## GODIYMODULES 4S 12V 800A Max LiFePo4 Battery Protection Board

# GODIYMODULES 4S 12V 800A Max LiFePo4 BMS Instruction Manual

Model: 4S 12V 800A Max LiFePo4 Battery Protection Board

## Introduction

Image: Top view of the GODIYMODULES 4S 12V 800A Max LiFePo4 Battery Protection Board.

This manual provides detailed instructions for the installation, operation, and maintenance of your GODIYMODULES 4S 12V 800A Max LiFePo4 Lithium Iron Phosphate Battery Protection Board. This BMS is designed to protect 4-series (4S) LiFePo4 battery packs, commonly used in applications such as emergency car starting, motorcycle LiFePo4 batteries, and electric drill power tools. Please read this manual thoroughly before use to ensure proper function and safety.

## Product Features

- **Continuous Current:** Up to 50A
- **Instantaneous Current:** Max 800A
- **Charging Voltage:** 14.8V~16V
- **Charging Current:** Up to 20A
- **Balance Current:** 40mAh
- **Overcharge Protection:** Single cell 3.75V±0.025V
- **Over-discharge Protection:** Single cell 2.00V±0.05V

- **Short Circuit Protection:** Yes
- **Applicable Assembly:** Nominal 3.2V LiFePo4 battery
- **Load Power:** Within DC 12V 600W (Motor starting current less than 800A)

## Package Contents

- 1x 4S LiFePo4 Battery Protection Board
- 1x Balance Cable

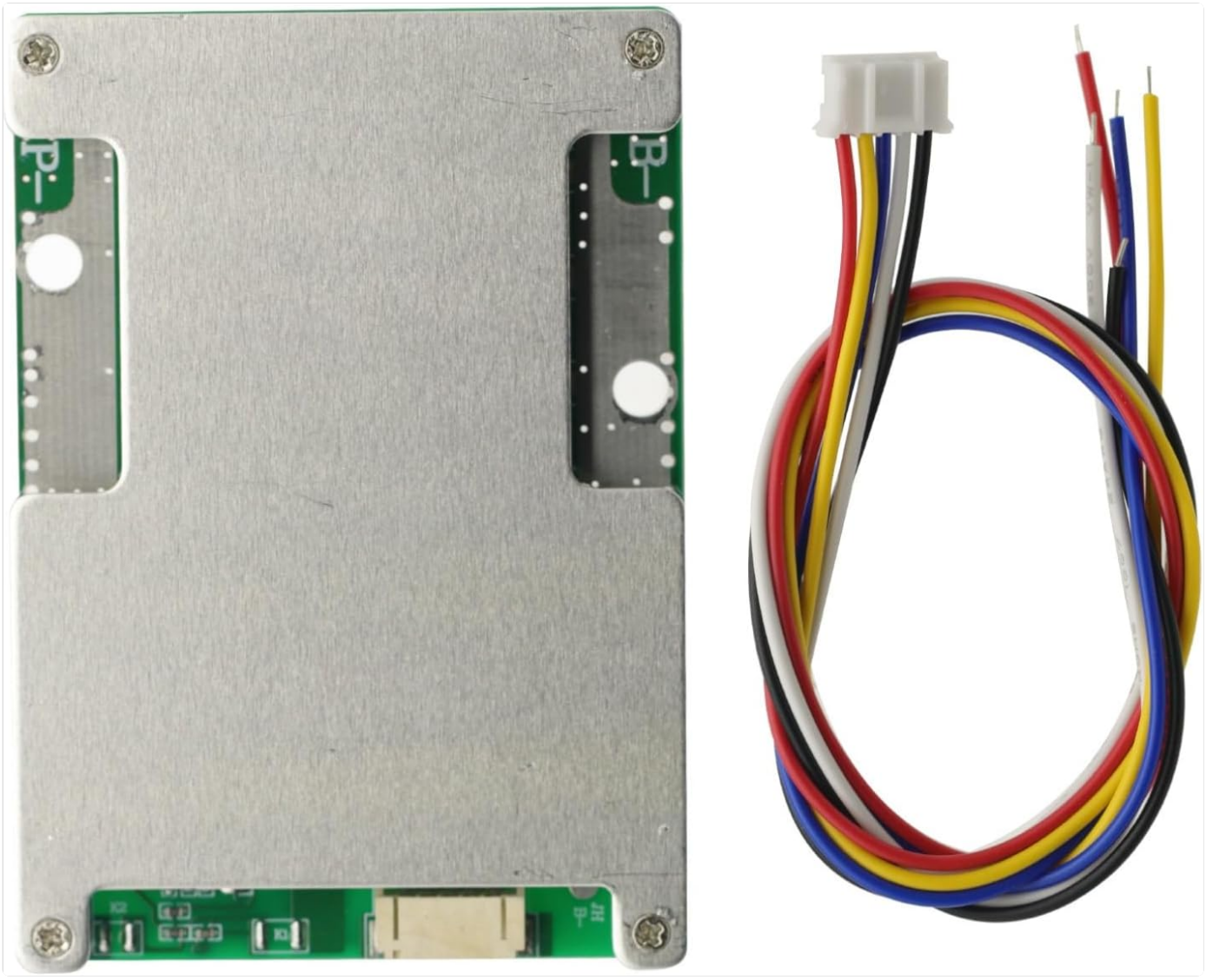


Image: The 4S LiFePo4 Battery Protection Board with its included balance cable.

