DALY LifePO4 4S 12V 40A

DALY Smart BMS 4S 12V 40A with Bluetooth Module Instruction Manual

Model: LifePO4 4S 12V 40A

1. Introduction

This instruction manual provides essential information for the safe and effective use of your DALY Smart Battery Management System (BMS) for LiFePO4 battery packs. The DALY Smart BMS is designed to protect your battery pack from various electrical conditions, ensuring its longevity and safe operation. This specific model is a 4S 12V 40A BMS with an integrated Bluetooth module for smart monitoring and control.

2. Safety Information

Please read and understand all safety instructions before installation and operation. Failure to follow these instructions may result in electric shock, fire, serious injury, or property damage.

- Always wear appropriate personal protective equipment (PPE), including insulated gloves and eye protection, when working with batteries.
- Ensure all connections are correct and secure before applying power. Incorrect wiring can cause damage to the BMS, battery pack, or connected equipment.
- Do not short-circuit the battery terminals or the BMS output.
- Keep the BMS away from water, moisture, and flammable materials. The BMS has waterproof protection, but direct exposure to water should be avoided during installation and operation.
- Do not attempt to disassemble or repair the BMS. Contact qualified personnel for service.
- Ensure proper ventilation around the battery pack and BMS during charging and discharging.
- Verify that the BMS voltage and current ratings match your battery pack requirements.

3. Product Overview

3.1 Key Features

- **Comprehensive Protection:** Includes overcharge, overdischarge, overcurrent, short circuit, and temperature protection.
- **Waterproof Design:** Features patented glue-injection process for enhanced durability and protection

against moisture.

- **Parallel Connection Support:** Integrated parallel module prevents large current impacts when connecting battery packs in parallel.
- **High-Power Pre-charging:** Effectively avoids false protection triggers from high startup currents.
- **Passive Balancing:** 100mA passive balancing extends the lifespan of lithium batteries.
- **Smart Monitoring:** Bluetooth module allows viewing and setting battery parameters via a mobile app or PC software.
- **Low Power Consumption:** Designed for efficient operation with minimal resting current.

3.2 Components and Appearance

The DALY Smart BMS unit typically includes the main BMS board, a Bluetooth module, output wires, NTC temperature sensors, and a manual. The main board is compact and designed for efficient heat dissipation.

Figure 1: DALY Smart BMS 4S 12V 40A with Bluetooth Module, balance wires, and app interface example. This image shows the main BMS unit, the detachable Bluetooth module, balance wires, and a representation of the mobile application interface for monitoring battery parameters.

