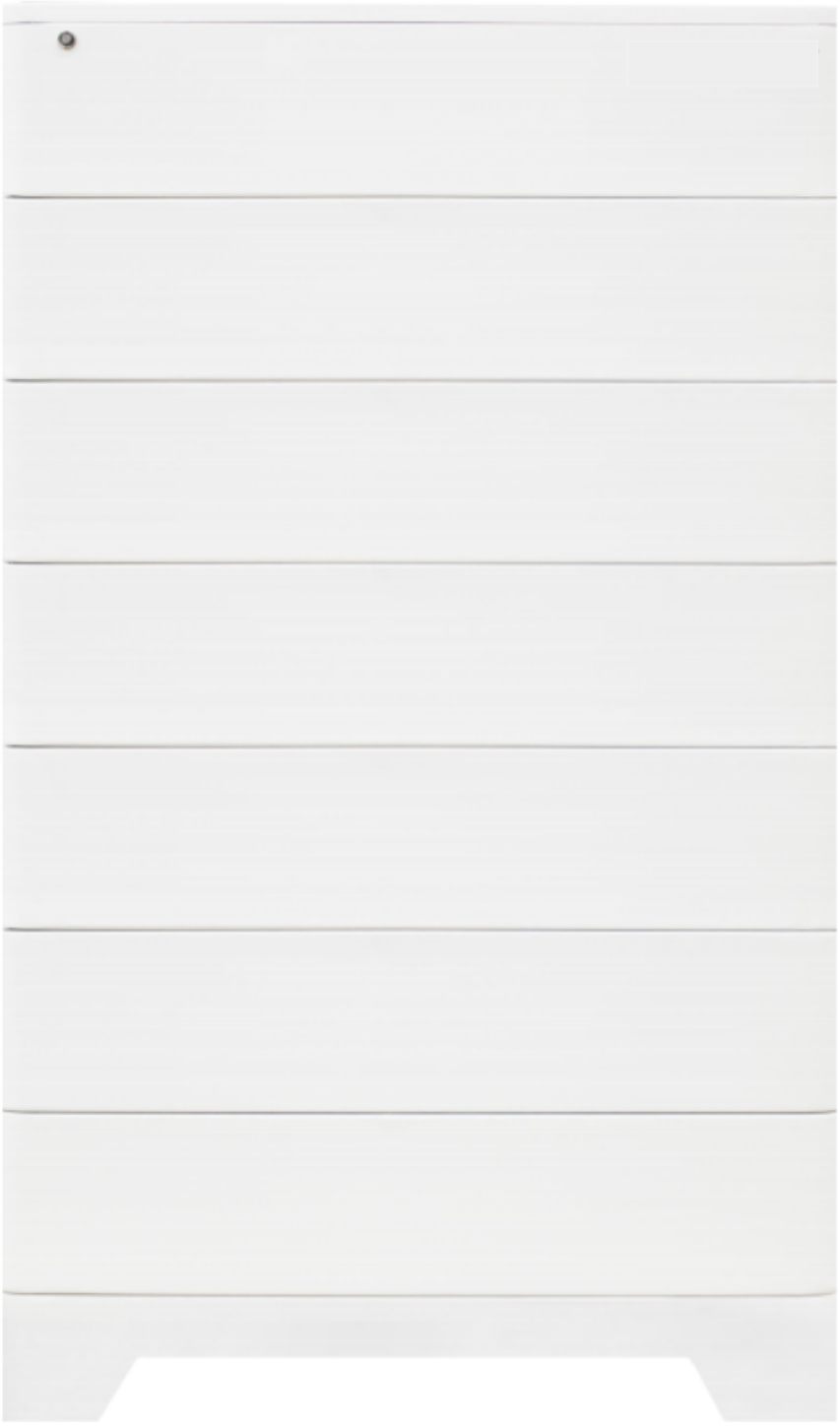


Applicable Models

User Manual

UNIV7600(H)

File version B0–EN Release Date 01.07.2025

This manual introduces the product UNIV7600(H). It is an energy storage system composed of lithium iron phosphate batteries. Please read this manual before installing the battery and strictly follow the instructions during the installation process. If you have any questions, please contact your distributor for advice and clarification.

Contents

About this document

This manual describes the product information, installation, electrical connection, commissioning. Read through this manual before installing and operating the product. All the installers and users have to be familiar with the product features, functions, and safety precautions. This manual is subject to update without notice. For more product details and the latest documents, please contact the supplier.

Revision History

Revision No.	Revision Date	Revision Reason
B0	2025-07-01	First Published

Symbol Definition

⚠ DANGER
Indicates a high-level hazard that, if not avoided, will result in death or serious injury.
⚠ WARNING
Indicates a medium-level hazard that, if not avoided, could result in death or serious injury.
⚠ CAUTION
Indicates a low-level hazard that, if not avoided, could result in minor or moderate injury.

1. Safety

⚠ WARNING

Please read all safety instructions carefully before performing any work and strictly follow them while handling the battery.

Only qualified persons are allowed to wire the batteries.

Failure to comply may result in:

- Serious injury or fatality to the operator or others.
- Damage to system components, equipment, or third-party property.

Required Qualifications for Personnel:

Personnel must possess the following qualifications to perform installation, commissioning, and maintenance:

- Training in electrical system installation and hazard management.
- Familiarity with this manual and other relevant documentation.
- Knowledge of local regulations and applicable directives.