## Installation and Wiring

Proper wiring is critical for the safe and effective operation of the BMS. Follow these steps carefully:

1. **Prepare Battery Pack:** Ensure your LiFePo4 battery cells are balanced and at a safe voltage before connecting the BMS. This BMS is designed for 4-series (4S) configurations.
2. **Connect B- Minus Cable:** Connect the main B- minus cable from the BMS to the total negative terminal of your battery pack.
3. **Connect Balance Cables:**
    - The first black wire (B0) of the balance cable harness connects to the total negative terminal of the battery pack (same point as the main B- cable).

- Connect the subsequent red wires (B1, B2, B3, B4) sequentially to the positive terminals of each cell, starting from the first cell's positive terminal (B1) and ending with the fourth cell's positive terminal (B4). Ensure each wire is connected to the correct cell's positive terminal.
- During the welding or crimping process of the balance cables to the battery terminals,**do not** insert the balance cable connector into the BMS yet.

4. **Verify Balance Cable Connections:** After all balance wires are connected to the battery pack, use a multimeter to measure the voltage between adjacent wires on the balance connector. The voltage difference between any two adjacent wires should be approximately the voltage of a single cell (e.g., around 3.2V-3.7V for LiFePo4). If the voltage readings are incorrect, recheck your wiring.
5. **Connect NTC Cable (if applicable):** If your BMS includes an NTC (thermistor) cable for temperature sensing, insert it into the designated NTC-A port on the BMS.
6. **Connect Main P- Cable:** Connect the main P- cable from the BMS to the negative terminal of your load or charger.
7. **Connect Balance Cable to BMS:** Once all other connections are secure and verified, carefully plug the balance cable connector into the corresponding port on the BMS.
8. **Connect Main Positive:** Connect the main positive cable from the battery pack's total positive terminal to the positive terminal of your load or charger.

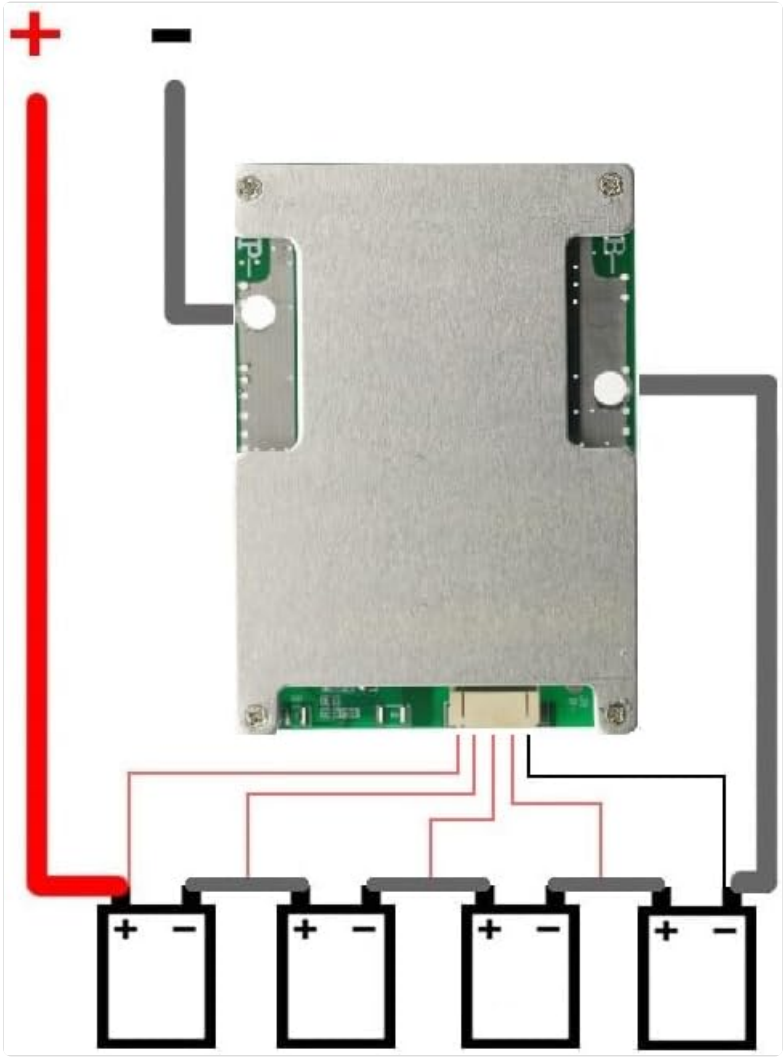


Image: A typical wiring diagram for a 4S LiFePo4 battery pack with a BMS. The black wire connects to the negative terminal, and red wires connect to the positive terminals of each cell sequentially.

