

## Aoleaby JK-BD4A 17S-4P

# Aoleaby JK Smart BMS Battery Equalizer

## MODEL: JK-BD4A 17S-4P INSTRUCTION MANUAL

### 1. Introduction

This manual provides essential information for the safe and effective use of your Aoleaby JK Smart Battery Management System (BMS) Battery Equalizer. This device is designed to protect and balance Li-ion, Lipo, and LiFePo4 battery packs, ensuring optimal performance and extended lifespan. Please read this manual thoroughly before installation and operation.

The JK Smart BMS features an active balancing function, over-charge/over-discharge protection, over-current protection, short circuit protection, and low-temperature charging cutoff. It also includes Bluetooth communication for real-time monitoring and settings adjustment via a dedicated mobile application.

### 2. Safety Information

- Always wear appropriate personal protective equipment (PPE) when working with batteries.
- Ensure all connections are correct before applying power. Incorrect wiring can cause damage to the BMS, battery, or connected equipment, and poses a fire hazard.
- Do not short-circuit the battery terminals or BMS output.
- Keep the BMS away from water, moisture, and flammable materials.
- Do not attempt to disassemble or modify the BMS. Refer all servicing to qualified personnel.
- Verify the battery pack voltage and cell count (S-number) are compatible with the BMS model (8S-24S for this series).

### 3. Product Overview

The JK Smart BMS is a compact unit designed for efficient battery management. It features various ports for battery cell connections, temperature sensors, and communication.



Figure 1: Front view of the JK Smart BMS board. The QR code on the board is for downloading the companion mobile application and user manual.

