ASH-HESS-15/20/25/30/35/40 Stacked Battery Series

Product User Manual

Product Models: ASH-HESS-15/20/25/30/35/40

Safety Instruction

Please keep this manual for future reference

This manual contains all safety, installation and operation instructions for the ASH-HESS-15/20/25/30/35/40 stacked battery series.

Please read all instructions and precautions in the manual carefully before installation and use.

- The battery contains unsafe voltage, to avoid personal injury, do not disassemble it by yourself. Please contact our professional technicians if maintenance is required. Unauthorized disassembly will result in no warranty or no quality assurance.
- The battery contains unsafe voltage . Please do not allow children to touch the battery randomly.
- Do not install the battery in harsh environments such as damp, greasy, flammable, explosive, or dusty areas.
- Both the battery input and output are with unsafe voltage. Please do not touch the terminals and wires arbitrarily during the battery operation.
- Special tools must be used when working under high-voltage and AC power, and individual tools cannot be used arbitrarily.
- It is recommended to install the battery in a place that avoids direct sunlight.
- Before installing and adjusting the battery wiring, make sure to turn off the battery output and input.
- After installation, please check all connections to ensure they are tight and avoid the risk of heat buildup caused by loose connections.
- Please cover the terminal with the cap after taking off the wires from the battery input and output port. It's to avoid touching the terminal metal conductor randomly and causing electric shock risks.
- The charging temperature range for the battery is 0°C to 45°C. Charging beyond this range may cause the battery to heat up or be damaged. Charging beyond this temperature range can also damage the battery's performance or reduce its expected lifespan.
- The battery discharge temperature range is -20°C to 60°C. Using the battery beyond this temperature range may damage the battery's performance or reduce its expected lifespan.
- The battery supports parallel use with the same model, it is forbidden to parallel with other different battery models to avoid the damage.
- It is forbidden to connect the battery packs in series to avoid battery damage and safety risks.

Contents

1.Basic Information

1.1 Product overview and features

ASH-HESS-15/20/25/30/35/40 stacked series battery system is with smaller size, lighter weight, and longer cycle life. It uses high-energy-density lithium iron phosphate cells that are safer. Through an advanced battery management system, real-time monitoring of battery voltage, current, temperature, and BMS system fault information, the battery provides customers with a complete and reliable control and protection mechanism. The battery system also provides intelligent charging balance, power estimation, RS485 communication, CAN communication, RS232 communication, LED display, key on/off, data storage, charging current limiting, system parallel connection, etc. It adopts a LCD screen design to display the system's operating data and status in real-time. Comprehensive electronic protection functions ensure that the entire system is safer and more stable.

Features：

1、Lithium iron phosphate cells are used, which are safer and have a longer cycle life.

2、The advanced battery management system manages the battery system in real-time with high efficiency and fast response.

3、Two Communication interfaces are available: either CAN or RS485.

4、The product adopts an LCD screen design and 2 LED indicators to dynamically display battery system level and operating status.

5、Stacked structure, simple and convenient installation.

6、With power saver mode function, it will enter sleep mode when it is in idle power consumption.

7、With high-current stacked connectors, easy installation, big capacity of over-current.

8、The battery module comes with 100mA passive charging equalization function.

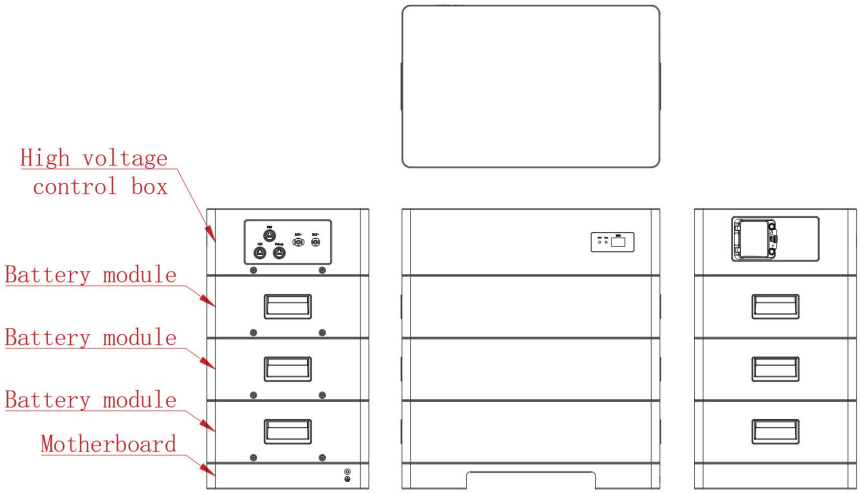
9、It can provide the output dry contact terminals to work with inverter.

