter, especially the ventilation openings, to ensure proper airflow. The dust-proof design helps, but regular cleaning is still recommended.
- **Connections:** Periodically check all electrical connections for tightness and signs of corrosion.
- **Environment:** Ensure the operating environment remains within the recommended temperature and humidity

ranges.

- **Battery Health:** If using lead-acid batteries, regularly check their water levels (for flooded batteries) and overall health.

Do not attempt to open the inverter casing for internal cleaning or repairs. Refer to qualified service personnel for any internal issues.

7. Troubleshooting

The inverter is equipped with various protection functions. If an issue occurs, the LCD display may show an error code or indicator. Common issues and their potential solutions include:

- **No Output Power:** Check AC input, battery voltage, and PV input. Ensure all circuit breakers are closed.
- **Overload Protection:** If the inverter shuts down due to overload, reduce the connected load. Remember that inductive loads require significantly higher starting power.
- **Over-temperature Protection:** Ensure adequate ventilation around the inverter. Clear any obstructions from the vents.
- **Short-circuit Protection:** Disconnect all loads and check for any short circuits in the wiring.
- **Battery Not Charging:** Check PV input voltage and current. Verify battery connections and settings.
- **WiFi Module Connectivity Issues:** Ensure the module is properly connected and refer to its specific troubleshooting guide.

For persistent issues or error codes not listed, contact technical support.

8. Specifications

Detailed technical specifications for the POWLAND SMG II 6.2KW Hybrid Solar Inverter:



Figure 8.1: A detailed table of specifications for the MPPT 6200W Hybrid Solar Inverter, including phase, load power, inverter type,

battery type, battery voltage, AC output, max PV input power, max PV open circuit voltage, MPPT operating voltage, PV charging current, and PV+AC charging current.

Parameter	Value
Model	SMG-II-6,2KW-48V-WiFi(no en paralelo)
Rated Power	6200 W
AC Output Voltage	230 V AC
AC Output Waveform	Pure Sine Wave
Frequency	50 Hz / 60 Hz (Auto Detection)
Battery Voltage	48 V
Max. PV Open Circuit Voltage	500 VDC
PV Operating Voltage Range	60 - 500 VDC
Max. PV Input Power	6500 W
Max. PV Input Current	27 A
Max. PV Charging Current	120 A
Battery Charge Current (AC)	100 Amperio-hora
Dimensions (L x W x H)	43.8 x 29.5 x 10.5 cm
Weight	8.7 kg
Display Type	LCD
Communication Port	RS232/RS485 (for WiFi)

9. Warranty and Support

Your POWLAND Hybrid Inverter comes with a standard warranty. Please refer to the warranty card included with your product for specific terms and conditions.
For technical assistance, troubleshooting, or warranty claims, please contact our professional technical support team.
Online support is available to assist you with any queries regarding the product's operation or performance.
Contact information for support can typically be found on the product packaging or the official POWLAND website.

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