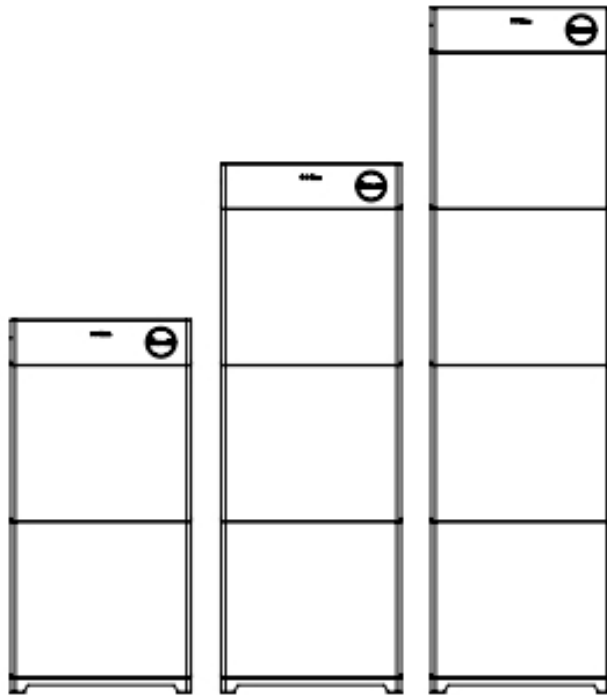




BES-H2/H3/H3

Stackable Residential Battery

User Manual

Notes on This Manual

Overview

This user manual contains detailed information on product data, application areas, installation instructions, electrical connections, communication settings, system commissioning, maintenance, troubleshooting, and technical specifications of the BoroChi BES series stacked home battery. Please read this manual carefully before installing and using the product to fully understand the safety information and become familiar with the functions and operation methods of the product, thereby ensuring safe and efficient operation of the system.

This manual applies to the following product models:

BES-H2 (BOR-5120-H2)

BES-H3 (BOR-5120-H3)

BES-H4 (BOR-5120-H4)

Please refer to the relevant sections of this manual according to the specific model you are using to ensure correct installation and operation. If you have any questions, please contact official technical support or an authorized distributor for professional assistance.

Target Group

This manual is intended for end users as well as installation and maintenance personnel. Technical operations such as installation, electrical wiring, battery connection, and communication setup must be performed only by qualified electricians or trained professionals to ensure safe and reliable system operation. Please read this manual carefully before performing any operation, and strictly follow all instructions to avoid equipment damage or personal injury. If you have any questions, please contact BoroChi technical support or an authorized service provider.

Symbols Explanation

Symbol	Description
	Hazard warning information with a high risk level; if not avoided, it may result in death or serious injury.
	Hazard warning information with a medium risk level; if not avoided, it may result in death or serious injury.
	Hazard warning information with a low risk level; if not avoided, it may result in minor or moderate injury.
	Not involving personal injury; if not avoided, it may result in equipment damage, data loss, decreased device performance, or other unforeseeable consequences.
 NOTE	Not involving personal injury or equipment damage; usually serves as a supplementary explanation to key information in the main text.

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1 Safety Instructions

1.1 Statement

Before transportation, storage, installation, commissioning, use, and maintenance of the equipment, please carefully read this manual and strictly follow the operating instructions and safety markings on the equipment. Also, comply with the warnings and notices such as "Danger," "Warning," "Caution," and "Notice" throughout this manual. Please ensure adherence to applicable international, national, regional standards, and industry regulations.

This equipment must be used in an environment that meets the design requirements. Equipment failures, functional abnormalities, or component damages caused by unsuitable environmental conditions are not covered by the warranty. BoroChi Climate Solutions GmbH shall not be liable for any personal injury or property damage resulting therefrom. All transportation, storage, installation, operation, and maintenance work must strictly comply with relevant laws, regulations, and standards.

Reverse engineering, decompilation, disassembly, modification, implantation, or other derivative operations on the equipment software are strictly prohibited. It is forbidden to explore the internal implementation principles of the equipment, obtain the software source code, infringe intellectual property rights in any way, or disclose any software performance test results.

Furthermore, BoroChi Climate Solutions GmbH shall not be held responsible for damages caused by force majeure events such as earthquakes, floods, fires, wars, typhoons, extreme weather, or damages caused by unqualified personnel installation, operational errors, unauthorized disassembly, product modification, or improper third-party transportation and storage. Please assess all related risks before operation and strictly follow this manual and relevant standards.

1.2 Personal Safety



Risk of hot-line work: The power must be cut off before the equipment is operated. Do not install, disassemble or maintain the equipment under live conditions to prevent electric shock, fire or explosion caused by electric arcs and sparks.

Operation by non-professionals: Only personnel who have received professional training and are familiar with local regulations and equipment knowledge are allowed to operate. Operation by non-professionals may cause accidents due to lack of experience.

Risk of defective components: Do not use a battery module if it is defective, damaged or missing to prevent accidents caused by internal faults.



Read this Manual carefully: Before operation, read this Manual and strictly abide by all safety signs on the equipment and safety precautions in this Manual.



Wear personal protective equipment: Wear appropriate personal protective equipment (such as anti-static clothing, insulating gloves, goggles and safety helmets) to avoid electric shock or burns caused by improper wearing (such as conductive items as watches and bracelets).

First aid measures: First aid equipment should be available at the work site.

NOTICE

On-site inspection: Before operation, the equipment, tools and safety facilities should be fully inspected to ensure that there is no damage, defect or abnormality.

1.3 Electrical Safety

DANGER

Risk of hot-line work: Electrical connection, maintenance or operation when the equipment is energized can easily cause electric shock, short circuit, fire or explosion accidents. Before maintenance or overhaul, be sure to turn off the main power supply circuit. After power-off, wait at least 3 minutes to ensure that the electrical components (especially capacitors) are completely discharged.

Wiring, grounding and isolation measures: All electrical connections must comply with local regulations and international standards; for equipment that needs to be grounded, connect the protective ground wire first during installation and disconnect it last during removal; adopt isolation measures when using insulating tools to avoid accidental contact.

WARNING

Damage to electrical components: The use of damaged and substandard cables, plugs or connectors may cause circuit failure and potential electric shock.

Tool use: Special and inspected insulating tools must be used during operation, and signs such as "No Power-on" shall be set up in the working area to ensure a safe working environment.