## Wiring Reference Videos:

The following videos provide general guidance on BMS wiring. Please note that the specific cell count (e.g., 16S or 13S) shown in these videos may differ from your 4S setup, but the general principles of connecting balance wires and main power cables remain relevant.

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Video: DALY BMS Wiring Tutorial. This video demonstrates the general process of connecting a BMS to a battery pack, including balance wires and main power connections. (Note: This video shows a 16-series battery pack, while your product is 4-series. Adapt the principles to your specific cell count.)

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Video: JKBMS Wiring Tutorial. This video illustrates the wiring procedure for a JKBMS, including connecting balance leads and main power. (Note: This video shows a 13-series battery pack, while your product is 4-series. Adapt the principles to your specific cell count.)

## Operating Instructions

Once correctly installed, the BMS operates automatically to protect your battery pack. It manages charging, discharging, and balancing functions based on its programmed parameters.

- **Automatic Protection:** The BMS will automatically engage overcharge, over-discharge, and short-circuit protection as needed.
- **Cell Balancing:** The integrated balancing module works to equalize the voltage across individual cells in the pack, extending battery life and improving performance.
- **Temperature Monitoring:** If an NTC thermistor is connected, the BMS monitors battery temperature to prevent overheating or operation in extreme cold.

### Parameter Modification (if applicable):

Some advanced BMS models allow for parameter modification via a dedicated application. Refer to the specific instructions provided with your BMS for details on accessing and adjusting settings.

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Video: Modify parameters and capacity. This video demonstrates how to connect to a BMS via an application and modify various parameters such as rated capacity and temperature protection settings.

## Maintenance

The 4S LiFePo4 BMS is designed for minimal maintenance. However, regular checks can help ensure its longevity and optimal performance:

- **Visual Inspection:** Periodically inspect all wiring connections for signs of corrosion, loose connections, or damage. Ensure the BMS board itself is clean and free from dust or moisture.
- **Connection Integrity:** Confirm that all screws and terminals are securely fastened.
- **Environmental Conditions:** Ensure the BMS operates within its specified temperature and humidity ranges. Avoid exposing it to direct sunlight, excessive heat, or moisture.

## Troubleshooting

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

- **No Output Power:**
  - Check all main power connections (B- and P-) for secure contact.
  - Verify that the battery pack voltage is within the normal operating range (not over-discharged or overcharged).
  - Inspect for short circuits on the load side. The BMS's short circuit protection may have activated.
- **Charging Issues:**
  - Ensure the charger voltage and current are compatible with the LiFePo4 battery and BMS specifications.
  - Check for overcharge protection activation (individual cell voltage exceeding 3.75V).

- **Unbalanced Cells:**
  - Confirm all balance wires are correctly connected to their respective cell terminals and are not loose or damaged.
  - Allow sufficient time for the passive balancing function to work, especially if cells were significantly unbalanced.
- **BMS Not Powering On (if applicable):**
  - Ensure the main battery connections are correct and providing power to the BMS.
  - Check for any external power switch connections if your setup includes one.

If problems persist after checking these points, consult a qualified technician or contact customer support.

## Specifications

| Parameter | Value |
|---|---|
| Continuous Current | Within 50A |
| Instantaneous Current | Max 800A |
| Charging Voltage | 14.8V~16V |
| Charging Current | Within 20A |
| Balance Current | 40mAh |
| Overcharge Protection (single cell) | 3.75V±0.025V |
| Over-discharge Protection (single cell) | 2.00V±0.05V |
| Short Circuit Protection | Yes |
| Board Size | 63x90x9mm |
| Board Weight | 85g |
| Applicable Assembly | Nominal 3.2V LiFePo4 battery (4S configuration) |
| Load Power | Within DC 12V 600W (Motor starting current less than 800A) |
| Input Voltage | 12 Volts (DC) |
| Output Voltage | 12 Volts (DC) |

## Safety Information

Always observe the following safety precautions when working with battery management systems and battery packs:

- **Professional Installation:** If you are not experienced with electrical wiring and battery systems, seek professional assistance for installation.
- **Correct Polarity:** Double-check all connections for correct polarity before applying power. Incorrect polarity can severely damage the BMS and battery.
- **Insulation:** Ensure all exposed wires and terminals are properly insulated to prevent short circuits.
- **Ventilation:** Operate battery packs in well-ventilated areas to prevent heat buildup.
- **Emergency Procedures:** Familiarize yourself with emergency procedures for battery fires or electrical accidents.
- **Children and Pets:** Keep battery systems and components out of reach of children and pets.