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› [JK Smart BMS B1A8S10P Active Balance Battery Management System User Manual](#)

Aoleaby B1A8S10P

JK Smart BMS B1A8S10P Active Balance Battery Management System

Model: B1A8S10P | Brand: Aoleaby

1. INTRODUCTION

The JK Smart BMS B1A8S10P is an advanced active balance Battery Management System designed for various lithium battery chemistries, including Li-ion, LiFePO4, and LTO. This system ensures optimal battery performance and longevity by actively balancing cell voltages, providing comprehensive protection, and offering real-time monitoring via a mobile application. It is suitable for a wide range of applications from electric vehicles to energy storage systems.

B1A8S10P

Function: BT/RS485

Balance Current:1A

Battery Strings:4S-8S

Charge/Discharge:100A

153*186*18mm

Battery Type: Li-ion/Lifepo4/LTO



This image displays the JK Smart BMS B1A8S10P unit, highlighting its main features and dimensions. It supports Bluetooth and RS485 communication, provides a 1A active balance current, and is compatible with 4 to 8 series battery configurations. The maximum continuous charge and discharge current is 100A. Its physical dimensions are 153x186x18mm, and it is designed for Li-ion, LiFePO4, and LTO battery types. For more information, visit: <http://qr17.cn/BApbC0>

Application Scenario



E-bike



Electric Tricycle



Low Speed Quad



Forklift



Cleaning Car



Tourist Car



Industrial Drone



Scooter



RV Energy Storage



Energy Storage Cabinet



Power Bank



Power Tools



This image showcases a wide range of applications where the JK Smart BMS can be utilized. Examples include electric vehicles like E-bikes, electric tricycles, low-speed quads, and scooters, as well as industrial equipment such as forklifts and industrial drones. It also highlights use in recreational vehicles (RV energy storage), stationary energy storage cabinets, portable power banks, and various power tools.

2. PRODUCT FEATURES

- **Active Balance:** Features 1A continuous active balance current for efficient cell voltage equalization, enhancing battery life and efficiency up to 99%.
- **Wide Compatibility:** Supports Li-ion, LiFePO4, and LTO battery types, compatible with 4S, 6S, 7S, and 8S configurations.
- **Real-time Monitoring:** Integrated Bluetooth communication allows real-time battery status monitoring via a dedicated mobile application (Android and iOS).
- **Comprehensive Protection:** Protects against over-charge, over-discharge, over-current, short circuit, low temperature charging cutoff, and cable drop/poor contact.
- **High Current Output:** Supports continuous discharge currents of 60A, 80A, or 100A depending on the specific model variant.

- **Voltage Accuracy:** Single cell voltage range of 1V~5V with an equalization accuracy of $\pm 5\text{mV}$.
- **Scalability:** Supports balanced cascading for up to 24 battery packs.
- **Optional Heating Function:** Available with a heating cable option to manage low-temperature charging conditions.
- **Interfaces:** Default configurations include LCD and RS485 interfaces.



This diagram visually explains the six key security protection features integrated into the JK Smart BMS. These include protection against overcharging, automatic shutdown during short circuits, prevention of over-discharge, safeguarding against excessive current, detection and protection from cable drops or poor contacts, and prevention of overheating.

