

DALY 120A Smart BMS

DALY Smart BMS 10S 36V 120A Li-ion Battery Protection Board User Manual

MODEL: 120A SMART BMS

Brand: DALY

1. INTRODUCTION

The DALY Smart Battery Management System (BMS) is designed to protect 10S 36V 120A Li-ion battery packs, commonly used with 18650 cells. This BMS integrates essential protection features and offers smart control capabilities via Bluetooth and PC software. It ensures optimal performance and extends the lifespan of your lithium battery.

Key features include overcurrent, overcharge, overdischarge, short circuit, and temperature protection. The robust design incorporates injection patent technology and a patent shell, providing waterproof, dustproof, shockproof, and anti-static properties. High-quality components ensure pressure resistance and accurate data acquisition.



Figure 1: DALY Smart BMS 10S 36V 120A. This image shows the top view of the red DALY Smart BMS unit with its main terminals and communication ports visible.



Figure 2: DALY Smart BMS Side View. This image displays the side profile of the BMS, highlighting its compact design and terminal connections.

Product Overview Video

Video 1: DALY Smart BMS with Cooling Fan (80A to 500A). This video provides a general overview of the DALY Smart BMS series, showcasing various models and their features, including cooling fans for higher amperage units.

2. PACKAGE CONTENTS

Upon opening the package, please verify that all items listed below are present and undamaged:

- 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)

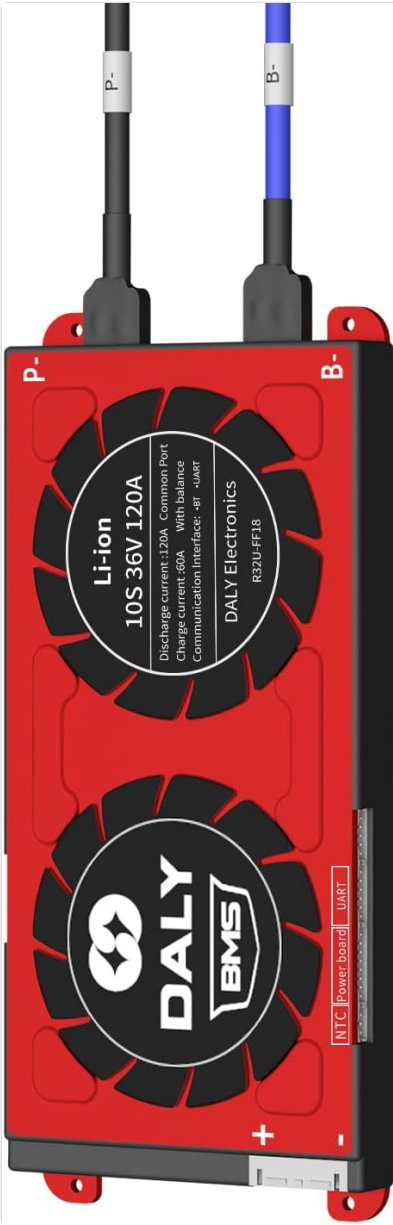


Figure 3: Package Contents. This image displays the DALY Smart BMS unit along with its included accessories: Bluetooth module, NTC sensor, sampling cable, UART cable, and the instruction manual.

3. SPECIFICATIONS

Feature	Specification
Product Type	Li-ion 10S 120A (Common Port with Balance)
Communications	UART (Bluetooth module included)
Discharge Current	120A
Over-Discharge Current	180A
Charge Current	60A
Overcharge Current	180A
Overcharge Voltage	4.25V \pm 0.05V (per string)
Over-Discharge Voltage	2.7V \pm 0.05V (per string)

Charge Voltage	S*4.2V
Size (L x W x H)	95 x 212 x 20mm (3.74 x 8.35 x 0.79 inches)
Output Wire Gauge	6AWG / 160mm
Balance Wires Gauge	22AWG / 600mm
Item Weight	2.69 pounds



The image shows a red DALY Electronics BMS module. It has two large black cooling fans on the front. The top fan has a label that reads: 'Li-ion 10S 36V 120A', 'Discharge current: 120A', 'Common Port', 'Charge current: 60A', 'With Balance', 'Communication Interface - 4x 4.2V', and 'DALY Electronics R32U-FF18'. The bottom fan has a label that reads: 'DALY BMS'. On the right side, there are two ports labeled 'P+' (black) and 'B+' (blue). At the bottom, there is a 'Power board' with 'NTC' and 'UART' labels. The module has a '+' sign at the bottom right and a '-' sign at the bottom left.

