HumsiENK 48V 100Ah

HumsiENK 48V 100Ah LiFePO4 Wall-Mounted Solar Battery User Manual

Model: 48V 100Ah

1. Introduction

This manual provides essential information for the safe and efficient installation, operation, and maintenance of your HumsiENK 48V 100Ah LiFePO4 Wall-Mounted Solar Battery. Please read this manual thoroughly before using the product and retain it for future reference. This battery is designed for energy storage applications, including solar systems, backup power, and off-grid setups.

Figure 1: HumsiENK 48V 100Ah LiFePO4 battery in typical applications.

2. Safety Instructions

Adhering to these safety guidelines is crucial for preventing injury, damage to the battery, and ensuring long-term performance.

- **Qualified Personnel:** Installation and maintenance should only be performed by qualified personnel with knowledge of electrical systems and battery safety.
- **Personal Protective Equipment (PPE):** Always wear appropriate PPE, including insulated gloves, eye protection, and protective clothing, when handling the battery.
- **Ventilation:** Ensure adequate ventilation around the battery to prevent heat buildup.
- **Avoid Short Circuits:** Do not short-circuit the battery terminals. Use insulated tools.
- **No Disassembly:** Do not attempt to open, disassemble, or modify the battery. There are no user-serviceable parts inside.

- **Fire Hazard:** Keep the battery away from open flames, heat sources, and flammable materials. In case of fire, use a Class D fire extinguisher.
- **Water Exposure:** Although the battery is IP65 rated, avoid direct exposure to excessive water or submersion.
- **Children and Pets:** Keep the battery out of reach of children and pets.
- **Disposal:** Dispose of the battery according to local regulations for lithium-ion batteries. Do not dispose of it with household waste.

3. Product Overview

3.1 Key Features

- **High Capacity:** 48V 100Ah LiFePO4 battery with 5.12 kWh energy capacity.
- **Integrated BMS:** Smart 100A Battery Management System (BMS) provides protection against overcharge, over-discharge, short-circuit, overcurrent, and extreme temperatures.
- **Enhanced Safety:** Includes an external 125A circuit breaker for additional reliability and protection.
- **Wide Operating Temperature:** Dischargeable from -20°C to 60°C (-4°F to 140°F) and chargeable from 0°C to 55°C (32°F to 131°F).
- **Smart Monitoring:** Bluetooth 5.2 connectivity for real-time monitoring of State of Charge (SOC), voltage, current, and temperature via the HumsiENK mobile app.
- **Long Cycle Life:** Designed for 6000+ deep cycles, ensuring a long operational lifespan of over 10 years.
- **Space-Saving Design:** Compact wall-mounted form factor (52 × 14.2 × 47 cm) saves up to 30% more space compared to traditional lead-acid batteries.
- **Scalable:** Supports parallel connection of up to 16 units for increased energy capacity (up to 81.9 kWh) and load power (up to 81.9 kW).
- **Durable Construction:** Metal shell with IP65 rating for water and dust resistance.

Figure 2: Product overview with key specifications and dimensions.

