DALY 24S 72V 200A LiFePo4 Smart BMS

DALY Smart BMS LiFePo4 24S 72V 200A Instruction Manual

Model: 24S 72V 200A LiFePo4 Smart BMS

1. Introduction

This manual provides detailed instructions for the installation, operation, and maintenance of your DALY Smart BMS (Battery Management System) for LiFePo4 24S 72V 200A battery packs. This BMS is designed to protect and manage your lithium battery system, ensuring its safety and optimal performance. It features a programmable Bluetooth module for monitoring and parameter adjustments via a mobile application.

2. Safety Information

Always exercise caution when working with battery systems. Improper installation or handling can lead to serious injury or damage to equipment. Adhere to the following safety guidelines:

- Ensure all power sources are disconnected before installation or maintenance.
- Wear appropriate personal protective equipment (PPE), including insulated gloves and eye protection.
- Verify all wiring connections are correct and secure before applying power. Incorrect wiring can cause damage to the BMS and battery.
- Avoid short-circuiting battery terminals or BMS connections.
- Do not attempt to disassemble or modify the BMS.
- Install the BMS in a well-ventilated area, away from flammable materials.
- Consult a qualified professional if you are unsure about any installation or operation steps.

3. Product Overview

The DALY Smart BMS is a sophisticated battery management system designed for LiFePo4 24S 72V 200A battery packs. It integrates essential protection features and smart monitoring capabilities.

Key Features:

- **High Current Capability:** Supports up to 200A continuous discharge and 100A charge current.
- **Programmable Protections:** Over-charge, over-discharge, over-current, and temperature protection.
- **Voltage Balancing:** High detection precision for voltage balancing.

- **Low Temperature Charging Protection:** Prevents charging below -1°C.
- **Smart Monitoring:** Bluetooth module for real-time data monitoring and parameter settings via mobile app (iOS & Android).
- **Common Port Design:** Utilizes a single port for both charging and discharging.
- **Cooling Fan:** Integrated fan for thermal management during high current operations.
- **SOC Calculation:** Precise State of Charge (SOC) calculation with automatic learning function.

Components:

The package includes the DALY Smart BMS, balance wires, a Bluetooth module, a UART cable for PC connection, and an English version wiring manual.

Figure 3.1: Top view of the DALY Smart BMS with integrated cooling fan.

Figure 3.2: DALY Smart BMS showing the Bluetooth module connection and mobile app compatibility.

Fan specifications

Product:	LifePO4 24S 200A common port with balance
Communications:	UART
Discharge current:	200A
Over-discharge current:	300A±30A (Can be set)
Charge current:	100A (Can be set)
Overcharge current:	300A±30A (Can be set)
Overcharge voltage:	3.75V±0.05V (any string,Can be set)
Over-discharge voltage:	2.2V±0.1V (any string, Can be set)
Charge voltage:	87.6V (Can be set)
model:	R32W
Size:	221*130 *32mm
Output wire:	6AWG
Balance wires:	24AWG/350mm
Optional:	BT
Weight:	≈1884g

Figure 3.3: Overview of the 12 protection functions including over-charge, over-discharge, over-current, short-circuit, over-voltage, balance, NTC temperature, waterproof, moistureproof, fireproof, and dustproof features.

Figure 3.4: Exploded view detailing internal components such as the insulated flame-retardant shell, smart fan, pure aluminum heat sink, high current copper plate, BMS board, thermal conductive compound, and insulation fixing plate.