Specifications

Product: Li-ion 10S 120A common port with balance
Communications: UART
Discharge current: 120A
Over-discharge current: 180A
Charge current: 60A
Overcharge current: 180A
Overcharge voltage: 4.25V±0.05V (any string)
Over-discharge voltage: 2.7V±0.05V (any string)
Charge voltage: S*4.2V
Size: 95*212*20mm
Output wire: 6AWG / 160mm
Balance wires: 22AWG / 600mm

Figure 4: Detailed Specifications. This image provides a visual representation of the key specifications for the DALY Smart BMS, including current ratings, voltage thresholds, and physical dimensions.

4. SAFETY INFORMATION

- Always disconnect balance wires before connecting or disconnecting the BMS.
- Ensure the BMS cooling surface side remains uncovered for proper heat dissipation.
- Use DALY matching balance wires for optimal performance and safety.
- Verify correct wiring and voltage of each cell string before inserting the BMS to prevent damage.
- Incorrect wiring can lead to short circuits, component burnout, or battery damage.
- Wear appropriate personal protective equipment (PPE) such as insulated gloves and safety glasses

during installation.

- Avoid working in humid or wet conditions.

5. INSTALLATION AND WIRING

5.1. Prepare Materials and Tools

Before beginning the wiring process, gather all necessary materials and tools. This includes the BMS unit, battery pack, balance wires, multimeter, soldering iron, solder, wire cutters, and insulated scissors.

Preparation Video

Video 2: Prepare materials before Daly BMS wiring. This video demonstrates the essential materials and tools required for the BMS wiring process, ensuring you have everything ready before starting.

5.2. Determine Sampling Points

Accurately identifying the sampling points on your battery pack is crucial for correct BMS operation. Use a multimeter to verify the voltage of each cell string.

Sampling Point Determination Video

Video 3: Daly BMS sampling point determination. This video guides you through the process of identifying and marking the correct sampling points on your battery pack for accurate BMS connection.

5.3. Test Battery Voltage

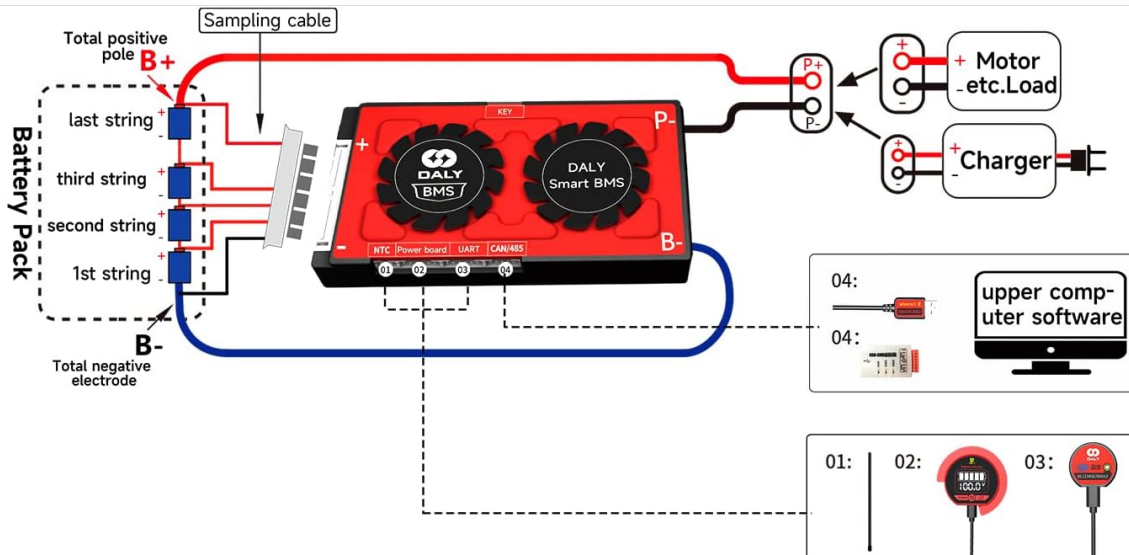
Before connecting the BMS, it is imperative to test the voltage of each individual cell and the total battery pack voltage. This step helps identify any pre-existing issues and ensures compatibility with the BMS.