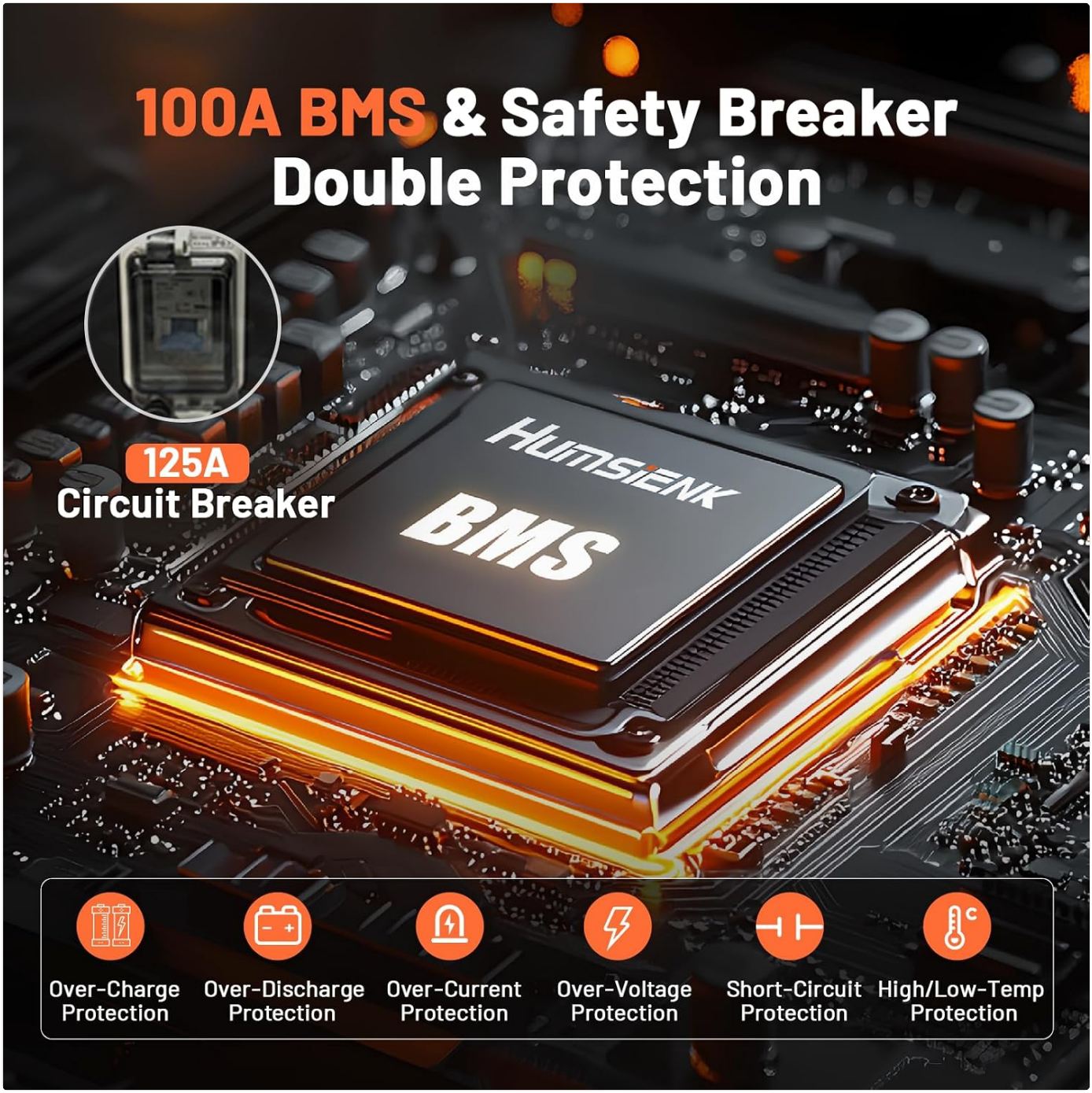

Figure 3: Integrated BMS and external circuit breaker for double protection.

3.2 Components

The HumsiENK 48V 100Ah battery includes the following main components:

- Battery Unit (5.12 kWh, 48V 100Ah)
- Integrated Smart BMS (Battery Management System)
- External 125A Circuit Breaker
- Wall Mounting Brackets (Hanging and Bottom)
- Communication Ports (CAN, RS232, Link In/Out)
- Power Terminals (P+, P-)
- LED Indicators (Running Light, Alarm Light)

Figure 4: Battery components and interface layout.

3.3 Specifications

Specification	Value
Model Number	48V 100Ah
Battery Type	LiFePO4 (Lithium Iron Phosphate)
Nominal Voltage	48V
Nominal Capacity	100Ah
Energy Capacity	5.12 kWh
Max Continuous Charge/Discharge Current	100A

Specification	Value
Max Load Power	5.12 kW
Integrated BMS	100A Smart BMS with comprehensive protections
External Circuit Breaker	125A
Discharge Temperature Range	-20°C to 60°C (-4°F to 140°F)
Charge Temperature Range	0°C to 55°C (32°F to 131°F)
Cycle Life	6000+ cycles
Expected Lifespan	10+ years
Communication	Bluetooth 5.2, CAN, RS232
Parallel Connection	Up to 16 units
Dimensions (L x W x H)	52 x 14.2 x 47 cm (20.47 x 5.57 x 18.50 inches)
Weight	47 kg (103.6 lbs)
Ingress Protection (IP) Rating	IP65 (Waterproof & Dustproof)
Warranty	5 years

Figure 5: All-weather performance and temperature ranges.

