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## Aoleaby B2A24S

# Aoleaby JK BMS Smart Active Balancer B2A24S User Manual

Model: B2A24S | Brand: Aoleaby

## 1. INTRODUCTION

This manual provides essential information for the safe and effective use of the Aoleaby JK BMS Smart Active Balancer B2A24S. This device is designed to actively balance the voltage differences between battery cells in LiFePo4 and Li-ion battery systems, enhancing battery life and efficiency. Please read this manual thoroughly before installation and operation.

## 2. SAFETY INFORMATION

- Always wear appropriate personal protective equipment (PPE) when working with batteries.
- Ensure all connections are correct and secure before applying power. Incorrect wiring can cause damage to the balancer, battery, or pose a fire hazard.
- Do not short-circuit battery terminals or balancer connections.
- Keep the balancer away from water, moisture, and flammable materials.
- Do not attempt to disassemble or modify the balancer. Refer all servicing to qualified personnel.
- Ensure adequate ventilation around the battery system and balancer during operation.
- Observe proper polarity when connecting the balancer to the battery pack.

## 3. PRODUCT OVERVIEW

The JK BMS Smart Active Balancer is an advanced battery management system component designed to optimize battery performance and longevity. It features active balancing capabilities and Bluetooth connectivity for monitoring and configuration via a dedicated mobile application.

### Key Features:

- **Active Balance:** Balances voltage differences between battery cells, improving battery usage efficiency up to 99% and extending battery life.
- **Bluetooth (BT) APP:** Provides real-time battery status monitoring and allows for various BMS settings adjustments via a smartphone application.
- **Wide Compatibility:** Supports 2S to 24S LiFePo4 and Li-ion battery systems.
- **Balance Current:** Features an active balance current of 0.1A to 2A, depending on the model variant.

## Components:

The package typically includes the JK BMS Smart Active Balancer unit and a wiring harness for connecting to battery cells.



Figure 1: JK BMS Smart Active Balancer B2A24S unit. This image displays the main balancer unit with labels indicating its function (BT), balance current (2A), battery strings (2S-24S), dimensions (162\*100\*20), and supported battery types (Li-ion/LiFePo4/LTO).

# JK | Smart Active Balance

Better optimize battery performance



2S~24S 0.1A~2A Active Balance Current

Figure 2: Multiple JK BMS Smart Active Balancer units. This image illustrates three different balancer units, highlighting their compatibility with 2S-24S battery configurations and active balance currents ranging from 0.1A to 2A.

