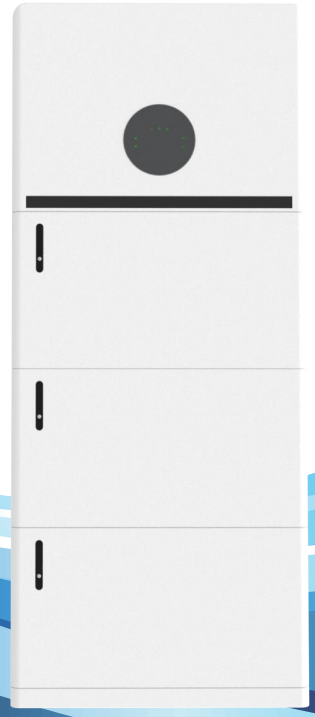
PowerCool-LFP-VLV Series Operation Manual



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Disclaimer

The material furnished in this manual is believed to be accurate and reliable. The information and recommendations in this manual do not constitute commitments or warranties in the form of assignments. The information in this document is subject to change without notice.

This manual mainly describes the product information, guidelines for installation, operation, maintenance and troubleshooting. And this manual applies to the PowerCool-LFP-VLV system, including the hybrid inverter. Please keep the Manual properly and operate in strict accordance with all safety and operating instructions in this manual. Please do not operate the product before reading through the manual.

This Manual introduces PowerCool-LFP-VLV system and hybrid inverter manufactured by our company. Please read this manual before you install the product and follow the instructions carefully during the installation process. Should you have any confusion, please contact our company for advice and clarification.

CONTENTS

1 . Introduction

1.1.Content and Structure of this Manual

This manual is valid for All In One Energy Storage System.

This manual describes the product information, and guidance for installation, as well as Hybrid Inverter operation.

Observe all manual that accompanies the product, keep them in a convenient place and available at all times.

Illustrations in this manual are reduced to the essential information and may deviate from the real product.

1.2 Target Group

This manual is intended for qualified persons and end users. Only qualified persons are allowed to perform the operations marked with a warning symbol in this manual. Tasks that do not require any specific qualifications will not be marked and can be performed by the end user. Qualified persons must have:

- Knowledge of working principle of Li-ion battery.
- Knowledge of how to deal with the dangers and risks associated with installing and using electrical devices, batteries and systems.
- Knowledge of the installation and commissioning of electrical devices and systems.
- Knowledge of the applicable standards and directives.
- Understood and complied with this document, including all safety precautions.
- Understood and complied with the documents of the inverter manufacturer, all safety precautions included.

1.3 Levels of Warning Messages

DANGER

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

NOTICE indicates a situation which, if not avoided, can result in property damage.

1.4 Marks

	Warning electric shock.		Read the product and operation manual before operating the battery system!
	Warning Fire.	CE	CE Mark
	Do not reverse connect the positive and negative.		Recyclable
	Do not place near open flame.		Do not operate until 10 minutes after discharge
	Do not place at the children or pet touchable area.		Grounding
	TÜV Mark		

1.5 Definition of Abbreviations and Nouns

Abbreviation	Noun
AC	alternating current
BAT	battery
BMS	battery management system
DC	direct current
INV	inverter
PV	photovoltaic
SOC	state of charge
SOH	state of health

2 . Safety Instruction

This product is designed and tested in accordance with international safety requirements IEC 62619:2022 and IEC 63056:2020, but as with all electrical and electronic equipment, certain precautions must be observed when installing and operating the product. To reduce the risk of personal injury and ensure the safe installation and operation of the product, more attention should be paid on following all instructions, cautions and warnings in this Manual.

2.1.Battery precautions

WARNING

It is important and necessary to read the user manual carefully before installing or using battery. Failure to do so or to follow any of the instructions or warnings in this document can result in electrical shock, serious injury, or death, or can damage battery, potentially rendering it inoperable.

- If the battery is stored for long time, it is required to charge it every six months, and the recommended SOC should be 50%~55%, If the battery is to be stored for more than 1 month, make sure the storage temperature falls within 0 – 35 ℃. If the battery is to be stored for not more than 1 month, make sure the storage temperature falls within -20~45℃.
- Battery needs to be recharged within 12 hours after being fully discharged.
- Do not have the product installed in any environment that falls outside the range of temperature or humidity set out in the Manual.
- All the power terminals must be disconnected for maintenance.
- Please contact the supplier within 24 hours in case of anything abnormal.
- Do not use cleaning solvents to clean battery.
- Do not expose battery to flammable or harsh chemicals or vapors.
- Do not paint any part of battery, include any internal or external components.
- Do not connect battery with PV solar wiring directly.
- Any foreign object is prohibited to insert into any part of battery.
- The warranty claims are excluded for direct or indirect damage due to above reasons.

2.2.Emergency situation

DANGER

This product is designed with multiple safety strategies to prevent hazards resulting from failure. However, hazards and dangers could emerge in few uncertain situations.

Fire

The battery PACK may catch fire when heated over 150℃.

Ensure an ABC or carbon dioxide extinguisher nearby the battery, and do not use water to extinguish the fire.

If a fire breaks out where the battery is installed, perform the following actions:

- Extinguish the fire before the battery catches fire
- If the battery has caught fire, do not try to extinguish the fire. The fired battery will produce poisonous gases, please evacuate people immediately.

Leaking

If the battery PACK leaks, avoid contact with the leaking liquid or gas.

Electrolyte is corrosive and contact may cause skin irritation and chemical burns. If one is exposed to the leaked substance, perform the following actions:

Inhalation: Evacuate the contaminated area and seek medical attention immediately.

Eyes contact: Rinse eyes with flowing water for 15 minutes and seek medical attention immediately.

Skin contact: Wash the affected area thoroughly with soap and water and seek medical attention immediately.

Ingestion: Induce vomiting as soon as possible and seek medical attention immediately.

Wet battery

If the battery is wet or submerged in water, do not try to access it. Contact customer service for technical assistance.

Damaged battery

Damaged battery may emit toxic gas or/and flammable gas, which could cause hazards to lives or property. If the battery is damaged, please keep away from the battery and contact customer service for help as soon as possible.

