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DALY Smart BMS 100A

DALY Smart BMS User Manual

Brand: DALY | **Model:** Smart BMS 100A

Product: DALY Smart BMS with Bluetooth Wireless Control SOC UART 10S 36V 100A 3.7V Li-ion Battery Protection Board with Balance Leads Wires BMS for 18650 Battery Pack

1. Introduction

The DALY Smart BMS (Battery Management System) is designed to protect and optimize the performance of 10S 36V 100A 3.7V Li-ion battery packs, commonly used for 18650 batteries. This system provides comprehensive protection features and smart monitoring capabilities via Bluetooth and UART communication.
Key features include:

- Overcurrent, Overcharge, Overdischarge, Short circuit, and Temperature protection.
- Maximizes lithium battery performance and extends battery lifetime.
- Double protection through injection patent technology and a robust patent shell.
- Waterproof, dustproof, shockproof, and anti-static design.
- High-quality components ensure pressure resistance and durability, with high acquisition accuracy.
- Smart monitoring and parameter modification via Bluetooth app or PC software.

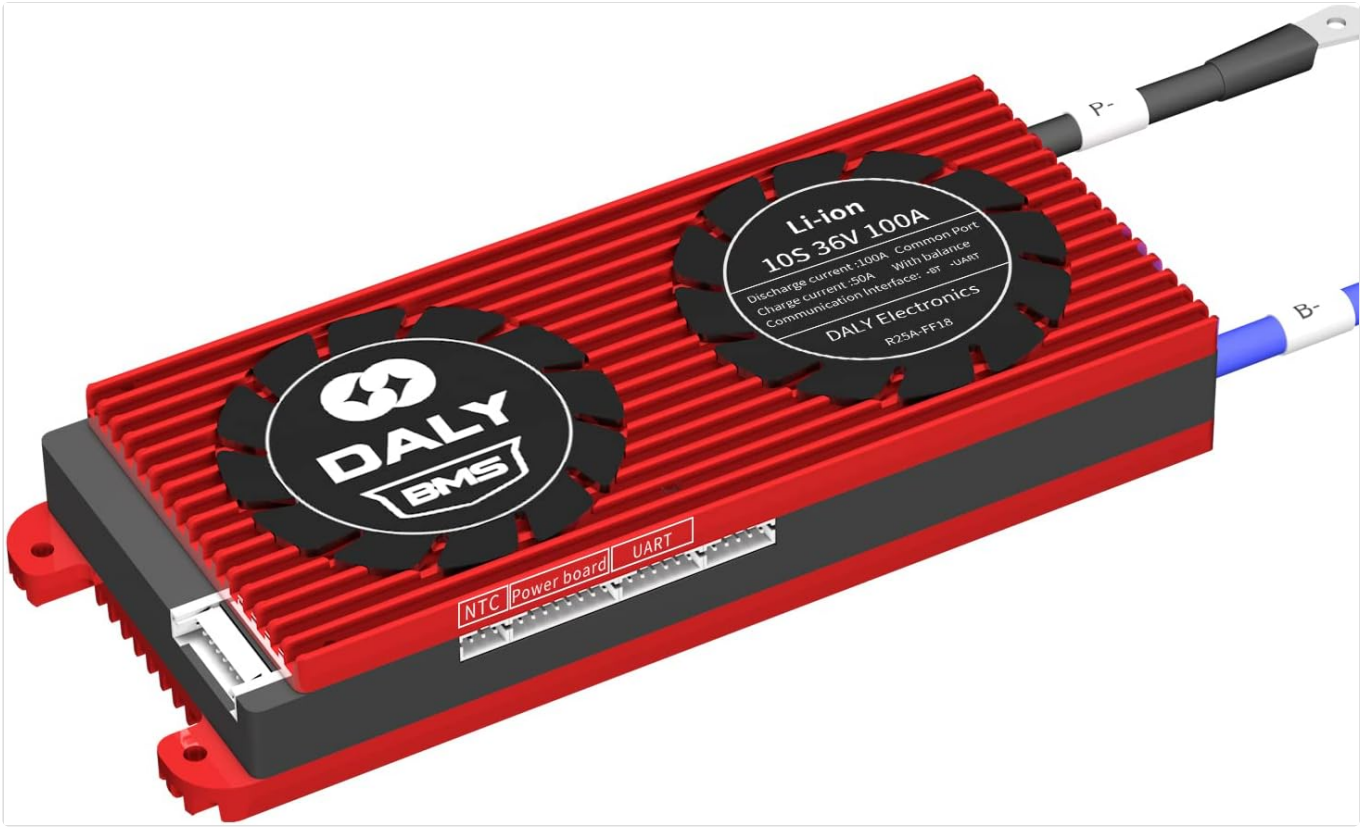