4. Setup and Installation

Careful wiring is crucial for the correct operation and safety of the BMS. Follow these steps precisely:

1. **Prepare the Battery Pack:** Ensure your LiFePo4 24S 72V battery pack is assembled and individual cell voltages are balanced as much as possible before connecting the BMS.
2. **Connect Balance Wires:**
    - First, connect the **black wire** of the balance harness to the **total negative pole (B-)** of your battery pack.
    - Then, connect the remaining balance wires (red wires) sequentially from B1 to B24 to the positive terminals of each cell in your battery pack. Ensure the order is correct.
    - **Important:** Do not connect the balance harness to the BMS connection port yet.
3. **Connect Main Power Wires:**
    - Connect the main negative wire from the battery pack's total negative terminal to the **B- terminal** on the BMS.
    - Connect the main negative wire for discharge/charge (common port) from the **P- terminal** on the BMS to your

load/charger negative terminal.
    - The main positive wire from the battery pack's total positive terminal connects directly to your load/charger positive terminal, bypassing the BMS.
4. **Connect Balance Harness to BMS:** After all main power wires and balance wires are securely connected to the battery, plug the balance harness into the designated port on the BMS.
5. **Activate BMS:** Press the activation button on the BMS board, or charge the battery system to activate the BMS for the first use.
6. **Bluetooth Module Connection:** Insert the Bluetooth module into the UART port on the BMS.

Figure 4.1: Detailed wiring diagram for connecting the DALY Smart BMS to a 24S LiFePo4 battery pack, motor/load, and charger. Note the sequence of connections for safety.

Note: It is recommended to use appropriate tools for wiring, such as soldering machine (if applicable), scissors, double-sided tape, tin wire, and a multimeter for verification.

5. Operating Instructions

The DALY Smart BMS can be monitored and configured via a mobile application using its Bluetooth module or via a PC

using the UART cable.

5.1 Mobile App (Bluetooth)

1. **Download App:** Search for "DALY BMS" or "Smart BMS" in your mobile app store (iOS or Android) and install the application.
2. **Enable Bluetooth:** Ensure Bluetooth is enabled on your mobile device.
3. **Connect to BMS:** Open the app. It should automatically detect nearby DALY BMS devices. Select your BMS from the list. The initial password to change parameters is **123456**.
4. **Monitor Data:** The app displays real-time data such as total voltage, individual cell voltages, charge/discharge current, temperature, and State of Charge (SOC).
5. **Adjust Parameters:** Access the "Parameter Settings" section to customize protection thresholds (e.g., over-charge voltage, over-discharge voltage, over-current limits, temperature limits).

