

DALY Smart BMS 4S-16S 40A-500A

DALY Smart BMS 4S 12V 400A User Manual

Battery Management System with WiFi and CAN 485 Communication

1. INTRODUCTION

This manual provides essential information for the safe and effective installation, operation, and maintenance of your DALY Smart BMS 4S 12V 400A. Please read this manual thoroughly before using the product to ensure optimal performance and longevity of your LifePO4 lithium battery pack.

2. PRODUCT OVERVIEW

The DALY Smart BMS (Battery Management System) is designed to protect and manage 4-series (4S) 12V LifePO4 lithium battery packs with a 400A current rating. It integrates advanced protection features, communication capabilities via WiFi and CAN 485, and remote monitoring through a dedicated mobile application or PC software. This system ensures the safety, stability, and extended lifespan of your battery.



Image 1: DALY Smart BMS 4S 12V 400A with WiFi module and mobile application interface.

3. KEY FEATURES

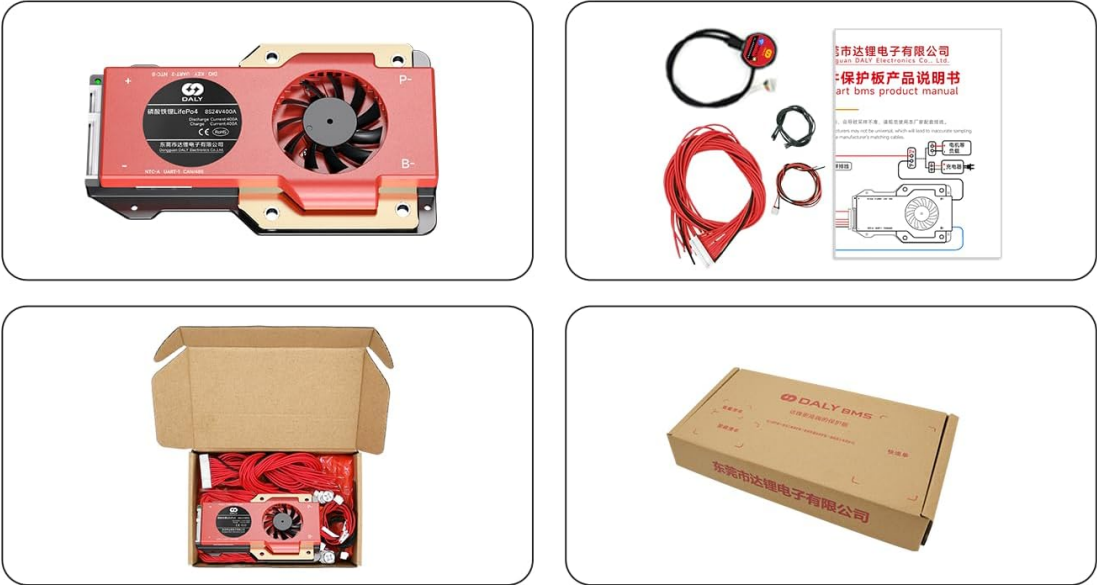
- **Enhanced Battery Safety:** Offers comprehensive protection against overcharging, over-discharging, overcurrent, short circuits, and extreme temperatures, safeguarding your battery pack.
- **2-in-1 Bluetooth/Wi-Fi Dongle:** Enables easy connection to the mobile app via Bluetooth for local control. For long-distance monitoring and control, switch to Wi-Fi (requires connection to a Wi-Fi router).
- **Remote Monitoring & Parameter Adjustment:** Monitor battery status and adjust parameters remotely via the mobile app or PC software, suitable for various applications including home use, travel, or trolling motors.
- **Parallel Circuit Support:** The built-in parallel circuit supports the parallel use of multiple battery packs and 485/CAN Bus parallel communication, ensuring compatibility with mainstream inverters.
- **Robust Design:** Features high current resistance, small size for easy installation, and low temperature rise during operation.
- **Integrated Indicator Light:** Provides visual feedback on the BMS's working condition.

4. PACKAGE CONTENTS

Upon unpacking, please verify that all items listed below are present and in good condition:



Packing list



Product list	Quantity
① S-type Smart BMS	X 1
② Manual	X 1
③ B-P- Output line(Gift)	X 2
④ WIFI Module (Gift)	X 1
⑤ Cables	X 1
⑥ NTC	X 1
⑦ CAN/485 5pin	X 1



* Note: The packing list takes 24S 400A BMS as an example.

