## DALY Li-ion 13S 48V 100A

# DALY Smart BMS Li-ion 13S 48V 100A Instruction Manual

Model: Li-ion 13S 48V 100A | Brand: DALY

## 1. Introduction

This manual provides detailed instructions for the installation, operation, and maintenance of your DALY Smart BMS Li-ion 13S 48V 100A with Programmable Bluetooth Module. This Battery Management System is designed to protect lithium batteries, ensuring their safe and efficient operation.
Key features include:

- Fully programmable smart BMS with Bluetooth connectivity for Android and iPhone applications.
- Common port for both charge and discharge, supporting up to 100A continuous discharge and 50A charge current.
- High-precision detection for over-charge, over-discharge, and voltage balancing.
- Protection against over-current, over-voltage, and low-temperature charging (down to -1°C).
- Precise State of Charge (SOC) calculation with automatic learning function.
- Automatic battery charging and static balance functions.
- Mobile phone software for monitoring battery status and parameter settings via Bluetooth.


Figure 1: DALY Smart BMS with Bluetooth module and connection cables.

## 2. Safety Information

- Do not charge at temperatures below -1°C.
- Avoid over-charging or over-discharging the battery.
- Be aware of potential interference with other wireless devices when using the Bluetooth module.
- Ensure all wiring connections are secure and correct before powering on the system. Incorrect wiring can cause damage to the BMS or battery.
- Always follow local regulations and safety standards when working with lithium batteries.

## 3. Package Contents

Verify that all items are present in the package:

- SMART BMS unit (1)

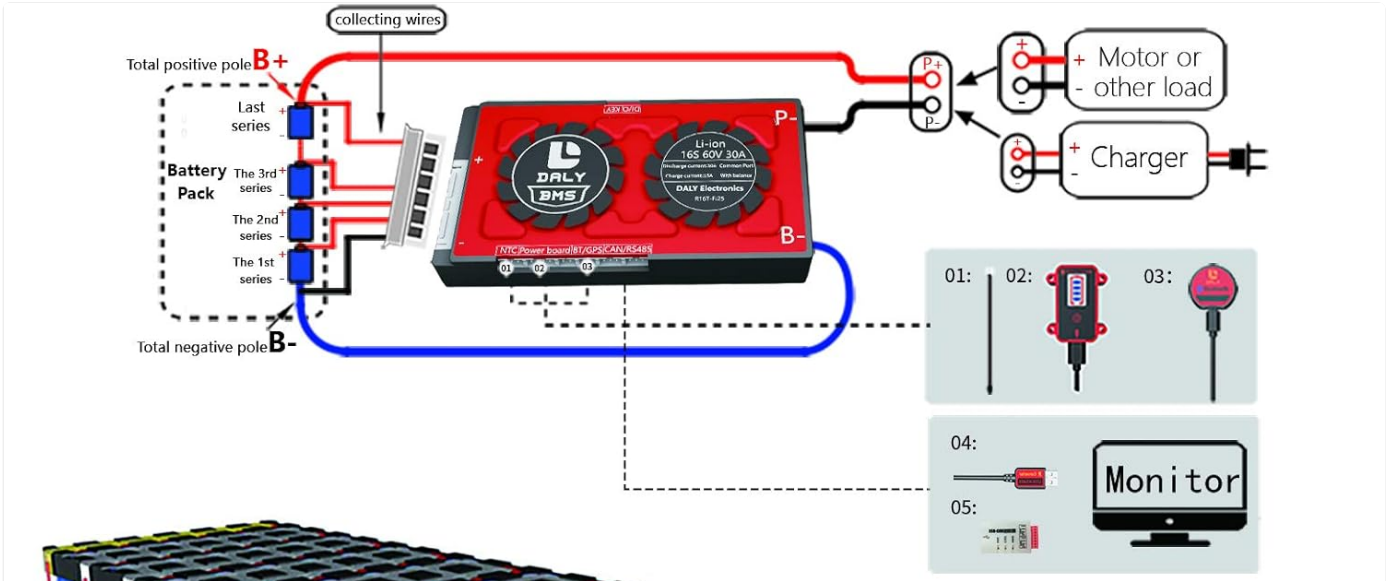
- Balance wires (1 set)
- Bluetooth module (1) for Mobile APP (iOS & Android)
- UART cable (1) for PC connection
- English version wiring manual (1)

