	Proposed			**Audit**			**Approval**			
	Contents	Specification v1.0		Secret level	Secrets	**Date**			Versions	V1.0

Wall-mounted lithium battery pack series

Technical Specification

Product Model:

Customer sign-off
Note: Customers are requested to use the battery in accordance with the specifications in this acknowledgement. If the battery is damaged and other losses are caused by not using it in accordance with these specifications, the company will not be responsible for this.

Revision of curriculum vitae

Edition		Revised content	Revision Date
V1.0	Newly revised		
Revision of curriculum vitae			

Catalog

1. Scope of application

The technical specifications apply to the wall-mounted lithium battery pack produced by HuNan AiMeiRen , which is widely used in electric power system; optical storage integrated charging system; home energy storage; UPS power supply, etc.;

2. Product Model

IMR-Code: Company Code

BG-Equipment installation type: wall-mounted

51.2 - Nominal voltage: 51.2V

100-Nominal capacity: 100Ah Ⅰ-Product model code

3. Normative references

GB/T 2408-2008 Determination of the burning properties of plastics horizontal and vertical method

GB/T 2829-2002 cycle test count sampling procedures and tables

GB/T17626.2-2006 Electromagnetic compatibility Test and measurement techniques Electrostatic discharge immunity test

GB/T 17626.5-2008 Electromagnetic compatibility Test and measurement techniques Surge (shock) immunity test

GB/T 20626.1-2006 Special Environmental Conditions Highland Electrical and Electronic Products Part 1

GB 5068-2011 Communication station lightning protection and grounding engineering design specifications

YD/T 2344.1-2011 Lithium iron phosphate battery pack Part 1: Integrated battery pack

YD 5083-2005 Specifications for testing the seismic performance of telecommunications equipment GB/T 36276-2018 Lithium-ion batteries for power storage

4. Performance indicators

4.1 Basic parameters of electric core

Project Name		Technical parameters	Remarks
Electric cell parameters	Battery type	EVE LF100LA	
	Battery Type	Lithium iron phosphate battery	Square Aluminum Case
	Nominal voltage (V)	3.2	
	Nominal capacity (Ah)	100	
	Weight (Kg)	~1.92	
	Charging current(C)	1	
	Discharge current(C)	1	
	Battery life	2500 times	

4.2 Basic parameters of battery pack

| Project Name		Technical parameters	Remarks
Nominal voltage		51.2V	
Nominal capacity		100AH	0.5C/0.5C@25℃
Operating voltage range		43.2V～58.4V	Monomer voltage 2.7V～3.65V
Battery series and parallel connection method		1P16S	1 parallel and 16 strings
Charging parameters	Standard charging current	5-10A	
	Float Charge Voltage	56.8V	
	Equal charging voltage	54.4V	
	Fast charging current	10-50A	
Discharge parameters	Standard discharge current	10-50A	
	Discharge cut-off voltage	43.2V	
	Fast discharge current	50-100A	
	Peak discharge current	110A@1S	
Operating temperature	Charging temperature	-5℃～55℃	
	Discharge temperature	-20℃～65℃	
Storage temperature		0 ℃～40 ℃	40%～60% SOC storage
Static pressure difference		≤50mV	SOC40%～60%

Safety protection function	Overcharge, over discharge, over current, over temperature, short circuit, etc.	
Communication method	RS485;CAN	
IP Rating	IP54	
Battery single box weight(Kg)	~48KG	
Battery box size (W*D*H)	500*420*170(mm)	

