

产品规格承认书

Product Specification Confirmation

产品名称 (Product Name):	铁锂 4 串 12V60A 同口带均衡 LiFePO4 4S 12V60A Common port with Balance	
产品型号 (Product Model):	DL-J04C6-F4S60ATJ	
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客户料号 (Customer P/N):		
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注意 (Note):		
1.收到样机确认 OK 后请及时回签, 7 天内没有回签及问题反馈, 我司默认客户测试合格; 规格书中的图片为通用机型图片, 可能与送样样机有差异, 此份规格书达锂电子保留最终解释权 Please respond us timely after receiving the sample boards and confirm the samples whether they are ok or not There is no feedback given to us within 7 days., then we regard our customers' test is qualified;The attached picture in this specification is a common model picture,which may be different from the shipped sample. This specification is belong to Daly Electronics property, Who keep the final interpretation right on these parameters.		
2.客户批量前, 请在规格书中签字回传, 并说明详细功能说明, 我司才安排批量 Please sign and return it to Daly on the specification before starting mass production, and remark the detailed function description in this specification.		

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1.简介 Introduction

随着锂电池在锂电行业的广泛应用，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。本产品专门针对锂电池设计的 BMS，它能够实时采集、处理和存储电池组在使用过程中的信息数据，保证电池组的安全性、可用性和稳定性。

With the wide application of lithium battery in Lithium Battery Industry, high performance, high reliability and high cost performance are required for battery management system. This product is designed specifically for lithium-ion batteries in BMS, it can collect, process and store the information data of the battery in real time, and ensure the safety, availability and stability of the battery.

2.产品概述及特点 (Product Summary):

- ◆ 使用专业大电流走线设计及工艺，能经受超大电流冲击
 Professional high current wiring design & workmanship, thus can withstand the shock of high current high .
- ◆ 外观采用注塑密封工艺，提升防潮，防元器件氧化程度，延长产品使用寿命
 The appearance is sealed by injection molding process to improve moisture-proof and oxidation-proof components and prolong the service life of the products
- ◆ 具有防尘、防震、防挤压等防护功能
 dust proof, shockproof, anti-squeezing and other protective functions
- ◆ 有完整的过充、过放、过流、短路、均衡功能
 There is a complete over-charge, over-discharge, over-current, short-circuit, balance function
- ◆ 采用集成化的设计，将采集、管理、等功能集成于一体
- ◆ Integrated Design is adopted to integrate collection, management and other functions into one

3.电气特性 Electrical characteristics

3.1 基本参数 Basic parameters

序号 No	检测内容 IT est content		出厂默认参数 Factory default parameters	单位 Unit	备注 Note
1	放电 Discharge	持续放电电流 Continuous discharge current	60	A	
	充电 Charging	充电电压 Charging voltage	14.6	V	
		持续充电电流 Continuous charging current	30	A	
2	均衡功能 Balanced	均衡开启电压 Balance detect Voltage	3.6	V	

		均衡电流 Balance current	30±5	mA	
3	单体过充保护 Single overcharge protection	单体过充保护电压 Single overcharge protection voltage	3.75±0.05	V	
		单体过充保护延时 Single overcharge protection voltage	1	S	
		单体过充保护解除电压 Single overcharge protection and release voltage	3.55±0.05	V	
		单体过充保护解除延时 Release delay of single overcharge protection	1	S	
4	单体过放保护 Monomer over-discharge protection	单体过放保护电压 Single over-release protection voltage	2.2±0.05	V	
		单体过放保护延时 Time-lapse of single over release protection	1	S	
		单体过放保护解除电压 Single over release protection and release voltage	2.7±0.05	V	
		单体过放保护解除延时 Discharge delay of monomer over discharge protection	1	S	
5	充/放电过流保护 Charge/Discharge overflow protection	放电过流保护电流 Discharge current level 2 protection current	210±30	A	
		放电过流保护延时 Discharge current level 2 protection delay	1	S	
		解除条件 Discharge conditions	移除负载解除 Removing the load is lifted		
		充电过流保护电流 Charge the over current protection current	40±5	A	
		充电过流保护延时 Charge over current protection delay	1	S	
		解除条件 Discharge conditions	移除充电器解除 Remove charger release		
6	短路保护 Remove charger release	短路保护条件 Short circuit protection conditions	外部负载短路 External load short circuit		
		短路保护延时 Short circuit protection delay	250~500	uS	
		短路保护解除 Short circuit protection is lifted	移除负载解除 Removing the load is lifted		
7	温度保护 Temperature protection	充电高温保护温度 Charging high temperature protection temperature	/	°C	
		充电低温保护温度 Charging is the low- temperature protection temperature	/	°C	
		放电高温保护温度 Discharge high temperature protection temperature	/	°C	
		放电低温保护温度 Discharge the low- temperature protection temperature	/	°C	