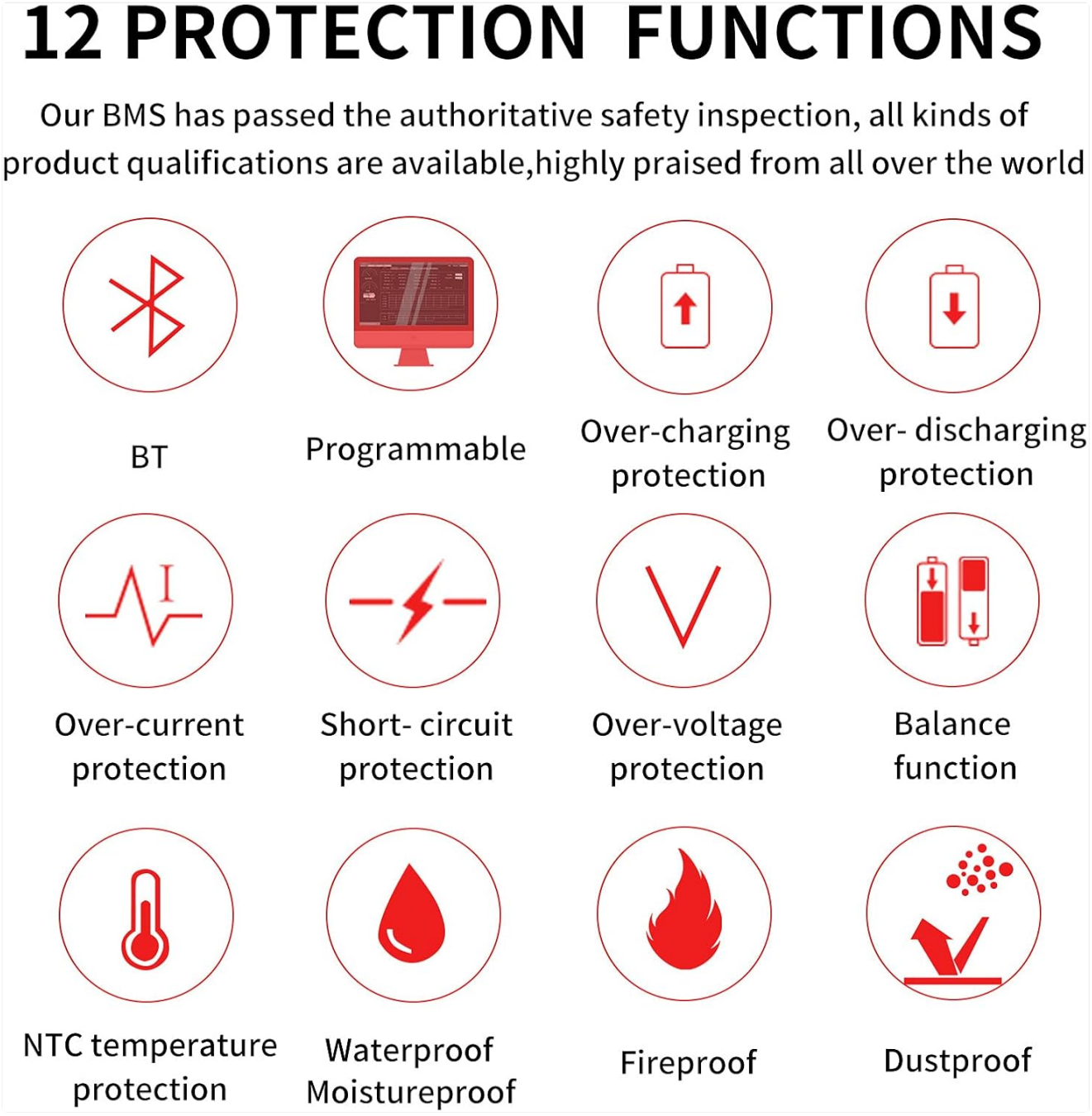


Figure 5.1: Screenshots of the DALY Smart BMS mobile application displaying real-time monitoring data and parameter adjustment options.

5.2 PC Software (UART)

For advanced monitoring and configuration, connect the BMS to a PC using the provided UART cable. Download the corresponding PC software from the DALY website. The software offers similar functionalities to the mobile app but with a larger interface for detailed analysis.
The serial number of the BMS and the protection parameters (Li-ion, LiFePo4) have default values. The capacity AH of the battery pack needs to be set according to the actual capacity. 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.

6. Maintenance

Proper maintenance ensures the longevity and reliability of your DALY Smart BMS and battery system:

- **Regular Monitoring:** Periodically check the BMS data via the mobile app to ensure all parameters are within normal operating ranges.
- **Keep Clean:** Ensure the BMS and its connections are free from dust, dirt, and moisture.
- **Ventilation:** Ensure adequate airflow around the BMS, especially around the cooling fan, to prevent overheating.
- **Connection Integrity:** Periodically inspect all wiring connections for tightness and signs of corrosion or damage.
- **Firmware Updates:** Check the manufacturer's website for any available firmware updates for the BMS to ensure optimal performance and access to new features.