4.3 Battery pack form factor and function description

Battery pack form factor: 500*420*170

Dialer Power

ON

P+

POWER

P-

P+

P-

OFF

Output air

switch

Positive battery   Switch   RS485A/B

terminal   RS485/CAN

Negative battery

terminal
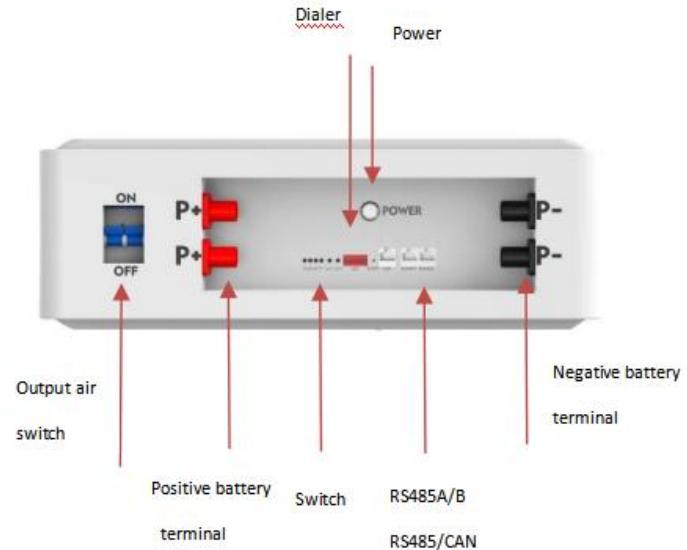
4.4 matching inverter model

Serial number	Manufacturers	Specification Model	Agreement	Communication method
1	Goodway	GW3648D-ES	PYLON CANBUS Protocol-V1.3	CAN
2	Victron	48-3000-35	canbus_bms_protocol	CAN
3	First Flight	HYD 3000-ES	PYLON CANBUS Protocol-V1.3	CAN
4	Tokuye	sun-3.6k-sg03lp1-eu	PYLON CANBUS Protocol-V1.3	CAN
5	Sun Moon Yuan	POW-VM5K-III	Voltronic Inverter and BMS 485 com munication protocol 20200325	RS485

6	Gurewat	SPF 5000 ES	Growatt BMS CAN-bus-protocol-low-voltage-V1.05 - English version.pdf	CAN
7	Magrane	Hb-5KL1-M	Shenzhen Magrane REVO system Column BMS Protocol.xlsx	CAN
8	Sukri	HF4850S80-145	Painan--RS485-protocol-pylon-lowvolume-12.pdf	RS485
9	Jinlang	RAI-3K-48ES-5G	The Communication Protocol of aoboet Energy Storage Battery	CAN
10	Gurewat	SPF 5000 ES	Growatt BMS CAN-bus-protocol-low-voltage-V1.05 - English version.pdf	CAN
11	Mercero	PH18,2-5.5KW	PV1800F-CAN communication Protocol1.04.04	CAN

4.5 Battery management system technical parameters

Projects	Default State	Is it possible to set	Details	Set value	Remarks (qualified range)
Single unit overcharge protection	Open	Can be set	Monomer overcharge protection voltage	3.63V	3.63±0.05V
	Open	Can be set	Monomer overcharge protection delay time	1000mS	1000~3000 mS
	Open	Can be set	Monomer overcharge protection recovery	3.40V	3.40±0.05V Recovery condition 1: 1、 The monomer voltage drops to the overcharge recovery voltage. 2、 Residual capacity is lower than intermittent replenishment capacity 96%. The above two conditions must be met in order to recover. Recovery condition 2: The battery is detected to have a discharge current > 3A.
Single unit over-discharge protection	Open	Can be set	Single over-discharge protection voltage	2.75V	2.75±0.05V
	Open	Can be set	Single over-discharge protection delay time	1000mS	1000~3000 mS

					3.0±0.05V
	Open	Can be set	Single unit over-discharge protection recovery	3.0V	Under-voltage protection shuts down and maintains communication for 1 minute. Recovery condition 1: The monomer voltage rises to the monomer overdischarge recovery voltage. Recovery condition 2: The battery is detected to have charging current > 3A.
Overall overcharge protection	Open	Can be set	Overall overcharge protection voltage (15 series)	54.5V	54.5±0.5V
	Open	Can be set	Overall overcharge protection voltage (16 series)	57.75V	57.75±0.5V
	Open	Can be set	Overall overcharge protection delay time	1000mS	1000~3000 mS
	Open	Can be set	Overall overcharge protection recovery (15 series)	51.0V	50.5±0.5V (15 strings) 53.5±0.5V (16 strings) Recovery condition 1:
			Overall overcharge protection recovery (16 series)	53.5V	