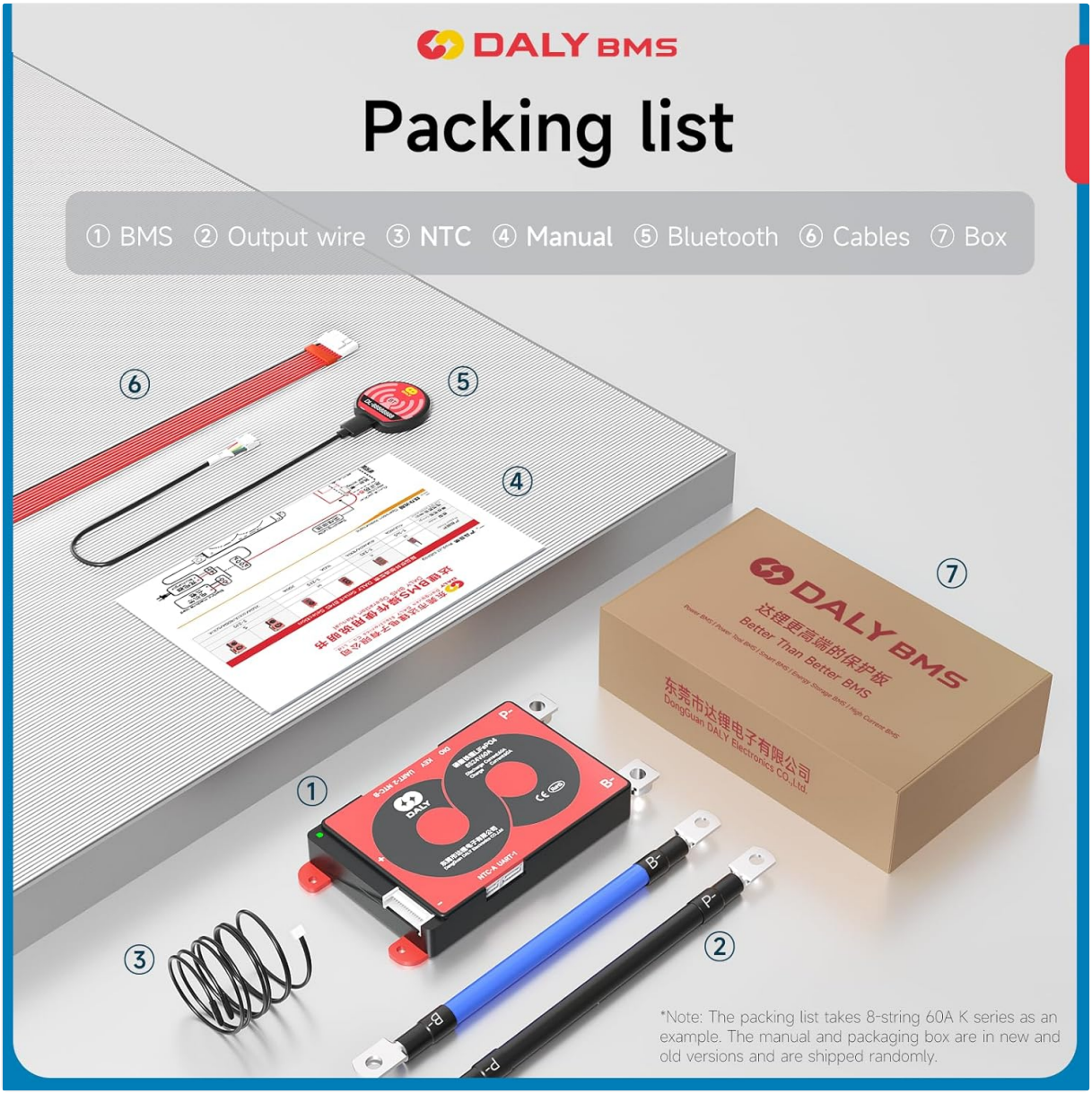


Figure 2: Typical packing list for a DALY BMS. The image displays the BMS unit, output wires, NTC temperature sensor, instruction manual, Bluetooth module, balance cables, and the product box.

4. Specifications

The following table details the specifications for the DALY Smart BMS LifePO4 4S 12V 40A model:

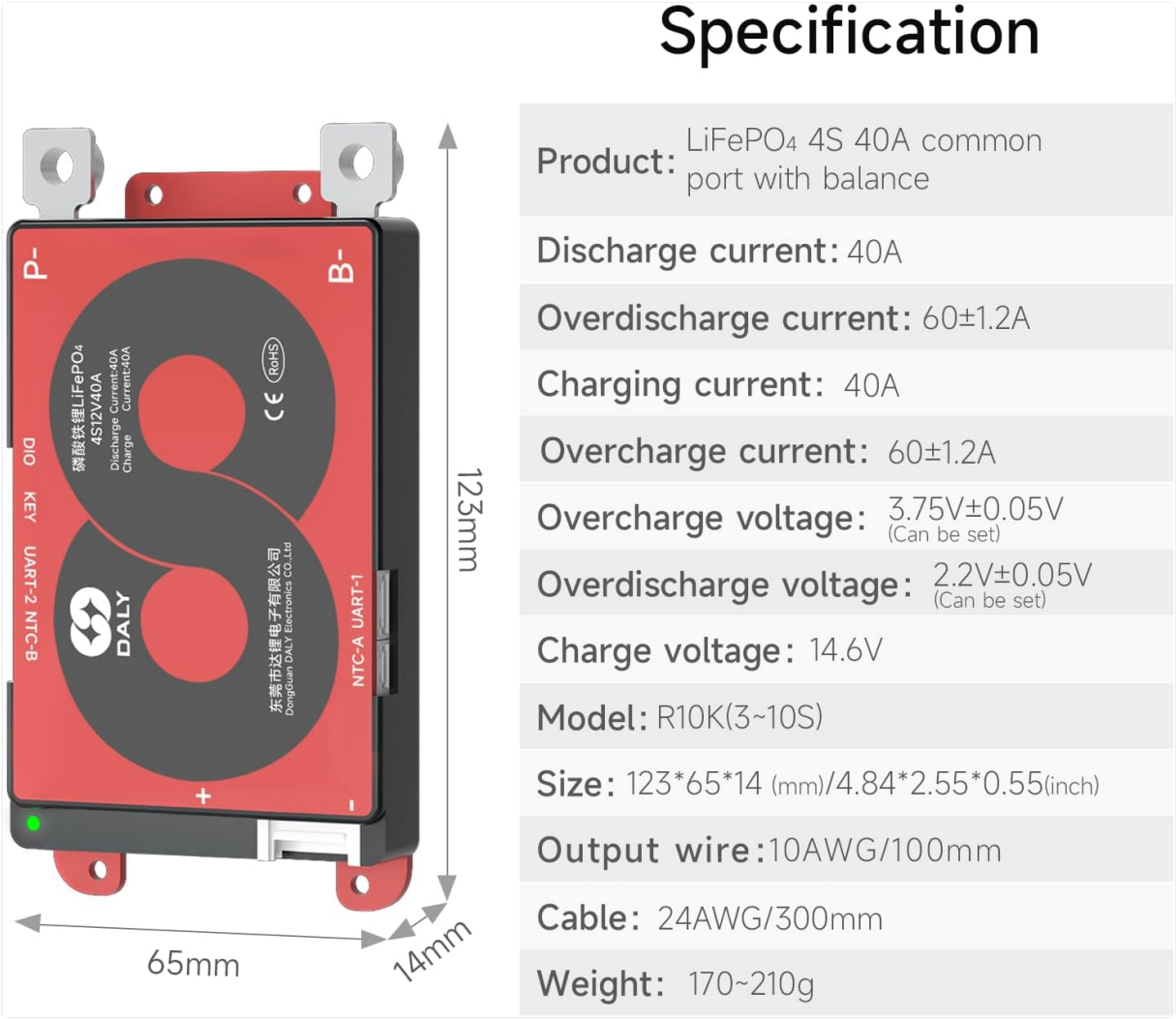


Figure 3: Detailed specifications for the LiFePO4 4S 40A DALY BMS. This image provides specific values for discharge current, overdischarge current, charging current, overcharge current, overcharge voltage, overdischarge voltage, charge voltage, model number, size, output wire gauge, cable gauge, and weight.

Table 1: DALY Smart BMS LifePO4 4S 12V 40A Specifications

Parameter	Value
Product Type	LiFePO4 4S 40A common port with balance
Discharge Current	40A
Overdischarge Current	60±1.2A
Charging Current	40A
Overcharge Current	60±1.2A
Overcharge Voltage	3.75V±0.05V (Can be set)
Overdischarge Voltage	2.2V±0.05V (Can be set)
Charge Voltage	14.6V
Model (Specific)	LifePO4 4S 12V 40A
Model (General Series)	4S-24S 12V-72V 40A-500A (Specific: R10K for 3-10S series)
Dimensions (L x W x H)	123 x 65 x 14 mm (4.84 x 2.56 x 0.55 inches)