7. Troubleshooting

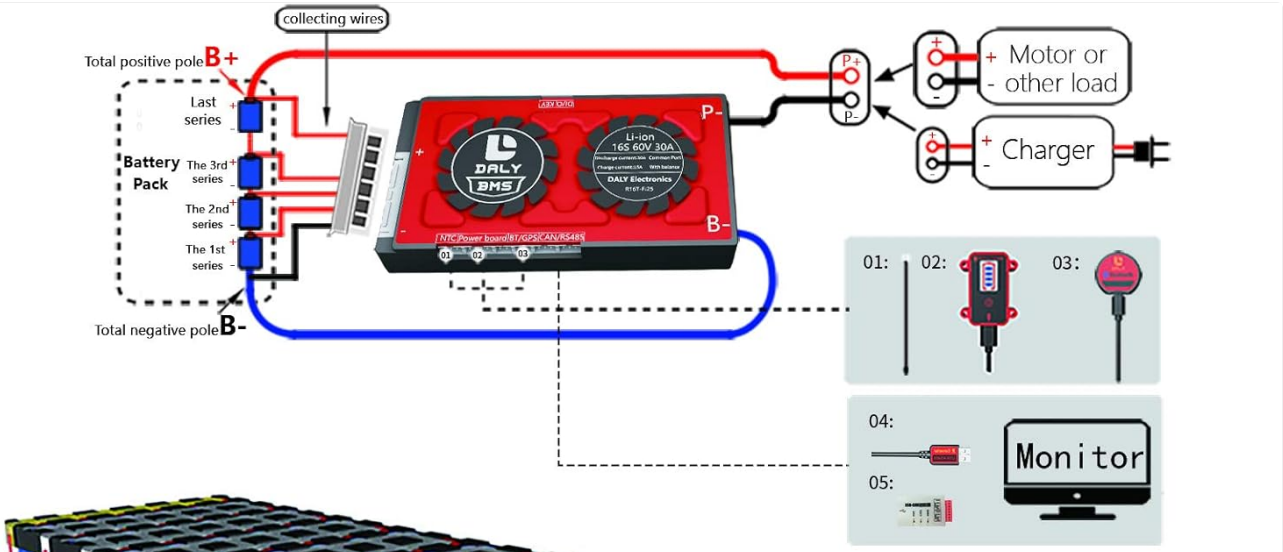
If you encounter issues with your DALY Smart BMS, refer to the following common troubleshooting steps:

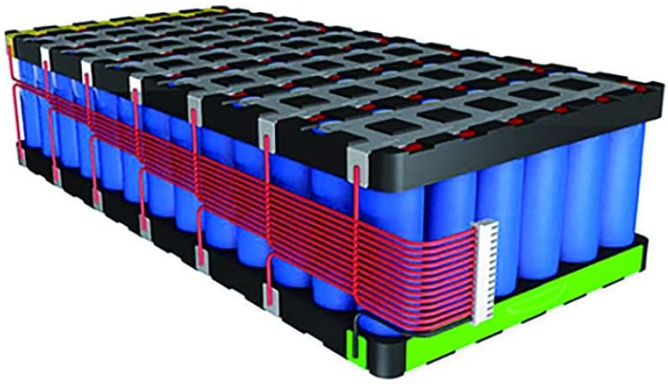
- **BMS Not Activating:**
  - Ensure all balance wires are correctly connected and the main power connections are secure.
  - Press the activation button on the BMS board.
  - Connect a charger to the battery pack; charging typically activates the BMS.
- **Bluetooth Connection Issues:**
  - Verify the Bluetooth module is correctly inserted into the UART port.
  - Ensure Bluetooth is enabled on your mobile device and the app has necessary permissions.
  - Restart the mobile app and try reconnecting.
  - Ensure no other devices are actively connected to the BMS via Bluetooth.
- **Protection Triggered (e.g., Over-voltage, Under-voltage, Over-current):**
  - Check the mobile app for specific fault codes or warnings.
  - Verify individual cell voltages are within safe operating limits.
  - Reduce the load or charging current if an over-current protection is triggered.
  - Inspect battery temperatures if temperature protection is active.
  - Review and adjust programmable parameters in the app if they are set too restrictively for your application.
- **Inaccurate SOC Reading:**
  - Ensure the battery pack's actual capacity (AH) is correctly set in the BMS parameters via the app.
  - Allow the BMS to complete a few full charge/discharge cycles for its automatic learning function to calibrate the SOC more accurately.

If the issue persists after attempting these steps, contact DALY customer support for further assistance.