# JK | Smart Active Balancer

## Application Scenario

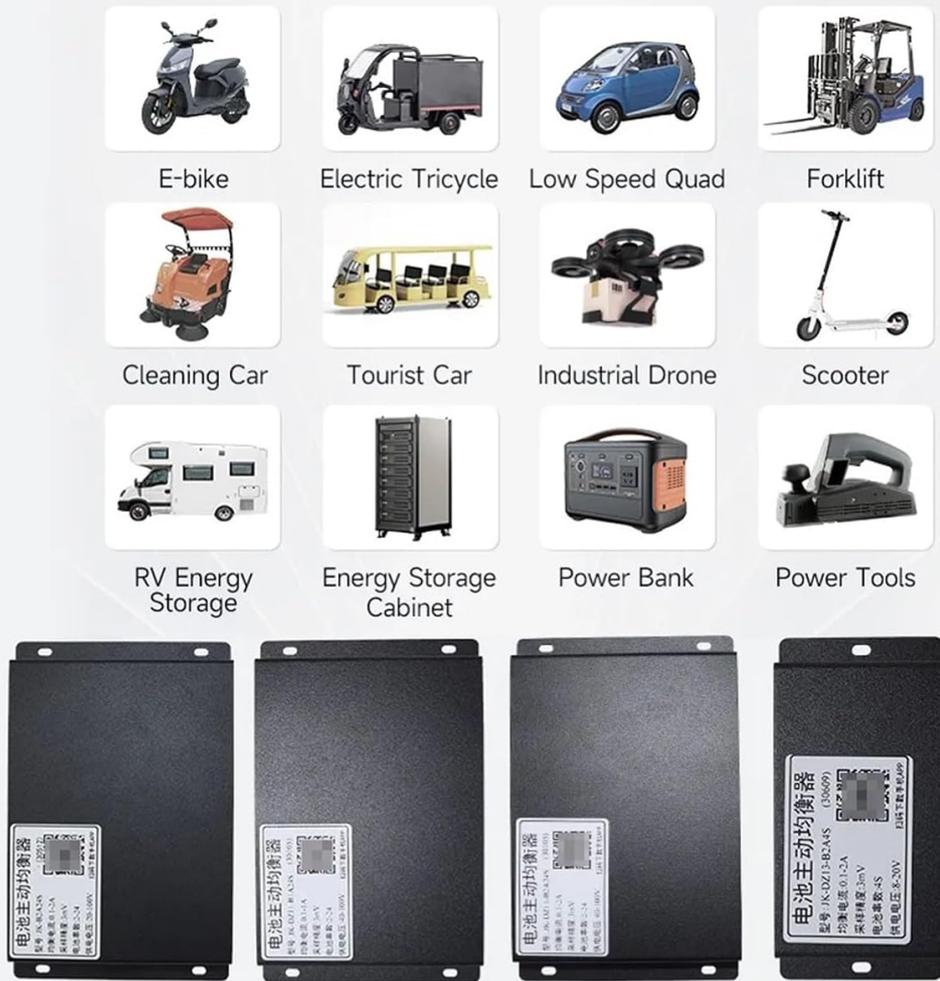


Figure 3: Application scenarios. This image shows various applications where the JK BMS Smart Active Balancer can be used, including E-bikes, electric tricycles, low-speed quads, forklifts, cleaning cars, tourist cars, industrial drones, scooters, RV energy storage, energy storage cabinets, power banks, and power tools.

## 4. SETUP AND INSTALLATION

Proper installation is crucial for the safe and efficient operation of the balancer. Always ensure the battery pack is disconnected from any load or charging source before beginning installation.

### Wiring Instructions:

1. Identify the positive (+) and negative (-) terminals of each battery cell in your pack.
2. Connect the provided wiring harness to the corresponding cell voltage detection ports on the balancer. Ensure each wire from the harness is connected to the correct cell terminal, starting from the negative terminal of the first cell (B-) and progressing sequentially to the positive terminal of the last cell (B+).
3. Double-check all connections for correct polarity and secure fit. Loose connections can lead to poor performance or damage.
4. Once all cell wires are connected, connect the main power wires (P+ and P-) from the battery pack to the designated power input terminals on the balancer, if applicable. Refer to the specific wiring diagram

provided with your balancer model for exact connections.