					1、 The monomer voltage drops to the overvoltage recovery voltage. 2、 Residual capacity is lower than intermittent replenishment capacity

					96%. Two conditions must be met in order to recover. 　　　　　Recovery condition 2: A discharge current >3A is detected in the battery.
Overall over-discharge protection	Open	Can be set	Overall over-discharge protection voltage	42.0V	42.0±0.5V
	Open	Can be set	Overall over-discharge protection delay time	1000mS	500~3000 mS
	Open	Can be set	Overall over-discharge protection recovery	45.0V	45.0V±0.5V Under-voltage protection shuts down and maintains communication for 1 minute. Recovery condition: A charging current > 3A is detected.
Over current protection	Open	Can be set	Charging overcurrent1 protection current	110A	110±3A
	Open	Can be set	Charging overcurrent1 protection delay time	10000mS	8000ms~12000mS
	Open	–	Charging over current 1 protection recovery	–	Recovery condition 1: Discharge is immediately restored. Recovery condition 2: Resumes automatically after

					60S.
	Open	Can be set	Discharge over current 1 protection current	110A	110±3A
	Open	Can be set	Discharge over current 1 protection delay time	10000mS	8000ms~12000mS
	Open	–	Discharge over current 1 protection recovery	–	Recovery condition 1: Charging resumes immediately. Recovery condition 2: Resumes automatically after 60S.
	Open	Can be set	Discharge over current 2 protection current	150A	150±10A
	Open	Can be set	Discharge over current 2 protection delay time	500mS	200mS-800mS
	Open	–	Discharge over current 2 protection recovery	–	Recovery condition 1: Charging resumes immediately. Recovery condition 2: Resumes automatically after 60s. After more than 5 times of auto recovery, the protection status will be locked and will not be automatically recovered. It can only be recovered by charging.

Short circuit protection	Open	Cannot be set	Short circuit protection current	300A	300±10A
	Open	Can be set	Short circuit protection delay time	≤500uS	–
	Open	–	Short circuit protection recovery	–	Recovery condition 1: Charging resumes immediately. Recovery condition 2: Resumes automatically after 60s.

						After more than 5 times of auto recovery, the protection status will be locked and will not be automatically recovered. It can only be recovered by charging.
Temperature protection	Open	Can be set	Charging high temperature protection	55℃	55±2℃
	Open	Can be set	Charging high temperature protection delay time	4000mS	3500mS-4500mS
	Open	Can be set	Charging high temperature recovery	50°C	50±2℃
	Open	Can be set	Discharge high temperature protection	60°C	60±2℃
	Open	Can be set	Discharge high temperature protection delay time	4000mS	3500MS-4500mS
	Open	Can be set	Discharge high temperature recovery	50°C	50±2℃
	Open	Can be set	Charging low temperature protection	0℃	0±2℃
	Open	Can be set	Charging low temperature protection delay time	4000mS	3500MS-4500mS
	Open	Can be set	Charging low temperature recovery	5℃	5±2℃
	Open	Can be set	Discharge low temperature protection	-15℃	-15±2°C
	Open	Can be set	Discharge low temperature protection delay time	4000mS	3500MS-4500mS
	Open	Can be set	Discharge low temperature recovery	0℃	0±2℃
	Open	Can be set	MOS high temperature protection	100°C	100±2°C
	Open	Can be set	MOS high temperature protection delay time	4000mS	3500MS-4500mS
	Open	Can be set	MOS High Temperature Recovery	85℃	85±2℃
	Open	Can be set	Environmental high temperature protection	65℃	65±2°C