8. Specifications

Feature	Specification
Product Model	24S 72V 200A LiFePo4 Smart BMS
Battery Type	LiFePo4
Series Configuration	24S
Nominal Voltage	72V
Continuous Discharge Current	200A
Continuous Charge Current	100A
Over-discharge Current Protection	300A ± 30A (Configurable)
Over-charge Current Protection	300A ± 30A (Configurable)
Overcharge Voltage Protection	3.75V ± 0.05V per cell (Configurable)
Over-discharge Voltage Protection	2.2V ± 0.1V per cell (Configurable)
Charge Voltage	87.6V (Configurable)
Communication Interface	UART (for Bluetooth module and PC connection)
Dimensions	221 x 130 x 32 mm (approx. 9.21 x 4.72 x 2.09 inches)
Item Weight	~1884g (approx. 4.09 pounds)
Output Wire Gauge	6AWG
Balance Wires Gauge/Length	24AWG / 350mm
UPC	766293717109





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 8.1: Fan specifications and physical dimensions of the DALY Smart BMS.

9. Warranty and Support

For warranty information, technical support, or any inquiries regarding your DALY Smart BMS, please contact the manufacturer directly or refer to their official website. Keep your purchase receipt as proof of purchase.
You can visit the DALY Store on Amazon for more information: DALY Store

