



Dongguan Daly Electronics Co.,Ltd

Product Specification Confirmation

Product Model) : DL-J16C-F8S120ATJ-W600

Customer Name) : \_\_\_\_\_

Customer P/N) : \_\_\_\_\_

Product Name) 8 串 24V120A +

LiFePO4 8S 24V50A Common port with Balance+temperature control

Version) : Rev 1.0

Company P/N) : \_\_\_\_\_

Sample send date) \_\_\_\_\_

|                          |           |                          |
|--------------------------|-----------|--------------------------|
| Confirmation             |           |                          |
| Verified)                | Approved) | Operation)<br>Lihua yan) |
| Customer Acknowledgement |           |                          |
| (Remarks):               |           |                          |
| (Sign):                  |           | (Date):                  |



|    |                        |  |  |
|----|------------------------|--|--|
| 型号 | DL-J16C-F8S120ATJ-W600 |  |  |
|----|------------------------|--|--|

**注意 (Note):**

- 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.
- 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.

**一. 产品概述及特点 (Product Summary):**

- ◆ 采用国外进口芯片  
Use foreign premium IC in class A protection.
- ◆ 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 .
- ◆ 使用全封闭散热胶及双面散热设计, 热量及时导出, 散热效果优于同行  
Use full enclosed heat-dissipating glue and double-sided heat dissipation design, heat is dissipated in time, and the heat dissipation effect is better than others
- ◆ 采用全密封防水工艺, 具有防水、防尘、防震、防挤压等防护功能  
Fully sealed waterproof technology, with waterproof, dust proof, shockproof, anti-squeezing and other protective functions
- ◆ 具有完整的过充、过放、过流、短路、均衡功能  
Complete overcharge, over discharge, over current, short circuit, and equalization functions .

**二. 电气参数 (室温 25°C 湿度 55%):**

Electrical Parameters:( Room temperature 25 °C, humidity 55%)

| 序号 (NO) | 检测内容 (Description)   | 规格 (Specification)                        | 单位 (Unite)  | 备注 (Remarks) |  |
|---------|--|---|-------------|--------------|--|
| 1       | 放电(Discharge)<br>放电电流<br>(Continue discharge current)                | 120                                       | A           |              |  |
| 2       | 充电(Charge)<br>充电电压<br>(Charge voltage)<br>持续充电电流<br>(Charge current) | 29.2                                      | V           |              |  |
|         |  | 60  | A           |              |  |
| 3       | 过充电保护<br>(Over charge protection)                                    | 过充电检测电压<br>(Over charge detect voltage)   | 3.75 ± 0.05 | V            |  |
|         |  | 过充电保护延时<br>(over charge protection delay) | 1           | S            |  |

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|----|------------------------|----|--|
| 型号 | DL-J16C-F8S120ATJ-W600 | 料号 |  |
|----|------------------------|----|--|

