User Manual



All-in-One Energy Storage System

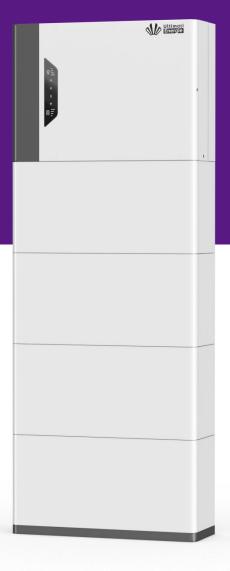
UE-8k-XXXX-T2-HA1

UE-10k-XXXX-T2-HA1

UE-12k-XXXX-T2-HA1

XXXX: System Energy Capacity (KWh)

XXXX=7.6/11.4/15.2/19/22.7



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1. About This Manual

This manual provides a comprehensive description of the All-in-One Residential Energy Storage System, including installation, electrical connections, commissioning, troubleshooting, and maintenance. Please read through this manual thoroughly before installing and operating the product. It is essential for all installers and users to be well-acquainted with the product's features, functions, and safety precautions. This manual is subject to update without notice.

1.1 Applicable Model

Inverter (In hybrid inverter box)

Model	Nominal Output Power	Nominal Output Voltage
UE-8k-XXXX-T2-HA1	8000W	400/230V a.c, 3W+N+PE
UE-10k-XXXX-T2-HA1	10000W	400/230V a.c, 3W+N+PE
UE-12k-XXXX-T2-HA1	12000W	400/230V a.c, 3W+N+PE

Battery Pack (In battery pack box)

Model No.	Name	Function specification
HB1-3.8kWh-N	Battery pack, 102.4V, 37Ah, 3.8KWh	Stores electrical energy

Power Sensor (Optional)

Model No.	Name	Function specification
CHNT DTSU666	CHNT Tree-Phase Smart Meter	Data acquisition for grid connection
YADA YDS60-C24	YADA Smart Power Sensor	points enables zero-power grid connection

Communication module (In hybrid inverter box)

Model No.	Name	Function specification
EESW-A413	WIFI +BLE Stick	Enables communication between
		inverter and management system
		from website or mobile phone

1.2 Target Group

This manual is intended for qualified and knowledgeable electrical technical personnel responsible for the installation and commissioning of hybrid inverters in energy storage and electrical systems.

1.3 Symbol Definition

The following types of safety instructions and general information appear in this document as described below:

DANGER	N WARNING	(! CAUTION	NOTICE
"Danger" indicates a hazardous situation with a high level of risk that, if not avoided, will result in death or serious injury.	"Warning" indicates a hazardous situation with a medium level of risk that, if not avoided, could result in death or serious injury.	"Caution" indicates a hazardous situation with a low level of risk that, if not avoided, could result in minor or moderate injury.	"Notice" indicates tips and methods for solving product-related problems and saving time.

2. Safety Precaution

Please strictly follow these safety instructions in the user manual during the operation.

2.1 General Safety



- The information in this user manual is subject to change due to product updates or for other reasons. This guide cannot replace the product labels or the safety precautions in the user manual unless otherwise specified. All descriptions here are for guidance only.
- Before installation, read through the quick installation guide. For additional information, please see the user manual.
- All installations should be performed by trained and knowledgeable technicians who are familiar with local standards and safety regulations.
- Use insulating tools and wear personal protective equipment when operating the equipment to ensure personal safety. Wear anti-static gloves, clothing, and wrist straps when touching electronic devices to protect the inverter from damage.
- Strictly follow the installation, operation, and configuration instructions in this manual. The manufacturer shall not be liable for equipment damage or personal injury if you do not follow the instructions.

	⚠ DANGER				
 All labels and warning marks should be visible after the installation. Do not cover, write on, or damage any equipment labels. Warning labels on the inverter are as follows: 					
4	DANGER: high voltage hazard. Disconnect all incoming power and turn off the product before working on it.	A Cismin	Delayed discharge. Wait 5 minutes after power off until the components are completely discharged.		
I	Read through the user manual before working on this device.	!	Potential risks exist. Wear proper PPE before any operations.		
	High-temperature hazard. Do not touch the product under operation to avoid being burnt.		Grounding point.		
(€	CE marking Indicates that the inverter fulfills the basic requirements of the guidelines governing low-voltage and electromagnetic compatibility.	Z	Do not dispose of the inverter as household waste. Discard the product in compliance with local laws and regulations, or return it to the manufacturer.		
UK	UKCA marking Indicates compound UK product safety certification requirements.		RCM marking.		

Please read this manual carefully before installation, operation, and maintenance. Inappropriate use may lead to injury or even death for the user or third parties. Material damage to the battery and other equipment may also occur. All operations should be performed by a qualified person.

The manufacturer will not be liable for any consequences under the following circumstances:

- · Operation beyond the conditions specified in this document
- Installation and use in environments that do not comply with relevant international, national, or regional standards
- Failure to follow the operation instructions and safety messages on the batteries and in this document
- Product damage caused by an unavoidable natural disaster
- · Damage caused during transportation by the customer
- Damage caused by storage conditions that do not meet the requirements specified in related documents
- Damage to the hardware of the device due to negligence, improper operation, or intentional damage

2.2 PV String Safety



Connect the DC cables using the delivered PV connectors. The manufacturer shall not be liable for equipment damage if other connectors or terminals are used.



- Ensure the component frames and the bracket system are securely grounded.
- Ensure the DC cables are connected tightly, securely, and correctly.
- Measure the DC cables with a multimeter to avoid reverse polarity connection. Also, the voltage should be within the permissible range.
- Do not connect one PV string to more than one inverter at the same time. This may cause damage to the inverter.
- The PV modules used with the inverter must have an IEC61730 class A rating.
- When the photovoltaic array is exposed to light, it supplies a DC voltage to the inverter.

2.3 Inverter Safety

A DANGER

- The voltage and frequency at the connecting point should meet on-grid requirements.
- Additional protective devices like circuit breakers or fuses are recommended on the AC side. Specification of the protective device should be at least 1.25 times the AC rated output current.
- Make sure that all the groundings are tightly connected. When there are multiple inverters, make sure that all the grounding points on the enclosures are equipped with potential bonding.
- Off-grid function is not recommended if the PV system is not configured with batteries. Otherwise, system power usage risk is beyond the scope of the equipment manufacturer's warranty.
- Photovoltaic power instability should be taken into account: if the battery is not connected, there is no EPS function.
- In case of prolonged inactivity of the equipment (such as being offline for several consecutive days or having minimal operational hours), the system will issue a reminder. If no feedback is received from you, the equipment will automatically turn off as a precautionary measure for safety. To resume operation of the equipment, please reach out to us for further instructions.
- When the equipment is running, do not cover the decorative cover plate. Maintain a heat dissipation channel of 300–600mm to avoid fire due to high temperature.
- Do not touch the heat sink when the equipment is running.

2.4 Battery Safety

A DANGER

- The overheated battery pack may cause fire or explosion. Do not expose the device to high temperatures or heat sources (such as sunlight, fire, or heaters) for long periods of time.
- Do not clean or soak the equipment with water, alcohol, or oil to avoid power leakage or battery pack leakage.
- Do not use the equipment if it appears faulty. If you see any abnormalities (for example, battery pack leakage or appearance distortion), contact your sales agent.
- Ensure battery pack shells are properly grounded before operation.
- The disassembly of batteries may generate internal short circuits, which can result in fire or other problems.
- Do not open or tamper with batteries. Released electrolyte is harmful to the skin and eyes and may be toxic.
- Batteries theoretically do not have flowing electrolyte, but in the event of any leakage or contact with skin, eyes, or other parts of the body, flush the electrolyte with water immediately and seek medical attention.
- The battery may be damaged due to impact or other reasons during transportation or assembly. If the battery is found to have any abnormal characteristics, such as a damaged shell, electrolyte gas, or an electrolyte leak, then the battery shall not be used. Contact the dealer or installer to replace it.
- Do not expose the cable, as this may cause the battery to short circuit and shock the user.
- Under normal circumstances, the equipment charges itself based on operating conditions. If the equipment cannot charge, please contact the sales agent promptly and address the issue within the specified time. The company will not be responsible for any loss of battery capacity or irreparable damage caused by the delay. Batteries should be recharged within 30 days to avoid damage from deep discharge.

! WARNING

- Wear suitable personal protective equipment when working on the battery system.
- Before installation, remove the battery from any power grid and ensure it is in shutdown mode.
- For equipment that needs to be grounded, install the protective earthing (PE) cable first when installing the equipment and remove the PE cable last when removing the equipment. Do not operate the equipment without a properly installed, grounded conductor.
- Remove metal objects from your body, such as watches, necklaces, and rings, while operating.
- Connect all cables according to the instructions, ensuring no reverse connections for positive and negative poles. Avoid external short circuits.
- Do not connect the battery directly to the utility grid or an AC source.
- Do not mix and match this battery with other batteries.
- If a fire occurs, use pure water, ABC, or carbon dioxide extinguishers.
- Do not touch the output terminals of the battery pack while it is operating. The DC cables connected to an inverter may be live. Touching live DC cables may result in death or serious injury due to electric shock.

2.5 Personal Requirements



- Personnel who install or maintain the equipment must be thoroughly trained and knowledgeable about safety precautions and correct operations.
- Only qualified professionals or trained personnel are allowed to install, operate, maintain, and replace the equipment or its parts.

2.6 Warranty Exclusions

The Limited Warranty will not cover any defects caused by the following circumstances:

- Damage to the product or packaging due to improper storage before installation.
- Use of incompatible accessories.
- Failure to comply with UED's operating instructions, installation guide, and maintenance instructions for the product (e.g., required ambient temperature during operation: charge: -10°C to 50°C, discharge: -10°C to 55°C).
- Damage during transportation not handled by UED.
- Failure to comply with safety regulations regarding the product.
- Improper use or misuse of the product, including accidents and external influences beyond the control of UED.
- Unauthorized repairs to the product.
- Use of third-party products or parts in combination with UED products.
- Removal and reinstallation of the product at a location other than the original installation location, without the express written consent of UED.
- Force majeure events (e.g., war, crime, natural disasters).
- Improper installation and debugging by unauthorized or unlicensed installers. Proof of proper commissioning of the product (such as a certificate of conformity) may be required. Claims for failure due to incorrect installation or commissioning are not covered by this warranty.
- Any property damage or personal injury resulting from any defect that could not be discovered at the time of sale due to the state of scientific and technical knowledge.
- An unrecognizable or modified serial number on the product.
- Failure to allow UED or UED partners access to performance data of the products or manipulation of such data after reporting a warranty claim.