⚠ CAUTION

Please read carefully to ensure error-free operation of your battery.

Wrong step may cause battery system failure or life cycle reduction.

Before Connecting

- Before installation, ensure that the grid power is disconnected and the battery is turned off. Properly connect the positive and negative cables to avoid reversal, and confirm there are no short circuits in external devices.
- All the battery pack terminals must be disconnected before any maintenance.
- Do not use cleaning solvents to clean battery pack.
- Do not expose battery to flammable or harsh chemicals or vapors.
- Do not connect battery pack with AC/PV solar wiring directly.
- Do not insert any foreign object into any part of the battery pack.
- Keep the battery away from water and fire.
- The battery system must be correctly grounded.

When using

- If the battery system requires relocation or repair, ensure that the power is disconnected and the battery is turned off.
- Do not connect different types of batteries.
- Do not connect the battery to incompatible or malfunctioning inverters.If you insist on using the battery without communication, we will shorten the warranty period in accordance with the warranty agreement.
- Do not touch the battery pack with wet hands.
- Do not crush, drop or puncture the battery pack.
- Always dispose of the battery pack according to local safety regulations.
- Store and recharge the battery pack in a manner in accordance with this user manual.
- Do not reverse the polarity when installing.
- Do not short circuit the terminals, remove all jewelry items that could cause a short circuit before installation and handling.
- The battery packs should be not stacked more than specified numbers.
- Continued operation of a damaged battery pack can result in dangerous situation.

Special Reminder

- If the battery pack is stored for a long time, it is required to charge them every six months, and the SOC should be no less than 90%.
- Battery needs to be recharged within 12 hours, after fully discharged.
- If the battery is not fully charged and discharged over a long period, the SOC may become inaccurate. Please perform a full charge calibration at least once every two weeks.
- If you encounter any battery issues, do not attempt to open the battery for inspection or repair by yourself. In case of problems, please immediately contact after-sales personnel or distributor for assistance. Any disassembly of the battery must be done under the supervision of after-sales personnel to prevent accidents.
- Don't conduct any dangerous tests by yourself. All testing must be performed under the supervision of technical to avoid serious accidents.

- Battery startup sequence:

1. Connect external wiring properly.
2. Turn on the circuit breaker to begin usage.
3. Press the start button and heard a clicking sound. It works normally

- Battery turn off sequence:

1. Turn off the start button.
2. Turn off the circuit breaker.
3. Disconnect external wiring properly.

2. Introduction

The UNIV7600(H) series battery is a high-voltage energy storage system based on lithium iron phosphate (LiFePO4) batteries. It is one of the new energy storage products developed and manufactured by the company.

This system provides reliable power support for various equipment and systems, especially in applications requiring high power, large capacity, limited installation space, and long cycle life.

2.1 Features

- High Scalability: Supports stacking of 2-8 modules for flexible energy expansion.
- Environmentally Friendly: The entire module is non-toxic, non-polluting, and eco-friendly.
- High Safety & Long Cycle Life: Uses LiFePO4 as the cathode material for enhanced safety and longevity.
- Intelligent Battery Management System (BMS): Provides protection against over-discharge, over-charge, over-current, and high/low temperature.
- Flexible Configuration: Multiple battery modules can be connected in series to expand voltage and capacity.
- Efficient Heat Dissipation: Designed with multiple cooling vents to effectively control battery temperature.
- Wide Operating Temperature Range: Functions efficiently with a charging temperature range of 0°C to +55°C and a discharging temperature range of -20°C to +55°C, ensuring excellent performance and longevity.
- Compact Size & Modular Design: Standardized module design ensures easy installation and maintenance.

