Single Phase
Hybrid Inverter User Manual

MEI2-HS3L
MEI2-HS3.6L
MEI2-HS4L
MEI2-HS4L
MEI2-HS5L
MEI2-HS6L
MEI2-HS5L2



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1 Preface

This document provides information on the installation, use, and maintenance of the inverter. Please read this document carefully before installing and using the inverter.

Note: Damage to the inverter or personal injury or property damage caused by failure to install, use, or maintain the inverter in accordance with this manual and the corresponding quick release manual is not covered by the equipment manufacturer's responsibility.

More product warranty information is available from the official website:

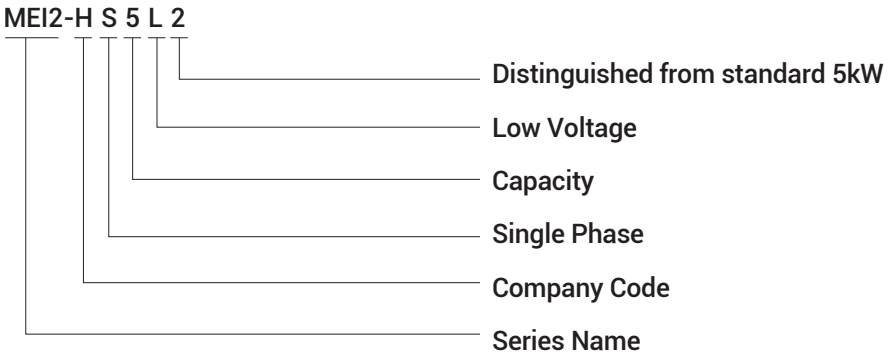
www.hiconics-global.com

1.1 Applicable Products

This manual only applies to the specified inverter, the inverter model and parameters are as follows:

Model	Rated Output Capacity	Rated Output Voltage
MEI2-HS3L	3000W	220/230Va.c.
MEI2-HS3.6L	3600W	
MEI2-HS4L	4000W	
MEI2-HS4.6L	4600W	
MEI2-HS5L	5000W	
MEI2-HS6L	6000W	
MEI2-HS5L2	5000W	

1.1.1 Description of model definitions



1.2 Applicable People

This manual applies to:

- Installer
- End-User

Note: It is strictly prohibited to operate or maintain the inverter without professional training or relevant electrical knowledge.

1.3 Definition of symbols

Symbols represent different hazard levels, please read this manual carefully before using the product to ensure the safe use of the inverter

Danger!	Indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.
Warning!	Indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.
Caution	Indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.
Notice	Indicates actions of which, if not avoided, could result in material damage.

1.4 EU Declarations of Conformity

HICONICS ECO-ENERGY DRIVE TECHNOLOGY CO., LTD. hereby declares that the inverter described in this document complies with the basic requirements and other relevant conditions of the directives listed below.

Directive 2014/30/EU

(On the approximation of the laws of the Member States relating to electromagnetic compatibility (EMC))

Directive 2014/35/EU

(On the harmonization of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits – in short: Low Voltage Directive)

Directive 2011/65/EU (RoHS)

(on the restriction of the use of certain hazardous substances in electrical and electronic equipment You will find a detailed EU Declaration of Conformity in the download area at: www.hiconics-global.com)

2 Safety Precautions

Safety precautions are matters that must be observed or paid attention to when using a product. Although the inverter is designed and tested in strict accordance with the relevant safety regulations, as an electrical device, improper operation may still result in serious personal injury or property damage. Therefore, be sure to read this manual carefully before using the inverter to avoid unnecessary injury or damage.

This section divides the precautions into general safety, PV DC input side, AC output side, inverter and personnel requirements.

