

Second Generation Household Storage Product Specifications



Change Records

S/N	Version modification	Contents of change	Prepared by	Date of Establishment	Reviewed by	Effective date
1	V1	First version	Dong Bo	2023/7/22		
2	V2	Parameter adjustment and schematic diagram update	Dong Bo	2023/9/18		
3	V3	Synchronize authentication CDF parameter information	Dong Bo	2024/1/10		

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1. Product Overview

Product application

The household energy storage system is suitable for a wide range of applications, including ordinary households, small commercial areas, offices, uninterruptible power supply fields, and peak-valley electricity price difference areas.

2. Product Advantages

Technology

Advanced technology in lithium iron phosphate batteries and manufacturing

Modularization

Modular design, supporting extended applications

Easy to transport and integrate; suitable for floor stand or wall-mount

Intelligence

Intelligent management enabling unattended operation

3. Specifications

3.1 Battery Module Parameter Table

Project Name	Parameter Information
Model	HPD51.2-02C05
Nominal Capacity	100Ah
Nominal energy	5.12kWh
Operating voltage range	43.2V-56.8Vdc
Nominal voltage	51.2Vdc
Standard charging current	50A
Maximum charging/discharging current	60A
Standard Charging Method	Charge with a constant current of 50A until any battery voltage reaches 3.55V, then stop charging and let it stand for 30 minutes.
Maximum output power	2.5kw
Charging Operating Temperature Range	0°C~53°C (The heating film activates when battery temperature drops below 5°C.) (>45°C load reduction)
Discharge Operating Temperature Range	-20~58°C (>45°C load reduction)
Working humidity range	5-95%
Dimensions (W x D x H)	(491±1)×(184±1)×(220±1)mm
重量/Weight	53.7±2kg

3.2 Battery System Parameter Table

Project Name	Parameter Information			
Model	HSD51.2-02C05L	HSD51.2-02C10L	HSD51.2-02C15L	HSD51.2-02C20L
Nominal capacity	100Ah	200Ah	300Ah	400Ah
Nominal energy	5.12kWh	10.24kWh	15.36kWh	20.48kWh
Operating voltage range	43.2V-56.8Vdc			
Nominal voltage	51.2Vdc			
Standard charging	50A	40A	60A	80A

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current				
Maximum charging current	50A	100A		
Maximum discharging current	50A	100A		
Standard Charging Method	Charge the system using the standard current until any battery voltage reaches 3.55V, then stop and let it stand for 30 minutes.			
Maximum output power	5kw			
Charging Operating Temperature Range	0°C~45°C (when the battery temperature is below 5°C, the heating film starts to operate. (>45°C load reduction)			
Discharge Operating Temperature Range	-20~45°C (>45°C load reduction)			
Working humidity range	5-95%			
Protection grade	IP65			
Cooling method	Natural Convection			
Altitude	< 3000ma			
Dimensions (W x D x H)	705±1x239±1x528±1mm	705±1x239±1x846±1mm	705±1x239±1x1164±1mm	705±1x239±1x1482±1mm
Weight	≈67±2kg	≈121±2kg	≈176±2kg	≈231±2kg
Communication mode	CAN,RS485			
Applicable standard	IEC62619/IEC60730 /EMC/ IEC63056 UL1973/UL60730/UN38.3			

