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› JKBMS Smart BMS JK-BD4A20S4P User Manual

JKBMS JK-BD4A20S4P

JKBMS Smart BMS JK-BD4A20S4P User Manual

1. INTRODUCTION AND OVERVIEW

This manual provides detailed instructions for the installation, operation, and maintenance of the JKBMS Smart BMS (Battery Management System) model JK-BD4A20S4P. This device is designed to manage and protect lithium battery packs, including Li-ion, LiFePO₄, and LTO chemistries, configured from 8 series (8S) to 20 series (20S). It features a 40A continuous discharge current, 0.4A active balance, built-in Bluetooth connectivity, and an RS485 communication interface.



Figure 1: JKBMS Smart BMS JK-BD4A20S4P

2. PRODUCT FEATURES

- **Enhanced Safety:** Provides comprehensive protection against overcharging, over-discharging, overcurrent, short circuits, and extreme temperatures. The active equalization feature extends battery life and improves performance.

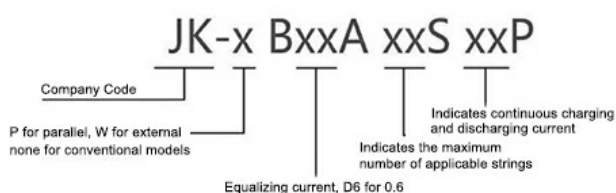
- **Easy Connection:** Manage your battery effortlessly using the JKBMS mobile application, available for both Android and iOS devices. Bluetooth connectivity allows real-time monitoring of battery status, adjustment of settings, and control of charging/discharging functions directly from your smartphone or tablet.
- **Wide Application:** Compatible with various lithium battery chemistries including Li-ion, LiFePO4, and LTO. Suitable for a broad range of applications such as electric motorbikes, electric scooters, and other energy storage systems, ensuring seamless integration and optimal performance.
- **Communication Interfaces:** Includes built-in Bluetooth for wireless monitoring and control, and an RS485 port for integration with other systems.

Lithium Battery Protection Board

4-24S □ 40-200A □ LiFePO4/Li-ion/LTO



Protective Plate Modeling



Application Scenarios



Sightseeing Vehicle



Electric Tricycle



Electric Scooter



Emergency UPS



Electric Forklift



Photovoltaic Storage



RV Energy Storage



Electric Motorcycle

Figure 2: Bluetooth Communication Features

3. PACKAGE CONTENTS

Verify that all items listed below are included in your package:

- Smart BMS (JK-BD4A20S4P) x 1
- Wires (70cm) x 1
- Switch (50cm) x 1
- NTC (40cm) x 1 (Temperature Sensor)
- Operating Manual x 1

Note: The RS485 converter is not included and must be purchased separately if required.

