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Chapter 1 Introduction

This document is prepared to mainly introduce the product information, installation, wiring, configuration, commissioning, troubleshooting and maintenanceof the inverters. Before installation ruse of the inverters, please read this manual carefully to understand the safety information, functions and features of the inverters. This document may be updated from time to time. Please visit our official website for the latest version and more information.

1.1 Applicable product

This document is applicable to the following inverter models:

- EAHI10KSL
- EAHI12KSL

1.2 Applicable personnel

This document is only applicable to the professionals who are familiar with local regulations and standards and electrical systems, and have received professional training and have knowledge about this product.

1.3 Symbol definition

Danger
It represents high potential hazards that may cause death or serious injury if not avoided.
Warning
It represents moderate potential hazards that may cause death or serious injury if not avoided.
Caution
It represents low potential hazards that may cause moderate or minor injury if not avoided.
Attention
It represents the emphasis or supplement, which may provide tips or tricks to optimize the product, thus helping you to solve some problems or save time.

1.4 Version history

V1.0 First issue

Chapter 2 Safety instructions

The safety instructions contained in this document must be followed during equipment operation.

Attention
• The inverter has been designed and tested in strict accordance with safety regulations. However, it is required to read relevant safety instructions before making any operation on an electrical device. Any improper operation may result in serious injury or property damage.

2.1 General safety instructions

Attention
• This document may be updated from time to time due to product version upgrade or other reasons. Unless otherwise specified, the safety instruction provided in the product label or the user manual cannot be replaced by any part of this document.All information provided in this document is for instruction only. • Read this document carefully before installing the inverter to understand the inverter and relevant attention items. • All operations on the inverter must be made byqualifiedand professional electrical technicians who are familiar with the relevant standards and safety regulations of the place where the project is located. • During operation on the inverter, use insulation tools and wear personal protective equipment to ensure personal safety. During touching any electronic components, wear ESD gloves, ESD wrist straps and ESD clothing, etc. to protect the inverter against ESD. •The manufacturer will not be responsible for any equipment damage or personal injury resulting from the failure to install, use, or configure the inverter in accordance with this document. Contact your supplier in case of any such damage or injury.

2.2 PV module safety

Danger
• Connect the DC cables of the inverter by using the DC wiring terminals delivered with the inverter. Using otherDC wiring terminals may cause serious consequences. Therefore, the manufacturer will not responsible for any damages caused therefrom.
Warning

- Ensure that the module frame and the support systems are well grounded.
- After connection of the DC cables, ensure that the cables are securely connected.
- Measure the positive and negative terminals of the DC cable by a multimeter to ensure that they are correctly connected, and that the voltage is within the allowable range.
- Do not connect the PV string on a same circuit to multiple inverters. Otherwise, the inverters may be damaged.
- The photovoltaic modules used together with the inverter must comply with Class A requirements of IEC61730.

2.3 Inverter safety

Warning

- Ensure that the voltage and frequency of the gird connection point meet the grid connection requirement of the inverter.
- A protection device, such as a circuit breaker or fuse, is recommended for the AC side of the inverter. The rating of the protection device must be greater than 1.25 times the maximum AC current of the inverter.
- The protective earthing cable of the inverter must be securely connected. If multiple inverters are installed, ensure that the protective earthing points on the housings of all inverters are in equipotentialconnection.
- In case of the faulton the inverter triggered for less than 5 times within 24h, the alarm will be automatically cleared. After fifth time, the inverter will stop for protection, and may operate normally after the fault is removed.
- If a battery is not installed in the PV system, it is not recommended to use the load function of LOAD end. The system power risks caused therefrom may be excluded from the manufacturer's warranty.

Danger

- After the inverter is installed, the labels and warning signs on the housing must be clearly visible, and must not be blocked, altered or damaged.
- The signs on the inverter housing are as follows:

	High voltage hazard. As there is high voltage on the inverter during operation, ensure that the inverter is disconnected		Delayed discharge. After the inverter is powered off, wait for 10min to fully discharge the inverter.

	from the power supply during making any operation on the inverter.		
	Due to high surface temperature of the inverter, do not touch the inverter during its operation. Otherwise, it is possible to cause burning.		The operating inverters may cause potential risks. Take protective measures during making any operation.
	Beforeoperation, read product manual carefully.		Connection point of protective earthing cable
	The inverter cannot be disposed as domestic waste, and should be disposed according to local laws and regulation, or sent to the manufacturer.		CE marking

2.4 Battery safety

Caution
• The batteries used with the inverter should be approved by the inverter manufacturer. Please visit the official website to download the list of approved batteries. • Read the user manual of the battery carefully before installing the inverter to understand the inverter and attention items. Operate strictly according to the user manual of the battery. • If the battery is fully discharged, charge the battery strictly according to the user manual of the corresponding battery model. • Battery current may be affected by some factors, such as temperature, humidity and weather conditions, which may cause battery current limiting and then affect the carrying capacity. • In case of failure to start the battery, contact the after-sales service center as soon as possible. Otherwise, the battery may be permanently damaged. • Measure the positive and negative terminals of the DC cable by a multimeter to ensure that they are correctly connected, and that the voltage is within the allowable range. • Do not connect the same battery pack to multiple inverters. Otherwise, the inverters may be damaged.

2.5 Personnel requirements

Attention
• The personnel in charge of inverter installation and maintenance must be strictly trained to master the safety instructions and the correct operation methods. • Only qualified professionals or trained personnel are allowed to install, operate, maintain or replace the inverter or its components.

2.6 EU compliance statement

The devices with wireless communication function that can be sold in the European market meet the following directive requirements:

- 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
- Registration, Evaluation, Authorization and Restriction of Chemicals (EC) No 1907/2006 (REACH)

The devices without wireless communication function that can be sold in the European market meet the following directive requirements:

- Electromagnetic compatibility Directive 2014/30/EU (EMC)
- Electrical Apparatus 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
- Registration, Evaluation, Authorization and Restriction of Chemicals (EC) No 1907/2006 (REACH).

For more EU compliance statements, pleasecontact your supplier.

Chapter 3 Product overview

3.1 Product description

EAHI10KSL and EAHI12KSL inverterscan be used to control and optimize the energy flow in the PV system through an integrated energy management system. With the inverters, the energy generated from the PV system can be supplied to the load,stored in the battery or output to the grid, and moreover, the power supply, the battery and the Internet can be integrated to supply the power to households, small stores and farms, etc. after connection with the grid, the PV board and the Internet of Things.

Product features:

- It supports photovoltaic inverters, generators and micro-grid input, and is suitable for new and retrofitted PV and micro-grid systems.
- It supports multiple mode settings, local independent operation and off-peak settings.
- It is provided with real time monitoring on APP, and supports online remote OTA upgrade to facilitate operation and maintenance.
- It supports the parallel connection of multiple inverter outputs, and can be expanded according to the requirements of small industrial and commercial applications.
- The input power of the mains and PV is over-configured by 1.5 times to achieve more stable system operation.
- RSD and AFCI are optional, which provides higher safety protection for the system.

3.2 Application scenarios

Warning
• The photovoltaic system is not suitable for connecting with the equipment requiring stable power supply, such as life-sustaining medical devices and banking devices. Ensure that no personal injury is caused in case of the power failure in the system. • If a battery is not installed in the PV system, it is not recommended to use the load function of LOAD end. The system power risks caused therefrom may be excluded from the manufacturer's warranty. • Battery current may be affected by some factors, such as temperature, humidity and weather conditions, which may cause battery current limiting and then affect the carrying capacity. • When the overload protection is triggered for a single time, the inverter can automatically restart; if the overload protection is triggered for multiple times, the restarting time may be

delayed, and if it is required to restart the inverter as soon as possible, the inverter may be restarted immediately through the APP.

- When the load capacity exceeds the rated power of the inverter in case of the power failure on the grid, the inverter off-grid function will be automatically disabled; before restarting, stopthe large load to ensure that the load power is less than the rated power of the inverter.
- The load output port of the inverter has overload capability to normally supply the power to ordinary household load in case of the power failure on the grid. To ensure the power supply stability of the load, do not use the loads requiring high starting current, such as high-power pumps. The loads supported by the inverter are as follows:

  Inductive load and capacitive load are provided with the total power≤1 × rated output power of the inverter

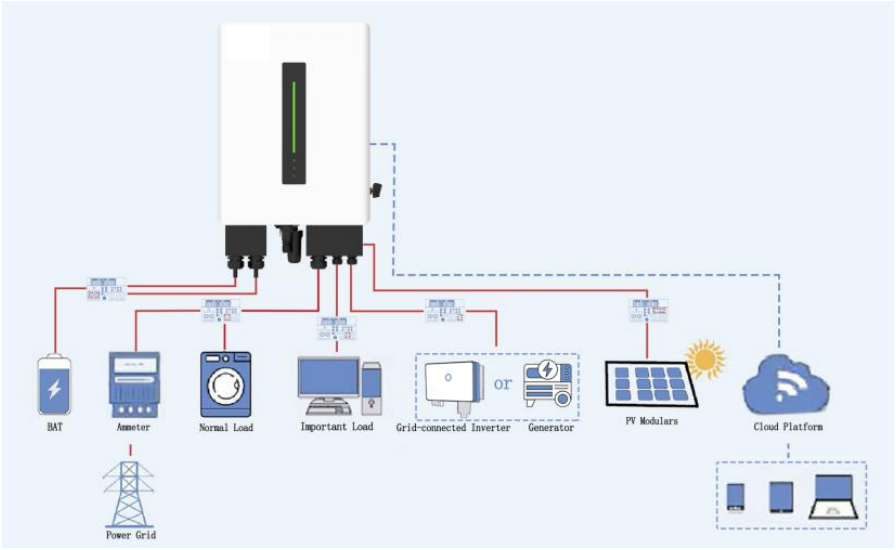


Fig. 3.2.1 Common application scenarios

3.3 Operatingmode

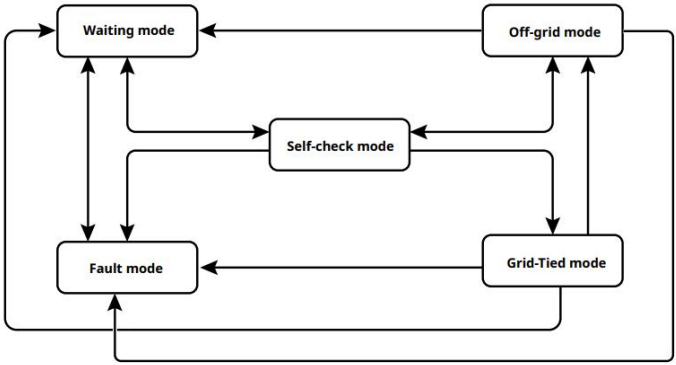
Table 3.3. 1 Description of operating mode

Mode name		Operation logic
Anti-tied mode		During connection with the grid, the excessive energy is not supplied from the PV system to the grid in all operating modes.
Grid-tied Mode	Batterypriority mode	(1) The PV energy is suppliedfirst to the backup load and then used for thebattery charging.The excessive energy is supplied to the household load and the grid; (2) If the PV energy is less than that required by the backup load, the battery will discharge to further supply energy for the backup load, but it will not supply energy to the grid; (3) The grid will not supply power forthe battery charging;
	Household loadpriority mode	(1) The PV energy is supplied first to the backup load and the household load, andthen used for the battery charging, The excessive energy is supplied to the grid; (2) If the PV energy is less than that required by the backup load and the householdload, the battery will discharge to further supply energy for the backup load and the household load, but it will not supply energy to the grid; (3) The grid will not supply power forthe battery charging;
	Gridpriority mode	(1) The PV energy is supplied first to the backup load and then to the household load, and the grid.The excessiveenergy is used forthe battery charging; (2) If the PV energy is less than that required by the backup load, the battery will discharge to further supply energy for the backup load, but it will not supplyenergy to the grid; (3) The grid will not supply power forthe battery charging;
	Full powergridfeeding mode	(1) The PV energy is supplied first to the backup load and then to the household load, and the grid.The excessiveenergy is used forthe battery charging; (2) If The PV energy is less than that required by the maximum output power of the inverter, the battery will dischargeto further supply energy for maintaining the maximum power output of theinverter; (3) The grid will not supply power forthe battery charging;
	Emergency backup mode	(1) The PV energy is first used for battery charging, and then for power supply to the backup load. The excessive energy is supplied to the household load and the grid; (2) If the PV energy is less than that required by the backup load,the grid will further supply power for the backup load and household load; (3) In case of no or very low PV power, the grid will supply power for battery charging, the backup load and household load;
	AC charging-Offbackup mode	(1) The PV energy is first used for battery charging, and then for power supply to the load. The excessive energy is supplied to the grid;

		(2) If the PV energy is less than that required by the backup load,the grid will further supply power for the backup load and household load; (3) In case of no or very low PV power, the grid will supply power for the backup load and household load, but it will notsupply power forthe battery charging;
	Pure PVmode	The battery is chargeable but not dischargeable (1) The PV energy is first used for the backup load and the household load, and then for battery charging. The excessive energy is supplied to the grid; (2) If the PV energy is less than that required by the backup load and the household load, the grid will further supply power for the backup load and the household load; (3) The grid will not supply power forbattery charging;
	Forced off-grid mode	When the grid is normal, it is forced to operate in off-grid mode
Off-grid mode (off-grid)		(1) The PV energy is first used for the load and then for battery charging; (2) In case of insufficient or no PV energy, the PV and battery will together supplypowerfor the load.
Intelligent Microgrid mode	Generator mode (off grid)	The generator can only be started when there is no mains power or when the mains power is abnormal. (1) When the "Generator Battery Charging Mode" is enabled: If the battery voltage and SOC (State of Charge) are below the set values, the generator starts, simultaneously charging the battery and supplying power to the load. If the battery voltage and SOC are above the set values, the generator shuts down, and the battery supplies power to the load. (2) When the "Generator Battery Charging Mode" is disabled: If the battery voltage and SOC are below the set values, the generator starts to supply power to the load but does not charge the battery. If the battery voltage and SOC are above the set values, the generator shuts down, and the battery supplies power to the load. Note: The generator is connected to the generator interface of this device.
	PV Inverter mode	(1) With mains power: The device closes the relay of the generator interface, allowing the photovoltaic inverter to connect, while simultaneously charging the battery, supplying power to the load, and generating power for the grid. (2) Without mains power: When the battery voltage and SOC (State of Charge) are below the set values, the device closes the relay of the generator interface, allowing the photovoltaic inverter to connect, while simultaneously charging the battery and supplying power to the

		load. When the battery voltage and SOC are above the set values, the device opens the relay of the generator interface, disconnecting the photovoltaic inverter, and the battery supplies power to the load. Note: The photovoltaic inverter is connected to the generator interface of this device, and the power of the photovoltaic inverter is less than the rated power of this device's generator.
	Smart Load mode	This function sets the generator input connection point as the load connection point. (1) When the "Smart Load Mains Normally Closed Mode" is enabled: When mains power is normal, the device closes the relay of the generator interface, supplying power to the load connected to the generator interface. When mains power is abnormal, if the battery SOC (State of Charge), battery voltage, and PV (photovoltaic) power are all greater than the set values, the device closes the relay of the generator interface, supplying power to the load. If the battery SOC, battery voltage, or PV power is less than the set values, the device opens the relay of the generator interface, and the load connected to the generator interface will lose power. (2) When the "Smart Load Mains Normally Closed Mode" is disabled: If the battery SOC, battery voltage, and PV power are all greater than the set values, the device closes the relay of the generator interface, supplying power to the load connected to the generator interface. If the battery SOC, battery voltage, or PV power is less than the set values, the device opens the relay of the generator interface, and the load connected to the generator interface will lose power.

