

# PRODUCT SPECIFICATIONS

## POLO- S 51.2V100AH Li-ion Battery System



| Project Name              | Configuration   |
|---------------------------|-----------------|
| External switch function  | have            |
| Current limiting function | have            |
| Display                   | have            |
| Storage function          | have            |
| Pre-charge function       | have            |
| Communication Function    | CAN             |
| Secondary protection      | have            |
| Bluetooth                 | None (optional) |
| Fire extinguisher         | have            |

## Update Record

[illegible]

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## 1. Basic Introduction

This battery system is suitable for household energy storage and small and medium-sized commercial storage. It uses 3.2 V 50Ah The lithium battery cells form a 2-in-1 6-in-1 battery module and an intelligent BMS to form a 51.2V100Ah lithium battery system. The system supports up to 16 groups of batteries in parallel. The system is prohibited from being used in series and mixed with other batteries of different brands and models.

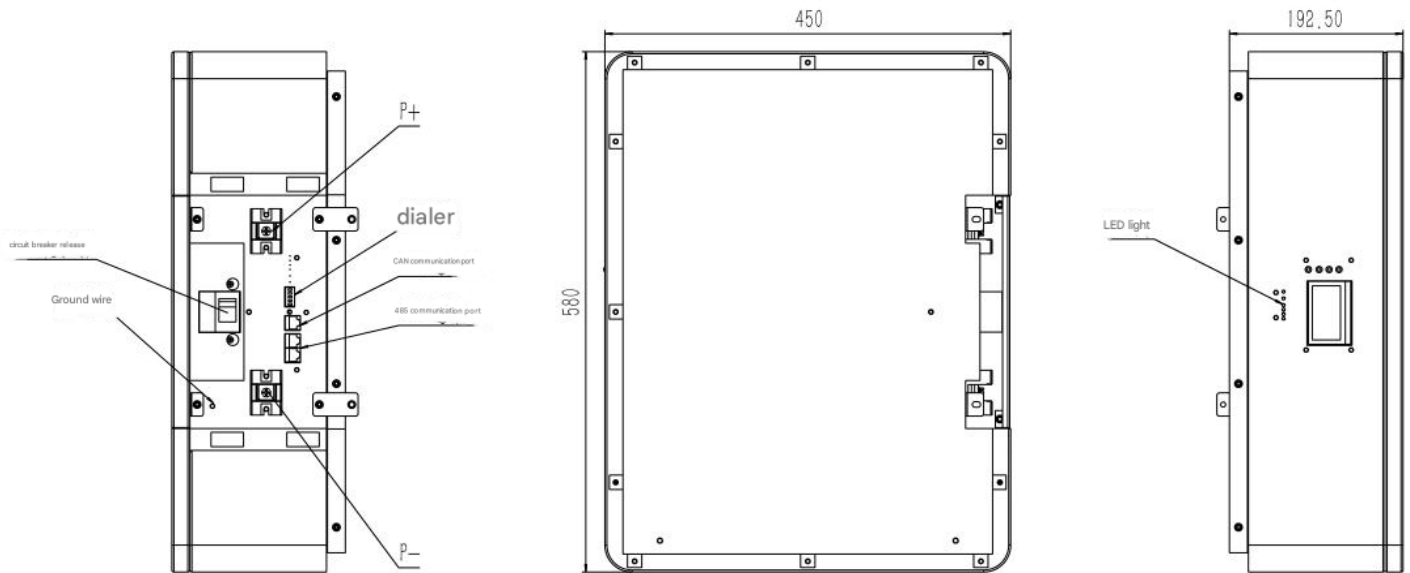
## 2. Function Introduction

- Battery voltage calculation: 16 battery voltage sampling test, deviation  $\pm 20\text{mV}$ .
- Battery and ambient temperature detection: 4 battery temperature sensors, 1 ambient temperature sensor, 1 MOS temperature sensor, with a deviation of  $\pm 2^\circ \text{C}$ .
- Battery Capacity and Cycle Count: Complete a full charge/discharge cycle to set the actual capacity. Monitor the remaining capacity of the battery with a capacity estimation accuracy within 5% deviation. In addition, the charge and discharge cycle time and the complete charge and discharge cycle time can be configured.
- Intelligent cell balancing: Charging and static balancing strategies can be flexibly set to effectively extend the service life.
- Communication interface: PC or intelligent front end can monitor battery pack data, control operation and set parameters through telemetry, telesignaling, teleadjustment, remote control and other commands. The communication protocol complies with the requirements of YD/T 1363.3 and realizes cascade communication.
- Historical data recording, saving, and reading: When the battery is abnormal, the real-time battery status and alarm information are recorded and saved. Currently, up to 500 historical fault data can be stored.
- Battery management system parameter settings: Battery management system parameters, including cell battery overvoltage/undervoltage, battery total voltage overvoltage/undervoltage, charge and discharge overcurrent, battery high/low temperature, battery capacity, working mode, charge and discharge limit current, etc., can be set in the battery monitoring system.
- Working mode: The monitoring system can be set to have charging and discharging current limiting, constant voltage output, direct output and other working modes.

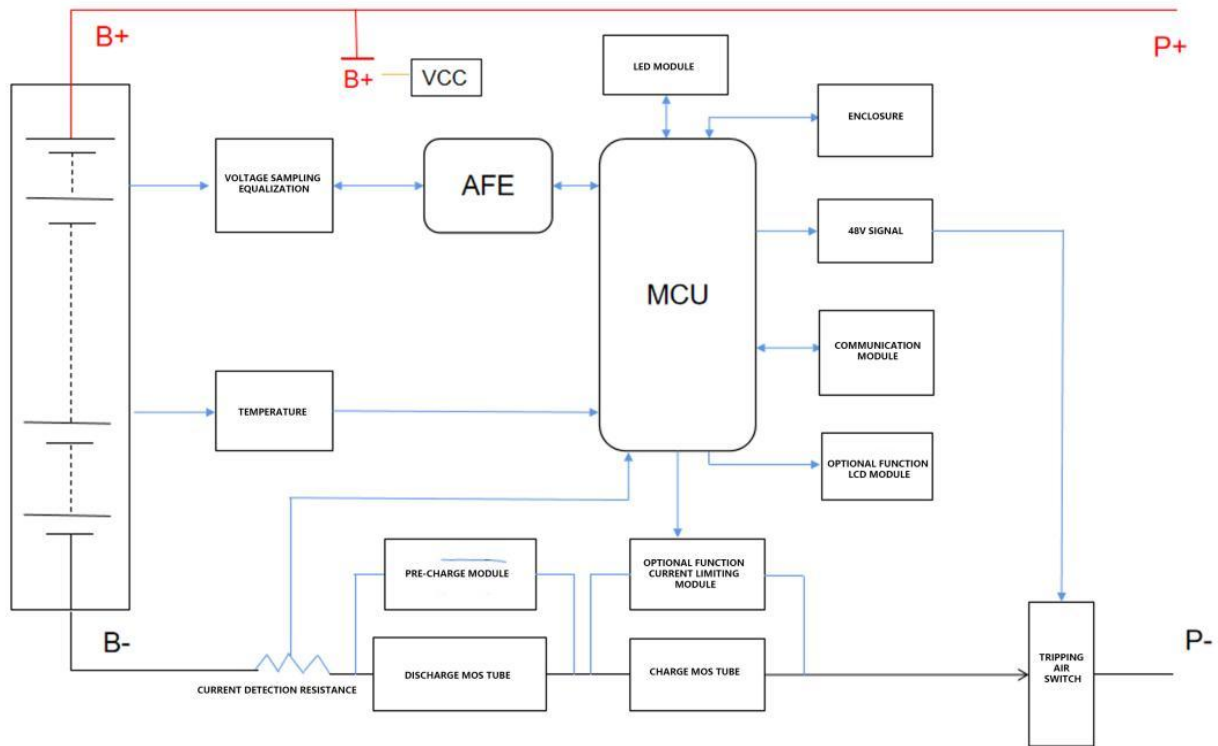
- Multiple protection functions: hardware protection, battery protection, high and low temperature protection, output short circuit protection, etc.

