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Aoleaby B1A8S10P-HC

JK Smart BMS B1A8S10P-HC User Manual

Model: B1A8S10P-HC | Brand: Aoleaby

1. INTRODUCTION

This manual provides detailed instructions for the installation, operation, and maintenance of your JK Smart BMS B1A8S10P-HC. This Battery Management System is designed to protect and optimize the performance of 4S to 8S Li-ion, LiFePo4, and LTO battery packs, ensuring their longevity and safe operation. It features active balancing, comprehensive protection functions, and Bluetooth connectivity for convenient monitoring.



Figure 1: JK Smart BMS B1A8S10P-HC unit. This image displays the primary components and the QR code for accessing the APP and user instructions.

2. KEY FEATURES

- **JK Own Development APP:** Utilizes a dedicated mobile application for comprehensive BMS settings and real-time battery status display via Bluetooth communication.
- **JK Active Balance:** Features active balancing to equalize voltage differences between battery cells, significantly improving battery usage efficiency (up to 99%) and extending battery life.
- **Full Functionality Protection:** Provides robust protection against over-charge, over-discharge, over-current, and short circuits. Includes a low-temperature charging cutoff for enhanced safety.
- **Enhanced Safety Design:** Uniquely designed to ensure the correct protection board application, which is crucial for the longevity and safety of your battery system.
- **Wide Compatibility:** Supports 12V/4S, 24V/8S, 48V/16S, and 72V/24S LiFePo4 battery systems with a maximum continuous discharge current of 100A-350A and an active balance current of 0.6A-2A, making it suitable for various DIY applications.