CAUTION

Operation process: Strictly follow the steps specified in this Manual. Do not change the circuit or installation sequence without authorization to ensure that safety protection measures are implemented.

NOTICE

Regular inspection: Regularly check all electrical contacts, lines and connection parts to confirm that the contact is firm and the insulation is intact. If any problems are found, the related parts should be repaired or replaced in time.

1.4 Environmental Safety

DANGER

Risk of harsh environment: The equipment shall not be installed in an unsuitable environment such as with flammable, explosive substances, thick smoke or extreme high temperature. Otherwise, it may cause fire, explosion or equipment failure.

Exposure to adverse environment: Placing the equipment in an area with direct sunlight, rain, accumulated water, condensation or thick smoke can easily cause malfunction and short circuit of the equipment or fires.

 WARNING

Cable location requirements: The use of cables in high temperature environments may cause aging and damage to the insulation layer. The distance between the cable and the heating device or the periphery of the heat source area should be at least 30 mm.

Protective facilities: For outdoor installation, lightning protection, dust prevention and moisture prevention measures must be taken.

Fire extinguisher configuration: Carbon dioxide, Novac1230 or FM-200 fire extinguishers must be equipped near the equipment. Do not use water or ABC dry powder fire extinguishers.

 CAUTION

Installation location requirements: Install the equipment at a dry, ventilated, water-free location away from fire sources, heat sources and direct light

Environmental monitoring: Regularly detect the temperature, humidity, water accumulation and other environmental factors that may affect the operation of equipment in the installation environment.

NOTICE

Storage and transportation: Place the equipment and batteries in a dry, ventilated and stable area during storage and transportation to prevent damage to equipment or components due to improper environment.

1.5 Mechanical Safety

 DANGER

Risks of handling at height and heavy object handling: When working at height or carrying heavy equipment, if effective protection (wearing safety belts and helmets, using stable tools, etc.) is not taken, it may cause falling, collision injuries or equipment damage.

Equipment structure damage: Do not drill holes on the equipment or modify the equipment enclosure to prevent damage to the sealing, electromagnetic shielding and internal components, causing short circuits or other accidents.

 WARNING

Equipment stability: The equipment must be placed firmly without tilting. Tipping over may cause damage or personal injury.

Tools and protective measures: All operating tools must be inspected by professional institutions. When the equipment is handled at height or a heavy object is handled, safety warning areas should be set up, guardrails should be installed, and "No Entry" signs should be hung to ensure the safety of operators.

Handling and transportation specifications: The equipment must be placed firmly during handling and transportation, and tilting or violent vibration is prohibited; operators should

select appropriate handling tools according to the weight and size of the equipment to avoid internal damage caused by falling or collision.

CAUTION

Wiring and fixing: Wiring should comply with regulations. Similar cables should be fixed centrally, and different types of cables should be kept at least 30 mm apart to prevent entanglement and crossing; the firmness of the fixing device should be checked in time during installation.

NOTICE

Site cleaning: After the equipment is installed and transported, the residual packaging materials, tools and other debris on site should be cleaned up to prevent secondary damage to the equipment.

1.6 Chemical Safety

DANGER

Risk of short circuit and thermal runaway: Do not short-circuit the positive and negative poles of the battery. Short circuit will quickly generate large current, cause thermal runaway, leakage, smoke, fire or explosion.

Electrolyte leakage: Battery damage may cause electrolyte leakage. The leaked liquid and volatile gas are toxic, corrosive and flammable. Once leaked, they may cause fire or explosion.

WARNING

No unauthorized modification: Do not disassemble or modify the battery module without authorization to avoid leakage or explosion.

CAUTION

Emergency Treatment for Leakage:

- 1. Inhalation of leakage:** Evacuate the contaminated area quickly and seek medical help immediately;
- 2. Eye contact:** Rinse with plenty of water for at least 15 minutes and seek medical attention immediately;
- 3. Skin contact:** Wash thoroughly with soap and water, and seek medical attention as soon as possible;
- 4. Ingestion by mistake:** Induce vomiting and seek medical attention promptly.

2 Product Introduction

2.1 Overview

The BoroChi BES series stacked household energy storage battery consists of a HV control box, battery modules and a base, and adopts a modular stacking design. The series offers three models with rated capacities ranging from 10.24 kWh to 20.48 kWh, meeting the daily energy storage needs of households.

2.2 Model Description

This document contains three models of products, taking BOR-5120-H2 as an example.

BOR - 5120 - H 2

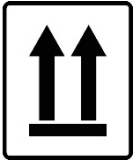
Character	Meaning	Description
BOR	BoroChi	Brand
5120	5120Wh	Capacity of a single battery module
H	HV	HV/LV
2	Two battery modules	Quantity of battery modules

2.3 Label Description

Unit Signs

Please always pay attention to the safety-related signs on the unit, read them carefully and fully understand their meanings. Do not tear off any safety warning signs. The signs and their meaning are as follows:

Sign	Explanation
	After commissioning the device, potential hazards may exist. Please take appropriate protective measures during operation.
	The device operates at high voltage during operation. Ensure that the device is de-energized before performing any work on it.

	Please use the device properly. In extreme cases, there is a risk of explosion.
	The device contains corrosive electrolytes. Avoid contact with any leaked electrolyte or escaping gases.
	Keep the device away from open flames or sources of ignition.
	Keep the device out of reach of children.
	It is forbidden to extinguish fires with water.
	The protective earthing symbol indicates the connection point for the protective conductor.
	This side up. Do not tilt or turn upside down.
	The device must be installed properly and recycled in accordance with local environmental regulations.
	The device must not be disposed of with household waste and must be recycled through designated collection points.

	Please refer to the user manual for further information on proper use.
	Complies with CE certification standards.

Nameplate

The BoroChi stacked household energy storage battery has a nameplate on the back, which contains important parameter information related to the product. Do not tear or damage unit signs, and ensure that they are always clear and readable.

