

JKBMS JK-B1A8S20P

JKBMS Smart BMS 4S-8S 200A 1A Active Balance Battery Protection Board User Manual

Model: JK-B1A8S20P

1. INTRODUCTION

This manual provides essential instructions for the safe and efficient operation of your JKBMS Smart Battery Management System (BMS) model JK-B1A8S20P. This device is designed to protect and manage LiFePO₄, Li-ion, and LTO battery packs ranging from 4S to 8S configurations, with a continuous discharge current of 200A and 1A active balancing. Please read this manual thoroughly before installation and use.

2. PRODUCT OVERVIEW

2.1 Key Features

- **Enhanced Safety:** Provides comprehensive protection against overcharging, over-discharging, overcurrent, short circuits, and temperature extremes. Active equalization extends battery life and enhances performance.
- **Easy Connection:** Manage your battery effortlessly with the JKBMS mobile app for Android and iOS. Bluetooth connectivity allows real-time monitoring, setting adjustments, and control over charging/discharging.
- **Wide Application:** Compatible with Li-ion, LiFePO₄, and LTO batteries. Ideal for RVs, solar panel systems, UPS power supplies, and other applications requiring robust battery management.
- **Active Balance:** Features 1A active balancing to maintain cell voltage consistency, optimizing battery performance and longevity.

2.2 Package Contents

The following items are included in your JKBMS Smart BMS package:

- Smart BMS (JK-B1A8S20P) x 1
- Wires (70cm) x 1 set
- Switch (50cm) x 1
- NTC Temperature Sensor (40cm) x 1
- Screws x 4
- Operating Manual x 1

Note: An RS485 converter is not included and must be purchased separately if needed.



Figure 1: JKBMS Smart BMS JK-B1A8S20P main unit. This image displays the front and side view of the JKBMS Smart BMS, highlighting

its compact design and connection ports.