4. Setup & Installation

Proper installation is critical for the safety and performance of your battery. Ensure all safety instructions are followed.

4.1 Unpacking

- Carefully remove the battery from its packaging.
- Inspect the battery for any signs of damage during transit. If damaged, contact your supplier immediately.
- Verify that all components listed in Section 3.2 are present.

4.2 Mounting

The HumsiENK battery is designed for wall-mounted installation. Choose a location that is:

- Structurally sound to support the battery's weight (approx. 47 kg).

- Well-ventilated and protected from direct sunlight, rain, or extreme temperatures outside the specified operating range.
- Accessible for wiring and maintenance, but secure from unauthorized access.

1. Mark the positions for the hanging and bottom brackets on the wall using the battery as a template.
2. Securely fasten the brackets to the wall using appropriate hardware for your wall type.
3. Carefully lift and hang the battery onto the top bracket, then secure it with the bottom bracket.

Figure 6: Wall mounting points and bracket locations.

4.3 Wiring

Connect the battery to your inverter/charge controller and other system components. Ensure all connections are tight and secure.

- **Power Connections (P+, P-):** Connect the positive (P+) and negative (P-) terminals to your inverter/charge controller. Observe correct polarity.

- **Communication Ports (CAN, RS232, Link In/Out):** Use these ports for communication with compatible inverters or for parallel connection between multiple batteries. Refer to your inverter's manual for specific connection details.
- **Circuit Breaker:** Ensure the external 125A circuit breaker is in the OFF position during wiring. Flip it ON only after all connections are complete and verified.

Figure 7: Compatibility with various inverter brands.

5. Operating Instructions

5.1 Initial Power-Up

1. After completing all wiring, ensure the external circuit breaker is in the ON position.
2. The battery's running light should illuminate, indicating normal operation. An alarm light would indicate an issue.
3. Verify the battery status through the integrated display or the HumsiENK app.

5.2 Monitoring

The HumsiENK battery offers multiple ways to monitor its status:

- **LED Indicators:** The battery unit features running and alarm lights for quick status checks.
- **HumsiENK App (Bluetooth 5.2):** Download the HumsiENK app on your mobile device. Connect via Bluetooth to monitor real-time State of Charge (SOC), voltage, current, temperature, and other parameters.
- **Computer/Inverter Interface:** Utilize the CAN or RS232 ports to connect to compatible inverters or computer systems for detailed data logging and control.