	Open	Can be set	Ambient high temperature protection delay time	4000mS	3500MS–4500mS
	Open	Can be set	Environmental high temperature recovery	55℃	55±2℃
	Open	Can be set	Environmental low-temperature protection	–10° C	–10±2° C
	Open	Can be set	Ambient low temperature protection delay time	4000mS	3500MS–4500mS
	Open	Can be set	Environmental low temperature recovery	0℃	0±2℃
	Open	Can be set	Balanced heat ban	50° C	50±2℃
	Open	Can be set	Balanced low temperature prohibition	0℃	0±2℃
Other Projects	Open	Can be set	Pre-charge delay	5000mS	4500mS–5500mS
	Close	Can be set	Capacity Protection	5%	Function off by default
	Open	Can be set	Prohibit strong open voltage	2.2V	–
	Open	Can be set	Wake-up strong open delay	1min	–

4.6 LED indicator description

Table **1 LED** operating status indication

System **Status**	Protect/Alarm/Normal	**RUN** 🟢	**ALM** 🔴	Power **LED** 🟢	🟢	🟢	🟢	**Description**
Shutdown	Dormancy	extinguish	extinguish	Total extermination				Total extermination
Standby	Normal	Flash 1	extinguish	Total extermination				Standby **status**
	Alerts	Flash 3	Flash 3					ALM and RUN lights flash synchronously 3
Charging	Normal	Always bright	extinguish	Based on power indication (maximum LED flashes 2)				Maximum **LED** flash 2
	Overpressure **alarm**	Always bright	extinguish					Maximum **LED** flash 2

	Overcurrent alarm	Always bright	Flash 3	Based on power indication	Maximum LED flash 2
	Overvoltage protection	Always bright	extinguish	Always bright	RUN light: always on when the utility line is on, normal standby when the utility is offline Status
	Overcurrent protection (when unlimited current function)	extinguish	Always bright	extinguish	
	Current-limited charging	Always bright	extinguish	Based on power indication	Maximum LED flash 2
Discharge	Normal	Flash 3	extinguish	Based on power indication	Always on indication based on power
	Alerts	Flash 3	Flash 3		ALM and RUN lights flash synchronously 3
	Over-current, short-circuit, reverse connection protection, etc.	extinguish	Always bright	extinguish	
Temperature	Charge Alarm	Always bright	Flash 3	Based on power indication	Maximum LED flash 2
	Discharge Alarm	Flash 3	Flash 3	Based on power indication	According to the power always on indication, the ALM and RUN lights flash synchronously 3
	Protection	extinguish	Always bright	extinguish	

Status		Charging				Discharge		
Capacity indicator	L1●	L2●	L3●	L4●	L1●	L2●	L3●	L4●
0~25%	Blinking	extinguish	extinguish	extinguish	Bright	extinguish	extinguish	extinguish
25~50%	Bright	Blinking	extinguish	extinguish	Bright	Bright	extinguish	extinguish
50~75%	Bright	Bright	Blinking	extinguish	Bright	Bright	Bright	extinguish
75~100%	Bright	Bright	Bright	Blinking	Bright	Bright	Bright	Bright
Operation indicator ●	Always bright				Blink 3			

Table 2 Description of capacity indication

Table 3 LED flashing description

Blinking status	Bright	extinguish
Flash 1	0.25S	3.75S
Flash 2	0.5S	0.5S
Flash 3	0.5S	1.5S

Note: LED alarms can be enabled or disabled by the host computer, factory default is enabled.

The reset key control function has an activation/sleep/reset key, which should be able to integrate two functions of activation and sleep, and the BMS has a screening function to automatically enter sleep according to the power, load and battery pack condition.

Serial number	Function	Definition
1	Activation	When the BMS is in sleep state, press this button, the BMS is activated and the LEDs flash in sequence and then turn into normal operation.
2	Reset	When the BMS is in operation, press this key for 10s and then release it, the BMS is reset.