Nameplate of HV control box

			
	 H2	 H3	 H4
Nominal Energy/kWh	10.24	15.36	20.48
Nominal Voltage/V	204.8	307.2	409.6
Nominal Capacity/Ah	50	50	50
Ambient Temp/°C	-10~50	-10~50	-10~50
IP Grade	65	65	65
Protective Class	I	I	I
			
			
www.boroChi.eu			
Shunteng Smart Energy (Suzhou) Co., Ltd			

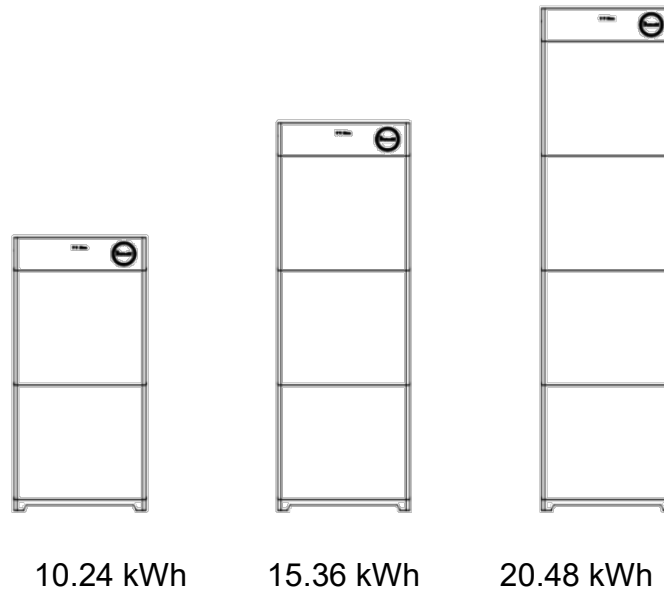
Battery module nameplate



Shunteng Smart Energy (Suzhou) Co., Ltd

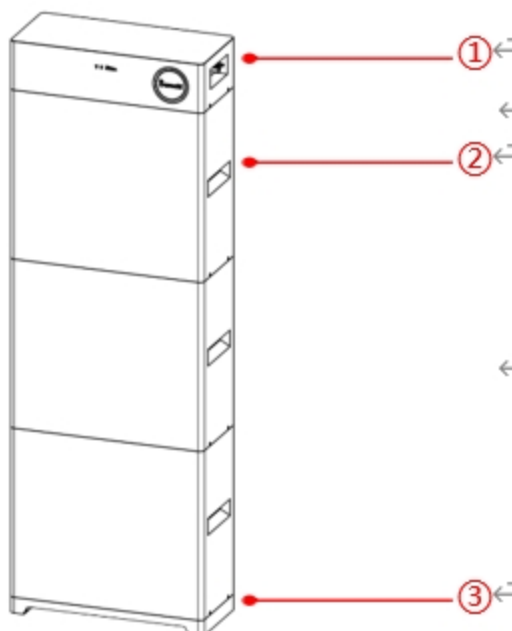
2.4 Energy Storage Capacity

The energy storage system supports capacity expansion. The capacity of one battery module is 5.12kWh, and up to 4 battery modules can be installed.



