DALY 250A FAN Smart BMS

DALY Smart BMS 48V 13S 250A Li-ion Battery Management System User Manual

Model: 250A FAN Smart BMS

1. Product Overview

The DALY Smart BMS (Battery Management System) is designed for 48V 13S Li-ion battery packs, providing comprehensive protection and management. This system ensures optimal battery performance and extends its lifespan through advanced monitoring and control features.

Key features include:

- Overcurrent, Overcharge, Overdischarge, Short circuit, and Temperature protection.
- Double protection with injection patent technology and a robust patent shell.
- Waterproof, dustproof, shockproof, and anti-static design.
- High-quality components for pressure resistance, durability, and high acquisition accuracy.
- Easy installation and user-friendly operation.



Figure 1: DALY Smart BMS 250A with key dimensions (235mm/9.25" L, 130mm/5.12" W, 52mm/2.05" H).

2. Setup and Installation

2.1 Packing List

Before installation, verify all components are present:

- 3.7V Li-ion NCM BMS (1 unit)
- Bluetooth Module (1 unit)
- NTC Sensor (1 unit)
- Sampling Cable (1 unit)
- UART Cable (1 unit)
- Instruction Manual (1 unit)

2.2 Tools Required

The following tools are recommended for installation:

- Soldering machine (suggested 662 °F / 350 °C)
- Scissors
- Double-sided tape
- Tin wire
- Multimeter

2.3 Important Installation Notes

- Always disconnect the balance wires (white end) and the BMS connection port before welding the black and red balance wires onto the battery pack.
- Ensure the red cooling surface side of the BMS remains uncovered for proper heat dissipation.
- Use DALY matching balance wires (regular length 450 mm / 17.72 inches) for optimal performance and safety.

2.4 Wiring Diagram

Follow the diagram below for correct wiring of the BMS to your battery pack, motor, and charger.



Figure 2: General wiring diagram for DALY Smart BMS.

2.5 Connection Tutorials

For detailed connection procedures for various communication modules, refer to the following tutorials:

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



Figure 3: Connection options for Bluetooth, UART, and PC communication.

2.6 BMS Activation

The BMS can be activated using two methods:

1. Press the activation button located on the battery board.
2. Connect the charger to activate the BMS for its first use.

2.7 Initial Setup for Smart Board APP

The serial number of the BMS and the protection parameters (Li-ion, LiFePO4) have default values. It is crucial to set the actual capacity (AH) of your battery pack within the app to ensure accurate remaining power percentage readings. Incorrect capacity settings will lead to inaccurate data. Other parameters can be adjusted as needed. The initial password for the smart board APP to change parameters is: **123456**.

3. Operating Instructions

The DALY Smart BMS allows you to monitor battery status and modify parameters in real-time using a Bluetooth app on your smartphone or dedicated PC software. The system supports multiple communication protocols for flexible control.

- **Bluetooth (BT)**: Connect your smartphone via the dedicated Bluetooth module to access the DALY BMS app.
- **UART**: Use the UART cable to connect to a compatible device or interface for data communication.
- **RS485**: Utilize the RS485 communication protocol for industrial applications or longer distance communication.

- **CAN**: The CAN communication interface is available for integration into systems requiring robust and high-speed data exchange.

Through the app or PC software, you can view real-time battery voltage, current, temperature, cell balance status, and protection alerts. You can also adjust various protection parameters to suit your specific battery configuration and application requirements.



Figure 4: Monitoring battery status via the DALY Smart BMS Bluetooth app.

4. Maintenance

To ensure the longevity and reliable operation of your DALY Smart BMS, follow these general maintenance guidelines:

- **Cleanliness**: Keep the BMS unit clean and free from dust, dirt, and debris. Use a soft, dry cloth for cleaning.
- **Ventilation**: Ensure that the cooling surface of the BMS is not obstructed to allow for proper heat dissipation. Avoid installing the BMS in enclosed spaces without adequate airflow.
- **Connection Checks**: Periodically inspect all wiring connections to ensure they are tight and free from corrosion. Loose connections can lead to poor performance or safety hazards.
- **Environmental Conditions**: Avoid exposing the BMS to extreme temperatures, high humidity, or direct water contact beyond its specified operating ranges.

5. Troubleshooting

The DALY Smart BMS is equipped with multiple protection features. If the system enters a protection state, identify the cause and take corrective action.

5.1 Common Protection States

- **Overcurrent Protection**: Triggered when discharge current exceeds the set limit. Reduce load or check for short circuits.
- **Overcharge Protection**: Activated if any cell voltage exceeds the maximum charge voltage. Stop charging immediately.
- **Overdischarge Protection**: Occurs when any cell voltage drops below the minimum discharge voltage. Stop discharging and recharge the battery.
- **Short Circuit Protection**: Engages if a direct short circuit is detected. Disconnect the load and inspect wiring.
- **Temperature Protection**: Initiated if the battery or BMS temperature exceeds safe operating limits. Allow the system to cool down.

In most cases, the BMS will automatically reset once the fault condition is removed. You can also attempt to reset the BMS by cycling its power or through the mobile app/PC software.

5.2 Resetting Bluetooth Module

If the Bluetooth module becomes unresponsive or fails to connect, try the following steps:

1. Cycle the power to the BMS (turn off and then on).
2. Ensure the Bluetooth module is securely connected to the BMS.
3. Restart your smartphone's Bluetooth and the DALY BMS app.

If issues persist, refer to the app's troubleshooting guide or contact DALY customer support.

6. Specifications

DALY Smart BMS 48V 13S 250A Key Specifications

Parameter	Value
Brand	DALY
Model	250A FAN Smart BMS
Battery Type	Li-ion 13S (Rated 3.7V per cell)
Continuous Discharge Current	250A
Over Discharge Current Detect	375A
Main Circuit Inner Resistance	<20 mΩ
Charge Voltage (13S)	S*4.2V (54.6V)
Charge Current	125A
Over Charge Detect Voltage	4.25±0.05 V
Over Charge Release Voltage	4.15±0.05 V
Balance Detect Voltage	3.8 V
Balance Current	30±5 mA
Over Discharge Detect Voltage	2.7±0.05 V
Over Discharge Release Voltage	2.8±0.05 V
Short Circuit Detect Delay	200-500 µS
Temperature Protection (Charge)	-40~65 °C
Temperature Protection (Discharge)	-40~70 °C
Working Current (Self Consumption)	35 mA
Sleeping Current (Over-discharge)	800 µA
Working Temperature Range	-20~60 °C
Storing Temperature Range	-40~85 °C
Dimensions (L x W x H)	9.25 x 4.72 x 2.05 inches (235 x 120 x 52 mm)
UPC	768647605551

Note: All specifications are subject to change without prior notice.

Figure 5: Detailed specifications for Li-ion 13S Smart BMS (Part 1).

Figure 6: Detailed specifications for Li-ion 13S Smart BMS (Part 2).

7. Warranty and Support

DALY is committed to providing high-quality products and excellent customer service.

- **Quality Assurance**: This product is approved with ISO, FCC, RoHS, PSE, and CE certifications, ensuring compliance with international quality and safety standards.
- **Customer Service**: We offer 24-hour one-on-one customer service to assist with any inquiries or issues you may encounter.
- **Technical Support**: Lifetime technical support is provided for all DALY Smart BMS products.

For technical assistance, troubleshooting, or any other support needs, please contact DALY customer service through the official website or your point of purchase. Please have your product model and any relevant details ready to facilitate faster service.

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