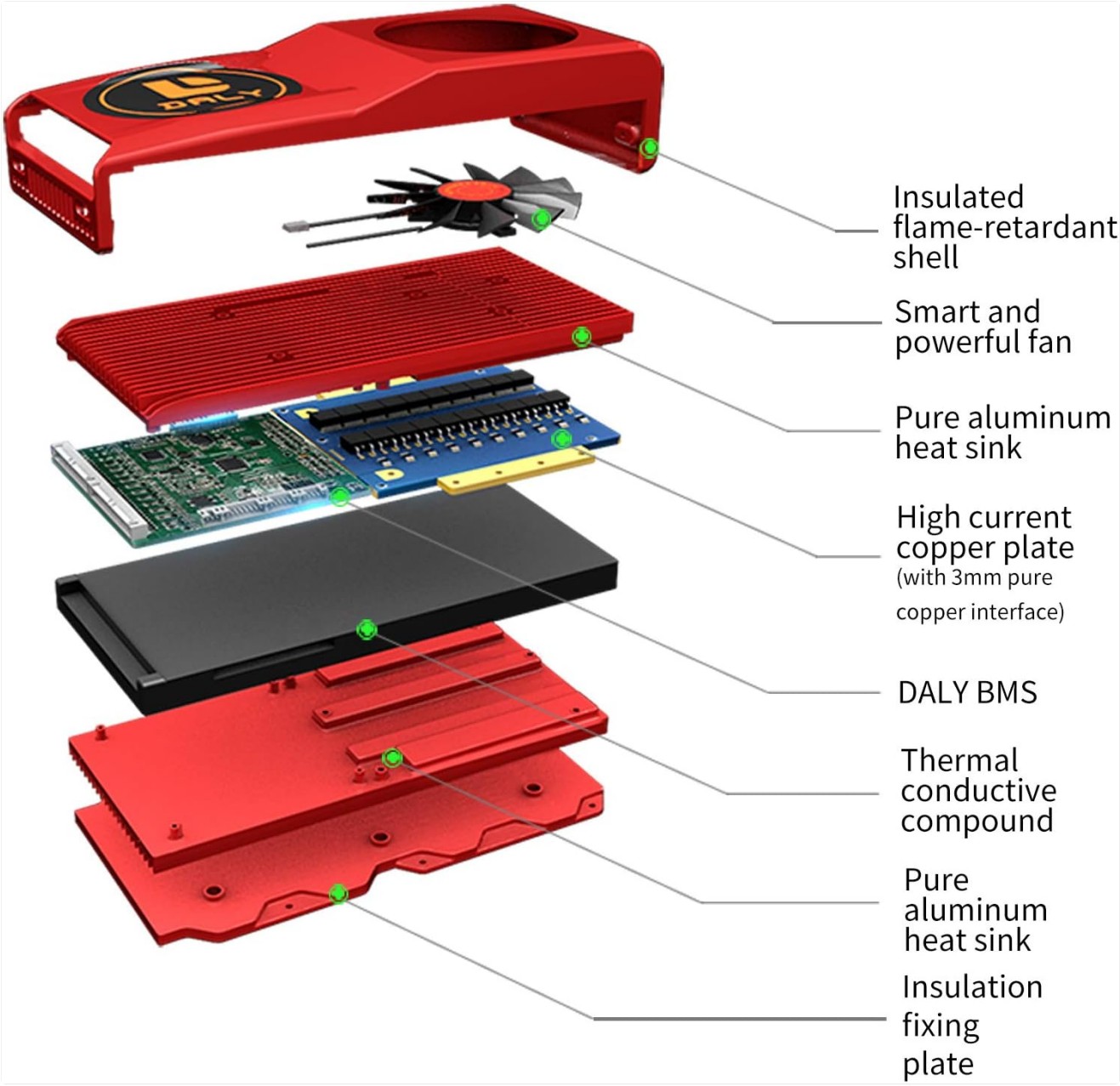


Figure 9.1: Examples of product certifications for DALY products, including Waterproof Patent, ISO, FCC, RoHS, PSE, and CE.

Related Documents - 24S 72V 200A LiFePo4 Smart BMS

	DALY DL-R32U-F012S200ATJ-MM00-S4RV LiFePO4 BMS Technical Specifications Detailed technical specifications, wiring diagrams, and warranty information for the DALY DL-R32U-F012S200ATJ-MM00-S4RV LiFePO4 12S 36V 200A Battery Management System (BMS) with Balance, UART, and Bluetooth.

东莞市达锂电子有限公司
DALY Dongguan DALY Electronics Co., Ltd.

Y系列保护板说明书

一、产品简介

随着物联网技术的飞速发展和智能设备的广泛应用，越来越多的设备需要更高效、更便捷的通信和控制方式。同时新国标对动力设备的智能化和兼容性也提出了更高要求。在这种背景下，采用蓝牙主控实现兼串及一线通功能的解决方案逐渐成为行业的热门选择。

产品			
产品型号	YH	YK	YM
产品尺寸	101*65.5*14.2mm	130*65.5*14.2mm	180*92.4*17.2mm
串数范围	4-8S 7-17S 7-24S		
持续电流	30A/40A/60A	80A/100A/120A	150A/200A

二、使用指引

1、焊接保护板

(1)焊接采样排线：

从细黑线连接电池B-（总负极）开始，第2根线连接第1串电池正极， 后面依次连接每一串电池的正极；最后将B+ 线也焊接在最后一串（总正极）上（请参考说明书接线示意图）。

*注：焊接采样线时不可插着保护板，请根据电池实际串数进行焊接，多出的采样线无需焊接（多出的采样线请做好绝缘处理）。

(2)检测电压：

使用万能表或线序检测设备测量排线的针孔每串电压是否在正常范围内，如不正常请检查接线是否有错接、虚焊、假焊、漏焊等情况。

(3)焊接输出线：

将B-连接线（蓝色粗线）、P-连接线（黑色粗线）用螺丝锁至保护板对应的B-、P-螺母上，建议扭矩为10N·m(牛米)；并把B-线焊接电池总负极。

*注：焊接采样线时不可插着保护板，请根据电池实际串数进行焊接，多出的采样线无需焊接（多出的采样线请做好绝缘处理）。

(4)接入保护板配件：

如遥控、电量板、GPS、显示屏等，再把采样线插入保护板自动激活。

2、蓝牙APP下载及连接

(1)下载蓝牙APP

①通过扫描保护板上的二维码下载；
②应用商店搜索"Smart BMS"；
③登录达锂官网
(https://www.dalybms.com/)下载；
④联系客服获取下载方式并安装手机APP。