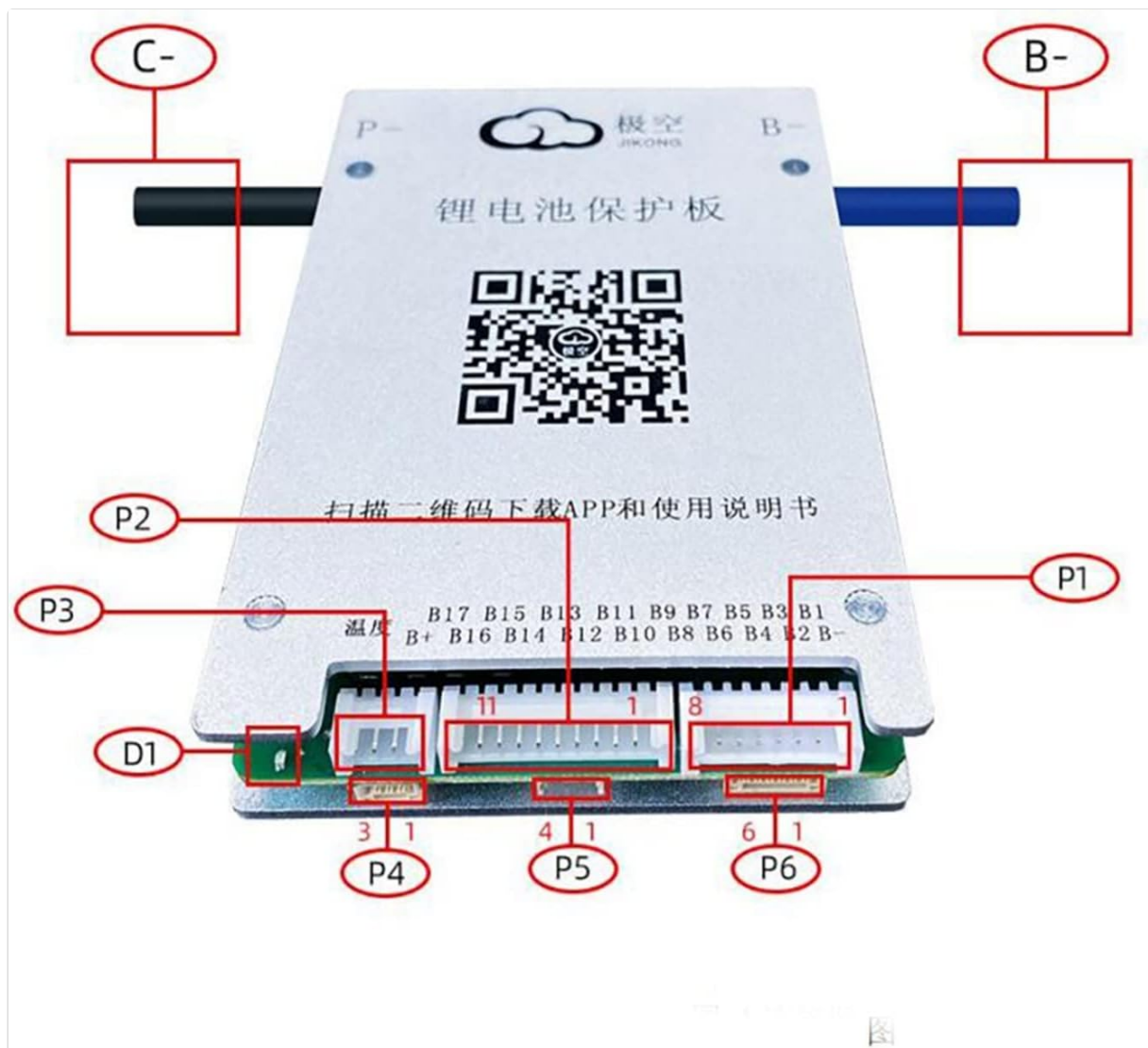


Figure 2: Labeled diagram of the BMS board. Key connection points include: **P-** (Load Negative), **B-** (Battery Negative), **C-** (Charge Negative), **P1-P6** (Balance Port Connectors), **D1** (Communication Port). The QR code links to the app and manual at <http://qr17.cn/BApbC0>.

The BMS supports a wide range of battery configurations from 8S to 24S and current ratings from 40A to 200A, depending on the specific model variant.

8s~24s  
40A~200A



Figure 3: The BMS is compatible with 8S to 24S battery configurations and supports current ranges from 40A to 200A.

## 4. Setup and Installation

Careful wiring is crucial for the correct operation and safety of the BMS. Follow these steps precisely:

1. **Prepare Battery Pack:** Ensure your battery pack is assembled correctly with all cells at a similar voltage level.
2. **Connect Balance Wires:** Connect the balance wires from your battery pack to the corresponding balance ports (P1-P6) on the BMS. Start from B- (negative) and connect sequentially up to B+ (positive). Ensure the correct order and polarity.
3. **Connect Main Battery Wires:** Connect the main battery negative (B-) from your battery pack to the B- terminal on the BMS.
4. **Connect Load and Charge Wires:** Connect your load's negative terminal to the P- terminal on the BMS. Connect your charger's negative terminal to the C- terminal on the BMS. The main battery positive (B+) connects directly to the load and charger positive terminals, bypassing the BMS.
5. **Temperature Sensor (if applicable):** Connect the temperature sensor to its designated port on the

BMS.

6. **App Download:** Scan the QR code on the BMS board or visit <http://qr17.cn/BApbC0> to download the JK Smart BMS mobile application.