|   |   |  |   |    |                                     |
|---|---|--|---|----|-------------------------------------|
|   |   | 过充电解除电压<br>(over charge release voltage)                               | 3.55±0.05                                   | V  |                                     |
| 4 | 电量平衡<br>(Balance)                                   | 平衡开启电压<br>(Balance detect Voltage)                                     | 3.50  | V  |                                     |
|   |   | 电量平衡电流<br>(Balance current)  | 30±5  | mA |                                     |
| 5 | 过放电保护<br>(Over discharge)<br>protection             | 过放电检测电压<br>(Over discharge detect )                                    | 2.2±0.1                                     | V  |                                     |
|   |   | 过放电检测延时<br>(Over discharge detect delay)                               | 1   | S  |                                     |
|   |   | 过放电解除电压<br>(Over discharge release voltage)                            | 2.5±0.1                                     | V  |                                     |
| 6 | 充电过流保护<br>(Charging over<br>current<br>protection)  | 充电过流保护值<br>(Charging over current protection<br>current)               | 180   | A  | 可按要求设定<br>(Can set as<br>required)  |
|   |   | 充电过流保护延时<br>(Over Charge current detect delay)                         | 1   | S  | 可按要求设定<br>(Can set as<br>required ) |
|   |   | 充电过流保护解除条件<br>(Over Charge current protection<br>release condition)    | 断开充电器<br>(Off load)                         |    |                                     |
| 7 | 放电过流保护<br>(Discharge<br>over current<br>protection) | 放电过流保护值<br>(Discharge over current protection<br>current)              | 360   | A  | 可按要求设定<br>(Can set as<br>required)  |
|   |   | 放电过流保护延时<br>(Over discharge current detect<br>delay)                   | 1   | S  | 可按要求设定<br>(Can set as<br>required)  |
|   |   | 放电过流保护解除条件<br>(Over discharge current<br>protection release condition) | 断开负载<br>(Off load)                          |    |                                     |
| 8 | 短路保护<br>(Short Circuit<br>protection)               | 短路保护条件<br>(Short Circuit protection condition)                         | 外部负载短路<br>(Short circuit of external load ) |    |                                     |
|   |   | 短路检测延时<br>(Short circuit detect delay)                                 | 250   | uS |                                     |
|   |   | 短路保护解除条件<br>(Short circuit protection release )                        | 断开负载<br>(Off load)                          |    |                                     |
| 9 | 温度保护<br>(Temp<br>Protect)                           | 充电温度保护值<br>(Charge Temperature protection<br>degrees )                 | -40~65                                      | ℃  |                                     |
|   |   | 放电温度保护值<br>(discharge Temperature protection<br>degrees )              | -40~70                                      | ℃  |                                     |

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|----|------------------------|----|--|
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|----|-------------------------------|--|--------|----|--|
| 10 | 弱电开关<br>(Weak Current Switch) | 无<br>(No)  |        |    |  |
| 11 | 内阻<br>(Inner Resistance)      | 主回路导通内阻<br>(Main Circuit Conduct Inner resistance) | <20    | mΩ |  |
| 12 | 自耗电<br>Self Consumption       | 工作电流<br>(Working current)                          | 100    | uA |  |
|    |                               | 休眠电流 (电池过放)<br>Sleeping current( over-discharge)   | 0      | uA |  |
| 13 | 工作温度<br>(Working Temp)        | 温度范围<br>(Temp range)                               | -20~70 | ℃  |  |
| 14 | 存储温度<br>(Storing Temp)        | 温度范围<br>(Temp range)                               | -40~80 | ℃  |  |

