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> [Aoleaby JK Smart BMS B2A8S20P Battery Management System User Manual](#)

## Aoleaby B2A8S20P

# Aoleaby JK Smart BMS B2A8S20P User Manual

Smart Battery Management System for Li-ion/LiFePO4 Batteries

## 1. PRODUCT OVERVIEW

The Aoleaby JK Smart BMS B2A8S20P is an advanced Battery Management System designed for 4S to 8S Li-ion and LiFePO4 battery packs. It features a 2A active balance current, integrated Bluetooth (BT) communication, RS485, and an optional heating function. This BMS provides comprehensive protection against over-charge, over-discharge, over-current, short circuit, and low-temperature charging cutoff, ensuring the longevity and safety of your battery system.

Key features include:

- **JK Own Development APP:** Monitor battery status and adjust settings via a dedicated mobile application with Bluetooth connectivity.
- **JK Active Balance:** Actively balances cell voltages up to 2A, improving battery efficiency and extending lifespan.
- **Full Functionality:** Robust protection mechanisms for safe battery operation.
- **Wide Compatibility:** Support for 12V/4S to 24V/8S LiFePO4 battery systems with continuous currents up to 200A and peak currents up to 350A.



Figure 1: Front view of the JK Smart BMS B2A8S20P, highlighting its functions including Bluetooth/RS485/Heat, 2A balance current, 4S-8S battery string compatibility, 200A charge/discharge, and Li-ion/LiFePO4 battery type support.

## 2. PACKAGE CONTENTS

Upon opening the package, verify that all components are present:

- JK Smart BMS unit (B2A8S20P) with built-in Bluetooth.
- P- and B- 7AWG cables (13cm\*2).
- Temperature sensor (40cm).
- Balance wires (75cm).
- Active switch (15cm).
- Heating cable (*Only for BMS models with heating function*).



Figure 2: The JK Smart BMS B2A8S20P unit shown with its accompanying accessories: NTC temperature sensor, active switch, and balance cables.

## 3. SETUP AND INSTALLATION

### 3.1 Safety Precautions

- Always disconnect the battery pack from any load or charger before installation.
- Wear appropriate personal protective equipment (PPE), including safety glasses and insulated gloves.
- Ensure all connections are secure and correctly polarized to prevent damage to the BMS or battery.
- Refer to the wiring diagram specific to your battery configuration (4S, 5S, 6S, 7S, or 8S).

### 3.2 Wiring Instructions

1. **Connect B- Cable:** Connect the thick black B- cable from the BMS to the negative terminal of your battery pack.
2. **Connect P- Cable:** Connect the thick black P- cable from the BMS to the negative terminal of your load/charger.
3. **Connect Balance Wires:** Carefully connect the balance wires to each cell of your battery pack, starting from B0 (negative terminal of the first cell) up to B8 (positive terminal of the last cell for an 8S pack). Ensure the

correct order and polarity. Incorrect balance wire connection can damage the BMS.

4. **Connect Temperature Sensor:** Attach the temperature sensor to a central cell or a location that accurately reflects the battery pack's temperature.
5. **Connect Active Switch:** Connect the active switch to the designated port on the BMS. This switch is used to activate/deactivate the BMS.
6. **Heating Cable (If applicable):** For BMS models with a heating function, connect the green 5PIN cable of the heating cable to the heating pad. The remaining black and red cables should be linked to a smart charger. The smart charger will detect the battery temperature via the BMS and control the heating pad.

*Note: Always double-check all connections before applying power.*

## 4. OPERATING THE SMART BMS

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### 4.1 Initial Power-Up

After completing all wiring, activate the BMS using the active switch. The BMS should power on, and you may observe initial balancing activity.

### 4.2 Bluetooth App Connection

1. Download the official JK BMS application from your smartphone's app store (iOS/Android).
2. Enable Bluetooth on your smartphone.
3. Open the JK BMS app and search for available devices. Select your BMS from the list.
4. Once connected, the app will display real-time battery parameters such as cell voltages, total voltage, current, temperature, and state of charge.

### 4.3 Active Balancing Function

The JK Smart BMS features an active balancing function that automatically equalizes the voltage differences between battery cells. This process is crucial for maximizing battery capacity and extending its lifespan. The 2A active balance current ensures efficient and rapid cell equalization.