		温度保护解除条件 Temperature protection release conditions	达到恢复温度且断开负载 Reaching recovery temperature and dis load		
8	内阻 Internal impedance	主回路导通内阻 The main circuit leads through internal resistance	<20	mΩ	
9	消耗电流 consume current	工作时自耗电电流 Self-current current consumption during operation	100	uA	
		休眠模式自耗电电流 Hibernate mode self- consumption current	0	uA	
10	保护板尺寸 BMS size	长*宽*高 (mm) Long * Width * High (mm) 80*61*12			

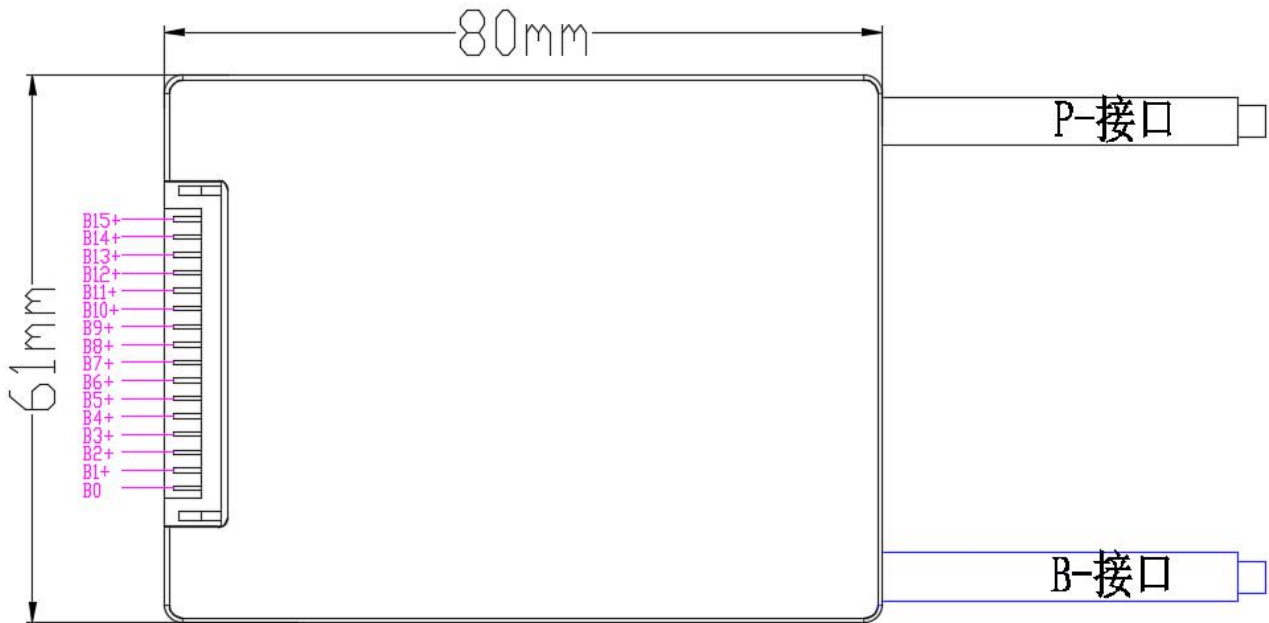
3.2 可靠性参数 Reliability parameters

序号 NO	项 目 Item See	条 件 Article Part
1	检测精度 (常温) Detection accuracy (Conventional temperature)	电流检测精度 Current detection accuracy: $\leq (\pm 10\%FSR)$
		电压检测精度 voltage detection accuracy: $\leq \pm 25mV$
		温度检测精度 Temperature detection accuracy: $\leq 2^{\circ}C$ (常温下)
5	工作环境条件 Working environment conditions	工作温度: $-20^{\circ}C \sim 60^{\circ}C$ Operating temperature: $-20^{\circ}C \sim 60^{\circ}C$
		相对湿度: $5\% \sim 90\%RH$ Relative humidity: $5\% \sim 90\%RH$
6	存储环境条件 Storage environment conditions	存储温度: $-40^{\circ}C \sim 85^{\circ}C$ Storage temperature: $-40^{\circ}C \sim 85^{\circ}C$
		相对湿度: $5\% \sim 75\%RH$ Relative humidity:

4.保护板尺寸图 (接口仅供参考, 非常规标配, 详情请参考 7.1 接口引脚说明)

BMS Dimensional drawing (interface for reference only, unconventional standard, please refer to 7.1 Interface pin specification)