Parameter	Value
Output Wire	10AWG/100mm
Balance Cable	24AWG/300mm
Weight	170-210g (6.0-7.4 ounces)
Manufacturer	Dongguan Daly Electronics Co., Ltd

5. Setup and Installation

Proper installation is crucial for the safe and correct operation of the BMS. Refer to the wiring diagram provided with your specific battery pack and BMS model for precise connections. The following are general steps:

1. **Prepare the Battery Pack:** Ensure all individual battery cells are balanced and at a similar voltage level before connecting the BMS.
2. **Connect Balance Wires:** Connect the balance wires from the BMS to each cell of your LiFePO4 battery pack in the correct order (B0, B1, B2, B3, B4 for a 4S pack). Always connect the lowest voltage first (B0 to the negative terminal of the first cell) and proceed upwards. **Warning: Incorrect balance wire connection order can severely damage the BMS.**
3. **Connect Main Power Wires:**
    - Connect the main negative terminal of the battery pack to the B- terminal on the BMS.
    - Connect the main positive terminal of the battery pack to the P+ terminal on the BMS.
    - Connect the load/charger negative terminal to the P- terminal on the BMS.
4. **Connect NTC Temperature Sensor:** Attach the NTC sensor to a central cell or area of the battery pack to monitor temperature.
5. **Connect Bluetooth Module:** Plug the Bluetooth module into the designated port on the BMS.
6. **Initial Power-Up:** After all connections are verified, apply power to the system. The BMS should activate.

For detailed wiring diagrams, please refer to the manual included in your product packaging or contact DALY support.

6. Operating Instructions

6.1 Smart APP Control

The DALY Smart BMS features a Bluetooth module that allows for convenient monitoring and control via a dedicated mobile application or PC software. This enables real-time data viewing and parameter adjustments.

1. **Download the App:** Search for the official DALY BMS app on your smartphone's app store (iOS/Android) or download the PC software from the DALY website.
2. **Connect via Bluetooth:** Enable Bluetooth on your device. Open the DALY BMS app and search for available devices. Select your BMS (usually identified by a unique ID).
3. **Monitor Parameters:** The app's main interface will display critical battery information, including:

- Overall battery voltage and current.
- Individual cell voltages.
- Battery State of Charge (SOC).
- Temperature readings from NTC sensors.
- Balancing status and current.
- Protection status (e.g., overcharge, overdischarge, overcurrent).

4. **Adjust Settings:** Within the app, you can adjust various parameters such as overcharge/overdischarge voltage thresholds, temperature limits, and balancing settings. **Exercise caution when modifying parameters, as incorrect settings can damage the battery or BMS.**

Figure 4: Example of the DALY Smart BMS mobile application interface. The image highlights various sections for battery overall information, individual string information, capacity settings, and protection voltage settings.