Balance is automatically turned on when the pressure difference exceeds the trigger value, whether it is charging, discharging or resting

Independent patents

Better Safety

MAX **2A**

Active Balance Current. Full State On

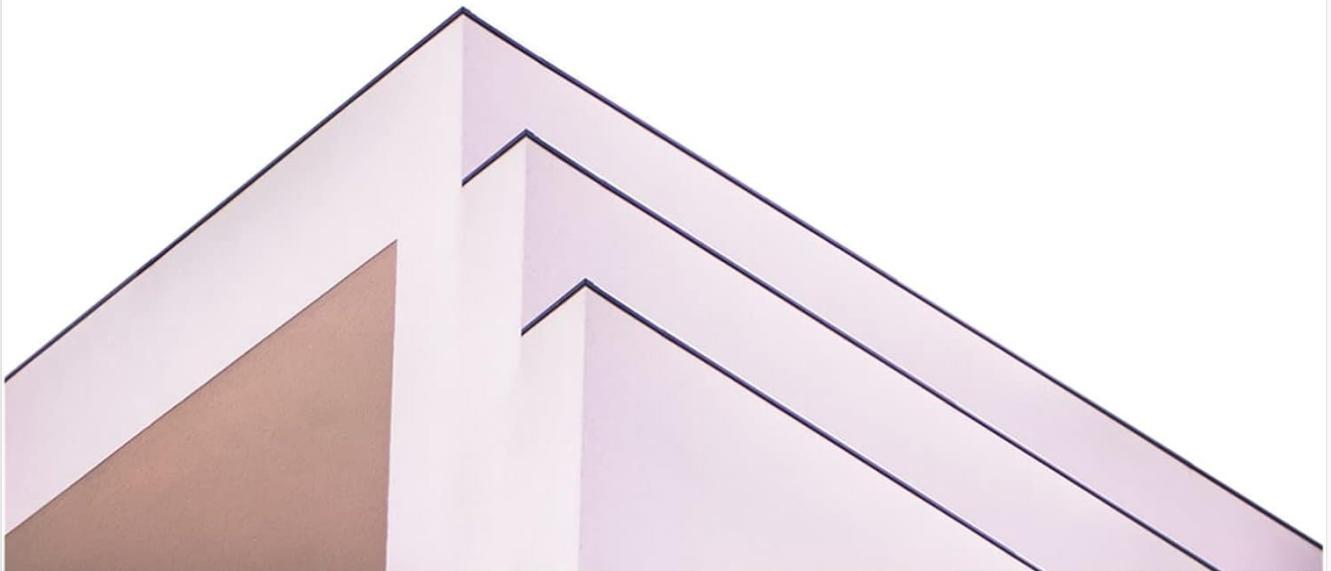


Figure 3: Illustration emphasizing the 2A maximum active balance current, which operates continuously to maintain cell voltage equilibrium.

#### 4.4 Protection Features

The BMS continuously monitors the battery pack and activates protection mechanisms when parameters exceed safe limits. These include:

- Over-charge protection
- Over-discharge protection
- Over-current protection
- Short circuit protection
- Low-temperature charging cutoff

When a protection event occurs, the BMS will disconnect the battery from the load or charger. Refer to the app for detailed fault information.

#### 5. MAINTENANCE

To ensure optimal performance and longevity of your JK Smart BMS and battery pack:

- **Regular Monitoring:** Periodically check battery parameters via the mobile app to ensure all cells are balanced and operating within safe limits.
- **Connection Inspection:** Annually inspect all wiring connections for corrosion, looseness, or damage. Tighten any loose connections.
- **Cleanliness:** Keep the BMS unit clean and free from dust and debris. Ensure proper ventilation if enclosed.
- **Firmware Updates:** Check the manufacturer's website or app for any available firmware updates for the BMS.

## 6. TROUBLESHOOTING

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

Problem	Possible Cause	Solution
BMS not powering on	Active switch off, incorrect wiring, damaged BMS.	Ensure active switch is on. Verify all wiring connections, especially B- and balance wires. Contact support if BMS is damaged.
Cells out of balance	Initial setup, prolonged disuse, faulty cell.	Allow BMS to balance over time. Check balance wire connections. If a cell is consistently low, it may be faulty and require replacement.
Over-charge/discharge protection triggered	Charger/load voltage too high/low, BMS settings.	Verify charger/load settings. Check BMS settings via app. Allow battery to rest and recover.
Bluetooth connection issues	Bluetooth off, app issues, distance.	Ensure phone Bluetooth is on. Restart app and BMS. Reduce distance between phone and BMS.

For persistent issues, refer to the detailed technical specifications or contact customer support.

## 7. SPECIFICATIONS

The following table provides detailed technical specifications for the JK Smart BMS B2A8S20P and related models.

