



**SD Power Group Limited.**

**File Number:  
SDA/1**

## **SD Power Group Limited.**

### **12V 50Ah LiFePO4 Battery Specification Sheet**

Model: SDL 12-50

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

Customer Confirmation: \_\_\_\_\_

Date: 2019.08.18

Formulate

Proof

Verify

Authorize



## **Contents**

|                                  |   |
|----------------------------------|---|
| 1. Scope.....                    | 1 |
| 2. Product.....                  | 1 |
| 3. Product Parameters.....       | 1 |
| 4. Battery Picture.....          | 2 |
| 5. Test Conditions.....          | 2 |
| 6. Battery Cell Performance..... | 4 |
| 7. Safety.....                   | 5 |
| 8. Cautions in Use.....          | 7 |
| 9. The end.....                  | 8 |



### 1. Scope

This specification describes the property indexes and technical requirements of the 12V 50Ah rechargeable Lifepo4 lithium ion battery manufactured by SD Power Group Limited.(hereinafter to be referred as SD Power Group ).

### 2. Product

2.1 Product Name: LiFePO4 Battery Pack

2.2 Model: SDL 12-50

### 3. Product Parameters

| No.  | Item                             | Parameters   | Remark                                   |
|------|----------------------------------|--------------|--|
| 3.1  | Rated Capacity                   | 50Ah         | Standard discharge after standard charge |
| 3.2  | Nominal Voltage                  | 12.8V        | Operating voltage                        |
| 3.3  | Charge Method                    | CC/CV        | Constant current, constant voltage       |
| 3.4  | Charge Voltage                   | 14.6V        |  |
| 3.5  | Discharge Cut-off Voltage        | 10.0V        | Voltage at end of discharge              |
| 3.6  | Standard Charge Current          | 20A          |  |
| 3.7  | Max Continuous Discharge Current | 50A          |  |
| 3.8  | Weight (approx.)                 | 7.5kg        |  |
| 3.9  | Battery Dimension (L×W×H)        | 255*165*210m |  |
| 3.10 | Operation Temperature Range      | Charge       | 0~45℃                                    |
|      |                                  | Discharge    | -20~60℃                                  |
| 3.11 | Storage Temperature Range        | One Month    | -20~60℃                                  |
|      |                                  | 3 Months     | -20~45℃                                  |
|      |                                  | 6 Months     | -20~25℃                                  |
|      | Atmospheric Pressure             | 86~106kPa    |  |
|      | Relative Humidity                | 25%~85%RH    |  |



#### 4. Battery Picture



| Item | Description | Dimension  |
|------|-------------|------------|
| L    | Length      | 255mm ±1mm |
| W    | Width       | 165mm±1mm  |
| H    | Height      | 210mm±1mm  |

#### 5. Test Conditions

##### 5.1 Standard Test Conditions

All the tests mentioned in this specification should be conducted under standard temperature of  $23\pm 3^{\circ}\text{C}$  and relative humidity of 45~85% and atmospheric pressure 86~106kpa.

##### 5.2 Measuring Instrument or Apparatus

All of the measuring instruments and facilities (include the equipment which monitor the test parameters) should be verified and calibrated qualified by relevant Chinese Calibration Regulation or certain standards within the valid date. All the test instruments and equipment should have the properties of adequate precision and stability, and the precision should be an order higher than the tested indicators or the tolerance should be less than one third of the tested parameters.

### 5.3 Standard Charging

Charging shall consist of charging at a  $0.2C_5A$  constant current rate until the battery reaches 14.6V. The battery shall then be charged at constant voltage of 14.6 volts while tapering the charge current. Charging shall be terminated when the charging current has tapered to 0.01 C. Charge time: Approx 5.5h, The battery shall demonstrate no permanent degradation when charged between 0 °C and 45 °C.

### 5.4 Standard Discharging

The battery should be discharged at a constant current of  $0.2C_5A$  to 10.0 volts @ 23° 3C



5.5 Others

If no otherwise specified, the rest time between Charge and Discharge amount to 30min.