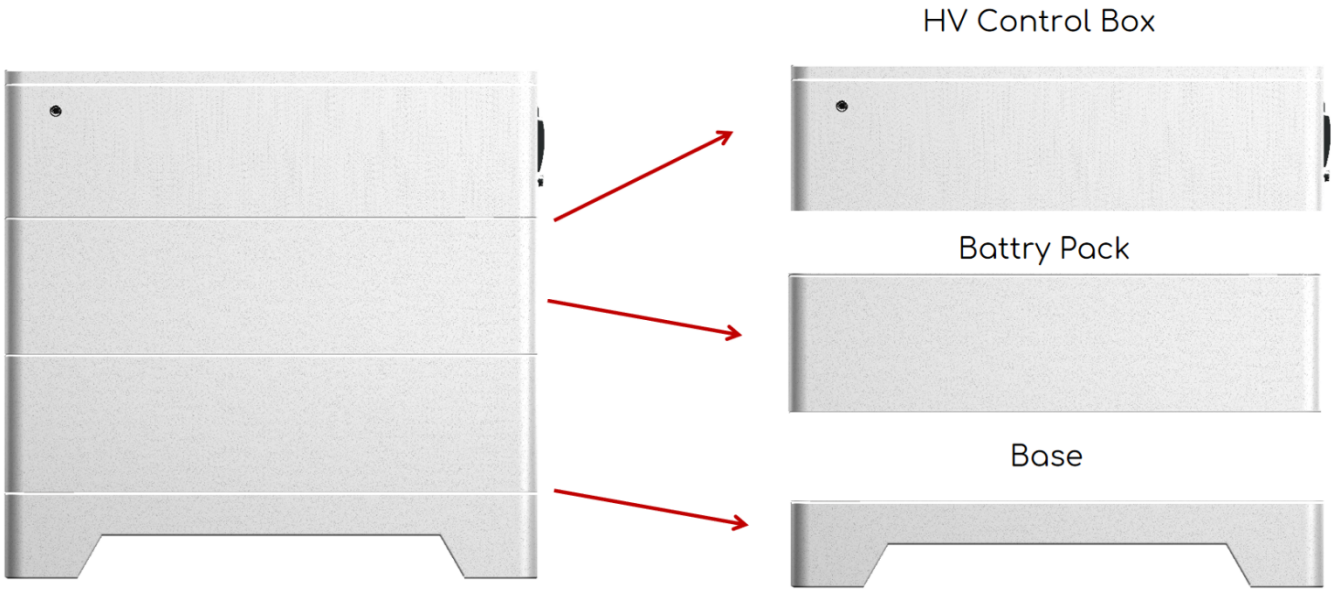
3. Battery System Introduction

3.1 Battery System Specification

MODEL		HVST15k	HVST23k
BATTERY PARAMETERS			
Total Energy (kWh)		15.36	23.04
Useable Energy (kWh)		14.44	21.66
Nominal Voltage (Vd.c)		153.6	230.4
Voltage Range (Vd.c)		134.4 ~ 172.8	201.6 ~ 259.2
Rated Capacity (Ah)		100	100
Normal Current(A)	Charge	50	50
	Discharge	50	50
Dimension(W *H* D) (mm)		660*541**450	660*685**450
Weight (KG）		160	226
BMS Features		Over-voltage Protection/Over-current Protection Short-circuit Protection/Temperature Protection Low-voltage Protection/ Cell Balance Over	
Model		HP	
Communication		CAN/RS485	
Charge Temperature		0℃ ~ 55℃ (32℉ ~ 131℉)	
Discharge Temperature		-20℃ ~ 55℃ (-4℉ ~ 131℉)	
Storage Temperature		-20℃ ~ 55℃ (-4℉ ~ 131℉)	
IP Rating		IP54	
Cooling Type		Natural	
Operating Environment		Indoor (5% ~ 95%(RH) No Condensing)	
Altitude		≤2000 m	
Warranty		5+5 Years	
Operation Life		15+ Years (25℃/77 ℉)	
Certification		CE/Cell UL 1973/UN38.3/MSDS	

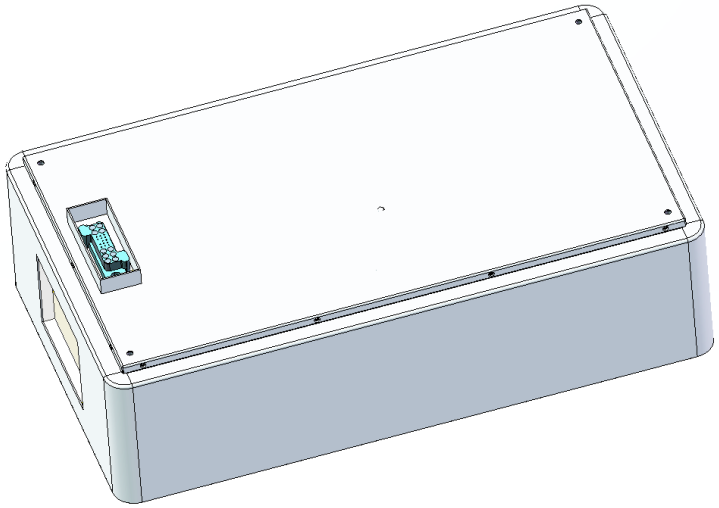
HVST31k	HVST38k	HVST46k	HVST54k	HVST61k
30.72	38.4	46.08	53.76	61.44
28.88	36.10	43.32	50.53	57.75
307.2	384	460.8	537.6	614.4
268.8 ~ 345.6	336 ~ 432	403.2 ~ 518.4	470.4 ~ 604.8	537.6 ~ 691.2
100	100	100	100	100
50	50	50	50	50
50	50	50	50	550
660*829**450	660*973**450	660*1117**450	660*1261**450	660*1405**450
292	358	424	490	556
Over-voltage Protection/Over-current Protection Short-circuit Protection/Temperature Protection Low-voltage Protection/ Cell Balance Over				
HP				
CAN/RS485				
0℃ ~ 55℃ (32℉ ~ 131℉)				
-20℃ ~ 55℃ (-4℉ ~ 131℉)				
-20℃ ~ 55℃ (-4℉ ~ 131℉)				
IP54				
Natural				
Indoor (5% ~ 95%(RH) No Condensing)				
≤2000 m				
5+5 Years				
15+ Years (25℃/77 ℉)				
CE/Cell UL 1973/UN38.3/MSDS				

3.2 System Detailed Introduction



The entire battery system consists of a HV control box, battery pack, and base.