### 三. 保护板接线 (BMS wiring Connection)

#### (1). 产品图片 (Product picture)

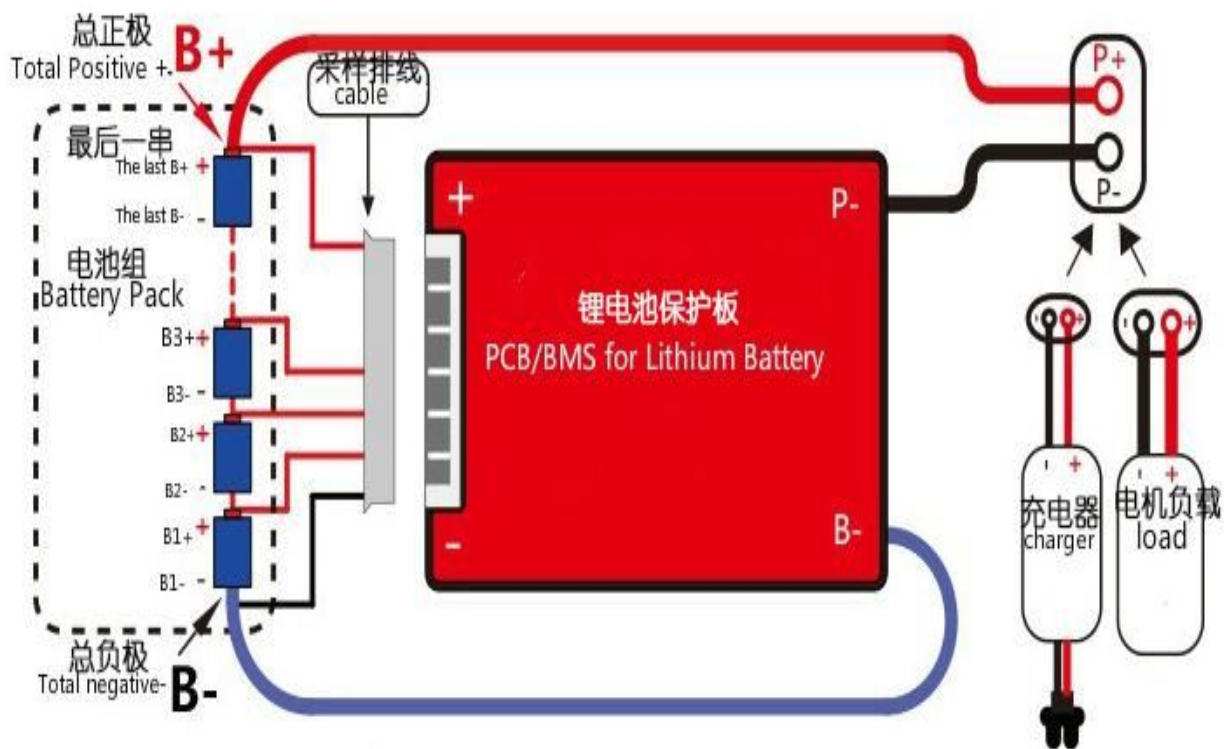


#### Specifications

|  |
|--|
| Product: LifePO4 8S 120A<br>common port with balance |
| Communications: UART                                 |
| Discharge current: 120A                              |
| Over-discharge current: 180A                         |
| Charge current: 60A                                  |
| Overcharge current: 180A                             |
| Overcharge voltage: 3.75V±0.05V (any string)         |
| Over-discharge voltage: 2.2V±0.05V (any string)      |
| Charge voltage: S*3.65V                              |
| Size: 95*212*20mm                                    |
| Output wire: 6AWG / 160mm                            |
| Balance wires: 22AWG / 600mm                         |

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|----|-------------------|----|--|
| 型号 | DL-J16C-F8S120ATJ | 料号 |  |
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## (2) 接线示意图 (Wiring diagram)



### 3. 接线操作 (Wiring operation) :

(1) 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

(2) 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;

(3) 接线完成后, 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;

(4) 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-.

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|----|-------------------|----|--|
| 型号 | DL-J16C-F8S120ATJ | 料号 |  |
|----|-------------------|----|--|

#### 四. 保修 (Warranty)

本公司生产的所有锂电池保护板, 质保三年; 人为因素导致损坏的, 有偿维修  
All our produced Lithium battery BMS, we guarantee 3 years warranty in quality, if the damage is caused by human improper operation, we will conduct repair with charge

#### 五. 注意事项 (Attention Items)

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. 本公司的保护板有防水功能, 但仍请避免过长时间浸水;  
The company's protective board has waterproof function, but please avoid immersing in water for a long time;
7. 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
8. 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;

|    |                    |    |  |
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| 型号 | DL-J16C-F8S120ATJ0 | 料号 |  |
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9. 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

## 六. 说明 (Description):

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, 需要在良好的环境下使用, 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 board