(2)连接蓝牙APP

打开蓝牙和手机位置信息并进入APP，APP会自动搜索蓝牙序列号，核对保护板上的序列号无误后点击序列号进入电池管理界面。

3、设置参数

首次使用时，需在APP或电脑上位机设置电池类型及容量（出厂默认为铁锂参数），电池组的容量是需要按电池组的实际容量进行设置。

首次使用时需充满100%作为标定，其他保护参数可以根据自身需求进行设置，APP修改参数的出厂默认密码为123456，PC上位机修改参数密码为12345678。

*注：在没有充放电的状态下，保护板默认3600秒后休眠，检测到充放电时会自动唤醒。也可通过APP或PC上位机修改休眠时间，如设置65535则代表不休眠。

4、一线通使用说明

在APP或上位机选择对应协议，即可使用。

5、特别说明

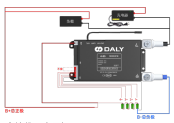
(1) 不同厂家的排线不通用，请确保使用我们公司配套排线；
(2) 在测试、安装、接触和使用保护板时，要做好防静电措施；
(3) 不要使保护板的散热面直接接触电芯，否则热量会传送到电芯，影响电池的安全；
(4) 不可自行拆卸、更改保护板元器件；
(5) 本公司保护板外壳仍会导电，组装作业中避免与电芯、镍带接触，因静电防护设计需要，外壳与主板共地，测量时有电压属正常现象；
(6) 我司产品进行严格的出厂检验测试，但是因为客户使用的环境不同（特别是在高温、超低温、太阳下、潮湿环境等），难免会出现保护板故障，所以客户在选择和使用保护板时，需要在友好的环境下使用，及选择一定冗余量的保护板进行备用。

三、接口定义说明

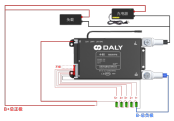
接口名称	Pin脚	标号	定义说明
NTC	1	NTC1	1#温控线
	2	GND	地GND
	3	GND	地GND
	4	NTC2	2#温控线
UART	1	GND	地GND
	2	3.3V	供电电源3.3V
	3	12V	供电电源12V
	4	S1	蓝法开关
	5	TX	通讯发送端
	6	RX	通讯接受端
一线通/DO	1	12V	12V/500mA
	2	GND	地GND
	3	YXT	一线通接口
	4	C-/GND	
	5	DO	3.3V/200mA DO

四、常见串数接线示意图

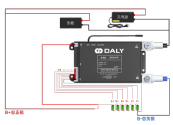
(4串接线示意图)



(5串接线示意图)



(6串接线示意图)



[DALY Y Series BMS Technical Specifications and Wiring Guide]

Detailed technical specifications, wiring diagrams, and interface descriptions for DALY Y Series Battery Management Systems (BMS), including models YH, YK, and YM. Covers cell counts from 4S to 24S and current ratings up to 200A, with information on the Smart BMS mobile application.

	Daly Smart BMS 8-16S 100-200A Product Specification Approval and Manual Detailed product specification and user manual for the Daly Smart BMS 8-16S 100-200A, covering technical parameters, protection features, LED indicators, communication protocols, and installation instructions.

东莞市达锂电子有限公司
DALY Dongguan DALY Electronics Co., Ltd.

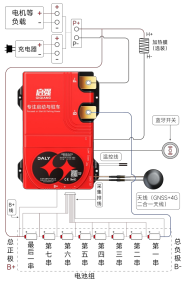
第五代卡车启动保护板 操作使用说明书

一、产品简介

随着锂电池的广泛应用，对电池管理系统也提出了高性能、高可靠性及高性价比等要求。

达锂第五代卡车启动保护板是专门针对货车、船舶启动和驻车空调及卡车启动电源电池组而研发设计的一款智能保护板，可承受 3000A 的瞬间大电流，内置加热模块可以直连加热膜，集成滤波模块吸收卡车电机脉冲高压，且具有一键强启，智能通讯等功能。集成 4G 远程通讯跟高精度北斗定位功能，可通过云平台、APP、小程序实现远程管理、查看实时定位、历史轨迹等智慧功能。

二、操作说明



* 请仔细阅读说明书，更改参数（如修改电池容量、电压、电流等）前请截图保存，方便后期原始数据。

1、保护板连接电池接线顺序；

特别注意：

- 不同厂家的排线不通用，请确保使用达锂配套排线；
（注意：B- 线内阻在 0.5mR-0.8mR 范围）；
- 切记 !!! 焊接采样排线时，排线不要插入保护板；