Image 1.1: Front view of the DALY Smart BMS 100A, showcasing its red heat sink design and connection ports.

2. Package Contents

Please verify that all items listed below are included in your package:

- 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)



Image 2.1: Overview of the DALY Smart BMS and its included accessories, such as the Bluetooth module, NTC sensor, and various cables.

3. Setup and Installation

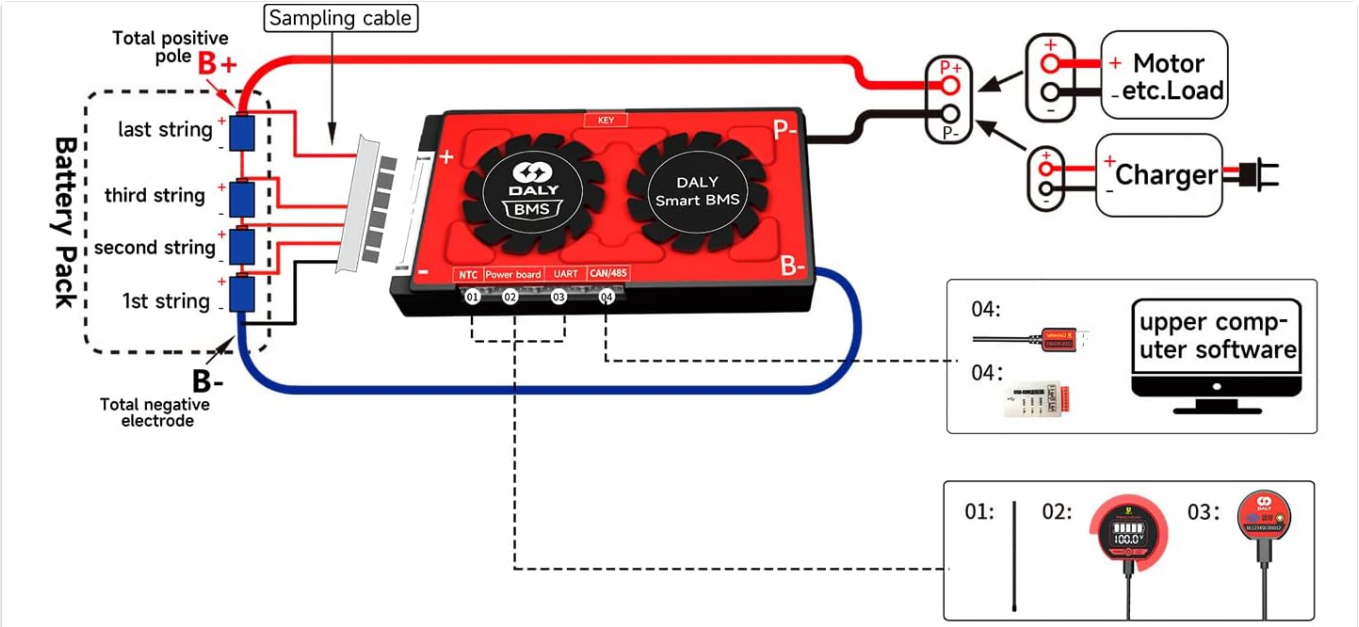
3.1. Tools Required

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

3.2. Wiring Instructions

Follow these steps carefully to ensure correct installation:

1. **Important:** Before welding the black and red balance wires onto the battery pack, you**must** disconnect the white-ended balance wires and the BMS connection port.
2. Ensure the red cooling surface side of the BMS remains uncovered for proper heat dissipation.
3. Use DALY matching balance wires (standard length 450 mm / 17.72 inches).
4. After confirming that the balance wires are correctly welded and all accessories (such as UART/Bluetooth/RS485/CAN) are installed on the BMS, connect the balance wires to the BMS connection port.



