



LITHIUM BATTERY PACK USER MANUAL

MODEL: SLPO12-100N

- ※ Please read this manual before using the battery pack
- ※ Please keep this manual properly after reading

1. Product key parameters

| NO. | Item | Specification |
|------|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.1 | Appearance | The battery pack surface is clean, free from scratches and mechanical damage. |
| 1.2 | Charging voltage | 14.4V±0.2V |
| 1.3 | Nominal voltage | 12.8V |
| 1.4 | Cut-off voltage | 10V |
| 1.5 | Nominal capacity | 100Ah (After standard charging, discharging at 0.5C.) |
| 1.6 | Min. capacity | 100Ah (After standard charging, discharging at 0.5C.) |
| 1.7 | Standard charging current and voltage | Step 1: 50A constant current charge to 14.4V; Step 2: 14.4V constant voltage charge until the charging current reaches 5A. Temp.: 0~45°C |
| 1.8 | Charging time | 2.5hours (for reference) |
| 1.9 | Max charging current | 100A |
| 1.10 | Max. discharge current | 100A |
| 1.11 | Working Temp. | Charging: 0~45°C; Discharging: -20~55°C |
| 1.12 | Storage Temp. and humidity range | 1 month: -20~45°C 3 months: -10~45°C 6 months: 0~25°C humidity: 45~90% RH The battery should be cycled every three months. |
| 1.13 | Cycle life | After 6000 cycles, at 25°C, 50A charge and discharge 80% DOD, recoverable capacity ≥ 80% |
| 1.14 | Initial battery internal resistance | ≤ 100mΩ (50% capacity, AC impedance 1kHz measuring) |
| 1.15 | Battery weight | About 11.5kg |
| 1.16 | Ex-work voltage | 13~13.8V |
| 1.17 | Dimension | 320(L)*172(W)*230(H)mm |
| 1.18 | Function | Bluetooth |
| 1.19 | Color | Grey |

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2. Structural characteristics and interface function



2.1 Basic structure

Fireproof plastic ABS+PC.

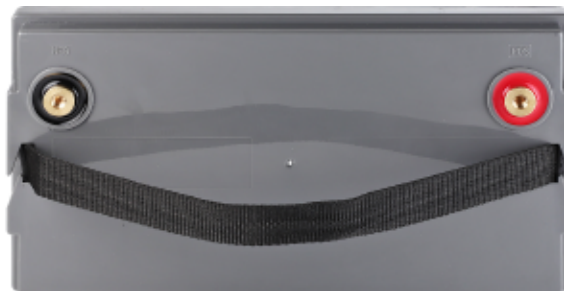
2.2 Installation method

Professional sealant seal.

2.3 Over structure

The battery pack is mainly composed of the following parts: a plastic case, which contains a 4S module inside, accessories including BMS, plug column. The overall structure is simple, high reliability, lightweight, and high energy density.

2.4 External interface function



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2.4.1 Battery pack interface definition

| Interface | Features | Remarks |
|--------------------|----------------------------------------|-----------------------------------------------|
| Positive electrode | Charge and discharge positive terminal | Support continuous 100A single pin overcharge |
| Negative electrode | Charge and discharge negative terminal | Support continuous 100A single pin overcharge |

2.4.2 Battery pack interface definition

The red terminal is the positive electrode of the battery, and the black terminal is the negative electrode of the battery. Use M8 screws to lock it tightly. When installing, use SC25-8 copper nose to connect external equipment for energy supply or charging.

3. BMS protection threshold and Bluetooth usage

3.1 BMS protection threshold

| Function | Item | Specification | | | Unit |
|------------------------|------------------------------------------------------|-------------------|---------------|---------------|------|
| | | Minimum value | Typical value | Typical value | |
| Operating Voltage | Voltage range | 10 | - | 14.6 | V |
| Operating current | Charging current (continuous) | - | - | 100 | A |
| | Discharge current (continuous) | - | - | 100 | A |
| Charge protection | Overcharge protection voltage | 3.600 | 3.650 | 3.700 | V |
| | Overcharge protection delay time | 1~3S | | | |
| | Overcharge protection recovery voltage | 3.450 | 3.500 | 3.550 | V |
| Discharge protection | Over discharge protection voltage | 2.450 | 2.500 | 2.550 | V |
| | Over discharge protection delay time | 1~3S | | | |
| | Over discharge protection recovery voltage | 2.900 | 3.000 | 3.100 | V |
| Overcurrent protection | Charge overcurrent protection value | 105 | 110 | 115 | A |
| | Charge overcurrent delay | 7 | - | 13 | S |
| | Charge overcurrent release recovery conditions | Delay 32S release | | | |
| | Discharge overcurrent 1 protection current value | 105 | 110 | 115 | A |
| | Discharge overcurrent 1 protection delay | 7 | - | 13 | S |
| | Discharge overcurrent 2 protection current value | 360 | 380 | 400 | A |
| | Discharge overcurrent 2 protection delay | 100 | - | 500 | mS |
| | Discharge overcurrent protection recovery conditions | Delay 32S release | | | |