2.5 Appearance Description

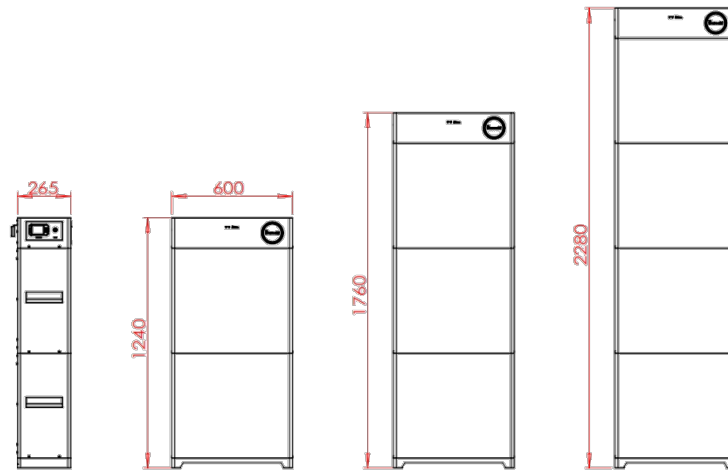
Component introduction



1	HV control box
2	Battery module
3	Base

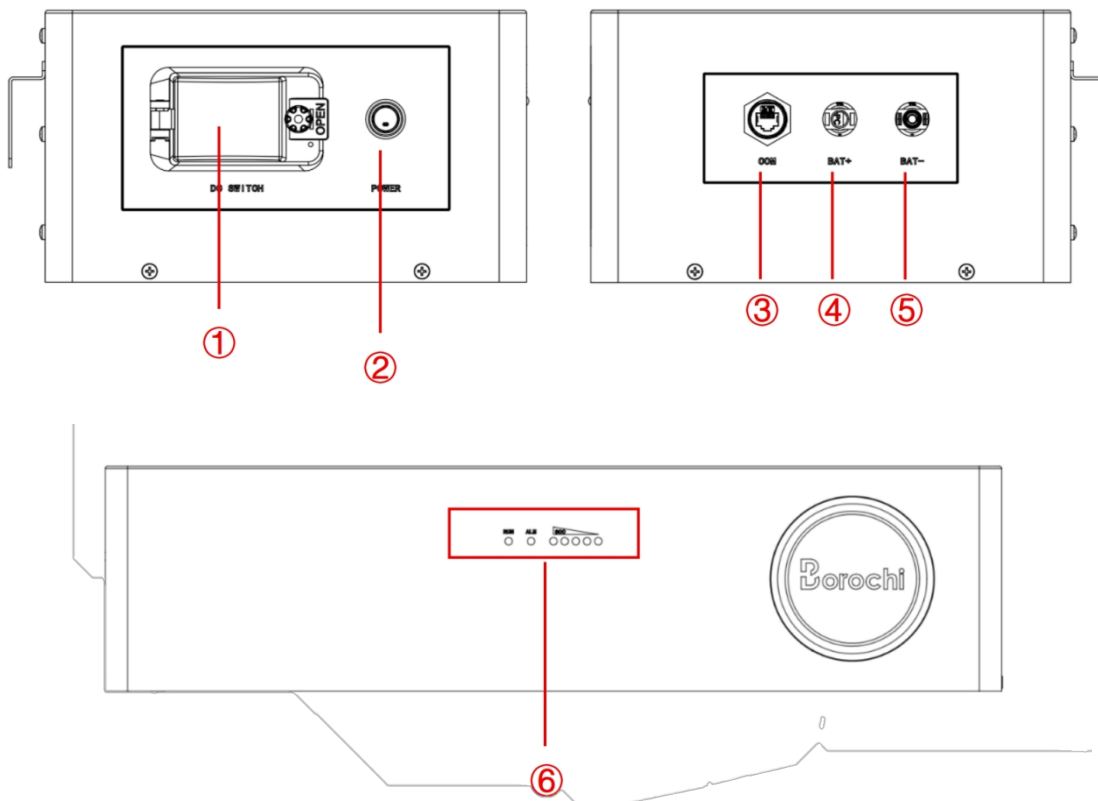
Dimensions

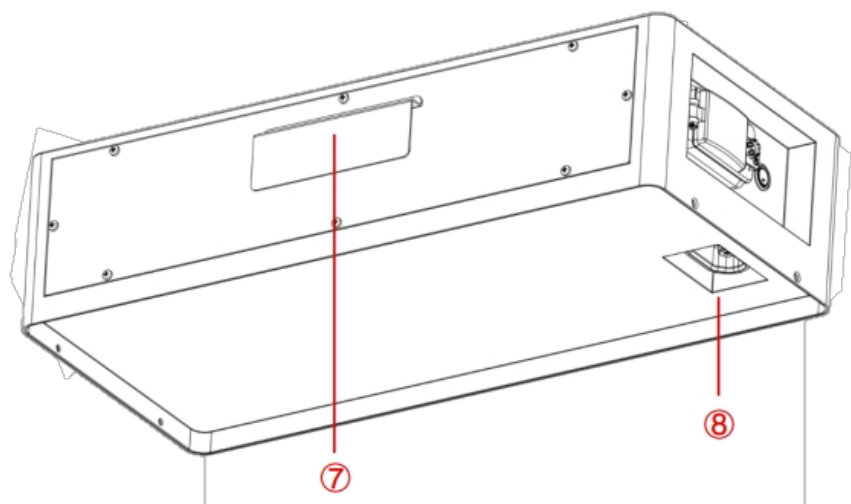
Unit: mm



BOR-5120-H2 BOR-5120-H3 BOR-5120-H4

HV control box

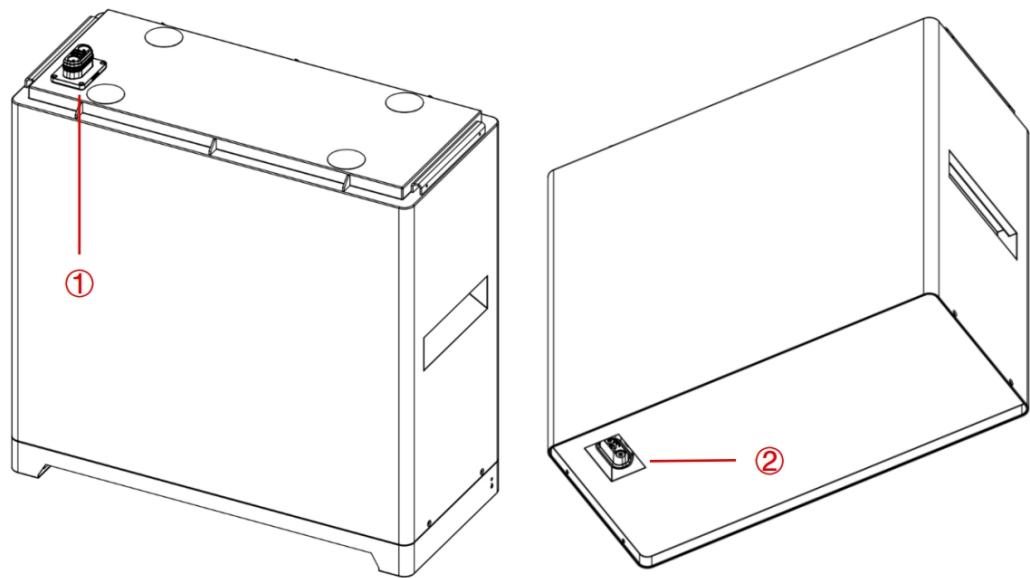




1	Air switch
3	Communication interface (standard network interface)
5	Battery output -
7	Anti-tilt hook

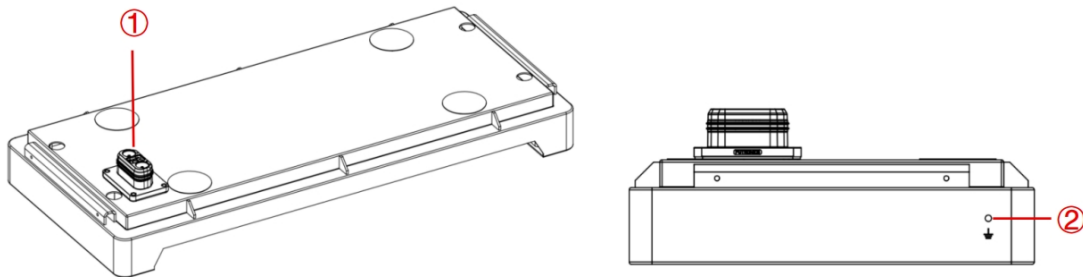
2	Switch button
4	Battery output +
6	LED indicator
8	Blind connector (female)

Battery module



1	Blind connector (male)
2	Blind connector (female)

Base



1	Blind connector (male)
2	Protective grounding point

2.6 Operating Mode

The BOR-5120 household energy storage system has three states: charging state, discharging state and dormant state.

Operating state	Description
Charge	Solar energy or mains electricity to charge the battery
Discharge	Batteries provide power for household loads
Dormancy	Batteries enter the dormant state after discharging

3 Transportation and Storage

3.1 Transportation Requirements

DANGER

Avoidance of serious damage: During transportation, if a battery module is violently impacted, dropped or improperly operated, extreme dangers such as short circuit and damage (such as leakage and rupture) to the battery, fire or explosion may be caused.

CAUTION

Packaging inspection: Before transportation, it is necessary to confirm whether the packaging is complete and meets the requirements to ensure that there is no damage or leakage. Battery modules must be firmly fixed to prevent displacement.

NOTICE

High or low temperature: Energy storage batteries are extremely sensitive to temperature. Avoid exposing them to extreme high or low temperatures during transportation to avoid battery damage or performance degradation.

No violent handling: Do not handle battery modules through battery terminals, bolts or cables to avoid damaging the batteries. Please use special handling tools.

Correct handling direction: During the handling, battery modules must be handled in the required direction. Do not invert, tilt or handle it irregularly to avoid battery damage.

Confirmation of intact packaging: Ensure that the packaging box labels are clear and meet the requirements. Do not expose battery modules during transportation.