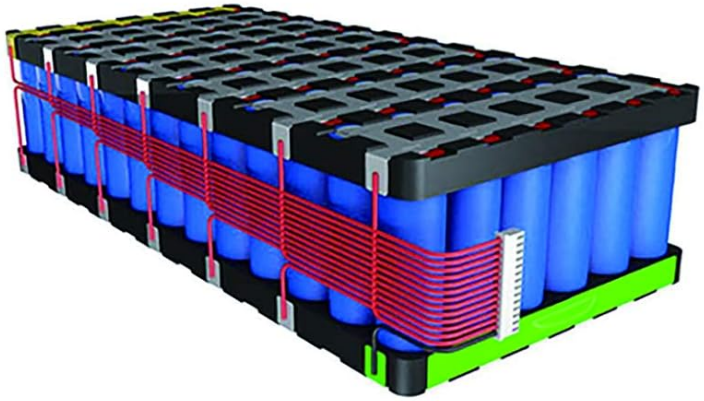

Figure 2: Typical package contents for the DALY Smart BMS.

## 4. Setup and Installation

### 4.1. Wiring Diagram

Refer to the following diagram for correct wiring of the BMS to your battery pack, motor/load, and charger. Ensure all connections are made accurately to prevent damage.



Tools needed: soldering machine(suggest using 662 °F/350°C), scissors, double-sided tape,tin wire, multimeter.

Note: 1, Please **must disconnect** balance wires white end and BMS connection port before welding black and red balance wires on battery pack. 2, Please keep BMS red cooling surface side uncovered and use DALY matching balance wires(regular length 450 mm / 17.72 inch).

After confiming that the balance wires are welded correctly and installed the accessories (such as: UART/Bluetooth/ RS485/ CAN on BMS),connect balance wires and BMS connection port Pls refer to daly website link smart bms Tutorial Video https://www.dalyelec.cn/newsshow.php?cid=25&id=78&lang=1 including:

1. Daly Smart BMS Touch screen Connection Tutorial
2. Daly Smart BMS SOC light board Connection Tutorial
3. Daly Smart BMS PC screen Connection Tutorial
4. Daly Smart BMS CANBUS Connection Tutorial
5. Daly Smart BMS Bluetooth APP Connection Tutorial
6 Daly Smart BMS UART、RS485 Connection Tutorial

Two methods①: press activation button on the battery board ②: by charging to activate BMS for the first use.
The serial number of BMS and the protection parameters(Li-ion,LiFePO4) have default values at the factory, but the capacity of the battery pack needs to be set according to the actual capacity AH of the battery pack.If the capacity AH is not set correctly, The percentage of remaining power will be inaccurate.Other parameters can also be set to your needs.
Initial password of smart board APP to change parameters is: 123456.

Figure 3: DALY Smart BMS wiring diagram.

**Important Wiring Notes:**

- **Balance Wires:** Disconnect balance wires white end and BMS connection port before welding black and red balance wires on the battery pack. After confirming the balance wires are correctly welded and installed, connect them to the BMS.
- **BMS Placement:** Keep the BMS red cooling surface uncovered to ensure proper heat dissipation.
- **Tools:** Recommended tools include a soldering machine (suggested 662°F/350°C), scissors, double-sided tape, tin wire, and a multimeter.

## 4.2. Initial Activation

After connecting all wires, activate the smart BMS using one of the following methods:

1. Press the activation button on the Bluetooth module.
2. Connect a charger to the battery pack.

The internal resistance of the BMS should be approximately 0Ω (multimeter deviation 0.1Ω when conducted).

Your browser does not support the video tag.