2.1 General Safety Requirements



Notice

- This document may be updated from time to time as products are updated. The company will try to ensure the accuracy and timeliness of the document, but the contents and notes in this document are only for guidance and should not be relied upon. Please contact the relevant after-sales department when equipment failure occurs, do not disassemble or repair privately, so as not to cause unnecessary personal injury and property damage.
- Before installing the equipment, please read this document carefully to understand the performance and characteristics of the product. The installer must be a qualified electrical technician with professional training and knowledge of local codes.
- The inverter must wear appropriate protective equipment during installation and use. The installation location must have the appropriate load-bearing capacity. Handling must be in accordance with the handling requirements to avoid injuries. During the use of the inverter, you must use the appropriate insulating tools and wear personal protective equipment to avoid damage to the inverter or personal injury.
- The inverter should be installed out of the reach of small children.

2.2 PV DC Input



Danger!

The DC PV connector and PV terminal block included in the accessory package must be used to connect the inverter DC cable. The DC PV connector and PV terminal block included in the accessory package should be matched with the DC connector on the inverter side. If other manufacturers' PV connectors and PV terminal blocks are used, there may be a serious risk of malfunction, and we will not be responsible for any damages to persons or property caused by the use of the connectors and terminals that are not in accordance with the requirements.



Warning!

- The PV matrix will supply DC power to the PCE when exposed to light.
- Ensure that the metal frame of the PV module is electrically securely connected to the PV mounting bracket.
- The DC cable connections should be reliable and not loose.
- Use a multimeter to measure the DC string voltage to ensure that the positive and negative terminals are correct and that the measured voltage is within the range of the multimeter.
- The PV modules used to connected to this inverter shall be Class A or Class II rating certified according to IEC 61730.

2.3 AC Side Output



Warning!

- Before installation, make sure that the AC output voltage and frequency of the inverter matches the voltage and frequency of the grid.
- The AC output side of the inverter should be protected by circuit breakers or fuses, which should be larger than 1.25 times of the maximum output current of the AC side of the inverter.
- The grounding wire of the inverter shell must be connected reliably. When more than one inverter is installed, make sure that all the inverter shells are grounded reliably.
- The AC output cable of the inverter should be made of copper core cable with matching tubular terminals.

2.4 Hybrid Inverter



Danger!

- During the inverter installation, the electrical and communication interfaces should be avoided to be stressed, otherwise it will lead to unreliable electrical connection, terminal and connector damage.
- For inverter installation, note that the labels and signs on the box need to be clearly visible, and it is prohibited to modify, paint, cover or damage them privately.
- If the equipment is damaged due to disassembly or modification without permission, this loss is not borne by the manufacturer.
- Prohibit the appearance of single-phase and three-phase inverters mixed application scenarios.

The markings on the inverter housing are as follows:

Symbol	Explanation
CE	CE mark. The inverter complies with the requirements of the applicable CE
	TUV marking
	Australian certification mark.
	Beware of hot surface. The inverter can become hot during operation. Avoid contact during operation. Danger of high temperature.
	Danger to life due to high voltages in the inverter!
	Danger Risk of electric shock!
	Observe enclosed documentation
	The system can't be disposed together with the household waste. Disposal information can be found in the enclosed documentation.
	Do not operate this equipment until it is isolated from battery, grid and on-site PV generator.
	Danger to life due to high voltage. There is residual voltage existing in the inverter after powering off, which needs 5 min to discharge. Wait 5 minutes before opening the cover.

Anti-Islanding Effect

- Islanding effect is a special phenomenon that grid-connected PV system still supply power to the nearby grid when the voltage loss is happened in the grid system. It is dangerous for maintenance personnel and the public. MEI2 Series inverter provide Active Frequency Drift (AFD) to prevent islanding effect.

PE Connection and Leakage Current

- The end-use application shall monitor the protective conductor by residual current operated protective device (RCD) with rated fault current $I_{fn} \leq 300mA$ which automatically disconnects the device in case of a fault.



Warning!

Warning!
High leakage current!
Ground the system before power on.

- Incorrect grounding can cause physical injury, death or equipment malfunction and electromagnetic radiation increase.
- Make sure that grounding conductor is adequately sized as required by safety regulations.
- Do not connect the ground terminals of the unit in series in case of a multiple installation. This product can cause current with a DC component, where a residual current device (RCD) or monitoring (RCM) is used for protection.
  In case of direct or indirect contact, only an RCD or RCM of type B is allowed on the supply side of this product.