3. System Introduction

3.1.Parameters of energy storage system

Product name	Rechargeable Li-ion Battery System					
Inverter Module	3~6kW					
Qty. Of Inverter Modules	1					
Battery Module	PowerCool-LFP-VLV					
Battery Type/model	PowerCool-LFP-VLV-5	PowerCool-LFP-VLV-10	PowerCool-LFP-VLV-15	PowerCool-LFP-VLV-20	PowerCool-LFP-VLV-25	PowerCool-LFP-VLV-30
Number of Pack (pcs)	1	2	3	4	5	6
Total energy (kWh)	5.12	10.24	15.36	20.48	25.60	30.72
Usable Energy (kWh)	4.86	9.72	14.59	19.45	24.32	29.18
Voltage Range (Vd.c)	44.8 ~ 57.6					
Nominal Voltage (V)	51.2					
Charging voltage declared by manufacturer (V)	57.6					
Nominal Charging current (A)	50	100	150	160	160	160
Nominal Discharge current (A)	50	100	150	160	160	160
DOD (%)	95%					
Communication	CAN					
Dimension(L*W*H) (mm)	(600±2)* (215±2)* (360±3)	(600±2)* (215±2)* (680±5)	(600±2)* (215±2)* (1000±7)	(600±2)* (215±2)* (1320±9)	(600±2)* (215±2)* (1640±9)	(600±2)* (215±2)* (1960±9)
Net Weight (kg)	(49±2) kg	(95±4) kg	(141±6) kg	(187±6) kg	(234±6) kg	(280±6) kg
Operating Condition	Indoor or outdoor					

Storage temperature range		> 1 month 0~35℃; ≤1 month -20~45℃
Operating Temperature	Charging	0~55 ℃
	Discharging	0~55 ℃
Humidity	15% ~ 85%RH(No Condensation)	
Cooling type	Natural	
IP rating of enclosure	IP66	
Class of protection	Class I	
Installation method	Stacked installation	
Supply connection	Fixed power cord	
Warranty	10 years (5 free warranty + 5 paid warranty)	

*Testing conditions based on temperature 25℃ at the beginning of life. Total Energy/Usable Energy are measured with a standard test method: 0.2C Charge and Discharge. As per the characteristics of lithium batteries, such parameters as the charge/discharge current and efficiency listed above are subject to change. The final right of interpretation is reserved our company.

3.2.PACK

Battery Module Type		PowerCool-LFP-VLV
Total energy (kWh)		5.12
Usable Energy (kWh)		4.86
Voltage Range (Vd.c)		44.8~57.6
Nominal Voltage (V)		51.2
Max. Charge Voltage (V)		57.6
Max.continuous charging current (A)		50
Max.continuous discharge current (A)		50
DOD		95%
Dimension(L*W*H) (mm)		(600±2)*(215±2)*(320±3)
Net Weight (kg)		(46±2)
Operating Condition		Indoor or outdoor
Operating Temperature	Charging	0~55 ℃
	Discharge	0~55 ℃
Humidity		15%~85%RH (No Condensation)
IP rating of enclosure		IP66
Warranty		10 years (5 free warranty + 5 paid warranty)

Schematic diagram and definition of the connection terminals

Pin Number	Definition	Pin Number	Definition
1,4	P-	10	CAN-L
2,3	P+	11	232-TX
5,6	Protective Ground	12	232-RX
7	RS485-B	13	Signal Ground
8	RS485-A	14	Automatic Coding
9	CAN-H		

(A)DC Circuit Breaker

Rated Voltage	Rated Current	Release Type	Dimension(L*W*H)
DC 125 V	125 A	B	68*27*83.5 mm
Limiting Breaking Capacity (Icu)	Pole	Rated Insulation Voltage(Ui)	
10 kA	1P	AC 690 V	

(B)Button switch

Open the circuit breaker waterproof cover A, switch the circuit breaker to ON, and then press the button switch B to light it up, the battery system successfully started.

Press button switch B to turn OFF the light, then switch the circuit breaker to OFF, the battery system is closed.

LED Status Indicators:

SOC Indicators

Status		Charging						Discharging					
SOC indicators		L6 ●	L5 ●	L4 ●	L3 ●	L2 ●	L1 ●	L6 ●	L5 ●	L4 ●	L3 ●	L2 ●	L1 ●
SOC (%)	0% ~ 17%	OFF	OFF	OFF	OFF	OFF	Blink 2	OFF	OFF	OFF	OFF	OFF	ON
	18% ~ 33%	OFF	OFF	OFF	Off	Blink 2	ON	OFF	OFF	OFF	OFF	ON	ON
	34% ~ 50%	OFF	OFF	OFF	Blink 2	ON	ON	OFF	OFF	OFF	ON	ON	ON
	51% ~ 66%	OFF	OFF	Blink 2	ON	ON	ON	OFF	OFF	ON	ON	ON	ON
	67% ~ 83%	OFF	Blink 2	ON	ON	ON	ON	OFF	ON	ON	ON	ON	ON
	84% ~ 100%	Blink 2	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
Running indicator		ON						Blink (Blink 3)					

Working status indication:

Status	Normal/ Alarm/ Protection	Run	Alm	SOC Indicators						State
				L6	L5	L4	L3	L2	L1	
		●	●	●	●	●	●	●	●	
Power Off	Hibernate	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	Total Indicator Runout
Standby	Normal	Blink 1	OFF	According to Battery Indicator						Standby Mode
	Alarm	Blink 1	Blink 3							Low Voltage
Charging	Normal	ON	OFF	According to Battery Indicator (Battery indicator Maximum LED Blink 2)						Maximum Power LED Blink (Blink 2), ALM does not Blink When the Overcharge Alarm is Generated
	Alarm	ON	Blink 3							
	Overcharge Protection	ON	OFF	ON	ON	ON	ON	ON	ON	If Disconnected to City Grid, the Indicator shall turn to Standby Mode
	Temperature, Over Current, Failure Protection	OFF	ON	ON	ON	ON	ON	ON	ON	Stop Charging
Discharging	Normal	Blink 3	OFF	According to Battery Indicator						
	Alarm	Blink 3	Blink 3							
	Under-voltage protection	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	Stop Discharging
	Temperature, over current, short circuit, reverse connection, failure protection	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	Stop Stop Charging
Failure		OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	Stop Charging and Discharging

Blinking LED Indicators:

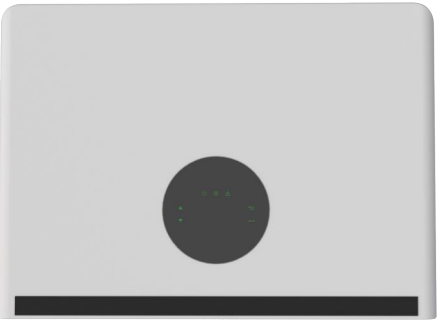
Blink Mode	ON	OFF
Blink 1	0.25S	3.75S
Blink 2	0.5S	0.5S
Blink 3	0.5S	1.5S

Button description:

(1)When the BMS is in hibernation state, press the button for 3 to 6S and release it. The protection board is activated, and the LED indicator turns on for 0.5 seconds from "RUN".
(2)When the BMS is in the active state, press the button (3~6S) and release it, the protection board will be hibernated, and the LED indicator will turn on for 0.5 seconds from the lowest power indicator.
(3)When the BMS is in the active state, press the button (6-10s) and release it, the protection board is reset, and the LED lights are all on for 1.5 seconds at the same time.