Package List

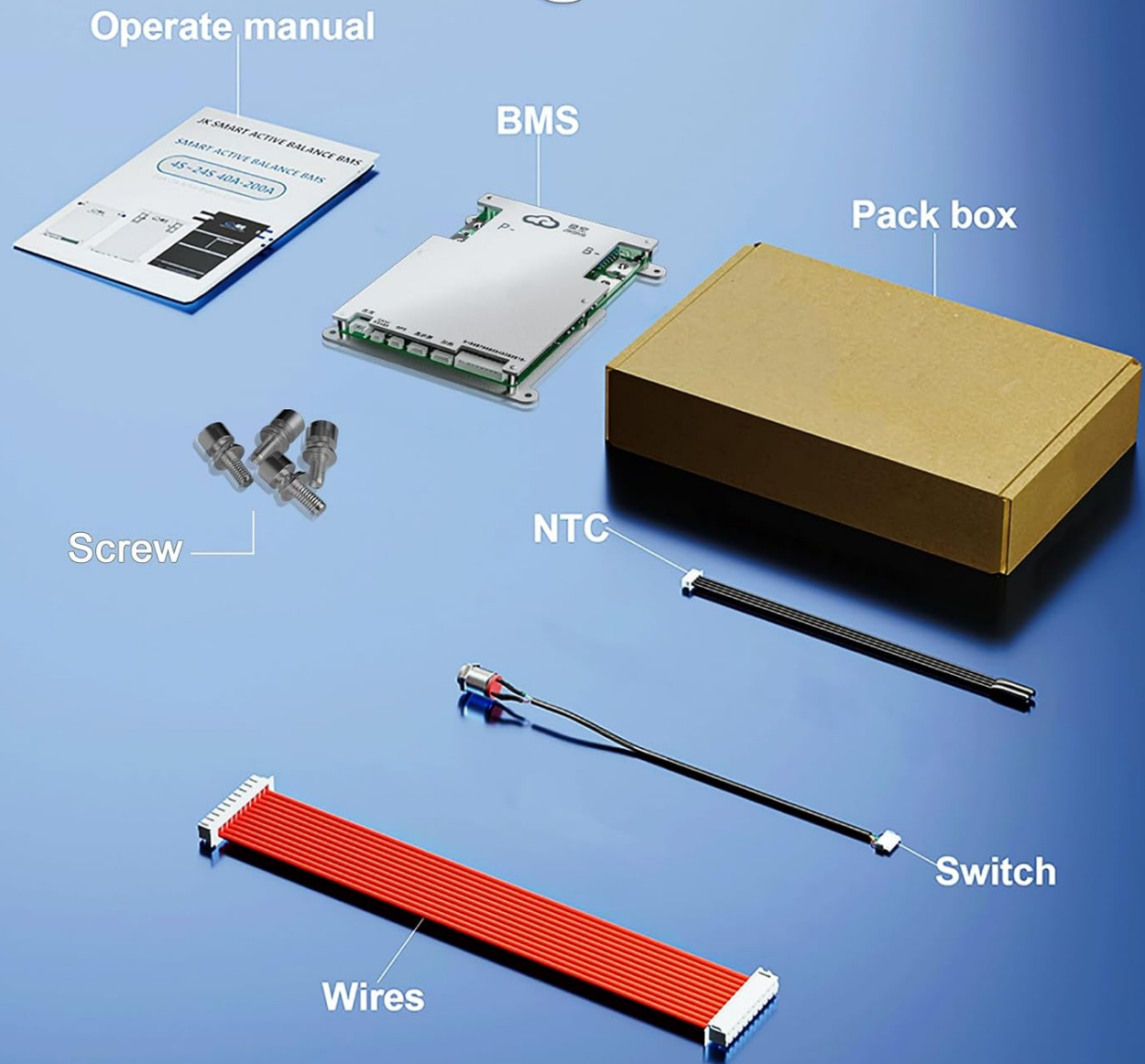


Figure 2: JKBMS Smart BMS package contents. This image shows all items included in the product package, such as the BMS unit, wires, switch, NTC sensor, screws, and the operating manual.

3. SPECIFICATIONS

Specification

Model:	JK-B1A8S20P
Balance current:	1A
Continuous discharge current:	200A
Maximum instantaneous current:	350A
Function:	Bluetooth(standard) CAN/RS485 (optional)
Overcharge current:	1.2-4.4V (adjustable)
Overdischarge current:	1.2-4.4V (adjustable)
Overcharge release:	1.2-4.4V (adjustable)
Overdischarge release:	1.2-4.4V (adjustable)
Single cell battery collection range:	1V-5V
Voltage acquisition accuracy:	±3mV
Power Requirements:	10V-36V
Size:	6.02*4.96*0.69(in)/153*126*17.6(mm)
Product Weight:	Approx.350g



Figure 3: JKBMS Smart BMS JK-B1A8S20P detailed specifications. This image provides a visual summary of the key technical parameters for the BMS.

Table 1: JKBMS Smart BMS JK-B1A8S20P Technical Specifications

Parameter	Value
Model	JK-B1A8S20P
Balance Current	1A
Continuous Discharge Current	200A
Maximum Instantaneous Current	350A
Function	Bluetooth (standard), CAN/RS485 (optional)
Overcharge Current	1.2-4.4V (adjustable)

Parameter	Value
Overdischarge Current	1.2-4.4V (adjustable)
Overcharge Release	1.2-4.4V (adjustable)
Overdischarge Release	1.2-4.4V (adjustable)
Single Cell Battery Collection Range	1V-5V
Voltage Acquisition Accuracy	±3mV
Power Requirements	10V-36V
Size (L x W x H)	6.02 x 4.96 x 0.69 inches (153 x 126 x 17.6 mm)
Product Weight	Approx. 350g (12.3 ounces)

4. SAFETY INFORMATION

Always prioritize safety when working with battery systems. Improper installation or handling can lead to serious injury or damage to equipment. Adhere to the following guidelines:

- Ensure all connections are correct and secure before applying power.
- Wear appropriate personal protective equipment (PPE), including safety glasses and insulated gloves.
- Do not short-circuit battery terminals or BMS connections.
- Verify battery voltage and polarity before connecting to the BMS.
- Install the BMS in a well-ventilated area, away from flammable materials.
- Do not attempt to disassemble or repair the BMS unit. Contact support for assistance.
- Keep the BMS away from water, moisture, and extreme temperatures.