10、It has complete protections, including short circuit protection, over/under voltage protection, overload protection, and reverse connection protection.

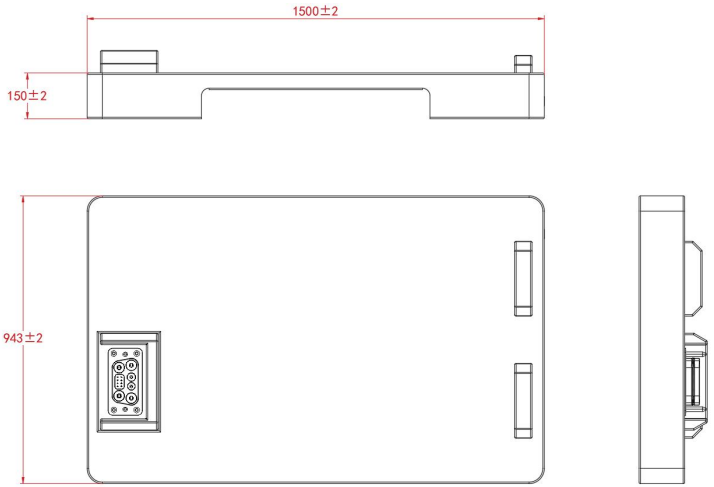
1.2 Battery System Parameter

Model	ASH-HESS-15	ASH-HESS-20	ASH-HESS-25	ASH-HESS-30	ASH-HESS-35	ASH-HESS-40
Rated Energy	15.36kWh	20.48kWh	25.6kWh	30.72kWh	35.84kWh	40.96kWh
Rated Capacity	100Ah					
No. of modules in series	3	4	5	6	7	8
Battery Cells Configuration	48S1P	64S1P	80S1P	96S1P	112S1P	128S1P
Rated Voltage	153.6V	204.8V	256V	307.2V	358.4V	409.6V
Charging Cut-off Voltage	175.2V	233.6V	292V	350.4V	408.8V	467.2V
Discharging Cut-off Voltage	120V	160V	200V	240V	280V	320V
Overall Dimension（W/O wheels）	600*377*650mm	600*377*795mm	600*377*940mm	600*377*1085mm	600*377*1230mm	600*377*1375mm
Weight（N.W.）	171.5KG	217KG	262.5KG	308KG	353.5KG	399KG
Recommended Discharge Current	20A(0.2C)					
Recommended Charge Current	20A(0.2C)					
Maximum Charge Current	40A(MAX)					
Minimum Discharge Current	40A(MAX)					
Operating Temperature	Charge：0~55℃					
	Discharge：-20~60℃					
Communication Port	CAN/RS485					
Storage Temperature	1 Month：-20~60℃ / 3 months：-10~40℃ / 1 year：-5~30℃					
Cycle life	≥5000，25℃，0.2C					
Certificates	UN38.3、CE					