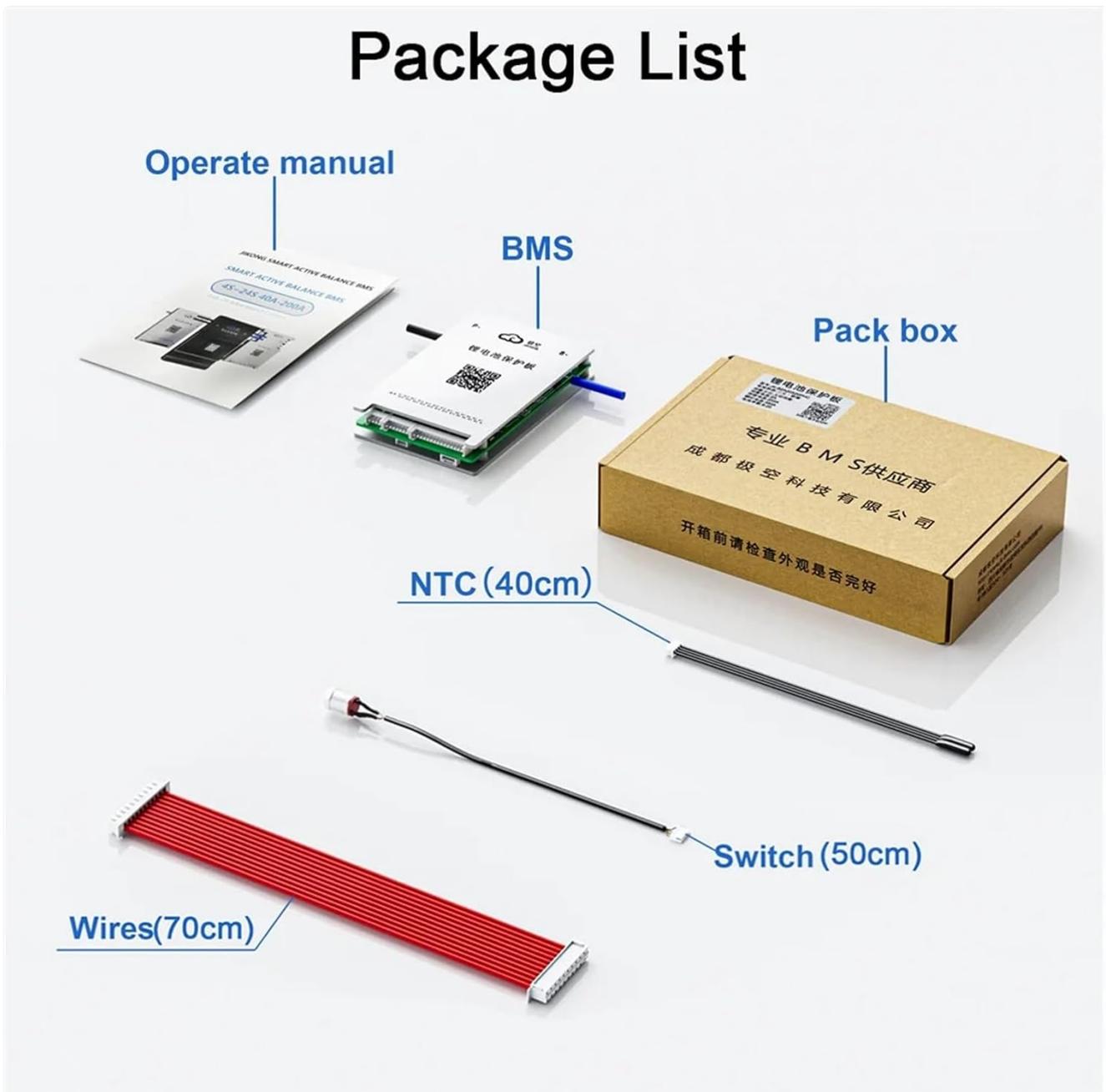
3. PACKAGE CONTENTS

Verify that all items are present in your package:

- 1 x JK Smart BMS Unit (B1A8S10P with B built-in)
- 1 x Temperature Sensor (NTC 40cm)
- 1 x Set of Balance Wires (70cm)

- 1 x Active Switch (50cm)
- 1 x Operating Manual
- 1 x Heating Cable (Only included with BMS models featuring the heating function)

Package List



This image illustrates the typical contents of the JK Smart BMS package. It includes the main BMS unit, an operating manual, an NTC temperature sensor (40cm), an active switch (50cm), and a set of balance wires (70cm). All components are neatly arranged alongside the product packaging box.

4. SPECIFICATIONS

Parameter	Value (B1A8S10P)
Model	B1A8S10P
Active Balance Current	1A
Supported Battery Strings	4S-8S (Li-ion/LiFePO4/LTO)

Parameter	Value (B1A8S10P)
Continuous Charge Current	100A
Continuous Discharge Current	100A
Single Cell Voltage Range	1V ~ 5V
Equalization Accuracy	±5mV
Overcharge Protection Voltage	Adjustable (1.2-4.35V)
Overdischarge Protection Voltage	Adjustable (1.2-4.35V)
Temperature Sensors	3 (1 internal/2 external)
Communication Interface	Bluetooth, RS485 (default)
Dimensions (L*W*H)	153*186*18mm
Item Weight	Approximately 1.76 pounds (0.8 kg)