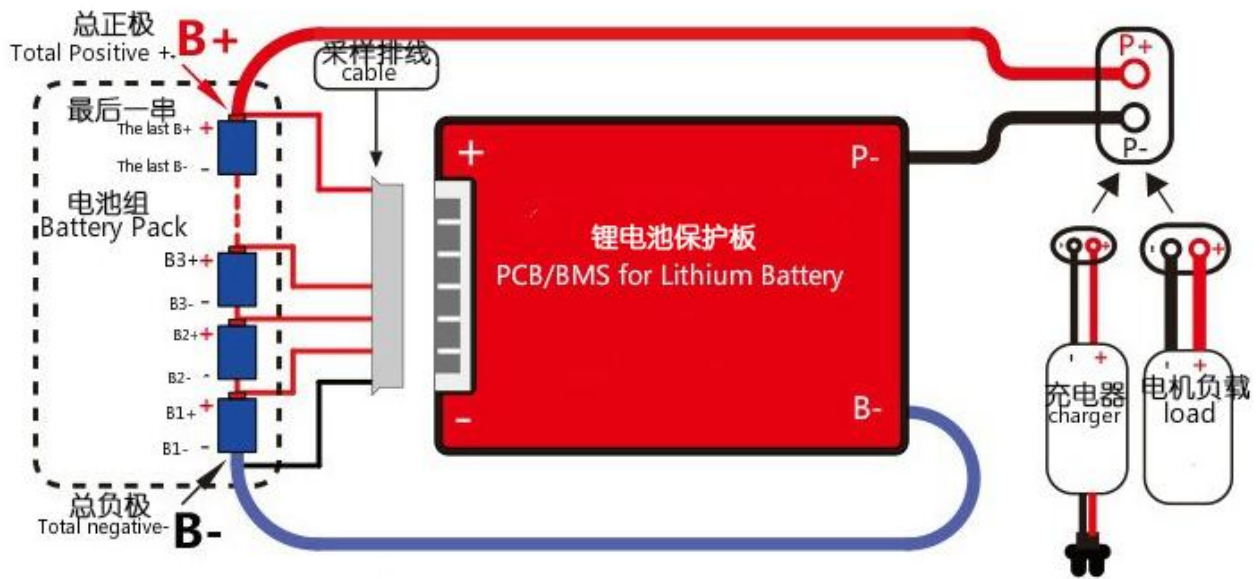
4.1 接口引脚说明 Interface pin instructions

接口名称 Interface name	Pin 脚	标号	定义说明 Description of definition
B-接口 (标配) Standard Parts	/	B-	电池总负, 接电池总负 Negative battery, negative battery
P-接口 (标配) Standard Parts	/	P-	保护板充放电负极, 接充放电负端 Protective plate charge and discharge negative electrode, connect to the charge and discharge negative end
Connecting wire	1	B0	接第 1 节电池负级 Connect Section 1 Battery negative grade
采样线接口 (标配) Standard Parts PH 2.0 5Pin	2	B1+	接第 1 节电池正级 Connect section 1 battery level
	3	B2+	接第 2 节电池正级 Connect section 2 battery level
	接最后 1 节电池正级 Connect the last 1 positive battery level

4.2 主要线材说明

线材名称 Line name	默认规格 Default specification
B- P-线 Output Line	3135 10AWG L=110mm
采集线 Collecting line	1007 24AWG L=300mm (5PIN)

5.接线示意图 Schematic diagram of wiring



5.1 接线说明 Description of wiring

- 先将保护板 B-线（蓝色粗线）到电池组总负极；
First connect the B-cable of the protection board to the total negative pole of the battery pack
- 排线从细黑线连接 B-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；再把排线插入保护板；
The cable starts from the thin black one connecting B-, the second red cable connects the positive pole of the first string of batteries, and the next string is connected in turn. The positive pole of the pool; then insert the cable into the protection board;
- 线完成后，测量电池 B+, B-电压与 P+, P-电压值是否相同，相同即保护板工作正常；否则请按照上面重新操作；
After finishing the wiring soldering, measure whether the battery B+, B-voltage and P+, P-voltage values are the same, only same, the protection board works positively. otherwise please follow the above re-operation;
- 拆卸保护板时，先拔排线（如果有两个排线，先拔高压排线，再拔低压排线），再拆动力线 B-。
When removing the protection board, first pull out the cable (if there are two cables, pull the high-voltage cable first, then pull the low-voltage cable), then remove Power cable B-.

6. 保修 Warranty

本公司生产的所有锂电池保护板，质保一年；人为因素导致损坏的，有偿维修