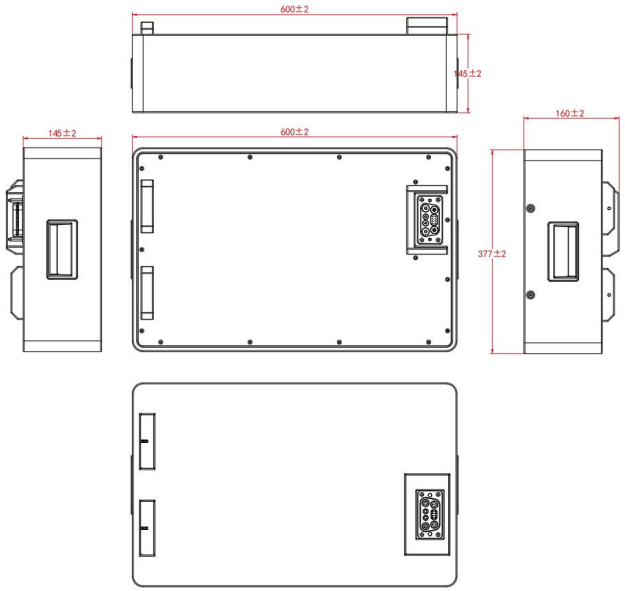
1.3 Product Display



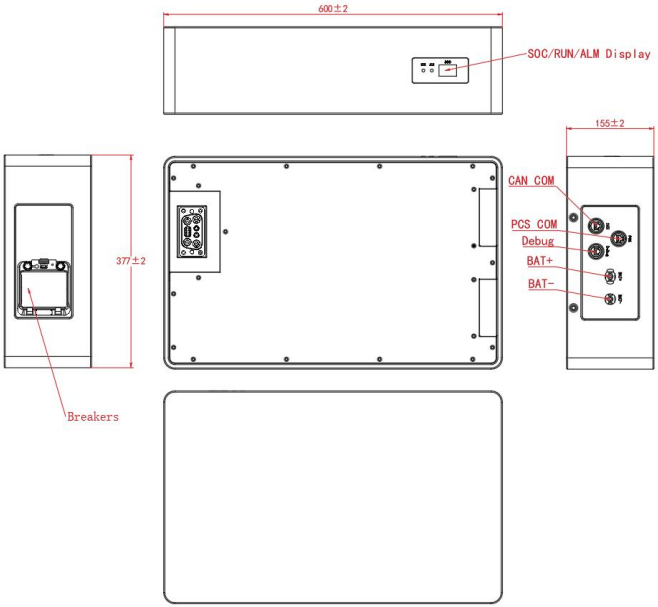
1.4 Bottom Plate Size Diagram



1.5 Battery Module Size Diagram



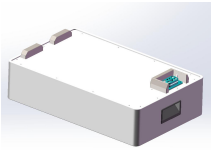
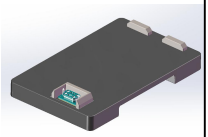
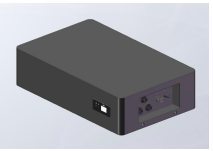
1.6 High Voltage Control Box Size Diagram



2.Packing List

2.1 Packing list for shipment

ASH-HESS-15/20/25/30/35/40 stacked series batteries are shipped. When you open the package, the internal components should be the same as the following packaging list.

		
ASH-HESS-5120C0 Battery Module*N(N=No. of modules）	Bottom Plate*1	High Voltage Control Box*1
		
MC4*1	M5*25/Machine Screws/Carbon Steel/Torx Screws*2（N+1）	2.0M Communication Cable*1

3.Installation Instruction

3.1 Installation Precautions

Before installation, please read the precautions carefully and familiarize yourself with the installation steps.

1、Before installation, unpack and check the number of parts and the appearance of the battery. If you find deformation of the casing, leakage, corrosion, etc., please stop the installation and contact after-sales personnel in time.

2、Battery system is strictly prohibited to outdoor use.

3、Avoid placing metal objects near the battery to prevent short circuit of the battery.

4、Pls make sure leave the enough space around the battery for heat dissipation when you install it. Do not install the battery and loads in a same cabinet to avoid the heat generated by loads to affect the battery.

5、Only loads that meet the working voltage and current of this battery can be powered and operated.

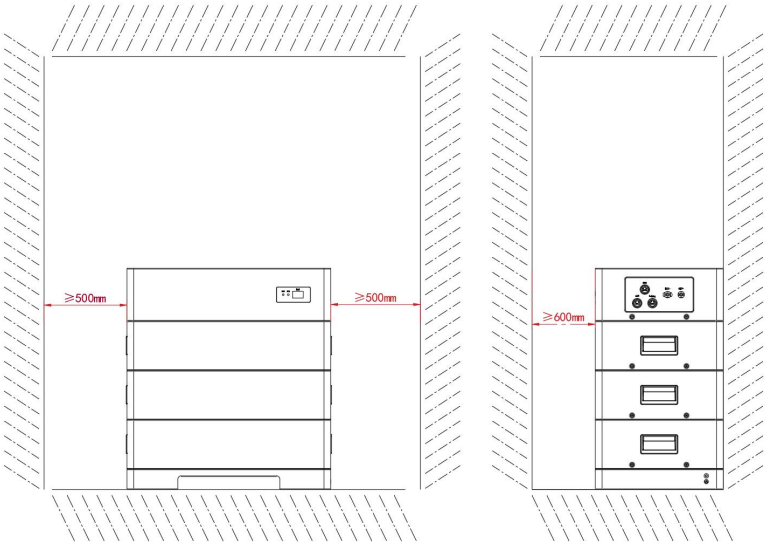
6、Loose connection and corroded wires can cause significant heat that melts the wire insulation, burns surrounding materials, and even causes fires. Therefore, make sure all connectors are tightened and the wires are preferably fixed with cable ties.