5. After installation, verify the voltage readings via the Bluetooth APP to confirm correct cell detection.

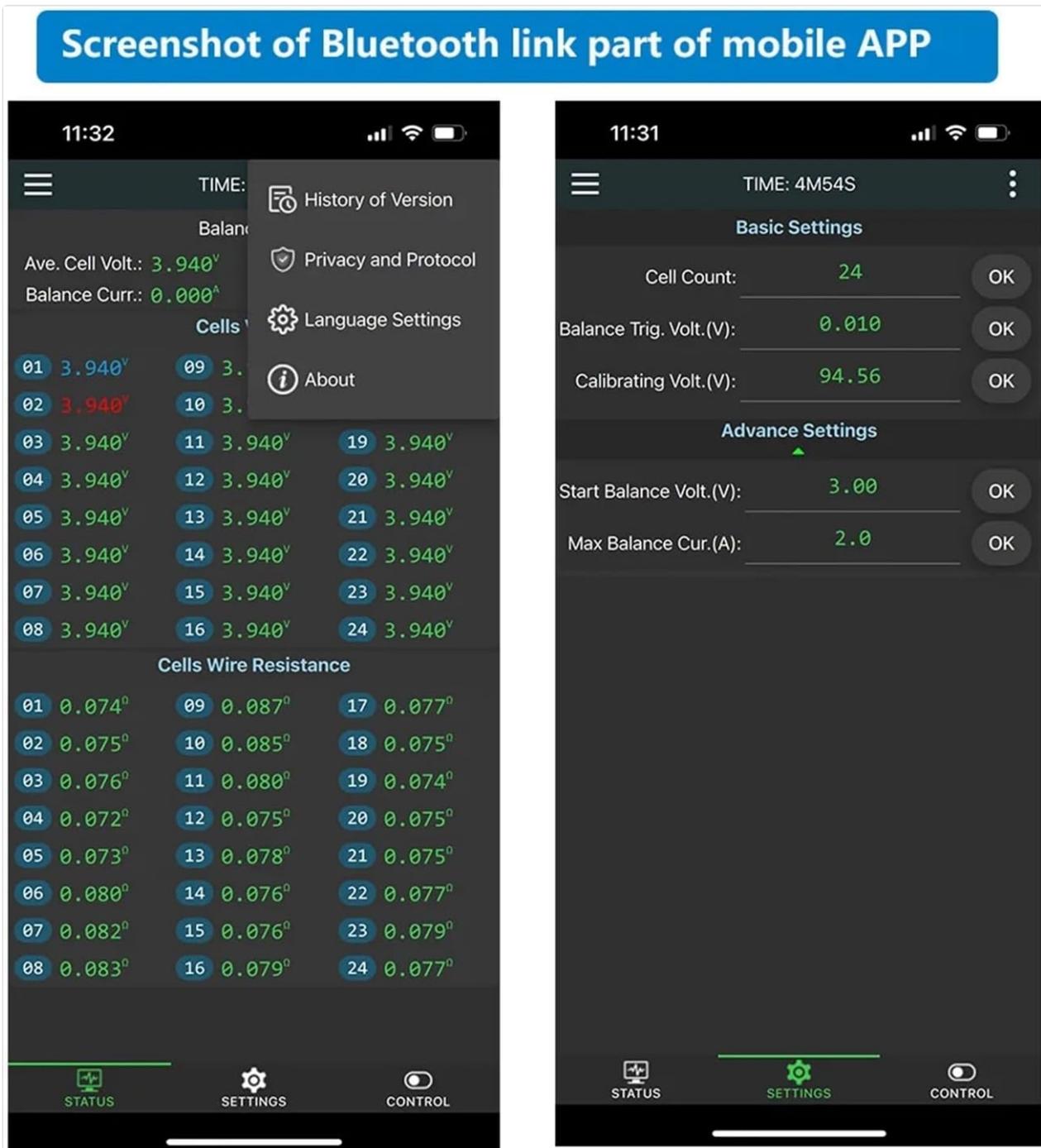


Figure 4: JK BMS Smart Active Balancer with wiring harness. This image shows the balancer unit alongside its red wiring harness, which is used for connecting to individual battery cells for voltage detection and balancing.

## 5. OPERATION

Once installed, the JK BMS Smart Active Balancer continuously monitors the voltage of each cell in the battery pack. When voltage differences are detected, the balancer automatically initiates an active balancing process to equalize the cell voltages. This process occurs without user intervention, ensuring optimal battery health.

## 6. BLUETOOTH APP CONNECTION

The JK BMS features a proprietary Bluetooth APP for enhanced monitoring and control. This application allows

users to view real-time battery cell voltages, balance current, and other critical parameters. It also provides access to various settings for customizing the balancer's operation.

### Connecting to the APP:

1. Download the official JK BMS APP from your smartphone's app store.
2. Ensure Bluetooth is enabled on your smartphone.
3. Open the JK BMS APP and search for available devices.
4. Select your balancer from the list to establish a connection.
5. Once connected, you can access real-time data and adjust settings as needed.



Figure 5: Bluetooth APP screenshots. This image displays two screenshots of the JK BMS mobile application interface. The left screen shows real-time cell voltage readings and wire resistance, while the right screen shows basic and advanced settings such as balance trigger voltage, calibrating voltage, start balance voltage, and maximum balance current.

## 7. MAINTENANCE

The JK BMS Smart Active Balancer is designed for minimal maintenance. However, periodic checks are recommended:

- Regularly inspect all wiring connections for tightness and signs of corrosion or damage.
- Keep the balancer unit clean and free from dust and debris.
- Monitor battery cell voltages via the APP to ensure proper balancing is occurring.
- Ensure the operating environment remains within the specified temperature range.

## 8. TROUBLESHOOTING

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

- **Balancer not detected by APP:** Ensure Bluetooth is enabled on your phone, the balancer is powered on, and you are within range. Restart the APP or your phone if necessary.
- **Incorrect cell voltage readings:** Check all wiring harness connections to the battery cells for correct polarity and secure contact. A loose or incorrect connection can lead to inaccurate readings.
- **No balancing activity:** Verify that cell voltage differences are sufficient to trigger balancing (refer to APP settings for balance trigger voltage). Ensure the balancer is receiving power.
- **Over-temperature warnings:** Check for adequate ventilation around the balancer and battery pack. Reduce load if necessary.

For persistent issues, contact Aoleaby customer support.

## 9. SPECIFICATIONS

The following table provides detailed specifications for various JK Smart Active Balancer models, including the B2A24S.