All our produced Lithium battery BMS, we guarantee 1 years warranty in quality, if the damage is caused by human improper operation, we will conduct repair with charge

7. 注意事项 Points to note

1. 不同电压平台的保护板不能混用，如三元类保护板不能使用铁锂电池上；
Lithium battery BMS with different voltage range which can not be mixed using., Life Po4 BMS can not be used for Li-ion battery.
2. 不同厂家的排线不通用，请确保使用我们公司配套排线；

Cables from different manufacturers are not common ones, please make sure to use Daly' s matching cable.

3. 在测试、安装、接触和使用保护板时，要做好防静电措施；

When testing, installing, contacting, and using the protective board, take measures to put static electricity on it;

4. 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；

Mustn' t let the heat dissipation surface of the protection board directly contact the battery core, otherwise the heat will be transmitted to the battery core, which will affect the safety of the battery;

5. 不可自行拆卸、更改保护板元器件；

Do not disassemble or change the components of the protection board by yourself;

6. 本公司保护板金属散热片进行了阳极氧化绝缘处理，氧化层破坏后仍会导电，组装作业

中避免散热片与电芯、镍带接触；

The metal heat sink of the protection board of the company is anodized and insulated, and the oxide layer will still be conductive after being destroyed. Avoid contact between the heat sink and the battery core and the nickel strip

7. 如果保护板出现异常，请停止使用，等问题解决了再使用；

If the protection board is abnormal, please stop using it. Then use it again after it is checked with OK;

8. 不要让两个保护板串联或并联使用。

Do not use the two protective boards in series or in parallel

8. 特别说明 Special Instructions

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。

Our products is tested by our tester & 100% visual inspection before shipping. But the BMS board is used in the different environment by customers (especially at high temperatures, Ultra-low temperature, under the sun, etc.), it is inevitable that there are BMSs which will fail. Please use it in a good environment, and choose a certain amount of protection boar