2.7 EU Declaration of Conformity

The hybrid inverter with wireless communication modules sold in the European market meets the requirements of the following directives:

- Radio Equipment Directive 2014/53/EU (RED)
- Restrictions of Hazardous Substances Directive 2011/65/EU and (EU) 2015/863 (RoHS)
- Waste Electrical and Electronic Equipment 2012/19/EU (WEEE)
- Registration, Evaluation, Authorization, and Restriction of Chemicals (EC) No 1907/2006 (REACH)

The hybrid inverter without wireless communication modules sold in the European market meets the requirements of the following directives:

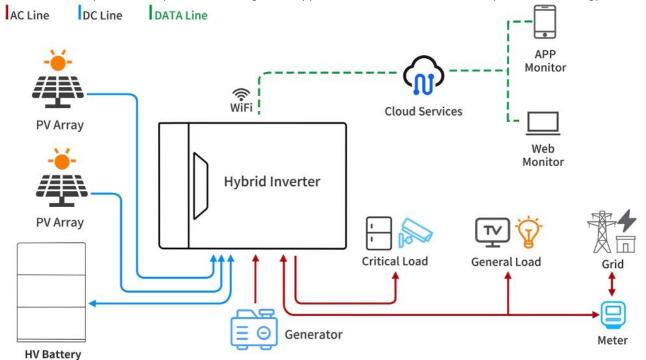
- Electromagnetic Compatibility Directive 2014/30/EU (EMC)
- Electrical Equipment Low Voltage Directive 2014/35/EU (LVD)
- Restrictions of Hazardous Substances Directive 2011/65/EU and (EU) 2015/863 (RoHS)
- Waste Electrical and Electronic Equipment 2012/19/EU (WEEE)
- Registration, Evaluation, Authorization, and Restriction of Chemicals (EC) No 1907/2006 (REACH)

3. Product Introduction

3.1 Product Features

Intended usage

The UE-8k-22.7-T2-HA1 series All-in-One Energy Storage System is designed for use with a hybrid inverter, high-voltage battery, grid, PV array, generator, and general and critical home loads. The energy produced by the PV system is used to optimize self-consumption; excess power charges the battery, and any remaining power can be fed into the grid. The battery discharges to support loads when PV power is insufficient to meet self-consumption. If both PV and battery power are insufficient, the system draws power from the grid to support the loads. The work mode depends on PV energy and the user's

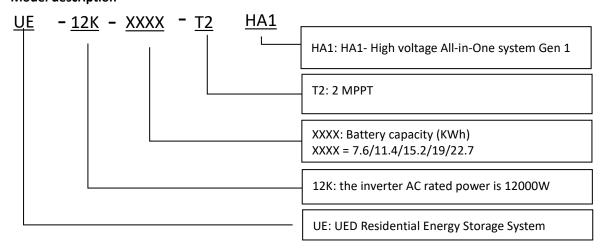


preference.

Model

This manual applies to the all-in-one systems listed below: UE-8k-XXXX-T2-HA1, UE-10k-XXXX-T2-HA1, UE-12k-XXXX-T2-HA1

Model description



3.2 Working Mode

The UE-12k-XXXX-T2-HA1 Series All-in-One Energy Storage System has the following work modes based on your configuration and layout conditions:

Work modes	Description
Self Use (with PV Power)	Priority: load > battery > grid The energy produced by the PV system is used to optimize self-consumption. Excess energy charges the batteries, and any surplus is exported to the grid.
Self Use (without PV Power)	Priority: load > battery When there is no PV supply, the battery discharges to power local loads first. The grid supplies power when the battery capacity is insufficient.
TOU ¹ Balance	Users can set time periods, considering photovoltaic availability and time-of-use pricing to balance PV utilization and economic benefits. • Peak price: Operates in spontaneous self-use mode. • Flat price: The PV system prioritizes supplying the load. If PV power is insufficient, the battery's discharge is restricted to ensure continuous energy. • Valley price: Charges the battery at full power priority until fully charged.
TOU¹ Eco	This mode maximizes economic benefits by addressing peak and valley electricity price differences. • Peak price: The battery discharges at full power to sell electricity to the grid at a high price. • Flat price: Operates in spontaneous self-use mode. • Valley price: Buys electricity from the grid at a low price to charge the battery at full power.
Backup only	Priority: load > battery In this mode, the system charges the battery until it is fully charged and keeps it that way, awaiting a grid failure. When the grid is off, the system supplies emergency power from PV or battery to home loads.
Grid Priority	Priority: load > grid When operating in this mode, electricity generated by the PV system is preferentially connected to the grid. Users can make requests to the grid during peak times and set the end battery SOC point in this mode.

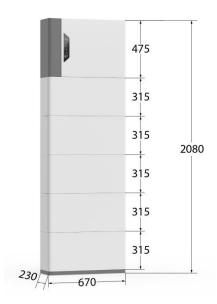
^{1.}TOU means Time of Use.

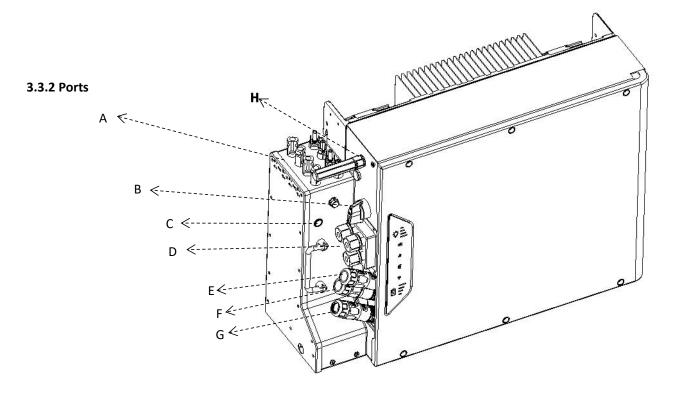


Ensure the load power rating is within the EPS's output rating. If the load exceeds the EPS's output capacity, the inverter will shut down with an "overload" warning. When an overload occurs, adjust the load power to bring it within the EPS output range, then turn the inverter back on. For nonlinear loads, be mindful of the inrush power to ensure it is within the EPS output capacity.

3.3 Appearance

3.3.1 Dimensions





Item	Description	Item	Description
А	PV connector	В	PV & battery switch
С	BMS button	D	Communication port
E	EPS1 connector	F	EPS2/GEN connector
G	Grid connector	Н	WLAN/4G/LAN

3.3.3 Nameplate

The nameplate is for reference only.

	Ultimati Energie		Ultimati Energie		Ultimati Energie
All-in-One Ene	All-in-One Energy Storage System	All-in-One En	All-in-One Energy Storage System	All-in-One Ene	All-in-One Energy Storage System
Model	 □ UE-12k-7.6-T2-HA1 □ UE-12k-11.4-T2-HA1 □ UE-12k-15.2-T2-HA1 □ UE-12k-19-T2-HA1 □ UE-12k-19-T2-HA1 □ UE-12k-27-T2-HA1 	Model	□ UE-10k-7.6-T2-HA1 □ UE-10k-11.4-T2-HA1 □ UE-10k-15.2-T2-HA1 □ UE-10k-19-T2-HA1	Model	 □ UE-8k-7.6-T2-HA1 □ UE-8k-11.4-T2-HA1 □ UE-8k-15.2-T2-HA1 □ UE-8k-19-T2-HA1 □ UE-8k-22.7-T2-HA1
Vmax PV(Max.PV input voltage)	1000V d.c	Vmax PV(Max.PV input voltage)	1000V d.c	Vmax PV(Max.PV input voltage)	1000V d.c
PV input operating voltage range	150-950V d.c	PV input operating voltage range	150-950V d.c	PV input operating voltage range	150-950V d.c
Max.operating PV input current	16A d.c*2	Max.operating PV input current	16A d.c*2	Max.operating PV input current	16A d.c*2
Isc PV	24A d.c*2	Isc PV	24A d.c*2	Isc PV	24A d.c*2
Grid rated voltage	400/230V a.c,3W+N+PE	Grid rated voltage	400/230V a.c,3W+N+PE	Grid rated voltage	400/230V a.c,3W+N+PE
Grid rated frequency	50Hz	Grid rated frequency	50Hz	Grid rated frequency	50Hz
Grid rated input current	23.2A a.c	Grid rated input current	20.3A a.c	Grid rated input current	17.4A a.c
Grid rated output current	17.4Aa.c	Grid rated output current	14.5A a.c	Grid rated output current	11.6A a.c
Grid rated input apparent power	16000VA	Grid rated input apparent power	14000VA	Grid rated input apparent power	12000VA
Grid rated output apparent power	12000VA	Grid rated output apparent power	10000VA	Grid rated output apparent power	8000VA
EPS rated output voltage	400/230V a.c,3W+N+PE	EPS rated output voltage	400/230V a.c,3W+N+PE	EPS rated output voltage	400/230V a.c,3W+N+PE
EPS rated output frequency	50Hz	EPS rated output frequency	50Hz	EPS rated output frequency	50Hz
EPS rated output current	17.4Aa.c	EPS rated output current	14.5Aa.c	EPS rated output current	11.6A a.c
EPS rated output apparent power	12000VA	EPS rated output apparent power	10000VA	EPS rated output apparent power	8000VA
Power Factor	0.8Leading-0.8Lagging	Power Factor	0.8Leading-0.8Lagging	Power Factor	0.8Leading-0.8Lagging
Battery operation voltage range	125-800V d.c	Battery operation voltage range	125-800V d.c	Battery operation voltage range	125-800V d.c
Max.charge and discharge current	37A d.c	Max.charge and discharge current	37A d.c	Max.charge and discharge current	37Ad.c
Battery type	Li-ion	Battery type	Li-ion	Battery type	Li-ion
Protective class	I	Protective class	I	Protective class	I
Ingress protection degree	IP65	Ingress protection degree	IP65	Ingress protection degree	IP65
Overvoltage category	PV: II AC:III	Overvoltage category	PV: II AC:III	Overvoltage category	PV: II AC:III
Inverter topology	Non-isolated	Inverter topology	Non-isolated	Inverter topology	Non-isolated
Operating temperature range	-10°C - +50°C	Operating temperature range	-10°C — +50°C	Operating temperature range	-10°C − +50°C
All-in-One S/N	N/S e	AII-in-One S/N	16 S/N	All-in-One S/N	N/S e
Manufacturer: Shenzhen ACE battery Co.,Ltd.	Made In China	Manufacturer: Shenzhen ACE battery Co.,Ltd.	Made In China	Manufacturer: Shenzhen ACE battery Co.,Ltd.	Made In China
	Cem CE T		Om CE		Cem CE