Battery Voltage Test Video

Video 4: Test Battery Voltage Before Connecting with Daly BMS. This video demonstrates how to safely and accurately test the voltage of your battery cells and pack before proceeding with BMS installation.

5.4. Wiring Diagram

Refer to the following diagram for the correct wiring connections. Ensure all connections are secure and follow the specified order.



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/red** 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 confirming 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 PIs 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 5: Detailed Wiring Diagram. This diagram illustrates the connections for the DALY Smart BMS, including the sampling cable, NTC sensor, UART, and main power connections to the battery pack, motor, and charger.

5.5. Connecting Balance Wires

Carefully connect the balance wires to the battery cells according to the determined sampling points. Ensure proper soldering techniques are used if required.

Balance Wires Welding Video

Video 5: Daly BMS Wires Welding Video. This video demonstrates the correct procedure for welding the balance wires to the battery cells, emphasizing precision and safety.

5.6. BMS Connection and Activation

Once all balance wires are correctly connected and verified, proceed to connect the BMS to the battery pack and activate the system. Follow the steps carefully to ensure proper functionality.

Connection and Activation Video

Video 6: The connection and activating for Daly Smart BMS. This video provides a step-by-step guide on connecting the BMS to the battery pack and activating its software for initial operation.

6. OPERATING INSTRUCTIONS

The DALY Smart BMS allows for real-time monitoring and parameter modification through a dedicated Bluetooth app or PC software. This enables users to check battery status, adjust settings, and ensure

optimal performance.

- **Bluetooth App:** Connect your smartphone to the BMS via the included Bluetooth module. The app provides a user-friendly interface to view cell voltage, total voltage, temperature, State of Charge (SOC), and cycle count.
- **PC Software:** Use the UART cable to connect the BMS to a computer. The PC software offers advanced monitoring and configuration options, including detailed parameter settings.

The initial password for setting parameters is **123456**. If the capacity setting is not accurate, it may lead to inaccurate SOC remaining power readings.