Video 1: Demonstrates the connection process and initial activation of the DALY Smart BMS. This video shows how to measure voltage between adjacent cables, connect the BMS, and activate it via the Bluetooth module button.

## 5. Operation

### 5.1. Mobile App (Bluetooth)

The DALY Smart BMS can be monitored and configured via a mobile application available for iOS and Android devices. Search for "Smart BMS" in your device's app store.

1. Download and install the "Smart BMS" application.
2. Open the app and connect to the corresponding Bluetooth device ID (e.g., DL-XXXXXXXX).
3. **Initial Setup:** For the first power-on, the battery capacity must be set to the actual capacity of your battery pack. The initial password for parameter settings is **123456**.
4. **Monitoring:** View real-time battery parameters such as total voltage, current, State of Charge (SOC), individual cell voltages, and temperature.
5. **Parameter Settings:** Adjust protection parameters like over-charge/over-discharge voltage limits, over-current limits, and temperature protection settings.


Figure 4: Mobile app displaying real-time battery data.

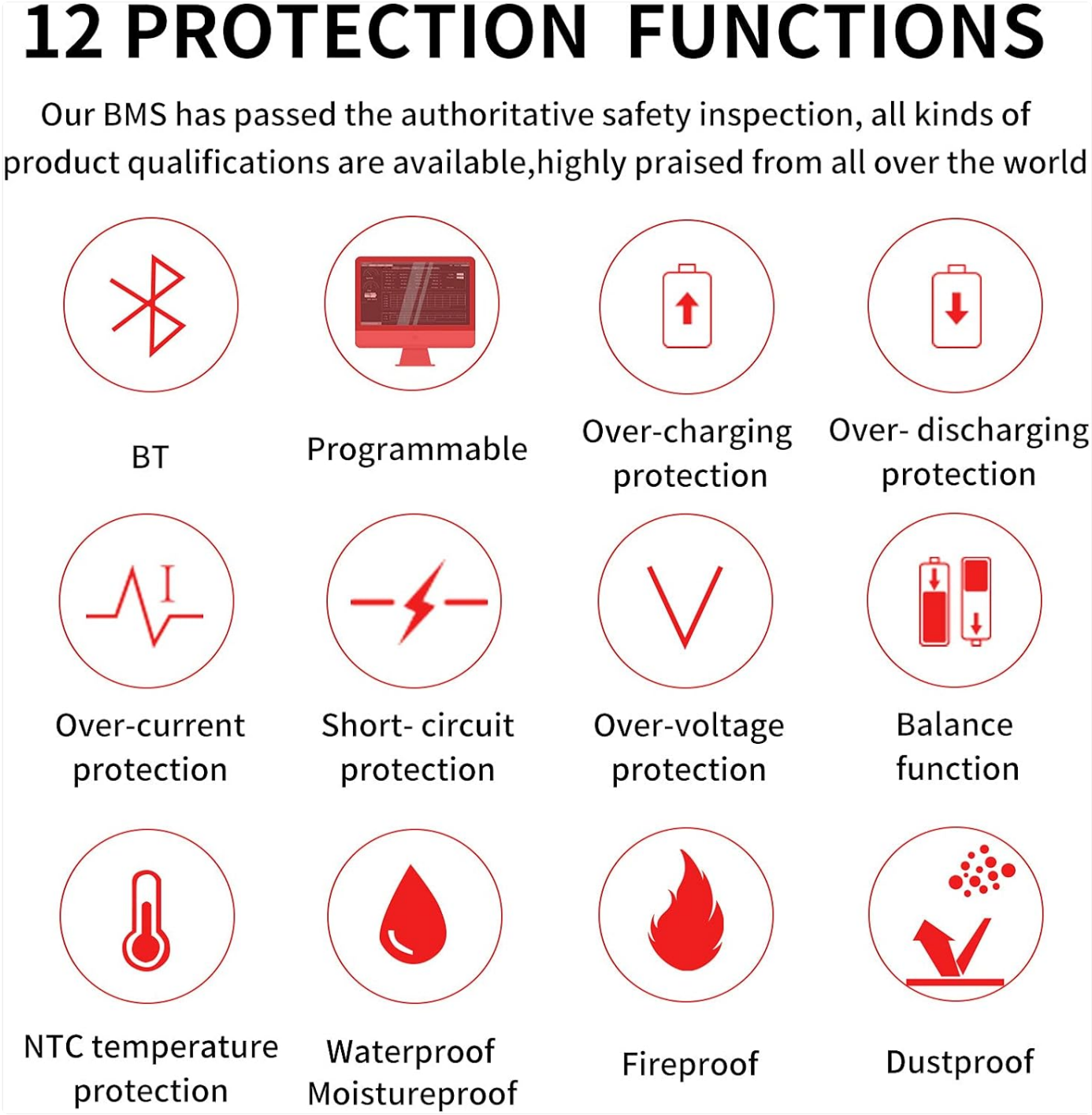



Figure 5: Mobile app displaying protection functions and settings.

### 5.2. PC Software (UART)

For more advanced monitoring and configuration, connect the BMS to a computer using the provided UART cable. The PC software allows for detailed parameter adjustments and data logging.
The PC software interface provides a comprehensive view of battery status, including individual cell voltages, temperatures, and protection settings. You can also perform calibration and reset functions through this interface.

## 6. Maintenance

### 6.1. Battery Balancing

The DALY Smart BMS features an automatic static balance function for the battery system. This helps to equalize the voltage across individual cells, prolonging battery life and improving performance. The balancing function is typically active during charging.