3.3.4 Features

- Intelligent energy management
- Wide range of battery voltages
- Well-sealed design with IP66 rating
- Multiple operating modes available
- Compatible with on grid and off grid
- High efficiency
- High speed on/off grid switching

3.3.5 Specification

	UE-8k-7.6-T2-HA1 UE-10k-7.6-T2-HA1 UE-12k-7.6-T2-HA1			
	UE-8k-11.4-T2-HA1	UE-8k-11.4-T2-HA1 UE-10k-11.4-T2-HA1		
Model	UE-8k-15.2-T2-HA1	UE-10k-15.2-T2-HA1	UE-12k-15.2-T2-HA1	
	UE-8k-19-T2-HA1	UE-10k-19-T2-HA1	UE-12k-19-T2-HA1	
	UE-8k-22.7-T2-HA1	UE-10k-22.7-T2-HA1	UE-12k-22.7-T2-HA1	
Grid AC input and AC output				
Rated output apparent power	8000VA	10000VA	12000VA	
Rated output active power	8000W	10000W	12000W	
MAX output apparent power	8800VA	11000VA	13200VA	
Rated input apparent power	12000VA	14000VA	16000VA	
Rated output current	11.6 A ac	14.5 A ac	17.4 A ac	
Rated input current	17.4 A ac	20.3A ac	23.2 A ac	
Rated AC voltage		380 V / 400 V / 415 V		
AC rated frequency		50 Hz/60Hz		
Wiring		L1/L2/L3-N-PE		
Power factor (cosΦ)		0.8 leading – 0.8 lagging		
THDI		<3%		
Grid input and output Inrush current		96A a.c @ 3μs		
Protective Class		1		
Max. Grid output fault current		96A a.c @ 3μs		
Max. Grid output over current protection		400V a.c /60 A a.c		
Output(Back up)				
Rated output apparent power	8000VA 10000VA		12000VA	
MAX. output apparent power	8800VA 11000VA		13200VA	
Rated output active power	8000W 10000W 12000W		12000W	
Rated output voltage	380 V / 400 V / 415 V			
Rated output frequency		50/60Hz		
THDV(@Linear Load)		<3%		
Switch time		10ms		
PV String Input				
Recommended max. PV input power	12000W	12000W 15000W 18000W		
MAX.PV input voltage		1000V		
Startup voltage		150V		
MPPT voltage range		150V-950V		
Number of MPPTs		2		
Max. number of PV strings per MPPT		2		
Max. input current per MPPT		16A		
Max. short-circuit current per MPPT		24A		
Reverse Connect Protection	Yes			
- Neverse connect i rotection		Yes		

Efficiency					
MPPT Efficiency	99.90%	99.90%	99.90%		
Euro Efficiency	97.50%	97.50%	97.50%		
MAX. Efficiency	98.00% 98.00% 98.00%				
Battery					
Battery type	Lithium-ion battery				
System Energy	7.6kWh/11.4kWh/15.2kWh/19kWh/22.7kWh				
Usable Energy [1]	7.2kWh/10.8kWh/14.4kWh/18kWh/21.6kWh				
Rated battery voltage	204.8V/307.2V/409.6V/512V/614.4V				
Number of Battery Modules	2/3/4/5/6				
Recommend charging/discharging current	18.5A				
Max charging/discharging current	37A				
Cycle Life	>=7000 cycles [2]				
Battery auto wake up[3]	Yes				
Function					
CT/ Meter (option)		Yes			
ОТА	Yes				
Safety protection					
Diesel generator support		Yes			
PV String reverse polarity protection	Yes				
DC short circuit current protection	Yes				
DC over current protection	Yes				
DC over voltage protection		Yes			
AC output short circuit current protection		Yes			
AC output over current protection		Yes			
AC over voltage protection	Yes				
Anti-island protection	Yes				
Leakage current detection	Yes				
Ground connection detection	Yes				
AFCI	Optional				
Rapid DC voltage cut off	Optional				
Overvoltage category		AC III ; DC II			
General					
Dimensions W*H*D	67	0*(1135/1450/1765/2080/2395)	*230		
Net weight		117kg/155kg/193kg/231kg/269	kg		
Installation		Floor-mounted			
Operating temperature range		Charge :-10°C~50°C			
		Discharge:-10°C~55°C			
Max. operating altitude	< 4000m(> 2000m power Derating)				
Relative humidity range		0~95% (No Condensation)			
Ingress Protection Rating		IP66			
Climatic category	4K4H				
Cooling		Natural convection			
Pollution degree		PD3			
Topology		Non-isolated			

Noise	<35dB		
Communication	RS485/WLAN/Bluetooth/DRY/DRM/Meter, LAN/4G(Optional)		
Display	LED indicators / APP/ Web		
Warranty	Inverter: 5 years (expand to 10 years); Battery:10 years		
Standard			
Safety	IEC/EN 62109-1&-2 IEC62619/CE/UN38.3		
EMC	IEC/EN 61000-6-1/-2		
	IEC/EN 61000-6-3/-4		
	IEC/EN 61000-3-2/-12		
	IEC/EN 61000-3-3/-11		
	IEC/EN 62920		

^[1]Test Conditions - Temperature 25°C, at the beginning of life, cell charge voltage between 2.8~3.5V, 0.5C.

^{[2]25°}C ambient temperature, recommended charging/discharging current.

^[3]Inverter can wake up battery automatically and charge battery when Grid is on.

4. Check and Storage

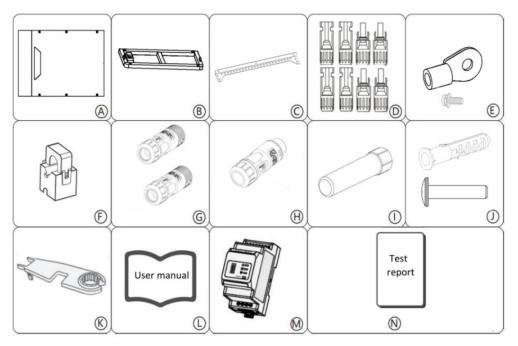
4.1 Check Before Receiving

Check the following items before receiving the product:

- 1. **Inspect the Outer Packing**: Look for damage such as holes, cracks, deformation, or other signs of equipment damage. Do not unpack the package and contact the supplier immediately if any damage is found.
- 2. **Verify the Inverter Model**: Ensure the inverter model matches your order. If the model is incorrect, do not unpack the product and contact the supplier.
- 3. **Examine the Deliverables**: Confirm the model, ensure all contents are complete, and check for any damage. Contact the supplier immediately if any damage is found.

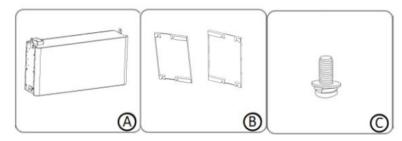
4.2 What's in the box?

Inverter box



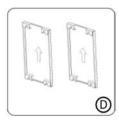
Item	Quantity	Description	Item	Quantity	Description
А	1	Inverter (packed and assembled with base)	В	1	Base (must be removed from inverter bottom immediately after unpacking)
С	1	Mounting bracket	D	4	PV terminals: 4x positive, 4x negative
E	1	OT terminals/grounding screw	F	3	СТ
G	2	AC EPS/generator connectors	Н	1	AC grid connector
ı	1	WIFI+BLE Stick	J	1 set	Wall mounting and installation screws
К	1	PV connector tool	L	1	User manual
М	1	Three-phase electronic type guide rail mounting electric energy meter (optional)	N	2	Test report

Battery Pack box



Item	Quantity	Description
А	1	Battery pack
В	2	Side cover (230mm wide)
С	2	Screw

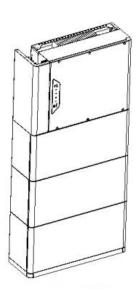
Optional: Battery side cover box (170mmdepth installation)



Item	Quantity	Description	Note
D	1	Side cover (170mm depth installation)	This slim battery side cover is optional for
			stand alone battery installation, please
			contact the distributor if you need slim
			battery side cover.



170mm wide side panels have same effect as above



230mm wide side panels have same effect as above

4.3 Storage

If the equipment is not to be installed or used immediately, please ensure that the storage environment meets the following requirements:

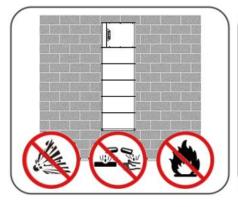
- 1. Do not unpack the outer package or discard the desiccant.
- 2. Store the equipment in a clean place. Ensure the temperature and humidity are appropriate and that there is no condensation.
- 3. Follow the instructions on the packing box regarding the height and direction of stacking the inverters.
- 4. Stack the inverters with caution to prevent them from falling.
- 5. If the inverter has been stored long-term, it should be checked by professionals before being put into use.
- 6. The storage temperature range is -20°C to 50°C, and the storage humidity range is 0% to 100%.