3.4 Operating status of inverter

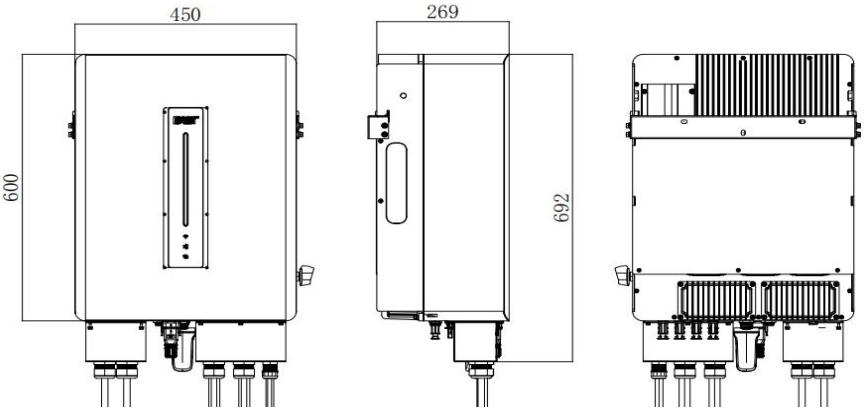


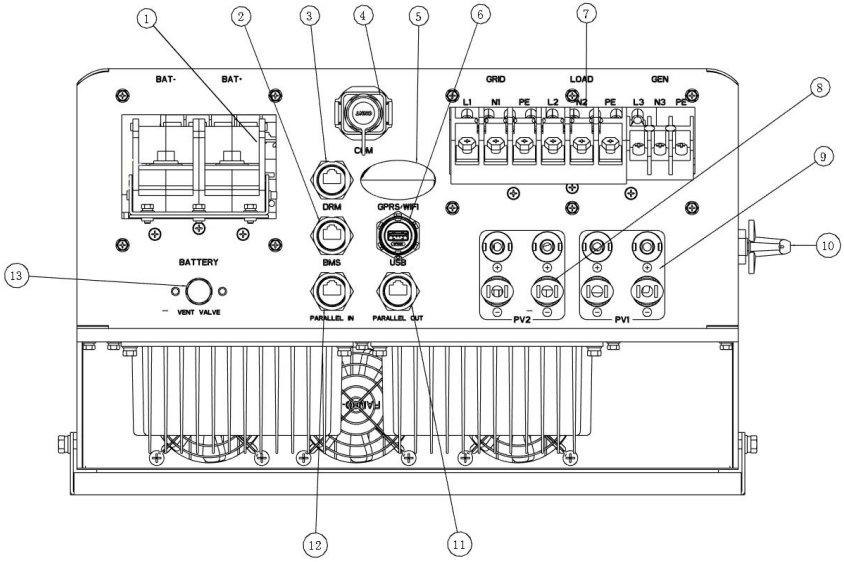
No.	Status	Description
1	Waiting mode	Waiting stage after the inverter is powered on • When the conditions are met, the inverter will be in the self-check mode; • In case of any failure, the inverter will be in the fault mode.
2	Self-check mode	Before starting, the inverter will continuously be in the mode of self-check and initialization, etc. • If the conditions are met, the inverter will start and operate in the grid-tied mode; • If the grid is not detected, the inverter will operate in the off-grid mode; if the inverter has no off-grid function, it will be in the waiting mode. In case of failure in the self-check, the inverter will be in the fault mode.
3	Grid-tied mode	The inverter normally operates in the grid-tied mode. • If the grid is not detected, the inverter will be in the off-grid mode; If the fault is detected, the inverter will be in the fault mode. • If it is detected that the grid conditions cannot meet the requirements of grid-tied operation the inverter will be in the waiting mode in the case that the off-grid output function is not enabled;
4	Off-grid mode	In case of the power failure on the gird, the operating mode of inverter is switched into the off-grid mode to continuously supply the power to the load through the LOAD port. If the fault is detected, the inverter will be in the fault mode. • If it is detected that the grid conditions cannot meet the requirements of grid-tied operation, the inverter will be in the waiting mode in the case that the off-grid output function is not enabled; • If it is detected that the grid conditions can meet the requirements of grid-tied operation, the inverter will be in the self-check mode in the case that the off-grid output function is enabled;

5	Fault mode	• The inverter will be in the fault mode if the fault is detected, and the waiting mode after the fault is removed.

3.5 Appearance and dimension

3.5.1 Appearance description





No.	Identification	Purpose
1	Battery terminal block	Connect the positive and negative terminals of the battery
2	BMS	Battery communication input
3	DRM	Interface reserved according to Australian Safety Regulations
4	COM interface	Upper computer connection/kilowatt-hour meter communication /CT/ dry contact
5	WIFI	Upload the data /connect to the host computer by using WIFI
6	USB	USB upgrade port or export fault history
7	AC wiring terminal block	Generator, load, and grid interfaces
8	PV2	Input interface of positive and negative terminalsof PV2
9	PV1	Input interface of positive and negative terminals of PV1
10	PV isolation switch	Connect/ disconnect the PV
11	Parallel OUT	Parallel output
12	Parallel IN	Parallel input
13	Vent valve	Discharge the rapidly increasing gas in the case.

3.5.2 Nameplate description

The user can identify the inverter through the nameplate on the side of the inverter, which covers the model, important parameters, certification mark and origin information of the inverter, and must not be damaged or blocked.

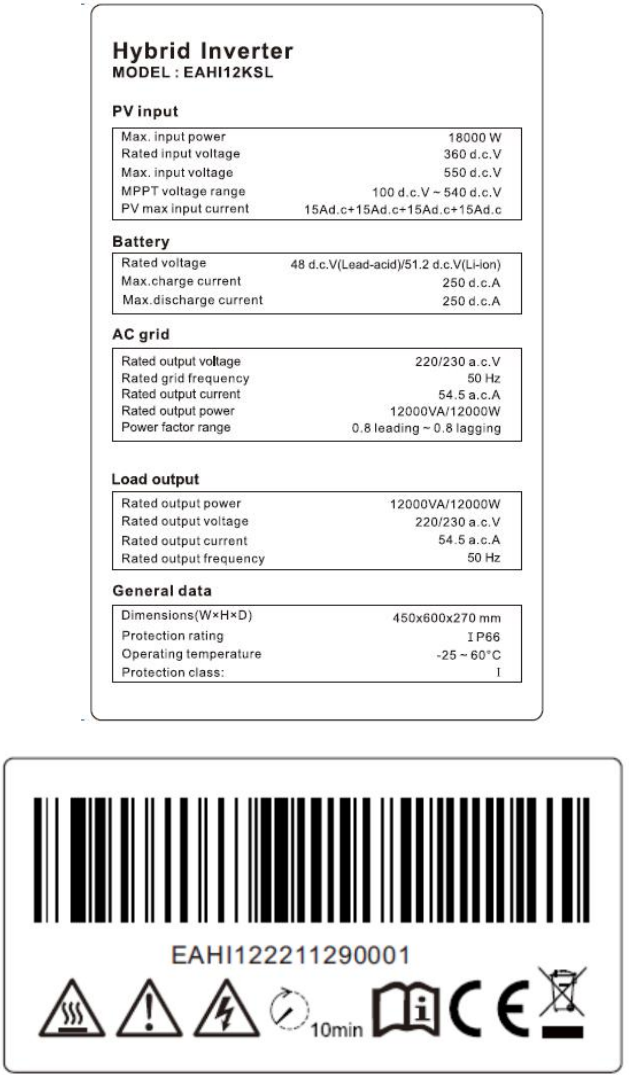


Fig. 3.5.2 Nameplate information (which may be changed without prior notice and subject to actual product)

Chapter 4 Storage and inspection of inverter

Warning
If the inverter is not put into use immediately, store the inverter according to the following requirements: 1. Ensure that the outer packing box is not removed. 2. Ensure that the storage environment is clean and non-condensing, and has appropriate temperature (-25 -60℃). 3. Ensure that the inverters are stored according to the stacking height and direction specified in the label on the packing box. 4. Ensure that there is no toppling or falling risk after the inverters are stacked. 5. If the inverter is stored for a long period, the inverter should be checked by the professional personnel before use.

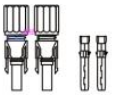
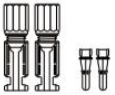
4.1 Inspection before signing for acceptance

Before acceptance, check the inverter as described below:

1. Check the outer package for damage, such as distortion, holes, cracks or other signs that may cause damage to the inverter. If the outer package is damaged, do not open the package and contact the distributor.
2. Check whether the inverter model is correct, if not, do not open the package and contact the distributor.
3. Check the inverter for correct type and quantity and appearance damage. In case of damage, contact the distributor.

4.2 Packing list

No.	Name	Specification	Quantity	Picture
1	Inverter	EAHI12KSL inverter	1	
2	Expansion tube	M6*70mm, installed in wall	3	
3	Combination screw	M4×12, used to fix the waterproof cover	10	

4	PV+ connector	VP-D4B-CHSM4 endterminal male shell with metal terminals	4	
5	PV- connector	VP-D4B-CHSF4 endterminal female shell with metal terminals	4	
6	Smart kilowatt-hour meter	YDM201D, English,neutral (optional)	1	
7	Ground wire screw	Cross outer hexagon double cushioned screws, M6*12mm	1	
8	End soldering terminal of ground wire	RNB5.5-6,48A,Φ=6.5mm,5.6×23mm	1	
9	LOAD, grid wiring terminal	End soldering terminal, RNBS22-6		
10	Generator wiring terminal	End soldering terminal, RNBS14-6	3	
11	Battery cable Copper tube terminal	Copper tube terminal, SC120-10	2	
12	User manual	User manual for grid-tied and off-grid inverters, color	1	
13	WiFi Data collector	LSW-5A7153, 5-12Vdc	1	
14	Wall mounting bracket	Case accessory, used for installing the wall-mounted inverter	1	
15	Wall mounting bracket screws	Cross outer hexagon double cushioned screws, M6× 20	4	
16	Battery waterproof cover	Case accessories	1	

17	AC waterproof cover	Case accessories	1	
18	16-pin connector plug	C-PVS-PA16-02_REV_V1 connector (with accessory -pre-insulated tube terminal)	1	
19	Waterproof plug of LAN port	Waterproof RJ45 connector plug,YGC583-RJ45PA	4	
20	Current transformer	CT, SCT24L-5K-200	1 (Standard +1 (optional)	

Chapter 5 Installation

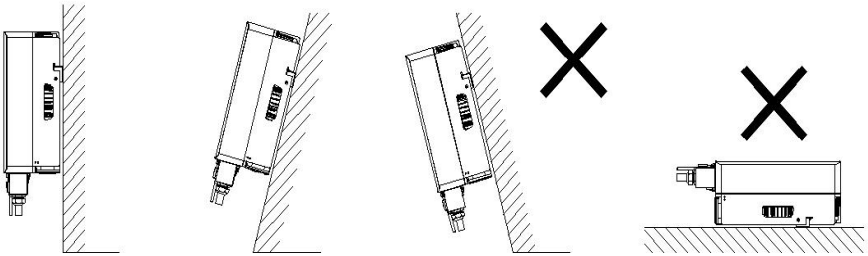
5.1 Installation preparation

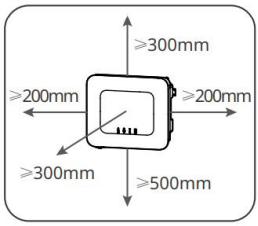
Installation environment requirements

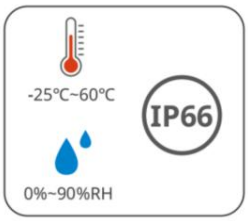
- The ambient temperature should be between -25℃ and +60℃, and the relative humidity should be between 0% and 90% (no condensation).
- The inverter may be installed indoor or outdoor, provided that the installation location is dry, dustless, well-ventilated, and kept away from direct sunlight or heating equipment.
- As the inverter will produce noise (≤55dB), install the inverter away from the rest area.
- Install the inverter on a firm surface and ensure that installation location and method support the weight and dimension of the inverter.
- Install the inverter vertically or at no more than 15° angle of backward inclination, and do not incline the inverterforward or diagonallyand do not install it horizontally.
- Install the inverter in such a way that the display panel is in the same level with sight line, which is easy to operate at any time.
- Install waterproof covers on the wiring terminals and tighten them.
- The installation altitude of the inverter is lower than the maximum working altitude 4000m.
- Keep away from strong magnetic fields to avoid electromagnetic interference. If a radio station or a wireless communication device below 30MHz is located near the installation location, install the device according to the following requirements:

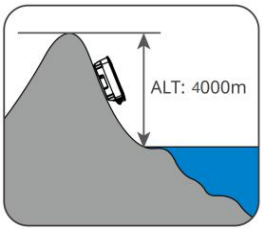
  ① Install a ferrite core with multi-turn winding for the DC input cable or AC output cable of the inverter. Or, install a low pass EMI filter

  ② Maintain more than 30m distance between the inverter and the radio equipment with electromagnetic interference.