3.2.1 Battery Pack Introduction

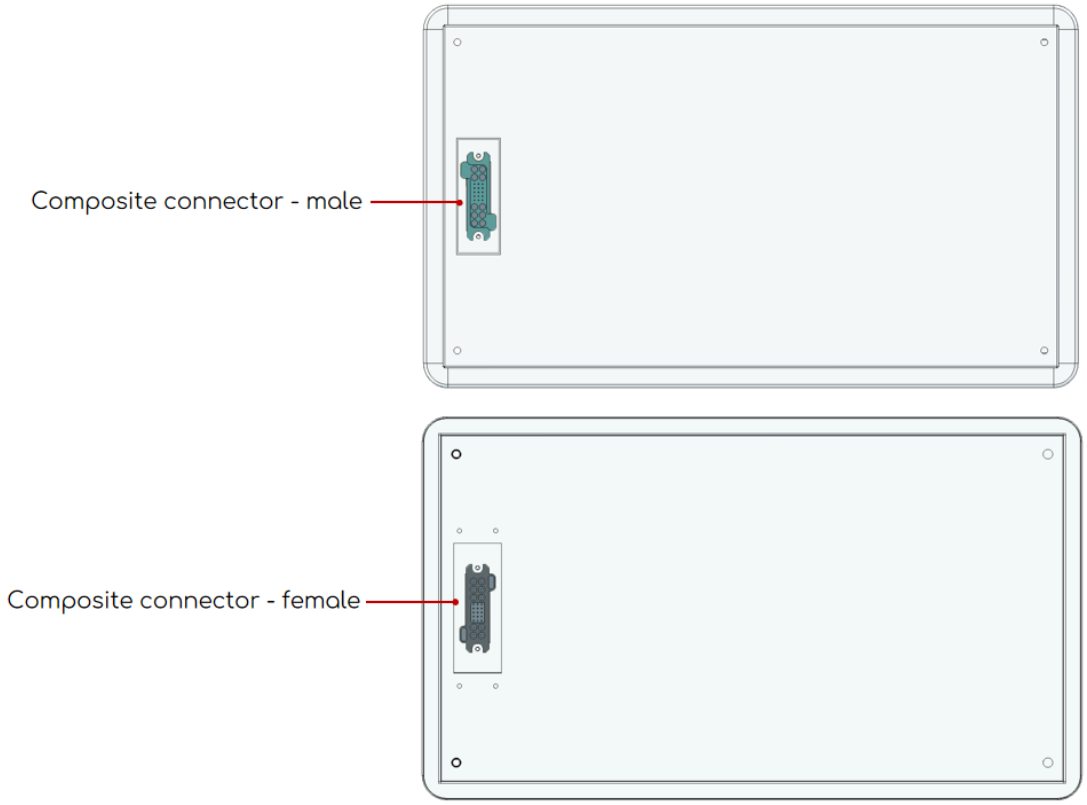


3.2.1.1 Battery Pack Specification

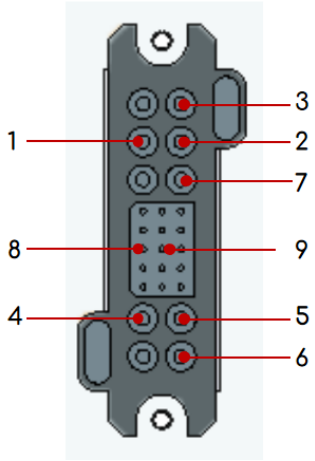
MODEL	UNIV7600(H)
Cell Technology	Li-ion (LFP)
Battery Module Capacity (kWh)	7.68
Battery Module Voltage (V/DC)	76.8
Battery Voltage Range (V/DC)	67.2 ~ 86.4
Battery Module Capacity (Ah)	100

Number Of Battery Module Cells (PCS)		24
Normal Current(A)	Charge	50
	Discharge	50
Dimension(W *H* D) (mm)		660*145*450
Weight (KG）		66
Charge Temperature		0℃ ~ 55℃ (32℉ ~ 131℉)
Discharge Temperature		-20℃ ~ 55℃ (-4℉ ~ 131℉)
Storage Temperature		-20℃ ~ 55℃ (-4℉ ~ 131℉)
Cooling Type		Natural
Operating Environment		Indoor (5% ~ 95%(RH) No Condensing)
Altitude		≤2000 m
Warranty		5+5 Years
Operation Life		15+ Years (25℃/77 ℉)
Certification		CE/Cell UL 1973/UN38.3/MSDS

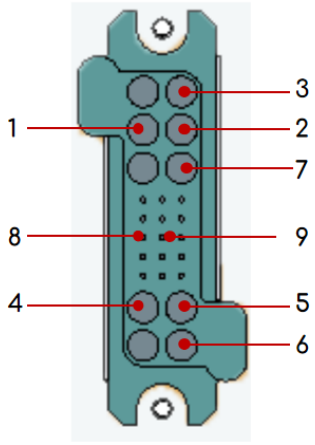
3.2.1.2 Battery Pack Appearance



Composite connector - female

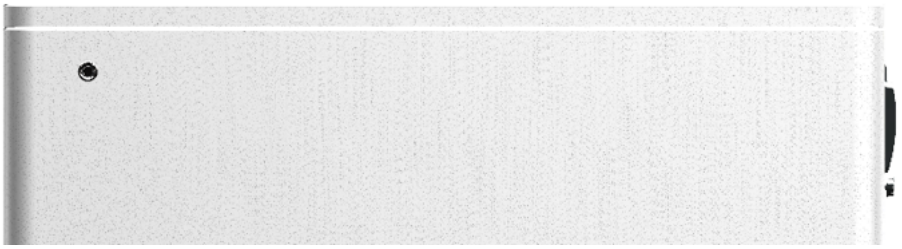


Composite connector - male



No.	Composite connector - Female	Composite connector - Male
1/2/3	Power +	Power +
4/5/6	Power -	Power -
7	earth wire	earth wire
8	Com In	Com In
9	Com Out	Com Out