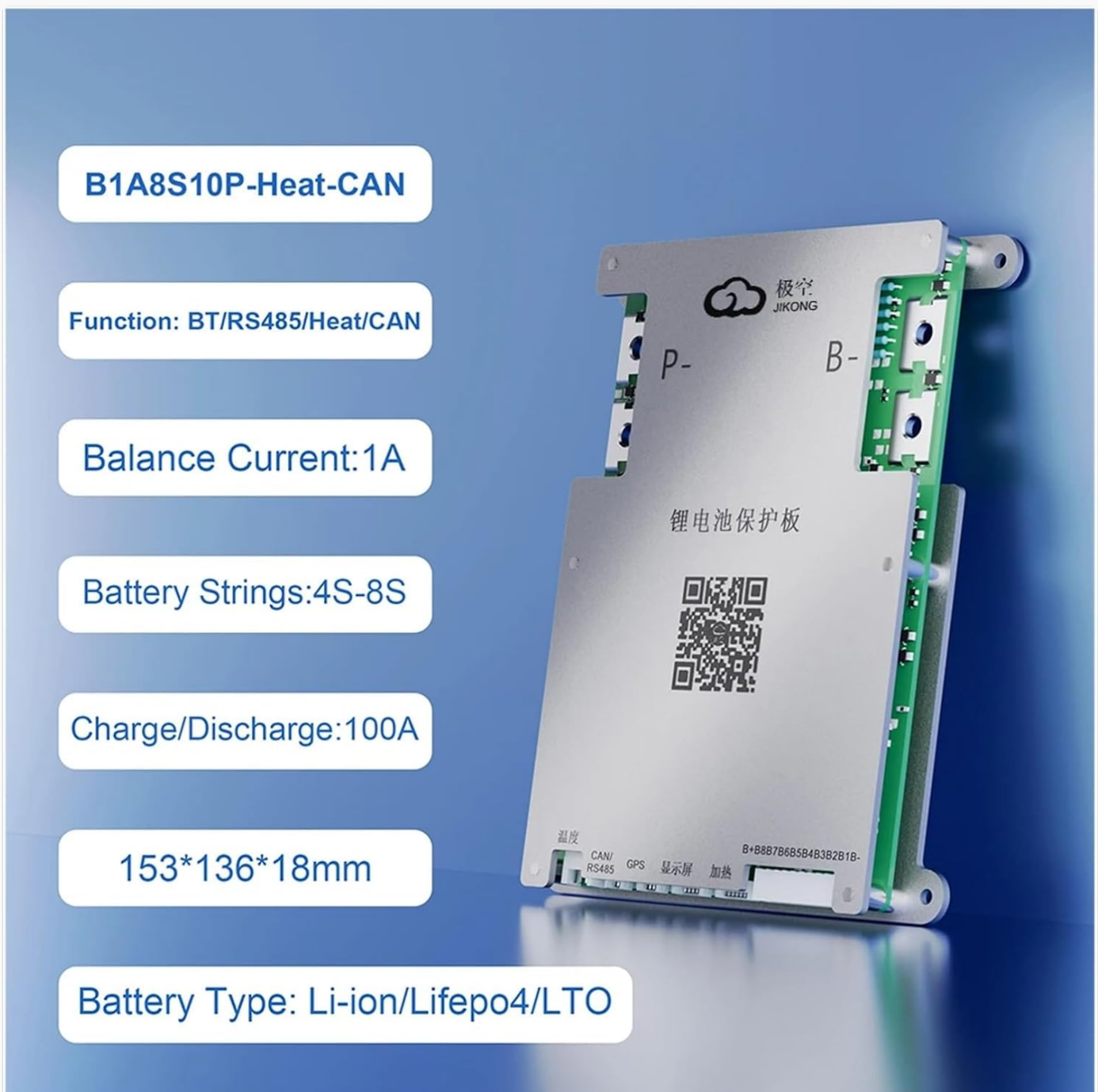


Figure 2: Feature overview of the JK Smart BMS B1A8S10P-HC, detailing its communication protocols, balance current, supported battery configurations, and physical dimensions.

3. PRODUCT SPECIFICATIONS

The following table outlines the detailed technical specifications for the JK Smart BMS B1A8S10P-HC model. For a comprehensive list of all JK BMS models and their specifications, please refer to the detailed product specification table image below.

Specification	Value
Model Name	B1A8S10P-HC
Supported Battery Strings	4S-8S
Active Balance Current	1A
Continuous Discharge Current	100A
Communication Interfaces	Bluetooth (BT), CAN, RS485
Heating Function	Yes
Dimensions (L x W x H)	153 x 136 x 18 mm (approx.)
Item Weight	2.2 pounds (approx. 1000 grams)

ITEM	Product Specifications											
	BD4A17S4P	BD4A20S4P	BD4A24S4P	BD6A17S6P	BD6A20S6P	BD6A24S6P	BD6A17S8P	BD6A20S8P	BD6A24S8P	BD6A20S10P	BD6A24S10P	B1A17S12P
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 CANBUS	RS485 CANBUS
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											

Figure 3: Comprehensive product specifications table for the JK Smart BMS series, including the B1A8S10P-HC model. This table provides detailed electrical and physical parameters.

4. PACKAGE CONTENTS

Upon opening the package, please verify that all the following components are included and in good condition:

- JK Smart BMS Unit (B1A8S10P-HC)

- Operating Manual
- NTC Temperature Sensor (40cm)
- Switch (50cm)
- Balance Wires (70cm)