3.3.Specifications of all in one energy storage hybrid inverter

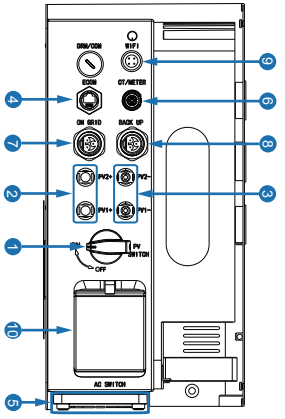
Hybrid Inverter



Model	3kW	3.6kW	4kW	4.6 kW	5kW	5.5kW	6kW
Maximum input power (kW)	4.5	5.4	6.0	6.9	7.5	8.3	9.0
Maximum input voltage (V)	550						
MPPT voltage range (V)	80-550						
Full MPPT Range (V)	90- 500	110-500	120- 500	130- 500	150- 500	160- 500	170- 500
Normal Voltage (V)	360						
Startup Voltage (V)	100						
Max. Input Current (A)	18.5 x 2						
Max. Short Current (A)	26 x 2						
No. of MPP Tracker / No. of PV String	2 / 2						
Battery Port							
Max. Charge/Discharge Power (kW)	3.0	3.6	4.0	4.6	5.0	5.5	6.0
Max. Charge/Discharge Current (A)	80		120				

Battery Normal Voltage (V)	51.2						
Battery Voltage Range (V)	40-60						
Battery Type	Lithium batteries, lead-acid batteries, etc						
AC Grid							
Max Continuous Current (A)	14.0	17.0	19.0	22.0	23.0	26.0	28.0
Max Continuous Power (kVA)	3.0	3.6	4.0	4.6	5.0	5.5	6.0
Nominal Grid Current (A)	13.7 / 13.1	16.4 / 15.7	18.2 / 17.4	21.0 / 20.0	22.8 / 21.8	25.0 / 24.0	27.3 / 26.1
Nominal Grid Voltage (V)	198 to 242 @ 220 / 207 to 253 @ 230						
Nominal Grid	50/60						
Frequency (Hz)	0.999 (±0.8 adjustable)						
Power Factor	< 3						
AC Load Output (Back-up)							
Max Continuous Current (A)	14.0	17.0	19.0	22.0	23.0	26.0	28.0
Max Continuous Power (kVA)	3.0	3.6	4.0	4.6	5.0	5.5	6.0
Max Peak Current (A) (10min)	20.5/19.6	24.6/23.5	27.3/26.1	31.4/30	34.1/32.7	37.8/36.1	41.0/39.2
Max Peak Power (kVA) (10min)	4.5	5.4	6.0	6.9	7.5	8.3	9.0
Nominal AC Voltage L- N (V)	220/230						
Nominal AC	50/60						
Frequency (Hz)	< 10						
Switching Time (ms)	< 3						
Efficiency							
CEC efficiency (%)	97.0			98.1			
Max. Efficiency (%)	97.6			98.1			
PV to Bat. Efficiency (%)	98.1			98.1			
Bat. between AC Efficiency (%)	96.8			96.8			
General information							
Dimensions (W*H*D, mm)	600 x 430 x 210						
Weight (kg)	25						
Topology	Transformerless						
Cooling	Intelligent Fan						
Relative humidity	0 - 100 %						
Operating Temperature Range (°C)	- 25 to 60						
General information							
Dimensions (W*H*D, mm)	600 x 430 x 210						
Weight (kg)	25						
Topology	Transformerless						
Cooling	Intelligent Fan						
Relative humidity	0 - 100 %						
Operating Temperature Range (°C)	- 25 to 60						
Operating Altitude (m)	< 4000						
Noise Emission (dB)	< 25						
Standby Consumption (W)	<10						
Mounting	Wall Bracket						
Communication with RSD	SUNSPEC						
Display & Communication Interfaces	LCD, LED, RS485, CAN, Wi-Fi, GPRS, 4G						
Certification & Approvals	NRS097, G98/G99, EN50549-1, C10/C11, AS4777.2, VDE-AR-N4105, VDE0126, IEC62109-1, IEC62109-2						
EMC	EN61000-6-2, EN61000-6-3						

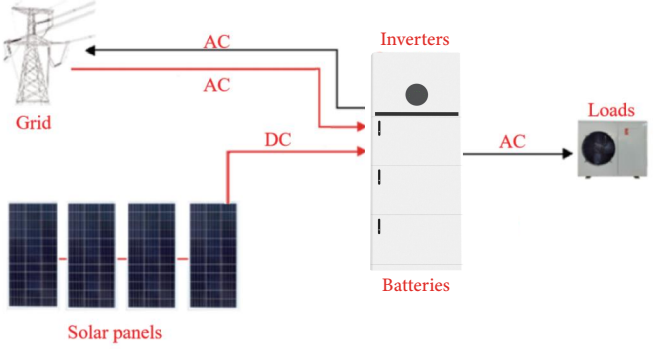
Internal of all in one energy storage hybrid inverter



No.	Items	No.	Items
1	DC Switch	6	CT/Meter Communication Port
2	DC Connectors (+) For PV Strings	7	ON GRID Port
3	DC Connectors (–) For PV Strings	8	BACK UP Port
4	Generator Communication Port	9	Monitor Module Port
5	Battery Port	10	AC Switch

3.4.Application scenario

The ALL-IN-ONE series energy storage system(includes inverter and battery Power-Cool-LFP-VLV) are designed to increase energy independence for homeowners. Energy management is based on time-of-use and demand charge rate structures, significantly reduce the amount of energy purchased from the public grid and optimize self-consumption. The system can be applied in DC-coupled systems and Off-grid (with Generator) systems.