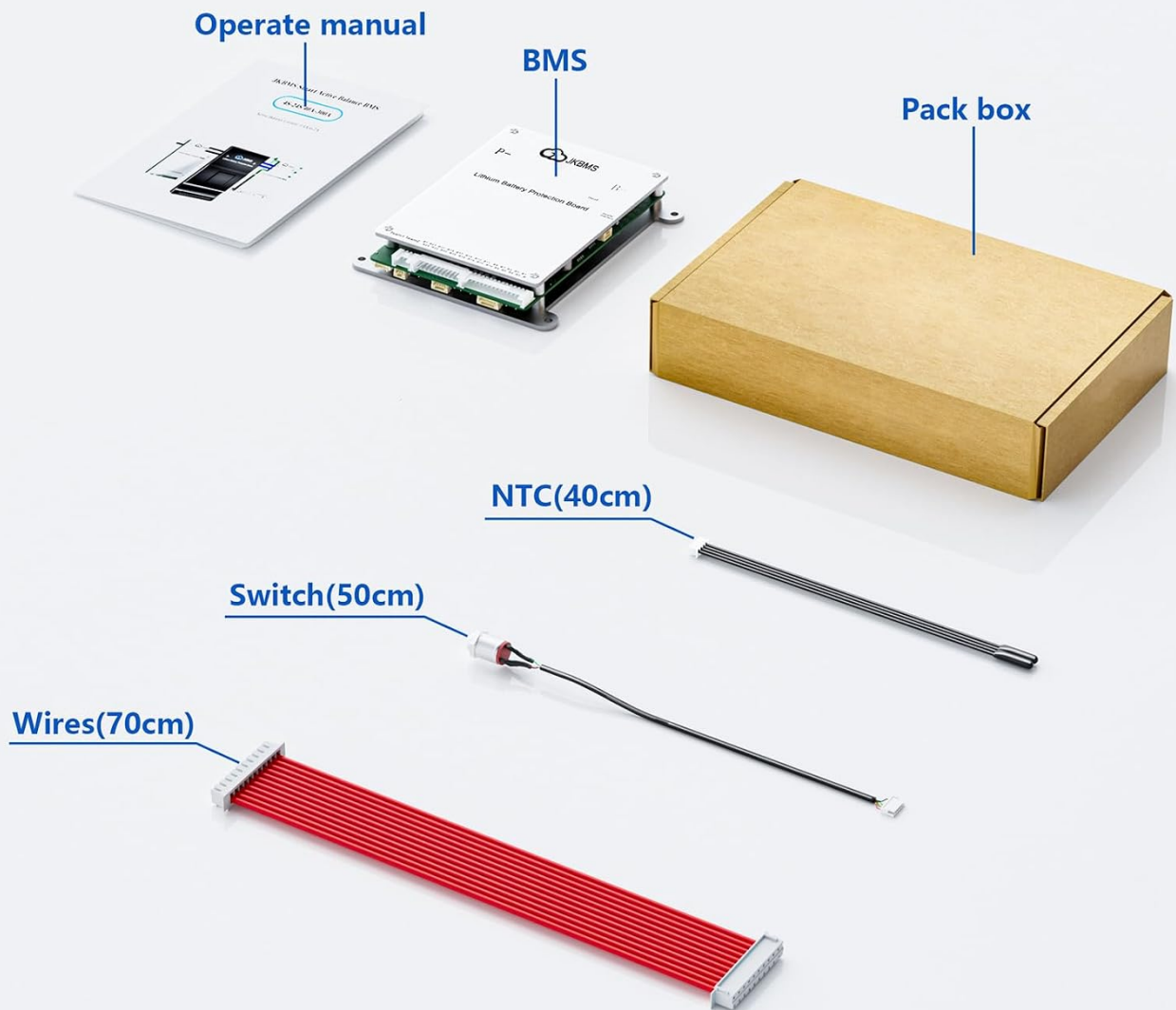


Figure 3: Package Contents

4. SAFETY INFORMATION

Read all safety warnings and instructions carefully before installation and operation to prevent injury or damage to the product and battery pack.

- **Professional Installation Recommended:** Installation of a BMS involves working with high voltage and current. It is highly recommended that installation be performed by qualified personnel.
- **Correct Wiring:** Ensure all wiring connections are correct and secure according to the provided wiring diagram. Incorrect wiring can lead to severe damage to the BMS, battery, or connected equipment, and poses a fire hazard.
- **Avoid Short Circuits:** Never short-circuit the battery terminals or BMS connections.
- **Observe Polarity:** Always connect wires with correct polarity (positive to positive, negative to negative). Reversing polarity will damage the BMS and battery.
- **Insulation:** Ensure all exposed wires and connections are properly insulated to prevent accidental contact.

- **Environmental Conditions:** Operate the BMS within its specified temperature and humidity ranges. Avoid exposure to water, dust, and corrosive substances.