For United Kingdom

- The installation that connects the equipment to the supply terminals shall comply with the requirements of BS 7671.
- No protection settings can be altered.
- User shall ensure that equipment is so installed, designed and operated to maintain at all times compliance with the requirements of ESQCR22(1)(a).

For Australia and New Zealand

- Electrical installation and maintenance shall be conducted by licensed electrician and shall comply with Australia National Wiring Rules.

Battery Safety Instructions

(When paired with an external battery system, the installation requirements for the inverter shall comply with the following:)

- MEI2 Series inverter can be operated with low voltage battery system, for the specific parameters such as battery type, nominal voltage and nominal capacity etc., please refer to the parameters list.
- To prevent potential electric shock and short-circuit current hazards that may arise from energy storage batteries, it is advised to follow the following precautions while the battery replacement:

1. Do not wear watches, rings or similar metallic items.
2. Use insulated tools.
3. Put on rubber shoes and gloves.
4. Do not place metallic tools and similar metallic parts on the batteries.
5. Switch off load connected to the batteries before dismantling battery connection terminals.
6. Only personal with proper expertise can carry out the maintenance of energy storage batteries.



Notice

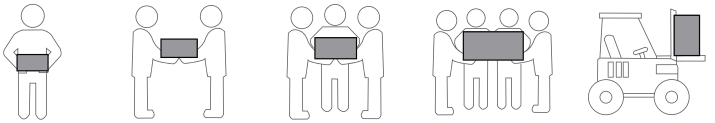
The system detects a thermal runaway (Venting of gaseous electrolyte; Burning of the cell, spark formation and ignition of vented gas mixtures; Explosion of the cell) , it wirelessly sends a thermal runaway signal to the user's alarm system to inform the user that a thermal runaway has occurred. Users need to configure buzzer alarm products at home. (The alarm light is red, and the alarm buzzer has a sound level greater than 85dB but less than 110dB, with a frequency below 3.5kHz.)

2.5 Operator Requirements

Notice

- Personnel responsible for installation, operation, operation and maintenance must have professional knowledge, be professionally trained, master the operation methods, and be familiar with the safety precautions and the norms and standards of the country and locality where they are located.
- Professionals with operating qualifications install, operate, maintain and dismantle relevant equipment and facilities.
- Special types of work, such as electrical installation, elevated work, and operation of professional equipment, require professional special operation qualifications in the countries and regions where they are located.
- Replacement of equipment, components, software must be operated by authorised professionals.
- Except for professional operators, other unrelated persons should not approach or operate the equipment.

- When carrying heavy objects, you should be prepared to bear the weight to avoid being crushed or sprained by heavy objects.



< 18 kg (< 40 lbs) | *18-32 kg (40-70 lbs)* | *32-55 kg (70-121 lbs)* | *55-68 kg (121-150 lbs)* | *> 68 kg (> 150 lbs)*

- When multiple people carry heavy objects at the same time, it is necessary to consider the height and other conditions, and do a reasonable job of personnel matching and division of labor to ensure a balanced weight distribution.

- When two or more people are carrying heavy loads together, one person should direct the equipment and lift or lower the equipment at the same time to ensure a uniform pace.

- When handling equipment by hand, you should wear protective gloves, labor protection shoes and other safety protective equipment to avoid injury.

- When carrying the equipment by hand, first approach the object, squat down, use the force of straightening your legs, do not use the strength of your back, slowly and steadily lift the object, and it is strictly forbidden to suddenly jerk or twist the torso.

• Do not quickly lift heavy objects to waist height, but place them on a half-waist high workbench or an appropriate place, adjust the position of your palms, and then lift them.

• Carrying heavy objects must be balanced and stable; The speed of movement should be uniform and low; Positioning is required to be smooth and slow, so as to avoid any impact or drop that scratches the surface of the equipment or damages the components and cables of the equipment.

2.6 Security Update

• Regularly check the battery pack and its connectors for looseness, corrosion, etc., and address any issues promptly.

• Avoid overcharging or over-discharging, as it can affect battery life and may even cause battery damage. This situation should be avoided.