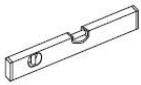
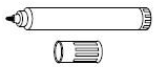
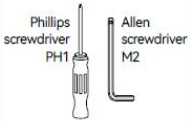
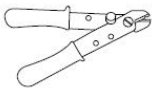






Installation tool requirements

The following tools are recommended for the installation, and if necessary, auxiliary tools may be used.

Type	Tools and Descriptions			
Installation	 Electric drill with M6 bit	 Spirit level	 Marker	 Ruler
	 Hammer	 Screwdriver	 Diagonal pliers	 Stripping pliers
	 Utility knife	 Crimping pliers	 Network cable crimping pliers	 Open-end wrench S=7mm
Safety	 Safety gloves	 Dust mask	 Goggles	

5.2 Installation of inverter

5.2.1 Handling of inverter

Caution
• During transport, handling, installation and other operations, it is necessary to comply with national and local laws and regulations and relevant standards of the installation site. • Before installation, move the inverter to the installation location. During handling,pay attention to the following to avoid personal injury or equipment damage: 1. Please assign personnel based on the weight of the inverter to ensure it remains within safe carrying limits, preventing any risk of injury. 2. Wear safety gloves to avoid the relevant injury. 3. Ensure that the inverter keeps balance to avoid falling during handling.

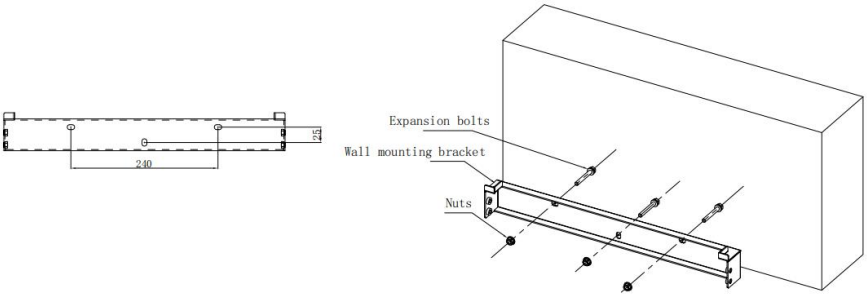
5.2.2 Installation of inverter

Attention
• During drilling holes, ensure that the holes are drilled away from water pipes and cables in the wall, which can avoid dangers. • During drilling the holes, wear safety goggles and dust mask to protect respiratory tract or eyes against dust. • Ensure that the inverter is securely installed to avoid any personnel injury caused by falling of the inverter.

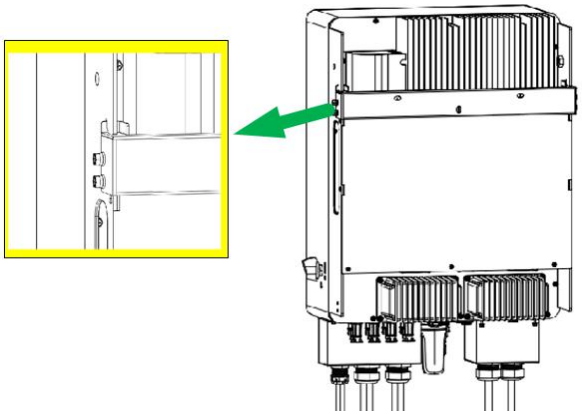
Installation procedure:

① Mark the hole position on the wall according to the fixing hole position of the wall mounting bracket.

② According to the specifications of the expansion bolts, use an electric drill to drill a suitable mounting hole at the marked position, and then fix the wall mounting bracket on the wall through the expansion bolts, and fasten the nuts by at least 30Nm torque. It is recommended to use M6×70 expansion bolts.



③ Vertically put the inverter hanger onto the wall mounting bracket, and then fix the wall mounting bracket and the inverter hanger by M6 bolts on the left and right sides of the wall mounting bracket.



Chapter 6 Electrical connection

Attention
1. Before the installation and use of the inverter, a cable (4 - 6 mm^2) with wire lugs must be used for special protective earthing. 2. The inverter can supply the power to the following load by the LOAD output end: (1) Inductive load (such as air conditioners, washing machines, motors, etc.), with the maximum power of 12KVA. (2) Capacitive load (such as computers, switching power supplies, etc.), with the maximum power of 12KVA.

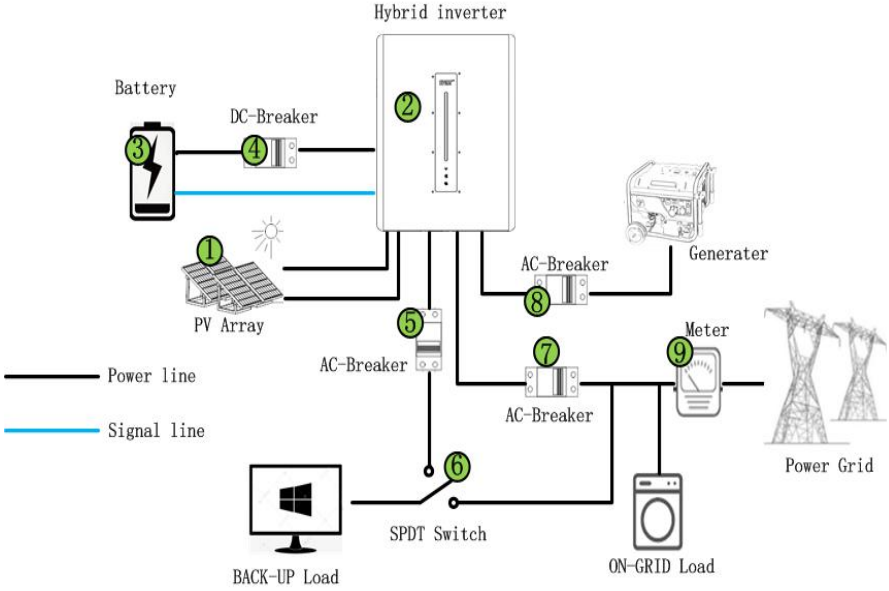


Table 6.1

No.	Components	Description
1	PV string	The PV string is made by connecting multiple PV modules in series
2	Inverter	It supports EAHI10-12KSL series inverters
3	Battery	The battery is selected according to the corresponding battery list of the inverter.
4	Energy storage	The recommendeduser-supplied2P DC switch with following

	switch	specification: • EAHI10KSL: The rated current ≥225A and the rated voltage ≥60V • EAHI12KSL: The rated current ≥315A and the rated voltage ≥60V
5	AC circuit breaker	• The LOAD circuit breakers and ON-GRID circuit breakers for the same model have the same specification. The user is recommended to use the user-supplied AC switches. • To ensure that the LOAD port can continue to work when the inverter is powered off for maintenance, it is recommended to install a single-pole double-throw switch
6	Single-pole double-throw switch	Specification ofAC circuit breakers and single-pole double-throw switches: • EAHI10KSL: The rated current ≥63A and the rated voltage ≥230V • EAHI12KSL: The rated current ≥63A and the rated voltage ≥230V
7	AC circuit breaker	The specifications should be determined according to the actual load
8	AC circuit breaker	The specifications should be determined according to the generator power
9	Current sensor	Delivered together with the inverter, or purchased from the inverter manufacturer, recommended model: Yada SCT24L-5K-200
	Smart kilowatt-hour meter	Optional, delivered together with the inverter, or purchased from the inverter manufacturer, recommended model: Yada YMD201D

Recommended cables

Attention
When external cables are selected, it is required to consider current size, system overload capacity, and ambient temperature. The following table provides the recommendation to select the cables. Engineers should select the cables according to the local standards and the following table. The cable length is generally 2-10m, and if the cable is too long, it is possible to cause the deviation of the voltage from the rated value, in this case, the cable section size should be increased correspondingly.

Table 6.2

Type	Inverter model	Cross-sectional area of conductor
Grid Input (L, N, PE)	EAHI10KSL	5AWG
	EAHI12KSL	4AWG
GEN/Load Output (L, N, PE)	EAHI10KSL	6AWG
	EAHI12KSL	5AWG
PV1/PV2 Input (+, -)	EAHI10KSL	10AWG
	EAHI12KSL	10AWG
BAT (+, -)	EAHI10KSL	2/0AWG
	EAHI12KSL	3/0AWG

6.1 Battery side connection

Danger

- The batteries used with the inverter shall be approved by the inverter manufacturer. Please visit the official website to download the list of approved batteries.
- Battery short circuit may cause personal injury. The instantaneous high current caused by short circuit may causea large amount of released energy, which may result in fire.
- Before connecting the battery cable, ensure that the inverter and battery are powered off, and the front and rear-stage switches of the inverter are disconnected.
- The positive and negative output terminals of the battery must be correctly connected to the inverter; otherwise, the instantaneous large current caused by the short circuit may cause a large amount of released energy, which may result in a fire.
- Do not connect or disconnect the battery cables when the inverter is running. Improper operations may result in electric shock.
- Do not connect the same battery pack to multiple inverters. Otherwise, the inverters may be damaged.
- Do not connect load between the inverter and the battery.
- During connecting the battery cables, use insulation tools to prevent accidental electric shock or battery short circuit.
- Ensure that the open circuit voltage of the battery is within the allowable range of the inverter.
- Install a DC switch between the inverter and the battery.

Attention
• Before connecting the lead-acid battery, install a DC circuit breaker between the inverter and the battery. If the lithium battery is used, first disconnect the lithium battery. • When the battery is connected to the inverter for the first time, pay attention to check the default battery type of the inverter, as well as important parameters such as charging voltage, charging current, and end-of-discharge voltage. These may affect the battery life.

Procedure:

① Check whether battery polarity and voltage are normal, and the battery voltage is within the permissible range of the inverter specification (42V-58V).

② The wiring terminals of the battery cable are provided in the packaging bag. Strip the 10 mm cable sheath of the battery cable and pass it through the waterproof cover and terminals as shown in Fig. 6.1.1:

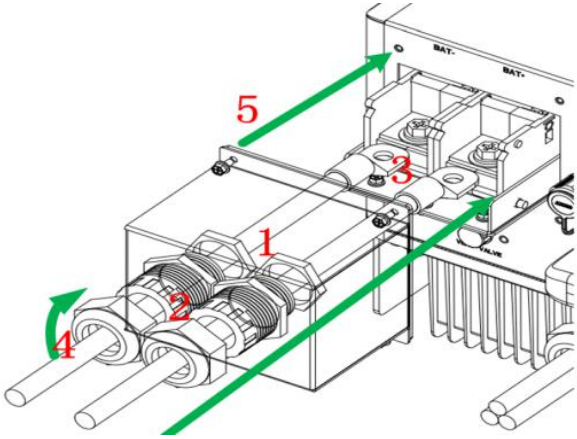


Fig. 6.1.1

③Connect the exposed battery cable to the battery terminal (accessories), as shown in Fig. 6.1.2; pass and tightly press the cable into the cable inlet on the terminal end.Wrap the terminal end with insulation tape or thermoplastic tube after pressing tightly. Perform insulation during installation; otherwise, it is possible to cause battery short circuit.

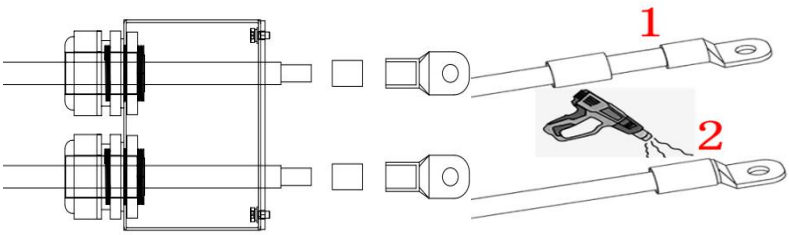


Fig. 6.1.2

④ Fix the waterproof terminal on the waterproof cover, and as shown in Fig. 6.1.1, pass 2 through the waterproof cover and fix it with 1.

⑤ Fasten the battery cable terminal 3 shown in Fig. 6.1.2 to the battery terminal block on the case with the screws (attached on the case). Ensure that the positive and negative terminals are not reversed. Then fasten the waterproof cover 5 shown in Fig. 6.1.1 to the case with the screws and tighten the waterproof cap 4 shown in Fig. 6.1.1 to prevent water and dust from entering the case.

6.2 PV side connection

Danger
• Do not connect the PV string on a same circuit to multiple inverters. Otherwise, the inverters may be damaged. • Before connecting the PV string to the inverter, confirm the following information. Otherwise, it is possible to permanently damage the inverter, or cause a fire, which may result in personal injury and property losses. 1. Ensure that the maximum short-circuit current and maximum input voltage of each MPPT is within the allowable range of the inverter. 2. Ensure that the positive terminal of the PV string is connected to the PV+ of the inverter, and the negative terminal of the PV string is connected to the PV- of the inverter.

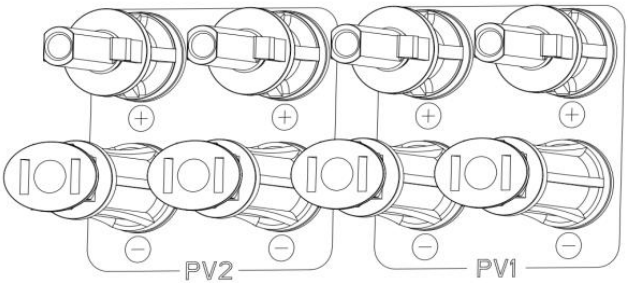
Procedure:

① Disconnect all circuit breakers.