3.2 Storage Requirements

If the equipment is not installed and used immediately, please confirm that the storage environment meets the following conditions:

1. The equipment should be packed in a packaging box and sealed after desiccant is placed in the packaging box.
2. If the equipment is not installed within 3 days after unpacking, it is recommended to store it in a packaging box.
3. Storage SOC: 50%~70%, and a charge and discharge cycle is required every 3 months of storage.
4. Storage temperature range: -20~45°C.
5. Humidity range: 0~95% without condensation. It cannot be installed when there is moisture and condensation at the battery interface.
6. The equipment should be stored in a cool place away from direct sunlight.
7. The equipment should be stored in a place away from flammable, explosive, corrosive and other items.
8. The equipment shall not be exposed to rain.

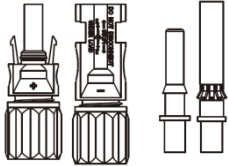
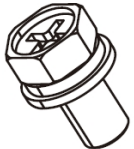
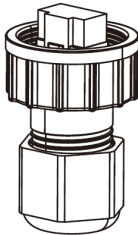
4 Equipment Installation

4.1 Inspection before Installation

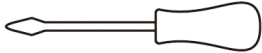
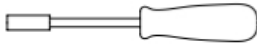
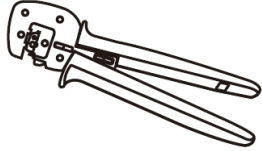
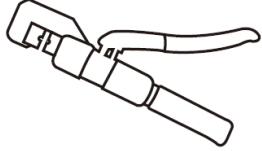
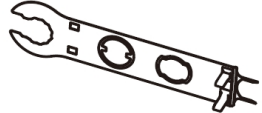
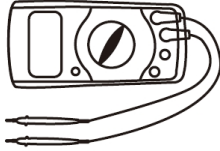
1. The household energy storage battery is composed of a controller, a battery module, a base and other components.
2. Before removing the outer packaging, please check whether the packaging is intact and verify the product model. If any abnormality is found, please do not unpack and contact the after-sales service center as soon as possible.
3. After removing the outer packaging, please check whether the product accessories are complete according to the packing list. If there is any missing, please contact the after-sales service center immediately.

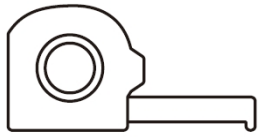
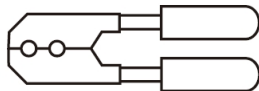
Packing List

Open the packaging and remove the product. Please check the accessories first. The packing list includes the following items:

			
HV control box*1	Battery module*2/3/4	Base*1	Anti-tilt hanging board*5
			
Battery connector*1	Expansion screw*8	Cross recessed countersunk head screw*12/16/20	Cross recessed screw *1
			
OT terminal*1	RJ45*1	Connector*1	User Manual*1

4.2 Preparation of Tools and Instruments

S/N	Illustration	Designation	Application
1		Impact drill (6mm drill bit recommended)	Drill holes in the ground and walls, and install the base and anti-tilt bracket.
2		Level	Ensure that the bracket is installed horizontally
3		Marker pen	Mark the drilling position
4		Screwdriver	Mounting screws and wiring
5		Socket wrench	Install expansion bolts.
6		PV terminal crimping pliers	Crimp PV and other cables
7		Wire stripper	Remove the insulation layer of the cable
8		PV wrench	Tighten or remove the battery connector
9		Multimeter	Check whether the PV positive and negative poles, AC wiring are correct, and whether grounding is reliable

10		Tape measure	Distance measuring
11		Network cable crimping pliers	Tools for crimping network cables

4.3 Position Requirements

WARNING

Household energy storage batteries must be installed against the wall and away from areas accessible to children.

Do not install the equipment near high-temperature heat sources or low-temperature cold sources to prevent abnormal operation of the equipment or safety hazards.

Do not place flammable, explosive, corrosive and other dangerous items around the equipment to avoid fire or equipment damage.

Avoid installing the equipment in areas prone to water accumulation to prevent equipment failure or safety risks caused by water ingress.

CAUTION

Avoid installing the equipment in areas where the ambient temperature changes drastically, so as not to affect its stable operation or shorten its service life.

The equipment should be installed on a ground with sufficient load-bearing capacity and flatness. If the ground conditions are not up to standard, reinforcement measures should be taken (such as making foundations and adding load-bearing plates).

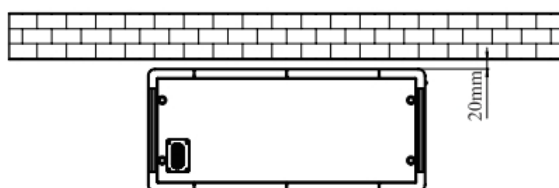
Avoid installing the equipment in a strong electromagnetic interference environment to avoid affecting the normal communication and operation of the equipment.

NOTICE

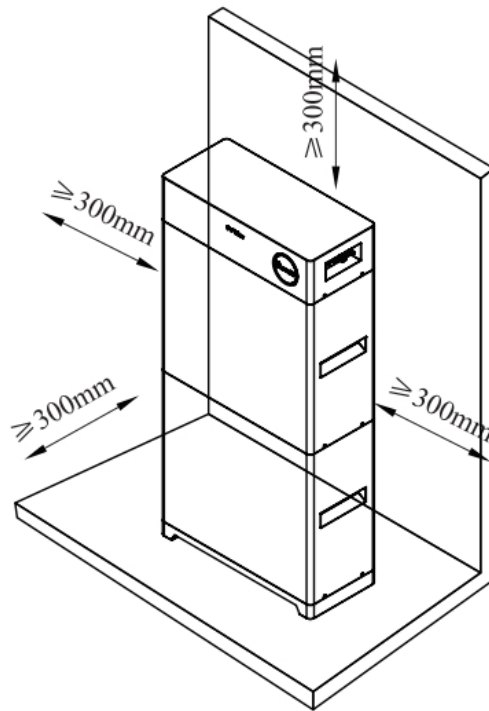
Household energy storage batteries operate best at an ambient temperature of 20-40°C.

Avoid installing the equipment in direct sunlight or rain to extend its service life and maintain stable operation.