3.2.2 HV Control Box Introduction

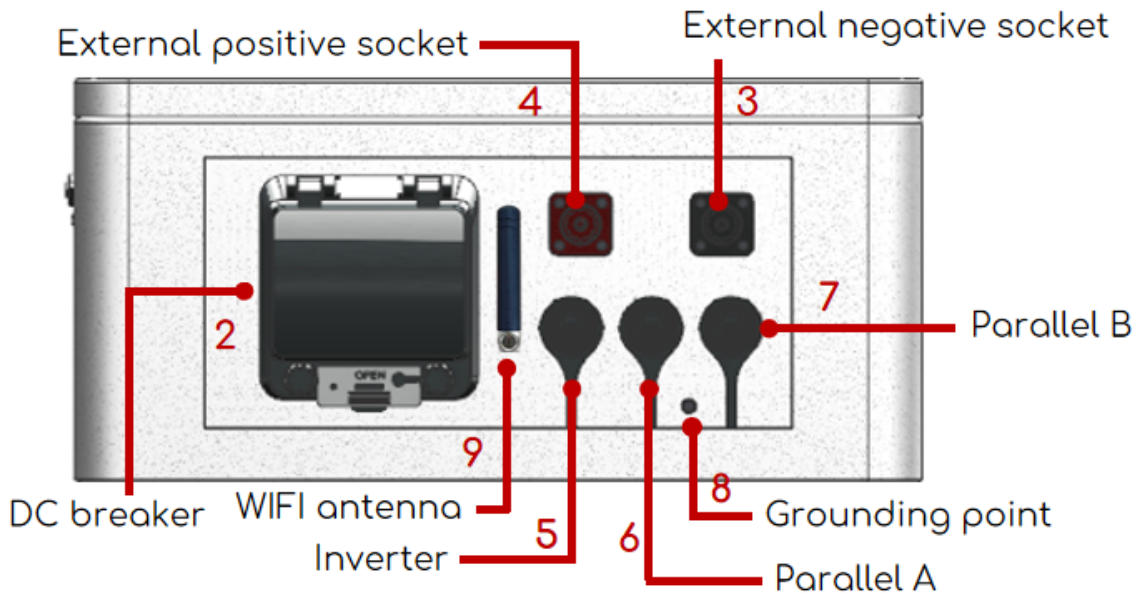


3.2.2.1 HV Control Box Specification

MODEL		HV Control Box
Working Voltage (V/DC)		120 ~ 750
Normal Current(A)	Charge	50
	Discharge	50
Self-Consumption Power (W)		10
Dimension (W *H* D) (mm)		660*153*450
Communication mode		Can

Weight (kg)	18
Scalability	Can parallel 8 cluster

3.2.2.2 HV Control Box Appearance



Item	Name	Function Description
1	Start button	Hold this button for communication with inverter
2	DC breaker	The master switch of the battery system
3	Battery negative socket	Connect with battery negative terminal
4	Battery positive socket	Connect with battery positive terminal
5	Inverter	Connected to the inverter network port
6	Parallel A	Parallel communication with multi cluster systems
7	Parallel B	Parallel communication with multi cluster systems

8	Grounding point	Reserved baseline interface
9	WIFI antenna	For WIFI antenna installation

3.3 Communication Instructions

3.3.1 Communication With Inverter

⚠ CAUTION

Please read the definition of the Battery Communication interface in the inverter's instruction manual before proceeding with this part of the operation.

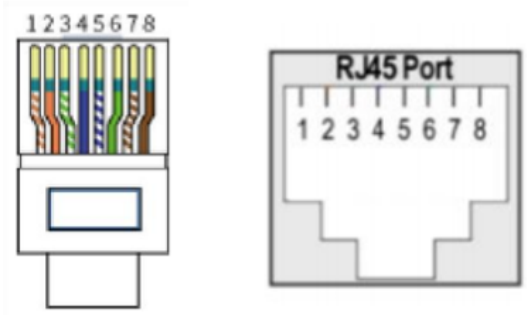
If you have problems with this part of the communication, please contact the after-sales department or an authorized dealer.

if you use CAN communication, you need to pay attention to CAN1_H and CAN1_L in the definition of battery interface.

When the pin definition of communication between the inverter side and the battery side is the same, the communication can be done by using normal network cable.

If the pin definition of communication between inverter and BMS is not the same, you need to make a special cable according to the inverter pin, otherwise the inverter will not recognize the battery.

Interface Definition



CAN	
Pin	Definition description
1	RS485-A
2	RS485-B
3	NC
4	CAN1-H
5	CAN1-L
6	NC
7	CAN0-H
8	CAN0-L

3.3.2 Communication Between The Battery Packs

Communication between batteries have been down with composite connector - male and female including in the battery package.

4 Installation And Configuration

4.1 Installation Recommendations

Environmental Requirements

DANGER

Cleanliness

The battery system features high-voltage connectors, and environmental conditions can affect the system's isolation. Before installation and powering on, ensure that dust and metal debris are removed to maintain system cleanliness. The environment should provide a certain level of dust protection. During ongoing system operation, regularly check for dust and humidity levels.

Fire Protection

The room must be equipped with a fire protection system or fire extinguishers (foam extinguishers are recommended). The fire protection system should be regularly inspected to ensure it is functioning properly. Please follow the local guidelines for the use and maintenance of fire protection equipment.