### 3. Product Details

#### 3.1 Dimensions and interface diagram



### 3.2 Electrical Schematic Diagram



### 3.3 Battery performance parameters

| Serial number | project                           | Specification                                                                             |
|---------------|-----------------------------------|-------------------------------------------------------------------------------------------|
| 1             | Battery Configuration             | 2 P1 6 S                                                                                  |
| 2             | Rated voltage                     | 51.2 V                                                                                    |
| 3             | Operating voltage range           | 42V ~ 58.4V                                                                               |
| 4             | Rated capacity                    | 100Ah                                                                                     |
| 5             | Rated                             | 5.12KWh                                                                                   |
| 6             | Standard charge/discharge current | 50A@ 25 ± 2℃                                                                              |
| 7             | Maximum charging current          | 100A @ 25 ± 2℃                                                                            |
| 8             | Maximum discharge current         | 100A @ 25 ± 2℃                                                                            |
| 9             | Operating temperature             | 0~ 40 ℃ (Charge)                                                                          |
|               |                                   | - 2 0~ 40 ℃ (Discharge)                                                                   |
| 10            | Storage temperature and humidity  | -10 ℃ ~35 ℃ (stored within one month)<br>2 5 ± 2 ℃ (storage within three months)          |
| 11            | Dimensions (L x W x H)            | 618 × 450 × 208.5 mm                                                                      |
| 12            | weight                            | 49K g ± 3kg                                                                               |
| 13            | Cycle life                        | 6000cycles @25℃ 50A charge and discharge current 70% standard capacity 8 0% DOD<br>EOL70% |
| 18            | IP Rating                         | IP 20                                                                                     |
| 19            | Communication                     | CAN&RS485                                                                                 |
| 20            | Altitude                          | 0- 3 000 m                                                                                |
| twenty one    | Humidity range                    | 5~80 %                                                                                    |

### 3.4 Battery protection parameters

| Function Name                       | Function settings | Project List                    | Setting Value                                                                                                                                                                                           | Setting Range                                                         |
|-------------------------------------|-------------------|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| Single cell voltage alarm           | Open              | Single high voltage alarm       | 3500 mV                                                                                                                                                                                                 | Single-cell high-voltage recovery~Single-cell overvoltage protection  |
|                                     |                   | Single high voltage recovery    | 3400 mV                                                                                                                                                                                                 | 3000mV~ Single high voltage                                           |
|                                     | Open              | Single cell low voltage alarm   | 2900 mV                                                                                                                                                                                                 | Single cell undervoltage protection~ Single cell low voltage recovery |
|                                     |                   | Single low pressure recovery    | 3000 mV                                                                                                                                                                                                 | Single cell low voltage alarm ~ 3300mV                                |
| Single overvoltage protection       | Open              | Single overvoltage protection   | 3650 mV                                                                                                                                                                                                 | Single high voltage alarm ~4500mV                                     |
|                                     |                   | Single overvoltage recovery     | 3400 mV                                                                                                                                                                                                 | Single high voltage recovery ~ Single overvoltage voltage             |
|                                     |                   | Overvoltage recovery conditions | 1. The single cell voltage drops to the overvoltage recovery point<br>2. The remaining capacity is lower than 96% of the intermittent charging capacity<br><b>Two conditions must be met to restore</b> |                                                                       |
|                                     |                   |                                 | The battery discharge current is detected to be $\geq 1A$                                                                                                                                               |                                                                       |
| Single cell undervoltage protection | Open              | Undervoltage protection voltage | 2700 mV                                                                                                                                                                                                 | 1500mV~ Single cell undervoltage recovery                             |

|                                       |      |                                       |                                                                                  |                                                                                |
|---------------------------------------|------|---------------------------------------|----------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
|                                       |      | Undervoltage recovery voltage         | 2900 mV                                                                          | Single cell undervoltage protection ~ Single cell low voltage alarm            |
|                                       |      | Single unit undervoltage shutdown     | After undervoltage protection, shut down and maintain communication for 1 minute |                                                                                |
|                                       |      | Undervoltage recovery conditions      | Charging current detected ( ≥1A)                                                 |                                                                                |
|                                       |      |                                       |                                                                                  |                                                                                |
| Battery total pressure alarm          | Open | Total pressure high pressure alarm    | 56.0 V                                                                           | Total pressure high pressure recovery ~ total pressure overpressure protection |
|                                       |      | Total pressure high pressure recovery | 54.0V                                                                            | 5 3.0V ~Total high voltage                                                     |
|                                       | Open | Total pressure low pressure alarm     | 46.4 V                                                                           | Total voltage undervoltage protection~total voltage low voltage recovery       |
|                                       |      | Total pressure low pressure recovery  | 48.0V                                                                            | Total voltage low voltage alarm ~ 55.0V                                        |
|                                       |      |                                       |                                                                                  |                                                                                |
| Total pressure overvoltage protection | Open | Total pressure overvoltage protection | 57.6 V                                                                           | Total voltage high voltage alarm ~ 60.0V                                       |
|                                       |      | Total pressure overpressure recovery  | 54.0 V                                                                           | Total pressure high voltage recovery ~ total pressure overvoltage voltage      |

|                                        |      |                                       |                                                                                                                                                                                                         |                                                                           |
|----------------------------------------|------|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
|                                        |      | Overvoltage recovery conditions       | 1. The single cell voltage drops to the overvoltage recovery point<br>2. The remaining capacity is lower than 96% of the intermittent charging capacity<br><b>Two conditions must be met to restore</b> |                                                                           |
|                                        |      |                                       | The battery discharge current is detected to be $\geq 1A$                                                                                                                                               |                                                                           |
| Total voltage undervoltage protection  | Open | Total voltage undervoltage protection | 41.6 V                                                                                                                                                                                                  | 36.0V ~Total voltage undervoltage recovery                                |
|                                        |      | Total voltage undervoltage recovery   | 46.0 V                                                                                                                                                                                                  | Total voltage undervoltage protection ~ total voltage low voltage alarm   |
|                                        |      | Total voltage undervoltage shutdown   | After undervoltage protection, shut down and maintain communication for 1 minute                                                                                                                        |                                                                           |
|                                        |      | Undervoltage recovery conditions      | Charging current detected ( $\geq 1A$ )                                                                                                                                                                 |                                                                           |
| Battery temperature prohibits charging | Open | Charging high temperature warning     | 50 °C                                                                                                                                                                                                   | Charging high temperature recovery ~ charging over-temperature protection |
|                                        |      | Charging high temperature recovery    | 47 °C                                                                                                                                                                                                   | 35°C~ Charging high temperature alarm                                     |
|                                        |      | Charging over-temperature protection  | 55 °C                                                                                                                                                                                                   | Charging over-temperature recovery ~80°C                                  |
|                                        |      | Charging over temperature recovery    | 50 °C                                                                                                                                                                                                   | Charging high temperature recovery ~ charging over-temperature protection |

|                                        |      |                                       |        |                                                                             |
|----------------------------------------|------|---------------------------------------|--------|-----------------------------------------------------------------------------|
|                                        |      | Charging low temperature warning      | 2 °C   | Charging under-temperature protection ~ charging low temperature recovery   |
|                                        |      | Charging low temperature recovery     | 5 °C   | Charging low temperature warning ~10°C                                      |
|                                        |      | Charging under-temperature protection | -10 °C | -20°C~ Charge under-temperature recovery                                    |
|                                        |      | Charging under-temperature recovery   | 0 °C   | Charging under-temperature protection ~ charging low temperature recovery   |
|                                        |      |                                       |        |                                                                             |
| Battery core temperature is prohibited | Open | Discharge high temperature alarm      | 52 °C  | Discharge high temperature recovery ~ discharge over-temperature protection |
|                                        |      | Discharge high temperature recovery   | 47 °C  | 35°C~ Discharge high temperature alarm                                      |
|                                        |      | Discharge over temperature protection | 55 °C  | Discharge over-temperature recovery ~80°C                                   |
|                                        |      | Discharge over temperature recovery   | 50 °C  | Discharge high temperature recovery ~ discharge over-temperature protection |
|                                        |      | Discharge low temperature alarm       | -10 °C | Discharge under-temperature protection ~ discharge low-temperature recovery |

