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WENKESAMZI 8-21S200ALIO

WENKESAMZI JBD Smart BMS 8S-21S 200A Li-ion Battery Pack Instruction Manual

Model: 8-21S200ALIO

Introduction

This manual provides detailed instructions for the installation, operation, and maintenance of your WENKESAMZI JBD Smart BMS (Battery Management System) for Li-ion battery packs. This BMS is designed to manage 8S to 21S Li-ion battery configurations, offering robust protection and communication features. Please read this manual thoroughly before use to ensure safe and optimal performance.

Important Safety Instructions

- Always ensure correct polarity when connecting the BMS to the battery pack. Incorrect connections can cause damage to the BMS, battery, or connected devices.
- Work in a well-ventilated area and wear appropriate personal protective equipment (PPE), including safety glasses and insulated gloves.
- Do not short-circuit the battery terminals or the BMS output.
- Ensure all connections are secure and properly insulated to prevent accidental contact.
- This BMS is designed for Li-ion batteries. Do not use it with other battery chemistries unless explicitly stated by the manufacturer.
- Keep the BMS away from water, moisture, and extreme temperatures.
- If you are unsure about any step, consult a qualified professional.

Product Overview

The JBD Smart BMS is a sophisticated battery management system designed for Li-ion battery packs ranging from 8S to 21S configurations. It provides essential protection, monitoring, and balancing functions to ensure the longevity and safety of your battery. This model features a 200A continuous discharge current with a 600A peak, and supports UART, RS485, and CAN communication protocols, along with an external Bluetooth module for convenient monitoring and parameter adjustment via a smartphone application.

Key Features:

- **Multiple Protection:** Overcharge, Overdischarge, Overcurrent, Short circuit, and Temperature Protection.
- **Wide Cell Count Support:** Automatically identifies 8S-21S Li-ion battery configurations.
- **High Current Capability:** 200A continuous discharge, 600A peak discharge.
- **Communication Interfaces:** UART, RS485, CAN for versatile integration.
- **External Bluetooth Module:** Enables wireless monitoring and parameter configuration via a dedicated mobile app.
- **Passive Equalization:** 100mA balance current for cell voltage consistency.
- **Temperature Monitoring:** Includes 1 internal and 2 external temperature sensors (NTC).



Figure 1: Front view of the JBD Smart BMS, showing the main board, heatsink, and connection ports. This image highlights the compact design and robust construction of the battery management system.