ITEM	Product Specifications												
	BD4A1754P	BD4A2054P	BD4A2454P	BD6A1756P	BD6A2056P	BD6A2456P	BD6A1758P	BD6A2058P	BD6A2458P	BD6A20510P	BD6A24510P	B1A17512P	
Li-ion String supported	7-17S	7-20S	7-24S	7-17S	7-20S	7-24S	7-17S	7-20S	7-24S	7-20S	7-24S	7-17S	
LiFePO4 String supported	8-17S	8-20S	8-24S	8-17S	8-20S	8-24S	8-17S	8-20S	8-24S	8-20S	8-24S	8-17S	
LTO String supported	12-17S	12-20S	12-24S	12-17S	12-20S	12-24S	12-17S	12-20S	12-24S	12-20S	12-24S	12-17S	
Balance method	Active balancer (Full State On)												
Active balanced current	0.4A			0.6A						1A			
Inner resistance of mainchip	2.8mΩ	2.8mΩ	2.8mΩ	1.53mΩ	1.53mΩ	1.53mΩ	1.2mΩ	1.2mΩ	1.2mΩ	1mΩ	1mΩ	0.65mΩ	
Continuous charge current	40A			60A			80A			100A	100A	120A	
Continuous discharge current	40A			60A			80A			100A	100A	120A	
MAX discharge current(2X)	60A			100A			150A			200A	200A	250A	
Overcharge current limit (ADJ)	10-40A			10-60A			10-80A			10-100A	10-100A	10-100A	
Other Interface (Default)	RS485												
Other Interface (Customized)	CANBUS/HEAT												
Dimension (L*W*H*MM)	110*73*18		116*83*18		133*81*18				162*102*20				
Wiring diagram	Common Port												
ITEM	Product Specifications												
	B1A20S12P	B1A20S15P	B1A24S15P	B2A24S15P	B2A20S20P	B2A24S20P	BD4A8S4P	B1A8S10P	B1A8S20P	B2A8S20P	B2A25SRP	B5A25S60P	
Li-ion String supported	7-20S	7-20S	7-24S	7-24S	7-20S	7-24S	3-8S	3-8S	3-8S	3-8S	8-25S	8-25S	
LiFePO4 String supported	8-20S	8-20S	8-24S	8-24S	8-20S	8-24S	4-8S	4-8S	4-8S	4-8S	8-25S	8-25S	
LTO String supported	12-20S	12-20S	12-24S	12-24S	12-20S	12-24S	6-8S	6-8S	6-8S	6-8S	12-25S	12-25S	
Balance method	Active balancer (Full State On)												
Active balanced current	1A			2A			0.4A	1A		2A	2A	5A	
Inner resistance of mainchip	0.65mΩ			0.47mΩ			2.8mΩ	0.3mΩ			/	/	
Continuous charge current	120A	150A		200A			40A	100A	200A		1000A	500A	
Continuous discharge current	120A	150A		200A			40A	100A	200A		1000A	500A	
MAX discharge current(2X)	250A	300A		350A			60A	200A	350A		/	/	
Overcharge current limit (ADJ)	10-100A	10-150A		10-200A			10-40A	10-100A	10-200A		10-1000A	10-600A	
Other Interface (Default)	RS485										RS485	RS485	
Other Interface (Customized)	CANBUS/HEAT										/	/	
Dimension (L*W*H*MM)	162*102*20						110*73*18		153*136*18			189*94*24	234*134*32
Wiring diagram	Common Port										Split Port		
Single cells voltage supported	1-5V												
Voltage acquisition accuracy	±5mV												
Overcharge protection voltage	1.2-4.35V Adjustable												
Overcharge release voltage	1.2-4.35V Adjustable												
Overcurrent release delay time	2-120S Adjustable												
Overdischarge protection voltage	1.2-4.35V Adjustable												
Overdischarge release voltage	1.2-4.35V Adjustable												
Temperature sensor	3pcs												
Temperature protection	YES												
Short circuit protection	YES												
Coulometer	YES												
Bluetooth supported	IOS / Android												

This table provides comprehensive technical specifications for various JK Smart BMS models, including the B1A8S10P. It details parameters such as active balance current, supported battery string configurations (Li-ion, LiFePO4, LTO), continuous charge and discharge currents, internal resistance, voltage ranges, equalization accuracy, protection thresholds (overcharge, overdischarge, overcurrent), temperature sensor details, and available interfaces like RS485 and CANBUS.

5. SETUP AND INSTALLATION

Proper installation is crucial for the safe and effective operation of your BMS. Always ensure the battery pack is disconnected from any power source before beginning installation.

5.1 Wiring Diagram Overview

Refer to the specific wiring diagram provided with your BMS model for precise connection points. Generally, the BMS connects to the battery pack via:

- **B-:** Main negative terminal of the battery pack.
- **P-:** Main negative terminal for load/charger.
- **Balance Wires:** Individual cell voltage sensing wires connected from B1 to Bn (where n is the total number of series cells). Connect these in ascending order from the lowest cell voltage to the highest.
- **Temperature Sensor:** Connect the NTC temperature sensor to the designated port on the BMS. Position the sensor to accurately measure battery temperature.
- **Active Switch:** Connect the active switch to enable/disable the BMS.

5.2 Heating Cable Installation (Optional)

If your BMS includes the heating function:

1. Connect the green 5-PIN cable of the heating cable to the heating pad.
2. Connect the black and red cables of the heating cable to the smart charger.
3. Once the smart charger links with the BMS, the BMS will detect the battery temperature and automatically manage the heating function based on configured low-temperature charge protection settings.

The heating power is dependent on the battery voltage and the resistance value of the heating film.

6. OPERATING INSTRUCTIONS

The JK Smart BMS is primarily operated and monitored via its dedicated mobile application.