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| Function | Item | Specification | | | Unit |
|--------------------------|-----------------------------------------------------|-------------------------------------|---------------|---------------|------|
| | | Minimum value | Typical value | Typical value | |
| Short circuit protection | Short circuit protection current | 200 | - | 600 | A |
| | Short circuit protection recovery | Disconnect load, automatic recovery | | | |
| Balance | Balanced opening voltage | 3.35~3.45V | | | |
| | Balanced opening pressure difference | - | 30 | - | mV |
| | Balanced mode | Charge balance | | | |
| | Balance current | 40 | - | 60 | mA |
| Temperature protection | Charging over temperature protection value | 63 | 65 | 67 | °C |
| | Charge high temperature protection release value | 53 | 55 | 57 | °C |
| | Charging low temperature protection value | -7 | -5 | -3 | °C |
| | Charging low temperature protection release value | 3 | 5 | 7 | °C |
| | Discharge high temperature protection value | 68 | 70 | 72 | °C |
| | Discharge high temperature protection release value | 58 | 60 | 62 | °C |
| | Discharge low temperature protection value | -18 | -20 | -22 | °C |
| | Discharge low temperature protection release value | -2 | 0 | 2 | °C |
| Internal resistance | Internal resistance of discharge circuit | - | 5 | 10 | mΩ |

3.2 Use of Bluetooth

(1) User can download the battery Bluetooth APP by searching for **Sunstone Batteriemonitor** on the Google Play, or from the link below(Please open in a browser other than Google Chrome):

<https://www.sunstonepower.com/download.html>

Install the APP. After the installation is successful, the APP icon will be generated, as shown below:

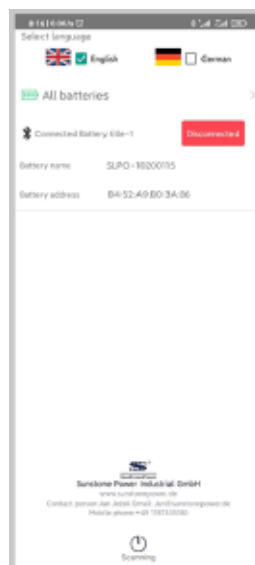


(2) Turn on the Bluetooth of the mobile phone, and open the APP, and find the corresponding battery pack according to the battery name in the upper left corner of the battery pack, as shown below:

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(3) Select the battery pack the user need to connect, as shown below:



(4) After the connection is successful, the user can see the parameter interface of the battery pack, which mainly consists of the following parameters, as shown below:

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4. Daily use and maintenance of battery pack

4.1 Daily maintenance of battery pack

- (1) Check the voltage data on the Bluetooth and the actual battery voltage value to ensure the accuracy of the voltage collection of the BMS. If they are inconsistent, proofreading is required. The error between the collected voltage and the actual battery voltage does not exceed 10mV.
- (2) Check the temperature collection data and actual temperature value of the BMS, and the data error between the collected data and the actual temperature value is not allowed to exceed 3 °C, to ensure that the battery will not be charged or discharged when the temperature is too high or too low.
- (3) Check the BMS current collected data and actual current value, the error is not allowed to exceed 1%, to ensure that the battery will not be charged or discharged by overcurrent.
- (4) Check the reliability of the charging equipment to ensure that the charging equipment performs charging according to the voltage and current regulationsent by the BMS, to ensure that the battery will not be overcharged.
- (5) Check the connection of the battery pack is good, the contact points are in normal contact, and there is no accumulation of dust, powder, metal chips.

4.2 Caution

- (1) Children are not allowed to use the batteries.
- (2) It is forbidden to disassemble the battery.
- (3) Keep batteries or battery packs away from dangerous items or materials, such as corrosive chemicals, dangerous machinery and equipment, and high-temperature environments.

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- (4) Unreasonable use of this of products may cause smoke, such as external short circuit, overcharging, and high ambient temperature. If smoke occurs, please cut off the power in time, use carbon dioxide or dry powder fire extinguisher for treatment, and bury it with sand or mud. The crowd must be evacuated in time during the entire process.
- (5) Unreasonable use of this series of products may cause the single battery to swell. In severe cases, it may cause the casing to rupture or crack. In these conditions, the battery should be stopped immediately. Please contact our technical department or after-sales service department for further solution.
- (6) It is forbidden to short circuit the positive and negative terminal of the battery directly, and avoid any metal or other conductive objects contacting the positive and negative terminal of the battery. This operation may cause personal injury or property damage.
- (7) It is forbidden to immerse the battery in water or other conductive liquids. This operation may cause personal injury or property damage.
- (8) It is forbidden to use this product in series or parallel with other types of batteries. It is also forbidden to connect the whole system in series or parallel operation with other batteries. These operations may cause personal injury or property lose. If necessary, please contact the relevant technical department to obtain the correct technical support.
- (9) It is forbidden to get wet under the environment of more than 95%RH, even immerse in water. Otherwise, it may cause internal short circuit, loss of function or abnormal chemical reaction, and cause fire, smoke, explosion and other accidents.
- (10) It is forbidden to put the battery system into fire or to be exposed to a high temperature environment exceeding the temperature conditions specified in this specification for a long time. These environments above the safe temperature range will cause a significant decrease in the performance and life of this product, and even cause serious consequences such as combustion and explosion.
- (11) It is forbidden to store and use in an environment with high static electricity or high electromagnetic radiation. Otherwise, the electronic devices in this product will be damaged, which may cause potential safety hazards.
- (12) Connect the positive and negative terminal of the battery system strictly in accordance with the instructions, and reverse charging is prohibited.
- (13) When the electrolyte leaks, avoid contacting the electrolyte with skin and eyes. In case of contact, wash the area with plenty of water and seek medical assistance. It is forbidden for any person or animal to swallow any part of the battery system or the substance contained in the battery system.
- (14) Protect the battery system as much as possible to avoid mechanical vibration, collision and pressure shock, otherwise the battery system may short circuit, resulting in high temperature and fire.

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