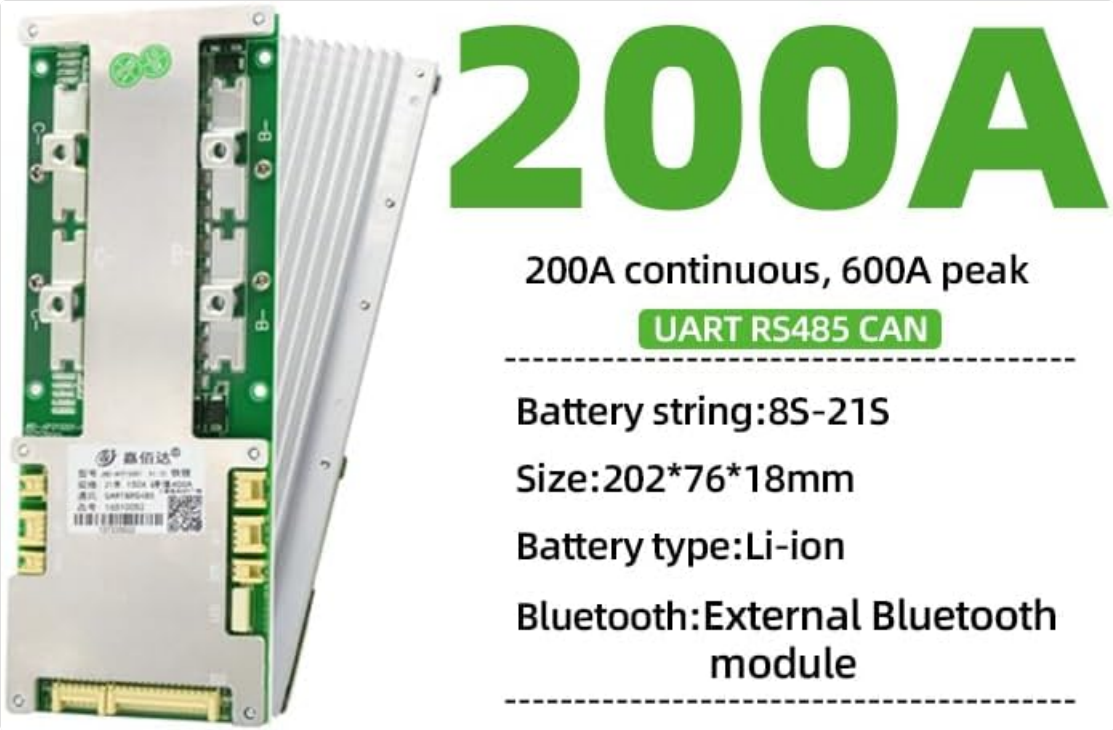


Figure 2: Illustration emphasizing the 200A continuous and 600A peak current capabilities of the JBD Smart BMS, along with supported communication protocols (UART, RS485, CAN) and battery string compatibility (8S-21S Li-ion.