|                                |      |                                         |         |                                                                               |
|--------------------------------|------|-----------------------------------------|---------|-------------------------------------------------------------------------------|
|                                |      | Discharge low temperature recovery      | 3 °C    | Discharge low temperature alarm ~10°C                                         |
|                                |      | Discharge under-temperature protection  | - 15 °C | - 3 0°C~ Discharge under-temperature recovery                                 |
|                                |      | Discharge under-temperature recovery    | 0 °C    | Discharge under-temperature protection ~ discharge low-temperature recovery   |
|                                |      |                                         |         |                                                                               |
| Ambient temperature protection | Open | Ambient high temperature alarm          | 50 °C   | Ambient high temperature recovery ~ Ambient over-temperature protection       |
|                                |      | Environmental high temperature recovery | 47 °C   | -20 °C~ Ambient high temperature alarm                                        |
|                                |      | Ambient over temperature protection     | 60 °C   | Ambient over temperature recovery ~80°C                                       |
|                                |      | Ambient over temperature recovery       | 55 °C   | Environmental high temperature recovery ~ Ambient over temperature protection |
|                                |      | Low ambient temperature alarm           | 0 °C    | Environmental under-temperature protection Low temperature recovery           |
|                                |      | Low temperature recovery                | 3 °C    | Low ambient temperature alarm ~ 6 0°C                                         |

|                              |         |                                      |       |                                                                                                                                |
|------------------------------|---------|--------------------------------------|-------|--------------------------------------------------------------------------------------------------------------------------------|
|                              |         | Ambient under-temperature protection | -10℃  | -30℃ ~ Ambient undertemperature recovery                                                                                       |
|                              |         | Ambient undertemperature recovery    | 0℃    | Ambient under-temperature protection ~ Ambient low-temperature recovery                                                        |
|                              |         |                                      |       |                                                                                                                                |
| Power temperature protection | Open    | Power high temperature alarm         | 90 ℃  | Power high temperature recovery ~ power over temperature protection                                                            |
|                              |         | Power high temperature recovery      | 85 ℃  | 6 0℃ ~Power high temperature alarm                                                                                             |
|                              |         | Power over temperature protection    | 100 ℃ | Power high temperature alarm ~120 ℃                                                                                            |
|                              |         | Power over temperature recovery      | 85 ℃  | Power high temperature recovery ~ power over temperature protection                                                            |
|                              |         |                                      |       |                                                                                                                                |
| Charging current limit       | closure | Active current limiting              | 10A   | When the charger current is greater than 10A, turn on current limiting                                                         |
|                              | Open    | Passive current limiting             |       | The charger current is greater than the charging overcurrent alarm (the value can be set) , and the current limit is turned on |

|                                  |                     |                                  |                                                                      |                                                                                                      |
|----------------------------------|---------------------|----------------------------------|----------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
|                                  |                     | Charging current limit delay     | 5 minutes                                                            | After the current limit is turned on, recheck whether the current limit is turned on after 5 minutes |
| Charging overcurrent alarm       | Open                | Charging overcurrent alarm       | 102 A                                                                | Charge overcurrent recovery ~ Charge overcurrent protection                                          |
|                                  |                     | Charge overcurrent recovery      | 95 A                                                                 | 0A~ Charging overcurrent alarm                                                                       |
| Charging overcurrent protection  | Open                | Charging overcurrent protection  | 1 10A                                                                | 0A ~ 150A                                                                                            |
|                                  |                     | Charge overcurrent delay         | 10 S                                                                 | Can be set                                                                                           |
|                                  |                     | Overcurrent recovery conditions  | Discharge is restored immediately, or automatically after 60 seconds |                                                                                                      |
| Effective charging current       | Charging current    |                                  | 1000mA                                                               |                                                                                                      |
|                                  | Charge exit current |                                  | 700mA                                                                |                                                                                                      |
| Discharge overcurrent alarm      | Open                | Discharge overcurrent alarm      | - 1 05A                                                              | Discharge overcurrent protection ~ discharge overcurrent recovery                                    |
|                                  |                     | Discharge overcurrent recovery   | -103 A                                                               | Discharge overcurrent alarm ~0A                                                                      |
| Discharge overcurrent protection | Open                | Discharge overcurrent protection | - 1 10A                                                              | Transient overcurrent protection ~0A                                                                 |

|                                  |                                                           |                                            |                                                                        |                                                 |
|----------------------------------|-----------------------------------------------------------|--------------------------------------------|------------------------------------------------------------------------|-------------------------------------------------|
|                                  |                                                           | Discharge overcurrent delay                | 10 S                                                                   | Can be set                                      |
|                                  |                                                           | Overcurrent recovery conditions            | Charging resumes immediately or automatically after 60 seconds         |                                                 |
|                                  |                                                           |                                            |                                                                        |                                                 |
| Transient overcurrent protection | Open                                                      | Transient overcurrent protection           | - 250 A                                                                | Discharge overcurrent protection value to 110 A |
|                                  |                                                           | Transient overcurrent delay                | 30 mS                                                                  | Can be set                                      |
|                                  |                                                           | Transient overcurrent recovery             | Charging resumes immediately or automatically after 60 seconds         |                                                 |
|                                  | closure                                                   | Transient overcurrent lockout              | Continuous secondary overcurrent, exceeding the overcurrent lock times |                                                 |
|                                  |                                                           | Overcurrent lock times                     | 5 times                                                                |                                                 |
|                                  |                                                           | Momentary lock release                     | Connect the charger                                                    |                                                 |
|                                  |                                                           |                                            |                                                                        |                                                 |
| Output short circuit protection  | Open<br>(Currently does not support the shutdown setting) | Short circuit protection current and delay | Write program (not configurable)                                       |                                                 |
|                                  |                                                           | Short circuit protection recovery          | Charging resumes immediately or automatically after 60 seconds         |                                                 |
|                                  | Open                                                      | Short circuit protection lock              | Continuous output short circuit, exceeding the overcurrent lock times  |                                                 |
|                                  |                                                           | Short circuit lock times                   | 5 times                                                                |                                                 |
|                                  |                                                           | Short circuit lock release                 | Connect the charger                                                    |                                                 |
|                                  |                                                           |                                            |                                                                        |                                                 |
| Effective discharge current      | Discharge entry current                                   |                                            | -1000mA                                                                |                                                 |
|                                  | Discharge exit current                                    |                                            | -700mA                                                                 |                                                 |

|                          |                            |                                       |                                                                                            |                               |  |
|--------------------------|----------------------------|---------------------------------------|--------------------------------------------------------------------------------------------|-------------------------------|--|
| Cell balancing function  | Open                       | Standby Balance                       | No charge and discharge state, start balancing                                             |                               |  |
|                          |                            | Standby balance time                  | 10 hours                                                                                   | Can be set                    |  |
|                          | Open                       | Charge equalization                   | Enable balancing in charging and floating charging states                                  |                               |  |
|                          | Turn on voltage condition  | Balanced start voltage                | 3350 mV                                                                                    | Can be set                    |  |
|                          |                            | Balanced opening pressure difference  | 30 mV                                                                                      |                               |  |
|                          |                            | Equalization end pressure difference  | 20mV                                                                                       |                               |  |
|                          |                            |                                       |                                                                                            |                               |  |
|                          | Open                       | Balanced temperature limit            | Balanced shutdown temperature range according to (ambient alarm temperature determination) |                               |  |
|                          |                            | Balanced high temperature prohibition | 50 °C                                                                                      | Can be set                    |  |
|                          |                            | Balanced low temperature prohibition  | 0 °C                                                                                       |                               |  |
|                          |                            |                                       |                                                                                            |                               |  |
| Battery failure alarm    | Open                       | Cell failure voltage difference       | 500mV                                                                                      | Can be set                    |  |
|                          |                            | Cell recovery voltage difference      | 300mV                                                                                      |                               |  |
|                          |                            |                                       |                                                                                            |                               |  |
| Battery capacity setting | Battery rated capacity     |                                       | 1 00Ah                                                                                     | 5Ah to 1 00Ah                 |  |
|                          | Remaining battery capacity |                                       | Estimated based on cell voltage                                                            | Can be set                    |  |
|                          | Cycle cumulative capacity  |                                       | 20%                                                                                        | Number of cycles (adjustable) |  |
|                          | Open                       | Remaining capacity warning            | 15%                                                                                        |                               |  |