5. Installation

5.1 Installation Requirements

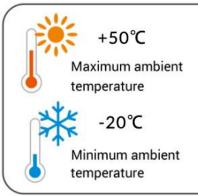
Installation Environment Requirements

- 1. Do not install the equipment near flammable, explosive, or corrosive materials.
- 2. Do not install the equipment in a place that is easy to touch, especially within children's reach. High temperatures exist when the equipment is operating. Do not touch the surface to avoid burns.
- 3. Avoid water pipes and cables buried in the wall when drilling holes.
- 4. Install the equipment in a sheltered place to avoid direct sunlight, rain, and snow. Build a sunshade if needed.
- 5. Ensure the installation location is well-ventilated for heat dissipation and spacious enough for operations.
- 6. Equipment with a high ingress protection rating can be installed indoors or outdoors. Ensure the temperature and humidity at the installation site are within the appropriate range.
- 7. Install the equipment at a height convenient for operation and maintenance, electrical connections, and checking indicators and labels.
- 8. The installation altitude should be lower than the maximum working altitude of 4000m.
- 9. PV modules used with the inverter must have an IEC61730 Class A rating.
- 10. Provide overcurrent protection (such as a breaker rated 400V a.c / 32 A a.c) before the AC input and after the EPS output. Ensure the installation position does not prevent access to the disconnection means.
- 11. Ensure adequate ventilation space for the inverter after installation; refer to the installation diagram below.
- 12. This inverter does not provide an internal isolated transformer between PV input and Battery/AC output circuits. However, basic insulation is provided between PV input/Battery/AC output circuits and the metal enclosure/earth, and reinforced/double insulation between PV input/Battery/AC output and communication circuits (DRM/Meter/WiFi/RS485).
- 13. Refer to the specification table in subclause 3.3.5 for PV input ratings, and ensure the PV array is not grounded.
- 14. Install the equipment away from sources of electromagnetic interference. If there are radio stations or wireless communication equipment operating below 30 MHz near the installation location, follow these guidelines:
 - Add a multi-turn winding ferrite core to the DC input line or AC output line of the inverter, or add a low-pass EMI filter
 - Ensure the distance between the inverter and the wireless EMI equipment is more than 30 meters.

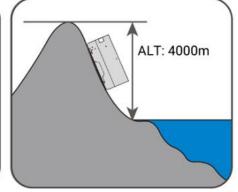


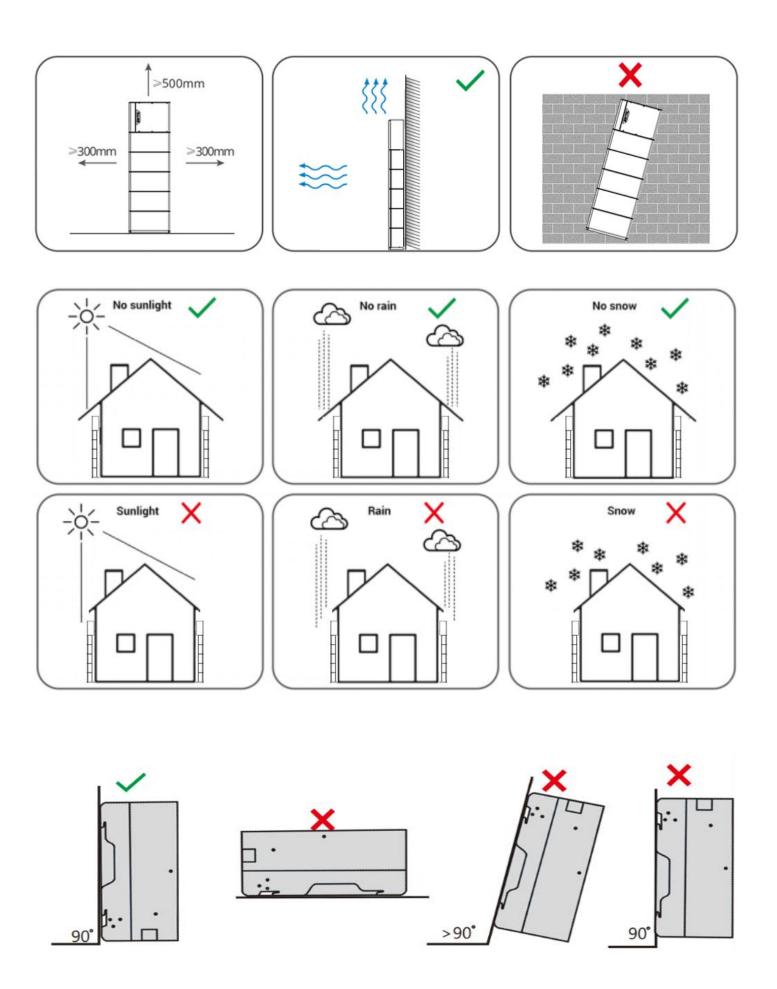












Installation Angle Requirements

- Install the inverter vertically
- Do not install the inverter upside down, forward tilt, back forward tilt, or horizontally.

Installation Tool Requirements

The following tools are recommended when installing the equipment. Use other auxiliary tools on site if necessary



5.2 System Installation

5.2.1 Moving the Inverter



- The unit is heavy. Do not lift it alone. During lifting procedures, ensure that the unit is firmly secured to avoid the risk of accidental tipping or dropping. Parts serving for support or immobilization of the unit shall be designed and manufactured to minimize the risk of physical injuries and accidental loosening of fixings. Ensure that the lifting method will not allow the unit to slip from chains and slings or turn over or slide from lifting devices.
- Transportation must be carried out by specialized personnel (truck operators, hook-up personnel) equipped with the necessary protective equipment (overalls, safety shoes, protective gloves, helmets, goggles).
- Do not walk or stand beneath or in the proximity of the load. Avoid sudden movements and jolts when unloading and positioning the unit. Internal handling procedures must be conducted with care.
- Do not exert leverage on the components of the machine. If the unit is not balanced, apply ballast. Do not support protruding parts by hand. Install the inverter so that the operating panel is easily accessible, with easy access to the electrical power connection point, and accessible for maintenance and repair work. Parts serving for support or immobilization of the unit shall be designed and manufactured to minimize the risk of physical injuries and accidental loosening of fixings.
- Ensure the loading capacity and hardness of the supporting surface. The load rating of the mounting bracket should be at least four times the weight of the device according to IEC 62109-1. Supporting characteristics should be calculated by inspecting the design data of the supporting material and consulting a construction engineer, considering potential impairment from wear, corrosion, material fatigue, or aging.

5.2.2 Installation Steps



- Avoid water pipes and cables buried in the wall when drilling holes.
- Wear goggles and a dust mask to prevent dust from being inhaled or contacting eyes when drilling holes.
- · Ensure that the installation is secure to prevent falling.

DANGER

- A short circuit in the battery can cause personal injury. The instantaneous high current caused by a short circuit can release a large amount of energy and may cause a fire.
- Before connecting the battery cable, ensure the inverter, the battery, and downstream and upstream switches are all disconnected.
- Do not connect or disconnect the battery while the inverter is running, as this may cause electric shock.
- Ensure that the open circuit voltage of the battery is within the permissible range of the inverter.



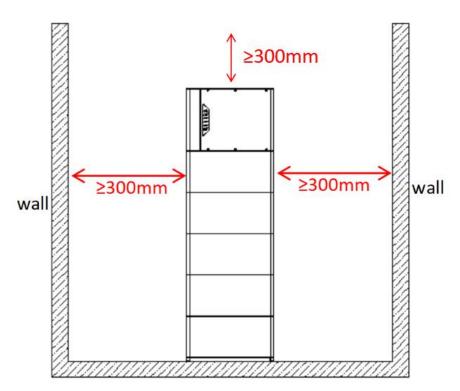
PV/Battery switch

Before connecting to the battery, make sure the PV/Battery switch is set to OFF to ensure that the inverter can be safely disconnected during maintenance.

Step 1: Confirmation of installation location

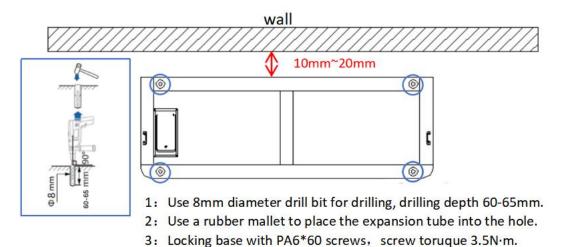
It is necessary to choose the appropriate installation site according to the requirements of section 5.1. The system must not be immersed in water. The battery base should not be placed in rain or near other water sources. It is recommended that the site should be able to support the maximum weight of 270 kg for the entire system. Refer to the specification table for the accurate weight of different system configurations.

The mounting position conforms to the dimensions shown below



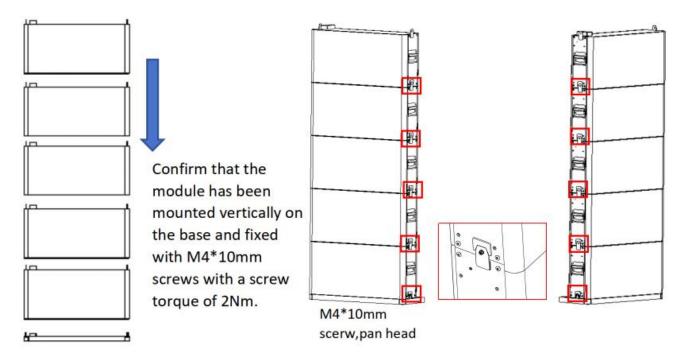
Step 2: Mount system base

First, open the inverter box and take out the inverter and base. Ensure the PV and battery switches are off. Use a level to check that the floor is flat. If the floor is not flat, make it level before installation or choose another location with a level surface.

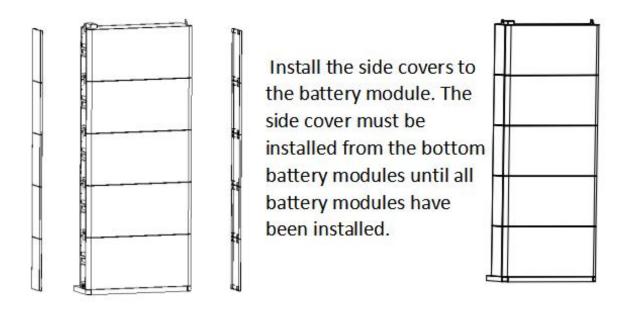


Step 3: Battery module installation

Open the battery box and take out the battery module, paying attention to the module orientation during installation. Each battery box contains 2 M4*10 screws and 2 side covers. Ensure the battery modules are properly aligned for a neat appearance while tightening the screws.