7、Do not install the battery in harsh environments such as damp, greasy, flammable, explosive or areas with high concentration of dust.

8、The input and output terminals of the battery in this product are strictly prohibited from being reversed, otherwise it may damage the battery or cause unpredictable danger.

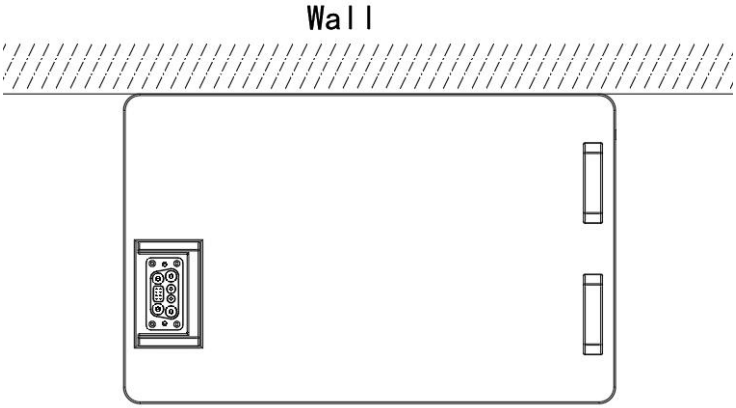
3.2 Installation space dimension requirements

When you install the battery system, pls make sure that the ground is smooth because the batteries are heavy. In order to ensure the normal operation and easy operation of the system, there are certain requirements on the available space of the system, such as keep sufficient gaps. Please refer to the installation diagram as below.

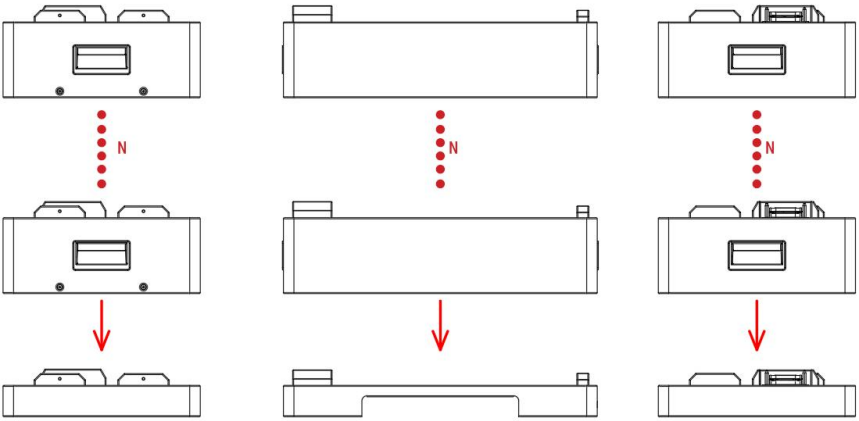


3.3 Installation procedure for batteries stacked

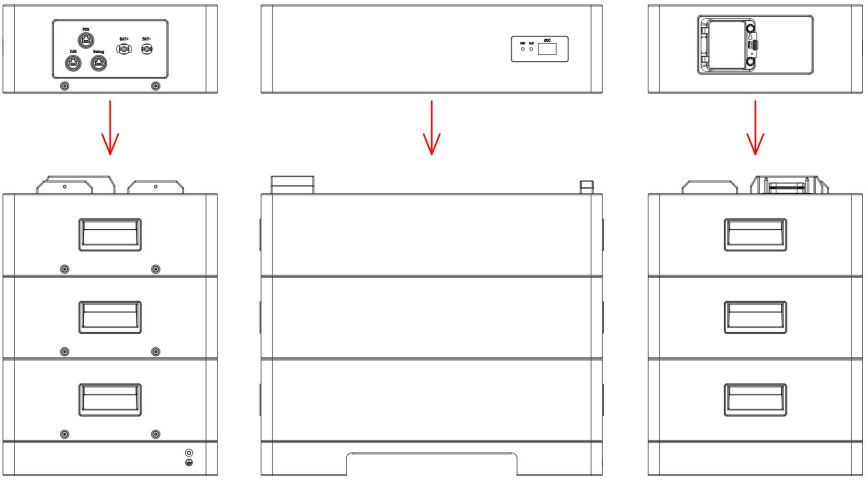
Make sure the position of installation for battery system, after clean the ground please place the base cover horizontally on the flat floor Place the battery modules on the bottom plate in sequence, as shown in the figure below:



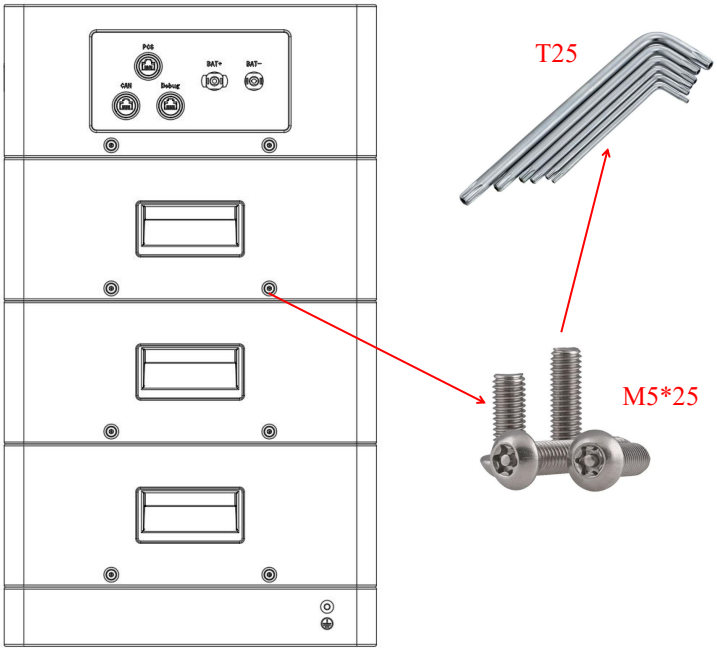
Place the battery modules on the bottom plate in sequence, as shown in the figure below:



Place the high voltage control box on the top of the battery module, as shown in the figure below:

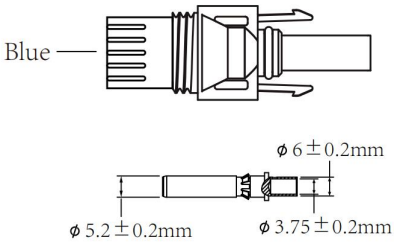


Please use the provided screws to fasten the upper and lower layers. The torque value of the screws is ≥3.0N.m.

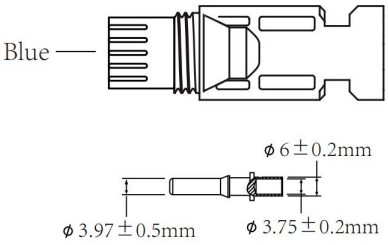


3.4 Wiring method for stacked battery

The MC4 output terminals are marked BAT+ and BAT- on the high-voltage box. BAT+ is the positive pole of the battery, and BAT- is the negative pole of the battery. Before wiring, please turn off the circuit breaker switch on the high-voltage box. The provided MC4 terminals as shown in the figure below. The recommended cables is 6-10mm²（10AWG-8AWG).

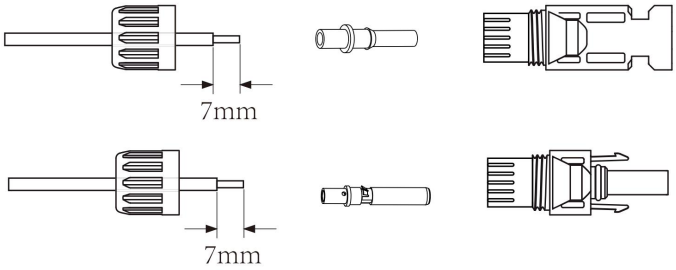


BAT+



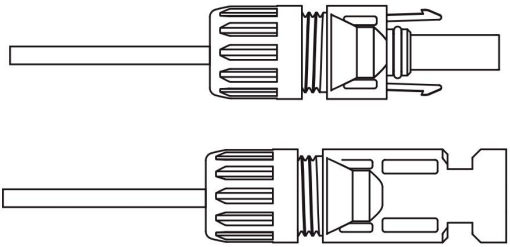
BAT-

Strip 7mm of the conductor from the end of the cable as shown in the figure below:

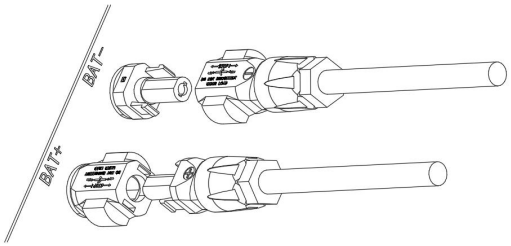


Use the crimping pliers to press the cable end and the terminal pin tightly as shown in the figure below:

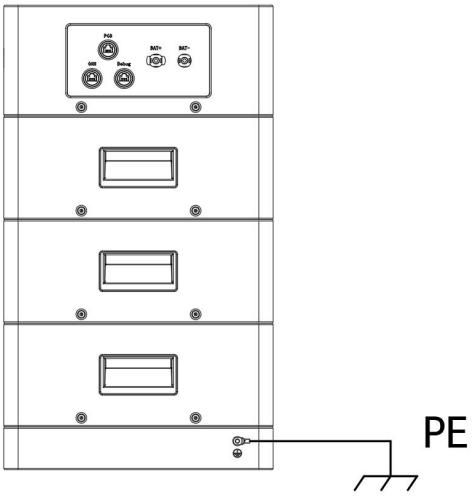
Insert the crimped terminal pin into the terminal and tighten it, as shown in the figure below:



Connect the terminal pair of the pressed cable to the high voltage box, as shown in the figure below:

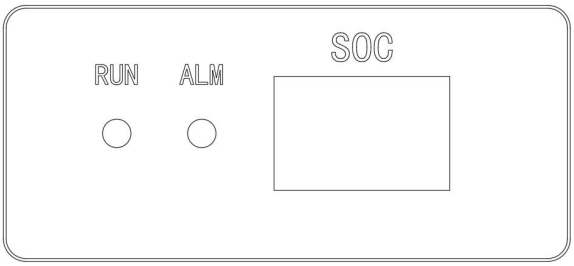


To make sure use the electricity safety, the battery system needs to be reliably grounded, as shown in the figure below:



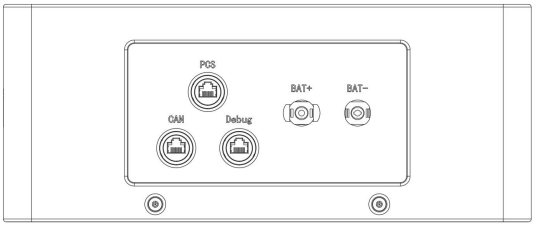
4. Battery operation indicator

As shown in the figure below,“RUN”is the normal working indicator.“ALM”is running alarm indicator,“SOC”is remaining battery, shown as percentage.



5. Communication interface definition

As shown in the figure below,“PCS”is the communication interface of the inverter, there is CAN and RS485 communication，“CAN” is used for parallel communication between batteries，“Debug”is used for battery debugging and parallel communication between batteries.



RJ-45 Connector	CAN		PCS		CAN debug	
	RJ45 pin	Definition	RJ45 pin	Definition	RJ45 pin	Definition
1 2 3 4 5 6 7 8	1	CAN0_H	1	NC	1	CAN0_H
	2	CAN0_L	2	NC	2	CAN0_L
	3	CAN1_G	3	CAN1_G	3	CAN1_G
	4	CAN1_H	4	CAN1_H	4	CAN1_H
	5	CAN1_L	5	CAN1_L	5	CAN1_L
	6	DIG_IN2	6	HSS8	6	NC
	7	GND	7	485A	7	NC
	8	GND	8	485B	8	NC

6. Storage and Maintenance

6.1 Storage

Please charge the battery for at least 3 hours before storage. Store the battery upright in a cool, dry place. The recommended long-term storage temperature is 15℃-25℃. During storage, please charge the battery according to the following table:

Storage Temperature	Charging Frequency	Charging Time
0℃-40℃	Every 3 months	2-3 hours

6.2 Maintenance

A. Battery works under high voltage, the maintenance should only be performed by qualified maintenance personnel.

B. Even when the battery is turned off, the battery pack is still connected to the inverter, which is potentially dangerous.

C. Only technicians who are familiar enough with the battery can repair or maintain, and unauthorized personnel are not allowed to operate.

D. The battery may cause electric shock, and the short-circuit current is large. Please remove all watch, ring, metallic personal items before repair/maintenance.

E. Do not disassemble the battery without permission.

7. Product Liability and Consulting

A. We are not responsible for accidents caused by violation of this specification and operation manual.

B. Due to product quality improvement or technology upgrade, specifications subject to change without notice. If you want to know the latest information about this product, please contact us.

C. The warranty period of this product is within 60 months after delivery. If the product within the warranty period has any product quality problems within the specified range of use, we will repair it for free; If the repair fails, we will replace the relevant components with new ones to achieve continuous use without reducing performance; Our after-sales personnel will provide specific maintenance and troubleshooting methods.

D. If you have any questions, please contact us.