

电池并联恒流模块

Battery parallel constant current module

JK-BLMK-5A

使用维护说明书

Operation and maintenance manual

成都极空科技有限公司

Chengdu Jikong technology co., LTD

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产品名称：电池并联模块

保修期限：壹年

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Warranty period : One Year

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1. 概述(Overview)

在一些应用场景中，通常需要将多个电池组进行并联，以增大总容量，从而实现更大容量的电能存储和释放。为了管理这些并联的电池组并确保它们之间的电流均衡，电池并联恒流模块应运而生。该模块专门设计用于多个电池组并联系统，能够实现电池组之间的恒流均衡。适用于不同类型的电池，如磷酸铁锂、三元锂等。

In some application scenarios, it is usually necessary to connect multiple battery packs in parallel to increase the total capacity, so as to achieve a larger capacity of energy storage and release. In order to manage these parallel battery packs and ensure the current balance between them, the battery parallel constant current module comes into being. The module is specially designed for parallel systems with multiple battery packs to achieve constant current equalization between battery packs. Suitable for different types of batteries, such as lithium iron phosphate, lithium ternary, etc.

电池并联恒流模块依赖于与保护板的配合使用，以实现最佳效果。用户可以通过手机APP设置保护板的参数设置，限定模块的开启条件。保护板负责监测电流并在需要时触发恒流模块的开启。这种协同工作确保了电池组的安全和性能。

The battery parallel constant current module depends on its use in conjunction with the protection plate to achieve the best results. Users can set the parameter Settings of the protection board through the mobile APP, and limit the opening conditions of the module. The protection board monitors the current and triggers the opening of the constant current module when needed. This collaborative work ensures the safety and performance of the battery pack.

2. 主要技术参数(Main technical parameters)

2.1. 主要技术指标(Main technical index)

JK-BLMK-5A模块的主要技术指标如表1所示。

The main technical specifications of the JK-BLMK-5A module are shown in Table 1.

表1 JK-BLMK-5A模块主要技术指标

Table 1 Main technical specifications of JK-BLMK-5A module

技术指标 (Technical index)	产品型号(Product model)
	JK-BLMK-5A
最大恒流电流 (Maximum constant current)	5A
出线方式 (Wiring outlet method)	两端出线 (Wiring outlets at both ends)
保护功能 (Protection function)	过温保护(Overtemperature protection)

2.2. 使用环境条件(Environmental conditions for use)

- 工作温度范围: $-40^{\circ}\text{C} \sim 50^{\circ}\text{C}$;
- Operating temperature range: $-40^{\circ}\text{C} \sim 50^{\circ}\text{C}$;
- 电源要求: 10~70V;
- Power supply: 10 to 70V;
- 功耗: 开启状态 $9\text{mA}@32\text{V}$, 待机状态 $50\mu\text{A}@32\text{V}$ 。
- Power consumption: on state $9\text{mA}@32\text{V}$, standby mode $50\mu\text{A}@32\text{V}$.

3. 连接器及接口描述(Connector and Interface Description)

3.1. 连接器、LED 灯位置标识(Connector, LED light position identification)

连接器、LED 灯位置如图 1。

The positions of connectors and LED lights are shown in Figure 1.



图 1 JK-BLMK-5A 连接器示意图

Figure 1 Diagram of the JK-BLMK-5A connector

3.2. 连接器、LED 定义(Connector, LED definition)

JK-BLMK-5A模块连接器定义、LED 灯定义见表2。

The connector definition of JK-BLMK-5A module and the LED lamp definition are shown in Table 2.

表2 P1~P3接口定义

Table 2 Definitions of P1 to P3 interfaces

连接器 (coupler)	接口名称 (Interface name)	管脚号 (Pin number)	JK-BLMK-5A	
			名称 (Name)	定义 (definition)
P1	电池正极接口 (Battery positive interface)	1	B+	电池总正极(Total positive electrode of the battery)
		2	B+	电池总正极(Total positive electrode of the battery)
P2	激活接口 (Activate interface)	1	GND	信号地 (signal ground)
		2	POW_ON	激活信号, 接地使能(Activation signal, grounding enabled)
		3	SG_TX	限流结束信号(Current limiting end signal)
P3	B-和P-接口 (B - and P interfaces)	1	P-	高压端负极(High voltage terminal negative)
		2	P-	高压端负极(High voltage terminal negative)
		3	B-	低压端负极(Low pressure terminal negative)
		4	B-	低压端负极(Low pressure terminal negative)
D1	电源指示灯, 当设备激活后LED常亮, 红色。 (Power indicator: When the device is activated, the LED is steady red.)			