• When installing home energy storage products, follow the instructions in the manual to ensure correct and secure installation.

• Although the product has lightning protection functions, attention should also be paid to avoid lightning strikes and other situations.

• Regular maintenance should be carried out, such as cleaning and checking the battery status, to ensure the normal operation and safety of the product. Specific operations should be performed according to the product manual and the guidance of professionals.

2.7 Channel for Handling Security Issues

• After-sales service: Get assistance via phone, email, or online customer service;
EU: solar_service_eu@midea.com
AU&Newzealand: solar_service_au@midea.com
Overseas: solar_service@midea.com

• Reporting channel: Report security issues through the after-sales service channel.

• Issue tracking: Track the progress of problem resolution through after-sales service channels.

2.8 Recycling and Treatment

- Data Erasure: The product's storage is already encrypted. It is recommended that customers restore the factory settings before removal to clear all user configurations and data.

- Secure disposal: Physically destroy storage media that cannot have data cleared, and dispose of equipment in compliance with environmental regulations.

- Disconnect the product from the power grid or power source and ensure it is completely turned off.

- Confirm if there is still power in the product. If so, place it in a safe location until the power is completely drained.

- If the battery leaks or is damaged, please contact technical support or a battery recycling company for disposal.

- Faulty batteries are prohibited from being reused. Contact the battery recycling company for disposal in a timely manner to avoid environmental pollution.

- Avoid exposing used batteries to high temperatures or direct sunlight, high humidity, or corrosive environments.

- Before disposal, please carefully read the product manual or consult the manufacturer to learn more detailed safety disposal guidelines.

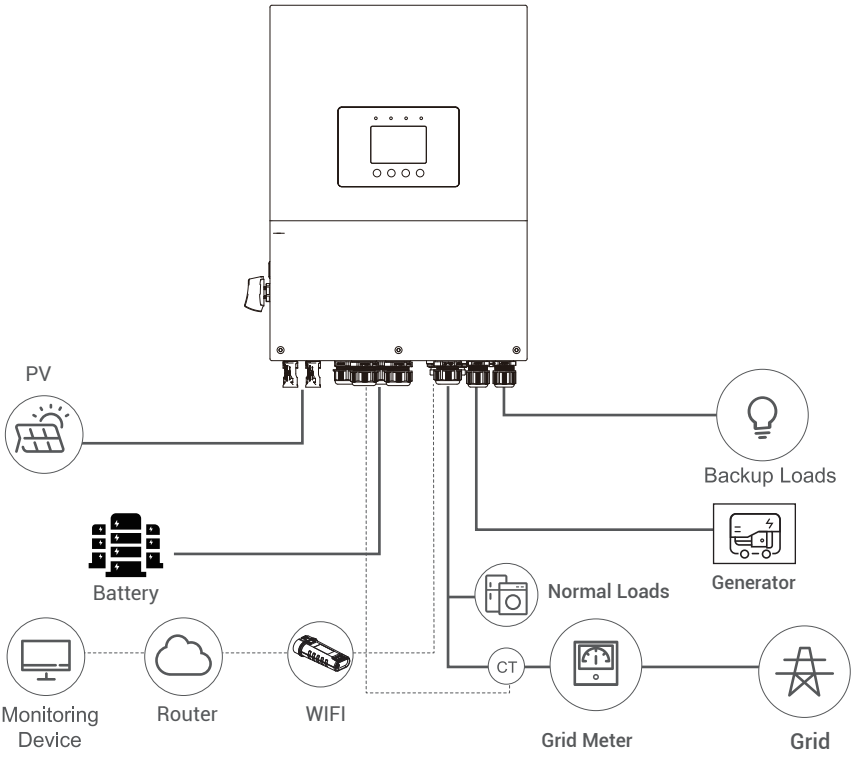
- Please be sure to dispose of it safely in accordance with local laws and regulations. Improper battery disposal may cause environmental pollution or explosion.