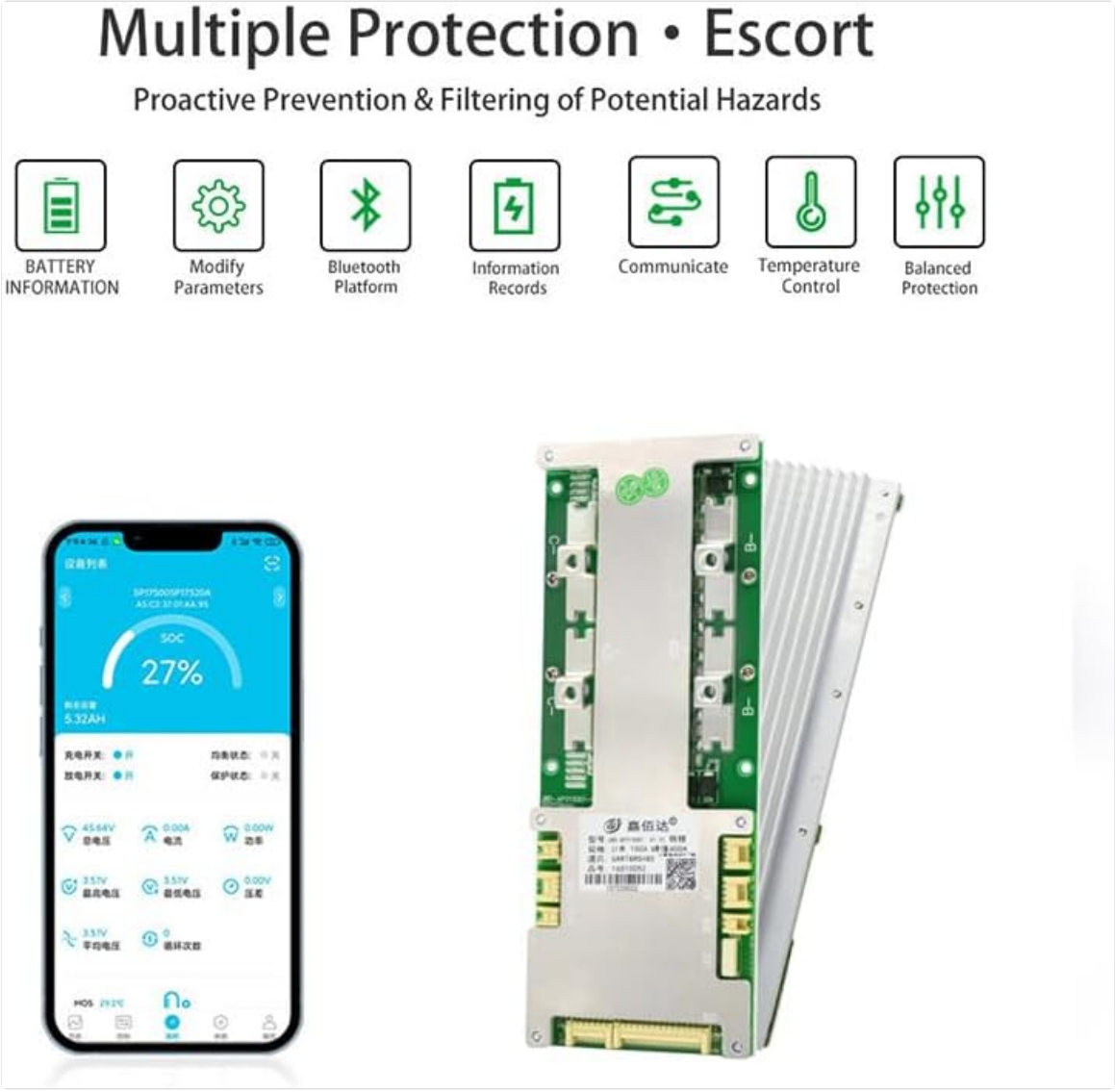


Figure 3: Visual representation of the multiple protection and management features offered by the JBD Smart BMS, including

battery information, parameter modification, Bluetooth platform, information records, communication, temperature control, and balanced protection.

SPECIFICATIONS

Feature	Specification
Applicable Battery Type	Li-ion Battery
Supported Cell Count	8S-21S (Automatically identified)
Continuous Discharge Current	200A
Peak Discharge Current	600A
Balance Current	100mA (Passive Equalization)
Communication Ports	UART, RS485, CAN
Bluetooth Module	External
Temperature Sensors	1 Internal, 2 External (NTC)
Product Dimensions (L x W x H)	202 x 76 x 18 mm (7.95 x 2.99 x 0.71 inches)
Item Weight	1.1 pounds