4. Battery System Protection Alarm Table

S/N	Fault name	Fault type	Fault triggering conditions	Fault recovery conditions	Measures for Failure Handling
1	Cell over-voltage level I	Alarm	1. CELL_V > 3550mv 2. Duration: 2 seconds	1. CELL_V < 3500mv 2. Duration: 4 hours	Charging prohibited
2	Cell over-voltage level II	Alarm	1. CELL_V > 3600mv 2. Duration: 5 seconds	1. CELL_V < 3500mv 2. Duration: 2 seconds	Power off (general fault)
3	Cell over-voltage level III	Alarm	1. CELL_V > 3650mv 2. Duration: 5 seconds	None	Power off (serious fault)
4	Cell undervoltage level I	Alarm	1. CELL_V < 2700mv 2. Duration: 2 seconds	1. CELL_V > 2800mv 2. Duration: 2 seconds	Discharging prohibited
5	Cell undervoltage level II	Alarm	1. CELL_V < 2600mv 2. Duration: 5 seconds	1. CELL_V > 2800mv 2. Duration: 2 seconds	Power off (general fault)
6	Cell undervoltage level III	Alarm	1. CELL_V < 2500mv 2. Duration: 5 seconds	None	Power off (serious fault)
7	Cell differential pressure level I	Alarm	1. Vdiff > 300mv 2. Duration: 5 seconds	1. Vdiff < 200mv 2. Duration: 2 seconds	\
8	Cell voltage difference level II	Alarm	1. Vdiff > 500mv 2. Duration: 5 seconds	1. Vdiff < 300mv 2. Duration: 2 seconds	Power off (general fault)

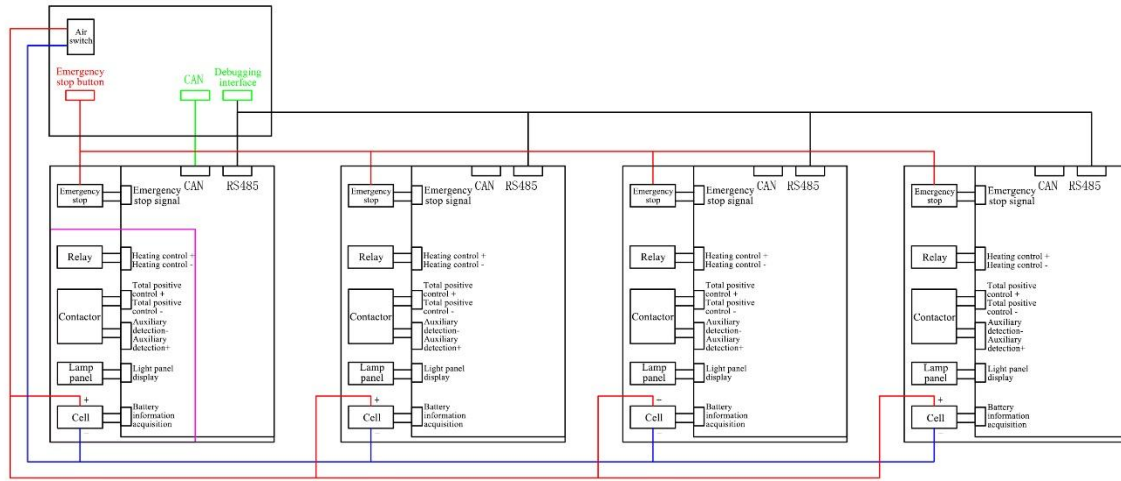
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9	Cell voltage difference level III	Alarm	1. Vdiff > 800mv 2. Duration: 5 seconds	None	Power off (serious fault)
10	Battery pack over-voltage level I	Alarm	1. Vpack > 56.5V 2. Duration: 5 seconds	1. Vpack < 56V 2. Duration: 2 seconds	\
11	Battery pack over-voltage level II	Alarm	1. Vpack > 56.8V 2. Duration: 5 seconds	1. Vpack < 56 V 2. Duration: 2 seconds	Power off (general fault)
12	Battery pack over-voltage level III	Alarm	1. Vpack > 57.6V 2. Duration: 5 seconds	None	Power off (serious fault)
13	Battery pack undervoltage level I	Alarm	1. Vpack < 43.2V 2. Duration: 5 seconds	1. Vpack > 44.8V 2. Duration: 2 seconds	\
14	Battery pack undervoltage level II	Alarm	1. Vpack < 41.6V 2. Duration: 5 seconds	1. Vpack > 44.8V 2. Duration: 2 seconds	Power off (general fault)
15	Battery pack undervoltage level III	Alarm	1. Vpack < 40V 2. Duration: 5 seconds	None	Power off (serious fault)
16	Charging high temperature level I	Alarm	1. T_CELL > 50°C 2. Duration: 5 seconds	1. T_CELL < 45°C 2. Duration: 2 seconds	Charging prohibited
17	Charging high temperature level II	Alarm	1. T_CELL > 53°C 2. Duration: 5 seconds	1. T_CELL < 45°C 2. Duration: 2 seconds	Power off (general fault)
18	Charging high temperature level III	Alarm	1. T_CELL > 55°C 2. Duration: 5 seconds	None	Power off (serious fault)
19	Charging low temperature level I	Alarm	1. T_CELL < 2°C 2. Duration: 5 seconds	1. T_CELL > 5°C 2. Duration: 2 seconds	Alarm (Below 5°C, the heating film activates.)
20	Charging low temperature level II	Alarm	1. T_CELL < 1°C 2. Duration: 5 seconds	1. T_CELL > 5°C 2. Duration: 2 seconds	Power off (general fault)
21	Charging low temperature level III	Alarm	1. T_CELL < 0°C 2. Duration: 5 seconds	None	Power off (serious fault)
22	Discharging high-temperature level I	Alarm	1. mos_T > 55°C 2. Duration: 5 seconds	1. T_CELL < 50°C 2. Duration: 2 seconds	Discharging prohibited
23	Discharging high temperature level II	Alarm	1. mos_T > 58°C 2. Duration: 5s	1. mos_T < 50°C 2. Duration: 2s	Power off (general fault)
24	Discharging high temperature level III	Alarm	1. T_CELL > 60°C 2. Duration: 5s	None	Power off (serious fault)
25	Discharging low temperature level I	Alarm	1. T_CELL < -15°C 2. Duration: 5s	1. T_CELL > -8°C 2. Duration: 2s	Alarm
26	Discharging low temperature level II	Alarm	1. T_CELL < -18°C 2. Duration: 5s	1. T_CELL > -13°C 2. Duration: 2s	Power off (general fault)
27	Discharging low temperature level	Alarm	1. T_CELL < -20°C 2. Duration: 5s	None	Power off (serious fault)