3 Products Introduction

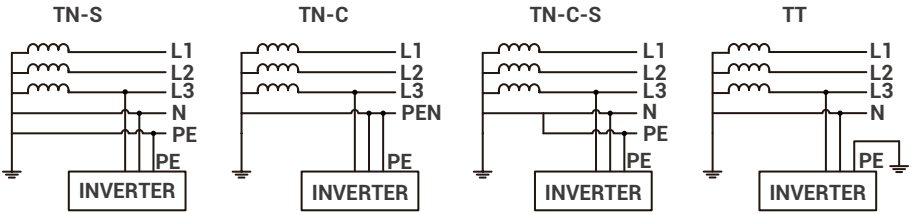
3.1 Basic Features

MEI2 series is a multifunctional inverter for low-voltage batteries, capable of intelligently switching the direction of energy flow according to the system status to meet the functions of battery storage, inverter with load, and grid-connected power sales.

System Diagram

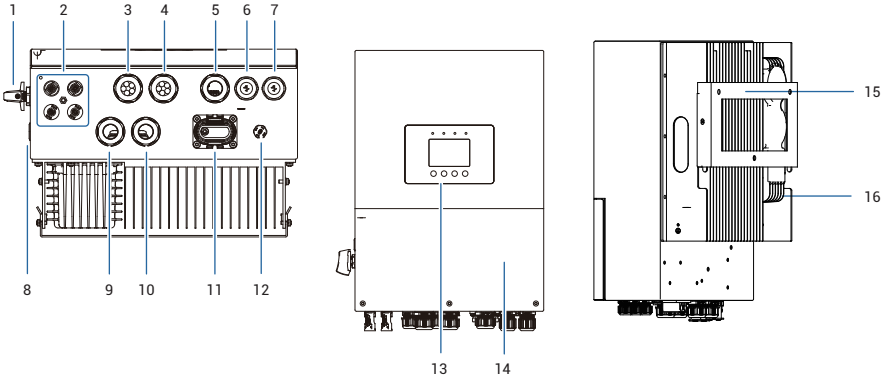


3.2 Supported Grid Forms



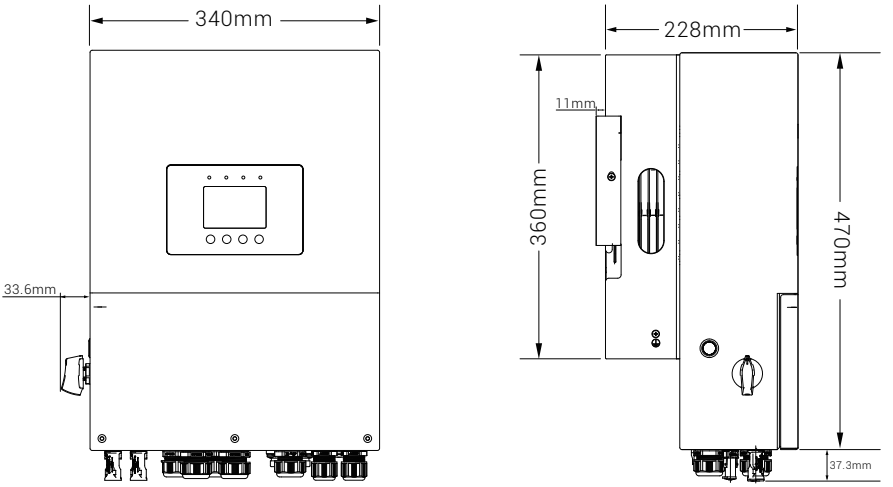
3.3 Appearance Description

3.3.1 Appearance Introduction



N0.	Parts	Clarification
1	DC Switch	DC Switch
2	PV Input Terminal	PV Input Terminal
3	COM1	Communication Ports 1
4	COM2	Communication Ports 2
5	GRID	Grid Connection Port
6	GEN	Generator Connection Port
7	BACKUP	BACKUP Load Port
8	Button Switch	Button Switch
9	Battery -	Battery -
10	Battery +	Battery +
11	WIFI	WIFI
12	Relief Valve	Balance the external and internal pressure
13	LED	Display the operation status of Hybrid Inverter
14	Front Cover	Front Cover
15	Mounting Bracket	Mounting Bracket
16	Heat Sink	For Hybrid Inverter Cooling