Tools needed: soldering machine(suggest using 662°F/350°C), scissors, double-sided tape,tin wire,multimeter.
Note: 1, Please **must disconnect** balance wires whiteend 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.

Image 3.1: Detailed wiring diagram for connecting the DALY Smart BMS to a battery pack, motor/load, and charger, including connections for NTC, Power Board, UART, and Bluetooth modules.

For visual guidance, please refer to the DALY website for Smart BMS Tutorial Videos. A link to these resources is typically provided in the physical manual or on the manufacturer's website.

3.3. Initial Activation

The BMS can be activated using one of two methods:

1. Press the activation button located on the battery board.
2. Connect a charger to the battery pack; the charging process will activate the BMS.

4. Operating the Smart BMS

The DALY Smart BMS allows for real-time monitoring and parameter adjustment via a Bluetooth application or PC software. This enables users to check battery status and customize settings as needed.



Image 4.1: The DALY Smart BMS connected to a Bluetooth module, with a smartphone displaying the monitoring application interface. This image highlights the 100A capacity and smart features.

4.1. Bluetooth App / PC Software

The Bluetooth module and UART cable facilitate communication with your smartphone (via app) or computer (via PC software). These interfaces provide access to:

- Real-time battery status (voltage, current, temperature, SOC).
- Modification of protection parameters (e.g., overcharge/discharge voltage, current limits).
- Viewing historical data and fault alarms.