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	III				
28	Charging overcurrent level I	Alarm	1. Chg_I > 100A 2. Duration: 5s	1. Chg_I < 60A 2. Duration: 2s	\
29	Charging overcurrent level II	Alarm	1. Chg_I > 115A 2. Duration: 5s	Automatic recovery in 1 minute	Power off (general fault)
30	Charging overcurrent level III	Alarm	1. Chg_I > 120A 2. Duration: 5s	None	Power off (serious fault)
31	Discharge overcurrent level I	Alarm	1. DisChg_I > 100A 2. Duration: 5s	1. DisChg_I < 60A 2. Duration: 2s	\
32	Discharge overcurrent level II	Alarm	1. DisChg_I > 115A 2. Duration: 5s	Automatic recovery in 1 minute	Power off (general fault)
33	Discharge overcurrent level III	Alarm	1. DisChg_I > 120A 2. Duration: 10s	None	Power off (serious fault)
34	Cell temperature difference level I	Alarm	1. Cell temperature difference > 10°C 2. Duration: 5s	1. Cell temperature difference < 8°C 2. Duration: 2s	\
35	Cell temperature difference level II	Alarm	1. Cell temperature difference > 15°C 2. Duration: 5s	1. Cell temperature difference < 10°C 2. Duration: 2s	Power off (general fault)
36	Cell temperature difference level III	Alarm	1. Cell temperature difference > 20°C 2. Duration: 5 seconds	1. Cell temperature difference < 20°C 2. Duration: 2 seconds	Power off (serious fault)
37	MOS temperature excessively high - level I	Alarm	1. mos_T > 85°C 2. Duration: 5 seconds	1. mos_T < 80°C 2. Duration: 2 seconds	\
38	MOS temperature excessively high - level II	Alarm	1. mos_T > 95°C 2. Duration: 5 seconds	1. mos_T < 85°C 2. Duration: 2 seconds	Power off (general fault)
39	MOS temperature excessively high - level III	Alarm	1. mos_T > 100°C 2. Duration: 5 seconds	None	Power off (serious fault)

