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› [Electronic Spices 4S 20A 14.8V 18650 Li-ion Lithium Battery Protection and Charger BMS Module User Manual](#)

Electronic Spices FHJY

Electronic Spices 4S 20A 14.8V 18650 Li-ion Lithium Battery Protection and Charger BMS Module User Manual

Model: FHJY

1. INTRODUCTION

This manual provides essential information for the safe and effective use of the Electronic Spices 4S 20A 14.8V 18650 Li-ion Lithium Battery Protection and Charger BMS Module. This module is designed to manage and protect 4-series (4S) Li-ion battery packs, ensuring their longevity and safe operation. Please read this manual thoroughly before installation and operation.

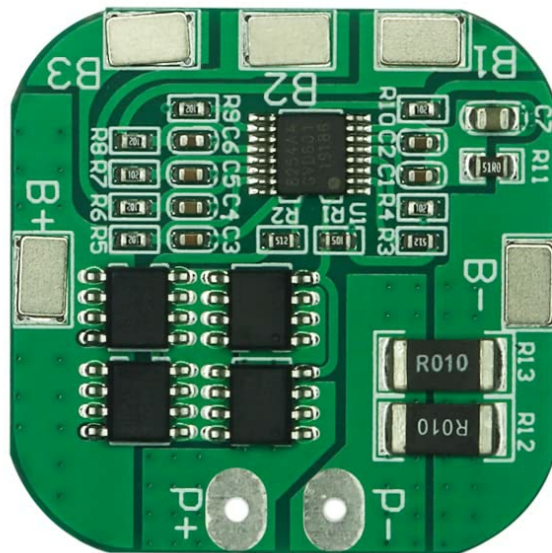


Figure 1: Front view of the Electronic Spices 4S 20A BMS Module, showing components and connection points.

2. KEY FEATURES

The Electronic Spices 4S 20A BMS Module offers the following protective and management features:

- **Charging Voltage:** DC 14.8V
- **Current Consumption:** 20A
- **Overcharge Detection Voltage:** $3.90V \pm 0.25V$ per cell
- **Overcharge Release Voltage:** $3.80V \pm 0.05V$ per cell
- **Over-discharge Detection Voltage Range:** $2.0V \pm 0.08V$ per cell
- **Short Circuit Protection:** Automatically disconnects output in case of a short circuit.
- **Overcurrent Protection:** Prevents damage from excessive current draw.
- **Cell Balancing:** Helps maintain equal voltage across all cells in the pack for optimal performance.

3. SETUP AND WIRING

Proper wiring is crucial for the safe and correct operation of the BMS module. Refer to the diagram below for connection details. Always ensure power is disconnected before making any connections.

1. **Connect B-** to the negative terminal of the first battery cell (B1-).
2. **Connect B1** to the positive terminal of the first cell and the negative terminal of the second cell.
3. **Connect B2** to the positive terminal of the second cell and the negative terminal of the third cell.
4. **Connect B3** to the positive terminal of the third cell and the negative terminal of the fourth cell.
5. **Connect B+** to the positive terminal of the fourth battery cell (B4+).
6. **Connect P-** to the negative terminal of your load/charger.
7. **Connect P+** to the positive terminal of your load/charger.

Note: Ensure all connections are secure and insulated to prevent short circuits. Incorrect wiring can damage the BMS, batteries, or connected devices.



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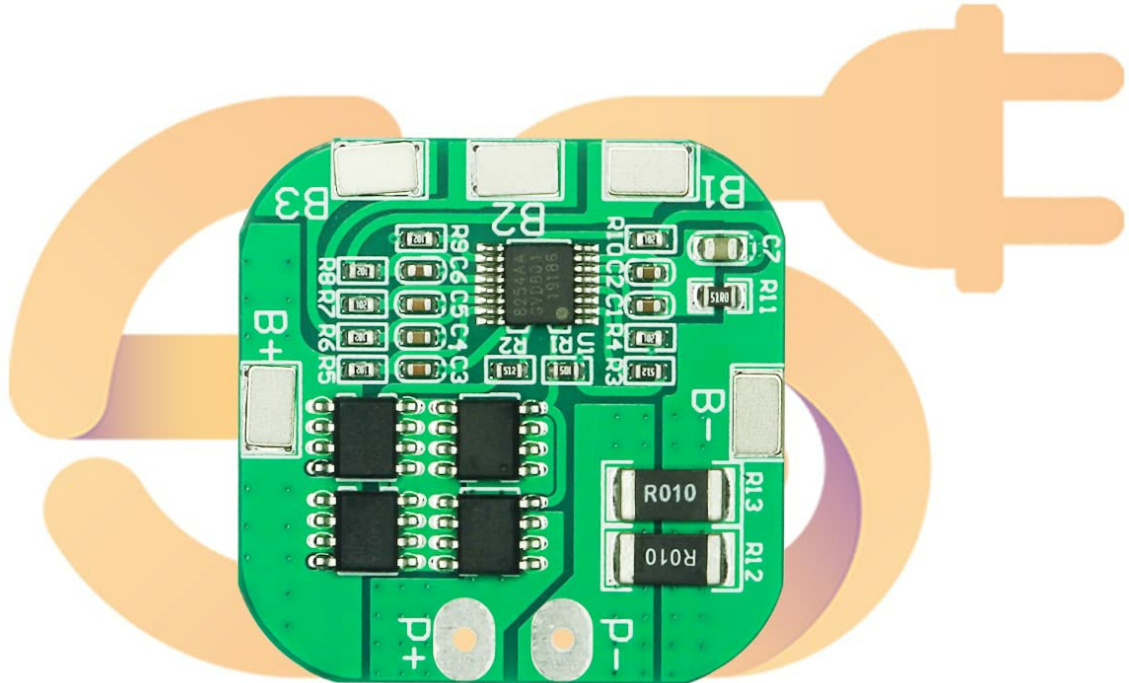


