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› Aoleaby JK Smart BMS BD6A20S15P Active Balance Battery Management System User Manual

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Model: BD6A20S15P

INTRODUCTION

This manual provides essential instructions for the safe and efficient operation of your Aoleaby JK Smart BMS BD6A20S15P Active Balance Battery Management System. Please read this manual thoroughly before installation and use, and retain it for future reference.

The JK Smart BMS is designed to manage and protect various battery chemistries, including Li-Ion, LiFePO₄, and LTO, ensuring optimal performance and extended battery life through active balancing and comprehensive protection features.

PRODUCT FEATURES

- **JK Own Development APP:** Bluetooth communication for real-time battery status monitoring and BMS settings via a dedicated mobile application.
- **JK Active Balance:** Actively balances voltage differences between battery cells, improving battery usage efficiency up to 99% and extending battery lifespan.
- **Full Functionality Protection:** Includes protection against over-charge, over-discharge, over-current, short circuit, and low-temperature charging cutoff.
- **Wide Compatibility:** Supports various battery configurations (e.g., 12V/4S, 24V/8S, 48V/16S, 72V/24S) with 100A-350A max current and 0.6-2A active balance current.

PACKAGE CONTENTS

Verify that all items are present in the package:

- JK Smart BMS unit (with built-in Bluetooth)
- Temperature Sensor (40cm)
- Balance Wires (75cm)
- Active Switch (15cm)
- Heating Cable (if BMS model includes heat function)

Note: For BMS models with heat function, the green 5-PIN cable of the heating cable connects to the heating pad. The remaining black and red cables connect to a smart charger. The smart charger, linked to the BMS, monitors battery temperature and automatically manages the charging status.



Image: Contents of the Aoleaby JK Smart BMS package, including the main unit, temperature sensor, active switch, and wiring.

SETUP AND INSTALLATION

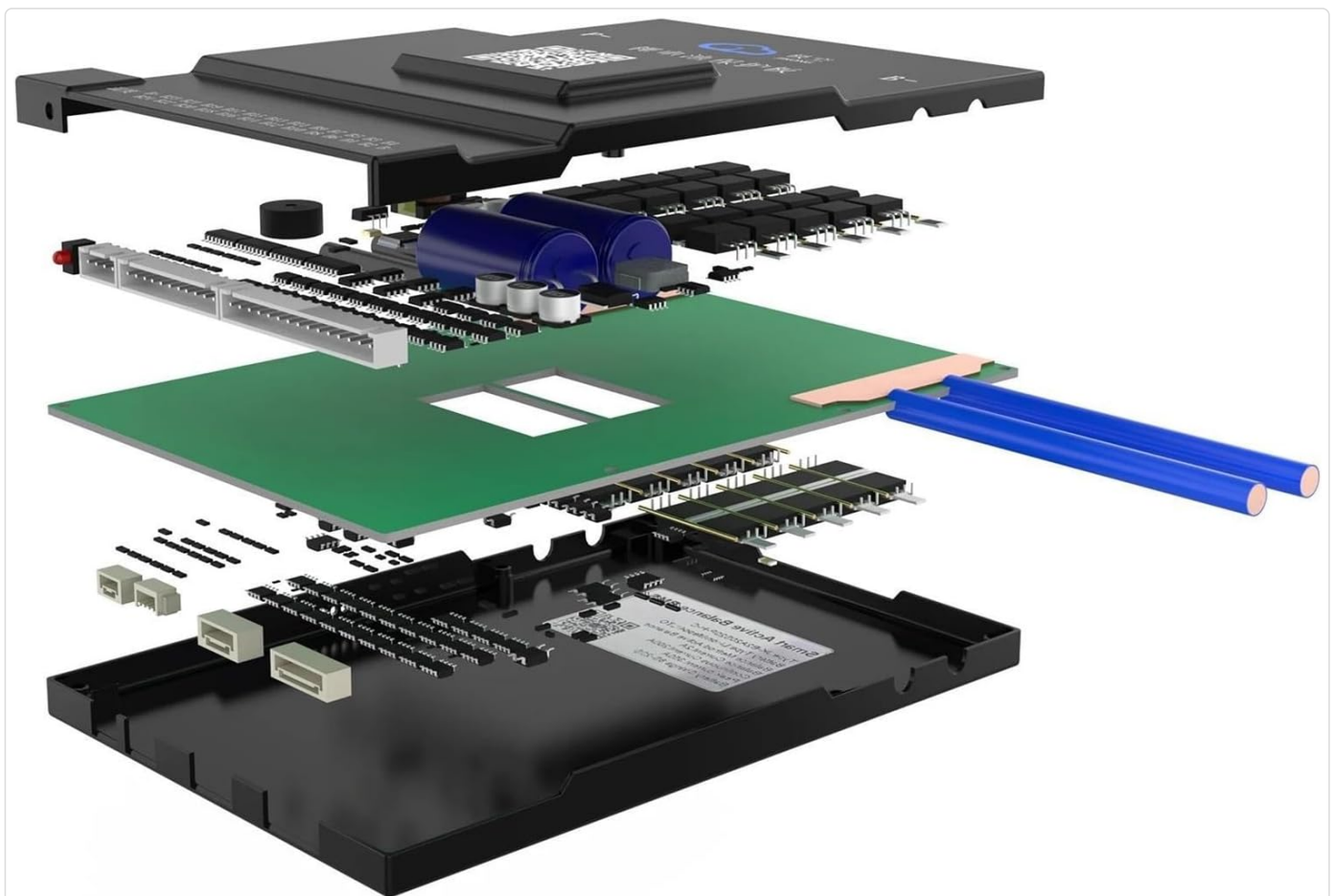
Proper installation is crucial for the safe and effective operation of the BMS. If you are unsure about any steps, consult a qualified professional.