Image 2: Visual representation of the DALY Smart BMS 4S 12V 400A package contents.

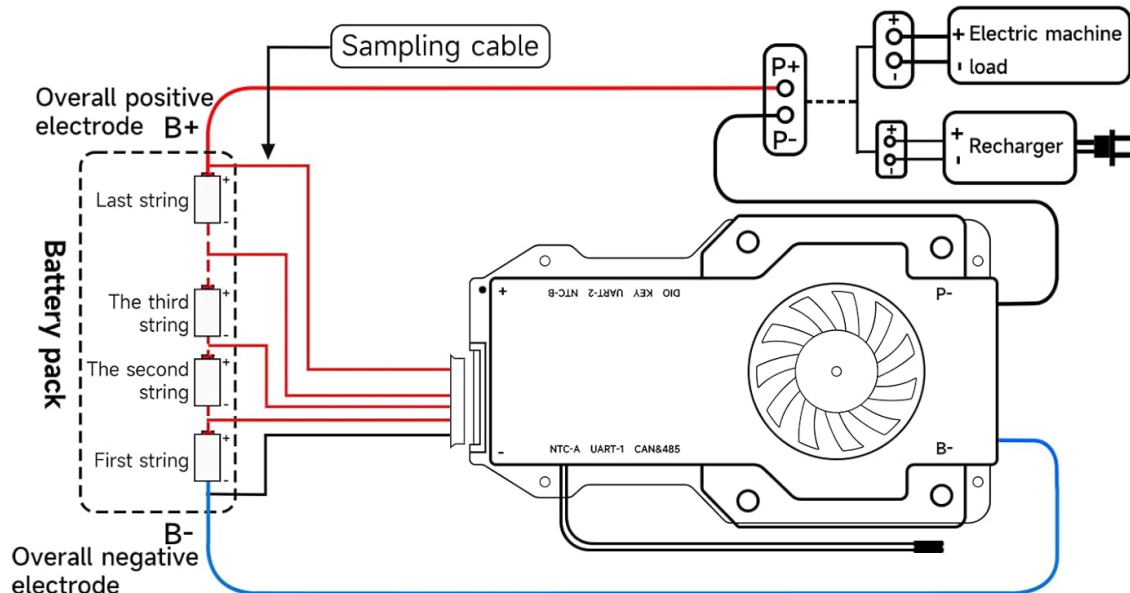
Item	Quantity
S-type Smart BMS (4S 12V 400A)	1
Manual	1
B-P-Output Line	2
2-in-1 BT/Wi-Fi Dongle	1
Sampling Cable	1
NTC (Temperature Sensor)	1
CAN/485 5-pin Cable	1

5. SETUP: INSTALLATION AND WIRING

Careful installation and wiring are crucial for the proper function and safety of your BMS. Follow these steps precisely:



Installation and wiring in 3 easy steps



Step 1: Solder the sampling cables: The first cable in black in the sampling cable set is connected to the negative terminal of the battery, the second cable (red) is connected to the positive terminal of the first string of batteries, and the third cable (red) is connected to the positive terminal of the second string of batteries. And so on, until all cables are connected.

Step 2: Check the cables: After connecting the cables, measure the voltage between two adjacent cables starting from the header to make sure there are no wrong connections or missing connections.

Step 3: Connect the output wires: Connect the B- wire of BMS to the total negative terminal of the battery pack, and then plug the sampling cable to BMS. After activating the BMS, make sure that the voltage (battery voltage) between B+ & B- and the voltage between P+ & P- are consistent.

Image 3: Detailed wiring diagram for the DALY Smart BMS 4S 12V 400A.

- Solder Sampling Cables:** The first black cable in the sampling cable set connects to the negative terminal of the battery (B-). The second cable (red) connects to the positive terminal of the first string of batteries. Continue this pattern for all subsequent strings until all cables are connected to their respective positive terminals.
- Check Cables:** After connecting the sampling cables, use a multimeter to measure the voltage between two adjacent cables starting from the header. Ensure there are no incorrect connections or missing connections.
- Connect Output Wires:** Connect the B- wire of the BMS to the total negative terminal of the battery pack. Then, plug the sampling cable into the BMS. After activating the BMS, confirm that the voltage (battery voltage) between B+ and B- and the voltage between P+ and P- are consistent.


Important: The BMS will not activate until a charge is applied to the battery pack through the BMS. Ensure your cells are pre-charged for storage before connecting.