EIGHT SECURITY PROTECTION



Figure 4: Eight Security Protection Features

5. SETUP AND INSTALLATION

Follow these steps for proper installation of your JKBMS Smart BMS:

1. **Prepare the Battery Pack:** Ensure your battery pack is assembled correctly with the desired number of series cells (8S-20S) and that all cells are balanced to a similar voltage before connecting the BMS.
2. **Connect Balance Wires:** Carefully connect the balance wires from your battery pack to the BMS balance port. Start from B- (negative terminal of the first cell) and connect sequentially up to the highest positive cell terminal (B+). Double-check each connection for correct order and polarity.
3. **Connect Main Power Wires:** Connect the main negative terminal of the battery pack to the B- terminal on the BMS. Connect the main positive terminal of the battery pack to the P+ terminal on the BMS. The load and charger will connect to the P- and P+ terminals respectively.

4. **Connect NTC Sensor:** Attach the NTC temperature sensor to a central cell or area of the battery pack to monitor temperature accurately.
5. **Connect Switch:** Connect the provided switch to the designated port on the BMS. This switch can be used to enable/disable the BMS.
6. **Initial Power-Up:** After all connections are secure and verified, power on the BMS. Observe for any unusual behavior or error indicators.
7. **Install Mobile App:** Download the JKBMS mobile application from your device's app store (Android or iOS).

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

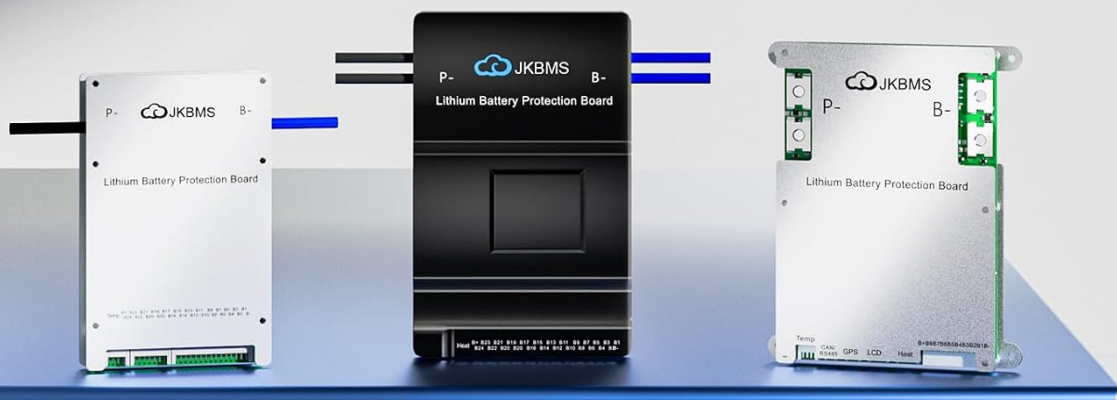


Figure 5: Wiring Diagram

6. OPERATION

The JKBMS Smart BMS is primarily operated and monitored via its dedicated mobile application.

1. **Bluetooth Connection:** Open the JKBMS app on your smartphone. Ensure Bluetooth is enabled. The app should detect your BMS. Select your BMS from the list to connect.

2. **Real-time Monitoring:** Once connected, the app displays real-time data including:

- Individual cell voltages
- Total battery voltage
- Charge/discharge current
- Battery temperature (from NTC sensor)
- State of Charge (SOC)
- State of Health (SOH)
- Cycle count

3. **Parameter Adjustment:** The app allows you to modify various protection parameters, such as overcharge voltage, over-discharge voltage, overcurrent limits, and temperature thresholds. Adjust these settings according to your battery manufacturer's specifications.

4. **Balance Control:** You can monitor and control the active balance function through the app. The BMS automatically balances cells, but the app provides visibility into the balancing status.

5. **Charging and Discharging Control:** The app provides control over the BMS's charging and discharging switches, allowing you to enable or disable these functions as needed.