Grounding Protection

Ensure that the grounding point for the battery system is stable and reliable prior to installation. If the battery system is installed in a standalone equipment cabin (e.g., a container), verify that the grounding of the cabin is stable and reliable. The resistance of the grounding system must be ≤100mΩ.

CAUTION

Temperature Considerations

The HV series battery supports operation within a temperature range of -20°C to +55°C. Exceeding this range may trigger over-temperature or under-temperature alarms/protection, and long-term use outside the specified range can reduce the cycle life of the battery system.

Cooling System

If the temperature does not meet the operating conditions, an external cooling

system, such as central air conditioning, should be provided to ensure the battery system remains within the optimal temperature range. Exceeding the temperature range will trigger over-temperature alarms or protection, which may reduce the service life.

Heating System

If the temperature does not meet the operating conditions, a heating system, such as central heating, should be provided to ensure the battery system stays within the optimal temperature range. If the ambient temperature falls below 0°C, the system may shut down for protection. In this case, the heating system must be activated first. Exceeding the working temperature range will trigger under-temperature alarms or protection, potentially reducing the cycle life of the battery system.

Installation Tools

		
Wrench	Multimeter	Drilling machine
		
Crimping tool	Phillips screwdriver	Wire stripper

Protective equipment

	
Insulated gloves	Safety shoes

HV Control Box Accessories List

Item	Specification	Quantity	Appearance
HV Control Box	HV Control Box	1	
Base	Base	1	
Power Cable	Connect with inverter(1M)	2	 
Network Cable	Connect with inverter(1.5M)	1	
RJ45 Plug	RJ45 Plug	4	
Manual	Manual	1	
Copper Lug	OT4-5	2	
Warranty Card	Warranty Card	1	
CAN Box(Optional)	Can box	1	
Terminal resistor	Terminal resistor	1	

Battery Accessories List

Item	Specification	Quantity	Appearance
Battery	UNIV7600(H)	1	
Quality Inspection Report	Report	1	
Warranty Card	Warranty Card	1	

Preparation Before Installation

Site Assessment:

Ensure the installation site is dry, clean, and free from dust. The area should be free from direct sunlight and excessive humidity to protect the equipment.

Unpacking:

Before unpacking, check the shipping list to confirm the total number of packages. Inspect each package for any visible damage.

Equipment Inspection:

Once unpacked, verify that all items are intact and match the packing list. If there is any damage to the packaging, document and inspect the goods thoroughly.

Handling:

Handle all equipment with care, paying particular attention to avoid damaging the surface

4.2 Equipment Installation

4.2.1 Installation Preparation

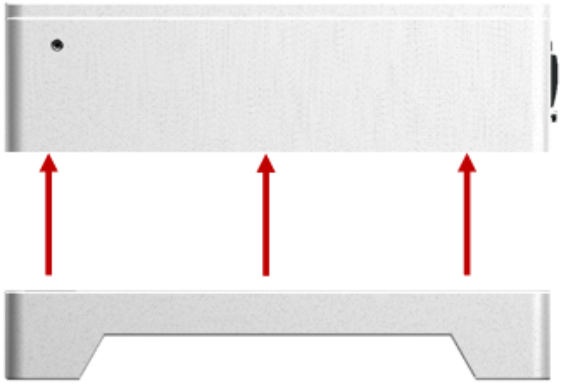
⚠ WARNING

1. Batteries stored for a period of time may experience some capacity degradation. Mixing these batteries with newly manufactured ones may result in capacity loss.
2. Batteries from different production batches may have slight capacity differences. Mixing batteries from different batches may cause capacity loss.
3. Do not mix batteries of different models without proper authorization.

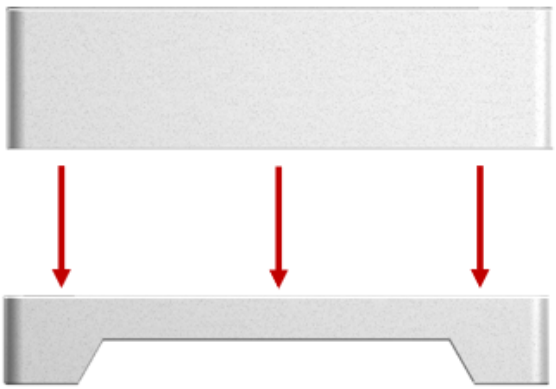
If any of the above unavoidable situations occur, please contact the after-sales service personnel or an authorized distributor.

1. Check whether all battery accessories are complete
2. Ensure that the environment meets all the technical specifications.
3. Make sure the installation project adheres to the guidelines outlined in section 4.2.1 Caution.
4. Prepare the necessary equipment and tools for installation.
5. Verify that the DC breaker is in the OFF position.

