OKAT POW-VM5K-III

OKAT POW-VM5K-III Hybrid Inverter Charger User Manual

Model: POW-VM5K-III
Brand: OKAT

1. Introduction

This manual provides essential information for the safe and efficient operation of your OKAT POW-VM5K-III Hybrid Inverter Charger. Please read this manual thoroughly before installation and use, and keep it for future reference. The POW-VM5K-III is a pure sine wave off-grid solar inverter designed for various applications, including household appliances and personal computers. It features compatibility with utility or generator power, automatic restart, a removable LCD control panel, and multiple communication ports for Battery Management Systems (BMS).

2. Safety Information

WARNING: ELECTRIC SHOCK HAZARD. DO NOT OPEN.

- Ensure all wiring is performed by qualified personnel.
- Do not attempt to disassemble or repair the unit yourself. Refer to qualified service personnel.
- Install the inverter in a well-ventilated area, away from flammable materials.
- Ensure proper grounding of the unit.
- Avoid exposure to moisture or liquids.
- This inverter is equipped with protection functions against overload, over-temperature, and short-circuit.

Image: Front view of the OKAT POW-VM5K-III Hybrid Inverter Charger, showing the LCD display, control buttons, and a prominent caution label indicating an electric shock hazard.

3. Product Overview

The OKAT POW-VM5K-III is a versatile hybrid inverter charger designed to manage power from solar panels, utility grids, and batteries. It features a pure sine wave output suitable for sensitive electronics.

3.1 Key Features

- Pure sine wave inverter.
- Compatible with utility mains or generator power.

- Automatic restart while AC is recovering.
- Configurable input voltage range, battery charging current, and AC/solar charger priority via removable LCD control panel.
- Overload, over-temperature, and short-circuit protection.
- Smart battery charger design for optimized battery performance.
- Cold start function.
- Multiple communication ports (RS485, CAN-BUS, RS232) for BMS.

3.2 Components and Controls

Image: This diagram illustrates the removable LCD display panel of the inverter, highlighting its connection to the main unit for improved monitoring and flexible placement.

*Image: A detailed view of the inverter's LCD control panel. It shows: **1. Function Keys** for navigation, **2. Status Indicators** for operational status, **3. Setting LED 1/2/3**, **4. On/Off Switch**, and **5. LCD Display** for real-time information.*

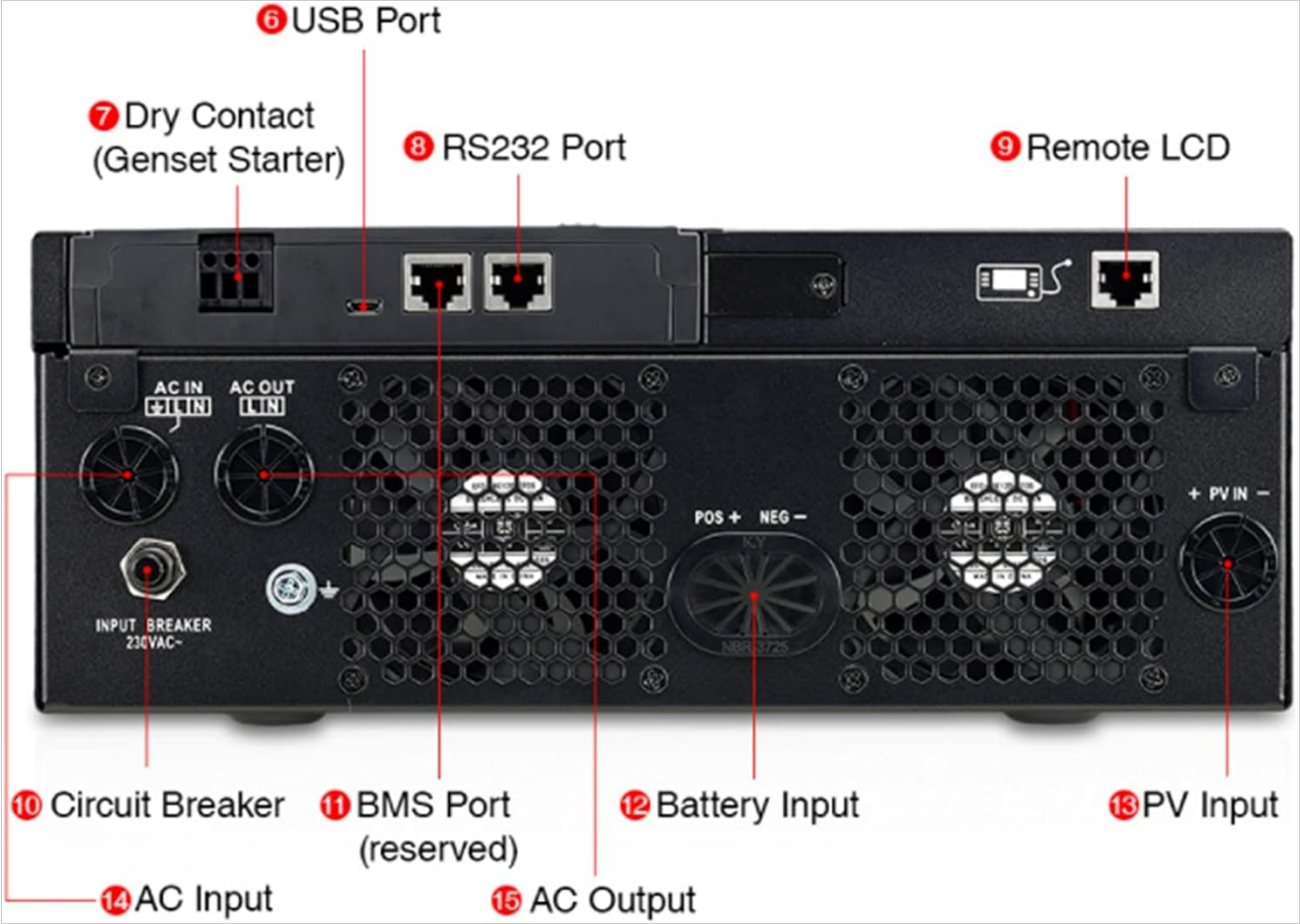

*Image: Rear view of the inverter detailing its connection ports: **6. USB Port**, **7. Dry Contact (Genset Starter)**, **8. RS232 Port**, **9. Remote LCD** connection, **10. Circuit Breaker**, **11. BMS Port (reserved)**, **12. Battery Input** (POS + / NEG -), **13. PV Input** (+ PV IN -), **14. AC Input**, and **15. AC Output**.*