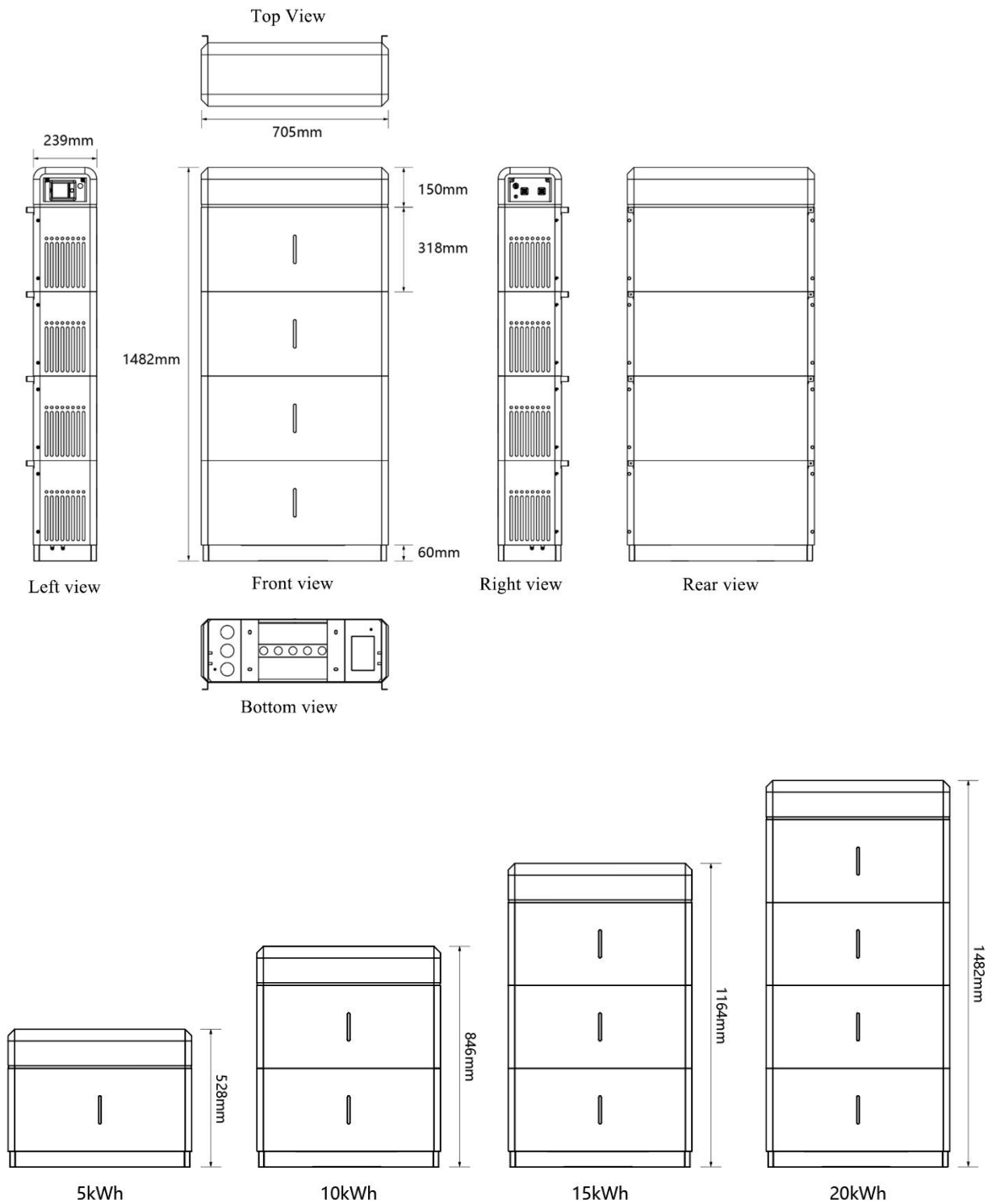
5、Electrical Schematic Diagram (Block diagram)