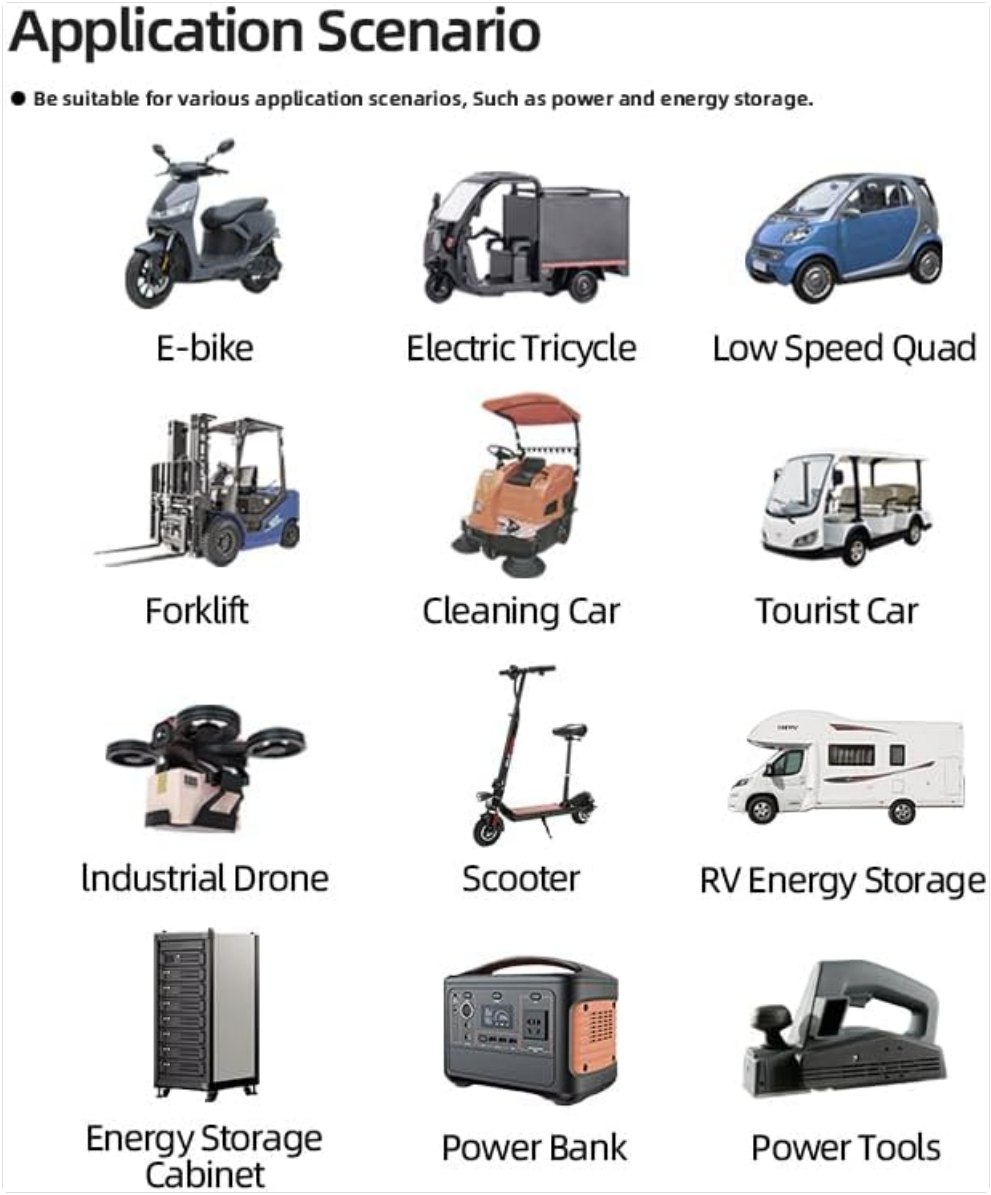


Figure 4: Image detailing the key specifications of the JBD Smart BMS, including brand, battery type, string count, sustained current, size, communication ports, Bluetooth, balance type, and NTC temperature sensors.

Setup and Installation

Proper installation is crucial for the safe and effective operation of the BMS. Please follow these steps carefully. It is highly recommended to consult a professional if you are unfamiliar with battery pack assembly and wiring.

1. Prepare the Battery Pack:

1. Ensure all individual battery cells are balanced to a similar voltage before connecting the BMS.
2. Verify the total cell count (8S-21S) matches the BMS's supported range.

2. Connect Balance Wires:

1. Connect the balance wires from your battery pack to the corresponding ports on the BMS. Start from the lowest cell voltage (B-) and connect sequentially up to the highest cell voltage.
2. Double-check each connection to ensure correct polarity and sequence. Incorrect balance wire

connection is a common cause of BMS damage.

3. Connect Main Power Wires:

1. Connect the main negative terminal of the battery pack (B-) to the designated B- port on the BMS.
2. Connect the main negative output of the BMS (P-) to your load/charger negative terminal.
3. Connect the main positive terminal of the battery pack (B+) directly to your load/charger positive terminal. The BMS typically manages the negative side for protection.
4. Ensure all main power connections are capable of handling the 200A continuous and 600A peak currents.

4. Connect Temperature Sensors:

1. Connect the external NTC temperature sensors to the designated ports on the BMS.
2. Place the sensors strategically on the battery pack to monitor critical temperature points.

5. Connect Communication Modules:

1. Connect the external Bluetooth module to the UART port on the BMS.
2. If using RS485 or CAN communication, connect the respective modules or cables to their designated ports.

6. Initial Power-Up:

1. After all connections are made and verified, carefully apply power to the system.
2. Observe the BMS for any indicator lights or unusual behavior.

Operating Instructions

The JBD Smart BMS can be monitored and configured using its dedicated Smart Bluetooth APP, available for both iPhone (iOS) and Android devices. This application provides real-time data and allows for parameter adjustments.

1. Download and Install the APP:

1. Search for "JBD BMS" or "Smart BMS" in your device's app store (Apple App Store for iOS, Google Play Store for Android).
2. Download and install the official application.

2. Connect via Bluetooth:

1. Ensure the external Bluetooth module is correctly connected to the BMS and powered on.
2. Enable Bluetooth on your smartphone.
3. Open the JBD Smart BMS APP. The app should automatically scan for nearby BMS devices.
4. Select your BMS from the device list to establish a connection.

3. Monitoring Battery Status:

1. Once connected, the app will display real-time battery information, including:
    - State of Charge (SOC)

- Total Voltage
- Individual Cell Voltages
- Current (Charge/Discharge)
- Temperature (Internal/External)
- Protection Status (Overcharge, Overdischarge, etc.)