## Lifepo4 8S (BMS)

| Description                    | Description                           | Specification                                  |        |        |        |        |        |        |  |        |         |         |         |          |          | Unit |
|--------------------------------|---------------------------------------|--|--------|--------|--------|--------|--------|--------|--|--------|---------|---------|---------|----------|----------|------|
|                                |                                       | 20A  | 30A    | 40A    | 50A    | 60A    | 80A    | 100A   | 120A   | 150A   | 200A    | 250A    | 300A    | 400A     | 500A     |      |
| Discharge                      | Continue discharge current            | 20A  | 30A    | 40A    | 50A    | 60A    | 80A    | 100A   | 120A   | 150A   | 200A    | 250A    | 300A    | 400A     | 500A     | A    |
|                                | Over discharge current detect         | 60±10  | 100±20 | 160±30 | 160±30 | 220±40 | 360±50 | 360±50 | 260±50   | 260±50 | 500±100 | 500±100 | 500±100 | 1000±200 | 1000±200 | A    |
| Inner Resistance               | Main Circuit Conduct Inner resistance | <20  | <20    | <20    | <20    | <20    | <20    | <20    | <20  | <20    | <20     | <20     | <20     | <20      | <20      | mΩ   |
| Charge                         | Charge voltage                        | LifePO4: S*3.65    Li-Ion: S*4.2    LTO: S*2.8 |        |        |        |        |        |        |  |        |         |         |         |          |          | V    |
|                                | Charge current                        | 10   | 15     | 20     | 25     | 30     | 40     | 50     | 60   | 75     | 100     | 125     | 150     | 200      | 250      | A    |
|                                | Over Charge current detect delay      | 25±3   | 40±5   | 60±10  | 60±10  | 80±10  | 140±20 | 140±20 | 100±20   | 100±20 | 200±30  | 200±30  | 200±30  | 400±100  | 400±100  | A    |
| Over charge protection         | Over charge detect voltage            | 3.65±0.05                                      |        |        |        |        |        |        |  |        |         |         |         |          |          | V    |
|                                | over charge protection delay          | 1  |        |        |        |        |        |        |  |        |         |         |         |          |          | S    |
|                                | over charge release voltage           | 3.55±0.05                                      |        |        |        |        |        |        |  |        |         |         |         |          |          | V    |
| Balance                        | Balance detect Voltage                | 3.525  |        |        |        |        |        |        |  |        |         |         |         |          |          | V    |
|                                | Balance release voltage               | 3.525  |        |        |        |        |        |        |  |        |         |         |         |          |          | V    |
|                                | Balance current                       | 30±5   |        |        |        |        |        |        |  |        |         |         |         |          |          | mA   |
| Over discharge protection      | Over discharge detect                 | 2.3±0.05                                       |        |        |        |        |        |        |  |        |         |         |         |          |          | V    |
|                                | Over discharge detect delay           | 1  |        |        |        |        |        |        |  |        |         |         |         |          |          | S    |
|                                | Over discharge release voltage        | 2.7±0.05                                       |        |        |        |        |        |        |  |        |         |         |         |          |          | V    |
| Over Charge current protection | Over discharge current detect delay   | 1  |        |        |        |        |        |        |  |        |         |         |         |          |          | S    |
|                                | Over discharge current protection     | Off load                                       |        |        |        |        |        |        |  |        |         |         |         |          |          |      |
| Short Circuit protection       | Short Circuit protection condition    | Short circuit of external load                 |        |        |        |        |        |        |  |        |         |         |         |          |          |      |
|                                | Short circuit detect delay            | 200~500  |        |        |        |        |        |        | The actual results are based on the DALY test sent back by the customer. |        |         |         |         |          |          | uS   |
|                                | Short circuit protection release      | Off load                                       |        |        |        |        |        |        |  |        |         |         |         |          |          |      |
| Temp Protect                   | Temperature protection degrees        | Charge : -20~55, Discharge: -40~75             |        |        |        |        |        |        |  |        |         |         |         |          |          | °C   |
| Self Consumption               | Working current                       | 100~200  |        |        |        |        |        |        |  |        |         |         |         |          |          | uA   |
|                                | Sleeping current(over-discharge)      | 0  |        |        |        |        |        |        |  |        |         |         |         |          |          | uA   |
| Working Temp                   | Temp range                            | -20~60   |        |        |        |        |        |        |  |        |         |         |         |          |          | °C   |
| Storing Temp                   | Temp range                            | -40~85   |        |        |        |        |        |        |  |        |         |         |         |          |          | °C   |