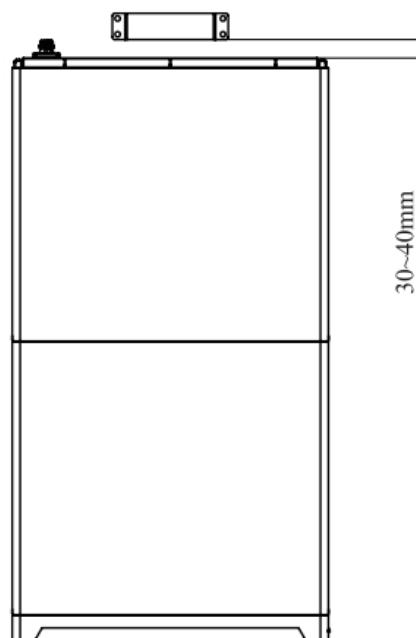
4.4 Space Requirements



Household energy storage batteries must be installed against the wall with a spacing of 20 mm.



The battery should be separated from other equipment or items by at least 300 mm.



The distance between the anti-tilt hanging board and the upper end of the highest battery module is 30 to 40 mm.

4.5 Installation Process

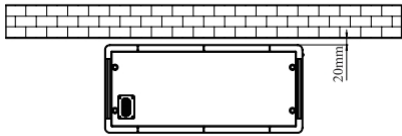
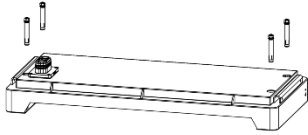
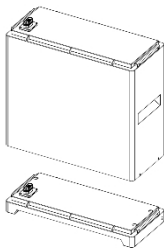
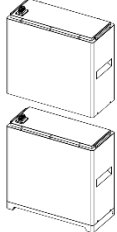
CAUTION

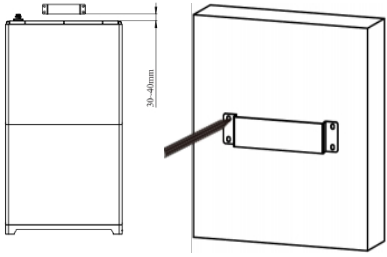
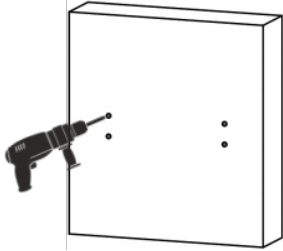
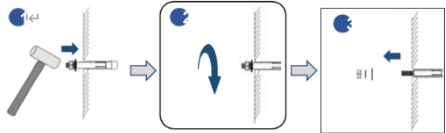
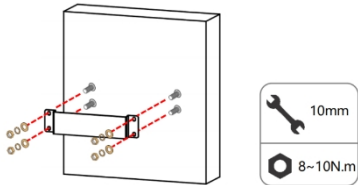
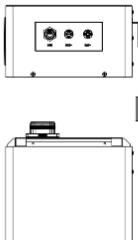
Before installation, check whether the installation environment and space meet the requirements.

Two people are required to cooperate in installation, and be careful not to drop the battery.

Please ensure that the drilling location is away from water pipes, cables, etc. in the wall to avoid danger.

The battery pack should be well protected to prevent dust pollution.

Installation Process	
Step 1	Align the base with the wall and keep a distance of 20 mm from the wall, and mark the drilling position with a marker pen. 
Step 2	Drill holes and install the base with M6 expansion bolts. (Aperture 10 mm, depth 40 mm, fixed M6 expansion bolt, tightening torque: 10 N·m) 
Step 3	Place the first battery module on the base and align the blind connector with the locating hole. 
Step 4	Install the second, third and fourth battery modules from bottom to top. 

Step 5	Lay the back plate flat against the wall and use a level to adjust the angle. The lower edge of the hanging board is 30~40 mm vertically away from the battery module and horizontally centered with the battery module. Use a marker pen to mark the drilling position.	
Step 6	Drill holes with an impact drill. (Aperture 10 mm, depth 40 mm)	
Step 7	Insert the expansion bolt into the hole and fix it with a rubber hammer. Tighten the nut with a wrench to fix the bolt tail. Remove the nut, spring washer and flat washer for later use.	
Step 8	Fix anti-tilt hanging boards.	
Step 9	Install the HV control box. Ensure that the rear hook of the battery control box is embedded in the anti-tilt hanging board.	

5 Electrical Connection

5.1 Safety Precautions



Improper electrical connection poses a risk of electric shock and death, and may also affect product safety, causing damage or injury. Only personnel with installation qualifications can carry out electrical connection.

5.2 Cable Preparation

S/N	Cable	Type	Description
1	10AWG black	Negative power harness	Connected to the negative battery port of the inverter
2	10AWG red	Positive power harness	Connected to the positive battery port of the inverter
3	Network cable	Signal line	Connected to the communication interface of the inverter

5.3 Grounding Wire Connection

Precautions



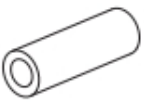
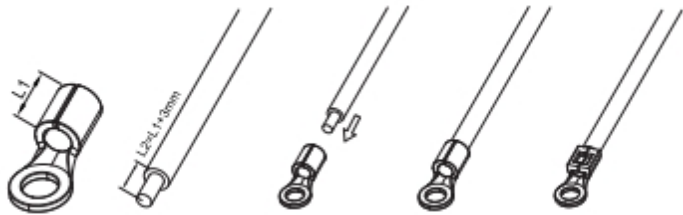
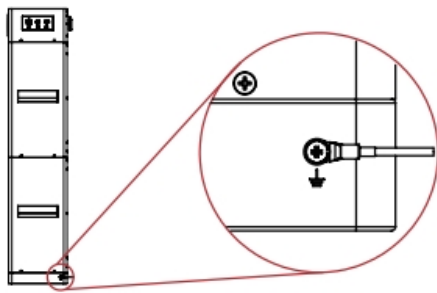
For equipment installation, the protective ground wire must be installed first.

For equipment removal, the protective ground wire must be removed last.

Please bring your own protective ground wire. The cross-sectional area of the protective ground wire conductor is $\geq 4 \text{ mm}^2$, and the wire must meet the standards for outdoor use.

The drawing force after crimping should be greater than 400 N.

Protective Earth (PE) Connection Procedure

Protective Earth (PE) Connection Procedure	
Step 1	Prepare a one-core cable (4–6 mm²), and then find the Phillips screw and OT terminal from the accessories.    one-core cable (4~6 mm²) Phillips screw OT terminal
Step 2	Strip the insulation layer of a ground cable (length L2, L2=L1+3 mm), insert the cable into the OT terminal, and crimp it for fixation. 
Step 3	Find the grounding point on the equipment base, connect the ground wire to the grounding point and tighten the screws to ensure a firm and reliable grounding connection. 