3.3. 产品外型(Product appearance)

JK-BLMK-5A模块外型如图2所示。

The appearance of the JK-BLMK-5A module is shown in Figure 2.



图2 JK-BLMK-5A效果图

Figure 2 Effect of JK-BLMK-5A

3.4. 尺寸(Size)

尺寸为 93.5mm×87.6mm×20.5mm，外形尺寸如图 3 所示。

The dimensions are 93.5mm×87.6mm×20.5mm, and the overall dimensions are shown in Figure 3.

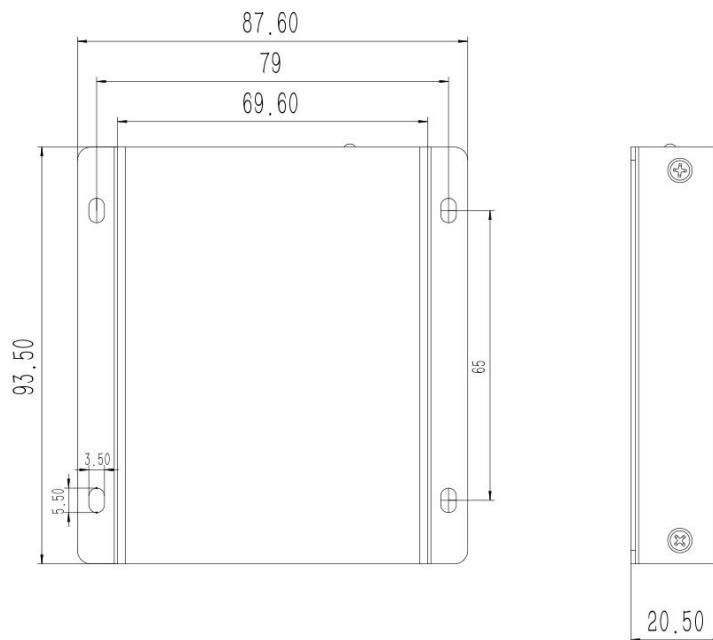


图 3 JK-BLMK-5A外形尺寸图

Figure 3 Dimensions of JK-BLMK-5A

3.5. 重量(Weight)

- JK-BLMK-5A模块重量约为 220g。
- JK-BLMK-5A module weighs about 220g.

4. 安装方法及注意事项(Installation methods and precautions)

4.1. 开箱检查及注意事项(Unpacking check and precautions)

开箱检查及注意事项如下：

Unpacking inspection and precautions are as follows:

a) 对包装箱、保护板等需要轻拿轻放、尽量不要倒置；

a) The packaging box, protection board, etc., should be handled gently, as far as possible not upside down;

b) 开箱前注意包装是否完好，如有无撞击痕迹、有无破损等；

b) Before unpacking, pay attention to whether the package is intact, such as whether there are impact marks, whether there is damage, etc.

4.2. 线路连接(Cable connection)

JK-BLMK-5A需要与支持并联功能的保护板配合使用,具体接线方式如下图所示。

The JK-BLMK-5A must work with a protection board that supports parallel connection. The following figure shows the connection mode.