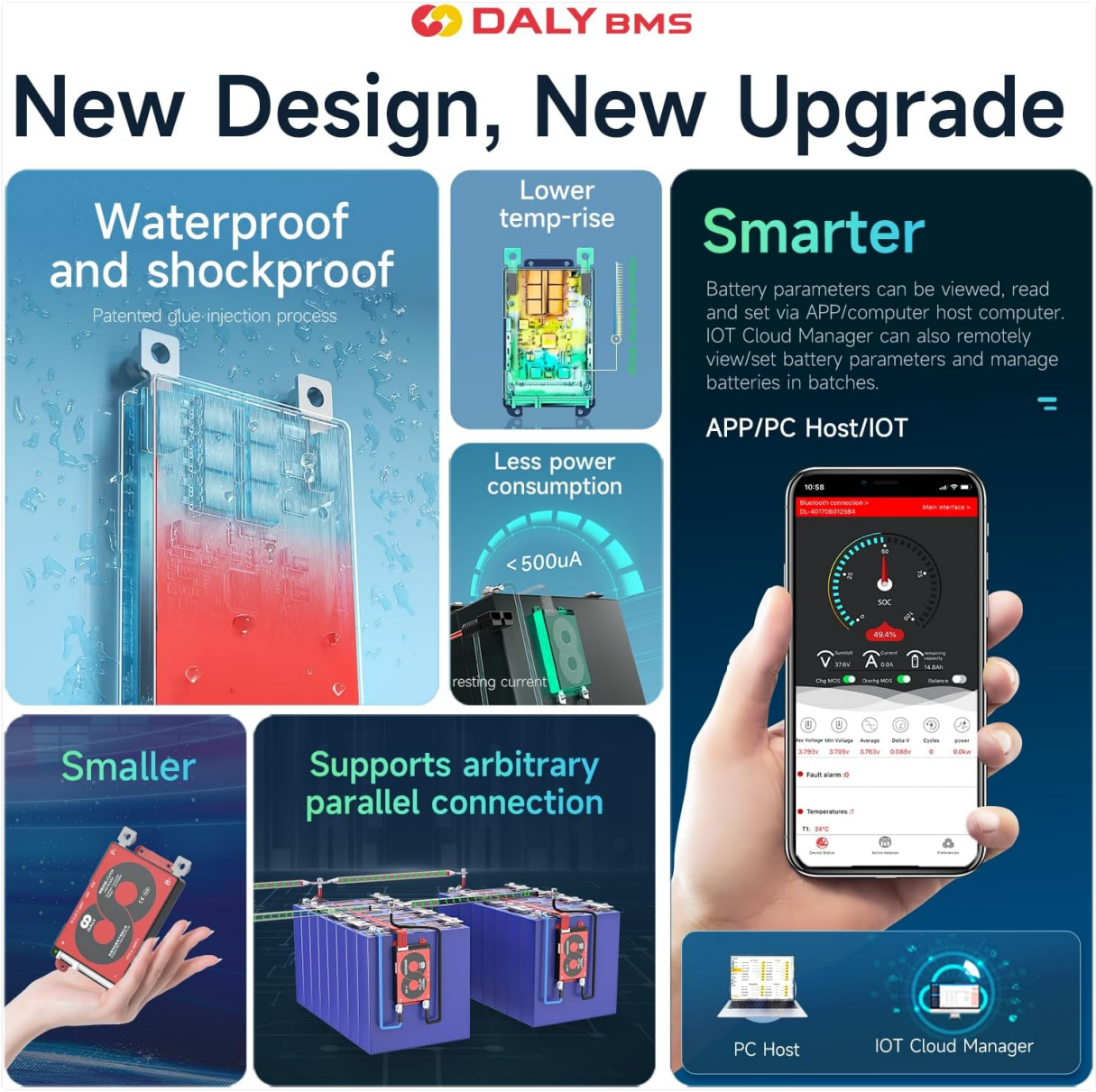


Figure 5: Overview of DALY BMS features, emphasizing smart capabilities like APP/PC Host/IOT for remote monitoring and management.

6.2 Parallel Connection

The DALY Smart BMS supports parallel connection of multiple battery packs. The integrated parallel module helps manage current impacts during connection. When connecting multiple battery packs in parallel, ensure all packs have similar voltage levels before connecting them. Consult a qualified technician for complex parallel configurations.

7. Maintenance

Regular maintenance helps ensure the optimal performance and longevity of your DALY Smart BMS and battery pack.

- **Visual Inspection:** Periodically inspect the BMS and all connections for any signs of damage, corrosion, or loose wiring.
- **Cleanliness:** Keep the BMS and battery pack clean and free from dust and debris. Use a dry, soft cloth for cleaning.
- **Temperature Monitoring:** Regularly check the battery temperature via the app to ensure it operates within safe limits.