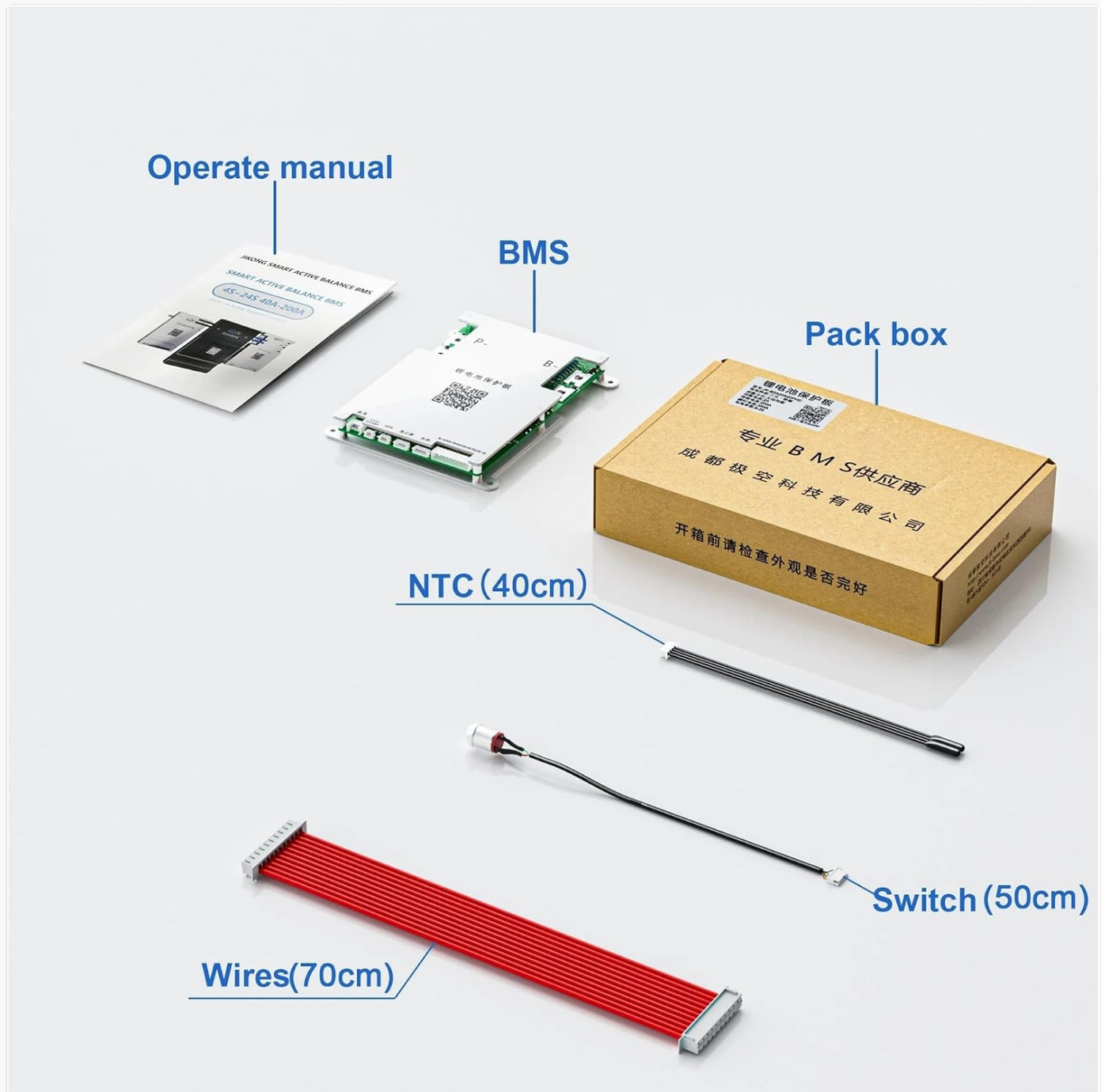


Figure 4: Contents of the JK Smart BMS B1A8S10P-HC package. Ensure all listed items are present before proceeding with installation.

5. SETUP AND WIRING

Proper wiring is critical for the safe and effective operation of your BMS. Please follow the wiring diagram carefully. Incorrect wiring can lead to damage to the BMS, battery pack, or connected equipment.

5.1 Wiring Diagram Overview

The diagram illustrates the connections between the BMS, the battery pack, and the charger/load. The sampling cable connects to individual cell strings, while the main power cables connect to the total positive (B+) and negative (P-)

terminals of the BMS.