1.1 排线从细黑线连接总负极 B- 开始连接，第 2 根线（红线）连接第 1 串电池正极，后面依次连接每一串电池的正极，直到最后一串总正极，B+ 线单独接入电池总正极；

1.2 排线连接好后插头不要直接插入保护板，先测量插头背面每两个相邻金属端子间的电压，如果是三元聚合物电池电压应该在 3.0-4.15V 之间，铁锂电池应该在 2.5-3.6V 之间，钛酸锂电池应该在 1.8-2.8V 之间，确保电压无误后再进行下一 步操作；

1.3 插入 NTC 线束（确保保护板 NTC 接口插入温控线）；

1.4 将保护板 B- 线（蓝色粗线）接到电池总负极；

1.5 将排线插入保护板；

1.6 将蓝牙开关模块插入 UART 接口，查看指示灯是否正常亮起（UART1、UART2 均可）。

1.7 首次上电需要充电、或蓝牙开关按键激活。

2、测量电池 B+,B- 电压与 B+,P- 电压是否相等（即：电池组本身电压和经过保护板之后的电压是否相等）,相等即保护板正常工作，可以正常使用了。如不相等，请按照上面接线顺序重新检查一遍。

3、接负载和充电器：

3.1 将负载负极和充电器负极与 P- 连接。

3.2 将负载正极和充电器正极与电池组总正极连接。

4、下载通讯软件(手机端 DALY BMS APP,电脑端上位机)，设置电池组的容量 (AH) 为正确的容量。

4.1 在手机应用市场搜索 DALY BMS,下载并安装。

4.2 打开手机的定位和蓝牙及相关权限功能。

4.3 打开 DALY BMS APP 在首界面选择 4G 设备，注册并绑定设备。

4.4 在界面的右下角有参数设置，点击打开，选择电芯参数，可以看到额定容量，输入自己电池组的实际容量 XX, 点击设置，默认密码 123456。

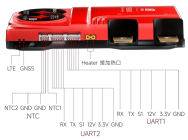
4.5 容量设置好，可以对电池组进行充电，充电触发了过充二级保护，SOC 会自动校准为 100%。

5、天线安装

特别注意：

- 外置天线切勿放置于密闭箱体内，需要将天线外置，注意固定安装，且防水点胶；
- 5.1 箱体合适位置开孔，开孔建议 13-13.5 mm，最终需结合天线实物判断。

三、接口定义说明



序号	功能	Pin数	间距	接口描述	工艺方式
1	电压采集1	9	2.0	B0-B8	插件带扣
2	电压采集2	11	2.0	B0-B10	插件带扣
3	NTC	4	2.0	NTC1,GND,GND,NTC2	插件带扣
4	B+	2	/	B+	XT-30
5	H-	2	/	接加热口	XT-30
6	UART1	6	2.0	GND,3.3V,12V,S1,TX,RX	插件带扣
7	UART2	6	2.0	GND,3.3V,12V,S1,TX,RX	插件带扣
8	LTE	1	/	4G通讯天线	MCX直母头
9	GNSS	1	/	北斗定位天线	MCX直公头

四、远程管理、蓝牙开关模块使用说明

1、小程序/DALY APP远程管理

（1）"启动宝"小程序远程管理

**"启动宝"微信小程序功能：可进行数据监控、一键强启，一键加热、预约加热、实时定位、历史轨迹等功能。

*连接方式一：通过扫描随货二维码，快速连接"启动宝"微信小程序，选择"远程设备"，注册绑定后即可连接保护板实现远程管理。

[DALY LiFePO4 8S24V200A BMS with 4G and GNSS - Datasheet]

Technical datasheet for the DALY LiFePO4 8S24V200A Battery Management System (BMS) featuring 4G connectivity, GNSS, UART, and NTC temperature sensing. Includes specifications, pinout, and LED status information.

	[DALY BMS DL-R24M-FTJ Smart BMS LiFePO4 Product Specification Approval](#) Product specification approval document for the DALY BMS DL-R24M-FTJ Smart BMS LiFePO4, detailing technical parameters, protection features, interface definitions, and usage guidelines.