- **Cell Voltage Monitoring:** Use the app to monitor individual cell voltages to detect any imbalance early. The passive balancing feature will help, but severe imbalances may require manual intervention or professional service.
- **Firmware Updates:** Check the DALY website or app for any available firmware updates for your BMS model to ensure you have the latest features and bug fixes.

8. Troubleshooting

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

Problem	Possible Cause	Solution
BMS not powering on / No output	◦ Incorrect wiring (main power or balance wires). ◦ Battery pack voltage too low. ◦ BMS in protection mode (e.g., overdischarge).	◦ Double-check all wiring according to the diagram. ◦ Charge the battery pack using a compatible charger. ◦ Check app for protection status and clear faults if safe.
Bluetooth connection issues	◦ Bluetooth module not properly connected. ◦ Interference or distance issues. ◦ App not updated or incompatible.	◦ Ensure Bluetooth module is securely plugged in. ◦ Move closer to the BMS; reduce interference. ◦ Update the app or try reinstalling it.
Battery cells unbalanced	◦ Passive balancing not sufficient for severe imbalance. ◦ Faulty cell.	◦ Allow more time for passive balancing. ◦ Consider an external active balancer for severe cases. ◦ Inspect individual cells for damage or degradation.
Overcurrent protection triggers frequently	◦ Load current exceeds BMS rating. ◦ Short circuit in the load. ◦ BMS current setting too low.	◦ Reduce the load or use a BMS with a higher current rating. ◦ Inspect load for short circuits. ◦ Adjust overcurrent settings in the app (if applicable and safe).

If the problem persists after attempting these solutions, please contact DALY customer support.

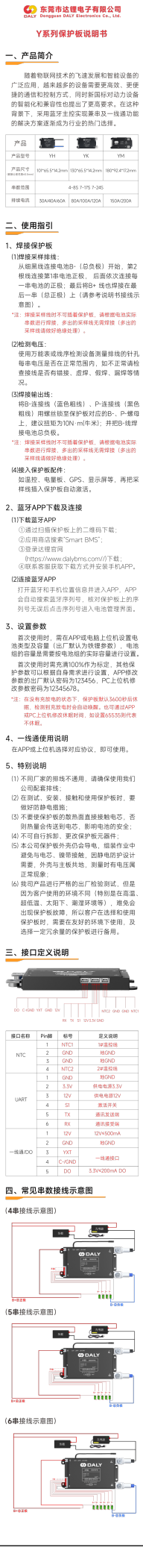
9. Warranty and Support

DALY is committed to providing quality products and customer satisfaction. Your DALY Smart BMS comes with a quality guarantee and technical support.

- **Quality Guarantee:** The product is manufactured under strict quality control standards and is ISO/FCC/RoHS/PSE/CE approved.
- **Customer Service:** DALY provides 24-hour one-on-one customer service and technical support.
- **Contact Information:** If you have any questions, require technical assistance, or need to report an issue, please feel free to contact DALY customer support through the official website or your

purchase channel.

Related Documents - LifePO4 4S 12V 40A



东莞市达锂电子有限公司
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，采用蓝牙主控实现集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	5.5V	供电电源5.5V
	3	12V	供电电源12V
	4	S1	蓝牙开关
	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

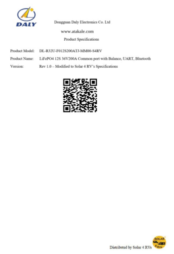
(4串接线示意图)

(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 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.
	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.

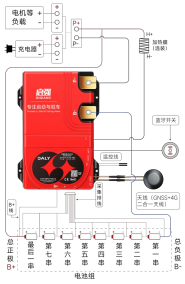
第五代卡车启动保护板 操作使用说明书

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.

	[JK Smart Active Balance BMS User Manual and Specifications] This document provides a comprehensive user manual and technical specifications for the JK Smart Active Balance BMS, covering installation, operation, troubleshooting, and product details for various models.