5.4 Power Line Connection

Precautions



DANGER

Please turn off the power before connecting the power line to avoid danger.



CAUTION

The power line is provided by the customer, and the wire must meet the standards for outdoor use.

Use crimping pliers, with a crimp height of 7 mm and a 6 mm² die (AWG 10).

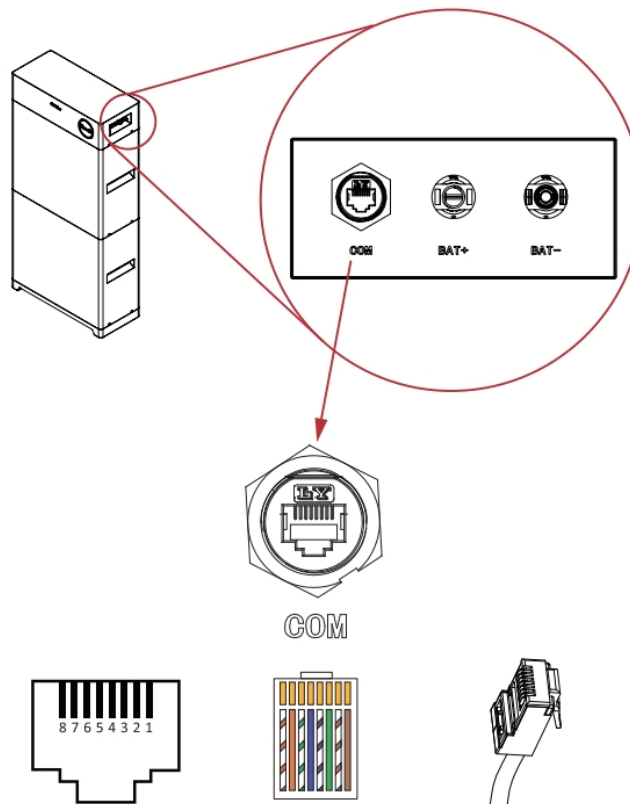
Unused power line interfaces need protective covers.

Power Line Connection Process

Power Line Connection Process	
Step 1	Turn off the switches of the inverter and the battery
Step 2	Disconnect the battery connector.
Step 3	Prepare a 6mm ² cable and strip 7mm of the insulation layer from the end of the cable. Insert the cable into the terminal pin, ensure that all conductor wires are completely wrapped inside the sleeve, and press the harness tightly with a crimping pliers.
Step 4	Insert the crimped cable into the corresponding connector and tighten it.
Step 5	Insert the connector into the side interface of the HV control box. When you hear a "click" sound or feel a noticeable tactile feedback, it means that the connector has been correctly inserted.
Unlocked	1. When unlocking the battery connector, use a special wrench. 2. When removing the BAT+ connector, push it down from above with a tool. 3. When removing the BAT-connector, push it upward from below with a tool.

5.5 Communication Line Connection

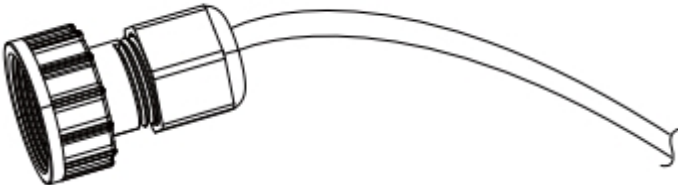
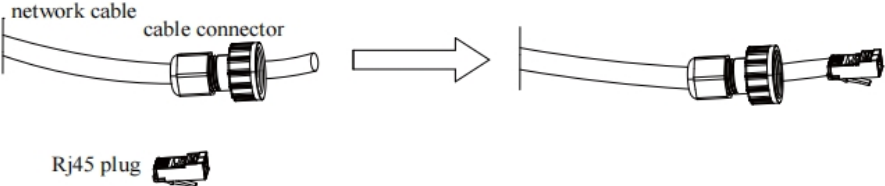
Definition of Communication Line Interface



Interface	Label	Definition	Description
1	RS485A	RS485A, RS485 differential signal +	Connected to the reserved RS485 signal port + of LCD
2	RS485B	RS485A, RS485 differential signal -	Connected to the reserved RS485 signal port - of LCD
3	CAN1G	CAN1 bus interface	Connected to the CAN ground signal of the inverter
4	CAN0G	CAN0 bus interface	Connected to the CAN ground signal of the upper computer
5	CAN1L	CAN1 bus interface	Connected to the low CAN signal of the inverter
6	CAN0L	CAN0 bus interface	Connected to the low CAN signal of the upper computer

7	CAN1H	CAN1 bus interface	Connected to the high CAN signal of the inverter
8	CAN0H	CAN0 bus interface	Connected to the high CAN signal of the upper computer

Communication Line Connection Process

Communication Line Connection Process	
Step 1	Prepare one standard network cable and pass it through the cable connector. 
Step 2	Crimp the RJ45 plug to the network cable. 
Step 3	Insert the prepared communication line into the communication line interface on the side of the HV control box, and rotate it clockwise to lock the connector.

6 Equipment Startup

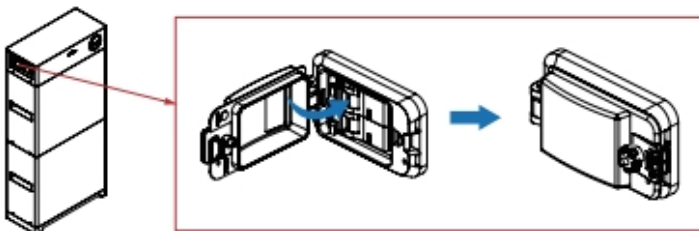
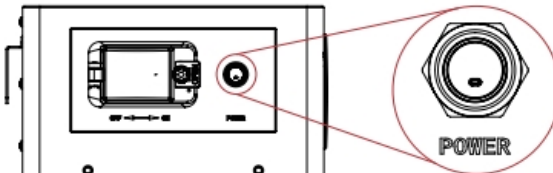
6.1 Inspection before Startup

CAUTION

To prevent system damage or danger to personnel, please be sure to check the following before powering on the household energy storage battery:

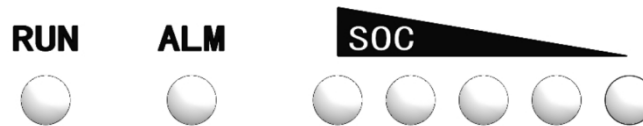
1. Ensure that the equipment has been firmly installed, easy to operate and maintain, and leave enough ventilation and cooling space.
2. Confirm that protective ground wires, power cords and communication lines are connected correctly and firmly.
3. Check whether the wiring meets the requirements and whether cables are arranged in a standardized manner without damage.