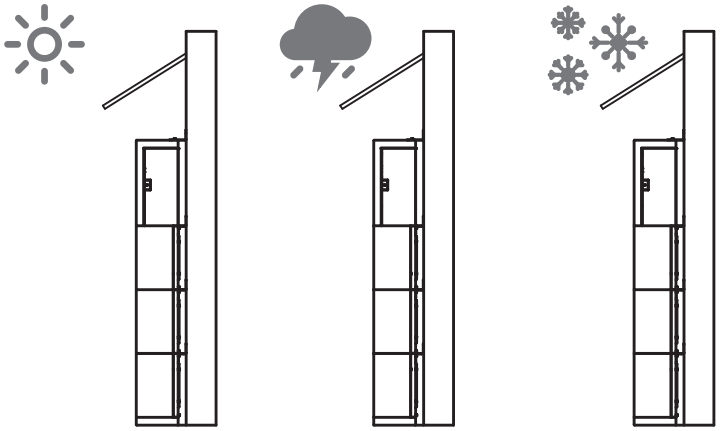


Battery Base:

No.	Qty	Items	No.	Qty	Items
1	2	M10*50 Plastic Expansion Tube	3	1	Positioning Plate
2	2	M6*50 Mounting Screw			

4.3.Installation Location

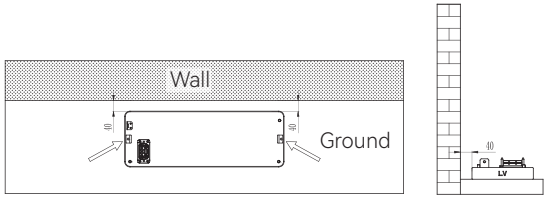
- Make sure that the installation location meets the following conditions:
- The floor is flat and level;
- There are no flammable or explosive materials nearby;
- The ambient temperature is within the range from 0℃ to 55℃
- Humidity is maintained at 15% – 85% (RH) (no condensing);
- The distance from heat source is more than 2 meters;
- The distance from air outlet of inverter is more than 0.5 meters;
- The installation areas shall avoid of direct sunlight;
- There are no mandatory ventilation requirements for battery module, but please avoid of installation in confined area. The aeration shall avoid of high salinity, humidity or temperature.
- Please install the battery system on a foundation about 30cm above the ground.The foundation shall bear a load of 400 kg.
- Outdoor installation requires a protective device above the battery to reduce the erosion of rain, snow and strong ultraviolet rays.



4.4. All In One System Installation

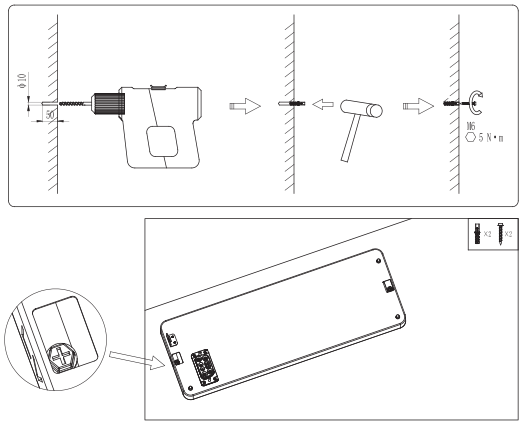
Step 1

Select a evenly level ground, place the base 40mm away from the wall, keep the base plane level, and mark the location of the base with a marker.



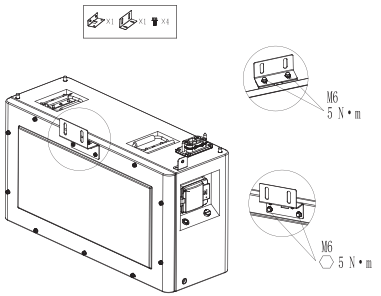
Step 2

Drill holes according to the marked positions on the ground, and fix the base according to the requirements in the figure.



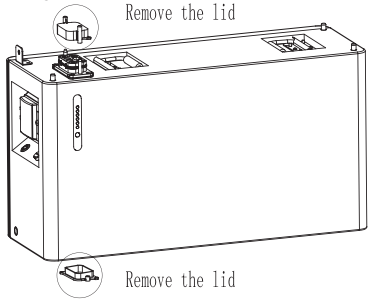
Step 3

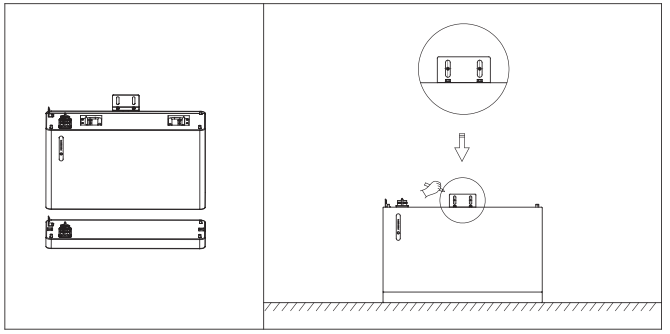
Install the wall mounting bracket and PACK mounting bracket on the PACK box.Adjust the position of the wall mounting bracket and tighten the screws when it is against the wall.

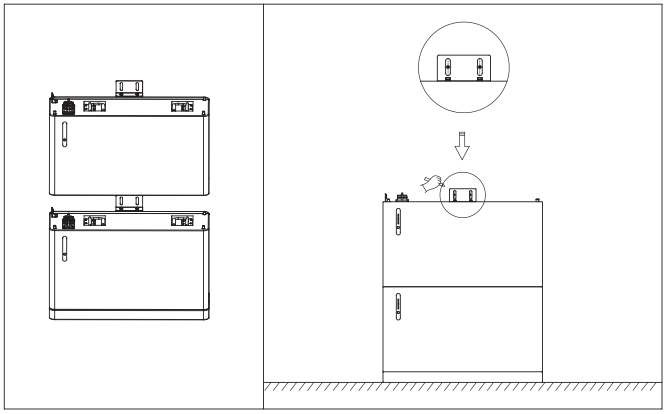


Step 4

Install the first layer PACK and the second layer PACK on the base, install the wall fasteners, and mark the positioning center with a marker.In particular, the dust cover of the connector needs to be removed before stacking the PACK.

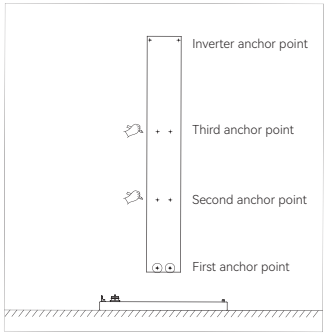






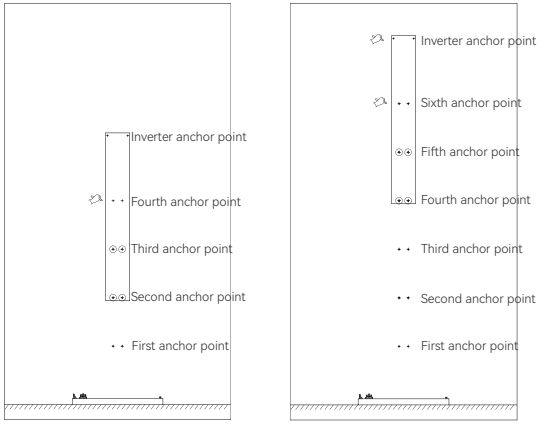
Step 5

Remove the first layer of PACK and the second layer PACK to mark the other layers of the PACK with the positioning plate according to the first and second layer of PACKS positioning points.