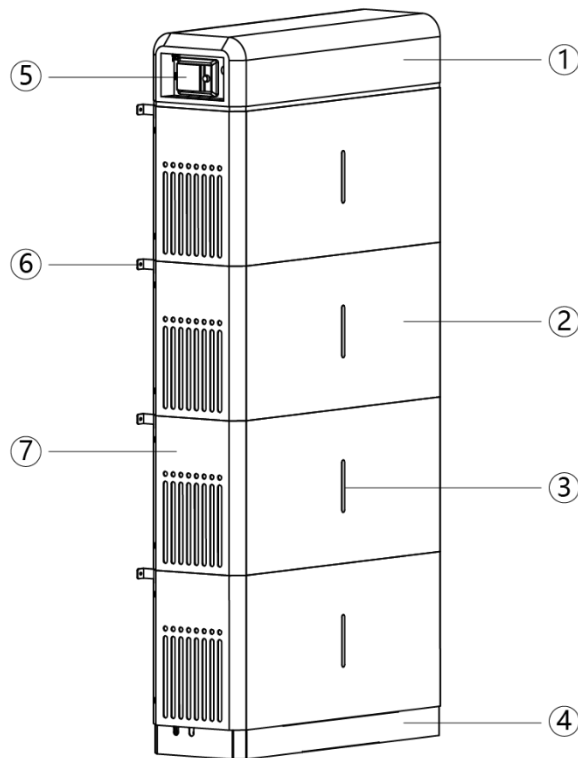
6. Appearance and Component Names

6.1 External Dimension

Product Specification

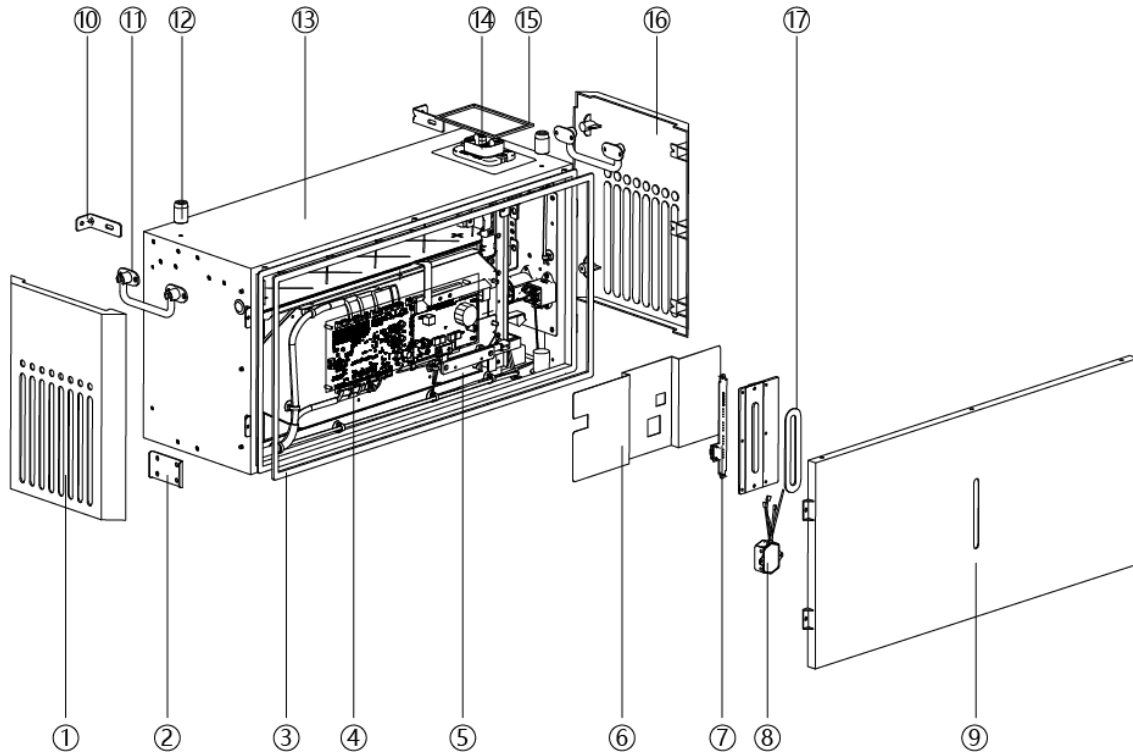


6.2 Description



S/N	Description
1	Integrated top cover
2	Battery box
3	Indicator
4	Base
5	Air switch
6	Wall fixings
7	Side trim