4. Setup and Installation

Proper installation is crucial for the safe and efficient operation of the inverter. Consult a qualified electrician for installation if you are unsure.

4.1 Site Selection

- Install the unit indoors in a cool, dry, and well-ventilated area.
- Avoid direct sunlight, heat sources, and moisture.
- Ensure sufficient clearance around the unit for proper airflow.
- Mount the inverter vertically on a sturdy surface.

4.2 Wiring Connections

Refer to the rear panel diagram (Image in Section 3.2) for port identification.

1. **Battery Connection:** Connect the battery bank to the **Battery Input** terminals (POS + and NEG -). Ensure correct polarity.
2. **PV Input Connection:** Connect the solar panel array to the **PV Input** terminals (+ PV IN -). Observe correct polarity and voltage limits.
3. **AC Input Connection:** Connect the utility grid or generator to the **AC Input** terminal.
4. **AC Output Connection:** Connect your loads (appliances) to the **AC Output** terminal.
5. **Grounding:** Ensure the inverter chassis is properly grounded.

6. **Communication Ports:** Connect RS232, RS485, CAN-BUS, or Remote LCD as required for monitoring or BMS integration.

CAUTION: Before making any connections, ensure all power sources (solar, utility, battery) are disconnected to prevent electric shock.

5. Operating Instructions

5.1 Initial Startup

1. After all connections are secure, switch on the battery breaker.
2. Switch on the PV array breaker (if applicable).
3. Switch on the AC input breaker (if applicable).
4. Press and hold the **On/Off Switch** (labeled 4 in the LCD panel image) on the inverter for a few seconds until the LCD display illuminates.
5. The inverter will perform a self-test and then display operational status.

5.2 LCD Display and Settings

The removable LCD control panel allows you to monitor system status and configure various parameters.

- Use the **Function Keys** (labeled 1) to navigate through menus.
- The **LCD Display** (labeled 5) shows real-time data such as input voltage, output voltage, battery charge, and load status.
- Configurable settings include:
    - Input voltage range for home appliances or personal computers.
    - Battery charging current.
    - AC charger priority or solar charger priority.

Image: The OKAT POW-VM5K-III inverter shown in an outdoor setting, connected to solar panels on a rooftop, illustrating a typical off-grid solar power system setup.

6. Maintenance

Regular maintenance ensures optimal performance and longevity of your inverter.

- **Cleaning:** Periodically clean the exterior of the inverter with a dry cloth. Ensure ventilation openings are free from dust and debris.
- **Connections:** Regularly check all electrical connections for tightness and signs of corrosion.
- **Battery Health:** Monitor battery voltage and performance. Follow battery manufacturer's maintenance guidelines.
- **Environment:** Ensure the installation environment remains within specified temperature and humidity ranges.

WARNING: Disconnect all power sources before performing any maintenance or cleaning.

7. Troubleshooting

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

Problem	Possible Cause	Solution
Inverter does not turn on.	No battery power; battery voltage too low; loose connections.	Check battery connections and voltage. Ensure battery breaker is on.
No AC output.	Overload; short-circuit; inverter fault.	Reduce load. Check for short-circuits in wiring. Check fault indicators on LCD.
Battery not charging.	PV input issue; AC input issue; charger settings incorrect.	Check PV connections and voltage. Verify AC input. Adjust charger priority settings via LCD.
Over-temperature warning.	Insufficient ventilation; blocked fan.	Ensure adequate airflow around the inverter. Clean ventilation openings.

8. Specifications

Detailed technical specifications for the OKAT POW-VM5K-III Hybrid Inverter Charger.

Image: A close-up of the product label on the inverter, displaying key specifications including model name, operating temperature, rated power, and detailed parameters for Inverter Mode, AC Charger Mode, and Solar Charger Mode.

General

- **Model:** POW-VM5K-III
- **Material:** Cold Rolled Steel
- **Operating Temperature:** -10℃ to 50℃

- **Storage Temperature:** -15°C to 60°C

Inverter Mode

- **Rated Power:** 5000VA / 5000W
- **DC Input:** 48VDC, 118A
- **AC Output:** 230VAC, 50/60Hz, 22A, 1Φ

AC Charger Mode

- **AC Input:** 230VAC, 50/60Hz, 35A, 1Φ
- **DC Output:** 54VDC, Maximum 60A (30A by default)
- **AC Output:** 230VAC, 50/60Hz, 22A, 1Φ

Solar Charger Mode

- **Rated Power:** 5000W
- **Nominal Operating Voltage:** 320VDC
- **Max. Solar Voltage (VOC):** 500VDC
- **MPPT Voltage Range:** 120-450VDC

9. Warranty and Support

Information regarding product warranty and customer support is typically provided with the product packaging or on the manufacturer's official website. Please refer to these resources for details on warranty coverage, terms, and how to contact customer service for technical assistance or repairs.
For further assistance, please contact your local dealer or the manufacturer directly.