2. Navigate through different tabs in the app to view detailed data, historical records, and curve charts.

4. Parameter Configuration:

1. The app allows you to modify various BMS parameters, such as:
   - Overcharge/Overdischarge Voltage Thresholds
   - Overcurrent Thresholds
   - Temperature Protection Limits
   - Balance Settings
   - Capacity Settings
2. **Caution:** Modifying parameters incorrectly can lead to battery damage or unsafe operation. Only adjust parameters if you fully understand their implications. It is recommended to back up current settings before making changes.

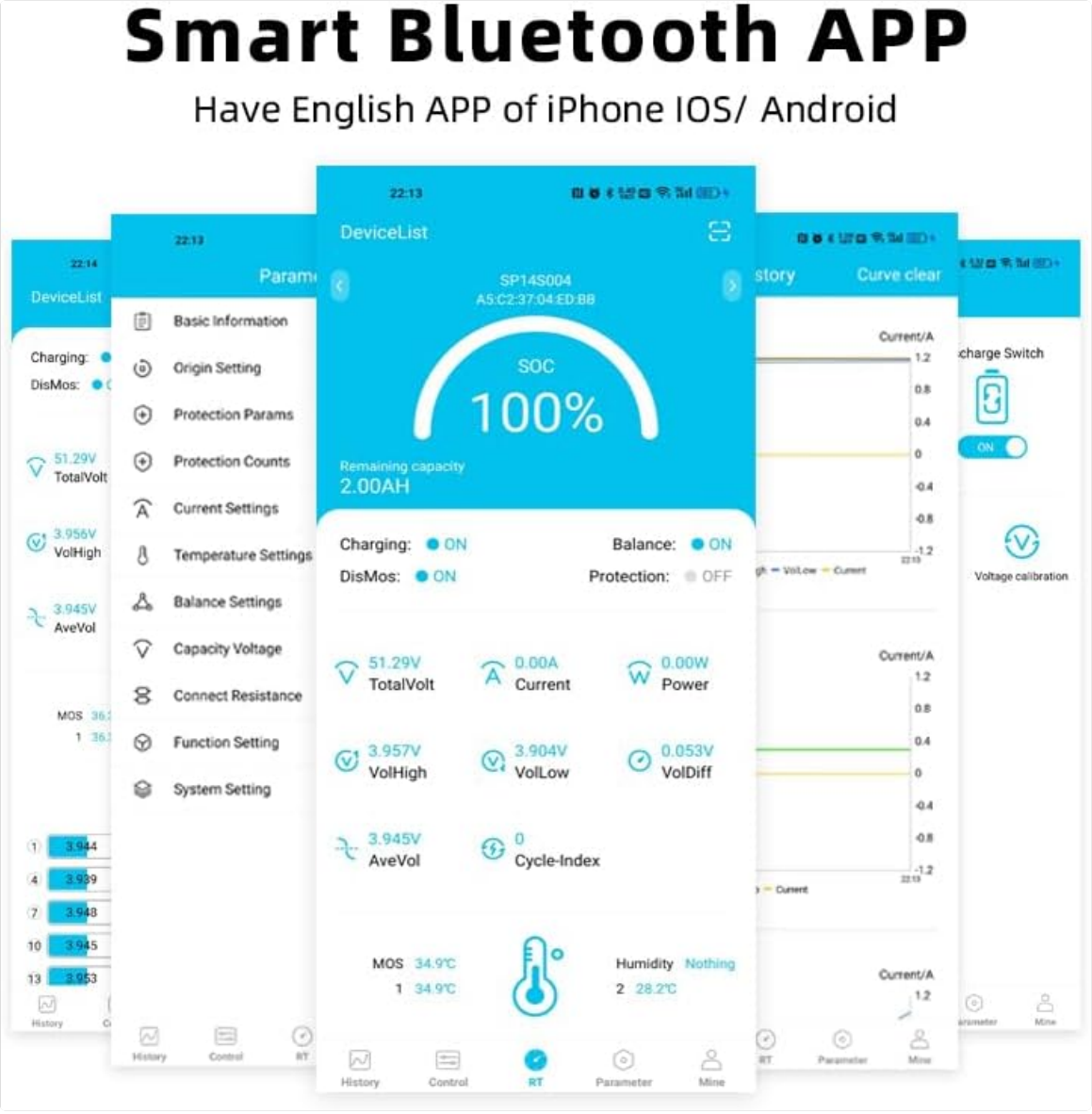


Figure 5: Screenshots of the JBD Smart Bluetooth APP interface, demonstrating real-time monitoring of battery parameters like State of Charge (SOC), voltage, current, temperature, and various settings for protection and balance. The app supports English for both iOS and Android platforms.