6. Battery Cell Performance

6.1 Electrical Characteristics

| NO | Item  | Technical Requirements   | Test Method   |
|----|---|--|---|
| 1  | Appearance  | The battery should be no damage, leakage, oil contamination and should be legibly marked.    | Visual Inspection   |
| 2  | Discharging Characteristics Under Nominal temperature | Discharging Capacity/Nominal Capacity×100%<br>A) 0.3CA ≥100%<br>B) 0.5CA ≥98%<br>C) 1CA ≥95% | After the process of standard charging, the battery should be set aside for 1 hour, afterwards, discharging it at the current of 0.3C(A)、0.5C(A)、1C(A) separately until it reaches to minimum voltage of 2.5V, the test is allowed to be repeat 3 times if the discharging capacity can't reach to the nominal one. |





## **7. Safety**

NO Item Technical Requirements Test Method

### **7.1 Over-charge**

Test No explosion, No fire

After the process of standard charging, shelving the battery for 1 hour at the ambient temperature of  $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$ . Afterwards, charging the battery at the current of 1C(A) until it reaches to 5V which should be conducted under the same temperature.

### **7.2 Over-discharge**

Test No Explosion, No Fire After the process of standard charging, shelving the battery for 1 hour at the ambient temperature of  $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$ . Afterwards, charging the battery at the current of 0.3C(A) until it reaches to 0V at the same temperature.

### **7.3 Short-Circuit**

Test No Explosion, No Fire After the process of standard charging, shelving the battery for 1 hour at the ambient temperature of  $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$ . Afterwards, shorting circuit it for 10mins, and make sure the resistance of outside line should be less than  $10\text{m}\Omega$ .

### **7.4 Nail Penetration**

Test No Explosion, No Fire After the process of standard charging, shelving the battery for 1 hour at the ambient temperature of  $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$ . Afterwards, penetrating the battery rapidly with a steel spike of  $\phi 3\text{mm} \sim \phi 8\text{mm}$  which should be perpendicular to the accumulator electroplating (the steel spike should stay inside of the accumulator).

### **7.5 Extrusion Test No explosion, No Fire**

After the process of standard charging, shelving the battery for 1 hour at the ambient temperature of  $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$ . Afterwards, conducting the experiment in line with the conditions as listed below:

- a) Extrusion Direction: Pressing the battery perpendicularly to the accumulator electroplating.
- b) Extrusion Extent: Stop until the shell cracks or short circuit inside (the voltage of battery turns to be 0(V))

### **7.6 Drop Test No explosion, no fire**

After the process of standard charging, shelving the battery for 1 hour under the ambient temperature of  $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$ . Afterwards, dropping the battery to the ground from a height of 1.5M, and it is required that the drop should be repeat 2 times on each face of the battery.



## **8. CAUTIONS IN USE**

To ensure proper use of the battery please read the manual carefully before using it.

### **8.1 Handling**

- \* Do not expose to, dispose of the battery in fire.
- \* Do not put the battery in a charger or equipment with wrong terminals connected.
- \* Avoid shorting

### **8.2 the battery**

- \* Avoid excessive physical shock or vibration.
- \* Do not disassemble or deform the battery.
- \* Do not immerse in water.
- \* Do not use the battery mixed with other different make, type, or model batteries. § Keep out of the reach of children.

### **8.3 Charge and discharge**

- \* Battery must be charged in appropriate charger only.
- \* Never use a modified or damaged charger.
- \* Do not leave battery in charger over 12 hours.

### **8.4 Storage**

- \* Store the battery in a cool, dry and well-ventilated area.

### **8.5 Disposal**

- \* Regulations vary for different countries. Dispose of in accordance with local regulations.
- \* Charging current: Cannot surpass the biggest charging current which in this specification book stipulated.
- \* Charging voltage: Does not have to surpass the highest amount which in this specification book stipulated to decide the voltage.
- \* Temperature: The battery must carry on the charge in the ambient temperature scope which this specification book stipulated. Uses the constant electric current, and the constant voltage way charge, the prohibition reverse charges. If the battery positive electrode and the cathode meet instead, can damage the battery.

### **8.6 Discharging current:**

The discharging current does not have to surpass this specification book stipulation the biggest discharging current, the oversize electric current electric discharge can cause the battery capacity play to reduce and to cause the battery heat .

### **8.7 Discharge temperature**

The battery discharge must carry on in the ambient temperature scope which this specification book stipulated.

The battery should store in the product specification book stipulation temperature range. If has surpasses above for three months the long time storage, suggested you should carry on additional charge to the battery.





**Real Full Capacity:**  
Professional testing & Engineer monitor



**Certifications:**  
CE, ROHS, UL, MSDS, ISO, UN38.3,etc,



**CERTIFICATION:ISO, CE, ROHS, UL, MSDS**