4.7 Hibernation and wake-up

Number	Dormant conditions	Wake up conditions	Remarks
1	Weak power switch OFF and go to sleep	Weak power switch ON	
2	Idle (no charge/discharge, no CAN communication) state	Charging, reset button, weak switch, LCD	

	Goes to **sleep** after **48** hours		
3	The lowest individual voltage is lower than the single over-discharge protection value (settable) or the total voltage is lower than the overall over-discharge protection value (settable), and after **1** minute, it will enter into under-voltage **hibernation**	Charging, reset button, weak **switch**	
4	Forced **hibernation** via host computer control	Charging, reset button, weak soft switch. LCD	

4.8 Communication description

4.8.1 CAN communication

CAN communication, baud rate 500K.

4.8.2 RS485 communication

The default baud rate is 9600bps. if you want to communicate with the monitoring device via RS485, the monitoring device acts as the host and polls the data based on the address, and the address setting range is 2~15.

4.8.3 Dipswitch Settings

When the PACK is used in parallel, the dipswitch on the BMS can be used to set the address to distinguish between different PACKs, avoid setting the address to the same, the definition of the BMS dipswitch

Refer to the table below.

Dipswitch
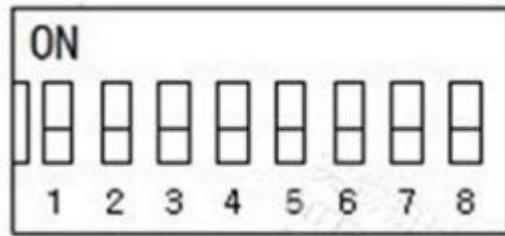
Dipswitches bit1 to bit8 are defined: bit1 to bit4 are used to set the address, and bit5 to bit8 are used to set the number of slaves.

Slave settings: bit1 to bit4 are set according to the device order, and the slave address range is 1 to 15. bit5 to bit8 are fixed to 0.

See slave setting table for host setting: bit1 to bit4 is 0, the host address is fixed to 0, and bit5 to bit8 is set according to the number of slaves connected in parallel.

See host setup table

Slave Setup **Table**

Address	Dipswitch position-				Description-
-	#1	#2-	#3-	#4-	-
1	ON	OFF	OFF	OFF	Address 1
2	OFF	ON	OFF	OFF	Address 2
3	ON	ON	OFF	OFF	Address 3

4	OFF	OFF	ON	OFF	Address 4
5	ON	OFF	ON	OFF	Address 5
6	OFF	ON	ON	OFF	Address 6
7	ON	ON	ON	OFF	Address 7
8	OFF	OFF	OFF	ON	Address 8
9	ON	OFF	OFF	ON	Address 9
10	OFF	ON	OFF	ON	Address 10
11	ON	ON	OFF	ON	Address 11
12	OFF	OFF	ON	ON	Address 12
13	ON	OFF	ON	ON	Address 13
14	OFF	ON	ON	ON	Address 14
15	ON	ON	ON	ON	Address 15

Host Setup Table

Number of parallel machines	Dipswitch position-				Description-
–	#5	#6	#7	#8-	–
2	ON	OFF	OFF	OFF	2 parallel machines
3	OFF	ON	OFF	OFF	3 parallel machines
4	ON	ON	OFF	OFF	4 parallel machines
5	OFF	OFF	ON	OFF	5 parallel machines
6	ON	OFF	ON	OFF	6 parallel machines
7	OFF	ON	ON	OFF	7 parallel machines
8	ON	ON	ON	OFF	8 parallel machines
9	OFF	OFF	OFF	ON	9 parallel machines
10	ON	OFF	OFF	ON	10 parallel machines
11	OFF	ON	OFF	ON	11 parallel machines
12	ON	ON	OFF	ON	12 parallel machines
13	OFF	OFF	ON	ON	13 parallel machines
14	ON	OFF	ON	ON	14 parallel machines
15	OFF	ON	ON	ON	15 parallel machines