JKKONG Smart Active Balancer						
Model	JK-B2A4S	JK-B1A16S	JK-B2A16S	JK-B1A24S	JK-B2A24S	JK-DZ08B2A24S
Battery string supporting	4S	2-16S	2-16S	2-24S	2-24S	2-24S
Battery Type supporting	Li-ion LFP	All Kinds of Battery Voltage Between 1V-5V				
Single Cells Voltage Range		1V-5V	1V-5V	1V-5V	1V-5V	1V-5V
Balance Accuracy	±5mV	±3mV	±3mV	±3mV	±3mV	±3mV
Voltage differ after balancing	≤5mV	≤3mV	≤3mV	≤3mV	≤3mV	≤3mV
Balance Current Range	0.1A-2A	0.1A-1A	0.1A-2A	0.1A-2A	0.1A-2A	0.1A-2A
Cascade Connecting		YES	YES	YES	YES	YES
Cable Resistance Indicator	YES	YES	YES	YES	YES	YES
Power supply Range	8V-20V	24V-70V	24V-70V	40V-100V	40V-100V	40V-100V
Low Voltage Auto Turn Off	YES	YES	YES	YES	YES	YES
Working Temperature	-30°C-70°C	-20°C-70°C	-20°C-70°C	-20°C-70°C	-20°C-70°C	-20°C-70°C
Selfconsumptions (Balancing)	55mA@20V	10mA@100V	10mA@100V	10mA@100V	10mA@100V	10mA@100V
Selfconsumptions (NOT Balancing)	40mA@20V	6mA@100V	6mA@100V	6mA@100V	6mA@100V	6mA@100V
Interface	RS485	/	/	/	/	CAN
Temperature Sensor	YES	/	/	/	/	YES
Dimension(MM)	116.6*61*26.5	162*100*20	162*100*20	162*100*20	162*100*20	162*100*20
Weight(g)	345	550	550	595	595	595
Model	JK-DZ11B2A24S	JK-DZ08B1A24S	JK-DZ11B1A24S	JK-B5A24S	JK-B10A24S	
Battery string supporting	2-24S	2-24S	2-24S	2-24S	2-24S	
Battery Type supporting	All Kinds of Battery Voltage Between 1V-5V					
Single Cells Voltage Range	1V-5V	1V-5V	1V-5V	1V-5V	1V-5V	
Balance Accuracy	±3mV	±3mV	±3mV	±3mV	±3mV	
Voltage differ after balancing	≤3mV	≤3mV	≤3mV	≤3mV	≤3mV	
Balance Current Range	0.1A-2A	0.1A-1A	0.1A-1A	0.1A-5A	0.1A-10A	
Cascade Connecting	YES	YES	YES	YES	YES	
Cable Resistance Indicator	YES	YES	YES	YES	YES	
Power supply Range	40V-100V	40V-100V	40V-100V	40V-100V	40V-100V	
Low Voltage Auto Turn Off	YES	YES	YES	YES	YES	
Working Temperature	-20°C-70°C	-20°C-70°C	-20°C-70°C	-20°C-70°C	-20°C-70°C	
Selfconsumptions (Balancing)	10mA@100V	10mA@100V	10mA@100V	10mA@100V	10mA@100V	
Selfconsumptions (NOT Balancing)	6mA@100V	6mA@100V	6mA@100V	6mA@100V	6mA@100V	
Interface	RS485	CAN	RS485	/	/	
Temperature Sensor	YES	YES	YES	/	/	
Dimension(MM)	162*100*20	162*100*20	162*100*20	234.5*199*42	234.5*199*42	
Weight(g)	595	595	595	2400	4000	

Figure 6: Detailed specifications table. This image presents a comprehensive table outlining specifications for various JK Smart Active Balancer models, including battery string support, battery type, single cell voltage range, balance accuracy, voltage difference after balancing, balance current range, cascade connecting, cable resistance indicator, power supply range, low voltage auto turn off, working temperature, self-consumption (balancing and not balancing), interface, temperature sensor, dimension, and weight.

### JK Smart Active Balancer Specifications (Model B2A24S)

Feature	Specification
Model	JK-B2A24S
Battery String Support	2-24S
Battery Type Supporting	Li-ion LFP (All Kinds of Battery Voltage Between 1-5V)
Single Cells Voltage Range	1V-5V
Balance Accuracy	±3mV
Voltage Differ After Balancing	≤3mV
Balance Current Range	0.1A-2A
Cascade Connecting	YES
Cable Resistance Indicator	YES
Power Supply Range	40V-100V
Low Voltage Auto Turn Off	YES
Working Temperature	-20°C~70°C
Self-consumption (Balancing)	10mA@100V
Self-consumption (NOT Balancing)	6mA@100V
Interface	RS485
Temperature Sensor	YES
Dimension (MM)	162*100*20
Weight (g)	595

## 10. WARRANTY AND SUPPORT

For warranty information and technical support, please refer to the documentation included with your purchase or contact Aoleaby customer service directly. Keep your purchase receipt as proof of purchase for warranty claims.