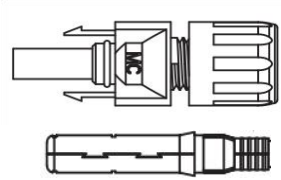
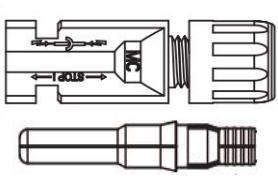
② Check the positive and negative polarity of the PV array. Ensure that the maximum operating voltage of the EAHI12KSL inverter does not exceed 540V (according to the local minimum temperature, determine the number of components, and ensure that the maximum open circuit voltage of the components does not exceed 540V maximum allowable operating voltage of the inverter).

③ Determine the polarity of the PV input side of the inverter.

Polarity of the PV input side of the inverter:

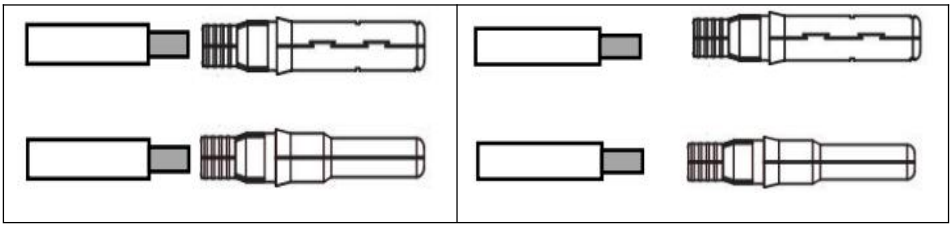


Polarity of input terminal of external input cable

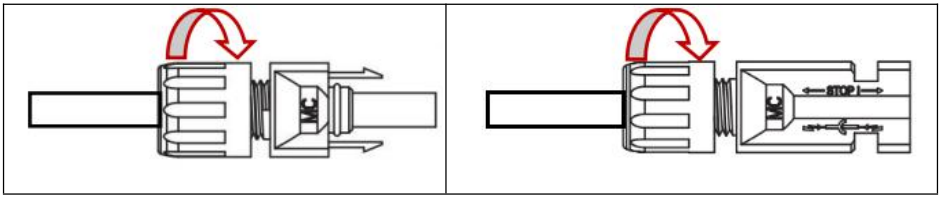
Positive (+) input terminal and terminal housing	Negative (-) input terminal and terminal housing
	

Wiring of DC side

④ Strip about 8mm cable sheath of the DC cable to expose the copper conductor. Insert the copper conductor into the metal core of the connector and tighten it with the crimping pliers (as shown in the following figure).



⑤ Loosen the terminal cover and pass the cable through the terminal cover.Insert the mold into the wiring slot until a sound is given to indicate the connection in place. Tighten the terminal cover (as shown in the following figure).



⑥ Use a voltmeter with measuring range of greater than 1000V DC voltage to check whether the connection polarity of the PV array cable is correct, and confirm that the working voltage does not exceed the specification.

⑦ Disconnect the circuit breaker on the DC side, and connect the PV input cable to the inverter separately.

6.3 AC side connection

Warning

- Before connecting to the grid, respectively install an AC circuit breaker between the inverter and the grid as well as the generator and the LOAD.
- During wiring, the AC cable matches the L, N, and PE ports of the AC terminal. If the cable is incorrectly connected, the inverter may be damaged.
- Ensure that the cable core is fully connected to the wiring terminal hole and is not exposed.
- Ensure that the cables are securely connected; otherwise, it is possible to cause terminal overheating and damage the inverter.
- A residual current monitoring unit (RCMU) is integrated in the inverter to quickly disconnect from the grid when the inverter detects greater leakage current than the allowed value.
- The ON - GRID AC ports of the inverter have built-in relays. When the inverter is in the off-grid mode, the built-in ON - GRID relay is in the opened status. When the inverter is in the grid-tied mode, the built-in ON - GRID relay is in the closed state.
- After the inverter is powered on, theAC port of the LOAD is powered on. If the LOADis maintained, power off the inverter, otherwise, it is possible to cause electric shock.

6.3.1 Grid side connection

Procedure:

①. Make sure to disconnect the AC circuit breaker.

②. According to the wire diameter provided in Table 6.2, select appropriate wire diameter, strip

5mm cable sheath of L (red/ brown), N (black/ blue), PE (yellow-green) cables, and pass the exposed cable core through the waterproof cover and the waterproof terminal. As shown in Fig. 6.3.1:

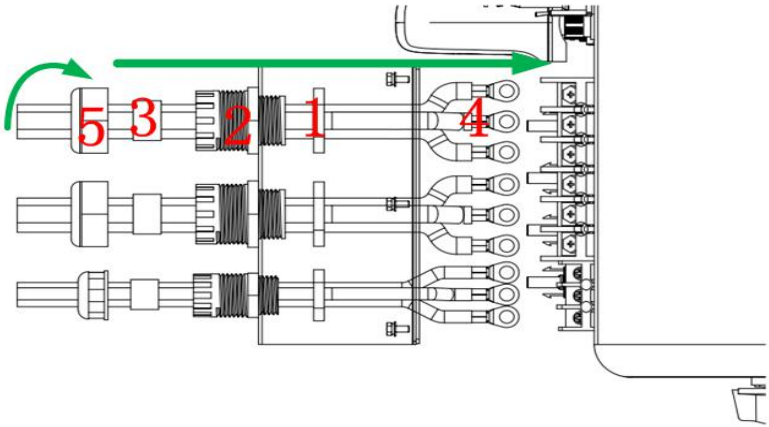


Fig. 6.3.1.1

③ Fix the waterproof terminal on the waterproof cover, and as shown in Fig.6.3.1.1, pass 2 through the waterproof cover and fix it with 1, and then insert the rubber ring 3 into 2.

④ Connect the exposed cable core to the wiring terminal (provided for free), as shown in Fig. 6.3.1.2; pass and tightly press the cable into the cable inlet on the terminal end.Wrap the terminal end with insulation tape or thermoplastic tube after pressing tightly. Perform insulation during installation; otherwise, it is possible to cause short circuit.

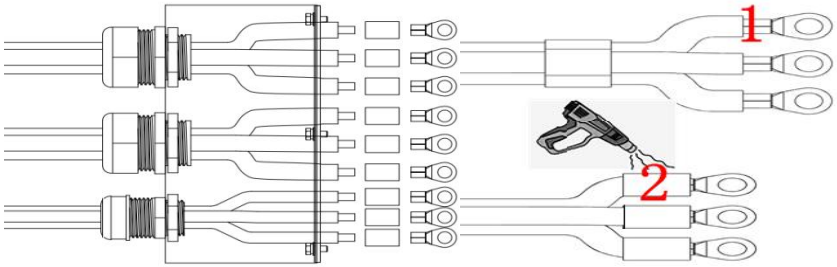


Fig. 6.3.1.2

⑤. Fix the wiring terminals shown in Fig. 6.3.1.2 to the GRID terminal block on the case shown in Fig. 5.4.1 (three ones on left side of the AC terminal block) with the screws (provided for free). At the same time, respectively match L, N, PE with the L, N and PE on

the case. Then fix the waterproof cover shown in Fig. 6.3.1.1 to the case with the screws, and tighten the waterproof cap 5 shown in Fig. 6.3.1.1.

6.3.2 Load side connection

Procedure:

①. According to the wire diameter provided in Table 6.2, select appropriate wire diameter, strip 5mm cable sheath of L (red/ brown), N (black/ blue), PE (yellow-green) cables, and pass the exposed cable core through the waterproof cover and the waterproof terminal. As shown in Fig. 6.3.2.1:

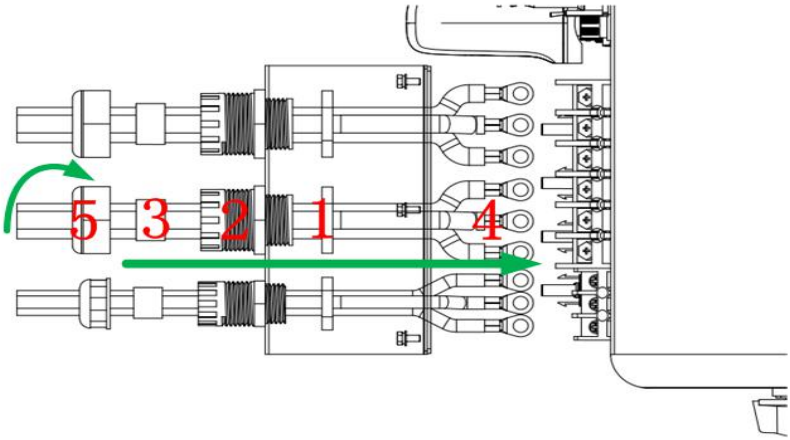


Fig. 6.3.2.1

② Fix the waterproof terminal on the waterproof cover, and as shown in Fig. 6.3.2.1, pass 2 through the waterproof cover and fix it with 1, and then insert the rubber ring 3 into 2.

③ Connect the exposed cable core to the end soldering terminal (freely provided), as shown in Fig. 6.3.2.2; pass and tightly press the cable into the cable inlet on the terminal end.Wrap the terminal end with insulation tape or thermoplastic tube after pressing tightly. Perform insulation during installation; otherwise, it is possible to cause short circuit.

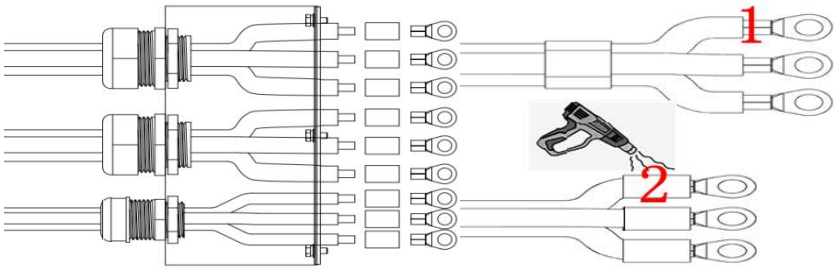


Fig. 6.3.2.2

④. Fix the wiring terminals shown in Fig. 6.3.2.2 to the LOAD terminal block on the case shown in Fig. 6.3.2.1 (three ones in middle of the AC terminal block) with the screws (provided for free). At the same time, respectively match L, N, PE with the L, N and PE on the case. Then fix the waterproof cover shown in Fig. 6.3.2.1 to the case with the screws, and tighten the waterproof cap 5 shown in Fig. 6.3.2.1.

6.3.3 Generator side connection

Procedure:

①. According to the wire diameter provided in Table 6.2, select appropriate wire diameter, strip 10mm cable sheath of L (red/ brown), N (black/ blue), PE (yellow-green) cables, and pass the exposed cable core through the waterproof cover and the waterproof terminal. As shown in Fig. 6.3.2.1:

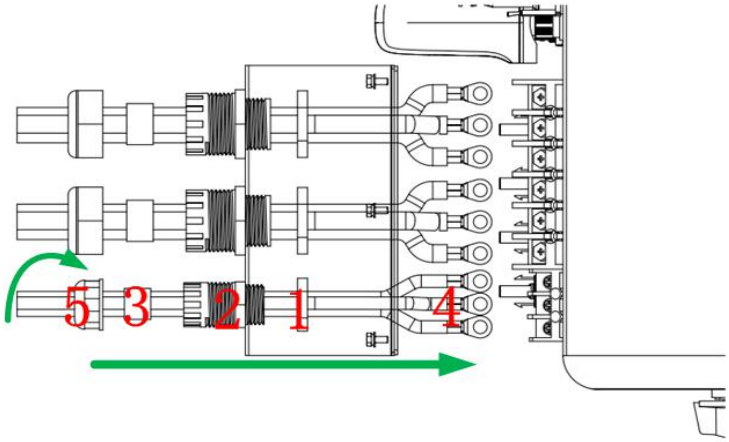


Fig. 6.3.3.1

② Fix the waterproof terminal on the waterproof cover, and as shown in Fig. 6.3.3.1, pass 2 through the waterproof cover and fix it with 1, and then insert the rubber ring 3 into 2.

③ Connect the exposed cable core to the end soldering terminal (provided for free), as shown in Fig. 6.3.3.2; pass and tightly press the cable into the cable inlet on the terminal end.Wrap the terminal end with insulation tape or thermoplastic tube after pressing tightly. Perform insulation during installation; otherwise, it is possible to cause short circuit.

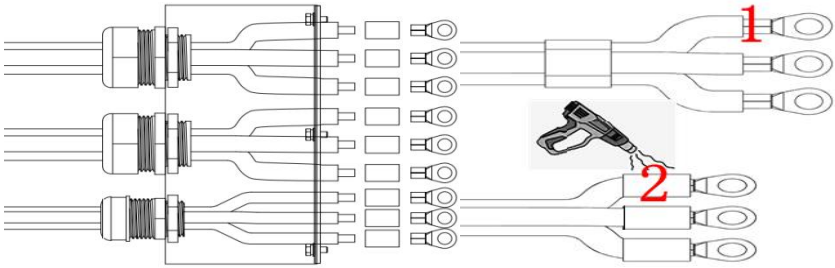


Fig. 6.3.3.2

④. Fix the wiring terminals shown in Fig. 6.3.3.2 to the GEN terminal block on the case shown in Fig. 6.3.2.1 (three ones on right side of the AC terminal block) with the screws (provided for free). At the same time, respectively match L, N, PE with the L, N and PE on the case. Then fix the waterproof cover to the case with the screws, and finally tighten the waterproof cap 5 to prevent water and dust from entering the case.

6.4 Communication end connection

The inverter is equipped with USB, RS485, DRM, BMS and parallel interfaces, but also equipped with a WIFI/GPRS remote monitoring communication interface to upload the data to the cloud for data monitoring.