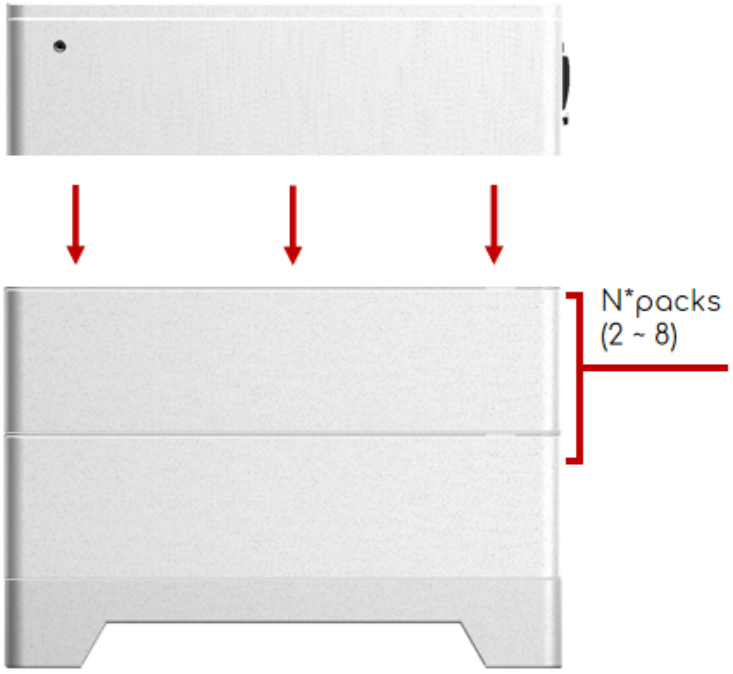
4.2.2 Installation Step



1.Separate HV control box from base
2.place basein the designated position



3.Place the battery module on the battery base (the height of the Wheels of the base can be adjusted)

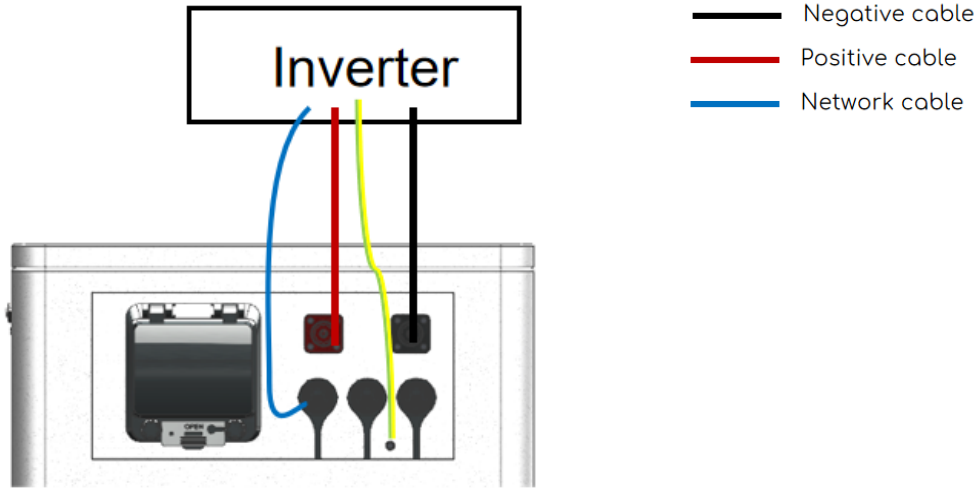


4.Place the HV control box on the battery module

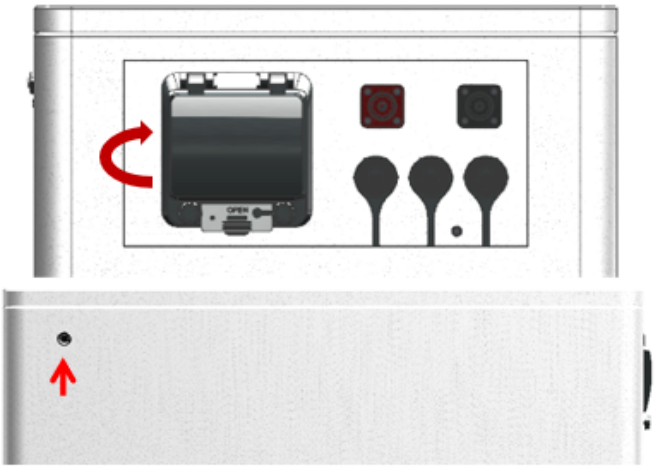
4.2.3 Connection With Inverter

⚠ CAUTION

Please double-check that the inverter you are using is on the official compatibility list for this battery system. If it is not, the system may not operate properly. If a compatibility issue occurs, please contact your supplier or an authorized distributor immediately for prompt assistance in resolving the issue.

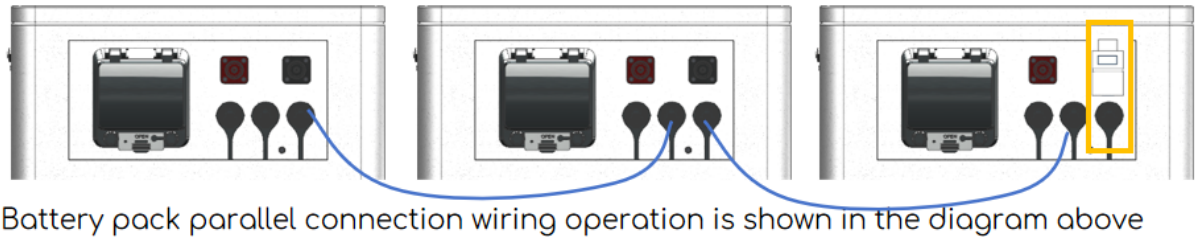


1.Connect the power cables and network cables properly. Check the wiring carefully. Reverse connections are strictly prohibited



2.Turn on the circuit breaker.Then Press the start button to turn on the battery.Then wait the battery work normally

4.2.4 Parallel Connection



Battery pack parallel connection wiring operation is shown in the diagram above

When connecting battery packs in parallel, use an Ethernet cable to connect the Parallel B port of the previous battery pack to the Parallel A port of the next battery pack. Then, insert the supplied 120Ω resistor into the Parallel B port of the last battery pack.