Maintenance

Regular maintenance helps ensure the longevity and reliable operation of your JBD Smart BMS and the connected battery pack.

- **Visual Inspection:** Periodically inspect the BMS and all wiring for any signs of damage, corrosion, loose connections, or overheating.
- **Cleanliness:** Keep the BMS free from dust, dirt, and moisture. Use a dry, soft cloth for cleaning. Do not use liquid cleaners.
- **Firmware Updates:** Check the manufacturer's website or the mobile app for any available firmware updates for the BMS. Follow update instructions carefully.
- **Battery Health Monitoring:** Regularly monitor the individual cell voltages and overall battery health through the Bluetooth APP. Address any significant cell imbalances promptly.
- **Storage:** If the battery pack with the BMS is to be stored for an extended period, ensure it is charged to a storage voltage (typically 50-60% SOC) and stored in a cool, dry place.

Troubleshooting

This section addresses common issues you might encounter with your JBD Smart BMS.

1. BMS Not Powering On / No Output:

- **Check Main Connections:** Ensure B- and P- connections are secure and correctly wired.
- **Check Balance Wires:** Verify all balance wires are connected in the correct sequence and polarity. A single incorrect connection can prevent the BMS from operating.
- **Battery Voltage:** Confirm the battery pack voltage is within the operational range of the BMS.
- **Protection Triggered:** The BMS might be in a protection state (e.g., over-discharge). Check the app for protection alerts.

2. Bluetooth Connection Issues:

- **Module Connection:** Ensure the external Bluetooth module is properly connected to the BMS UART port.
- **Bluetooth Enabled:** Verify Bluetooth is enabled on your smartphone.
- **App Permissions:** Check if the app has necessary Bluetooth and location permissions.
- **Proximity:** Ensure your phone is within close range of the BMS.
- **Restart:** Try restarting the app or your phone.

3. Cell Imbalance:

- **Initial Balance:** Ensure cells were balanced before BMS installation.

- **Balance Settings:** Check the balance settings in the app. Ensure passive balancing is enabled if desired.
- **Battery Health:** Significant and persistent imbalance might indicate a faulty cell in the battery pack.

4. Overcurrent/Short Circuit Protection Triggered:

- **Load Current:** Verify that your load does not exceed the continuous or peak current ratings of the BMS.
- **Short Circuit:** Check for any short circuits in the wiring or connected load.
- **Parameter Settings:** Review the overcurrent protection settings in the app.

If you encounter issues not covered here, or if troubleshooting steps do not resolve the problem, please contact customer support.

Application Scenarios

The JBD Smart BMS is versatile and suitable for a wide range of applications requiring robust battery management for Li-ion packs. Its high current capability and comprehensive protection features make it ideal for demanding power systems.



Figure 6: Examples of suitable applications for the JBD Smart BMS, including E-bikes, Electric Tricycles, Low Speed Quads, Forklifts, Cleaning Cars, Tourist Cars, Industrial Drones, Scooters, RV Energy Storage, Energy Storage Cabinets, Power Banks, and Power Tools.

- **Electric Vehicles:** E-bikes, Electric Motorcycles, Electric Scooters, Electric Tricycles, Low Speed Quads.
- **Industrial Equipment:** Forklifts, Cleaning Cars, Industrial Drones.
- **Recreational Vehicles:** Tourist Cars, RV Energy Storage.
- **Energy Storage Systems:** Energy Storage Cabinets, Power Banks.
- **Power Tools:** High-power cordless tools.

Warranty and Support

WENKESAMZI products are designed for reliability and performance. For specific warranty details, please refer to the warranty card included with your product or visit the official WENKESAMZI website.
If you require technical assistance, have questions about installation, or need support for troubleshooting, please contact WENKESAMZI customer service. Provide your product model number (8-21S200ALIO) and a detailed description of your issue for faster service.
Contact Information: Please refer to the packaging or the official WENKESAMZI website for the most up-to-date contact details.

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