|                                          |                      |                                                                                                 |                                                                                                                                                                                                                     |                    |
|------------------------------------------|----------------------|-------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
|                                          | Open                 | Remaining capacity protection                                                                   | 8%                                                                                                                                                                                                                  | Turning output off |
|                                          |                      |                                                                                                 |                                                                                                                                                                                                                     |                    |
| Reset button                             | Power on/activation  |                                                                                                 | The BMS is in sleep mode. Press the reset button for 1 second, the BMS is activated, and the LED indicators light up in sequence, and then it enters normal working mode.                                           |                    |
|                                          | Shutdown/Hibernation |                                                                                                 | When the BMS is in standby or working state (except charging), press the reset button for 3S, the BMS will be put into sleep mode, and the LED indicators will light up in sequence, and then enter the sleep mode; |                    |
|                                          |                      |                                                                                                 |                                                                                                                                                                                                                     |                    |
| Pre-charge function                      | 2000ms               | 0~5000ms can be set                                                                             | BMS starts pre-charging function instantly                                                                                                                                                                          |                    |
| BMS power management                     | Open                 | Maximum standby time                                                                            | 48h (charger is not present and there is no effective discharge current)                                                                                                                                            |                    |
| Low temperature heating of battery cells | closure              | Low temperature heating of battery cells                                                        | 0℃                                                                                                                                                                                                                  | Can be set         |
|                                          |                      | Cell heating recovery                                                                           | 10℃                                                                                                                                                                                                                 |                    |
|                                          |                      | Heating start logic                                                                             | When the charger is online and the battery cell temperature reaches the start-up condition, heating is turned on. No heating is performed in standby and discharge states.                                          |                    |
| External switch                          | closure              | When the BMS is in standby mode, the external switch can be operated to turn the BMS off and on |                                                                                                                                                                                                                     |                    |
| LCD screen                               | Open                 | Simplified monitoring software to view data such as battery cells, temperature, current, etc.   |                                                                                                                                                                                                                     |                    |
| Manual charging activation               | Open                 | 1 point                                                                                         | After undervoltage protection, the BMS shuts down. Press the button manually to activate and clear the undervoltage protection to force output.                                                                     | Can be set         |

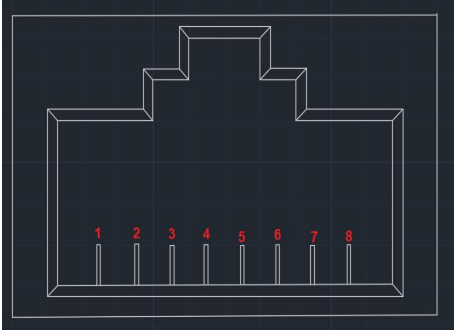
|                        |                           |              |                            |                                                |
|------------------------|---------------------------|--------------|----------------------------|------------------------------------------------|
| Compensation impedance | Connected fault impedance | 10m $\Omega$ | Default is between 8 and 9 | Battery connection line impedance compensation |
|                        | Compensation point 1      | 0m $\Omega$  | 9                          | Can be set                                     |
|                        | Compensation point 2      | 0m $\Omega$  | 13                         |                                                |

## 4. Communication Description

### 4.1 CAN communication

BMS has the function of uploading battery pack to CAN communication, with a baud rate of 500K. The CAN communication interface uses an 8P8C network cable interface. It can communicate with the inverter or CAN TEST through the CAN interface. When the battery pack is connected, it is connected through RS485 communication, and finally the battery pack data, status, and information are uploaded to the PCS through CAN communication.

CAN communication interface definition:

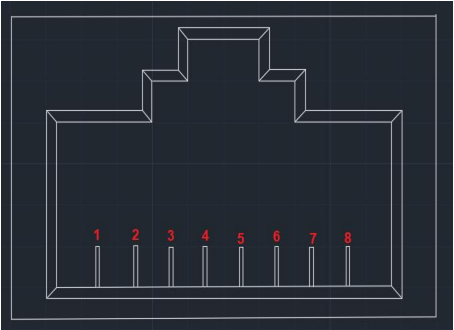


|            |       |
|------------|-------|
| 1, 2, 7, 8 | NC    |
| 4          | CAN-L |
| 5          | CAN-H |
| 3, 6       | land  |

### 4.2 RS485 Communication

BMS has RS485 communication for battery group connection, with a baud rate of 19200bps. The RS485 communication interface uses an 8P8C network cable interface.

RS485 communication interface definition:

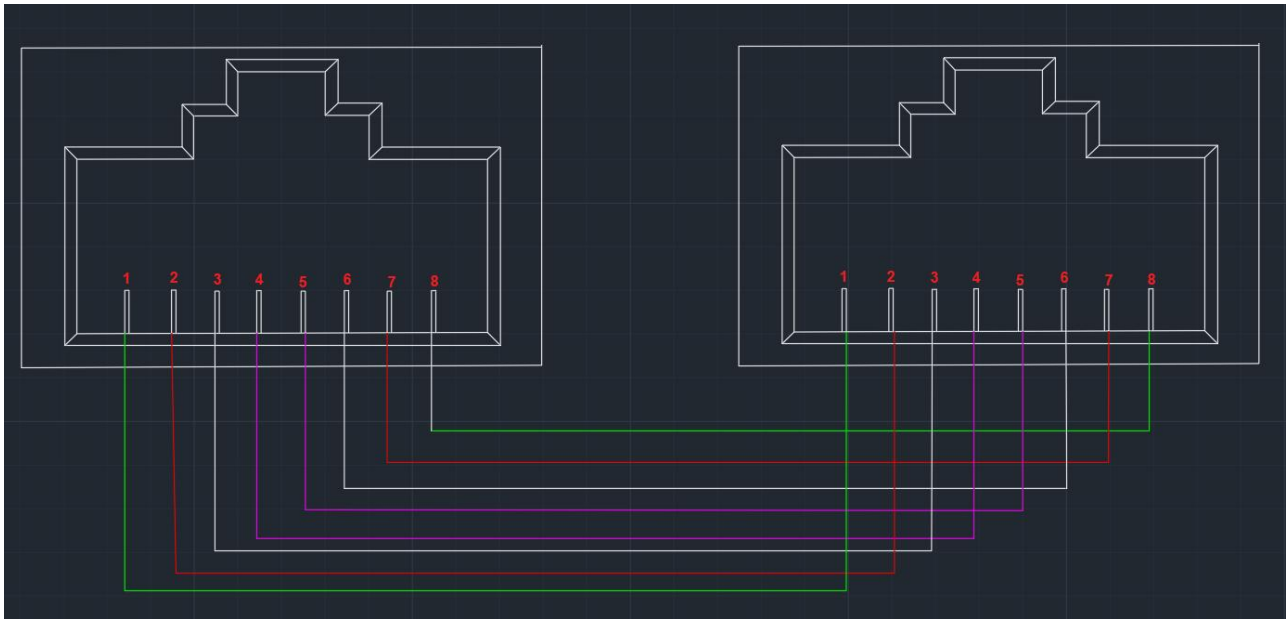


| Pinout | Definition |
|--------|------------|
| 1, 8   | RS485-B    |
| 2, 7   | RS485-A    |
| 3, 6   | land       |

|      |                     |
|------|---------------------|
| 4, 5 | NC<br>(unconnected) |
|------|---------------------|

### 4.3 Parallel communication

When multiple machines are connected in parallel, the RS485 interface is used as the parallel communication interface, and the CAN interface is used as the upper communication interface. The terminal device can read the total battery data of all parallel PACKs through the CAN interface. When multiple machines are connected in parallel, the RS485 interface connection is shown in the figure below:



#### 4.4 DIP address selection

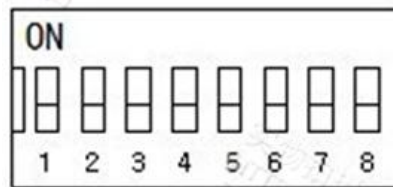
**Parallel DIP switch definition:** When the battery packs are connected in parallel, the DIP switch is used to distinguish the addresses of different packs. The hardware address can be set by the DIP switch on the board.

**Definition of DIP switch bit1 to bit8:** bit1 to bit4 are used to set the address, bit5 to bit8 are used for the number of slaves.