5 Battery Monitor software

You can get the battery monitor software from after-sales department.

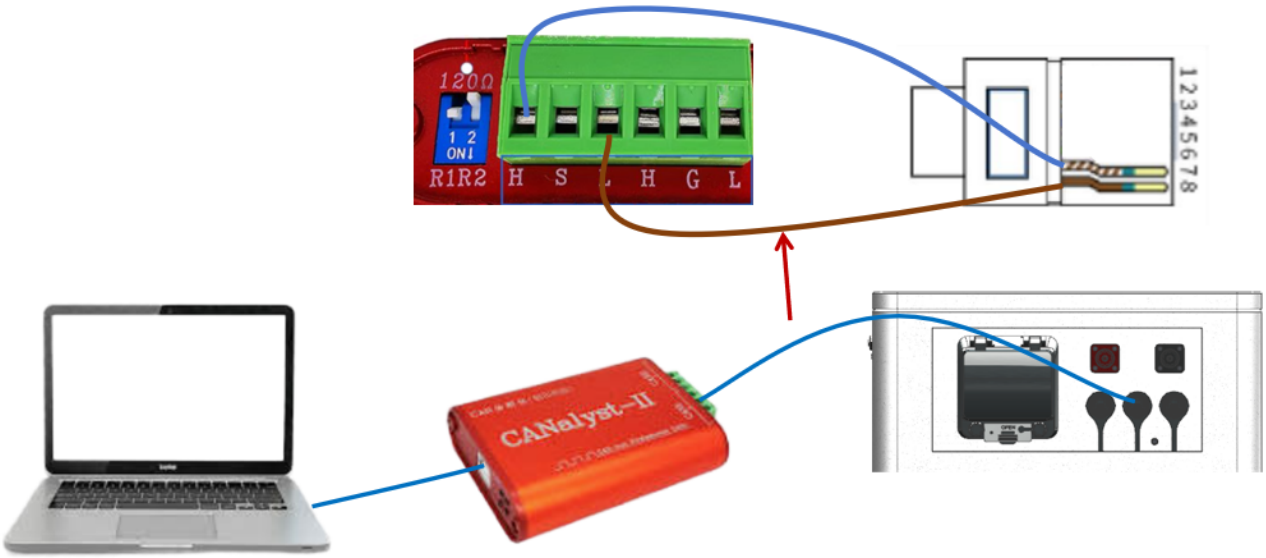
High Voltage Can Box Production

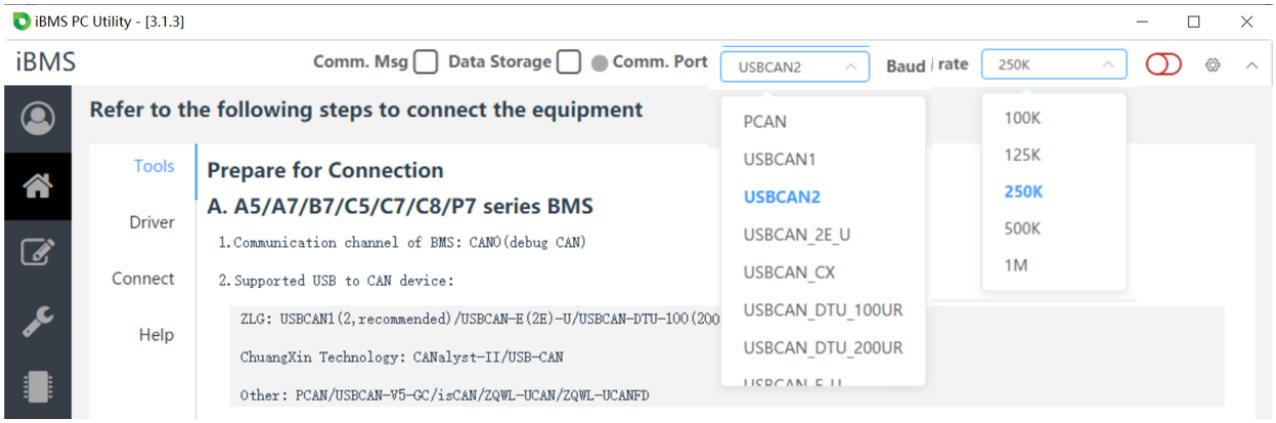
Please refer to the following images to properly connect the HV Can Box to the computer and battery..

(The driver required for the Can Box should be obtained from after-sales personnel or distributors.)

Use the Ethernet cable provided by the HV Control Box for the setup:

- Connect the seventh pin of the Ethernet cable to the first port of the Can Box.
- Connect the eighth pin of the Ethernet cable to the third port of the Can Box.





1. Install the software and drivers provided by the supplier.
2. As shown in the figure, select USBCAN_CX (if you are using the CAN box provided by the supplier) and set the baud rate to 250K.
3. Click the button to connect to the host computer.

Then you can see the whole information.If you encounter any issues while using this software, please contact after-sales personnel or a recommended distributor. We will provide technical support.