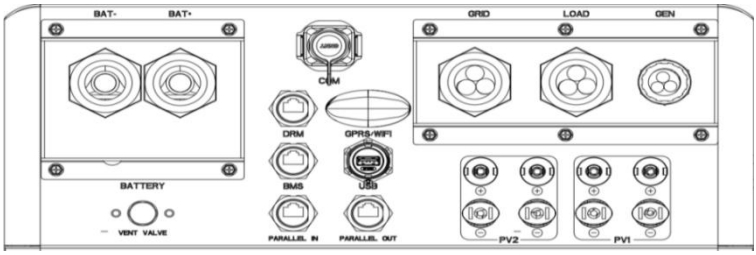
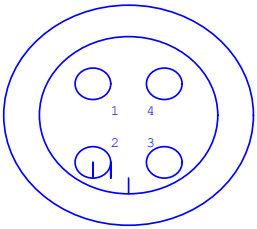


Fig. 6.4.1

6.4.1 WIFI remote monitoring module



Pin	Description	Network name	Type	Description
1	Supply power	VCC	POWER	External supply power
2	Power ground	GND	GND	GND
3	Data communication	A	I/O	RS485_A cable
4	Data communication	B	I/O	RS485_B cable

To use this port, simply insert the GPRS/ WIFI module (optional) into the guide slot along the connector and tighten the fastening cap counterclockwise.

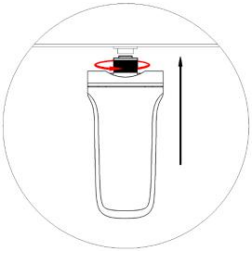


Fig. 6.4.1.1

After the collector is installed, download the APP for registration and binding (see the WiFi manual for details).

6.4.2 Connection of user's COM dry contact

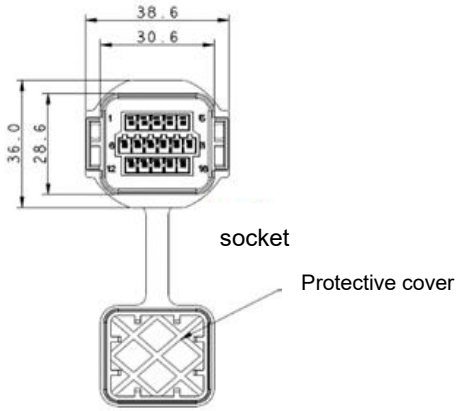


Fig. 6.4.2.1

Pin definition

Pin	1	2	3	4
Definition	EV _B	EV _A	RS485 _B	RS485 _A
Pin	5	6	7	8
Definition	METER _B	METER _A	COM_GEN	COM_GEN_NC
Pin	9	10	11	12
Definition	COM	COM_NO	BAT_SOFT 1	BAT_SOFT1
Pin	13	14	15	16
Definition	CT1-	CT1+	CT2-	CT2+

1 and 2: used to connect charging pile communication (RS485); 3 and 4: used to connect the host computer (RS485);

5 and 6: used to connect the kilowatt-hour meter communication (optional, RS485); 7 and 8: Reserved GEN dry contact.

9 and 10: reserved COM dry contact; 11 and 12: Reserved battery ON/OFF;

13 and 14: used to connect external CT1; 15 and 16: used to connect external CT2 (optional);

6.4.3 CT Installation

Tools: Wire crimper, wire stripper, tape measure, 16-pin connector plug and pre-insulated tube terminal

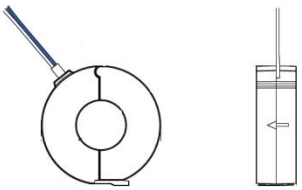


Fig. 6.4.3.1

As shown in Fig. 6.4.3.2, pass the cables on the CT through the 16-pin connector plugs in turn, strip 10mm insulating layer of the communication cable on the CT with the wire stripper, insert the communication cables into the pre-insulated tube terminals, and press them tightly with the wire crimper. After crimping, insert the 16 terminals into the connector 3 according to the corresponding serial number, and then install the connector 3 on the plugs (with clasps). Tighten the waterproof cap 5of the terminalto prevent water and dust from entering the terminal.

Wherein, the positive terminal (white cable) of CT is inserted into the port 14 of the connector 3, and the negative terminal (blue cable) is inserted into the port 13 of the connector 3.

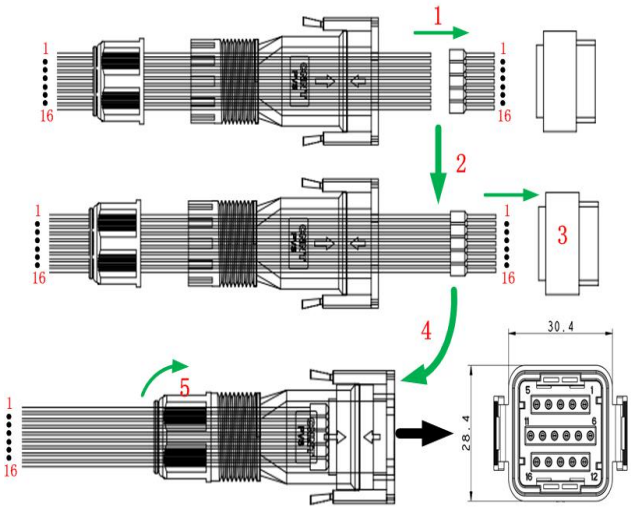


Fig. 6.4.3.2

As shown in Fig. 6.4.3.3, open the CT from the position shown in the arrow by a flat-head screwdriver or by hands, then pass the L cable of the grid circuit breaker through the CT, close the CT, and secure it with a cable tie. Note: The arrow direction on the CT points to the inverter.

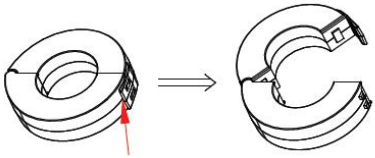


Fig. 6.4.3.3

6.4.4 Installation of kilowatt-hour meter

Tools: Wire crimper, communication cable, wire stripper, tape measure, 16-pin connector plug and pre-insulated tube terminal

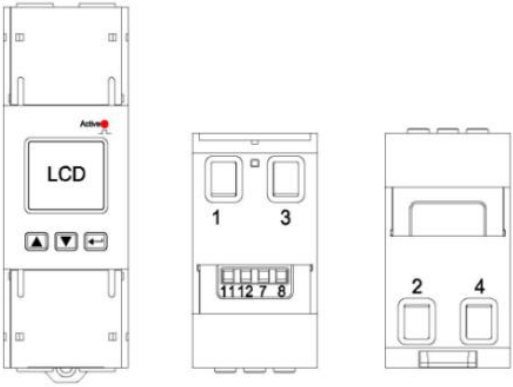


Fig. 6.4.4.1

As shown in Fig. 6.4.4.2,pass the 2 communication cables of the kilowatt-hour meter through the 16-pin connector plugs in turn, strip 10mm cable sheath of the communication cable with the wire stripper, insert the communication cables into the pre-insulated tube terminals, and press them tightly with the wire crimper. After crimping, insert the 16 terminals into the connector 3 according to the corresponding serial number, and then install the connector 3 on the plugs (with clasps). Tighten the waterproof cap 5of the terminalto prevent water and dust from entering the terminal.

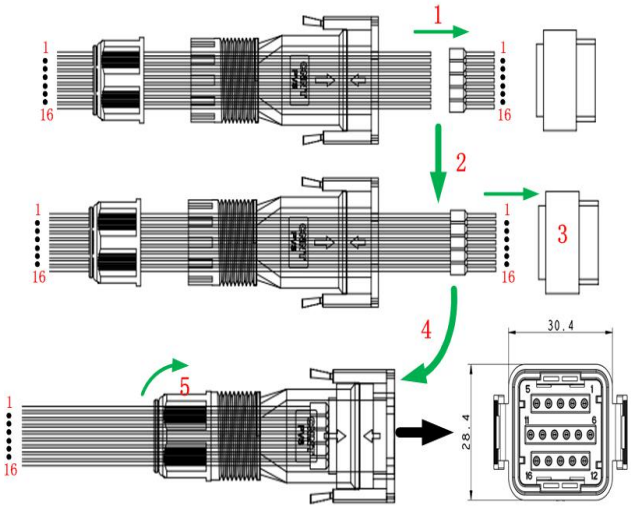


Fig. 6.4.4.2

Insert the 16-pin connector plug into the socket of the inverter (as shown in Fig. 6.4.2.1),strip 5mm cable sheath from other end of the communication cablesNo. 5 and No. 6 with the wire stripper, and connect the cable No. 5 to the port 12 of the kilowatt-hour meter, and the cable No. 6 to the port 11 of the kilowatt-hour meter.

Connect the L/N cable of the grid circuit breaker side to the terminals 1 (phase cable input) and 3 (neutral cable input) of the YMD201D kilowatt-hour meter (as shown in Fig. 6.4.3.1) respectively. (In this case, the grid circuit breaker can be closed to power on and configure the kilowatt-hour meter by the configuration method provided in the Configuration of Kilowatt-hour Meter. After the kilowatt-hour meter is configured, disconnect the grid circuit breaker and continue to operate.). Check whether the L/N cable is securely connected.

6.4.5 Configuration of kilowatt-hour meter

YMD201D
Press the button "↵" on the kilowatt-hour meter to access the parameter viewing interface, and press the "▼" to switch the parameter interface, and press "▲" to return to the main interface.
Password interface setting: 2000
On the home interface, click the button "↵" twice to access the password setting interface Pd , click the "▼" for 8 times to set the Pd password to 2000, click the "↵" to

confirm and access the parameter setting interface.

Modbus-RTU address setting:002

After confirmation in the password interface, press the "↵" to switch to the " nAdr ", access Modbus-RTU address setting, press the "▲" change the digit location, press "▼" to adjust the digits. Set the communication address to "002", press the "↵" to save and confirm the setting, and press the "▲" to return to the parameter setting interface

Communication baud rate setting :9600

On the parameter viewing screen, press the "▼" to switch to" bAUd ", press the "↵" to access the password setting interface, and after changing the password, press "↵" to access the baud rate interface bAUd , press the "▼" to change the baud rate,set the baud rate to "9600", press the "↵" to confirm the setting, and press the "▲" to return to the home interface.

Checkbit setting: none

On the parameter viewing screen, press the "▼" to switch to the " PAr ı", press the "↵" to access the password setting screen, after changing the password, press the "↵" to access the check bit interface PAr ı , press the "▼" to change the check bit, set the check bit to the " nonE ", press the "↵" to confirm and save the setting, and press the "▲" to return to the home interface.

Backlight delay setting

On the parameter viewing screen, press the"▼"to switch to the" LCd ", press the "↵" to accessthe password setting screen, after changing the password,press the "↵" to access the backlight delay setting interface LCd , press the "▲" to change the digit location,press the "▼" to adjust the digit. After setting, press the "↵" to confirm and save the setting, and press the "▲"to return to the home interface.

The maximum delay can be set to 300s, where 0 is the constant.

Attention

If the kilowatt-hour meter stops for more than 1 month after disconnection of the power supply, it is required to re-verify that the parameters of the kilowatt-hour meter are correct.

During use, grid voltage, current frequency, and other grid information of the system may be viewed through the kilowatt-hour meter. During viewing, press the buttons "▲" and"▼" to switch the display interface of the kilowatt-hour meter.

6.4.6 DRMS: Safe Use (Australia only)

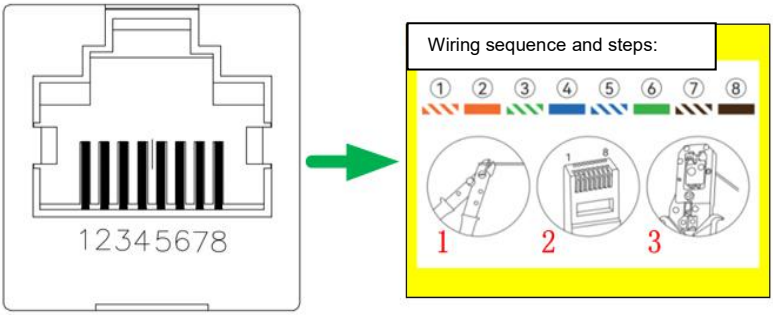
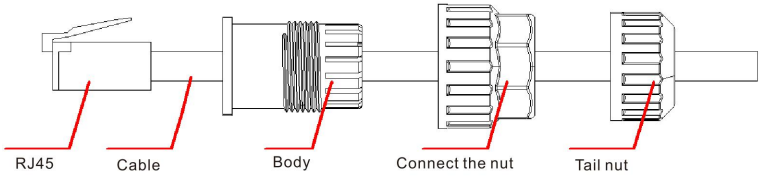


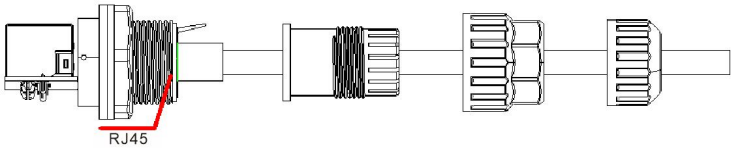
Fig. 6.4.6.1

Wring procedure of RJ45 connector

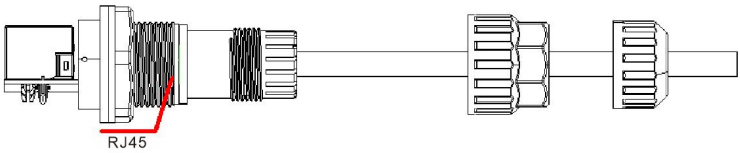
Measure the distance between the inverter and the equipment by a tape measure. Select a network cable with appropriate length and install the RJ45 registered jack on one end according to Fig. 6.4.5.1. Then pass the other end through the RJ45 waterproof plug in turn (an accessory provided freely), as shown in the following figure:



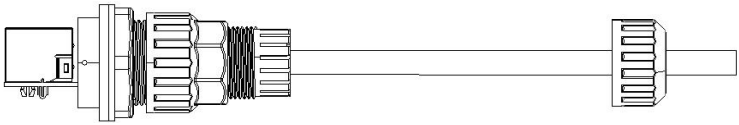
Insert the registered jack into the RJ45 connector until a very clear "click" is heard;



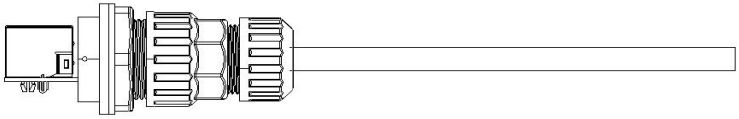
Press the fastener slightly to insert the noumenon into the registered jack, and contact the RJ45 connector.