**Host settings:** bit1 to bit4 are 0, the host address is fixed to 0, and bit5 to bit8 are set according to the number of slaves in parallel. (See Table 2)

**Slave settings:** Bit 1 to bit 4 are set according to the device order, and the slave address range is 1 to 15. Bit 5 to bit 8 are fixed to 0. (See Table 1)

Parallel address setting: Refer to the table below for the definition of the DIP switch



## 5 Basic working modes

### 5.1 Charging Mode

When the BMS detects that the charger is connected and the external charging voltage is greater than the internal battery voltage by more than 0.5V, it turns on the charging MOSFET for charging. When the charging current reaches the effective charging current, it enters the charging mode. In the charging mode, both the charging and discharging MOSFETs are closed.

### 5.2 Discharge Mode

The BMS enters the discharge mode when it detects that the load is connected and the discharge current reaches the effective discharge current.

### 5.3 Standby Mode

When neither of the above two modes is satisfied, it enters the standby mode.

### 5.4 Shutdown Mode

The BMS enters shutdown mode after 48 hours of normal standby, battery undervoltage protection, key shutdown or external switch shutdown.

Wake-up conditions from shutdown mode: 1. Charging activation; 2. 48V voltage activation; 3. Press button to turn on.

## 6.1 LED light indication

### 6.2.1 LED light sequence

1 running light, 1 warning light, 4 capacity indicator lights

|                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                      |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
|  |  |  |  |  |  |
| SOC                                                                                 |                                                                                     |                                                                                     |                                                                                     | ALARM                                                                               | RUN                                                                                  |

### 6.1.2 Capacity indication

| state                    |        | Charge      |               |               |               | Discharge     |               |               |               |
|--------------------------|--------|-------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Capacity indicator light |        | L4<br>●     | L3<br>●       | L2<br>●       | L1<br>●       | L4<br>●       | L3<br>●       | L2<br>●       | L1<br>●       |
|                          | 0~25%  | Destr<br>oy | Destr<br>oy   | Destr<br>oy   | Flash         | Destr<br>oy   | Destr<br>oy   | Destr<br>oy   | Alwa<br>ys on |
|                          | 25~50% | Destr<br>oy | Destr<br>oy   | Flash         | Alwa<br>ys on | Destr<br>oy   | Destr<br>oy   | Alwa<br>ys on | Alwa<br>ys on |
|                          | 50~75% | Destr<br>oy | Flash         | Alwa<br>ys on | Alwa<br>ys on | Destr<br>oy   | Alwa<br>ys on | Alwa<br>ys on | Alwa<br>ys on |
|                          | ≥75%   | Flash       | Alwa<br>ys on | Alwa<br>ys on | Alwa<br>ys on | Alwa<br>ys on | Alwa<br>ys on | Alwa<br>ys on | Alwa<br>ys on |
| Running indicator light  |        | Changliang  |               |               |               | Flash         |               |               |               |

### 6.1.3 Flashing instructions

| Flashing mode | Bright | Destroy |
|---------------|--------|---------|
| Flash 1       | 0.25s  | 3.75s   |
| Flash 2       | 0.5s   | 0.5s    |
| Flash 3       | 0.5s   | 1.5s    |

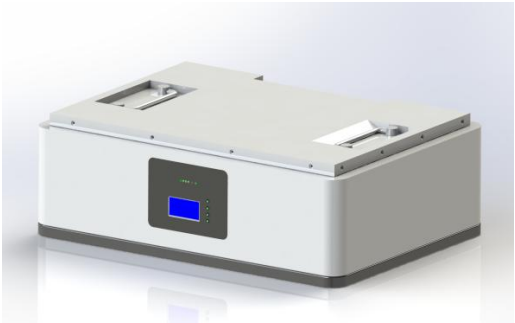
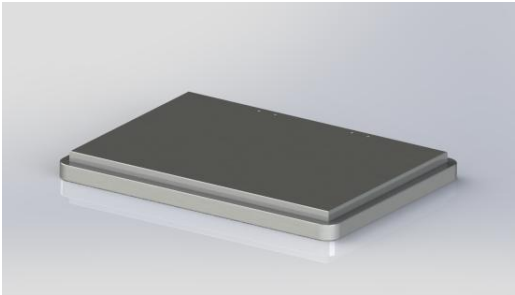
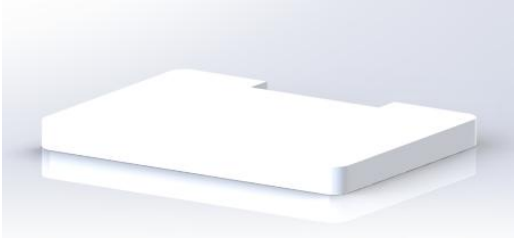
### 6.2 Status Indication

| System Status | Running status                           | RUN                                                                               | ALM                                                                               | SOC                                                                               |                                                                                   |                                                                                   |                                                                                     | illustrate                                                                             |
|---------------|------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
|               |                                          |  |  |  |  |  |  |                                                                                        |
| Shutdown      | Hibernation                              | Destroy                                                                           | Destroy                                                                           | Destroy                                                                           | Destroy                                                                           | Destroy                                                                           | Destroy                                                                             | Total destruction                                                                      |
| Standby       | normal                                   | Flash                                                                             | Destroy                                                                           | Destroy                                                                           | Destroy                                                                           | Destroy                                                                           | Destroy                                                                             | Standby mode                                                                           |
| Charge        | normal                                   | Always on                                                                         | Destroy                                                                           | According to the power indicator                                                  |                                                                                   |                                                                                   |                                                                                     | Maximum LED flash 2                                                                    |
|               | Overcurrent alarm                        | Always on                                                                         | Flash 2                                                                           | According to the power indicator                                                  |                                                                                   |                                                                                   |                                                                                     | Maximum LED flash 2                                                                    |
|               | Overvoltage protection                   | Flash 1                                                                           | Destroy                                                                           | Destroy                                                                           | Destroy                                                                           | Destroy                                                                           | Destroy                                                                             |                                                                                        |
|               | Temperature and overcurrent protection   | Flash 1                                                                           | Destroy                                                                           | Destroy                                                                           | Destroy                                                                           | Destroy                                                                           | Destroy                                                                             |                                                                                        |
| Discharge     | normal                                   | Flash 3                                                                           | Destroy                                                                           | According to the power indicator                                                  |                                                                                   |                                                                                   |                                                                                     | According to the constant light indicator                                              |
|               | Alerts                                   | Flash 3                                                                           | Flash 3                                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                        |
|               | Temperature, overcurrent, short circuit, | Destroy                                                                           | Always on                                                                         | Destroy                                                                           | Destroy                                                                           | Destroy                                                                           | Destroy                                                                             | Stop discharging, when the mains is offline, it will be forced to sleep after 48 hours |

|  |                                    |             |             |             |             |             |             |                    |
|--|------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------------|
|  | etc.<br>protecti<br>on             |             |             |             |             |             |             | without any action |
|  | Undervol<br>tage<br>protecti<br>on | Destr<br>oy | Destr<br>oy | Dest<br>roy | Dest<br>roy | Dest<br>roy | Dest<br>roy | Stop discharge     |

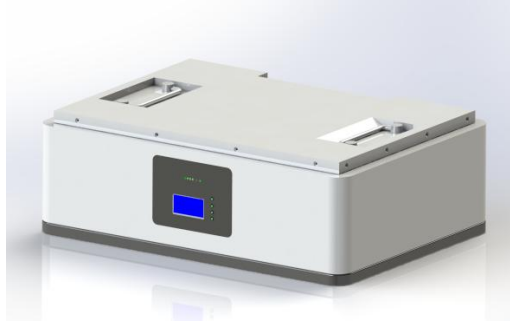
## 7 Installation and debugging

### 7.1 List of Goods

| Serial number | name         | quantity | picture                                                                              |
|---------------|--------------|----------|--------------------------------------------------------------------------------------|
| 1 .           | Battery Pack | 1 PCS    |    |
| 2             | Base         | 1 PCS    |   |
| 3             | wheel        | 4 PCS    |  |
| 4             | Top cover    | 1 PCS    |  |