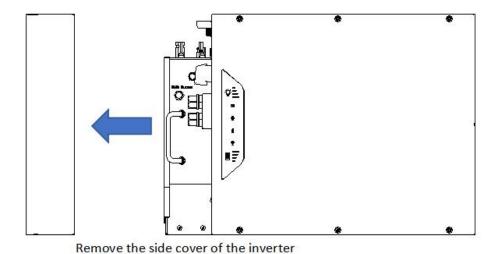


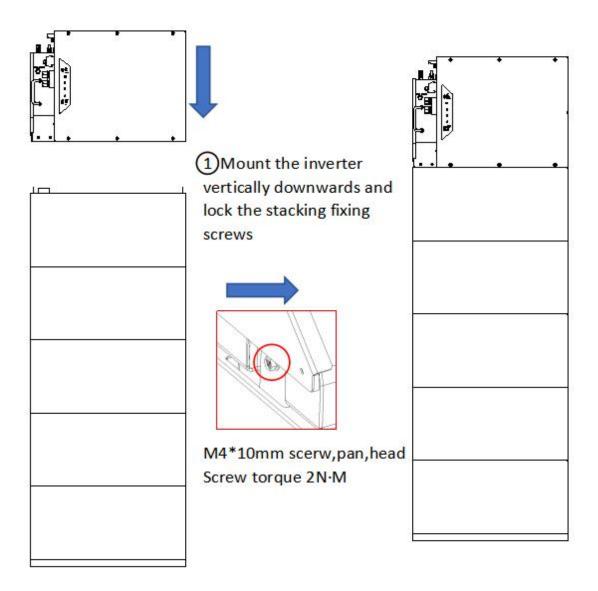
Step 4: Battery side cover mounting



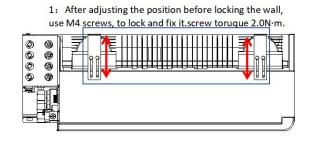
Step 5: Inverter installation

Before connecting to the battery, make sure the PV/Battery switch is set to OFF to ensure that the inverter can be safely disconnected during maintenance.

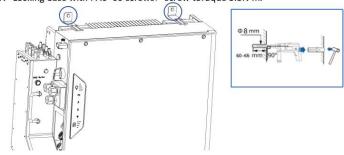




Step 6: Fixing inverter

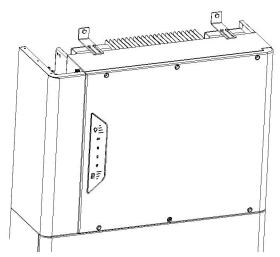


- 2: Use 8mm diameter drill bit for drilling, drilling depth 60-65mm.
- 3: Use a rubber mallet to place the expansion tube into the hole.
- 4: Locking base with PA6*60 screws, screw toruque 3.5N·m.



Step 7: Wiring harness installation—refer to Section 6. Electrical Connection.

Step 8: Installation of inverter side cover



Step 9: Mark the system energy capacity and stick battery SN code lable from installed battery pack box accessory kit. Example shown below is system with 4 battery packs installed.

Energy Storage Ba	atterv	
204.8Vdc,37Ah,7.6kWh	HB1-3.8kWh-N*2	Δ C € ĽK
307.2Vdc,37Ah,11.4kWh	HB1-3.8kWh-N*3	
	HB1-3.8kWh-N*4	
512Vdc,37Ah,19kWh	HB1-3.8kWh-N*5	
614.4Vdc,37Ah,22.7kWh	HB1-3.8kWh-N*6	
Battery module S/N:		Battery module S/N:
	V 	
Battery module S/N:		Battery module S/N:
	1	
Battery module S/N:	/	Battery module S/N:
[
L		L
Manufacturer: Shenzhen AC	E Battery Co., Ltd.	

6. Electrical Connection

6.1 Safety Precautions



- All operations, cables, and parts specifications during the electrical connection shall comply with local laws and regulations.
- Disconnect the DC switch and the AC output switch of the inverter to power off the inverter for at least 5 minutes, allowing the capacitor to discharge before any electrical connections. Do not work with the power on to avoid electric shock.
- Tie the same type of cables together and keep them separate from cables of different types. Do not entangle or cross the cables.
- If the cable bears too much tension, the connection may be poor. Reserve a certain length of the cable before connecting it to the inverter cable port.
- When crimping the terminals, ensure the conductor part of the cable is in full contact with the terminals. Do not crimp the cable jacket with the terminal. Otherwise, the inverter may not operate correctly, or its terminal block may be damaged due to heating and other issues caused by unreliable connections.



- Wear personal protective equipment such as safety shoes, safety gloves, and insulating gloves during electrical connections.
- All electrical connections should be performed by qualified professionals.
- Cable colors in this document are for reference only. The cable specifications must meet local laws and regulations.

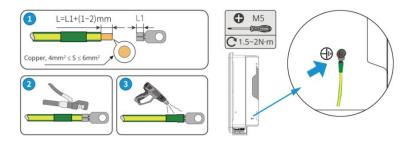
6.2 Connection Port Descriptions

Connector	Description		Recommended cable type	Recommended cable specifications
PV1- PV2-	+: Connect the positive electrode of photovoltaic cell -: Connect the negative electrode of photovoltaic cell		Industry common outdoor Photovoltaic cable	Conductor cross-sectional area: 4mm ² (12AWG)
EPS1	EPS1 (Load)	L1 L2 L3 N PE	Outdoor multi-core copper cable L1/L2/L3: Brown/Red/Green or Yellow Wire N: Blue/Black Wire PE: Yellow & Green Wire	Conductor cross-sectional area: 6mm ² (10AWG)
GRID	Grid (AC)	L1 L2 L3 N PE	Outdoor multi-core copper cable L1/L2/L3: Brown/Red/Green or Yellow Wire N: Blue/Black Wire PE: Yellow & Green Wire	Conductor cross-sectional area: 6mm ² (10AWG)
EPS2/GEN	EPS2/GEN	L1 L2 L3 N	Outdoor multi-core copper cable L1/L2/L3: Brown/Red/Green or Yellow Wire N: Blue/Black Wire PE: Yellow & Green Wire	Conductor cross-sectional area: 6mm ² (10AWG)
			WLAN connection dongle	1

6.3 PE Cable Connection



- The PE cable connected to the enclosure of the inverter cannot replace the PE cable connected to the AC output port. Both PE cables must be securely connected.
- Ensure that all grounding points on the enclosures are equipotentially connected when multiple inverters are installed.
- To improve the corrosion resistance of the terminal, it is recommended to apply silica gel or paint on the ground terminal after installing the PE cable.
- Prepare PE cables with the recommended specifications:
 - Type: Outdoor single-core copper wire
 - Cross-sectional area: 6mm² (10AWG)



6.4 EPS and Grid, Generator Connection



The UE-12k-22.7-T2-HA1 series All-in-One system is designed for a three-phase grid. The voltage range is 380/400/415V, and the frequency is 50/60Hz. Other technical requirements should comply with the local public grid standards.



• A micro-breaker for maximum output overcurrent protection must be installed between the inverter and the grid. The current rating of the protection device should be selected according to the table provided. Any load should NOT be connected directly to the inverter.

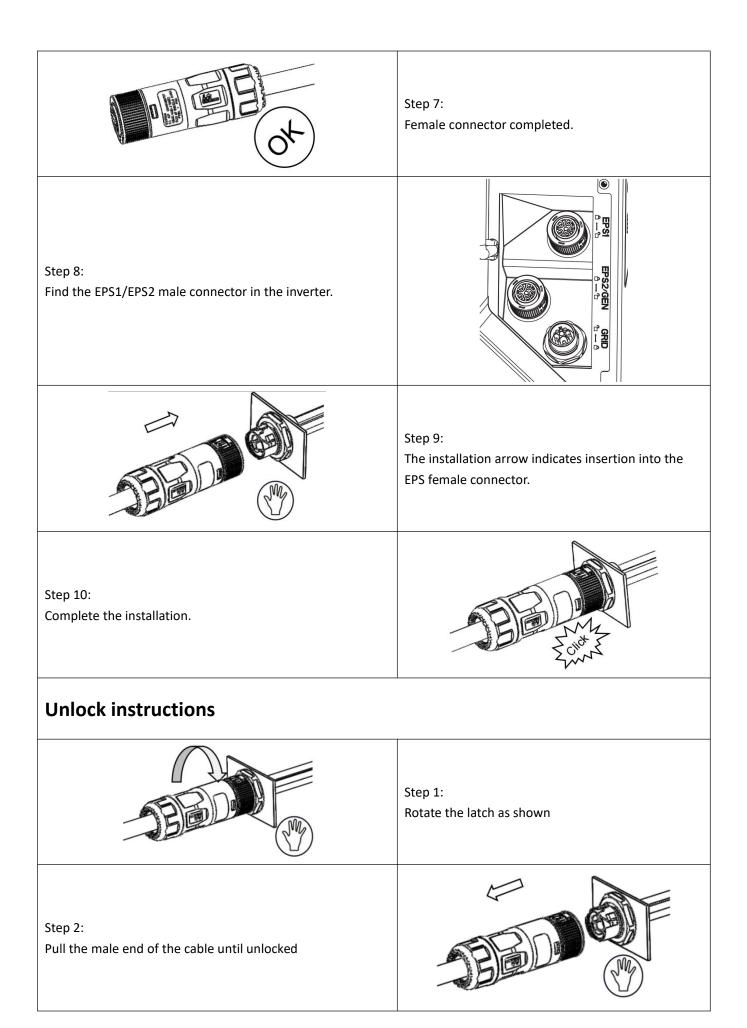
ॐ NOTICE

Check the grid voltage and ensure it is within the permitted voltage range (refer to the technical data).

- Disconnect the circuit-breaker from all phases and secure it against re-connection.
- Trim the wires:
 - Trim all wires to 52.5mm and the PE wire to 55mm.
 - Use crimping pliers to remove 12mm of insulation from all wire ends as shown below.
 - Refer to local cable types and colors for actual installation.
 - Cross-sectional area: 6mm² (10 AWG).