## JK (JiKong) SMART ACTIVE BMS

Technical Index	Product Specifications																					
	BD4A8S4P	BD4A17S4P	BD4A20S4P	BD4A24S4P	BD6A17S6P	BD6A20S6P	BD6A24S6P	BD6A17S8P	BD6A20S8P	BD6A24S8P	BD6A20S10P	BD6A24S10P	B1A20S15P	B1A24S15P	B2A24S15P	B2A20S20P	B1A8S20P	B2A8S20P	B2A25SRP	B5A25S60P		
Number of Battery Strings(Li-ion)	4S~8S	7S~17S	7S~20S	7S~24S	7S~17S	7S~20S	7S~24S	7S~17S	7S~20S	7S~24S	7S~20S	7S~24S	7S~20S	7S~24S	7S~24S	7S~20S	4S~8S	4S~8S	8S~25S	8S~25S		
Number of Battery Strings(LiFePO4)	4S~8S	8S~17S	8S~20S	8S~24S	8S~17S	8S~20S	8S~24S	8S~17S	8S~20S	8S~24S	8S~20S	8S~24S	8S~20S	8S~24S	8S~24S	8S~20S	4S~8S	4S~8S	8S~25S	8S~25S		
Number of Battery Strings(LTO)	/	12S~17S	12S~20S	12S~24S	12S~17S	12S~20S	12S~24S	12S~17S	12S~20S	12S~24S	12S~20S	12S~24S	12S~20S	12S~24S	12S~24S	12S~20S	/	/	12S~25S	12S~25S		
Balance Method	Active Balance(Full State On)																					
Balance Current	0.4A	0.4A	0.4A	0.4A	0.6A	1A	1A	2A	2A	1A	2A	2A	5A									
Conductive Resistance in Main Circuit	1.3mΩ	1.3mΩ	1.3mΩ	1.3mΩ	1.3mΩ	1.3mΩ	1.3mΩ	1.3mΩ	1.3mΩ	1.3mΩ	0.8mΩ	0.8mΩ	0.5mΩ	0.5mΩ	0.5mΩ	0.3mΩ	0.3mΩ	0.3mΩ	0.3mΩ	0.3mΩ		
Continuous Discharge Current	40A	40A	40A	40A	60A	60A	60A	80A	80A	80A	100A	100A	150A	150A	150A	200A	200A	200A	1000A	500A		
Continuous Charge Current	40A	40A	40A	40A	60A	60A	60A	80A	80A	80A	100A	100A	150A	150A	150A	200A	200A	200A	1000A	500A		
Maximum Discharge Current(MAX 2min)	80A	80A	80A	80A	100A	100A	100A	150A	150A	150A	200A	200A	300A	300A	300A	350A	350A	350A	/	/		
Over Charge Protection Current(ADJ)	10~40A	10~40A	10~40A	10~40A	10~60A	10~60A	10~60A	10~80A	10~80A	10~80A	10~100A	10~100A	10~150A	10~150A	10~150A	10~200A	10~200A	10~200A	10~1000A	10~600A		
Other Interfaces (Default)	RS485	RS485	RS485	RS485	RS485	RS485	RS485	RS485	RS485	RS485	RS485	RS485	RS485	RS485	RS485	RS485	RS485	RS485	RS485	RS485		
Other Interfaces (Customized)	CANBUS /HEAT	CANBUS /HEAT	CANBUS /HEAT	CANBUS /HEAT	CANBUS /HEAT	CANBUS /HEAT	CANBUS /HEAT	CANBUS /HEAT	CANBUS /HEAT	CANBUS /HEAT	CANBUS /HEAT	CANBUS /HEAT	CANBUS /HEAT	CANBUS /HEAT	CANBUS /HEAT	CANBUS /HEAT	CANBUS /HEAT	CANBUS /HEAT	/	/		
Size/mm	110*73*18mm				133*81*18mm								162*102*20mm				153*136*18mm		153*136*18		234*134*32	
Wiring Output	Common Port																		Split Port			
Single Cell Voltage Range	1-5V																					
Voltage Acquisition Accuracy	±5mV																					
Over Charge Protection Voltage	1.2-4.35V Adjustable																					
Over Charge Release Voltage	1.2-4.35V Adjustable																					
Over Current Detect Delay	2~120S Adjustable																					
Over Discharge Protection Voltage	1.2-4.35V Adjustable																					
Over Discharge Release Voltage	1.2-4.35V Adjustable																					
Quantity of Temperature Detection	3Pcs																					
Temp Protection	Yes																					
Short Circuit protection	Yes																					
Coulomb Counter	Yes																					
Bluetooth Function	Support for Android/iOS phone																					

Figure 4: Comprehensive technical specification table for various JK Smart BMS models, including the B2A8S20P, detailing parameters such as battery strings, balance current, continuous current, peak current, and protection features.

### General Specifications (B2A8S20P):

- **Supported Battery Strings:** 4S-8S
- **Battery Type:** Li-ion/LiFePO4
- **Balance Method:** Active Balance
- **Balance Current:** 2A
- **Continuous Discharge Current:** 200A
- **Peak Discharge Current:** 350A
- **Communication:** Bluetooth (BT), RS485, CANbus (optional)
- **Dimensions:** Approximately 1.18 x 0.79 x 0.39 inches (Package Dimensions)
- **Item Weight:** 2.2 pounds (1000 Grams)

## 8. WARRANTY AND SUPPORT

### 8.1 Warranty Information

Specific warranty details for the Aoleaby JK Smart BMS B2A8S20P are not provided in this manual. Please refer to the product packaging, the seller's website, or contact the retailer directly for warranty terms and conditions.

## 8.2 Customer Support

For technical assistance, troubleshooting beyond this manual, or inquiries regarding your product, please contact Aoleaby customer support or the authorized reseller from whom you purchased the product. Provide your product model number (B2A8S20P) and purchase details for efficient service.