EIGHT SECURITY PROTECTION

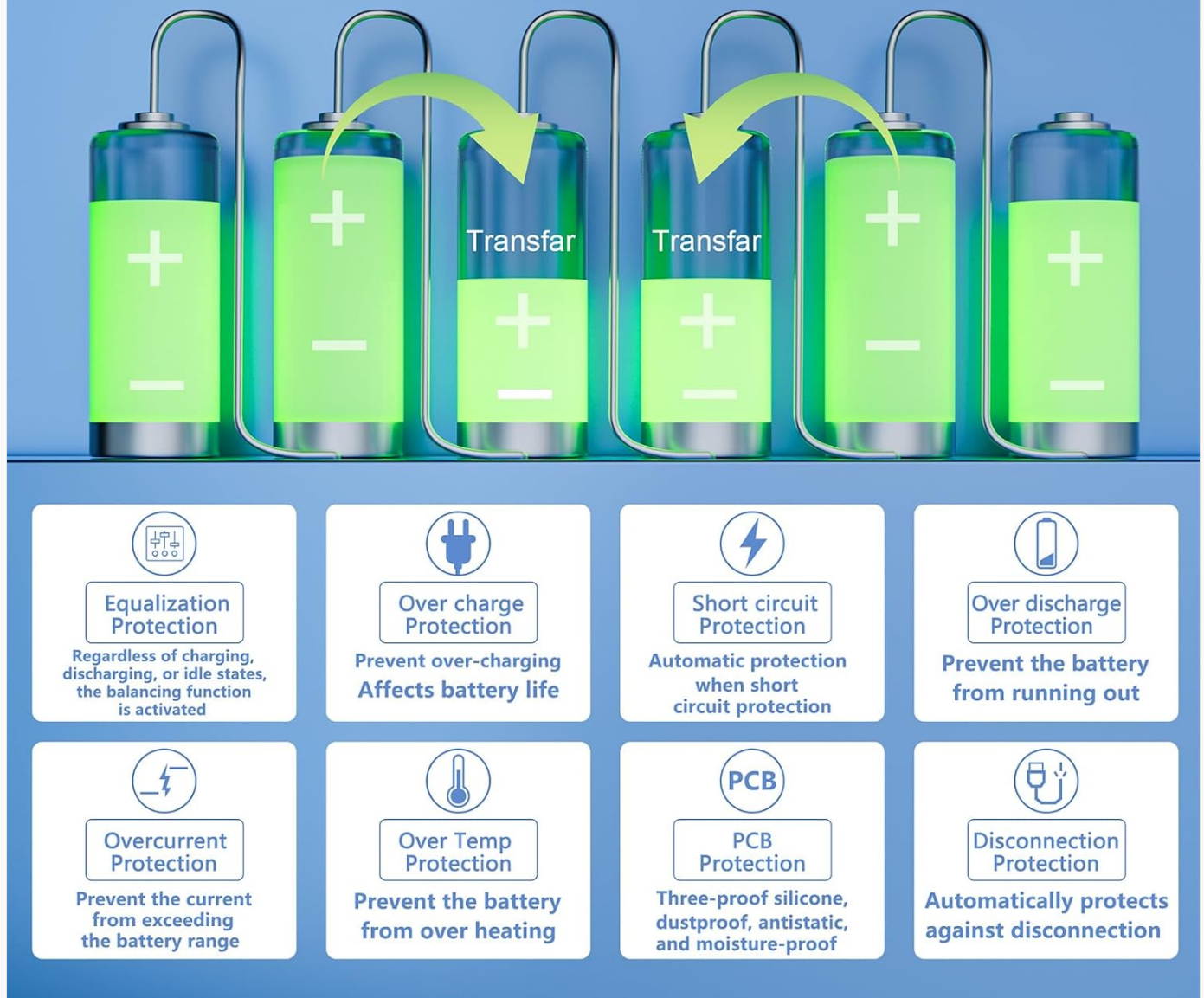


Figure 4: Eight security protection features of JKBMS Smart BMS. This diagram illustrates the various protective functions, including equalization, overcharge, short circuit, over-discharge, overcurrent, over-temperature, PCB protection, and disconnection protection.