3.3.2 Dimension Introduction



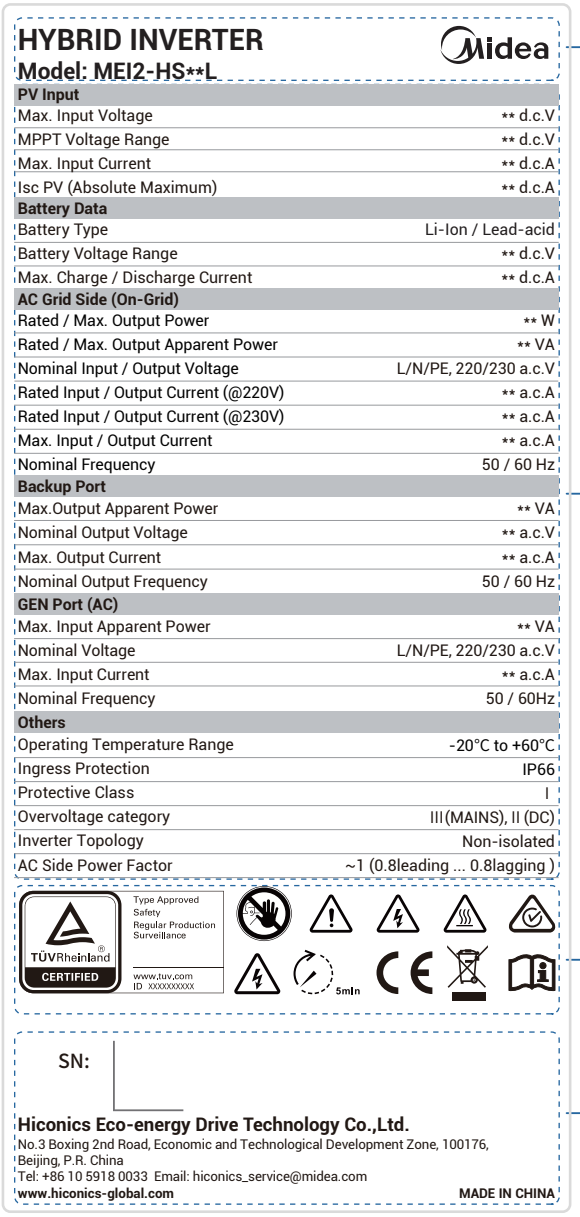
3.3.3 Indicator Description

LED indicator		Meaning
DC	Green Light On	PV port voltage connection is normal (125<PV Voltage<500V)
	Green Light Flashing	PV is connected, but PV voltage is abnormal (60V<PV Voltage<125V or PV Voltage>500V)
	Light Off	PV not connected (PV Voltage<60V)
AC	Green Light On	Grid port connection normal(grid is normal)
	Green Light Flashing	Grid connected, but with abnormal grid voltage or frequency (abnormal grid status and voltage > 36Vac)
	Light Off	Grid not connected (abnormal grid status and voltage <36Vac)
Normal	Green Light On	Inverter function is normal
	Green Light Flashing	Inverter function abnormal, off-grid port powered, in bypass state (1s interval blinking)
Alarm	Red Light On	System Fault

Description of firmware upgrade: LCD screen will show percentage of updating progress.

3.3.4 Nameplate Descriptions

*Nameplate is for reference only, please refer to the real thing.