保护板和并联模块接线图

Wiring diagram of the protection board and parallel module

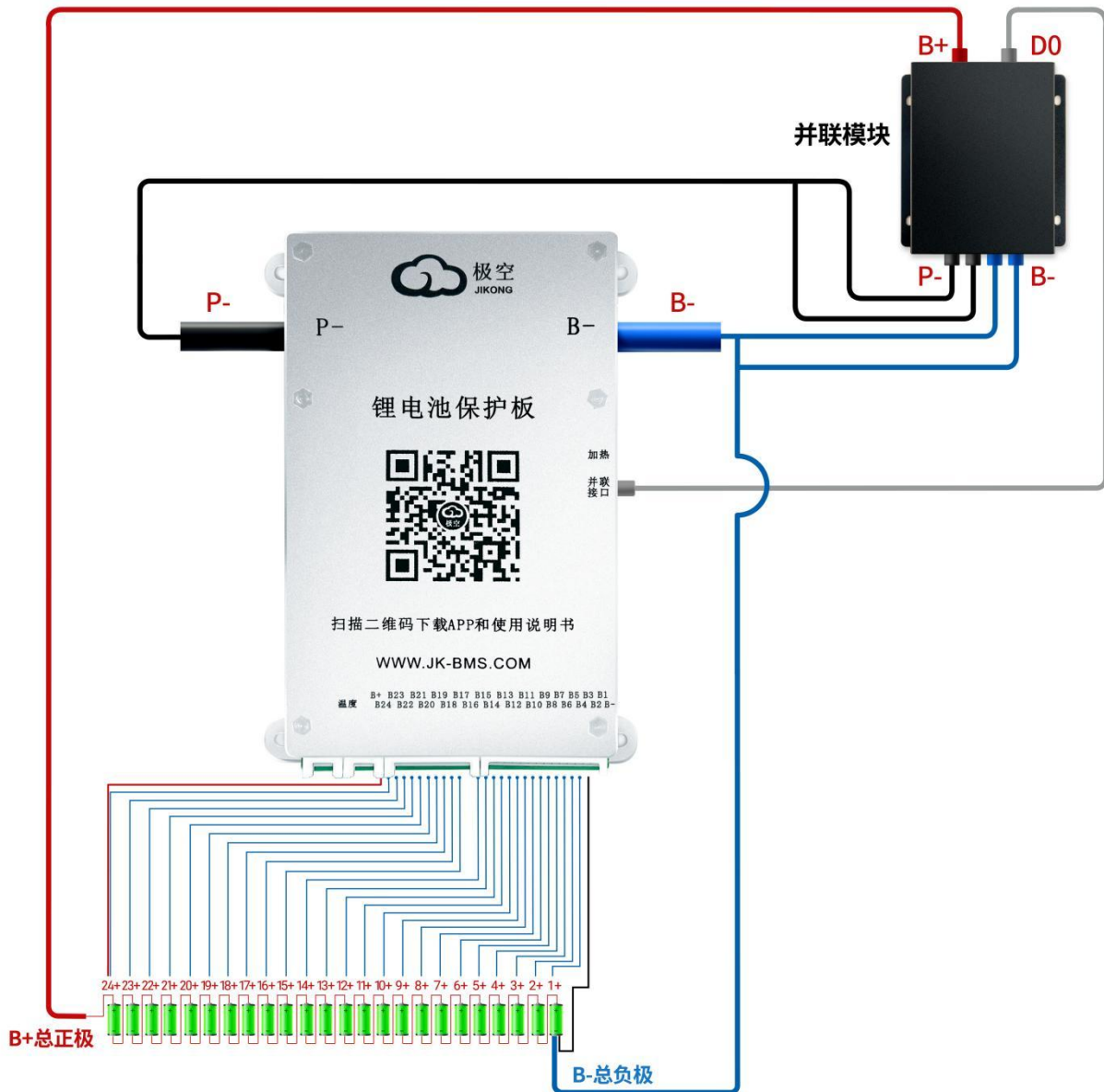


图 4 模块连接保护板示意图

Figure 4 Schematic diagram of connecting the module to the protection board

多台保护板和并联模块接线图

Wiring diagram of multiple protection boards and parallel modules

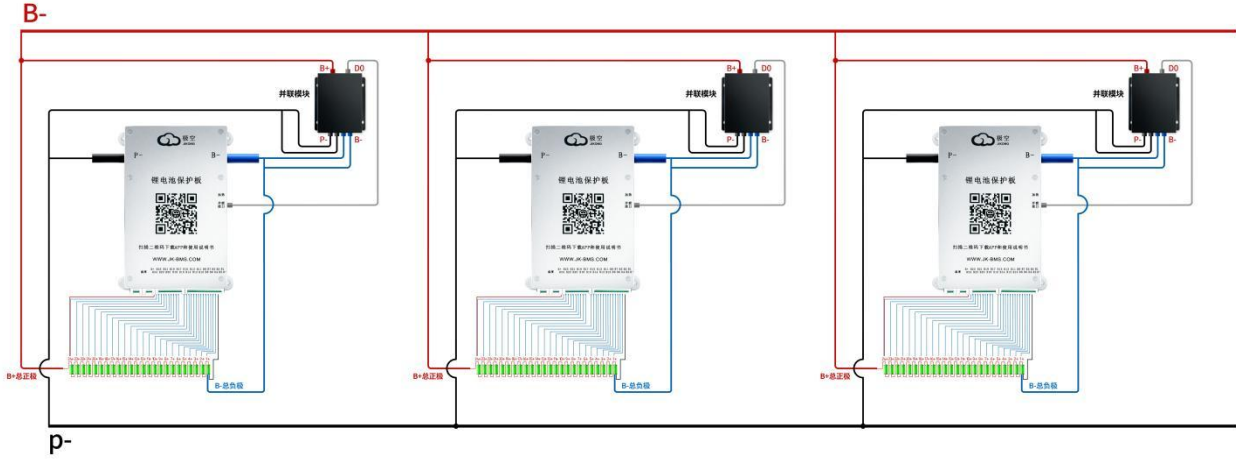


图 5 模块连接保护板示意图

Figure 5 Schematic diagram of connecting the module to the protection board

5. 使用与操作(Use and operation)

5.1. 使用前的准备和检查(Preparation and inspection before use)

在模块上电之前，请再次确认接线连接是否正常，“P-”与“B-”还有“B+”是否连接正确。检查并联恒流模块与保护板是否正确连接，确认无误后才可接通给保护板和模块上电，否则可能造成工作异常、甚至烧毁等严重后果。

Before powering on the module, check whether the cable connection is normal, and whether P-, B-, and B+ are correctly connected. Check whether the parallel constant current module is correctly connected to the protection board. If the connection is correct, power on the protection board and the module. Otherwise, serious consequences, such as abnormal operation or even burnout, may occur.

5.2. APP 操作说明(APP Operation instructions)

连接好后，打开极空APP设置保护板参数，保护板会根据“持续充电电流”设置的参数来开启恒流模块。当电流超过设定值则会开启JK-BLMK-5A模块，电流恒定在5A。当“充电过流解除”的时间过后则关闭JK-BLMK-5A模块。建议设置参数，“充电过流延时”设置为3S，“充电过流解除”设置为300S。