Clockwise screw the connecting nut onto the RJ45 connector with recommended torque of 2N·m;



Clockwise screw the tail nut on the body with recommended torque of 2N·m, and observe the wire inlet to check obvious dint on the seal ring.



Pin definition: DRED (Demand Response Enabled Device) control function (only applicable for Australia and New Zealand). AS/NZS 4777.2:2010 requires the user to support Demand Response Mode (DRM), the functionality of which is suitable for inverters conforming to the RJ45 standard of AS/NZS 4020 standard, and used to connect the DRMS.

Pin	1	2	3	4	5	6	7	8
Definition	NC	NC	DRM_COM	DRM_REF	DRM4/8	DRM3/7	DRM2/6	DRM1/5

The inverters are equipped with the interfaces used for connection with the demand response enabled device (DRED). DRED asserts the demand response mode (DRMS). The inverter detects and responds to all supported demand response commands within 2s. The following table lists the DRMS supported by the inverter.

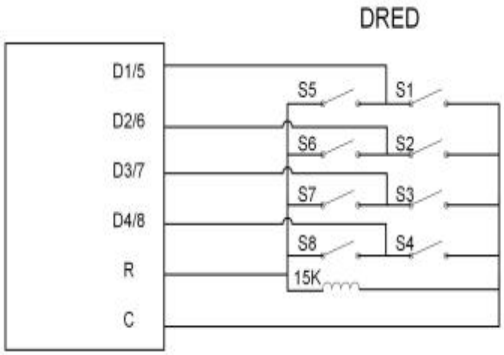
Mode	Note
DRM0	The inverter is in the Off status.
DRM1	The input power from the grid is 0.
DRM2	The input power from the grid shall not exceed 50% of the rated power.
DRM3	The input power from the grid shall not exceed 75% of the rated power.
DRM4	The input power from the grid shall be 100% of the rated power,but is subject to other active DRMS.
DRM5	The grid input power is 0.
DRM6	The input power to the grid shall not exceed 50% of the rated power.
DRM7	The grid-tied power shall not exceed 75% of the rated power.
DRM8	The input power from the grid shall be100% of the rated power,but is subject to other active DRMS.

DRED can respond to multiple signal DRMS once time, and the following shows the priority order of responding to multiple DRMS.

Multiple modes	Priority order
DRM1…DRM4	DRM1 > DRM2 > DRM3 > DRM4
DRM5…DRM8	DRM5 > DRM6 > DRM7 > DRM8

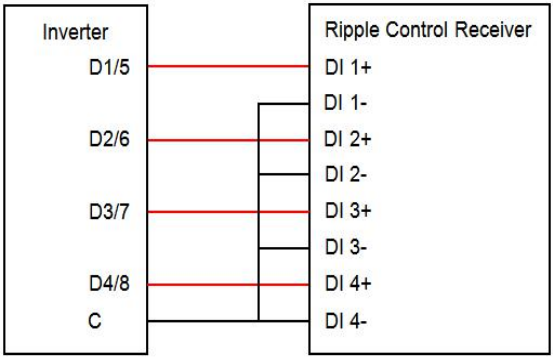
DRM connection: Both DRM and Ripple Control support only one function.

In Australia and New Zealand, the inverters support the demand response mode specified in the AS/NZS 4777 standard, and the wiring diagram of the inverters is shown below:



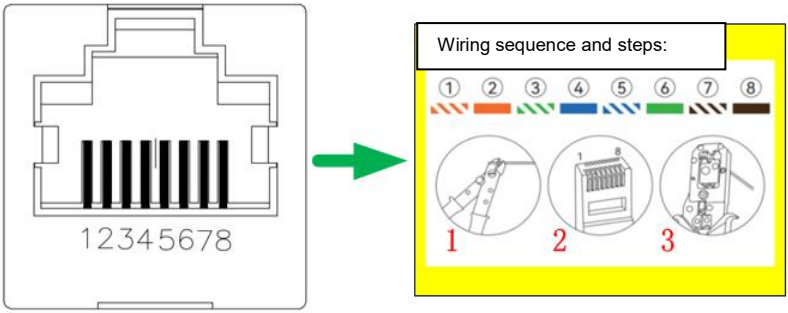
Mode	Short connected inverter	External DRED operation
DRM0	R & C	Disable S1 andS5
DRM1	D1/5&C	Disable S1
DRM2	D2/6&C	Disable S2
DRM3	D3/7&C	Disable S3
DRM4	D4/8&C	Disable S4
DRM5	D1/5&R	Disable S5
DRM6	D2/6&R	Disable S6
DRM7	D3/7&R	Disable S7
DRM8	D4/8&R	Disable S8

Ripple Control: In Germany, the grid companies use a Ripple Control Receiver to convert grid dispatch signals into dry contact signals for transmission. The dry contact of the control receiver is wired as shown in the following figure:



On/Off: press On/Off to send on/off instructions to the inverter. In Australia and New Zealand, the Boot option will be disabled when the DRM status is DRM0.

6.4. 7 BMS communication

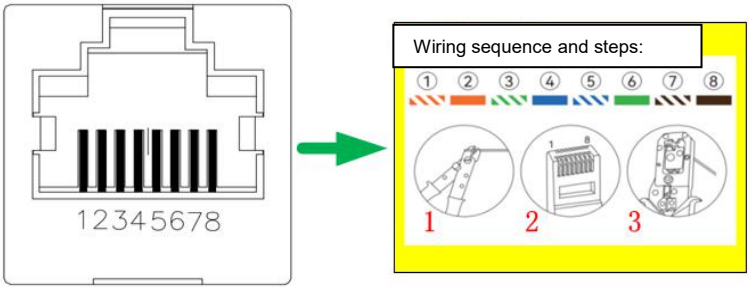


Note: see Section 6.4.6 “Wiring Procedure of RJ45 Connector”for the specific wiring procedure.

BMS: lithium battery communication port, which defaults to RS485 communication port. Connect A of RS485 for battery communication to the pin 1 or pin 8 of the RJ45 at the machine end and B of RS485 to the pin 2 or pin 7 of the RJ45 at the machine end.

Pin	1	2	3	4	5	6	7	8
Definition	RS485_ B	RS485_ A	CAN_L	CAN_H	CAN_L	CAN_H	RS485_ A	RS485_ B

6.4.8 Communication for parallel operation



Note: see Section 6.4.6 "Wiring Procedure of RJ45 Connector" for the specific wiring procedure.

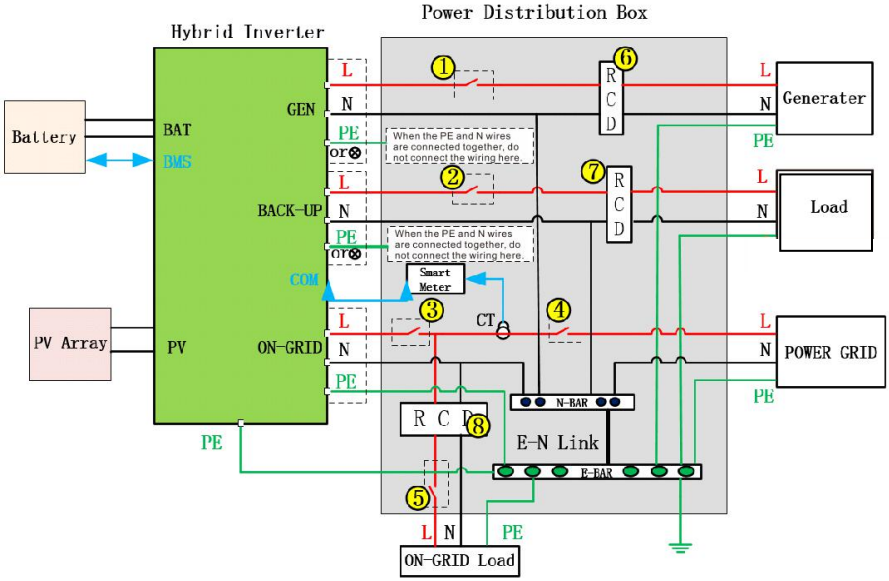
PARALLEL IN and PARALLEL OUT communication interfaces are used for communication during the parallel operation. If the parallel operation is required, connect PARALLER_IN to PARALLEL_OUT of another inverter, and so on. Up to 12 inverters with same specification may be connected for parallel operation.

6.5 System wiring diagram

Attention
According to the regulatory requirement of different regions, the N and PE cables of theON-GRID and LOAD ports of the inverters are connected in different methods, and the specific connection method is determined according to the local regulations. • The ON - GRID AC ports of the inverter have built-in relays. When the inverter is in the off-grid mode, the built-in ON - GRID relay is in opened status. When the inverter is in the grid-tied mode, the built-in ON - GRID relay is in closed status. • After the inverter is powered on, the AC port of the LOAD is powered on. If the LOAD is maintained, power off the inverter, otherwise, it is possible to cause electric shock.

6.5.1 Connecting N and PE cables together in distribution box

In Australia, New Zealand, and South Africa, the neutral cables on the ON-GRID side and the LOAD side must be connected together. Otherwise, the LOAD may not work properly.



No.	Description
①	≥63A/230V/400V AC circuit breaker (which can be selected according to the generator power)
②	Dependon the load
③	≥100A /230V/400V AC circuit breaker
④	≥100A /230V/400V AC circuit breaker
⑤	Depend on the household load and the inverter capacity
⑥	300mA RCD (subject to local regulations)
⑦	300mA RCD (subject to local regulations)
⑧	30mA RCD (subject to local regulations)

Note 1: If the battery is internally integrated with a DC circuit breaker that is easily accessible, no additional DC circuit breaker is required.

Note 2: The values recommended in the table are for reference only. The actual value should be subject to the local standards and actual conditions.

Note 3: It is recommended that the rated current of circuit breaker ③ is lower than the rated current of circuit breaker ④.

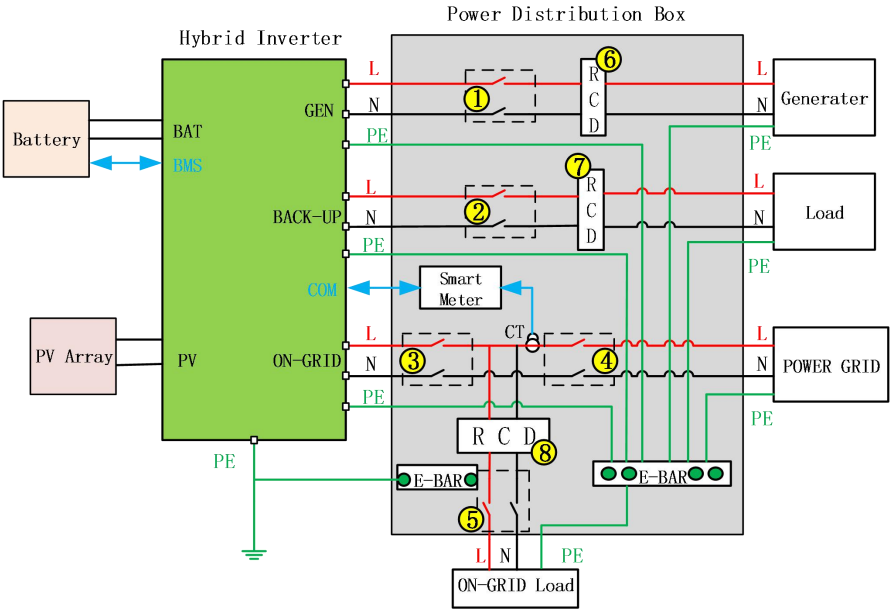
Note 4: When the rated current of the used cable is lower than the recommended current,

priority is given to the circuit breaker with the specifications matching with the cables.

Note 5: The AC port is powered by the grid and set according to the air switch of the grid.

6.5.2 Connecting N and PE cables separately in distribution box

For other countries, the following figure shows an example of a grid system without special wiring requirements.



No.	Description
①	≥63A/230V/400V AC circuit breaker (which can be selected according to the generator power)
②	Dependon the load
③	≥100A /230V/400V AC circuit breaker
④	≥100A /230V/400V AC circuit breaker
⑤	Depend on the household load and the inverter capacity
⑥	300mA RCD (subject to local regulations)
⑦	300mA RCD (subject to local regulations)
⑧	30mA RCD (subject to local regulations)

Note 1: If the battery is internally integrated with a DC circuit breaker that is easily

accessible, no additional DC circuit breaker is required.

Note 2: The values recommended in the table are for reference only. The actual value should be subject to the local standards and actual conditions.

Note 3: It is recommended that the rated current of circuit breaker ③ is lower than the rated current of circuit breaker ④.

Note 4: When the rated current of the used cable is lower than the recommended current, priority is given to the circuit breaker with the specifications matching with the cables.

Note 5: The AC port is powered bythe grid and is set according to the air switch of the grid.