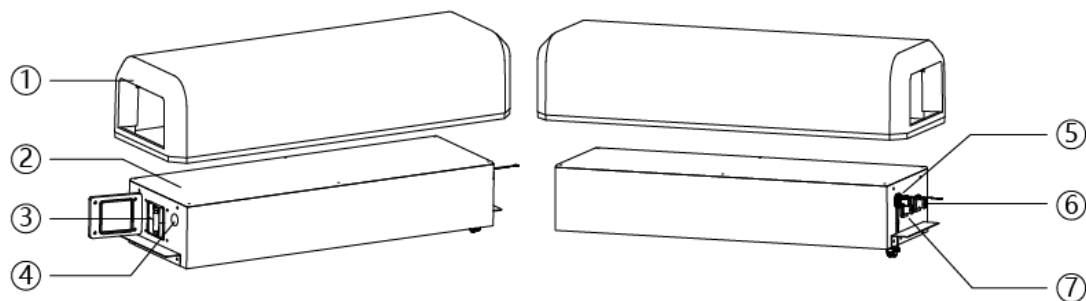
6.3. Exploded view of the battery box



S/N	Remarks
1	Left trim
2	Battery box fixing part
3	Front door seal
4	BMS board
5	Battery module
6	Insulating sheet
7	Lamp panel
8	Aerosol
9	Front door
10	Wall fixings

11	Handle
12	Locating pin
13	Container
14	Floating plug-in terminal
15	Seals
16	Right trim
17	Light guide plate

6.4 Integrated Top Cover



S/N	Description
1	Integrated top cover enclosure
2	Integrated top cover box
3	Air switch
4	Emergency stop button
5	CAN, RS485 interface
6	HV Output Positive Terminal
7	HV Output Negative Terminal

7. Packaging

The transportation and packaging scheme of the product shall prevail.

8. Safety Precautions

- Before using the product, please carefully read this manual.
- Do not connect directly to medical devices related to human life.
- Users with a cardiac pacemaker should be aware that the electromagnetic waves emitted by the main unit of the machine during charging and while powered on may affect the operation of the pacemaker. Therefore, please do not approach this product while it is charging or powered on.
- Ensure the product is only used for its intended design purposes.
- Avoid subjecting the battery to severe impacts or collisions.
- Do not subject the battery to strong impacts.
- Avoid exposing the battery to fire.
- Keep the battery away from temperatures exceeding 60°C.
- Do not place the battery near heat sources.
- Avoid prolonged exposure of the battery to direct sunlight.
- Prevent the battery connector from contacting conductive objects such as wires.
- Do not touch the battery with wet hands.
- Keep the battery out of reach of children and pets.
- Ensure the battery does not come into contact with any liquids.
- Avoid applying high voltage to the battery.
- Do not place heavy objects on the battery.

9. After-sales Defective Products and Waste Disposal

1. After-sales personnel must promptly return repaired or replaced defective products to the after-sales warehouse. The warehouse manager should register, classify, and summarize defective products. After after-sales recombination and repair, these products should be used as after-sales spare parts (following the repair standards required by the after-sales process quality). Products that cannot be reused must be returned to the finished product warehouse as per the *Delivery List of After-sales Spare Parts*. (Note: the quantities for "claim" and "actual delivery" are to be negative). Please sign for the finished products based on the actual circumstances after receiving instructions), and adjust the SOC of scrapped products to 0% SOC. The customer will seek a qualified company for solid waste recycling and disposal.
2. Disposal instructions of battery user end.

Please ensure the battery SOC < 10% before disposing of the battery system.

Shut down battery system

Turn off the external power switch

Turn off the switch of the battery unit

If you need to dispose of the battery system, please contact the dealer from whom you purchased the system to inform them of your disposal requirements. Do not dispose of hazardous materials on your own.