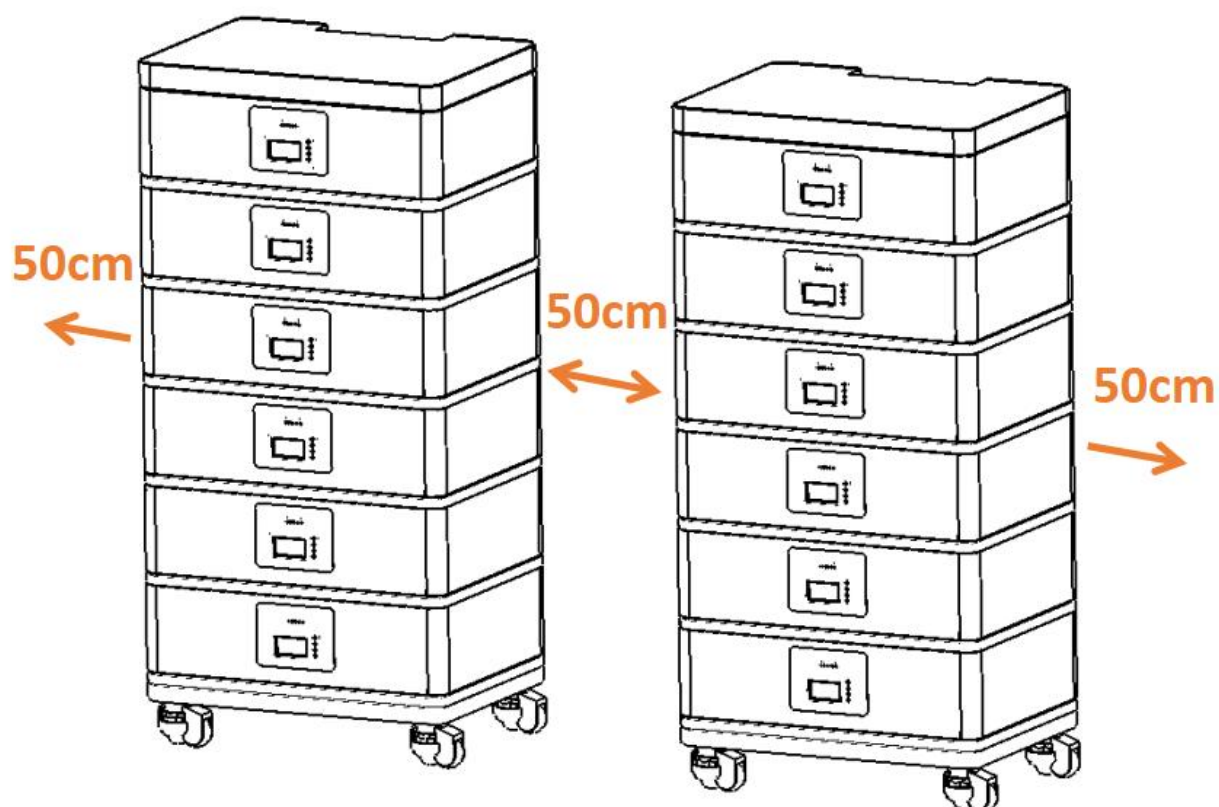
## 7.2 Installation Instructions

### 7.2.1 Check the battery status before installation



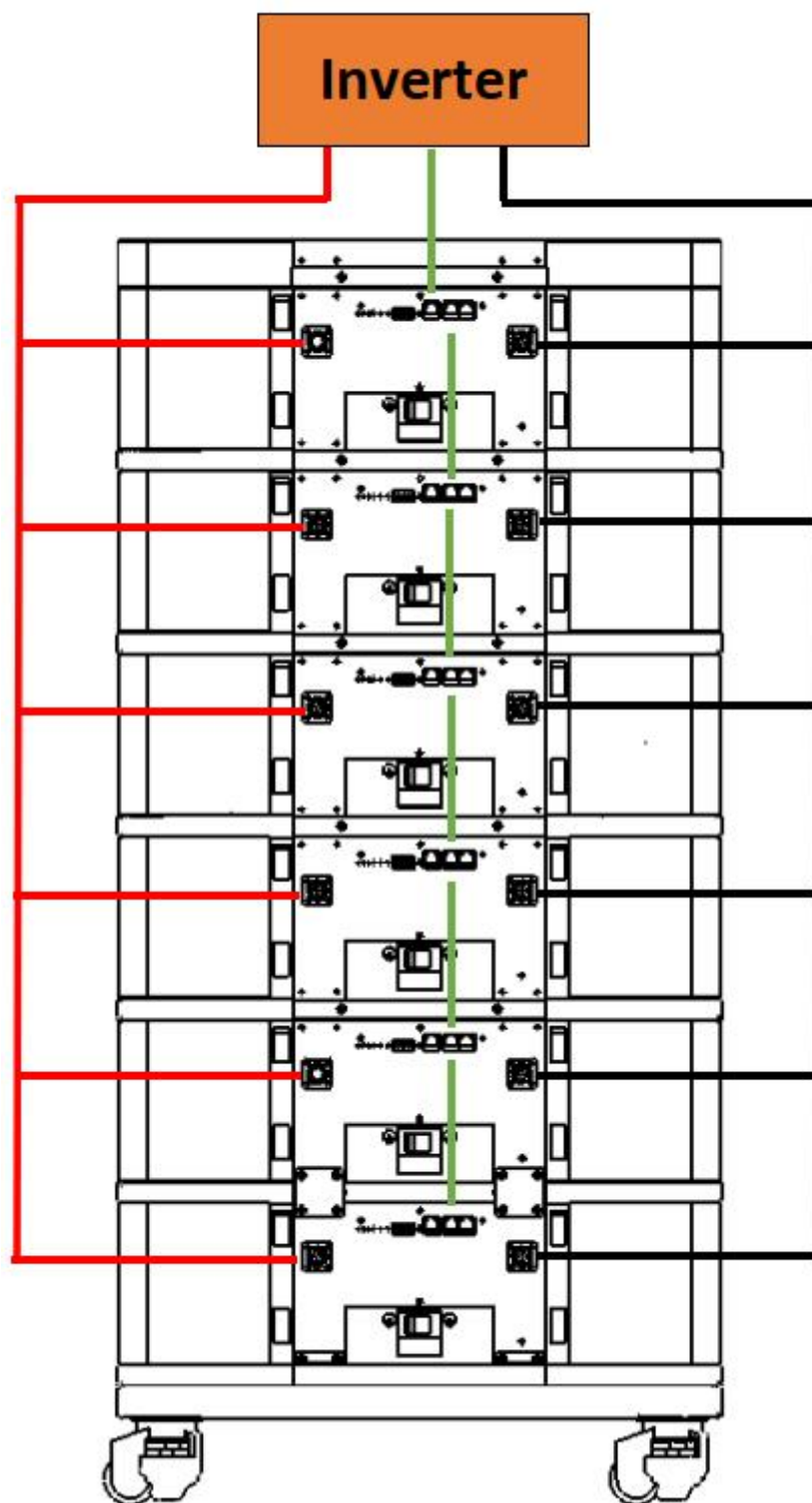
### 7.2.2 Choose a suitable installation location

- Do not place batteries on flammable building materials
- It is recommended to place the battery on a level surface. It is recommended to stack 6 battery packs on one base.
- The temperature should be between 10°C and 30°C to maintain optimal operation
- There should be some free space around the battery to dissipate heat (as shown below) Suitable for installation on concrete or other non-flammable surfaces