After the connection is complete, open the JiKong APP to set the parameters of the protection board, and the protection board will open the constant current module according to the parameters set in "continuous charging current". When the current exceeds the set value, the JK-BLMK-5A module

will be turned on, and the current is constant at 5A. Turn off the JK-BLMK-5A module when the "charge overcurrent release" time is over. You are advised to set Charge overcurrent delay to 3S and Charge Overcurrent Release to 300 seconds.



图6 APP设置保护板控制JK-BLMK-5A模块
Figure 6 APP Settings Protection board controls the JK-BLMK-5A module

6. 运输与贮存(Transportation and storage)

6.1. 运输(Transportation)

装箱后的产品不受雨雪直接影响和剧烈碰撞颠簸下，可用通常的运输工具运输。在运输过程中不允许与酸碱等腐蚀物放在一起。

The products after packing are not directly affected by rain and snow and violent collision and turbulence, and can be transported by the usual means of transport. It is not

allowed to be put together with corrosive substances such as acid and alkali during transportation.

6.2. 贮存(Storage)

包装好的产品应放置在永久性的库房内贮存，库房温度为 0°C~35°C，相对湿度不超过 80%，库房内应无酸碱及腐蚀性气体、无强烈机构振动和冲击、无强磁场的作用。

Packaged products should be placed in a permanent warehouse storage, the warehouse temperature is 0 °C ~ 35 °C , the relative humidity is not more than 80%, the warehouse should be free of acid, alkali and corrosive gases, no strong institutional vibration and shock, no strong magnetic field.