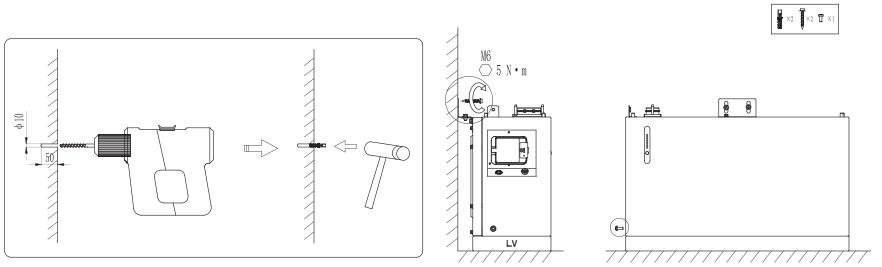
Step 6

Move the positioning plate up to mark the fourth layer PACK positioning points.Mark the fifth and sixth layer packs in the same way.



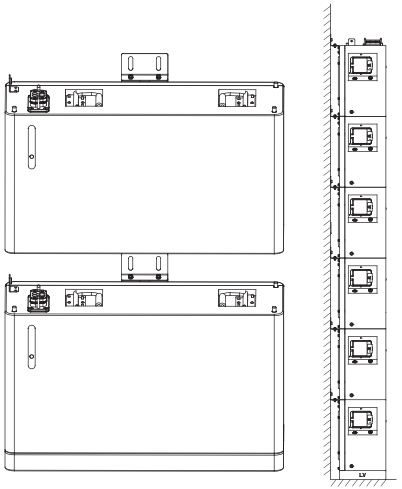
Step 7

Drill the hole according to the anchor point and install the plastic expansion tube.Fix PACK to the wall with fixings, while tightening the side screws of PACK according to the figure to make the pack tightly connected.



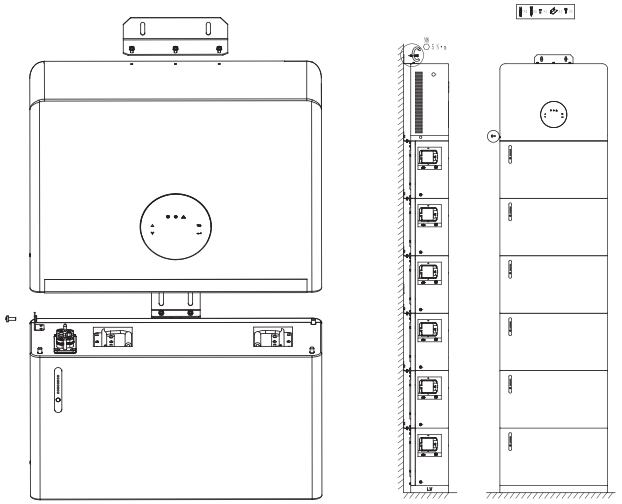
Step 8

Follow step 4 to stack the second PACK on top of the first,and secure the second layer of PACK according to Step 6. Then repeat the steps to stack and secure the third, fourth, fifth, and sixth layers of PACK.



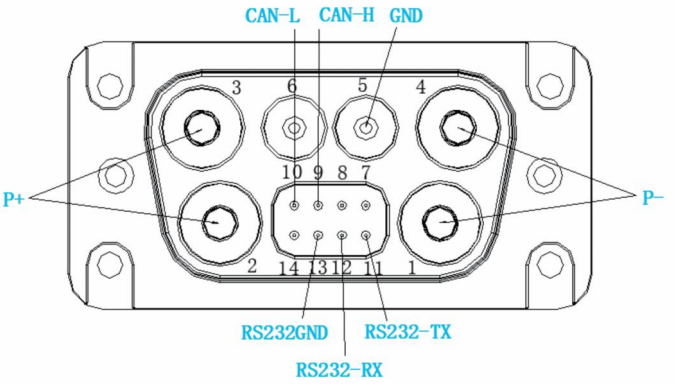
Step 9

Stack the inverters with the uppermost PACK as shown in the figure. Keep the upper and lower connectors aligned to complete the stack, and then secure them with the screws shown in the figure.Finally,Fix the inverter with the wall with the fixed parts, and fix the screws on the upper and lower sides.

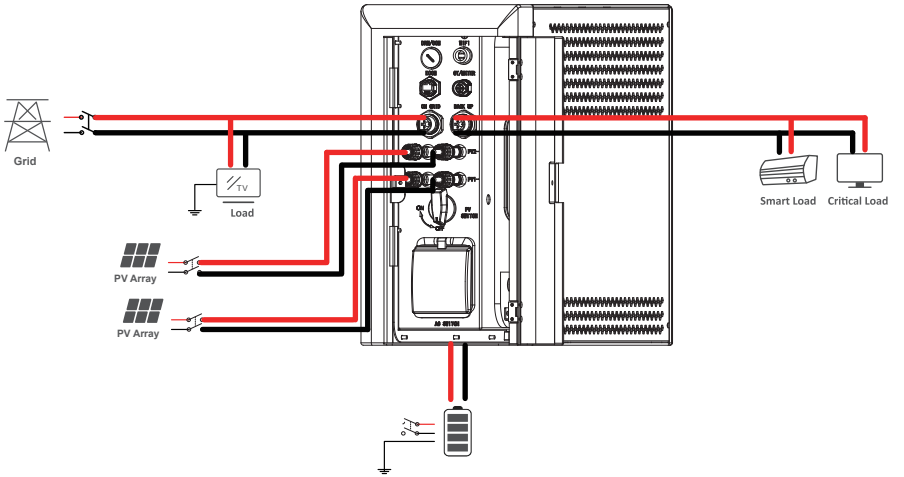


Follow the above eight steps to complete the installation.

The following is a schematic diagram of the connection terminals between batteries and inverters.



5. Electrical Connection



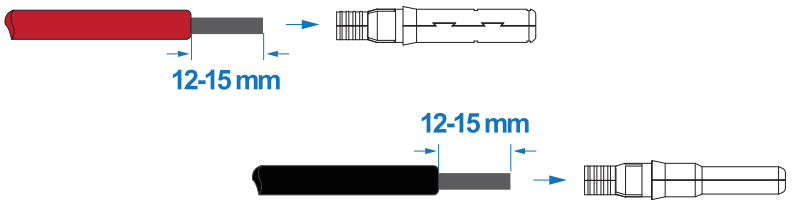
5.1.PV Connection

The hybrid inverter has one/two MPPT channels, can be connected with one/two strings of PV panels. Please make sure below requirements are followed before connecting PV panels and strings to the inverter:

(1)The open-circuit voltage and short-circuit current of PV string should not exceed the reasonable range of the inverters.
(2)The isolation resistance between PV string and ground should exceed 300 kΩ.
(3)The polarity of PV strings are correct.
(4)Use the DC plugs in the accessory.
(5)The lightning protector should be equipped between PV string and inverter.
(6)Disconnect all of the PV (DC) switch during wiring.