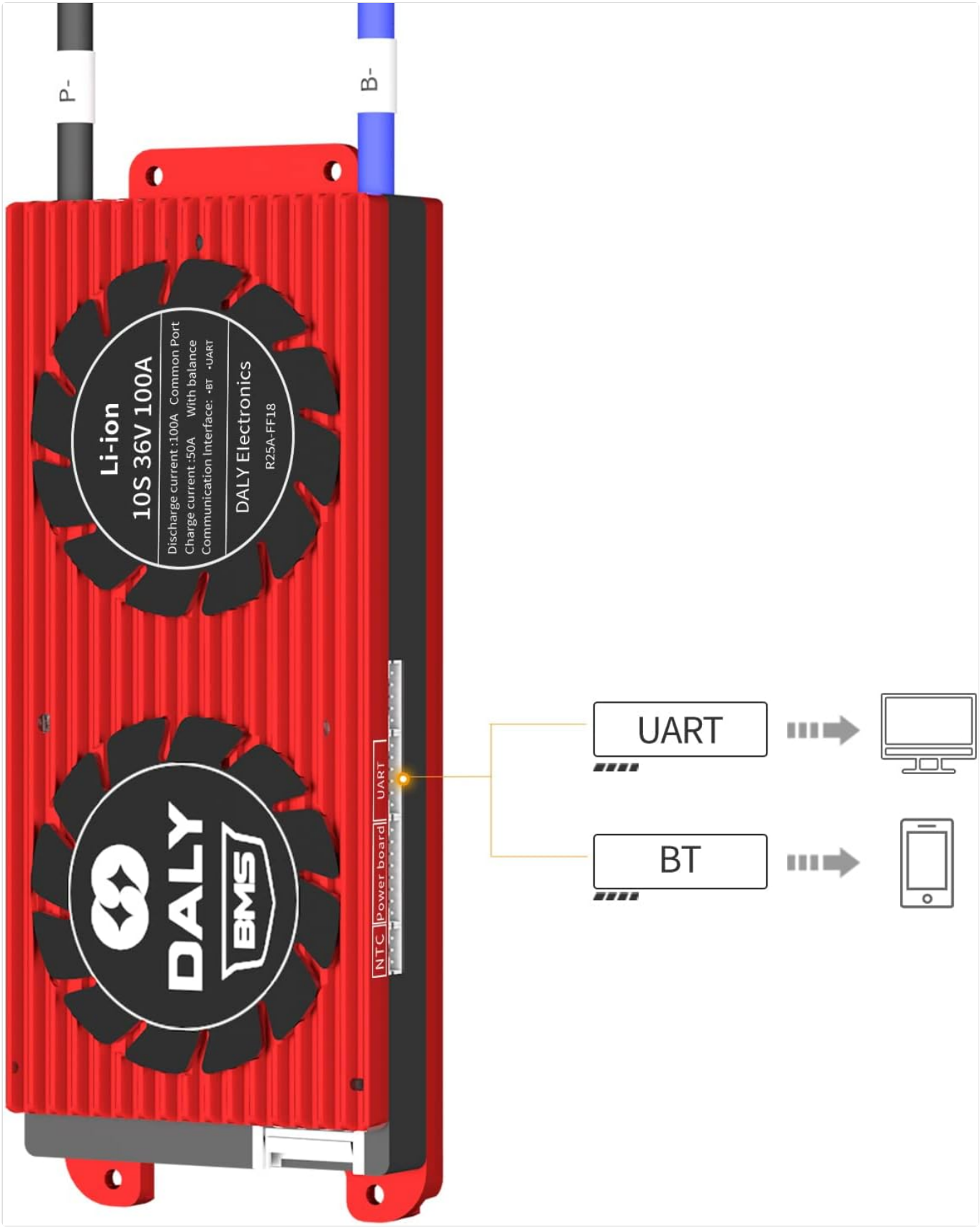


Image 4.2: A top-down view of the DALY Smart BMS, illustrating the UART and Bluetooth communication ports and their respective connections to a computer and smartphone.

Balance	Balance detect Voltage	4.13		V
	Balance release voltage	4.13		V
	Balance current	30±5		mA
Over discharge protection	Over discharge detect	2.7±0.05		V
	Over discharge detect delay	1		S
	Over discharge release voltage	3.0±0.05		V
Over Charge current protection	Over discharge current detect delay	1		S
	Over discharge current protection	Off load		
Short Circuit protection	Short Circuit protection condition	Short circuit of external load		
	Short circuit detect delay	200~500	The actual results are based on the DALY test sent back by the customer.	uS
	Short circuit protection release	Off load		
Temp Protect	Temperature protection degrees	Charge : -20~55, Discharge: -40~75		°C
Self Consumption	Working current	100~200		uA
	Sleeping current(over-discharge)	0		uA
Working Temp	Temp range	-20~60		°C
Storing Temp	Temp range	-40~85		°C

Image 4.3: Screenshot of the DALY Smart BMS mobile application interface, displaying various battery parameters such as voltage, current, temperature, and state of charge (SOC), along with settings for customization.

The serial number of the BMS and default protection parameters (for Li-ion or LiFePO4) are factory-set. However, the capacity (AH) of your battery pack must be set correctly within the app/software to ensure accurate remaining power percentage readings. Other parameters can also be adjusted to suit your specific needs.

The initial password for the smart board APP to change parameters is:**123456**.

5. Maintenance

The DALY Smart BMS is designed for durability and reliability. To ensure optimal performance and longevity, consider the following:

- The BMS features a waterproof, dustproof, shockproof, and anti-static design, minimizing the need for extensive maintenance.
- Regularly check all connections for tightness and corrosion.
- Keep the BMS red cooling surface uncovered to prevent overheating.
- Avoid exposing the BMS to extreme temperatures or harsh chemicals.

6. Troubleshooting

If you encounter issues with your DALY Smart BMS, consider the following common troubleshooting points:

- **BMS Not Activating:** Ensure the activation button has been pressed or the battery pack has been connected to a charger for initial activation.
- **Inaccurate Remaining Power Percentage:** This often occurs if the battery pack's actual capacity (AH) is not correctly set in the Bluetooth app or PC software. Adjust this parameter to match your battery's specifications.
- **Connection Issues:** Verify all balance wires are correctly welded and connected to the BMS port. Check that the

Bluetooth module or UART cable is securely attached.

- **Cannot Change Parameters in App:** Ensure you are using the correct initial password, which is **123456**.
- **Overheating:** Confirm that the red cooling surface of the BMS is not obstructed and has adequate airflow.

For more complex issues or if troubleshooting steps do not resolve the problem, please contact DALY customer support.