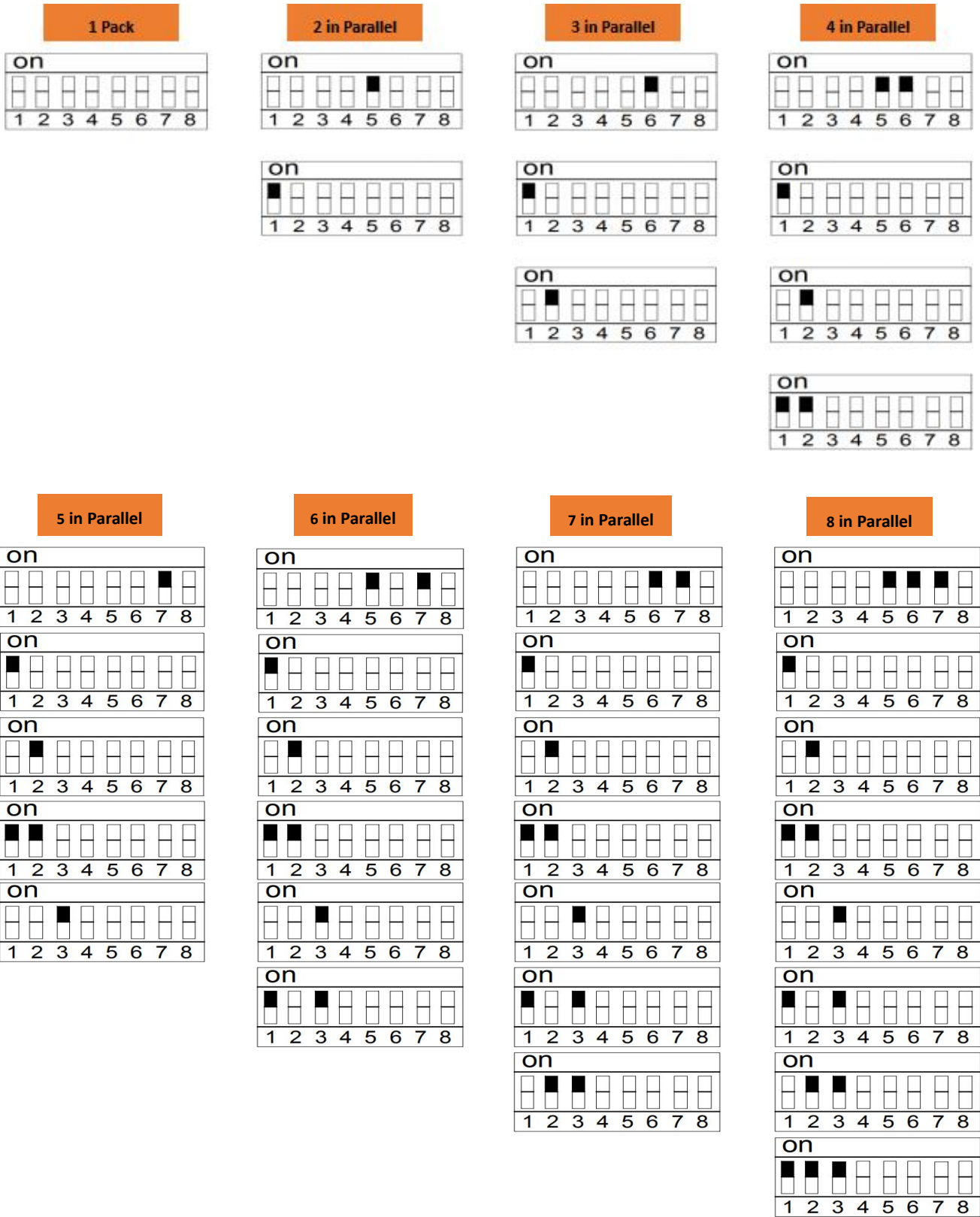


### 7.2.3 Wiring connection

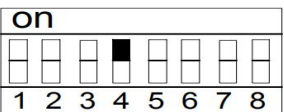
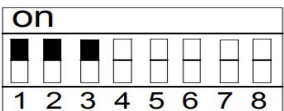
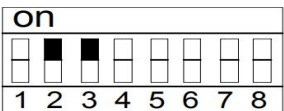
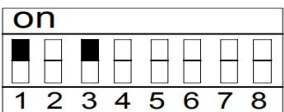
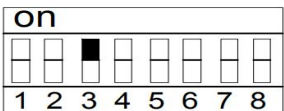
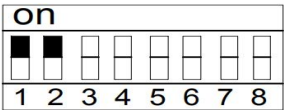
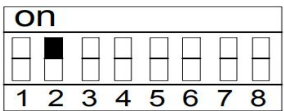
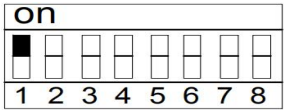
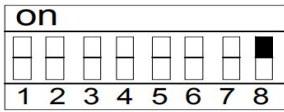
The battery should be powered off before connecting.



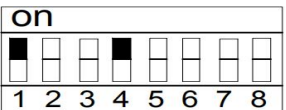
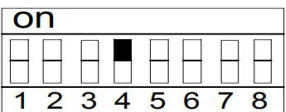
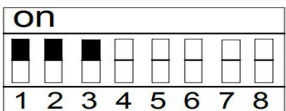
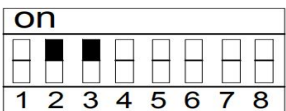
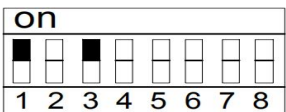
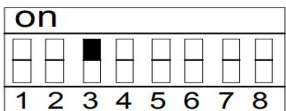
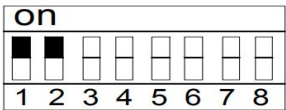
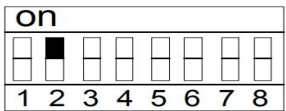
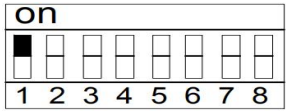
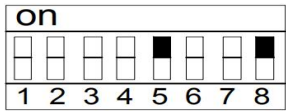
7.2.4 DIP settings



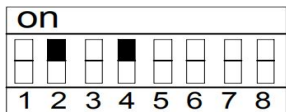
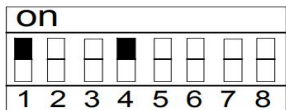
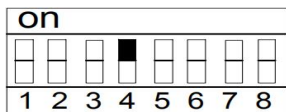
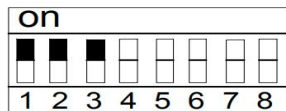
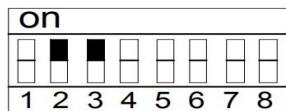
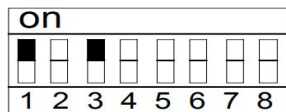
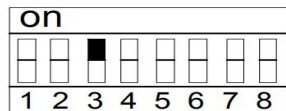
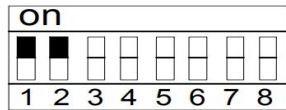
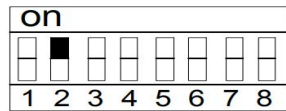
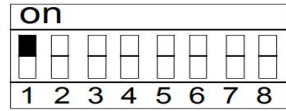
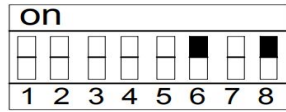
9 in Parallel



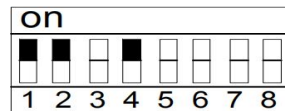
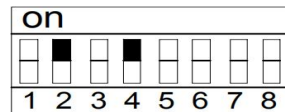
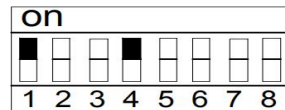
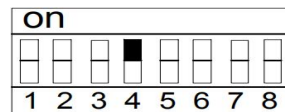
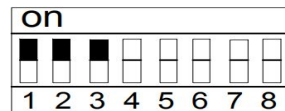
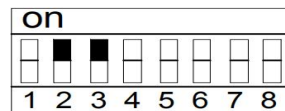
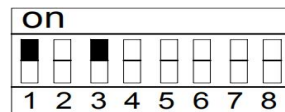
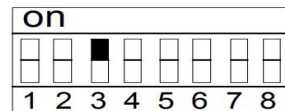
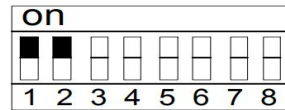
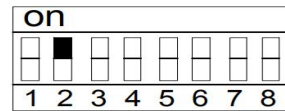
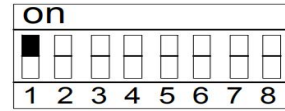
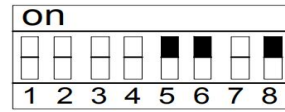
10 in Parallel