6.2 Battery Power-on

Battery Power-on Process	
Step 1	Open the cover on the side of the HV control box, close the air switch, close the cover and lock it with screws. 
Step 2	Press the power switch button (POWER) to start the battery. When the switch button is in the "pressed" state, the battery is activated. 

6.3 Indicator

Introduction to LED Indicator



Description of lighting:

1. "Flash 1" on for 0.5 s, off for 2.0 s, cycle
2. "Flash 2" on for 1.0 s, off for 1.0 s, cycle
3. "Flash 3" on for 2.0 s, off for 2.0 s, cycle

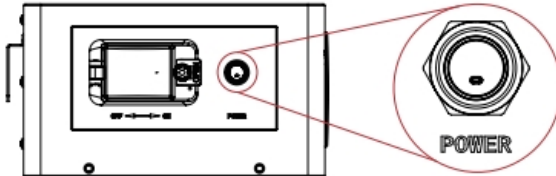
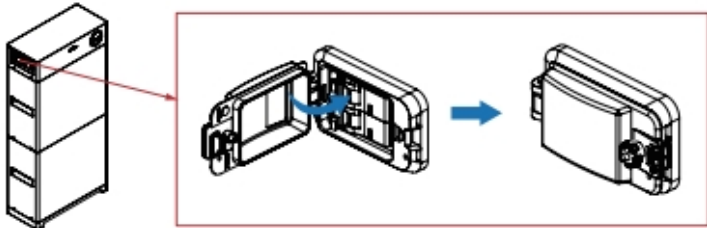
Operation Status and Faults

Status	RUN 	ALM 
Power-off	0	0
Power-on and running without any fault	1	0
With non-charge prohibition fault or non-discharge prohibition fault	1	Flash 1
Only charge prohibition fault, but no relay disconnection fault	1	Flash 2
Only discharge prohibition fault, but no relay disconnection fault	1	Flash 3
With charge prohibition fault and discharge prohibition fault, but no relay disconnection fault	1	1
Only charge prohibition fault, with relay disconnection fault	0	Flash 2
Only discharge prohibition fault, with relay disconnection fault	0	Flash 3
With charge prohibition fault, discharge prohibition fault, and relay disconnection fault	0	1

Current SOC

SOC					
$90\% < \text{SOC} \leq 100\%$	1	1	1	1	1
$80\% < \text{SOC} \leq 90\%$	Flash 2	1	1	1	1
$70\% < \text{SOC} \leq 80\%$	0	1	1	1	1
$60\% < \text{SOC} \leq 70\%$	0	Flash 2	1	1	1
$50\% < \text{SOC} \leq 60\%$	0	0	1	1	1
$40\% < \text{SOC} \leq 50\%$	0	0	Flash 2	1	1
$30\% < \text{SOC} \leq 40\%$	0	0	0	1	1
$20\% < \text{SOC} \leq 30\%$	0	0	0	Flash 2	1
$10\% < \text{SOC} \leq 20\%$	0	0	0	0	1
$5\% < \text{SOC} \leq 10\%$	0	0	0	0	Flash 2
$0\% \leq \text{SOC} \leq 5\%$	0	0	0	0	0

6.4 Battery Power-off

Battery Power-off Process	
Step 1	Turn off the inverter according to the relevant instructions in the inverter user manual.
Step 2	Press the power switch button (POWER) to make it pop up and turn off the battery. 
Step 3	Open the cover, disconnect the air switch and ensure that the battery is completely de-energized. 
Step 4	Check the battery indicator to confirm that the battery has been completely turned off.

7 Maintenance

7.1 Safety Precautions



If the power line is found to be damaged or the internal copper wire is exposed, do not touch it. Please contact after-sales personnel and do not disassemble it without permission.



If any problem that may affect the battery or energy storage inverter system is found, please contact after-sales personnel and do not disassemble it without permission.

7.2 Maintenance Item

Maintenance item	Description	Maintenance Frequency
Check whether the anti-tilt bracket is loose	If yes, please tighten the corresponding parts in time	Every 6 months
Check whether the enclosure is damaged	If there is any damage, please touch up the paint or contact the after-sales service center	Every 6 months
Check whether the exposed wires are worn	If there is any damage, please contact the after-sales service center for replacement	Every 6 months
Clean up sundries around the battery	Avoid sundries affecting cooling	Every 6 months
Check for water stains or pest infestation	Keep the battery environment dry and clean	Every 6 months

8 Technical Data

Model	BES-H2	BES-H3	BES-H4
Performance			
Battery Quantity	2	3	4
Rated Capacity [kWh]	10.24	15.36	20.48
Usable Capacity [kWh]	9.21	13.81	18.41
DC-Rated Voltage [V]	204.8	307.2	409.6
Operating Voltage Range [V]	160 ~ 233.6	240 ~ 350.4	320 ~ 467.2
Rated Charging/Discharging Power [kW]	5.12	7.68	10.24
Rated Charging/Discharging Current [A]	25		
Max. Charging/Discharging Current [A]	50		
Max. Depth of Discharge (DOD)	90%		
General Data			
Charging/Discharging Temperature Range [°C]	0 ~ 50 / -20 ~ 50		
Best Storage Temperature [°C]	-30 ~ 60		
Relative Humidity	≤95%, Non-condensing		
Operating Altitude [m]	≤4000 (Derating above 2000)		
Weight [kg]	146.5	211.4	276.6
Dimensions (W×H×D) [mm]	600 × 1240 × 265	600 × 1760 × 265	600 × 2280 × 265
Ingress Protection (IP) Rating	IP65		
Installation	Floor Installation		
Cooling	Natural Convection		
Battery Technology	Lithium Iron Phosphate (LiFePO4)		
Display	SOC, Operating Status		
Communication	CAN		
Battery Cell Warranty	10 Years (up to 80% of nominal usable battery capacity)		

Certification	CE; CB; IEC 60730; EN IEC 62619; EN IEC 62477-1; EN IEC61000-6-3:2021; EN IEC 61000-6-1/2/4 :2019; UN38.3;
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