7. Specifications

Below are the detailed specifications for the DALY Smart BMS 10S 36V 100A model:

7.1. General Specifications

Feature	Value
Product Type	Li-ion 10S 100A Smart BMS with common port and balance
Communication Interface	UART, Bluetooth (Optional: RS485, CAN)
Nominal Input Voltage	3.7 Volts (per cell)
Nominal Output Voltage	36 Volts (for 10S pack)
Product Dimensions (L x W x H)	6.54 x 2.56 x 0.94 inches (166 x 65 x 24 mm)
Item Weight	1.28 pounds
Output Wire Gauge / Length	7AWG / 100mm
Balance Wire Gauge / Length	24AWG / 450mm
Manufacturer	Dongguan Daly Electronics Co., Ltd
ASIN	B08SHWQBRJ
Item Model Number	Smart BMS 100A



Specifications

Product: Li-ion 10S 100A common port with balance
Communications: UART
Discharge current: 100A
Over-discharge current: 150A
Charge current: 50A
Overcharge current: 150A
Overcharge voltage: 4.25V±0.05V (any string)
Over-discharge voltage: 2.7V±0.05V (any string)
Charge voltage: S*4.2V
Size: 65*166*24mm
Output wire: 7AWG / 100mm
Balance wires: 24AWG / 450mm

Image 7.1: A visual representation of the DALY Smart BMS alongside a table detailing its key specifications, including current ratings, voltages, and physical dimensions.

7.2. Electrical Parameters (Li-ion 10S Smart BMS)

Description	Specification	Unit
Discharge		
Continue discharge current	100	A
Over discharge current detect voltage	150	A
Inner resistance	<20	mΩ
Charge		
Charge voltage	Li-ion: S*4.2	V

Description	Specification	Unit
Charge current	50	A
Overcharge Protection		
Over charge detect voltage	4.25±0.05	V
Over charge protection delay	1	S
Over charge release voltage	4.15±0.05	V
Balance		
Balance detect voltage	3.8	V
Balance release voltage	3.8	V
Balance current	30±5	mA
Over-discharge Protection		
Over discharge detect	2.7±0.05	V
Over discharge detect delay	1	S
Over discharge release voltage	2.8±0.05	V
Over Charge Current Protection		
Over charge current detect delay	1	S
Over charge current protection condition	Off load	
Short Circuit Protection		
Short circuit detect delay	200-500 (Actual results based on DALY test)	uS
Short circuit protection release	Off load	
Temperature Protection		
Charge Temperature range	-40~65	°C
Discharge Temperature range	-40~70	°C
Self Consumption		
Working current	35	mA
Sleeping current (over-discharge)	800	uA
Environmental		
Working Temperature range	-20~60	°C
Storing Temperature range	-40~85	°C

Table 7.2: Detailed electrical parameters for the DALY Smart BMS (Li-ion 10S).