6. OPERATING INSTRUCTIONS

The DALY Smart BMS offers intelligent monitoring and control through its dedicated application and

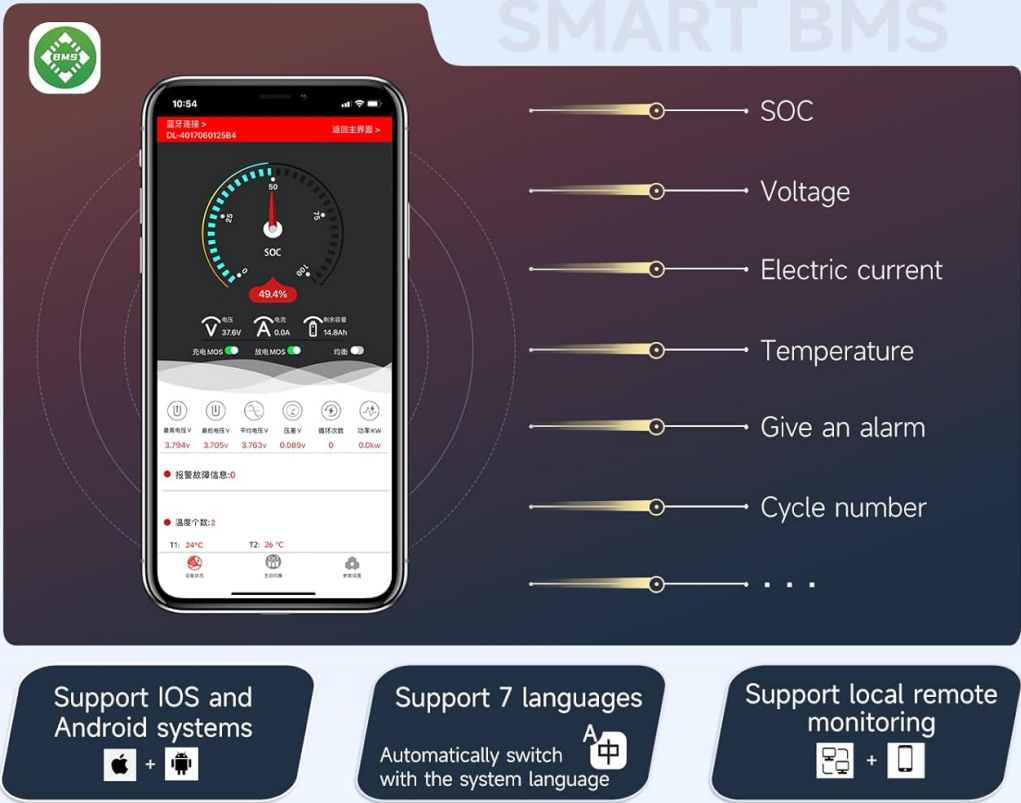
communication modules.

6.1 Mobile Application and PC Software



Self-developed APP-Smart and convenient

APP "SMART BMS", you can view and set various battery parameters, convenient and fast.



*Bluetooth or WIFI module needs to be connected to the BMS to use the APP; WiFi module needs to be connected to the BMS to achieve remote monitoring.

Image 4: Screenshot of the DALY Smart BMS mobile application, displaying various battery parameters.

The 'SMART BMS' app allows you to view and set various battery parameters. It supports both iOS and Android systems and automatically switches with the system language. The app displays key information such as:

- State of Charge (SOC)
- Voltage
- Electric Current
- Temperature
- Alarm Status
- Cycle Number

Connect the 2-in-1 Bluetooth/Wi-Fi dongle to the BMS. Use Bluetooth for local monitoring. For remote monitoring, connect the dongle to a Wi-Fi router, and the BMS data will be accessible via the cloud platform.

6.2 Parallel Connection

The BMS supports parallel connection of multiple battery packs, allowing for safe expansion of your energy storage system. This feature, combined with 485/CAN Bus parallel communication, ensures compatibility with various inverter systems.

Your browser does not support the video tag.

Video 1: An overview of the DALY S-series Smart BMS features, including parallel connection, high current resistance, and smart monitoring capabilities.

7. MAINTENANCE

To ensure the longevity and optimal performance of your DALY Smart BMS and battery pack, consider the following maintenance guidelines:

- **Regular Monitoring:** Periodically check the battery parameters via the mobile app or PC software to identify any anomalies early.
- **Environmental Conditions:** Ensure the BMS operates within its specified temperature range (charging: -35 to 75°C, discharging: -35 to 75°C) and avoid exposure to excessive moisture or dust. The BMS is designed to be moisture-proof and anti-vibration.
- **Connection Integrity:** Periodically inspect all wiring connections for tightness and corrosion. Loose connections can lead to poor performance or safety hazards.
- **Software Updates:** Keep the mobile application and BMS firmware updated to benefit from the latest features and improvements.
- **Cleaning:** Gently clean the exterior of the BMS with a dry, soft cloth if necessary. Do not use liquids or abrasive cleaners.