Figure 3: Bottom view of the BMS module, showing voltage markings and model number HX-4S-A20 REV 1.1.

4. OPERATING INSTRUCTIONS

Once properly wired, the BMS module will automatically manage the charging and discharging of your 4S Li-ion battery pack. It provides protection against common battery issues.

- **Charging:** Connect a compatible 14.8V (or slightly higher, up to 16.8V for full charge) Li-ion charger to the P+ and P- terminals. The BMS will manage the charging process, preventing overcharge.
- **Discharging:** Connect your load to the P+ and P- terminals. The BMS will monitor the discharge, preventing over-discharge and overcurrent.
- **Protection Activation:** If any protection threshold (overcharge, over-discharge, overcurrent, short circuit) is met, the BMS will temporarily cut off the output to protect the batteries.
- **Recovery:** Most protection states will automatically reset once the fault condition is removed (e.g., removing the short circuit, connecting a charger after over-discharge).

5. MAINTENANCE

The Electronic Spices BMS module is designed for low maintenance. However, following these guidelines can help ensure optimal performance and longevity:

- **Regular Inspection:** Periodically check all wiring connections for looseness or corrosion.
- **Cleanliness:** Keep the module free from dust, dirt, and moisture. Use a soft, dry cloth for cleaning.
- **Environmental Conditions:** Operate the module within its specified temperature and humidity ranges. Avoid extreme temperatures.
- **Battery Health:** Ensure the individual 18650 cells used with the BMS are in good condition and are of similar capacity and internal resistance for best performance.

6. TROUBLESHOOTING

If you encounter issues with your BMS module, consider the following troubleshooting steps:

Problem	Possible Cause	Solution
No output voltage from P+ and P-	Over-discharge protection activated. Short circuit protection activated. Incorrect wiring. Faulty battery cell.	Connect a charger to reset the BMS. Remove the short circuit. Verify all wiring connections according to Section 3. Test individual battery cell voltages. Replace faulty cells.
BMS gets hot during operation	Excessive current draw (overcurrent). Poor connections.	Reduce the load or ensure the load current is within the 20A limit. Check for loose or high-resistance connections.
Batteries not charging fully	Overcharge protection activated prematurely. Unbalanced cells. Charger issue.	Verify charger voltage is appropriate (e.g., 16.8V for 4S Li-ion). Allow the BMS to balance cells over time, or manually balance if necessary. Test the charger independently.

7. SPECIFICATIONS

Detailed technical specifications for the Electronic Spices 4S 20A 14.8V 18650 Li-ion Lithium Battery Protection and Charger BMS Module:

- **Brand:** Electronic Spices
- **Model Number:** FHJY
- **Battery Type:** 4S Li-ion (18650 cells recommended)
- **Nominal Voltage:** 14.8V (for 4S Li-ion)
- **Charging Voltage:** DC 14.8V (up to 16.8V for full charge)
- **Maximum Continuous Discharge Current:** 20A
- **Overcharge Detection Voltage:** 3.90V \pm 0.25V
- **Overcharge Release Voltage:** 3.80V \pm 0.05V
- **Over-discharge Detection Voltage:** 2.0V \pm 0.08V
- **Short Circuit Protection:** Yes

- **Overcurrent Protection:** Yes
- **Dimensions:** Approximately 13 x 13 x 8 cm (packaged)
- **Item Weight:** 200 g (packaged)
- **Country of Origin:** India

Note: The physical dimensions and weight provided are for the packaged product. The module itself is compact.

8. PRODUCT OVERVIEW VIDEO

Watch this video for a visual overview of the Electronic Spices BMS Module, demonstrating its physical characteristics and potential applications.

Your browser does not support the video tag.

Video 1: A brief overview of the Electronic Spices BMS Module, highlighting its compact design and key features for battery management.

9. WARRANTY AND SUPPORT

Specific warranty information for this product is not provided in the available documentation. For technical support or warranty inquiries, please contact Electronic Spices directly through their official channels or the retailer from whom the product was purchased.

Manufacturer Contact Information:

Electronic Spices

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