6.4.1 EPS1 and EPS2/GEN connector Wiring

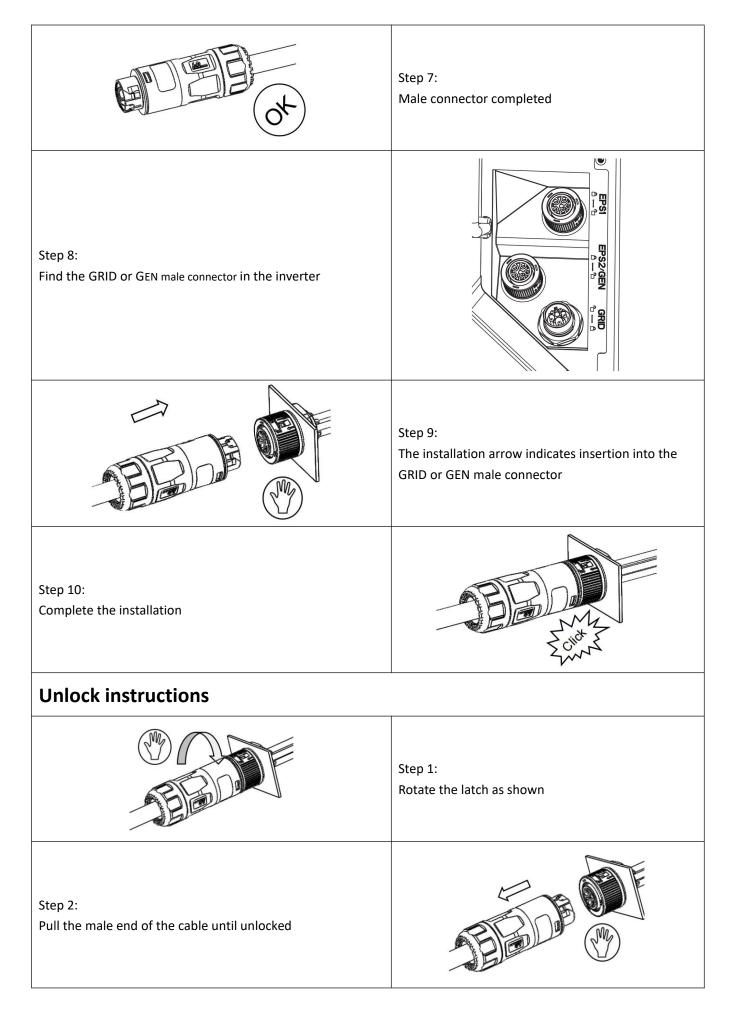
Installation Procedure Step 1: 33 10 1. Turn off the DC and battery switches. 2. Choose 10 AWG wire to connect to the EPS port. ►L1/L2/L3/N 3. Trim 6mm of insulation from the wire end. 30 10 Step 2: Crimp the terminals with crimping pliers. Step 3: 1. Set the parts on the cable (AC EPS / Generator Insert the cables into the terminal holes in sequence. Step 4: Crimp the wire with an inner hexagon screwdriver and torque the screw to 1.2 +/- 0.1N·m. Step 5: Insert the main body into the rubber core until a "click" sound is heard. Step 6: Tighten the nut with an open-ended wrench (torque: 2.5 \pm 0.5N • m).



6.4.2 Grid and Generator Wiring

The UE-12k-22.7-T2-HA1 series All-in-One Energy Storage System is designed for a three-phase grid. The voltage is 380/400/415V, and the frequency is 50Hz. Other technical requirements should comply with the local public grid standards.

Installation Procedure Step 1: 33 10 1. Turn off the DC and battery switches. 2. Choose 10 AWG wire to connect to the EPS port. ►L1/L2/L3/N 3. Trim 6mm of insulation from the wire end. 10 30 Step 2: Crimp the terminals with crimping pliers Step 3: 1. Set the parts on the cable (AC EPS / Generator Insert the cables into the terminal holes in sequence. Step 4: Crimp the wire with an inner hexagon screwdriver and torque the screw to 1.2+/-0.1N·m Step 5: Insert the main body into the rubber core until a "click" sound is heard Step 6: Tighten the nut with an open-ended wrench (torque: 2.5 \pm 0.5N • m)



6.5 PV Connection

6.5.1 PV String Connection



Confirm the following information before connecting the PV string to the inverter. Failure to do so may result in permanent damage to the inverter, fire, or personal and property losses.

- 1. Ensure that the maximum short circuit current and the maximum input voltage per MPPT are within the permissible range.
- 2. Make sure that the positive pole of the PV string connects to the PV + of the inverter and the negative pole of the PV string connects to the PV of the inverter.

Model for EU	UE-8k-XXXX-T2-HA1	UE-10k-XXXX-T2-HA1	UE-12k-XXXX-T2-HA1
Max. DC Voltage	1000V DC		
MPPT Voltage Range	150V-950V DC		

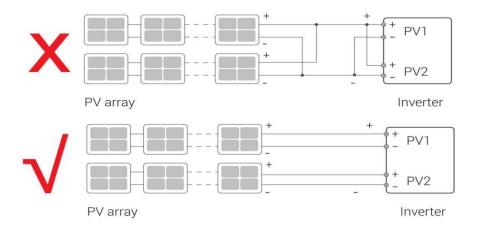


- 1. Choose a suitable external DC switch if the inverter does not have a built-in DC switch.
- 2. PV module voltage is very high and within a dangerous voltage range. Please comply with electrical safety rules when making connections.
- 3. Do NOT ground the positive or negative terminals of the PV system.
- 4. Ensure that the PV modules are of the same type, have the same output and specifications, are aligned identically, and are tilted at the same angle. To save cable and reduce DC loss, it is recommended to install the inverter as close to the PV modules as possible.

ॐ NOTICE

The DC input cable is prepared by the customer. Recommended specifications:

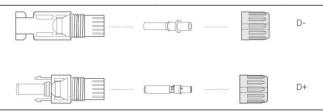
- Type: Outdoor photovoltaic cable that meets the maximum input voltage of the inverter.
- Conductor cross-sectional area: 2.5-4mm² (Devalan) or 4-6mm² (MC4).



6.5.2 PV Wiring

Step 1: Inspect PV modules

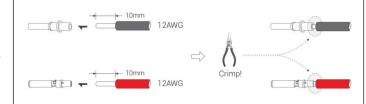
- 1. Measure the module array voltage with a voltmeter.
- 2. Check the PV+ and PV- from the PV string combiner box correctly.
- 3. Please make sure the impedance between the positive pole and negative pole of PV to ground is at the $\,$ M Ω level.

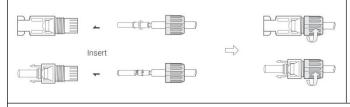


Step 2: Separate DC Connector

Step 3: Wiring

- 1. Connect the 12 AWG wire to the cold crimp terminal.
- 2. Remove 10mm of insulation from the end of the wire.
- 3. Insert the insulator into the pin contact and clamp it with crimping pliers.





Step 4: Insert the pin contact through the nut and into the male or female

plug. When a "click" is felt or heard, the pin contact assembly is properly

seated. Then tighten the nut.

Step 5: Plug the PV connector into the corresponding interface on the inverter.

6.6 Battery Connection



- A short circuit in the battery may cause personal injury. The instantaneous high current caused by a short circuit can release a large amount of energy and may cause a fire.
- It is forbidden to connect or disconnect the battery when the inverter is running, as this may cause electric shock.
- Ensure that the open circuit voltage of the battery is within the permissible range of the inverter.

WARNING

- Servicing of batteries should be performed or supervised by personnel knowledgeable about batteries and the required precautions.
- When replacing batteries, replace with the same type and number of batteries or battery packs.
- CAUTION: Do not dispose of batteries in a fire, as they may explode.
- CAUTION: Do not open or damage batteries. Released electrolyte is harmful to the skin and eyes and may be toxic.
- **CAUTION**: A battery can present a risk of electrical shock and high short-circuit current. The following precautions should be observed when working on batteries:
 - 1. Remove watches, rings, or other metal objects.
 - 2. Use tools with insulated handles.
 - 3. Wear rubber gloves and boots.
 - 4. Do not lay tools or metal parts on top of batteries.
 - 5. Disconnect the charging source prior to connecting or disconnecting battery terminals.



PV/Battery switch

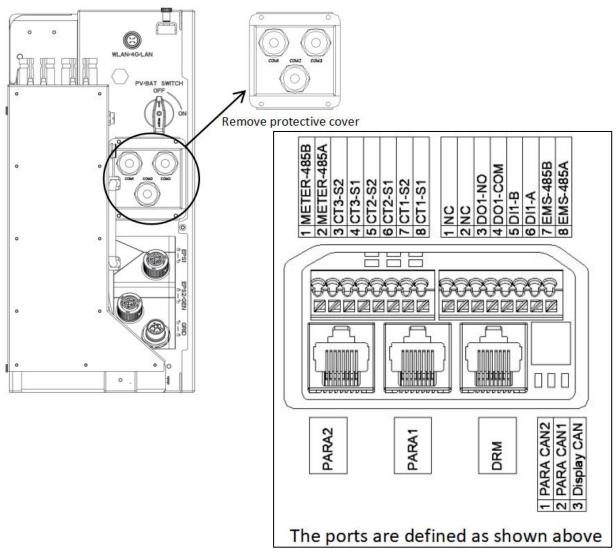
Before connecting to the battery, make sure the PV/Battery switch is set to OFF to ensure that the inverter can be safely disconnected during maintenance.

6.7 Communication Cable Installation



The UE-12k-22.7-T2-HA1 series system offers multiple communication options, including WiFi, Bluetooth, RS485, and Meter with an external device. Operating information such as output voltage, current, frequency, and fault information can be monitored locally or remotely via these interfaces and through a cellphone app.

6.7.1 Protective Cover for Communication Ports



The inverter in the package comes with a protective cover to protect the communication ports. Follow these steps to connect the communication ports:

- 1. Use a screwdriver to unscrew the 4 screws on the protective cover.
- 2. Read the following sections of the manual and prepare the appropriate cables.
- 3. Unscrew the cable gland and remove the flashing cap inside the cable gland according to the number of cables, leaving the unused holes with the flashing cap.
- 4. Guide the cables into the holes of the cable gland (hole diameter: 6 mm).
- 5. Connect the appropriate connector according to the pin definitions described in the following sections.

- 6. Tighten the 4 screws on the cover (torque: 1.7 N.m 2 N.m).
- 7. Ensure that the wires inside the cover are not bent or stretched.