8. TROUBLESHOOTING


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

- **BMS Not Activating:** Ensure a charge is applied to the battery pack through the BMS. The BMS typically requires an initial charge to 'wake up' and become operational.
- **App Connection Issues:**
 - For Bluetooth: Ensure the dongle is properly connected, Bluetooth is enabled on your device, and you are within range.
 - For Wi-Fi: Verify the dongle is connected to a stable Wi-Fi network and the network has internet access for remote monitoring.
- **Incorrect Voltage Readings/Balancing Issues:** Double-check all sampling cable connections to the battery cells. Incorrect wiring is a common cause of inaccurate readings or poor cell balancing.
- **Battery Shutting Down Unexpectedly:** This could indicate a protection trigger (e.g., over-discharge, overcurrent, temperature). Check the app for alarm messages. Ensure your load is within the BMS's specified limits.
- **BMS Not Detected by App:** If the BMS has been idle for an extended period, it might enter a deep sleep mode. Try pressing the button on the Bluetooth/Wi-Fi module to wake it up.

If the problem persists after following these steps, please contact DALY customer support for further assistance.

9. SPECIFICATIONS

Detailed technical specifications for the DALY Smart BMS 4S 12V 400A:



183mm

26mm

108mm

Specification

Product:	LiFePO ₄ 4S 400A common port with balance
Discharge current:	400A
Overdischarge current:	600±12A
Charging current:	400A
Overcharge current:	600±12A
Overcharge voltage:	3.75V±0.05V (Can be set)
Overdischarge voltage:	2.2V±0.05V (Can be set)
Charge voltage:	14.6V
Model:	R10S(3~10S)
Size:	183*108*26 (mm)/7.2*4.25*1.02(inch)
Output wire:	1AWG*2/200mm
Cable:	24AWG/300~450mm
Weight:	600~700g

Image 5: Visual representation of the DALY Smart BMS 4S 12V 400A specifications.

Parameter	Value
Product Type	LiFePO4 4S 400A common port with balance
Discharge Current	400A
Overdischarge Current	600 ± 12A
Charging Current	400A
Overcharge Current	600 ± 12A
Overcharge Voltage	3.75V ± 0.05V (Can be set)
Overdischarge Voltage	2.2V ± 0.05V (Can be set)
Charge Voltage	14.6V
Model	R10S (3~10S)
Dimensions (L x W x H)	183 x 108 x 26 mm (7.2 x 4.25 x 1.02 inches)
Output Wire	1AWG*2/200mm

Parameter	Value
Cable	24AWG/300~450mm
Weight	600~700g (1.32~1.54 pounds)
Operating Temperature	Charging: -35 to 75°C, Discharging: -35 to 75°C
Storage Temperature	-40 to 85°C
Certifications	ISO/FCC/RoHS/PSE/CE APPROVED



10. WARRANTY AND SUPPORT

The DALY Smart BMS 4S 12V 400A comes with a **3-year warranty** from the date of purchase. This warranty covers defects in materials and workmanship under normal use.

For technical support, warranty claims, or any questions regarding the product, please contact DALY customer service. Refer to the contact information provided with your purchase or visit the official DALY website for support resources.

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Related Documents - Smart BMS 4S-16S 40A-500A

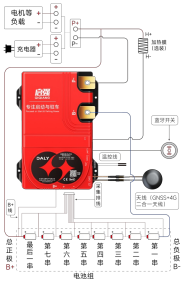
 <p>DALY DALY Smart BMS 4S 12V 400A Product Name: DALY Smart BMS 4S 12V 400A Product Type: DALY Smart BMS 4S 12V 400A Version: 1.0</p>	<p>DALY DL-R32U-F012S200ATJ-MM00-S4RV LiFePO4 BMS Technical Specifications</p> <p>Detailed technical specifications, wiring diagrams, and warranty information for the DALY DL-R32U-F012S200ATJ-MM00-S4RV LiFePO4 12S 36V 200A Battery Management System (BMS) with Balance, UART, and Bluetooth.</p>
 <p>产品规格书 Product Specification Approval and Manual</p>	<p>Daly Smart BMS 8-16S 100-200A Product Specification Approval and Manual</p> <p>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.</p>