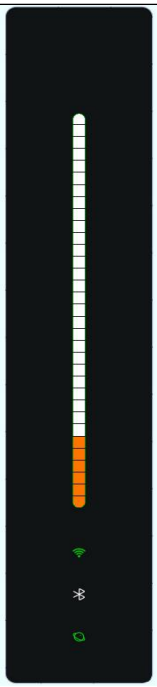
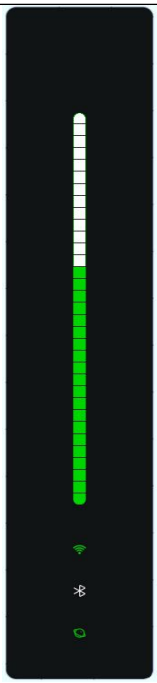
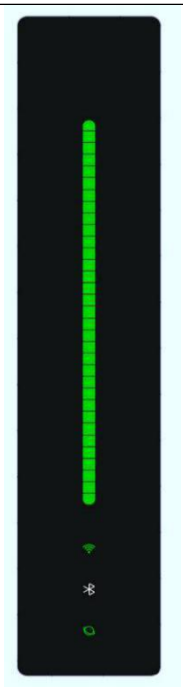
Warning
The AC circuit breakers should be installed on the inverter output side and the grid side to ensure safe disconnection from the grid. • Determine whether to install the AC air switch with a larger over-current capacity based on the actual situation. • Local load cannot be connected between the inverter and the AC air switch. • Multiple inverters cannot share anAC circuit breaker.

Chapter 7 LED display

7.1 Definition of LED signal light

	● WIFI module successfully connected: green and normally On ● Bluetooth successfully connected: green and normally On ● Upper computer successfully connected: green and normally On

7.2 Definition of LED Status display

LED display description:

1. The SOC of the battery is displayed by 33 LED indicator bars
2. When the SOC is lessthan 3% (including 0%), 1 LED indicator bar is displayed;
3. When the SOC is more than 20%, the LED light is green.
4. When the SOC is less than 20%, the LED light is orange.

Charging: the indicator bars are displayedby turns from top to bottom

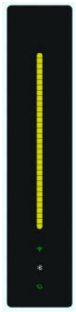
Discharging: the indicator bars are displayedby turns from bottom to top

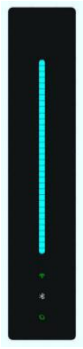
Idle: when the SOC is greater than 20%, the SOC is displayed by the breathing lamp; when the SOC is less than 20%, the LED light flashes every 2 seconds to indicate the SOC.

7.3 LED failure status

Steady yellow and red indicator bars indicate that an alarm or fault occurs on the equipment. In case of the fault, contact professional personnel in time.

When the indicator bars are steady blue, the equipment is being upgraded. In this case, wait until the upgrade is completed. If the upgrade is not completed for a long time, contact the professional personnel in time.

Level	Definition	Buzzer	Lamplight	Picture	Alarm signal recovery conditions
1	Emergency	Default:the buzzer keeps ringing	The LED indicator lamp is red and normally ON.		Remove the fault
2	Important	Quiet	The LED light flashes in red		Remove the fault
3	Minor	Quiet	The LED indicator lamp is yellow and normally ON		Go out after 60S

3	Upgrading	Quiet	The LED indicator lamp is blue and normally ON		Go out after upgrading

1. Priority: Upgrade > Fault/Alarm > SOC Display. If the alarm indicator works, the SOC is not displayed. If the alarm indicator is off, the SOC is displayed. The indicatorindicating the upgrade status is continuously on during the upgrade, and goes out after the upgrade is completed, and the current alarm and SOC are displayed according to the display logic
2. In case of multiple alarms, the sequence should be the upgrade status > Fault >Level 1 alarm > Level 2 alarm (see fault list for fault level)

Chapter 8 System maintenance

Attention
• Ensure that the inverter is powered off. • During operating the inverter, please wear personal protective equipment.

8.1 Routine maintenance of inverter

Maintenance item	Maintenance method	Maintenance period
System cleaning	Check the cooling fin and the air inlet/outlet for foreign matter and dust.	Once/half a year - once/a year
DC switch	Turn the DC switch on and off for 10 consecutive times to ensure that the DC switch functions normally.	Once/a year
Electrical Connection	Turn the DC switch on and off for 10 consecutive times to ensure that the DC switch functions normally.	Once/half a year - once/a year
Sealing property	Check whether the cable inlets are sealed as required. If the cable inlets have large gaps or are unsealed, seal them again	Once/a year

8.2 Maintenance of inverter unused for a long period

1. Ifthe inverter is not used for more than 7 days, shut down the AC input, PV input, and battery input switches.
2. If the inverter has not been used for more than 3 months, turn on the AC input switch (or PV input switch) and the battery switch and start the system to charge the battery once.

8.3 Power off inverter

Danger
• Before maintaining, power off the inverter. The hot-line job may cause inverter damage or electric shocks. • After the inverter is powered off, it takes some time for the internal components to discharge. Please wait according to the required time label till the inverter is fully discharged.

Step 1: disconnect the ON- GRID AC circuit breaker of the inverter.

Step 2: disconnect the AC circuit breaker switch of the generator and the inverter.

Step 3: disconnect the external AC circuit breaker between the inverter LOAD and the load.

Step 4: disconnect the energy storage circuit breaker between the inverter and the battery.

Step 5: disconnect the DC switch of the inverter.

8.4 Battery maintenance

Warning
• The battery maintenance should be performed or supervised by the personnel understanding battery knowledge and necessary preventive measures should be taken. • The risk of electric shock and high short-circuit current may be caused by the battery. • Do not place the battery into the fire, as battery overheating may cause an explosion. As the released electrolytes are harmful to skin and eyes and may be toxic, do not open or destroy the battery.

8.5 Battery safety

1. During installing or replacing the battery, do not wear watches and rings to avoid burning resulting from short-circuit.
2. Wear the safety goggles and the protective gloves.
3. Keep the work place away from open flame, hydrogen and smoke.
4. Check whether there is earthing cable at two electrodes of the battery. If yes, remove the earthing cable.
5. Environmental factors may affect battery life. The stored battery energy decreases with ambient temperature rise. Frequent short-time discharge may shorten the battery's life. The battery maintenance is very important, and the following inspection should be completed every month:

- Keep the battery clean, and promptly clean the terminals and connectors.
- Regularly clean the cables and check them for proper connection.
- Do not use different types and capacities of the batteries simultaneously, please use the same model of the batteries.

Chapter 9 Fault information

9.1 Fault level

Fault type	Fault name	Alarm level
Grid failure	Over-voltage of grid section 1	Level 2 alarm
	Under-voltage of grid section 1	Level 2 alarm
	Over-frequency of grid section 1	Level 2 alarm
	Under-frequency of grid section 1	Level 2 alarm
	Over-voltage of grid section 2	Level 2 alarm
	Under-voltage of grid section 2	Level 2 alarm
	Over-frequency of grid section 2	Level 2 alarm
	Under-frequency of grid section 2	Level 2 alarm
	Over-voltage of grid section 3	Level 2 alarm
	Under-voltage of grid section 3	Level 2 alarm
	Over-frequency of grid section 3	Level 2 alarm
	Under-frequency of grid section 3	Level 2 alarm
	10min average grid over-voltage	Level 2 alarm
	Failure in fast grid check	Level 2 alarm
	Island fault	Level 2 alarm
	Zero ground voltage fault	Level 2 alarm
	Bypass short circuit(reserved)	Level 1 alarm
Output failure	Output RMS over-voltage	Level 1 alarm
	Output RMS under-voltage	Level 1 alarm
	Output RMS over-current	Level 1 alarm
	Output over--frequency	Level 1 alarm
	Output under--frequency	Level 1 alarm
Inverter failure	Inverter RMS over-voltage	Level 1 alarm
	Inverter RMS under-voltage	Level 1 alarm
	Fast inverter over-current	Level 1 alarm
	Inverter RMS over-current	Level 1 alarm
	Wave-by-wave inductive current limit of inverter	Level 2 alarm
	Shutdown due to inductive over-current of inverter	Level 1 alarm

	Too high DC component of inverter current	Level 1 alarm
	Too high two-stage DC component of inverter current	Level 1 alarm
	Too high DC component of inverter voltage	Level 1 alarm
	Inverter self-check failed	Level 1 alarm
	Phase locking failed	Level 2 alarm
	Inverter short circuit	Failure
	Inverter heat sink over-temperature	Level 1 alarm
	Over-temperature of inverter heat sink 2	Level 1 alarm
	Inverter overload alarm	Level 2 alarm
	Inverter overload 105% fault	Level 1 alarm
	Inverter overload 125% fault	Level 1 alarm
	Inverter overload 150% fault	Level 1 alarm
	Inverter overload 200% fault	Level 1 alarm
DC bus fault	Fast bus over-voltage	Level 1 alarm
	Bus over-voltage	Level 1 alarm
	Bus hardware over-voltage	Level 1 alarm
	Bus under-voltage	Level 1 alarm
	Fast bus under-voltage	Level 1 alarm
	Bus short circuit	Failure
System fault	Over-temperature of main board	Level 1 alarm
	Grid relay fault	Level 1 alarm
	Inverter relay fault	Level 1 alarm
	Generator relay fault	Level 1 alarm
	Load relay fault (reserved)	Level 1 alarm
	Leakage current out of limits of section 1	Level 1 alarm
	Leakage current out of limits of section 2	Level 1 alarm
	Leakage current out of limits of section 3	Level 1 alarm
	Leakage current out of limits of section 4	Level 1 alarm
	Monitor SCI communication fault	Level 1 alarm
	Bypass overload alarm	Level 1 alarm
	Bypass overload 105% fault	Level 1 alarm

	Bypass overload 125% fault	Level 1 alarm
	Bypass overload 150% fault	Level 1 alarm
	Bypass overload 200% fault	Level 1 alarm
	Fan fault	Level 2 alarm
	Reversed kilowatt-hour meter or CT connection	Level 2 alarm
	Kilowatt-hour meter communication fault	Level 2 alarm
	Unmatched software and hardware version	Level 1 alarm
	Current country code unsupported	Level 1 alarm
	SPI-FLASH fault	Level 1 alarm
	Current model unsupported	Level 1 alarm
PV side fault	Fast PV1 over-current	Level 1 alarm
	Fast PV2 over-current	Level 1 alarm
	PV1 over-voltage	Level 1 alarm
	PV2 over-voltage	Level 1 alarm
	PV1 over-current	Level 1 alarm
	PV2 over-current	Level 1 alarm
	Shutdown due to PV over-current	Level 1 alarm
	Wave-by-wave inductive current limit of PV1	Level 2 alarm
	Wave-by-wave inductive current limit of PV2	Level 2 alarm
	Insulation impedance to ground fault	Level 2 alarm
	No PV alarm	Level 2 alarm
DCDC side fault	Fast BuckBoost over-current	Level 1 alarm
	Fast over-voltage of intermediate bus	Level 1 alarm
	Over-voltage of intermediate bus	Level 1 alarm
	Under-voltage of intermediate bus	Level 1 alarm
	Battery over-voltage	Level 1 alarm
	BuckBoost over-current	Level 1 alarm
	Battery over-current	Level 1 alarm
	Fast battery over-current	Level 1 alarm
	Battery DOD	Level 2 alarm
	Low charging voltage	Level 1 alarm
	Shutdown due to LLC over-current	Level 1 alarm

	Shutdown due to Buck-Boost over-current	Level 1 alarm
	Wave-by-wave inductive current limit of Buck-Boost	Level 2 alarm
	Fast under-voltage of intermediate bus	Level 1 alarm
	Battery unconnected	Level 2 alarm
	Reversed battery connection	Reserve
	Battery EOD	Level 1 alarm
	Battery over-temperature	Level 1 alarm
	Overtime discharge	Level 1 alarm
	Soft starting failed	Level 1 alarm
	Low SOCfor disconnection between the battery and gird	Level 1 alarm
	Low SOC for connection between the battery and gird	Level 2 alarm
	Battery under-SOC alarm	Level 2 alarm
	Battery overload alarm	Level 2 alarm
	BMS communication fault	Level 2 alarm
	Battery pack fault	Level 2 alarm
BMS alarm and fault	Battery pack over-voltage protection (battery pack over-voltage)	Level 2 alarm
	Cell over-voltage protection (cell over-voltage)	Level 2 alarm
	Battery pack under-voltage protection (battery pack under-voltage)	Level 1 alarm
	Cell under-voltage protection (cell under-voltage)	Level 1 alarm
	Charged over-currentprotection	Level 2 alarm
	Discharged over-currentprotection	Level 1 alarm
	High ambient temperature protection	Level 1 alarm
	Low ambient temperature protection	Level 2 alarm
	Charged over-temperature (charged high-temperature protection)	Level 2 alarm
	Discharged over-temperature protection (discharged high-temperature protection)	Level 1 alarm
	Charged under-temperature protection	Level 2 alarm

	Discharged under-temperature protection	Level 1 alarm
	Low capacity protection	Level 1 alarm
	Short circuit protection (discharged short circuit protection)	Level 1 alarm
	MOS high-temperature protection	Level 1 alarm
	Battery pack over-voltage alarm	Level 2 alarm
	Cell over-voltage alarm (cell over-voltage alarm)	Level 2 alarm
	Battery pack under-voltage alarm (battery pack over-discharge alarm)	Level 1 alarm
	Cell under-voltage alarm (cell over-discharged alarm)	Level 1 alarm
	Charged over-current alarm	Level 2 alarm
	Discharged over-current alarm	Level 1 alarm
	High ambient temperature alarm	Level 1 alarm
	Low ambient temperature alarm	Level 2 alarm
	Charged over-temperature alarm	Level 2 alarm
	Discharged over-temperature alarm	Level 1 alarm
	Charged under-temperature alarm	Level 2 alarm
	Discharged under-temperature alarm	Level 1 alarm
	Low capacity alarm(low SOC alarm)	Level 1 alarm
	Cell unbalance alarm	Level 1 alarm
	MOS over-temperature alarm	Level 1 alarm
	Voltage sampling error (voltage acquisition failure/cable disconnection failure)	Level 1 alarm
	Temperature sampling error (temperature acquisition failure/sensor failure)	Level 1 alarm
Battery system lock	Cell over-voltage	Level 1 alarm
	Cell under-voltage	Level 1 alarm
	Charged over-current	Level 1 alarm
	Discharged over-current	Level 1 alarm
	Charged over-temperature	Level 1 alarm
	Discharged over-temperature	Level 1 alarm
	Charged under-temperature	Level 1 alarm
	Discharged under-temperature	Level 1 alarm

9.2 Troubleshooting

The users can troubleshoot and take corresponding measures according to the failure information of the inverter.