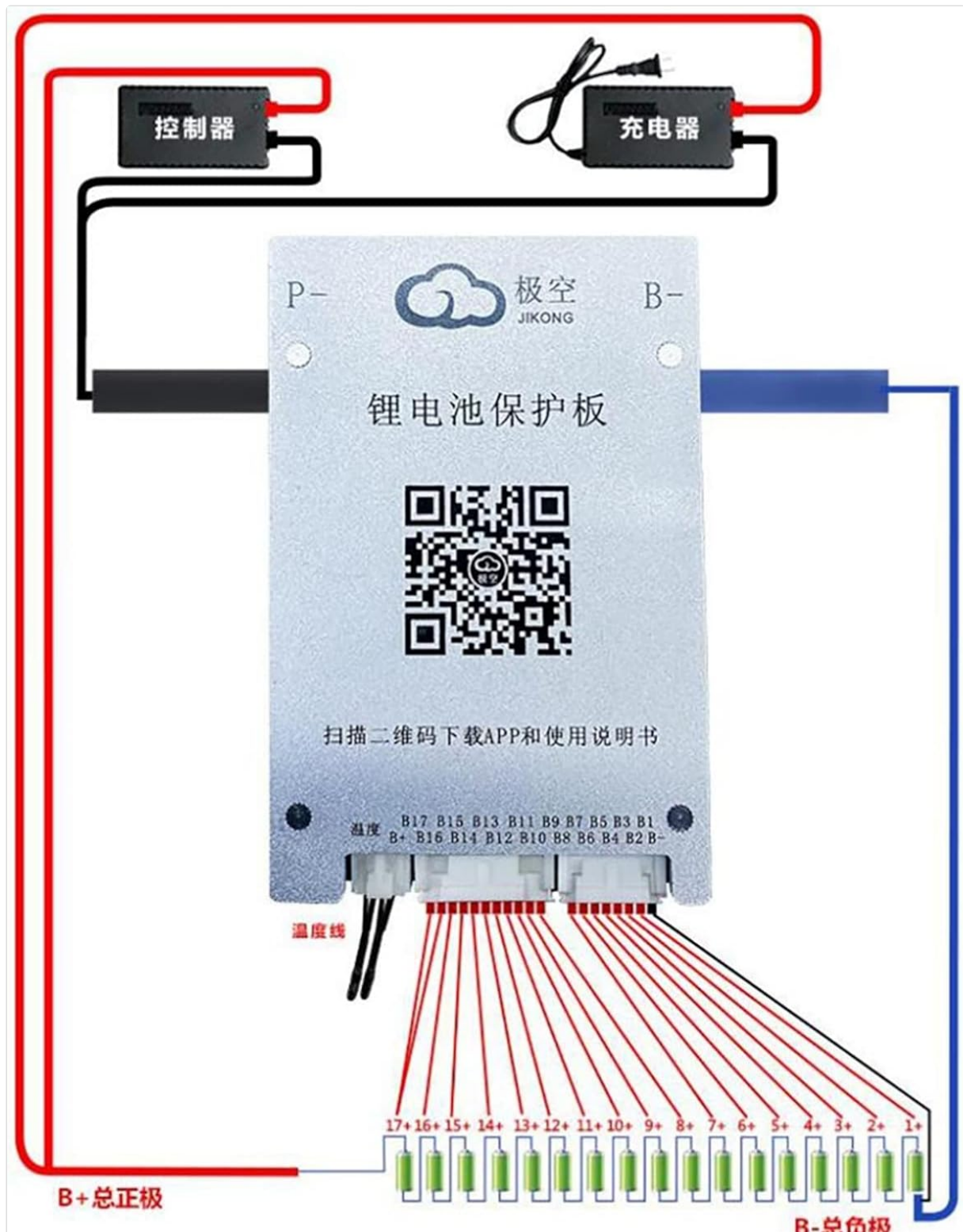


Figure 4: Typical wiring diagram for the JK Smart BMS. This diagram illustrates connections for battery cells (B1-B17+), charger, and controller. Ensure all connections match your specific battery configuration.

## 5. Operating Instructions

The JK Smart BMS operates automatically to protect your battery. For monitoring and advanced settings, use the mobile application:

1. **Bluetooth Connection:** Enable Bluetooth on your smartphone. Open the JK Smart BMS app and

search for available devices. Select your BMS from the list to connect.

- 2. **Real-time Monitoring:** Once connected, the app will display real-time battery status, including total voltage, individual cell voltages, current, temperature, and state of charge (SOC).
- 3. **Settings Adjustment:** The app allows you to configure various parameters such as over-charge voltage, over-discharge voltage, over-current limits, and balancing thresholds. Adjust these settings only if you understand their implications for battery safety and performance.
- 4. **Active Balancing:** The BMS features active balancing to equalize cell voltages. This process occurs automatically when cell voltage differences exceed a set threshold, improving battery efficiency and longevity.

## 6. Maintenance

- **Regular Inspection:** Periodically inspect all wiring connections for tightness and signs of corrosion or damage.
- **Software Updates:** Check the mobile application regularly for firmware updates for the BMS. Updates can improve performance, add features, or address bugs.
- **Cleanliness:** Keep the BMS clean and free from dust and debris. Use a dry, soft cloth for cleaning.
- **Environmental Conditions:** Ensure the BMS operates within its specified temperature and humidity ranges to prevent damage.

## 7. Troubleshooting

| Problem                                                   | Possible Cause                                                                 | Solution                                                                                            |
|-----------------------------------------------------------|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| BMS not powering on / No output                           | Incorrect main battery connection (B-), BMS in protection mode, faulty wiring. | Check B- connection. Verify all balance wires are correctly connected. Check for short circuits.    |
| App cannot connect via Bluetooth                          | Bluetooth not enabled, BMS not powered, app permissions, interference.         | Ensure Bluetooth is on. Verify BMS is powered. Grant app necessary permissions. Try reconnecting.   |
| Cells not balancing                                       | Cell voltage difference too small, balance wires loose, faulty cell.           | Check app for balance status. Ensure balance wires are secure. Inspect individual cell voltages.    |
| Over-charge/Over-discharge protection triggers frequently | Incorrect voltage settings, battery capacity mismatch, faulty charger/load.    | Review voltage settings in the app. Ensure battery capacity matches application. Test charger/load. |

## 8. Specifications

- **Model:** JK-BD4A 17S-4P
- **Supported Cell Count:** 8S to 24S (Series)
- **Supported Battery Types:** Li-ion, Lipo, LiFePo4
- **Continuous Discharge Current:** 40A - 200A (varies by specific model)
- **Active Balance Current:** 0.6A - 2A

- **Communication:** Bluetooth (default), RS485 (optional, specify upon order)
- **Protection Functions:** Over-charge, Over-discharge, Over-current, Short Circuit, Low Temperature Charging Cutoff
- **Dimensions:** Approximately 1.18 x 0.79 x 0.39 inches (Package Dimensions)
- **Weight:** Approximately 2.2 pounds

## 9. Warranty and Support

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For technical support, warranty inquiries, or further assistance, please contact your retailer or the manufacturer directly. Ensure you have your product model number and purchase details available when contacting support.