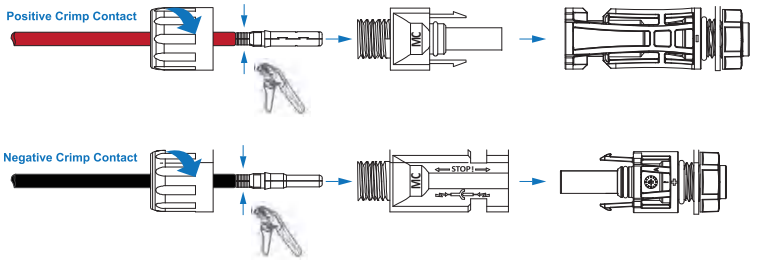
WARNING
The fatal high voltage may on the DC side, please comply with electric safety when connecting.
Please make sure the correct polarity of the cable connected with inverter, otherwise inverter could be damaged.

Step 1



Note: PV cable suggestion Cross-section 10AWG.

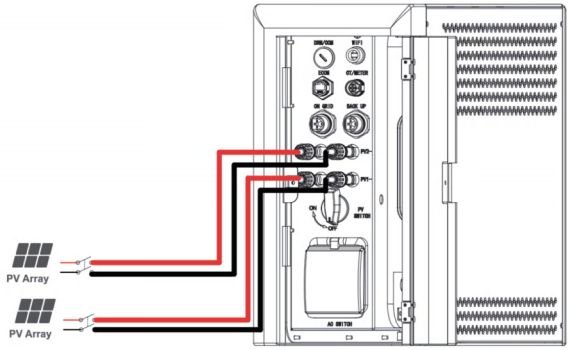
Step 2



Note: Please use PV connector crimper to pinch the point of the arrow. You'll hear click sound when the connector assembly is correct.

Step 3

As shown in the figure, the installation is complete.



5.2. AC Connection

The AC terminal contains "GRID" and "BACK UP", GRID for load, and BACK UP for emergency load.
Before connecting, a separate AC breaker between individual inverter and AC input power is necessary. This will ensure the inverter be securely disconnected during maintenance and fully protected from current of AC input.
An extra AC breaker is needed for On-Grid connection to be isolated from grid when necessary. Below are requirements for the On-Grid AC-breaker.

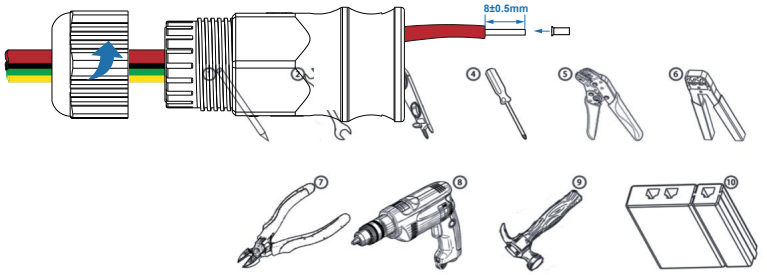
Note: There are AC circuit breakers inside the inverter for grid output/input. When using the ON Grid function, the circuit breaker needs to be closed before it can be used. In addition, qualified

electrician will be required for the wiring, cable suggestion Cross-section 8-10AWG.

Please follow steps for AC connection:
(1)Connect DC protector or breaker first before connecting.
(2)Remove the 8mm (0.4 inch) long insulation sleeve, loosen the fixing screws, insert the AC input line according to the polarity indicated on the terminal block, and tighten the fixing screws.

Step 1

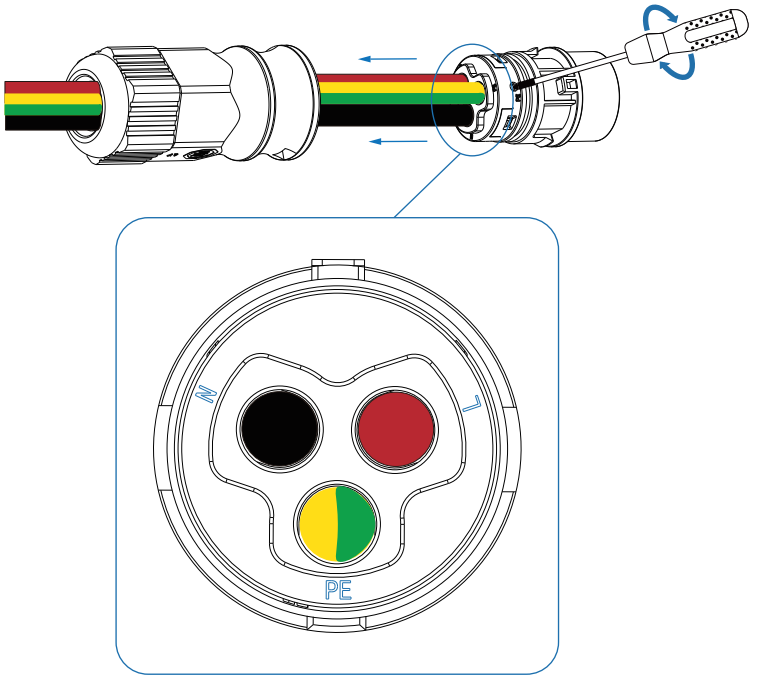
Use crimping pliers to press the tubular terminals.



Note: The wiring terminals should be wrapped with insulation tape, otherwise it will cause a short circuit and damage the inverter.
The Max. power load connects to BACK up port should not exceed the inverter's BACK UP Max. output power range.

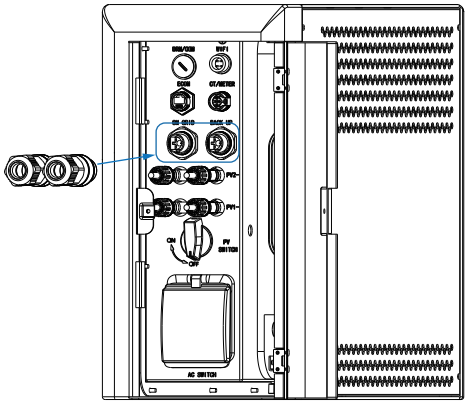
Step 2

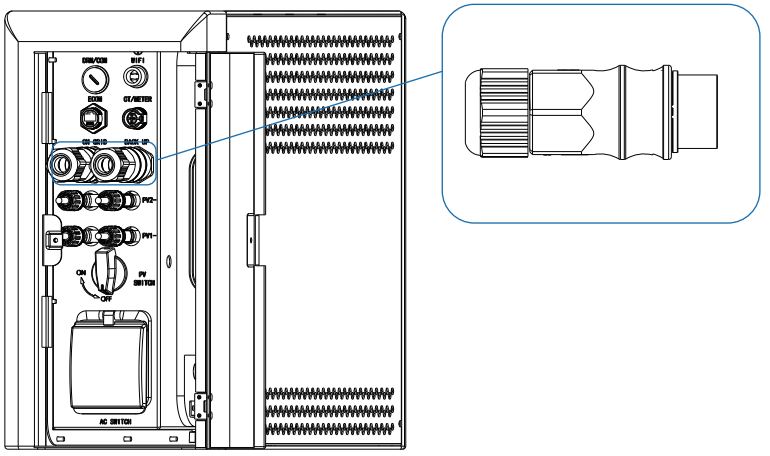
Tighten the cable corresponding to the connector with a screwdriver.