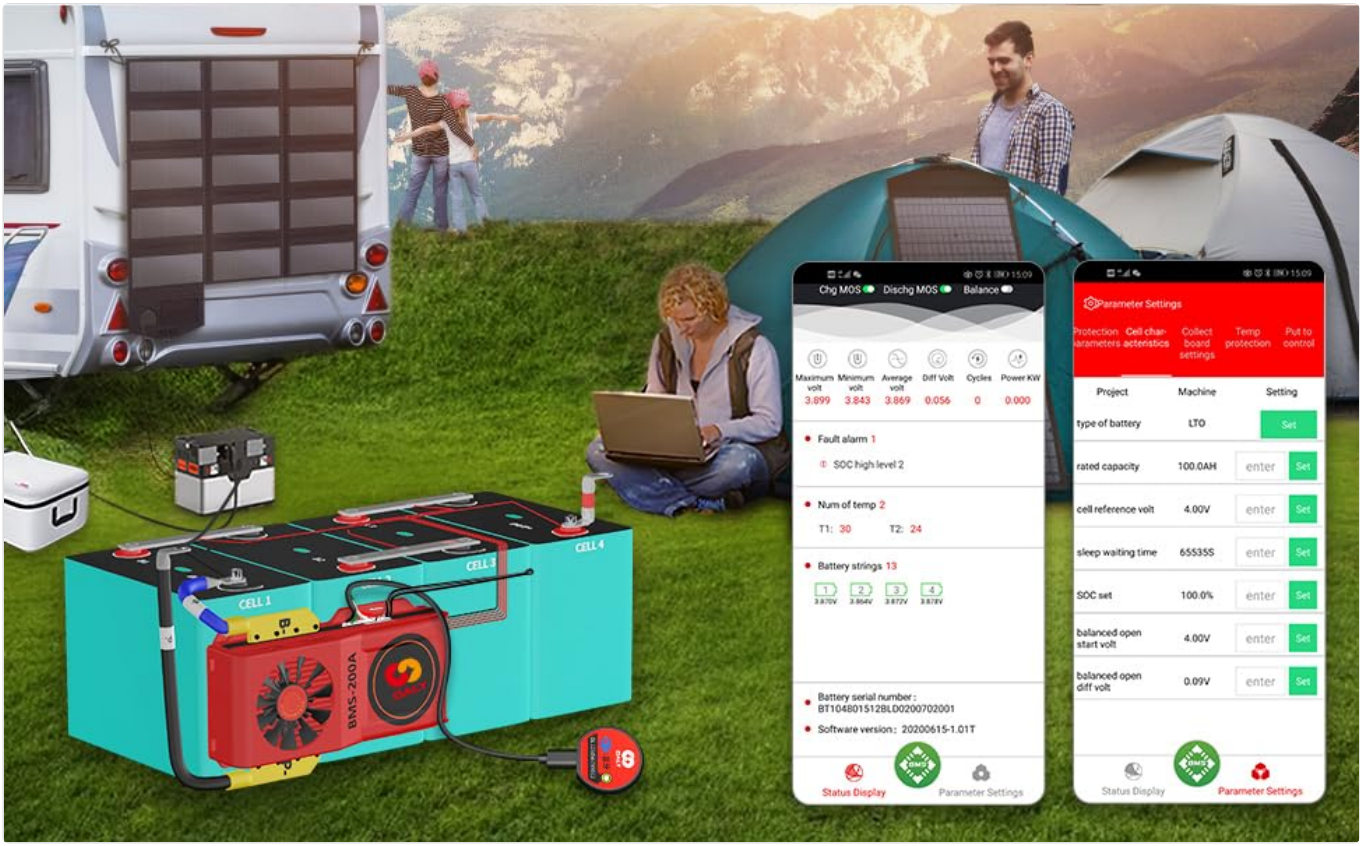


Image 7.3: A comprehensive table outlining the specifications for the Li-ion 10S Smart BMS, including discharge, charge, overcharge protection, balance, over-discharge protection, over charge current protection, short circuit protection, temperature protection, self-consumption, and working/storing temperatures.

7.3. Electrical Parameters (Li-ion 10S Standard BMS)

For reference, here are the parameters for the standard Li-ion 10S BMS model:

Description	Specification	Unit
Discharge		
Continue discharge current	100	A
Over discharge current detect	260±5	A
Inner resistance	<20	mΩ
Charge		
Charge voltage	Li-ion: S*4.2	V
Charge current	50	A
Overcharge Protection		
Over charge detect voltage	4.25±0.05	V
Over charge protection delay	1	S
Over charge release voltage	4.15±0.05	V
Balance		
Balance detect voltage	4.13	V

Description	Specification	Unit
Balance release voltage	4.13	V
Balance current	30±5	mA
Over-discharge Protection		
Over discharge detect	2.7±0.05	V
Over discharge detect delay	1	S
Over discharge release voltage	3.0±0.05	V
Over Charge Current Protection		
Over charge current detect delay	1	S
Over charge current protection condition	Off load	
Short Circuit Protection		
Short circuit detect delay	200-500 (Actual results based on DALY test)	uS
Short circuit protection release	Off load	
Temperature Protection		
Charge Temperature range	-20~55	°C
Discharge Temperature range	-40~75	°C
Self Consumption		
Working current	100-200	uA
Sleeping current (over-discharge)	0	uA
Environmental		
Working Temperature range	-20~60	°C
Storing Temperature range	-40~85	°C

Table 7.3: Detailed electrical parameters for the DALY Standard BMS (Li-ion 10S).