PIN	Meter	PARA1/2	DRM	
1	Meter RS485A	Para Display CAN_H	GND	RJ45terminal
2	Meter RS485B	Para Display CAN_L	DRM1/5	
3	/	/	DRM2/6	12345678
4	5V_VCC	Para Power CAN1_H	DRM3/7	T568B
5	FR_ALM_IN	Para Power CAN1_L	DRM4/8	RJ45 plug 18
6	5V_GND	/	DRM0	
7	AFCI_485A	Para Power CAN2_ H	GND	
8	AFCI_485B	Para Power CAN2_L	GND	

6.8. Wi-Fi & BLE stick installation

6.8.1 System power-on sequence

- 1. Ensure the PV array connection is complete. Turn on the PV/battery switch (refer to section 3.32 for PV/battery switch position).
- 2. Press and hold the BMS button for 5 seconds to turn on the power (refer to section 3.32 for BMS button position).
- 3. Ensure the PV power supply is active.
- 4. Turn on the grid power switch.
- 5. Power on the system from the app. Select "Setting Params > Power On/Off > Auto Power On Enable".
- 6. Turn on the load.

6.8.2 System shutdown process

- 1. Disconnect the load.
- 2. Power off system from app.

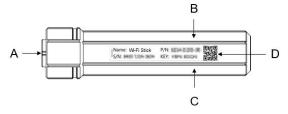
6.8.3 Wi-Fi & BLE stick indication

A: Circular Connector Interface: Connect to inverter and communication

B: Red LED: Inverter communication indication

C: Green LED: Network communication indication

D: Product label: Show product information



1. The LED glows only when the Wi-Fi & BLE stick is powered on.

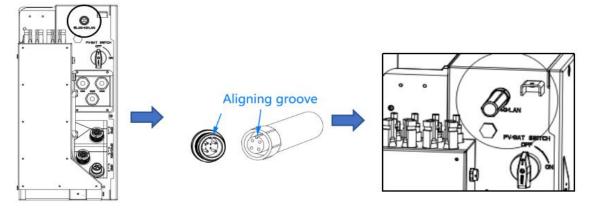


- 2. When the Wi-Fi & BLE stick is powered on, the green LED glows for 3 seconds as a power-on indication.
- 3. For more detailed LED indications, please refer to Chapter 9, "LED Indication and Troubleshooting."

6.8.4 Install the Wi-Fi & BLE stick

Follow these installation steps!

1. Remove the waterproof cover	2. Align with grooves
3. Plug in WiFi module	4. Spin to lock the WiFi module



6.8.5 Web/app

Item	Web View	APP
QR Code		
Website	https://innohaus.inteless.com/	iOS: search "Innohaus" in Apple Store Android: search "Innohaus" in Google Play

6.8.6 Wi-Fi Connection

The Wi-Fi connection diagram for the Wi-Fi & BLE stick is shown in the figure below. To configure the network connection, download the app and follow the operation guide provided within the app.



6.8.7 Installation Qualifications

If the Wi-Fi & BLE stick is working normally, both the red LED and green LED will be continuously glowing. If they are not, refer to Chapter 9, "LED Indication and Troubleshooting," for corrective actions.

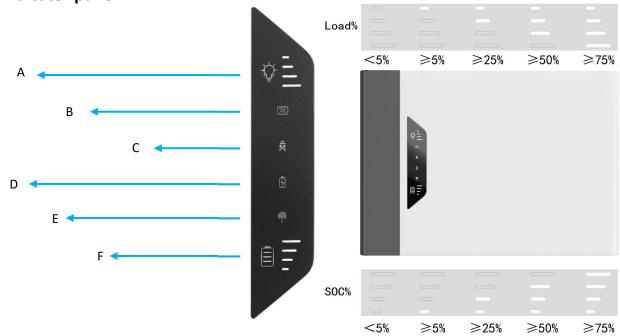
6.8.8 LED indication and troubleshooting

LED	State	Indication	
•	Red LED: Inverter communication indication	Green LED: Network communication indication	
	Cycle for 2s: flashes once quickly, then glows	Cycle for 2s: flashes once quickly, then glows	
	No LED glow for more than 20s	The power supply to the Wi-Fi & BLE stick is abnormal or damaged: 1. Check whether the power supply of the Aerial Plug Interface on the inverter is normal. 2. If the Wi-Fi & BLE stick is abnormal, contact the dealer.	
111	Cycle for 2S: flashes once quickly, then shuts off	Communication failure: Check whether the connection between the Wi-Fi & BLE stick and the inverter is loose or has poor contact	
	When powered on, continuously glows for 3s,	Power-on indication	

	then shuts off	
	Glows for more than 5s	Communication is normal
	Occasional flashes during long glow	Network is transmitting data
	Cycle for 20s: flashes once quickly, then shuts	The router is not connected:
	off	1. Check whether the password is right
		2. Check the strength of the router
		Connecting to the router, but can't connect
111 III	Cycle for 20s: flashes 3 times continuously,	to the cloud server:
	then shuts off	1. Check whether the router has internet access permission
		2. Check the firewall settings
ШШ	Cycle for 20s: flashes 4 times continuously,	Wi-Fi & BLE stick information error: Please contact the dealer
	then shuts off	

7. Operation

7.1 Indicator panel



Name	Object	Function	
	А	White: ON, The inverter is ON, 4 segments indicate load %	
	В	White: ON, The Grid is normal, slow FLASH, Grid is abnormal, OFF, Backup function is off.	
In director LED	С	White: ON, Grid is normal. Slow Flashing: Grid is abnormal. OFF: Backup function is off	
Indicator LED	D	White: ON, Battery is normal. Slow Flashing: Battery is discharging. Flashing: Battery is abnormal. OFF: Battery is disconnected or switched off	
	E	White: ON, Communication is normal. Flashing: Communication is abnormal. OFF: Communication is disconnected or logger not installed	
	F	White: ON, Battery is ON, 4 segments indicate battery SOC %	

7.2 Austria Tor Erzeuger Typ A Parameter Export Procedure

- Step.1 Open "SSE-INV-Debug" execute software.
- Step.2 Port link.Click "Port" item and select "Connection set".
- Step.3 Select the right port and open it.
- Step.4 Click "Object" and select "three phase" debug object.
- Step.5 Click INV or DCDC icon, and select "INV" debug type.
- Step.6 User login.Click "Login" item, select "instraller" of user, input password "123", and click <confirm> to login.
- Step.7 Select "User Setting" item and set grid type like below and click "Set" .waiting 15S...
- Step.8 Click "Austria Para Export" to export parameters.
- Step.9 Get document.Click "Goto File" to get the new pdf file."

8. Troubleshooting

This section contains information and procedures for solving possible problems with the UE-12k-22.7-T2-HA1 series system and provides troubleshooting tips to identify and resolve most issues that could occur.

This section will help you narrow down the source of any problems you may encounter. Please read the following troubleshooting steps.

Check the warning or fault messages on the System Control Panel or fault codes on the inverter information panel. If a message is displayed, record it before doing anything further. Attempt the solution indicated in the table below.

Fault Code	Solution		
grid over frequency alarm	If there is an occasional alarm, it may be due to temporary abnormalities in the power grid.		
grid under frequency alarm	Once the power grid returns to normal, the inverter will automatically resume normal		
grid overvoltage alarm	operation. If the alarm is frequent, check the following:		
	Ensure the grid voltage and frequency settings are correct.		
grid undervoltage alarm	2. Check the inverter's AC circuit breaker and AC wiring for any issues.		
	If everything is correct and the alarm persists, contact technical support.		
grid long time OV alarm			
grid amplitude fast inspection			
alarm	If the power grid is abnormal, the inverter will automatically return to normal working state		
grid DC component fast detection	once the power grid recovers. If the inverter does not return to normal, seek help from us.		
alarm			
grid phase fast inspection alarm			
overload protection	If the load power is too large or the device derates, reduce the power consumption. If the		
overload alarm	device does not return to normal state, seek help from us.		
CT reverse connect failure	Check whether the CT connection is correct.		
CT fault	Check Whether the er connection is confect.		
Ground fault	Check whether the PE cable is grounded properly.		
grid phase deficiency alarm			
LN reverse connect failure	Check whether the AC input cable is correctly connected.		
grid phase abnormal alarm			
INV overvoltage fault			
INV undervoltage fault			
Leakage current self-test failure			
Short circuit fault			
INV overcurrent protection			
INV bus overvoltage protection			
INV bus undervoltage protection			
Bus unbalance alarm	Faulty inverter. Follow this procedure:		
Relay self-test failure	1 Turn off the DV grid and bettery		
INV fault lock	1. Turn off the PV, grid, and battery. 2. Wait for 5 minutes.		
Busbar buffer failure	3. Turn the inverter back on and check whether the problem is resolved.		
INV phase lock fault	5. Turn the inverter back on and check whether the problem is resolved.		
Internal para matching fail	If the problem persists, seek help from us.		
aux power fault	If the problem persists, seek help from as.		
fan fault			
DC fault lock			
DC bus overvolt protection			
DC bus undervolt protection			
Leakage current overlimit fault			
PV1 overcurrent protection			
PV2 overcurrent protection			
INV FLASH fault			
INV-DC comm fault	The internal communication and storage are abnormal. Turn off the PV, grid, and battery, then		
ARM-INV comm fault	wait 5 minutes before turning on the inverter. Check whether the problem is resolved. If the		
ARM-DCDC comm fault	problem persists, seek help from us.		
power module para mis-matched			