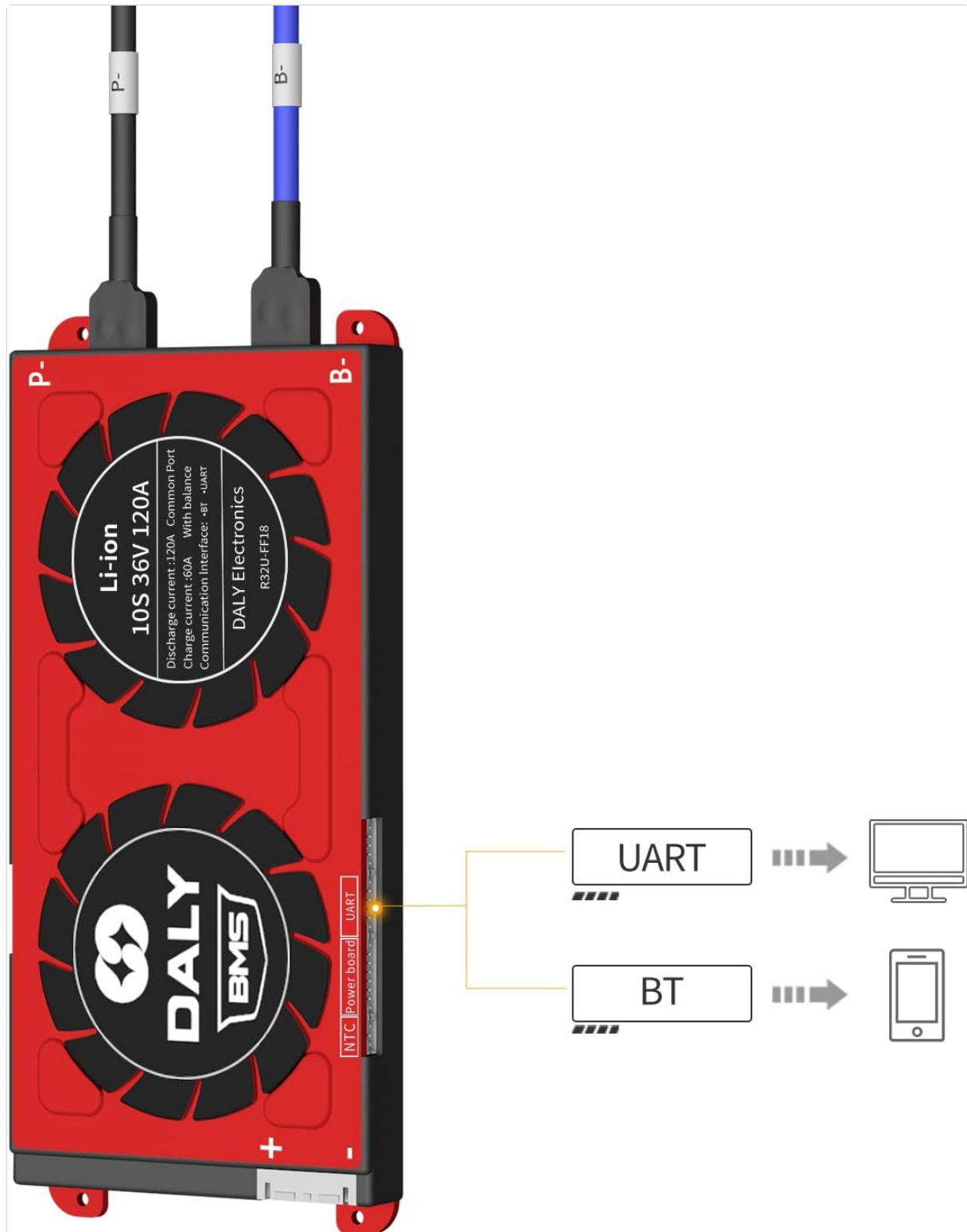


Figure 6: BMS with App and Communication Ports. This image shows the DALY Smart BMS connected to a Bluetooth module, displaying the mobile application interface for real-time battery monitoring and control.

7. MAINTENANCE

- Regularly check the BMS for any signs of physical damage or loose connections.
- Keep the BMS clean and free from dust and debris.
- Ensure adequate ventilation around the BMS, especially for units with cooling fans, to prevent overheating.
- Monitor battery parameters via the app or PC software to identify any anomalies early.

8. TROUBLESHOOTING

If you encounter issues with your DALY Smart BMS, refer to the common errors video below for guidance. Many problems can be resolved by verifying correct wiring and settings.

Common Wiring Errors Video

Video 7: Daly BMS Wiring 5 Common Errors. This video highlights frequent mistakes made during BMS wiring and provides solutions to prevent potential damage or malfunction.

If the BMS is not discharging normally after connection, it may require activation. Activation can typically be done by connecting the charger or by pressing an activation button on the power board (if applicable).

9. WARRANTY AND SUPPORT

DALY offers 24-hour one-on-one customer service and lifetime technical support for its products. For any inquiries, technical assistance, or warranty claims, please contact DALY customer service.

If you require a customized BMS or are placing a bulk order, please feel free to contact DALY directly.