6.1 Mobile Application (Smart BT APP)

1. **Download the App:** Search for the "JK BMS" app on the Google Play Store (for Android) or Apple App Store (for iOS).
2. **Connect via Bluetooth:** Enable Bluetooth on your mobile device. Open the JK BMS app and follow the instructions to connect to your BMS unit.
3. **Monitor Battery Data:** The app provides real-time data including overall battery voltage, individual cell voltages, charge/discharge current, battery temperature, balance status, and protection status.
4. **Modify Parameters:** Access settings within the app to adjust various BMS parameters such as overcharge/overdischarge protection voltages, overcurrent limits, and low-temperature charge cutoff thresholds.
5. **Control Balance Switch:** The app allows you to control the active balance function, enabling or disabling it as needed.

Smart BT APP

Monitor the battery data in real time

Support to modify related parameters

Control BMS balance switch

Support Android IOS system

ANDROID APP ON
Google play

Download on the
App Store



This image displays the user interface of the JK Smart BMS mobile application, accessible via Bluetooth. The app allows users to monitor real-time battery data, including overall voltage, individual cell voltages, balance current, and temperature. It also provides functionalities to modify related parameters, control the BMS balance switch, and supports both Android and iOS operating systems, with download links for Google Play and the App Store.

6.2 Heating Function Operation

If the heating function is enabled and the battery temperature falls below the set low-temperature charge protection threshold (configurable in the app), the BMS will automatically turn off charging and activate the heating pad to warm the battery. Once the temperature rises above the threshold, heating will cease, and charging can resume.

7. MAINTENANCE

To ensure the longevity and reliable operation of your JK Smart BMS and battery pack:

- **Regular Inspection:** Periodically check all wiring connections for tightness and signs of corrosion or damage.
- **Cleanliness:** Keep the BMS unit clean and free from dust, dirt, and moisture. Use a dry, soft cloth for cleaning.
- **Temperature Management:** Ensure the BMS and battery pack operate within their specified temperature ranges. Avoid extreme heat or cold.

- **Firmware Updates:** Check the manufacturer's website or app for any available firmware updates for the BMS to ensure optimal performance and access to new features.
- **Battery Health Monitoring:** Regularly monitor battery cell voltages and overall pack health via the mobile app to identify any potential issues early.

8. TROUBLESHOOTING

If you encounter issues with your JK Smart BMS, consider the following common solutions:

- **BMS Not Powering On:**
 - Check all main power connections (B-, P-).
 - Ensure the active switch is in the ON position.
 - Verify that the battery pack voltage is within the BMS's operating range.
- **App Connection Issues:**
 - Ensure Bluetooth is enabled on your phone and the BMS.
 - Move closer to the BMS unit to improve signal strength.
 - Restart the app and/or your phone.
 - Check if the BMS is already connected to another device.
- **Balancing Not Occurring:**
 - Verify that all balance wires are correctly connected and in the correct order.
 - Check the app to ensure the active balance function is enabled.
 - Ensure cell voltage differences are significant enough to trigger balancing (typically >5mV).
- **Protection Triggered (Over-voltage, Under-voltage, Over-current):**
 - Identify the specific protection triggered via the app.
 - Address the root cause (e.g., reduce load, check charger, inspect battery cells).
 - Some protections may require a manual reset or will clear automatically once conditions return to normal.
- **Heating Function Not Working:**
 - Ensure the heating cable is correctly connected to both the heating pad and the smart charger.
 - Verify the low-temperature charge protection setting in the app.
 - Check the temperature sensor connection and functionality.

If problems persist, consult the manufacturer's support resources or contact a qualified technician.

9. SAFETY INFORMATION

Please read and adhere to the following safety precautions to prevent injury or damage:

- **Electrical Safety:** Always disconnect the battery pack from any power source before installing or servicing the BMS. High voltages and currents can be dangerous.
- **Professional Installation:** If you are not experienced with electrical systems, seek professional assistance for installation.
- **Correct Wiring:** Ensure all wires, especially balance wires, are connected correctly and in the proper

sequence. Incorrect wiring can damage the BMS and battery.

- **Battery Compatibility:** Use the BMS only with compatible battery chemistries and cell counts as specified.
- **Environmental Conditions:** Do not expose the BMS to water, excessive moisture, extreme temperatures, or corrosive environments.
- **Ventilation:** Ensure adequate ventilation around the BMS and battery pack to prevent overheating.
- **No Modifications:** Do not attempt to modify or disassemble the BMS unit. This will void the warranty and may lead to unsafe operation.

10. WARRANTY AND SUPPORT

For warranty information, please refer to the terms and conditions provided by your retailer or the manufacturer at the time of purchase. Typically, warranty covers manufacturing defects under normal use.

For technical support, troubleshooting assistance, or inquiries regarding your JK Smart BMS, please contact the seller or manufacturer directly. Have your product model number and purchase details ready when seeking support.