power parameter set failure		
ARM FLASH abnormal	1	
DC-INV comm fault		
DC FLASH fault		
	Turn off the PV, grid, and battery, then wait 5 minutes before turning on the inverter. Check	
host fault	whether the problem is resolved. If the problem persists, seek help from us.	
Parallel para mismatch fault	Check whether the parallel communication cable is properly connected.	
Parallel line failure		
discharge OC protection		
charge OC protection	Check whether the battery settings are inconsistent with the battery specifications.	
DC BAT overvoltage protection		
DC BAT undervoltage protection		
BAT reverse connect failure	Check whether the positive and negative terminals of the battery power line are connected in reverse mode.	
DC over-temp alarm	Ensure that the inverter is installed in a place without direct sunlight. Make sure the inverter is	
DC over-temp fault	installed in a cool/well-ventilated area. Ensure that the inverter is installed vertically and that	
INV overtemperature protection	the ambient temperature is lower than the upper limit of the inverter temperature.	
INV overtemperature alarm		
meter comm fault	Check whether the meter communication line is normal.	
BMS-CAN comm abnormal	Make sure the battery you use is compatible with the inverter. Check whether the	
BMS-485 Comm abnormal	communication cables or ports between the battery and the inverter are properly connected.	
NTC disconnected	Check whether cables to the NTC temperature sensor are properly connected.	
PV1 overvoltage protection	Check whether the PV string voltage (Voc) is higher than the maximum input voltage of the	
PV2 overvoltage protection	inverter. If so, adjust the number of series PV modules and reduce the PV string voltage to fit the input voltage range of the inverter. After correction, the inverter will automatically return to its normal state.	
PV1 reverse connect protection	Check whether the DV cables are correctly connected	
PV2 reverse connect protection	Check whether the PV cables are correctly connected.	
DC BAT overvoltage alarm	The inverter does not detect the battery voltage. Ensure that the battery switch system is	
DC BAT undervoltage alarm	started and cables are properly connected.	
BAT none-connected	started and capies are properly connected.	
SOC low alarm	If the battery is low, recharge it.	
BAT ch&disch prohabition		
Bat genaral fault		
Bat over-volt fault		
Bat under-volt fault		
Bat high-temp protection	If an internal fault in the lithium battery occurs, turn off the PV, grid, and battery, then wait 5	
Bat low-temp protection	minutes before turning the inverter and lithium battery back on. Check whether the problem	
Bat disch over-curr protection	is resolved. If the problem persists, seek help from us.	
Bat charge over-curr protection		
Bat contactor fault		
Bat short circuit		
BMS fault		
Bat cell protection		
Bat EOL	The battery is at end of life, please contact factory.	
Bat genaral warning		
Bat high-volt warning		
Bat low-volt warning		
Bat high-temp warning		
Bat low-temp warning	If an internal fault in the lithium battery occurs, turn off the PV, grid, and battery, then wait 5	
Bat disch over-curr warning	minutes before turning the inverter and lithium battery back on. Check whether the problem	
Bat charge over-curr warning	is resolved. If the problem persists, seek help from us.	
Bat contactor warning		
Bat short circuit warning		
BMS internal warning		
Bat cell warning		



If your inverter's information panel is not displaying a Fault light, check the following list to ensure that the present state of the installation allows proper operation of the unit:

- 1. Is the inverter located in a clean, dry, and adequately ventilated place?
- 2. Have the DC input breakers been opened?
- 3. Are the cables adequately sized and short enough?
- 4. Are the input and output connections and wiring in good condition?
- 5. Are the configuration settings correct for your particular installation?
- 6. Are the display panel and the communications cable properly connected and undamaged?

If you need further assistance, contact customer service. Please be prepared to describe the details of your system installation and provide the model and serial number of the unit.

9. Maintenance

9.1 System shutdown process



- Power off the inverter before performing operations and maintenance. Otherwise, electric shocks or other hazards may occur.
- · Delayed discharge: Wait until the components are fully discharged after powering off.
- 1. Disconnect the load.
- 2. Power off using the APP software.
- 3. Disconnect the utility power.
- 4. Turn off the PV.
- 5. Press and hold the BMS button for 5 seconds to turn off the battery (refer to section 3.32 for BMS button location).
- 6. Turn off the PV/Battery switch.

9.2 Removing the inverter and battery



- Make sure that the inverter is powered off.
- Wear proper PPE before any operations.
- 1) Disconnect all the cables, including PV cables, AC cables, communication cables, the communication module, and PE cables.
- 2) Remove the inverter from the mounting plate.
- 3) Store the inverter and battery properly. If the inverter and battery need to be used later, ensure that their storage conditions meet the requirements.

9.3 Disposing of the inverter and battery

If the inverter has reached end of life, dispose of it according to your local disposal requirements. The inverter cannot be disposed of together with household waste.



- Make sure that the inverter is powered off.
- Wear proper PPE before any operations.

9.4 Maintenance information

Inverter

Maintenance Item	Maintenance Method	Maintenance Period
System Clean	Check the heat sink, air intake, and air outlet for foreign matter or dust.	Once every 6-12 months
PV Switch	Turn the DC switch on and off ten consecutive times to make sure that it is working properly.	Once a year
Electrical Connection	Check whether the cables are securely connected. Check whether the cables are broken or whether there is any exposed copper core.	Once every 6-12 months
Sealing	Check whether all the terminals and ports are properly sealed. Reseal the cable hole if it is not sealed or if it is too big.	Once a year

Battery pack

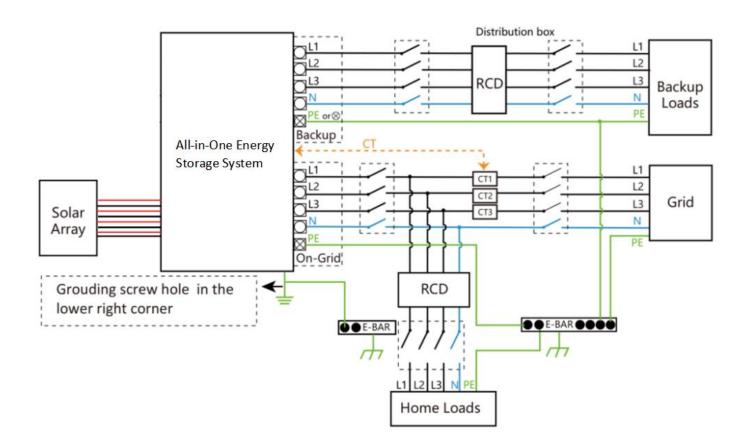
Cleanliness	Check periodically that the heat sinks are free from obstacles and dust.	Once every 6 to 12
		months
Running status	Check that the battery is not	Once every 6 months
	damaged or deformed.	
	• Check that the battery does not generate abnormal sound when it is in	
	operation.	
	• Check that the battery parameters are correctly set when the battery is	
	running.	
Grounding	Check that ground cables are securely connected.	The first inspection
reliability		takes place 6 months
		after the initial
		commissioning. From
		then on, the intervals
		are between 6 and 12
		months.

10 Appendix

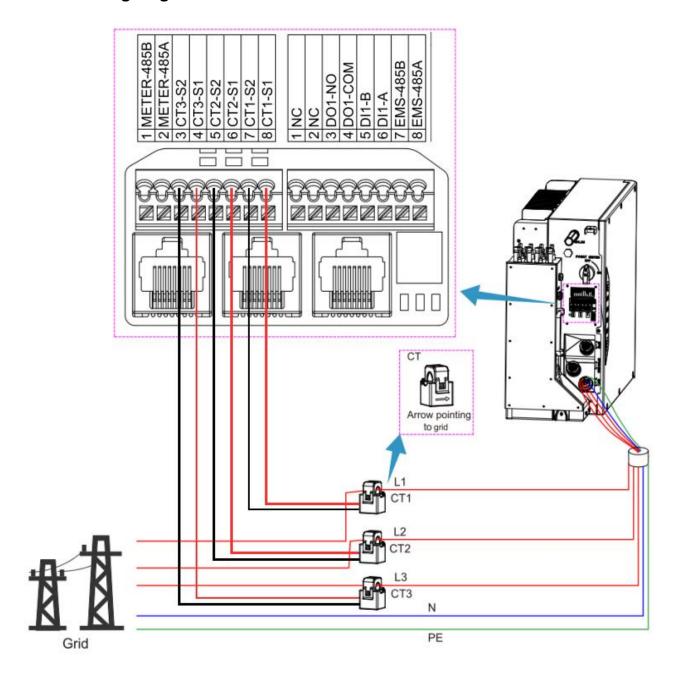
10.1 Home Wiring Diagram

This diagram is an example for an application in which neutral is separated from the PE in the distribution box. Please follow local wiring regulations when conducting power distribution operations in the home!

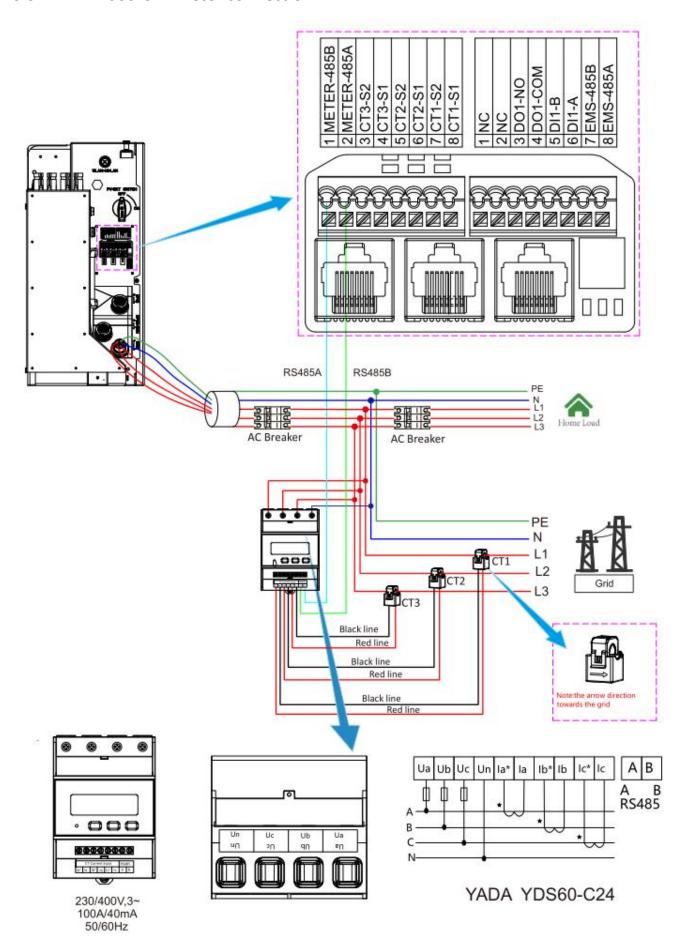
When the inverter is working in backup mode, neutral and PE on the backup side are connected via the internal relay. Also, this internal relay will be open when the inverter is working in grid tied mode.



10.2 CT Wiring Diagram



10.3 YADA YDS60-C24 Meter connection



10.4 CHNT DTSU666 Meter connection