7. MAINTENANCE

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

- **Periodic Inspection:** Periodically inspect all wiring connections for tightness and corrosion. Ensure no wires are frayed or damaged.
- **Cleanliness:** Keep the BMS and its surroundings clean and free from dust, dirt, and moisture.
- **Software Updates:** Check the JKBMS app regularly for any available firmware updates for your BMS. Keeping the firmware updated can improve performance and add new features.
- **Battery Health Monitoring:** Regularly monitor battery cell voltages and overall pack health through the app. Address any significant cell imbalances promptly.

8. TROUBLESHOOTING

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

- **BMS Not Powering On:**
 - Check all main power connections (B-, P+).
 - Verify battery pack voltage is within the operational range (20V-100V).
 - Ensure the switch is correctly connected and in the 'on' position.
- **Bluetooth Connection Issues:**
 - Ensure Bluetooth is enabled on your smartphone and the app has necessary permissions.
 - Restart the JKBMS app and try reconnecting.
 - Move closer to the BMS to ensure a strong signal.
- **Cell Imbalance:**
 - The active balance function should address minor imbalances. Allow time for the BMS to balance the cells.
 - If severe imbalance persists, check balance wire connections for continuity and correct order.
- **No Charge/Discharge:**
 - Check for any active protection alarms in the app (e.g., overvoltage, undervoltage, overcurrent, temperature).
 - Ensure the charger and load are correctly connected to the P+ and P- terminals.
 - Verify that the charge/discharge switches are enabled in the app.
- **Inaccurate State of Charge (SOC):**
 - SOC can sometimes drift. Perform a full charge and discharge cycle to recalibrate the BMS's capacity measurement.
- **App Permissions (Android):** Some users have reported that the Android app may require location permissions to function correctly. Ensure these permissions are granted if you experience connectivity issues.

For persistent issues, refer to the detailed troubleshooting section in the official JKBMS documentation or contact JKBMS customer support.

9. SPECIFICATIONS

Detailed technical specifications for the JKBMS Smart BMS JK-BD4A20S4P:

Feature	Specification
Model Number	JK-BD4A20S4P
Supported Cell Series	8S-20S
Supported Battery Types	Li-ion, LiFePO4, LTO
Active Balance Current	0.4A
Continuous Discharge Current	40A
Maximum Instantaneous Current	60A
Overcharge Voltage (Adjustable)	1.2V-4.4V
Overdischarge Voltage (Adjustable)	1.2V-4.4V
Single Cell Voltage Collection Range	1V-5V
Voltage Acquisition Accuracy	±3mV
Power Requirements (Input Voltage)	20V-100V
Communication	Bluetooth (standard), RS485 (optional)
Product Dimensions (L x W x H)	4.57 x 4.06 x 0.69 inches (116 x 103 x 17.6 mm)
Item Weight	6.7 ounces (Approx. 190g)

Specification

Model: JK-BD4A20S4P

Balance current: 0.4A

Continuous discharge current: 40A

Maximum instantaneous current: 60A

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: $\pm 3\text{mV}$

Power Requirements: 20V-100V

Size: 116*103*17.6(mm)/4.57*4.06*0.69(in)

Product Weight: Approx.190g



Figure 7: Product Specifications

10. APPLICATION SCENARIOS

The JKBMS Smart BMS JK-BD4A20S4P is suitable for a variety of applications requiring reliable battery management:

- Electric Motorbikes and Scooters
- E-bikes and Electric Tricycles
- Low Speed Quads and Electric Vehicles
- Forklifts and Industrial Drones
- Cleaning Cars and Tourist Cars
- RV Energy Storage Systems
- Home Energy Storage Cabinets
- Portable Power Banks and Power Tools