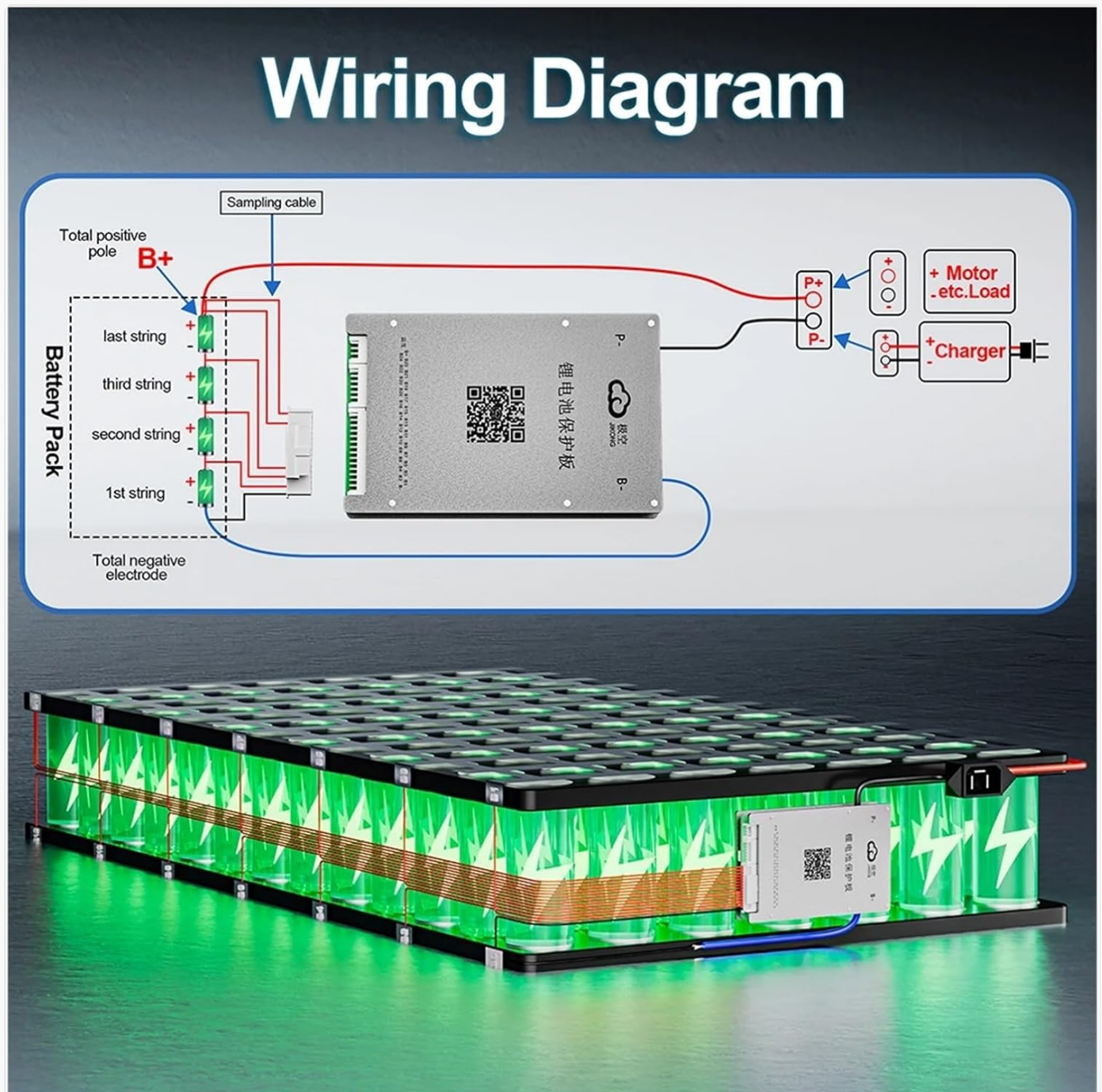


Figure 5: Wiring diagram for the JK Smart BMS. This diagram shows how to connect the BMS to your battery pack, charger, and load. Pay close attention to the balance wire connections.

5.2 Connection Steps

1. **Prepare Battery Pack:** Ensure your battery pack is assembled correctly with all cells balanced to a similar voltage before connecting the BMS.
2. **Connect Balance Wires:** Connect the balance wires from the battery pack to the corresponding ports on the BMS. Ensure the order is correct, starting from the lowest cell voltage.
3. **Connect Main Power Cables:** Connect the main positive (B+) and negative (P-) terminals of the BMS to the battery pack's main terminals.
4. **Connect Charger/Load:** Connect your charger and load to the designated terminals on the BMS.
5. **Install Temperature Sensor:** Securely attach the NTC temperature sensor to a central cell within the battery pack to monitor its temperature.