5. Interface Definition

5.1 Interface Diagram
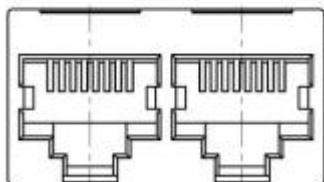
CAN and RS485 interfaces

5.2 Electrical interface definition
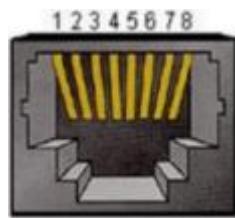
RJ45 connector pin number definition (top view)

There are 3 RJ45 connectors on the protection board as RS485 and CAN communication interface, RJ45-1,RJ45-2,RJ45-3 respectively.(See page 7)

Section:Management System Connections
    / Front of Motherboard Schematic
    Image). RJ45 connector interface
    description

Interface	Description
RJ45-1	PIN4: CANH
	PIN5: CANL
	PIN1, PIN2, PIN3, PIN6, PIN7, PIN8: NC

	PIN2, 7: 485-1A
	PIN1, 8: 485-1B
RJ45-2	PIN6:485-2A
	PIN5:485-2B
	PIN3, PIN4: NC
	PIN2, 7: 485-1A
	PIN1, 8: 485-1B
RJ45-3	PIN6: 485-2A
	PIN5: 485-2B
	PIN3, PIN4: NC

6. Battery pack performance test standards

6.1. Appearance

6.1.1 No obvious scratches, defects and cracks on the external surface of the battery pack, no other appearance defects affecting the sales value of the battery; appearance color: the power battery system and the surface paint color of the mounting frame is white;

6.1.2 The battery body is marked with the battery name, model number, rated capacity, charge limit voltage, positive and negative polarity and manufacturer, as well as Chinese warning instructions;

6.1.3 Measure the external dimensions of the battery module with a gauge and weigh the mass of the battery module with a scale.

6.2 Standard test conditions

The test battery pack must be a new battery pack that has been shipped from our factory for not more than one month. If there are no special requirements, the product test conditions in this specification are

temperature: 25±5℃; relative humidity: 15～90%; atmospheric pressure: 86kPa～106 kPa; altitude 2000m and below.

6.2.1 Standard charging conditions

Serial number	Parameters	Specification	Conditions
6.2.1.1	Standard charging current	1/3C	25±2℃
6.2.1.2	Standard charging voltage	3.65V	
6.2.1.3	Standard charging mode	1/3C constant current continuous charge to 3.65V, then constant voltage continuous charge at 3.65V until the lower current limit of 0.05C.	
6.2.1.4	Standard charging temperature	25±2℃	Cell temperature

6.2.2 Fast charging conditions

SOC/Voltage	0～80% average multiplier	90%	95%	3.6V	3.65V
<0	No charging allowed				
0	0.20	0.10	0.08	0.08	0.05
5	0.33	0.15	0.10	0.10	0.05
10	0.45	0.24	0.15	0.12	0.08
15	0.5	0.28	0.18	0.15	0.10

20	0.5	0.40	0.26	0.26	0.20
25	0.5	0.5	0.33	0.33	0.20
45	0.5	0.5	0.33	0.33	0.20
50	0.5	0.5	0.33	0.33	0.20
55	0.2	0.20	0.20	0.20	0.20
＞55	No charging allowed				

The charging window is in C (multiplier) and the reference capacity decays by default according to **SOH** during charging; the **1C** capacity of BOL at room temperature is

104Ah, 1C=104A, charging current at different SOH 1C=104*SOH, using **step-charge** distributed charging.