Wiring Diagram

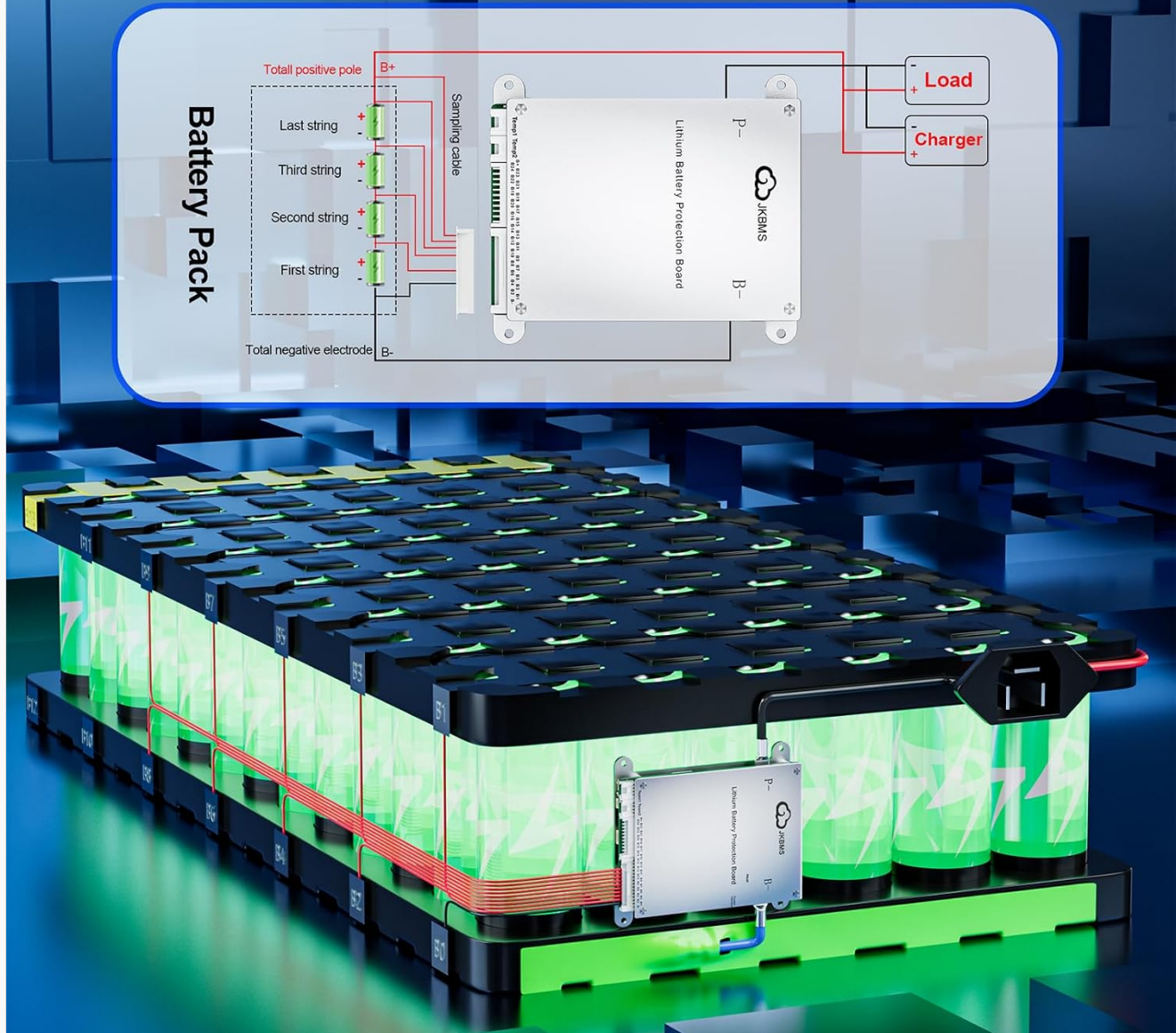


Figure 8: Diverse Application Scenarios

11. WARRANTY AND SUPPORT

JKBMS provides a **1-year support** period for this product. If you have any questions, concerns, or require assistance, please contact JKBMS customer support through your order page or the official JKBMS website. Please have your product model number (JK-BD4A20S4P) and purchase details ready when contacting support.

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