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。达维第五代卡车启动保护板是专门针对货车、船舶启动和挂车空载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 的瞬时大电流，内置加热模块可以直接加热膜，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 远程通讯器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，妥善保管（如受潮或电池膨胀、电压、电流等）后请备份，方便追溯故障原因。

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，请确保使用达维配套排线；
 - (注意：B+线内阻在 0.5mΩ-0.8mΩ 范围)；
 - 切记！焊接采样线时，排线不要插入保护板；
- 1.1 排线从烟圈绕连接总负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，先测量插头背面两个相触金属端子间的电压，如果是三元聚合物锂电池电压应在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接口插入正确)；
- 1.4 将保护板B+线(蓝色线束)接到电池总负B-；
- 1.5 将排线插入保护板；
- 1.6 将蓝牙开关模块插入UART2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，或蓝牙开关按钮激活。

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 将负载负级和充电器负级与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。

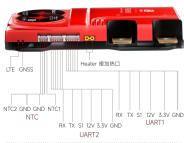
4、下载通讯软件(手机端 DALY BMS APP,电脑端上位机)，设置电池组的容量(Ah)为正确的容量。

- 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设置。
- 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部，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13-15.5 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	插针带胶
2	电压采集2	11	2.0	B0-B10	插针带胶
3	NTC	4	2.0	NTC1(GND/GND/NTC)	插针带胶
4	B+	2	/	B+	XT-30
5	H+	2	/	接加热线	XT-30
6	UART1	6	2.0	GND,3.3V,12V,5.5V,DATA	插针带胶
7	UART2	6	2.0	GND,3.3V,12V,5.5V,DATA	插针带胶
8	LTE	1	/	4G通信天线	WCS直插式
9	GNSS	1	/	北斗定位天线	WCS直插式

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。
- *操作步骤：— 通过扫描微信二维码，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。

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 (单位:毫米/英寸, mm/inch)	101*65.5*14.2mm	130*65.5*14.2mm	180*92.4*17.2mm
频率范围	4-8S 7-17S 7-24S		
持续电流	50A/50A/50A	80A/100A/120A	150A/200A

二、使用指引

1、焊接保护板

(1)焊接采样排线:

从烟黑线连接电池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 $10\text{N}\cdot\text{m}$ (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

如温控、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”;

⑤登录达理官网

③登录达理官网
<https://www.dalibros.com/>下载:

④联系客服获取下载方式并安装手机APP。

(2) 连接菲玛 ADE

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。

在APP或上位机选择对应协议，即可使用。

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

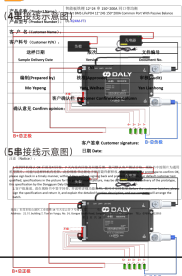
- (1) 不同厂家的排线不通用, 请确保使用我们公司配套排线;
- (2) 在测试、安装、接驳和使用保护板时, 要做好防静电措施;
- (3) 不要使保护板的散热面直接接触电池芯, 否则热量会传导到电池, 影响电池的安全;
- (4) 不可自行拆卸、更改保护板元器件;
- (5) 本公司保护板外壳仍会导电, 组装作业中避免与电池、锂电池接触, 因静电防护设计需要, 外壳与主板共地, 随时有电压异常现象;
- (6) 我司产品经行严格的出厂检验测试, 但是因客户使用的环境不同(特别是在高温、超低温、阳光下、潮湿环境等), 难免会出现保护板故障, 所以客户在选择和使用保护板时, 需要在良好的环境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

三、接口定义说明

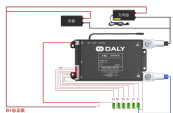


接口名称	Pin脚	标号	定义说明
NTC	1	NTC1	1#温度线
	2	GND	地GND
	3	GND	地GND
	4	NTC2	2#温度线
UART	1	GND	地GND
	2	3.3V	供电电源3.3V
	3	12V	供电电源12V
	4	SI	通信开关
	5	TX	通信发送线
	6	RX	通信接收线
一线通IO	1	12V	12V+500mA
	2	GND	地GND
	3	VCC	
	4	C-VCC	一线通供电口

四、常见串数接线示意图



(6串接线示意图)



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 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.

Detailed technical specifications for the JBD-DP04S007 Smart BMS, a software protection board designed by JBD BMS for 3-4 string LiFePO4 battery packs. Covers features, parameters, and operational guidelines for 60-200A applications.