5. SETUP AND INSTALLATION

5.1 Wiring Diagram

Refer to the wiring diagram below for proper connection of the BMS to your battery pack, charger, and load. Ensure all connections follow the specified order and polarity.

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



Figure 5: JKBMS Smart BMS wiring diagram. This diagram illustrates the connections for the battery pack (B- and total positive pole), sampling cable, load, and charger to the BMS.

5.2 Connection Steps

1. **Connect B- Terminal:** Connect the main negative terminal (B-) of the battery pack to the B- port on the BMS.
2. **Connect Balance Wires:** Connect the balance wires from your battery cells to the corresponding ports on the BMS, starting from the lowest cell voltage (B1-) up to the highest cell voltage (B8+ for an 8S system). Ensure each wire is connected to the correct cell tap.
3. **Connect P- Terminal:** Connect the negative terminal for the load and charger (P-) to the P- port on the BMS.
4. **Connect Total Positive Pole:** Connect the total positive pole (B+) of the battery pack to the designated positive input for the load and charger.
5. **Connect NTC Temperature Sensor:** Plug the NTC sensor into its dedicated port on the BMS and place the sensor on a battery cell to monitor temperature.
6. **Connect Switch:** Plug the provided switch into its port. This switch controls the power to the BMS.
7. **Final Red Wire (Crucial Step):** Ensure the final red wire (often the highest voltage balance wire or a dedicated

activation wire) is correctly connected to the last positive lead of your battery pack. The BMS will not power on or function without this connection.

Important: Double-check all connections for correct polarity and secure fit before applying power. Incorrect wiring can damage the BMS and battery pack.

6. OPERATION

6.1 Bluetooth App Monitoring and Control

The JKBMS Smart BMS features built-in Bluetooth for wireless communication with a dedicated mobile application. This app allows you to monitor battery status and adjust parameters.

1. **Download the App:** Search for "JK BMS" in your device's app store (available for Android and iOS).
2. **Connect via Bluetooth:** Enable Bluetooth on your smartphone. Open the JKBMS app and search for available BMS devices. Select your BMS to connect.
3. **Monitor Data:** The app displays real-time battery data, including:
 - Total voltage
 - Individual cell voltages
 - Charge/discharge current
 - Battery temperature (from NTC sensor)
 - State of Charge (SOC)
 - Remaining capacity
 - Balance status
4. **Adjust Settings:** You can modify various parameters through the app, such as overcharge/over-discharge voltage limits, overcurrent protection, and balancing thresholds. Refer to the app's internal help or specific JKBMS documentation for detailed parameter adjustments.
5. **Control Balance Switch:** The app allows you to control the BMS balance switch, enabling or disabling the active balancing function as needed.



Figure 6: JKBMS Smart Bluetooth APP interface. This image displays a smartphone screen showing the JKBMS app, which provides real-time monitoring of battery voltage, current, temperature, and cell balance status.

7. MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your JKBMS Smart BMS and battery pack:

- **Visual Inspection:** Periodically inspect the BMS and all connections for any signs of damage, corrosion, or loose wiring.
- **Cleanliness:** Keep the BMS unit clean and free from dust and debris. Use a dry, soft cloth for cleaning.
- **Firmware Updates:** Check the JKBMS official website or app for any available firmware updates to ensure your BMS has the latest features and bug fixes.
- **Battery Health Monitoring:** Regularly monitor battery cell voltages and overall pack health via the Bluetooth app. Address any significant cell imbalances promptly.

8. TROUBLESHOOTING

If you encounter issues with your JKBMS Smart BMS, refer to the following troubleshooting tips:

8.1 BMS Not Powering On / No Indication

- **Check All Connections:** Ensure all wires, especially the main B- and P- connections, and all balance wires, are securely connected and in the correct order.
- **Verify Final Red Wire:** Confirm that the final red wire (highest voltage balance wire or activation wire) is properly connected to the last positive lead of your battery pack. This connection is critical for BMS activation.
- **Inspect Switch:** Ensure the power switch is correctly plugged in and in the 'ON' position.
- **Battery Voltage:** Verify that your battery pack voltage is within the operational range (10V-36V for this model).