### 6.2. Temperature Management

The BMS includes programmable temperature protection. Ensure the BMS is installed in a location that allows for adequate airflow, especially around the red cooling surface, to prevent overheating during high current operation.

## 7. Troubleshooting

This section addresses common issues you might encounter with your DALY Smart BMS.

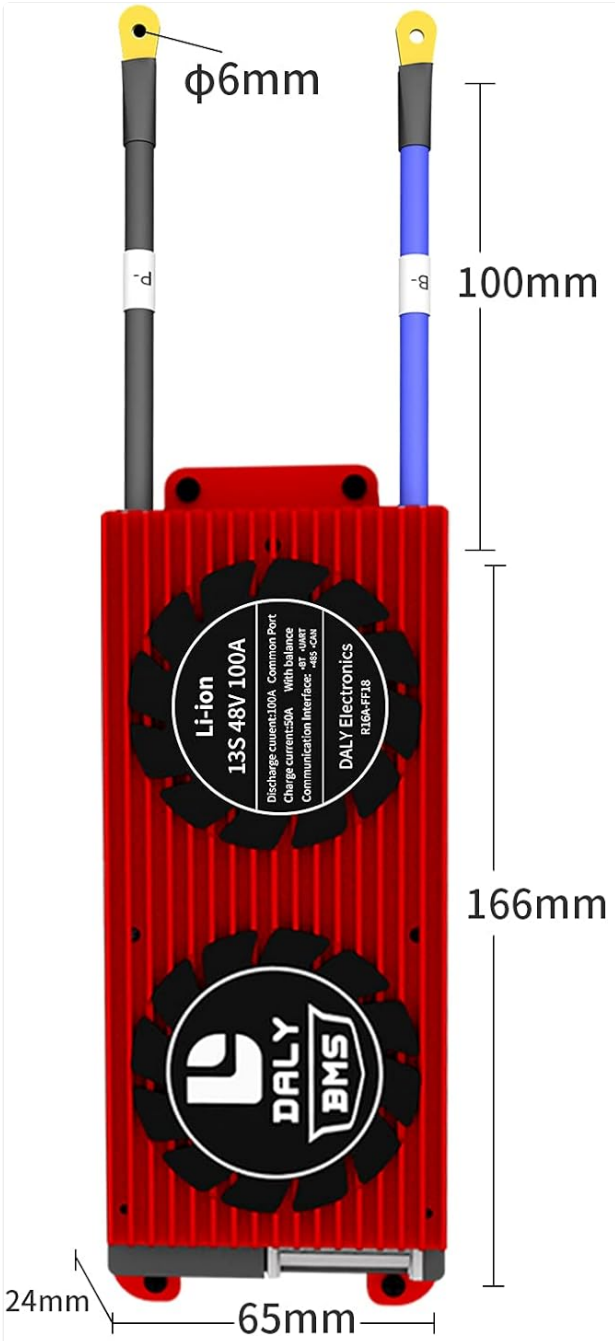
| Problem | Possible Cause | Solution |
|---|---|---|
| BMS not activating / no power output. | Incorrect wiring, BMS not activated, low battery voltage. | Verify all wiring connections against the diagram (Figure 3).<br>Press the activation button on the Bluetooth module or connect a charger.<br>Check battery voltage; if too low, the BMS may be in protection mode. |
| Bluetooth app not connecting. | Bluetooth module not powered, incorrect app, interference. | Ensure the Bluetooth module is properly plugged into the BMS.<br>Confirm you are using the official "Smart BMS" app.<br>Try restarting the app and your phone's Bluetooth.<br>Reduce distance between phone and BMS. |
| BMS shuts down unexpectedly. | Over-charge, over-discharge, over-current, or temperature protection triggered. | Check the app or PC software for alarm fault messages (e.g., "Cell voltage is too high secondary alarm").<br>Verify battery parameters and load/charge conditions.<br>Adjust protection settings if necessary (with caution and understanding of battery limits).<br>To reactivate, disconnect and reconnect the BMS, or connect a charger. |
| Inaccurate State of Charge (SOC) reading. | Incorrect battery capacity setting. | In the app or PC software, navigate to parameter settings and set the "rated capacity" to the actual capacity (AH) of your battery pack. |