## Lifepo4 8S (Smart BMS)

| Description                    | Description                           | Specification                            |     |     |     |     |      |      |      |      |      |      |      |      | Unit |
|--------------------------------|---------------------------------------|--|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|
|                                |                                       | 30A                                      | 40A | 50A | 60A | 80A | 100A | 120A | 150A | 200A | 250A | 300A | 400A | 500A |      |
| Discharge                      | Continue discharge current            | 30                                       | 40  | 50  | 60  | 80  | 100  | 120  | 150  | 200  | 250  | 300  | 400  | 500  | A    |
|                                | Over discharge current detect voltage | 45                                       | 60  | 75  | 90  | 120 | 150  | 180  | 225  | 300  | 375  | 450  | 600  | 750  | A    |
| Inner Resistance               | Main Circuit Conduct Inner resistance | <20                                      | <20 | <20 | <20 | <20 | <20  | <20  | <20  | <20  | <20  | <20  | <20  | <20  | mΩ   |
| Charge                         | Charge voltage                        | LifePO4: S*3.65 Li-ion: S*4.2 LTO: S*2.8 |     |     |     |     |      |      |      |      |      |      |      |      | V    |
|                                | Charge current                        | 15                                       | 20  | 25  | 30  | 40  | 50   | 60   | 75   | 100  | 125  | 150  | 200  | 250  | A    |
|                                | Over Charge current detect delay      | 45                                       | 60  | 75  | 90  | 120 | 150  | 180  | 225  | 300  | 375  | 450  | 600  | 750  | A    |
| Over charge protection         | Over charge detect voltage            | 3.75±0.05                                |     |     |     |     |      |      |      |      |      |      |      |      | V    |
|                                | over charge protection delay          | 1  |     |     |     |     |      |      |      |      |      |      |      |      | S    |
|                                | over charge release voltage           | 3.55±0.05                                |     |     |     |     |      |      |      |      |      |      |      |      | V    |
| Balance                        | Balance detect Voltage                | 3.2                                      |     |     |     |     |      |      |      |      |      |      |      |      | V    |
|                                | Balance release voltage               | 3.2                                      |     |     |     |     |      |      |      |      |      |      |      |      | V    |
|                                | Balance current                       | 30±5                                     |     |     |     |     |      |      |      |      |      |      |      |      | mA   |
| Over discharge protection      | Over discharge detect                 | 2.2±0.05                                 |     |     |     |     |      |      |      |      |      |      |      |      | V    |
|                                | Over discharge detect delay           | 1  |     |     |     |     |      |      |      |      |      |      |      |      | S    |
|                                | Over discharge release voltage        | 2.3±0.05                                 |     |     |     |     |      |      |      |      |      |      |      |      | V    |
| Over Charge current protection | Over discharge current detect delay   | 1  |     |     |     |     |      |      |      |      |      |      |      |      | S    |
|                                | Over discharge current protection     | Off load                                 |     |     |     |     |      |      |      |      |      |      |      |      |      |
| Short Circuit protection       | Short Circuit protection condition    | Short circuit of external load           |     |     |     |     |      |      |      |      |      |      |      |      |      |
|                                | Short circuit detect delay            | 200-500                                  |     |     |     |     |      |      |      |      |      |      |      |      | μS   |
|                                | Short circuit protection release      | Off load                                 |     |     |     |     |      |      |      |      |      |      |      |      |      |
| Temp Protect                   | Temperature protection degrees        | Charge: -40-65, Discharge: -40-70        |     |     |     |     |      |      |      |      |      |      |      |      | °C   |
| Self Consumption               | Working current                       | 35                                       |     |     |     |     |      |      |      |      |      |      |      |      | mA   |
|                                | Sleeping current( over-discharge)     | 800                                      |     |     |     |     |      |      |      |      |      |      |      |      | μA   |
| Working Temp                   | Temp range                            | -20-60                                   |     |     |     |     |      |      |      |      |      |      |      |      | °C   |
| Storing Temp                   | Temp range                            | -40-85                                   |     |     |     |     |      |      |      |      |      |      |      |      | °C   |