Step 3

Insert the AC Waterproof Cover into the corresponding terminal, turn the AC Waterproof Cover latch clockwise to lock .

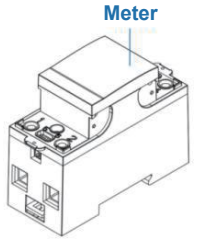


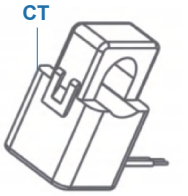


Note: After the wiring harness is locked, it should be pulled to prevent the locking from being unstable.

5.3 CT or Meter Connection

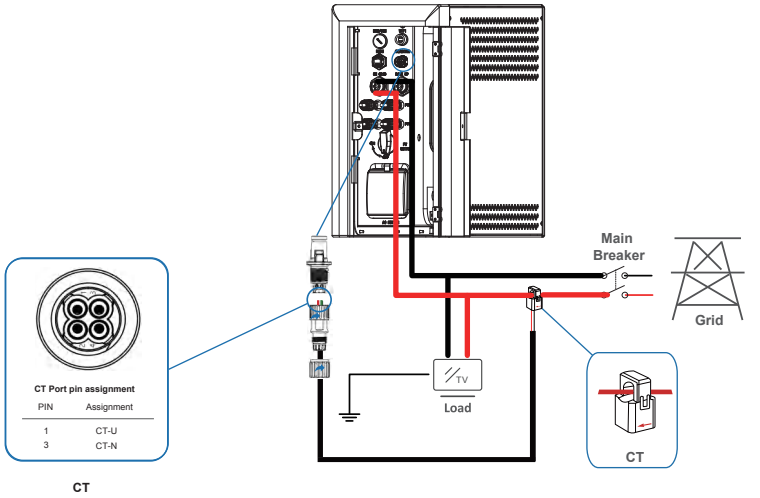
Meter and a current sensor(CT for short below) are used to detect current power direction of the local load and the grid. The output control function of the inverters will be activated based on the detected data.





Install the CT

Tighten the cable corresponding to the connector with a screwdriver.

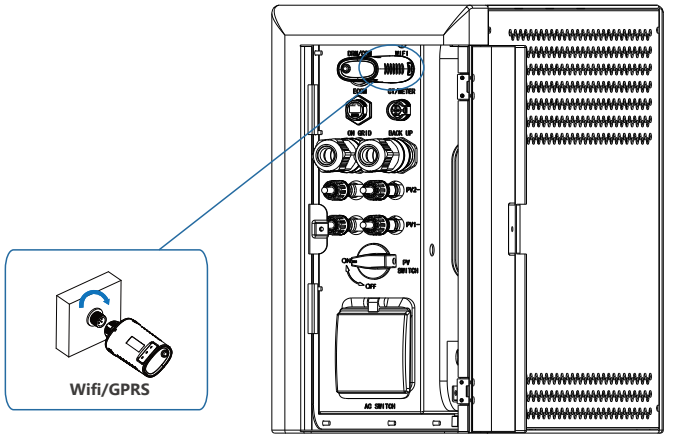


5.4 Communication Connection

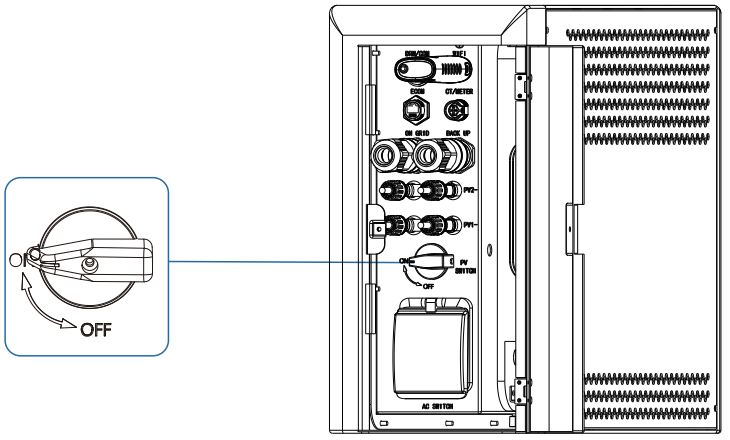
The monitoring module could transmit the data to the cloud server, and display the data on the PC, tablet and smart-phone.

Install the WIFI / Ethernet / GPRS / RS485 Communication:

Step 1



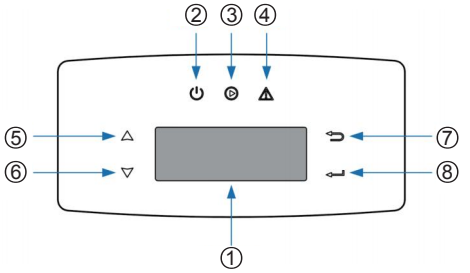
Step 2



Turn on the DC switch and AC circuit breaker, and wait until the LED indicator on the monitoring module flashes, indicating that the monitoring module is successfully connected.