## 8. Specifications

The following table details the specifications for the DALY Smart BMS Li-ion 13S 48V 100A model:

| Feature | Detail |
|---|---|
| Product Type | Li-ion 13S 48V 100A Smart BMS |
| Communication Interface | UART, Bluetooth (Optional: CAN/RS485) |
| Continuous Discharge Current | 100A |
| Over-discharge Current Protection | 150A ± 15A (Programmable) |
| Continuous Charge Current | 50A |

| Feature | Detail |
| --- | --- |
| Overcharge Current Protection | 150A ± 15A (Programmable) |
| Overcharge Voltage Protection (per string) | 4.25V ± 0.05V (Programmable) |
| Over-discharge Voltage Protection (per string) | 2.7V ± 0.1V (Programmable) |
| Charge Voltage | 54.6V (Programmable) |
| Dimensions (L x W x H) | 166mm x 65mm x 24mm (6.54 x 2.56 x 0.94 inches) |
| Item Weight | ~500g (1.27 pounds) |
| Output Wire Gauge | 7AWG |
| Balance Wires | 24AWG/350mm |
| Material | Metal, Plastic |
| Special Feature | Programmable Protections and Precise SOC Calculation |




## Specifications

| | |
|---|---|
| Product: Li ion 13S 100A common port with balance | |
| Communications: UART | |
| Discharge current: 100A | |
| Over-discharge current: 150A±15A (Can be set) | |
| Charge current: 50A (Can be set) | |
| Overcharge current: 150A±15A (Can be set) | |
| Overcharge voltage: 4.25V±0.05V | (any string,Can be set) |
| Over-discharge voltage:2.7V±0.1V | (any string, Can be set) |
| Charge voltage: 54.6V (Can be set) | |
| model: R25A | |
| Size: 166*65*24mm | |
| Output wire: 7AWG | |
| Balance wires: 24AWG/350mm | |
| Optional: BT | |
| Weight: ≈500g | |

Figure 6: DALY Smart BMS dimensions and key specifications.

## 9. Support and Warranty

For technical support, troubleshooting assistance, or warranty inquiries, please contact DALY customer service. Refer to the official DALY website or your purchase documentation for contact details.
Keep your purchase receipt as proof of purchase for warranty claims.