6. **Power On:** Once all connections are verified, you can power on the system.

For detailed step-by-step wiring instructions and video tutorials, please scan the QR code found on the BMS unit or refer to the official online resources: <http://qr17.cn/BApbC0>

6. OPERATION

6.1 Using the JK BMS APP

The JK Smart BMS features a dedicated mobile application that allows you to monitor your battery pack's status in real-time and configure various BMS parameters. The APP connects to the BMS via Bluetooth.

1. **Download APP:** Scan the QR code on the BMS unit or visit <http://qr17.cn/BApbC0> to download the official JK BMS APP for your smartphone.
2. **Connect via Bluetooth:** Enable Bluetooth on your phone and open the JK BMS APP. The APP will automatically search for nearby BMS devices. Select your BMS from the list to connect.
3. **Monitor Battery Status:** Once connected, you can view real-time data such as cell voltages, total voltage, current, temperature, state of charge (SOC), and protection status.
4. **Configure Settings:** The APP allows you to adjust various parameters, including over-charge/discharge voltage limits, over-current thresholds, and balance settings. Refer to the in-app help or online manual for detailed parameter explanations.

6.2 Active Balancing Function

The active balancing feature automatically works to equalize the voltage across all cells in your battery pack. This process helps prevent cell imbalance, which can reduce battery capacity and lifespan. The 1A active balance current ensures efficient and rapid balancing.

7. MAINTENANCE

To ensure the long-term performance and reliability of your JK Smart BMS and battery pack, consider the following maintenance guidelines:

- **Regular Monitoring:** Periodically check the battery status via the JK BMS APP to ensure all cells are balanced and operating within safe parameters.
- **Clean Connections:** Ensure all wiring connections are clean, tight, and free from corrosion. Loose connections can lead to resistance and heat buildup.
- **Environmental Conditions:** Operate the BMS and battery pack within their specified temperature ranges. Avoid extreme heat, cold, or high humidity.
- **Firmware Updates:** Check for any available firmware updates for your BMS via the APP or official website. Updates can improve performance and add new features.
- **Physical Inspection:** Occasionally inspect the BMS unit for any signs of physical damage, overheating, or unusual odors.

8. TROUBLESHOOTING

If you encounter issues with your JK Smart BMS, refer to the following common troubleshooting steps:

- **BMS Not Powering On:**

- Check all main power connections (B+ and P-) to ensure they are secure and correctly wired.
- Verify the battery pack voltage is within the BMS's operating range.
- **Bluetooth Connection Issues:**
 - Ensure Bluetooth is enabled on your smartphone.
 - Make sure the BMS is powered on and within Bluetooth range.
 - Try restarting the APP or your phone.
- **Cell Imbalance:**
 - Confirm all balance wires are correctly connected to the BMS and individual cells.
 - Allow the BMS sufficient time to perform active balancing, especially after initial setup or deep discharge.
- **Over-Protection Triggered (Over-charge, Over-discharge, Over-current):**
 - Check the battery voltage and current draw against the BMS settings in the APP.
 - Ensure your charger and load are compatible with the battery pack and BMS limits.
 - If an over-current protection triggers frequently, reduce the load or consider a BMS with a higher current rating.
- **Temperature Protection:**
 - Verify the NTC temperature sensor is properly installed and making good contact with a cell.
 - Ensure the battery pack is operating within its safe temperature range.

For more complex issues or if the problem persists, please contact customer support or refer to the detailed troubleshooting guides available via the QR code link: <http://qr17.cn/BApbC0>

9. WARRANTY AND SUPPORT

Aoleaby is committed to providing high-quality products and customer satisfaction. For warranty information, technical support, or service inquiries, please refer to the contact details provided with your purchase documentation or visit the official Aoleaby website. Please have your product model number (B1A8S10P-HC) and purchase date ready when contacting support.

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