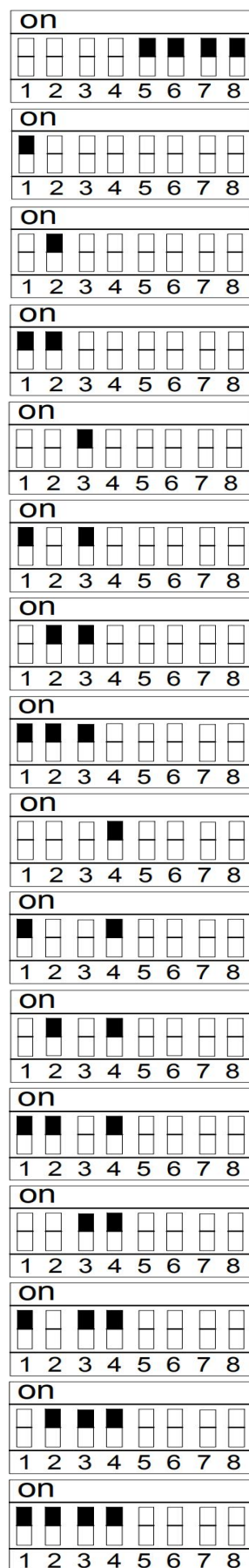
11 in Parallel



12 in Parallel



## 16 in Parallel

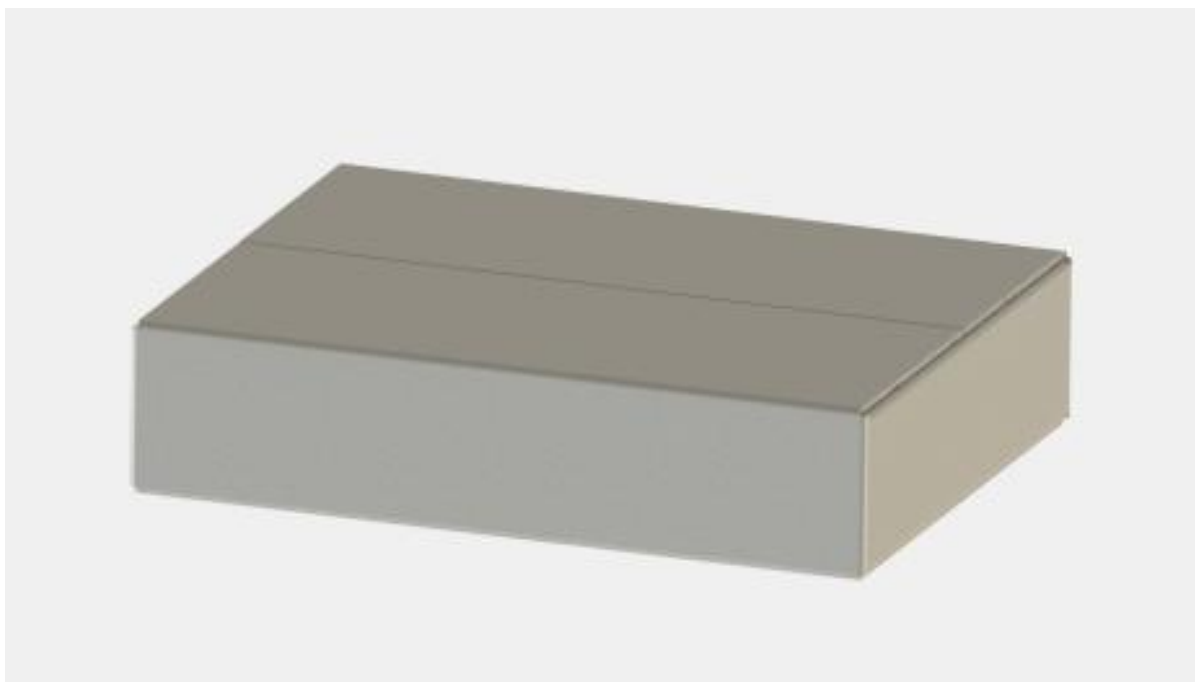
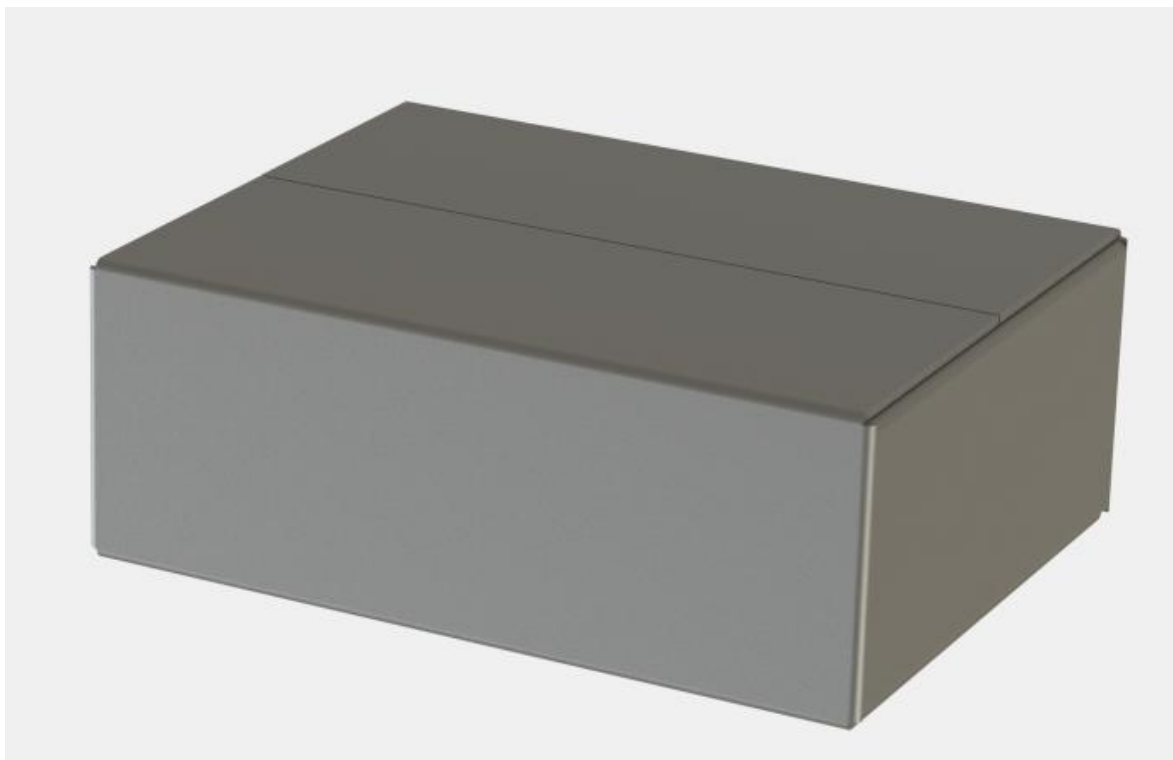


## 8. Packaging

Packed in a dry, dust and moisture proof packaging box. Packed in plastic film/EPE, packed in cartons.

Specifications: L 63cm\*W50cm\*H 26cm Packing quantity 1 unit Weight: 51kg

Specifications: L63cm\*W50cm\*H22cm Packing quantity 1 unit Weight: 16kg



## 9. Notes

- Do not use the battery if it is significantly impacted or deformed.
- Do not install batteries in multiple layers.
- the polarity of the power supply and the input terminal .
- Ensure good equipment insulation and use tools and instruments correctly.
- The battery installation site should be away from fire sources and flammable objects, and the installation site should be kept ventilated and dry.
- It is strictly forbidden to plug or unplug the plug-in while the product is running.
- Non-professional technical personnel of our company are strictly prohibited from opening various functional modules, and the consequences are at their own risk.
- Before using a new battery or using the battery for a long time, fully charge the battery with a dedicated charger.
- Do not disassemble, open, crush, bend, deform, puncture or break the product.
- Do not modify or insert any foreign objects into the battery. Do not immerse or expose the product to water or other liquids such as fresh water, sea water, or beverages (coffee, juice, etc.). Keep away from fire, explosive substances or other hazards.
- Do not short-circuit the battery and do not allow metal or other conductors to come into contact with the battery contact terminals.
- Do not drop the battery. If this does happen (especially on a hard surface), contact a service center.
- If electrolyte leaks, do not allow the battery to come into contact with your skin or eyes. If it does occur, wash the contact area with plenty of water or seek medical help.
- Do not disassemble the battery under any circumstances. This may cause an internal short circuit, or even lead to fire or other problems.
- Do not burn the battery or dispose of it in fire under any circumstances. Otherwise, the battery may burn .