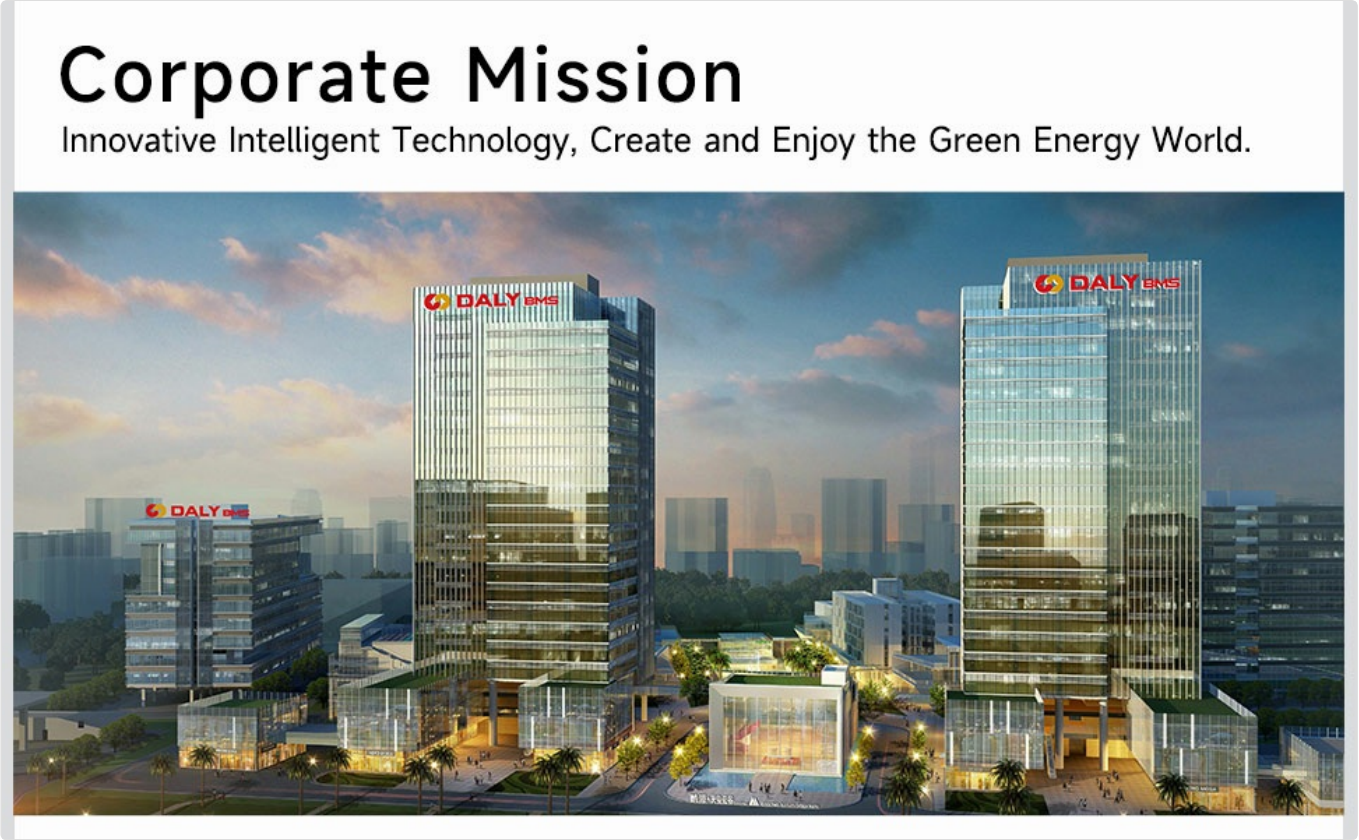


Image 7.4: A comprehensive table outlining the product parameters for the Li-ion 10S Standard BMS, including discharge, charge, overcharge protection, balance, over-discharge protection, over charge current protection, short circuit protection, temperature protection, self-consumption, and working/storing temperatures.

8. Warranty and Support

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

- **Quality Guarantee:** This product is ISO/FCC/RoHS/PSE/CE APPROVED.
- **Customer Support:** We offer 24-hour one-on-one customer service and lifetime technical support.
- **Accessories:** If you require an active balancer, parallel module, or other accessories, please contact our online customer service for assistance.

For support, please visit the official DALY website or contact their customer service channels.

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