6.2.3 Discharge mode/parameters

Serial number	Parameters	Specification	Conditions
6.2.3.1	Standard discharge current	1/3C	25±2℃
6.2.3.2	Maximum continuous discharge current	100A	
6.2.3.3	Standard discharge temperature	25±2℃	Cell temperature

6.2.3.4	Discharge temperature range	−10±60℃	If the temperature of the core is outside the discharge temperature range, the **discharge will be** stopped

6.3 Test equipment requirements

6.3.1 The accuracy of the instrument for measuring dimensions should be greater than or equal to 0.1 mm;

6.3.2 The accuracy of the universal meter measuring voltage and current should be not less than 0.5 level, and the internal resistance should not be less than 10KΩ when measuring voltage;

6.3.3 The measurement principle of internal resistance tester shall be AC impedance method (1KHZ LCR);

6.3.4 The current accuracy of the battery test system should be no less than ±0.1%, constant voltage accuracy no less than ±0.5%, and timing accuracy no less than ±0.1%;

6.3.5 The accuracy of the instrument for measuring temperature should be not less than ±0.5℃

6.4 Electrical Performance Test

Serial number	Projects	Test Method	Inspection requirements
6.4.1	0.5C Discharge performance	1) Charging of the battery pack in the standard charging mode at the test temperature; 2) The open-circuit condition is left for 60min, and then discharged to the cut-off discharge voltage with 0.5C constant current, and the discharge capacity is recorded.	Discharge capacity ≥95% of nominal capacity
6.4.2	High temperature discharge Electrical Properties	1) Batteries are charged in standard charging mode; 2) 5H at 50±2° C high temperature; 3) Discharge to cut-off discharge voltage at 50±2° C at 0.2C constant current.	Discharge capacity ≥ 99% nominal capacity
6.4.3	Low temperature discharge performance	1) Batteries fully charged according to standard charging methods; 2) Shelve at −10±2° C for 16H at low temperature; 3) Discharge capacity recorded at −10±2℃ with 0.2C constant current discharge to cut-off discharge voltage	Discharge capacity ≥ 70% nominal capacity
6.4.4	Cycle Performance	1) The battery pack is fully charged in standard charging mode at the test temperature; 2) Open-circuit condition for 60min, discharge to cut-off voltage with 0.2C constant current, leave for 6 0min; 3) Repeat steps 1) and 2) until the cycle life is terminated when the discharge capacity is less than 60% of the nominal capacity, and record the number of cycles of the battery.	Number of cycles ≥3000 times
6.4.5	Capacity Retention Rate	Battery pack is fully charged according to standard charging mode; stored at 25±2° C for 28 days or more 0.1C constant current discharge to cut-off discharge voltage discharge capacity.	Capacity retention rate ≥ 96%

6.5 Security Testing

Serial number	Projects	Test Method	Inspection requirements
6.5.1	Overcharge test	1) Fully charge the battery pack in standard charging mode at 25±5℃ 2) Set the constant current and constant voltage source voltage to 1.15 times the nominal voltage of the battery system and charge the battery with 0.5C current. (b) The test ends when the battery temperature reaches steady state or drops to ambient temperature or when the battery protection device takes effect; 3) Observe the changes in the 1H of the battery module at the end of the test.	The battery should not explode, no fire
6.5.2	Over-discharge test	1) fully charge the battery pack in accordance with the standard charging mode at 25±5℃ 2) discharge the battery at a constant current of 0.5C until the voltage of one string of cells reaches 0V or the battery protection device takes effect when the test is over; 3) Observe the changes in the 1H of the battery module at the end of the test.	The battery should not explode, no fire
6.5.3	Short Circuit Test	1) Fully charge the battery pack at 25±5℃ in accordance with the standard charging mode 2) Short circuit the positive and negative terminals of the battery with <5mΩ resistors and end the test when the temperature of the battery module drops below 10℃ from the peak or when the battery protection device takes effect.	The battery should not explode, no fire

7. <u>Battery pack transportation and storage</u>

7.1 Shipping

The battery pack should be packed into boxes for transportation. During the transportation process, they should be protected from severe vibration, impact or extrusion, sun and rain, and can be transported by car, train, ship, etc.

7.2 Storage

7.2.1The battery pack should be stored at an ambient temperature of 0 to 40°C and a relative humidity of 10% to 90% RH.