1. **Prepare the Battery Pack:** Ensure all individual battery cells are balanced and at a safe voltage level before connecting the BMS.
2. **Connect Balance Wires:** Carefully connect the balance wires to each cell of your battery pack, starting from B- (negative terminal of the first cell) and proceeding sequentially to B+ (positive terminal of the last cell). Ensure correct polarity for each connection.
3. **Connect Temperature Sensor:** Attach the temperature sensor to a central cell or a location that accurately reflects the battery pack's temperature.
4. **Connect Active Switch:** Connect the active switch as per the wiring diagram provided with your specific BMS model. This switch is typically used to activate or deactivate the BMS.
5. **Connect Main Power Cables:** Connect the main B- cable from the BMS to the negative terminal of the battery pack. Connect the P- cable from the BMS to the negative terminal of your load/charger.

6. **Heating Cable (Optional):** If your BMS has a heating function, connect the green 5-PIN cable to the heating pad. The black and red heating cables should be connected to a smart charger that can communicate with the BMS for temperature-controlled charging.



Image: Top view of the JK Smart BMS, highlighting the various connection terminals for battery cells and power.



OPERATING INSTRUCTIONS

1. Initial Power-Up

After all connections are securely made, activate the BMS using the active switch. The BMS should power on, and you may observe indicator lights (if present) confirming operation.

2. Mobile Application (APP) Usage

The JK Smart BMS features a dedicated mobile application for monitoring and configuration via Bluetooth.

1. **Download APP:** Scan the QR code on the BMS unit or refer to the product documentation for the official APP download link.
2. **Connect via Bluetooth:** Enable Bluetooth on your mobile device. Open the JK Smart BMS APP and search for available BMS devices. Select your BMS to establish a connection.
3. **Monitor Battery Status:** The APP displays real-time data such as individual cell voltages, total pack voltage, current, temperature, state of charge (SOC), and protection status.
4. **Configure Settings:** The APP allows adjustment of various BMS parameters, including over-voltage protection, under-voltage protection, over-current limits, and balancing thresholds. Exercise caution when modifying these settings.



Image: Front of the JK Smart BMS, showing the QR code for accessing the mobile application.



Image: JK Smart BMS BD6A20S15P highlighting its key features and specifications, including Bluetooth connectivity and active balancing.

3. Charging and Discharging

The BMS will automatically manage charging and discharging processes based on its configured protection parameters. It will cut off current if any parameter (e.g., over-voltage, under-voltage, over-current, high/low temperature) is exceeded.

- Ensure your charger is compatible with your battery chemistry and voltage.
- Monitor battery status via the APP during initial charge/discharge cycles.

MAINTENANCE

- **Regular Inspection:** Periodically inspect all wiring connections for looseness, corrosion, or damage.
- **Cleanliness:** Keep the BMS unit clean and free from dust and moisture.
- **Firmware Updates:** Check the manufacturer's website or APP for any available firmware updates for the BMS.
- **Temperature Monitoring:** Ensure the battery pack operates within its recommended temperature range. The BMS will provide protection against extreme temperatures.

TROUBLESHOOTING

Problem	Possible Cause	Solution
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Problem	Possible Cause	Solution
BMS not powering on.	Active switch off, incorrect main power connection, damaged BMS.	Ensure active switch is on. Verify B- and P-connections. Contact support if damaged.
APP not connecting via Bluetooth.	Bluetooth off on phone, BMS not active, too far from BMS, interference.	Enable phone Bluetooth. Ensure BMS is powered. Move closer to BMS. Restart APP/phone.
Battery not charging/discharging.	BMS protection triggered (over-voltage, under-voltage, over-current, temperature), incorrect charger/load connection.	Check APP for protection alerts. Verify charger/load connections. Allow battery to return to safe operating parameters.
Cell voltages are unbalanced.	Active balancing not enabled or insufficient time for balancing.	Ensure active balancing is enabled in the APP. Allow sufficient time for the BMS to balance cells. Check balance wire connections.

SPECIFICATIONS

Feature	Detail
Model	BD6A20S15P (Supports 8S-20S configurations)
Supported Battery Types	Li-Ion, LiFePO4, LTO
Max Continuous Current	150A
Active Balance Current	0.6A
Communication	Bluetooth (BT), RS485 (optional, depending on model)
Protection Functions	Over-charge, Over-discharge, Over-current, Short Circuit, Low Temperature Charging Cutoff
Dimensions	1.18 x 0.79 x 0.39 inches (Package Dimensions)
Weight	2.2 pounds



Image: Side view of the JK Smart BMS, illustrating the various connection ports for cell balancing and power.



Image: Angled perspective of the JK Smart BMS, showcasing its design and connection points.

WARRANTY AND SUPPORT

For warranty information and technical support, please refer to the manufacturer's official website or contact your point of purchase. Keep your purchase receipt as proof of purchase.

Manufacturer: **Aoleaby**

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