8.2 Bluetooth Connection Issues

- **Enable Bluetooth:** Ensure Bluetooth is enabled on your smartphone.
- **App Permissions:** Check if the JKBMS app has the necessary Bluetooth permissions on your device.
- **Restart BMS/App:** Try restarting the BMS (by cycling the power switch) and closing/reopening the app.
- **Proximity:** Ensure your phone is within close proximity to the BMS for a stable connection.

8.3 Heater Function Activation (if applicable)

For BMS models with a heater port, the heating function activates under specific conditions:

- **Condition 1 (Low Temperature):** The battery temperature must be below the charging low-temperature protection threshold (e.g., 0°C to 5°C).
- **Condition 2 (Manual Activation):** Heating can be manually activated via the app. This will consume battery power.
- **Condition 3 (Charger Detection):** The heating function may also activate if a charger is detected as being plugged in, ensuring the battery is being charged during the heating process.

Note: The specific technical specifications of your heating film and charger are relevant for proper heater function. Consult your heating film documentation.

8.4 Other Issues

If troubleshooting steps do not resolve the issue, please contact JKBMS customer support.

9. WARRANTY AND SUPPORT

JKBMS provides 1-year support for this product. If you have any questions, concerns, or require technical assistance, please contact us through your order page on the platform where you purchased the product. We are committed to ensuring your satisfaction.

10. APPLICATION SCENARIOS

The JKBMS Smart BMS is versatile and suitable for a wide range of applications requiring reliable battery management:

- RV Energy Storage
- Solar Panel Systems
- UPS Power Supplies
- Electric Bikes and Scooters
- Electric Tricycles
- Low-Speed Quads
- Forklifts

- Cleaning Cars
- Tourist Cars
- Industrial Drones
- Power Banks
- Power Tools

Wiring Diagram

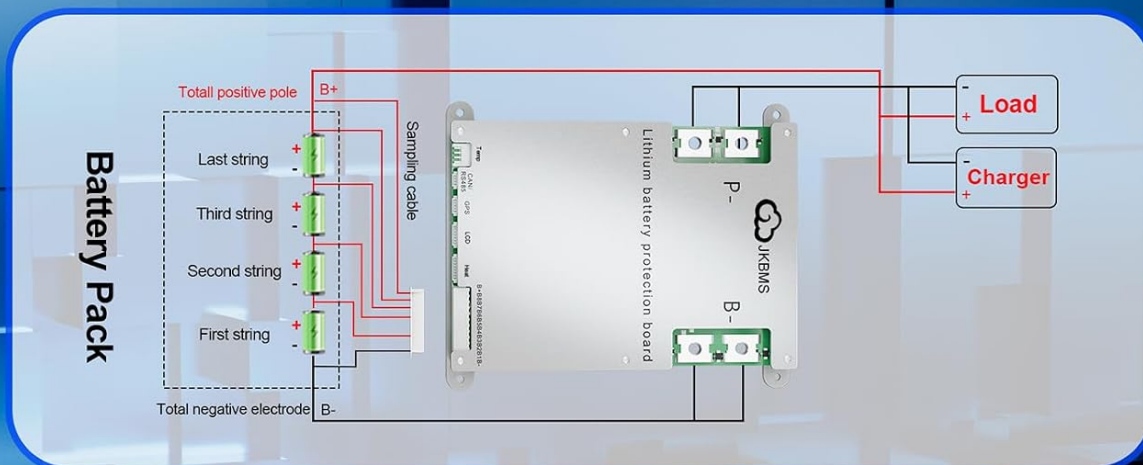


Figure 7: Various application scenarios for JKBMS Smart BMS. This image displays several examples of vehicles and systems where the JKBMS can be effectively utilized, including e-bikes, electric tricycles, forklifts, RVs, and solar energy storage.

© 2024 JKBMS. All rights reserved.

ASK A QUESTION ABOUT THIS MANUAL

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question

and use this page's manual context to help answer it.

Name

Anonymous

Email

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. [Privacy details](#).

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question