Fault information	Possible causes	Solution
Grid RMS over-voltage Grid RMS under-voltage Grid over-frequency Grid under-frequency	Grid fault	1. Check the grid voltage or frequency, if the grid voltage or frequency is out of the allowable range of the inverter protection parameters, turn on the inverter after the grid is normal. 2. If the grid voltage or frequency is within the allowable range, please contact your distributoror the after-sales service center.
Failure in fast grid check	The sudden change of external conditions causes failure in soft starting of the inverter.	1. Wait for the inverter to recover automatically; 2. Check the grid voltage or frequency, if the grid voltage or frequency is out of the range allowed by the inverter protection parameters,urn on the inverter after the grid is normal. 3. If the grid voltage or frequency is within the allowable range, please contact your distributoror the after-sales service center.
Island fault	An AC fault occurs on the grid, and the inverter detects the island by active means	1. Check whether the AC circuit breaker of the grid is tripped and whether the cables are firmly connected; 2. Check whether there is current on the grid. 3. If the fault still cannot be removed after the first two steps, please contact your distributoror the after-sales service center.
Zero ground voltage fault	1. The PE terminal on the AC terminal block and the secondary protection ground	1. Check whether the inverter isreliably connected with the grounding cable; 2. Ifthe fault still cannot be removedin the case that the inverter isreliably connected

	terminal at the bottom of the machine are not reliably connected; 2. High voltage to ground on L and N cables of inverter	with the grounding cable, please contact your distributor or the after-sales service center.
Output RMS over-voltage Output RMS under-voltage Output RMS over-current Output over-current Output under-voltage	The protection is triggered by the instantaneous abnormal output of the inverter resulting from the sudden change or short circuit of the external grid.	1. Check whether the external load and the grid are out of the range of inverter specification. After the fault is removed, the inverter will be automatically restored to normal operating status. 2. If the alarm repeats, please contact your distributor or the after-sales service center.
Inverter RMS over-voltage Inverter RMS under-voltage Instantaneous over-current of inverter	The protection is triggered by the instantaneous abnormal output of the inverter resulting from the sudden change or short circuit of the external grid.	1. Check whether the external load and the grid are out of the range of the inverter specification. After the fault is removed, the inverter is automatically restored to normal operating status. 2. If the alarm repeats, contact your distributor or the after-sales service center.
Wave-by-wave inductive current limit of inverter Inverter shutdown due to inductive over-current	The output voltage of the inverter is out of the protection range.	1. Check whether the external loadis out of the range of the inverter specification. After the fault is removed, the inverter is automatically restored to normal operating status. 2. If the alarm repeats, contact your distributor or the after-sales service center.

Too high DC component of inverter voltage Too high DC component of inverter current	The DC current component of the grid is out of the allowable range.	1.Wait for the inverter to recover automatically; 2. Check the grid voltage or frequency. If the grid voltage or frequency is out of the allowable range of the inverter protection parameters, please contact the grid company; 3. If the grid voltage or frequency is within the allowable range, please contactyour distributoror the after-sales service center.
Inverter self-check failed Phase locking failed	Inverter bridge damaged, or too high harmonics of grid, and no grid-tied conditions	1. Wait for the inverter to recover automatically; 2. If the fault still cannot be removed, please contact your distributor or the after-sales service center.
Inverter over-temperature	The inverter temperature is higher than the allowable upper limit.	1.Check whether the heat sink temperature displayed on the LCD screen is too high, and if yes, wait till it recovers; 2. Check that the inverter is installed in well-ventilated environment; 3. Check whether the inverter is exposed to direct sunlight, and if yes, install a sunshade. 4, If the fault still cannot be removed after the first three steps, please contact your distributor or after-sales service center.
Inverter overload 105% fault Inverter overload 125% fault Inverter overload 150% fault Inverter overload	Output over-load protection	1. Check the output load and reduce the load power; 2. Ifthe fault still cannot be removed after the first step, please contact your distributor or after-sales service center.

200% fault		
Fast bus over-voltage	The instantaneous bus voltage is higher than the allowable upper limit of the inverter.	1. Wait for the inverter to recover after the bus voltage is reduced; 2. If the fault repeats, please contact your distributor or after-sales service center.
Bus over-voltage		
Bus hardware over-voltage	The hardware detects that the instantaneous bus voltage is higher than the allowable upper limit of the inverter.	1. Check whether the PV input voltage is out of the allowable range of the protection parameters of inverter; 2. After the bus voltage is reduced, restart the inverter; 3. If the fault repeats, contact your distributor or after-sales service center.
Bus under-voltage	The average bus voltage is lower than the allowable lower limit of the inverter.	1. Wait for the inverter to recover; 2. If the fault repeats, please contact your distributor or after-sales service center.
Fast bus under-voltage		
Bus short circuit	The internal components are damaged due to sudden change of external conditions.	Please contact your distributor or the after-sales service
Grid relay fault	The relay cannot be closed or disconnected properly.	1. Restart the inverter; 2. If the fault repeats, contact your distributor or after-sales service center.
Inverter relay fault		
Generator relay fault		
Monitor SCI communication fault	No monitoring data received	1. Restart the inverter; 2. If the fault repeats, contact your distributor or after-sales service center.
Bypass overload 105% fault	Output over-load protection during change from off-grid to grid-tied	1. Check the output load and reduce the load power; 2. If the fault still cannot be removed, please contact your distributor or the after-sales
Bypass overload 125% fault		

Bypass overload 150% fault Bypass overload 200% fault		service center.
Fast PV1 over-voltage Fast PV2 over-voltage	The PV1 or PV2 voltage is higher than the bus voltage.	1. Check whether the PV input terminal is normal; 2. Check whether the PV input configuration is out ofthe allowable range of the protection parameters of the inverter; 3. If faultstill cannot be removed after the first two steps, please contact your distributor or the after-sales service center.
Fast PV1 over-current Fast PV2 over-current	The average instantaneous input current of PV1 or PV2 is higher than the set upper limit.	1. Check whether the PV input terminal is normal; 2. Check whether the PV input configuration is out of the allowable range of the protection parameters of the inverter; 3. If faultstill cannot be removed after the first two steps, please contact your distributor or the after-sales service center.
PV1 over-current PV2 over-current	The average input current of PV1 or PV2 is higher than the set upper limit.	1.Check whether the PV input terminal is normal; 2.Check whether the PV input configuration is out of the allowable range of the protection parameters of the inverter; 3. If there are no above-mentioned problems, the faultstill cannot be removed after restarting the inverter, please contact your distributor or the after-sales service center.
Insulation impedance to ground fault	The PV string is short circuited with the protective ground, or the installation	1. Check whether the inverter isreliably grounded; 2. Check whether the positive and negative poles of the PV panel are short connected

	environment of the PV string is humid for a long time	with the ground cable; 3. Wait for the inverter to recover; 4. If the fault still cannot be removed, please contact your distributor or the after-sales service center.
Fast Buck-Boost over-current Fast over-voltage of intermediate bus Over-voltage of intermediate bus Under-voltage of intermediate bus	The protection is triggered for the internal circuit of the inverter due to sudden change of external conditions.	1. After the fault is recovered, the inverter automatically returns to normal operation. 2. If the alarm repeats, contact your distributor or the after-sales service center.
Battery over-voltage	Abnormal battery voltage	1. Check whether the battery is properly connected with the inverter and whether the battery voltage is normal; 2. Small diameter of battery input cable; 3. Restart the inverter, and if there is still error message, please contact your distributor or the after-sales service center.
Buck-Boost over-current	The Buck-Boost current exceeds the set value.	1. Check the output load and reduce the load power; 2. If the fault still cannot be removed, please contact your distributor or the after-sales service center.
Battery DOD	1.Abnormal battery voltage 2. The battery is fully discharged.	1. Check whether the battery is properly connected with the inverter and whetherthe battery voltage is normal; 2. Small diameter of battery input cable; 3. Restart the inverter, and if there is still error message, please contact your distributor or the after-sales service center.
Low charging	Abnormal battery	1. Check whether the battery is properly

voltage	voltage	connected with the inverter and whether the battery voltage is normal; 2. Restart the inverter, and if there is still error message, please contact your distributor or the after-sales service center.
Shutdown due to LLC over-current	The current exceeds the set value.	1. Check the output load and reduce the load power; 2. Check whether the battery terminal is properly connected. 3. If the fault still cannot be removed, please contact your distributor or the after-sales service center.
Battery unconnected	1.The battery is not properly connected; 2. The battery fuse is blown.	1. Check whether the battery cables are properly connected and whetherthe battery voltage is normal; 2. If there is still error message, please contact your distributor or the after-sales service center.
Battery over-temperature	1. The battery installation position is not ventilated; 2. High ambient temperature.	1. Check whether the operating environmenttemperatureexceeds the operating temperature range of the inverter, if yes, please improve the operating environment; 2. If there is no above-mentioned problem, the faultstill cannot be removed after restarting the inverter, please contact your distributor or the after-sales service center.
Fan fault	Fan fault	1. Check whether the fan works properly. Power off and restart the machine; 2. If there is still error message, please contact your distributor or the after-sales service center.

Chapter 10 Technical data

Product series: EAHI10-12KSL		
Mode	**EAHI10KSL**	**EAHI12KSL**
PV input parameter		
Maximum input power	18KW	18KW
Maximum open circuit voltage	550Vdc	
Rated input voltage	360Vdc	
Starting voltage	150Vdc	
Minimum operating voltage	100Vdc	
MPPT voltage range	100~540Vdc	
Full-load operating voltage range	250V~500V	
Maximum current per MPPT	30A/30A	
Maximum short-circuit current per MPPT	40A/40A	
MPPT quantity	2	
String quantity per MPPT	2/2	
Battery input parameters		
Battery type	Lithium battery/lead-acid battery	
Voltage range	42-58Vdc	
Maximum charge/discharge current	180A/180A	250A/250A
AC input/ output parameter(grid)		
Maximum apparent power of grid	15KVA	18KVA
Maximum input current	68.2A	81.8A
Input voltage range	184-276Vac	
Input frequency range	50±5Hz	
Rated output power	10KW	12KW
Maximum output apparent power	10KVA	12KVA
Rated output voltage	1/N/PE,220Vac/230Vac	
Rated output frequency	50Hz	
Rated output current	45.5A/43.5A	54.5A/52.2A
Maximum output current	45.5A	54.5A
Power factor	>0.99 (0.8 lead ~ 0.8 lag)	
THDI	≤3% (@ rated power)	
Generator input		

Maximum power	10KW	12KW
Maximum current	45.5A	54.5A
AC output parameter(backup)		
Rated output power	10KW	12KW
Maximum output apparent power	10KVA	12KVA
Rated output voltage	1/N/PE,220Vac/230Vac	
Rated output frequency	50Hz	
Rated output current	45.5A/43.5A	54.5A/52.2A
Maximum output current	45.5A	54.5A
THDV	≤3% (linear load)	
Switching time	≤20ms	
Efficiency		
Maximum efficiency	97.8%	
MPPT efficiency	99.9%	
Protection		
Protection	Over-voltage and under-voltage protection, over-frequency and under-frequency protection, overload, output short circuit protection, over-temperature protection, SOC detection, output over-current protection, insulation impedance, anti-island and surge protection, etc.	
Over-voltage protection Type	DC Type II / AC Type III	
Other		
Dimensions (W*H*D)	450*600*270mm	
Weight	45KG	
Topological structure	High frequency isolation (for battery)	
Protection rating	IP66	
Operating temperature	-25℃ to +60℃	
Cooling mode	Smart air cooling	
Altitude	4000m	
Noise	≤55dB	
Installation mode	Wall-mounted type	
Certification		
Safety regulation	IEC/EN 62109-1/-2, AS62109	
EMC	EN 61000-6-1/-2/-3/-4	
Grid-tied	NRS097-2-1:2017	

Chapter 11 Appendix

Term interpretation

Name	Description
ANTI-TIED	It means that the inverter is not allowed to supply the power to the grid
GRID-TIED	It is opposite to ANTI-TIED, in which the inverter is allowed to supply the power to the grid
AC CHA.	It means that the inverter is allowed to receive the power from the grid to charge the battery
TIMER.SWITCH	It means that the inverter can be set to run in different operating modes at different time periods
SOC	State of chargealso known as remaining capacity refers to the ratio of the current available charge of the battery to the charge in fully charged state, which can be expressed in percentage ranging from 0% to 100%.
BMS	Battery manager system
EOD	End of discharge, in this series of PV energy storage products, refers to the voltage or SOC point at which the battery is prohibited from discharging. If the battery voltage is lower than this value or if the SOC is lower than the lower limit, the inverter will give the "battery under-voltage" alarm, and the battery is prohibited from discharging.
DOD	Depth of charge, is one of the waysreflecting the depth of battery discharge of the energy storage inverter, and another way to reflect the depth of discharge is the SOC.
Equalized charging	Constant current charging stage, in which the charging voltage gradually increases till the equalizedcharging voltage.
Equalized charging voltage	Target voltage value achieved by constant current charging, which can be set within the specified range.
Floating charge	Constant voltage charging phase, in which the charging current is gradually reduced to maintain the battery voltage at the set floating charge voltage.
Floating charge voltage	Constant charging voltage, which can be set within a specified range

Household load	It refers to the load that is connected between the "GRID" port of the inverter and the CT/ kilowatt-hour meter. The power of the household load is not limited by the inverter.
Backup load	It refers to the load connected with the LOAD port of the inverter. The power of the backup load is limited by the load capacity of the inverter during off-grid operation.
BACK-UP	It is indicated by silk-screen "LOAD". Here, they have the same meaningand all refer to the "off-grid load" port.