7.2.2The battery pack should avoid contact with corrosive substances or magnetic environments.

7.2.3Store the battery pack in a clean, dry and ventilated environment, away from fire or heat sources.

7.2.4When the battery pack is stored for a long time without use, it is recommended to charge and discharge the battery pack once every 3 months.

8. <u>Product Use</u>

8.1 Product installation steps:

1) Make sure that the positive and negative connections of the battery box are insulated and protected!

2) Please make sure the battery box is off!

3) Rails or battery ply must be installed inside the cabinet, then the battery box must be placed on the rails or battery ply, then the battery box must be fixed to the cabinet column!

4) Each battery box must be supported by individual rails and must not be directly stacked. After installation is complete, leave at least one floating nut gap between boxes!

5) All connections must be made with the appropriate terminals to ensure a reliable connection!

6) Please do not connect the positive and negative poles short, and please do not connect the battery box in series!

8.2 Equipment or personnel damage:

1) This equipment is very heavy. Be sure to use safe and feasible lifting means according to the weight of the equipment.

2) Be sure to use the recommended number of screws to secure the lugs to the battery box.

3) Be sure to use the recommended number of screws and floating nuts to secure the battery box to the cabinet.

4) Be sure to install the battery box in a reliable location.

8.3 Mechanical fixed installation:

Install and secure the battery box in the designated location according to the following installation step-by-step instructions.

1) Place the battery box lightly in the intended mounting position.
2) Grounding: Ground the chassis at any of the four fixed holes with 10AWG (**5mm²**) or more yellow-green copper wire to ensure good grounding.

8.4 Electrical connection installation:

Connect the battery box power and communication cables to the device according to the following installation step-by-step instructions.

1) Lithium battery and equipment communication line connection Parallel communication connect RS485A/B port, the first battery RS485B connect the second battery RS485A, and so on.

2) Lithium battery and equipment power cable connection Battery polarity parallel to the machine, need to connect the electrical polarity to the busbar for convergence. Use a minimum of **10mm²** (or 7AWG) copper core wire for the power connection, **16²** (or 5AWG) copper core wire is recommended;

9. Quality Assurance

The warranty period of the battery is determined by the contract from the date of shipment. However, within this period, if the battery quality problem is not caused by our process but by customer's misuse, we do not promise free replacement.

10. Safe Use Guide

To avoid damage or personal injury from battery pack abuse, please read the following safety guidelines carefully before using this battery pack:

10.1 Do not disassemble, crush, incinerate, heat or put the battery into fire.

10.2 For battery packs in end-of-life condition, they should be disposed of in a timely manner according to local recycling or waste regulations.

10.3 Do not put the battery pack into water or get it wet.

10.4 Do not contact the positive and negative terminals of the battery pack with the metal case at the same time.

10.5 Do not short-circuit, overcharge or over-discharge the battery pack.

10.6 Do not use or store the battery pack near heat sources (such as fire or heaters).

10.7 Do not reverse the positive and negative terminals of the battery pack.

10.8 Do not pierce the battery pack case with nails or other sharp objects, and forbid hammering or stepping on the battery pack.

10.9 Do not disassemble or tinker with the battery pack in any way without permission.

10.10 Do not hit, throw or subject the battery pack to mechanical vibration or natural fall.

10.11 Do not mix different types and brands of battery packs.

10.12 Do not use the battery pack if it emits odor, heat, deformation, discoloration or any other abnormalities, and remove the battery pack from the use environment.

10.13 If the battery pack is on fire, you need to use dry powder, foam extinguisher, sand, etc. to extinguish and keep the battery pack away from making

Use the environment.

11. Battery pack shipment status

The battery pack is
  shipped with about
      50% charge.

12. Scope of supply

Serial number	Name		Specification Model	Unit	Quantity	Remarks
1	Battery System	Battery box		PCS	1	

Note: Product nameplate information is subject to the actual product