6. Operation

6.1.Control Panel



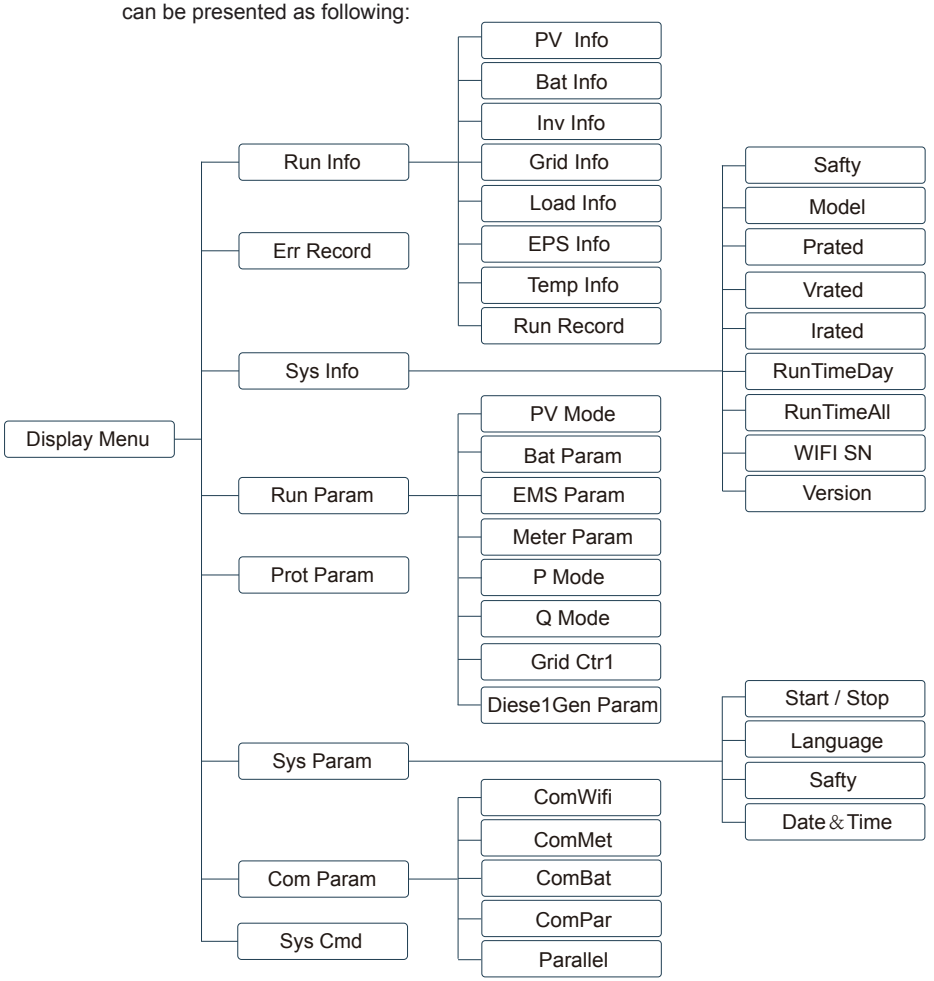
No.	Items	No.	Items
1	LCD Display	5	UP Touch Button
2	POWER LED Indicator	6	DOWN Touch Button
3	GRID LED Indicator	7	BACK Touch Button
4	FAULT LED Indicator	8	ENTER Touch Button

*Hold UP/DOWN button can be rolling quickly.

Sign	Power	Color	Explanation
POWER	ON	Green	The inverter is stand-by
	OFF		The inverter is power off
GRID	ON	Green	The inverter is feeding power
	OFF		The inverter is not feeding power
FAULT	ON	Red	Fault occurred
	OFF		No fault

Hybrid inverter has a LCD for clearly operating, and menu of the LCD can be presented as following:

can be presented as following:



The password for setting this parameter is 5432.

Finally,For detailed inverter operation instructions, please scan the QR code below:

7. Transport and Maintenance

7.1.Annual inspection

Every year after installation. The connection of power connectors, grounding points, power cables and screws are to be checked. Make sure there is no loosening, fracture or corrosion at any connection point. Check the installation environment such as dust, water, insect etc. and make sure it is suitable for IP66 battery system.

7.2 Transport requirement

The product transportation process shall meet the following requirements:

- Observe the caution signs on the packaging of the device before transportation.
- Battery energy state is 20%~50%, disconnect the high voltage circuit;
- When carrying the equipment by hand, wear protective gloves to prevent injuries.
- Handle the product gently during transportation to prevent dropping,tumbling and heavy pressure;
- Prevent severe vibration, inversion, impact, extrusion, sun and rain during product transportation.

7.3 Storage

- The device must be stored indoors.
- Do not remove the original packaging material and check the outer packaging
- material regularly.
- The storage temperature should be between -30℃ and +53℃ . The humidity
- should be between 5% and 65%.
- Stack the device in accordance with the caution signs on the carton to prevent
- the device falling down and damage. Do not place it upside down.

Scan the QR code below for a detailed installation video:

3.5.Features

• The battery is non-toxic, pollution-free and environmental-friendly.

• Anode material is made from LiFePO4 with safety performance and long cycle life.

• BMS has protection functions including over-discharge, over-charge, over-current and high/low temperature.

• Flexible configuration, multiple battery modules can be connected in series to increase storage energy.

4.Installation

• The battery is non-toxic, pollution-free and environmental-friendly.

• Anode material is made from LiFePO4 with safety performance and long cycle life.

• BMS has protection functions including over-discharge, over-charge, over-current and high/low temperature.

• Flexible configuration, multiple battery modules can be connected in series to increase storage energy.

4.1.Tools and safety gear

The displayed tools are recommended and could be used in the installation of batteries and hybrid inverter. And the safety gear should be worn correctly during installation.

During operation, consider that the noise emitted based on the environment could possibly exceed the legal thresholds (less than 70 dBA), therefore, suitable ear protection must be worn.

4.2.Package Items

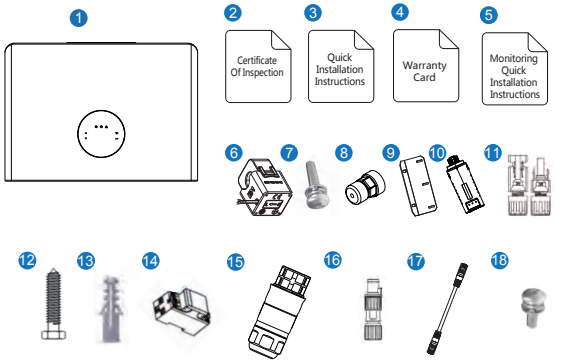
Unpacking

On receiving the products, please check to make sure the packing and all components are not missing or damaged. Please contact your dealer directly for supports if there is any damage or missing components.

Package list of inverter and battery pack

Open the package, please check the packing list shown as below.

Inverter:



No.	Qty	Items	No.	Qty	Items
1	1	Hybrid Inverter	10	1	Monitor Module
2	1	Certificate Of Inspection	11	1/2	DC Connector set
3	1	Quick Installation Instructions	12	2	Mounting Bracket Screw
4	1	Warranty Card	13	2	Plastic Expansion Tube
5	1	Monitoring Quick Installation Instructions	14	1	Smart Meter (Opitional)
6	1	CT	15	2	AC Waterproof Cover
7	3	Wall Mounting Bracket	16	1	Meter Conncetors
8	1	Communication Connectors	17	1	Communication T568B
9	1	Wall Mounting Bracket	18	1	Security Screw

Battery pack:

No.	Qty	Items	No.	Qty	Items
1	1	PACK	5	1	M6*12 Security Screw
2	2	M6*50 Mounting bracket Screw	6	1	Wall Mounting bracket
3	2	M10*50 Plastic Expansion Tube	7	1	PACK Mounting bracket
4	4	M6*12 PACK connection screws			