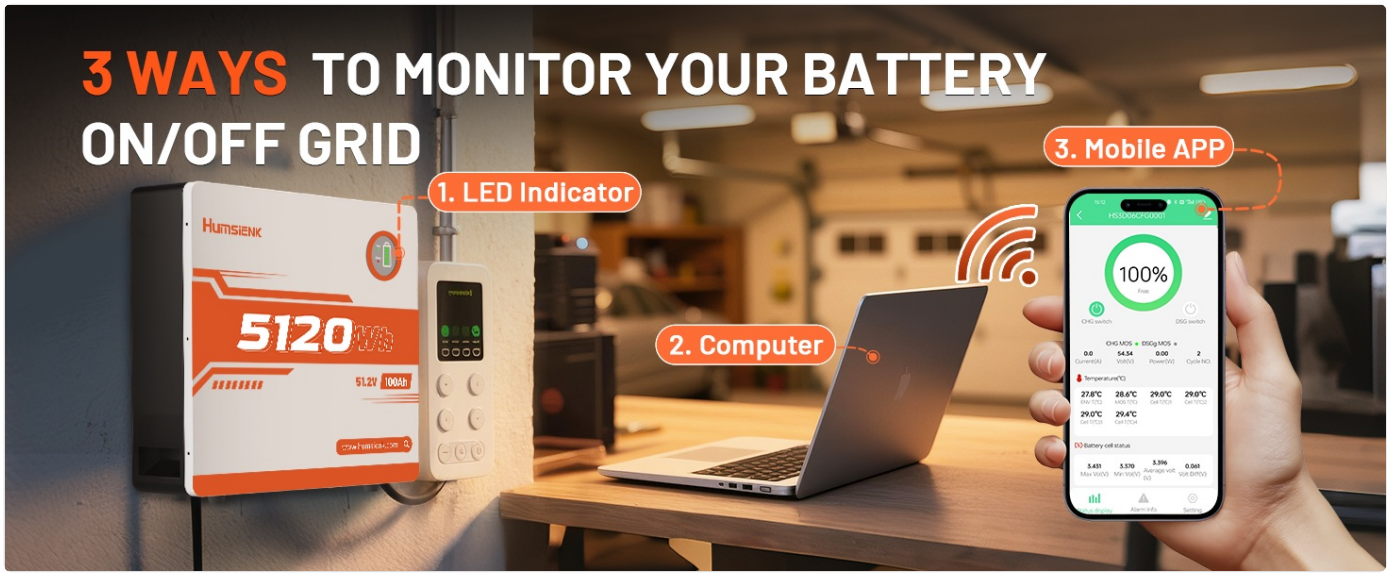

Figure 8: Three methods for battery monitoring.

5.3 Parallel Connection

For increased energy capacity and load power, multiple HumsiENK 48V 100Ah batteries can be connected in parallel, up to a maximum of 16 units. This allows for a total energy capacity of up to 81.9 kWh and a maximum load power of 81.9 kW.

- Ensure all batteries are of the same model and have similar State of Charge (SOC) before connecting in parallel.
- Use appropriate cables and fuses for parallel connections, sized for the combined current.

- Connect the communication ports (Link In/Out) between batteries as per the system design to enable proper BMS coordination.

Figure 9: Parallel connection of multiple battery units.

Figure 10: Example daily power usage with a 5.12 kWh battery.

6. Maintenance

The HumsiENK LiFePO4 battery requires minimal maintenance. Regular checks ensure optimal performance and longevity.

- **Visual Inspection:** Periodically inspect the battery for any physical damage, loose connections, or corrosion on terminals.
- **Cleaning:** Keep the battery surface clean and free of dust. Use a dry, soft cloth. Do not use solvents or abrasive cleaners.
- **Connection Checks:** Ensure all electrical connections are tight and secure. Loose connections can cause overheating and performance issues.
- **Temperature Monitoring:** Regularly check the battery's operating temperature, especially during charging and discharging cycles, using the HumsiENK app. Ensure it remains within the specified ranges.

- **Software Updates:** Check for any available firmware updates for the battery's BMS via the HumsiENK app or manufacturer's website.

7. Troubleshooting

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

Problem	Possible Cause	Solution
Battery not charging/discharging	Circuit breaker OFF, loose connections, BMS protection activated, incompatible inverter.	Check circuit breaker position. Verify all wiring connections. Check HumsiENK app for BMS fault codes. Ensure inverter compatibility and settings are correct.
Alarm light illuminated	Over-voltage, under-voltage, over-current, high/low temperature, short circuit.	Check the HumsiENK app for specific alarm details. Address the underlying cause (e.g., reduce load, check charging source, allow battery to cool/warm). The BMS will protect the battery by shutting it down if necessary.
Bluetooth connection issues	Out of range, Bluetooth disabled on device, app issues.	Ensure you are within Bluetooth range. Verify Bluetooth is enabled on your mobile device. Restart the app or your device.
Reduced capacity or runtime	Aging battery, extreme operating conditions, incorrect charging parameters.	While LiFePO4 batteries have a long life, capacity can degrade over many years. Ensure operating temperatures are within range. Verify charging parameters are set correctly by your inverter/charge controller.

8. Warranty & Support

8.1 Warranty Information

The HumsiENK 48V 100Ah LiFePO4 Wall-Mounted Solar Battery comes with a**5-year warranty** from the date of purchase. This warranty covers defects in materials and workmanship under normal use and service conditions. It does not cover damage resulting from improper installation, misuse, abuse, neglect, unauthorized modification, or acts of nature.
Please retain your proof of purchase for warranty claims.

8.2 Customer Support

For technical assistance, warranty claims, or any questions regarding your HumsiENK battery, please contact our customer support team. You can typically find contact information on the HumsiENK official website or through your point of purchase.
When contacting support, please be prepared to provide your product model number (48V 100Ah), purchase date, and a detailed description of the issue.