HYBRID INVERTER

Model: MEI2-HSL**

PV Input	
Max. Input Voltage	** d.c.V
MPPT Voltage Range	** d.c.V
Max. Input Current	** d.c.A
Isc PV (Absolute Maximum)	** d.c.A
Battery Data	
Battery Type	Li-Ion / Lead-acid
Battery Voltage Range	** d.c.V
Max. Charge / Discharge Current	** d.c.A
AC Grid Side (On-Grid)	
Rated / Max. Output Power	** W
Rated / Max. Output Apparent Power	** VA
Nominal Input / Output Voltage	L/N/PE, 220/230 a.c.V
Rated Input / Output Current (@220V)	** a.c.A
Rated Input / Output Current (@230V)	** a.c.A
Max. Input / Output Current	** a.c.A
Nominal Frequency	50 / 60 Hz
Backup Port	
Max.Output Apparent Power	** VA
Nominal Output Voltage	** a.c.V
Max. Output Current	** a.c.A
Nominal Output Frequency	50 / 60 Hz
GEN Port (AC)	
Max. Input Apparent Power	** VA
Nominal Voltage	L/N/PE, 220/230 a.c.V
Max. Input Current	** a.c.A
Nominal Frequency	50 / 60Hz
Others	
Operating Temperature Range	-20°C to +60°C
Ingress Protection	IP66
Protective Class	I
Overvoltage category	III(MAINS), II (DC)
Inverter Topology	Non-isolated
AC Side Power Factor	~1 (0.8leading ... 0.8lagging)

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www.hiconics-global.com **MADE IN CHINA**

Trademarks,product types and models

Product Technical Parameters

Description of product safety symbols and certification marks

Serial number information, contact details

4 Equipment Installation

4.1 Packaging, Transportation, Storage

- The system cabinet is packed in cardboard packaging and the internal PE packaging bag is moisture-proof and waterproof.
- Use EPE pearl cotton foam pad in the middle to prevent damage to the system during handling and transportation.
- Transportation must comply with UN3481's dangerous goods transportation and local laws and regulations.
- The system is heavy and must use the mechanical handling.
- Transportation temperature: -10°C~ 40°C.
- The equipment and packaging cannot be sprayed, so it cannot be transported in the open air.
- Storage temperature:
    - -20 ° C ~ 35 ° C, 12months;
    - -20 ° C ~ 45 ° C, 3months;
    - -20 ° C ~ 55 ° C, 1month;
      (The SOC before storage is kept in the range of 30% to 60%)
- Storage humidity: 0%~100%RH（No condensation）
- The storage room should be kept ventilated, the room should be clean and dry, and it should be protected from dust and moisture.
- Storage room sunlight cannot be directly exposed to the system.



Notice

If the inverter needs to be used for a longer period of time, please store it in strict accordance with the following requirements to ensure the performance and safety of the equipment:

1. Package protection: keep the original package, please do not remove the outer box, make sure the desiccant inside the box is complete and not lost, prevent moisture and damage, check the package sealing to avoid moisture or foreign matter entering during storage.

2. Choose dust-free, non-corrosive and clean environment for storage, with suitable temperature and humidity and no condensation.

3. Stacking should be placed according to the direction indicated on the label of the box, inverted or sideways, the stacking height should not exceed the height limit indicated on the package, after stacking, make sure that there is no risk of tilting or falling, and if necessary, use straps for reinforcement.

4. If stored for a long period of time, the integrity of the package and the state of the storage environment should be checked every month, and the equipment should be checked and confirmed by professional personnel before it is put into operation before it is allowed to continue to be used.

4.2 Check Before Signing

When signing for the goods, please check the following carefully:

1. Packaging Inspection: Observe whether there are any signs of damage, deformation, open holes, cracks and other abnormalities in the packaging, if you find any damage, please do not unpack, contact the dealer immediately and provide photos or videos of the scene as proof.

2. Model Verification: Confirm whether the inverter model on the package is the same as the order, if the model does not match, please do not unpack, and contact the dealer directly to help deal with it.

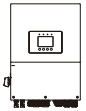
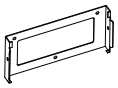
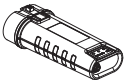
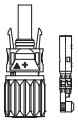
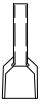
3. Deliverables Count and Appearance Check: Check whether the type and quantity of the delivered content (such as accessories, certificate of conformity, etc.) are consistent with the list, and check whether the appearance of all delivered parts is intact, without scratches, dents or other damages. If there is any problem, please keep the original packaging, contact the dealer and provide detailed description of the problem and evidence.

4.3 Pre-installation Inspection

Notice

Please be cautious about unpacking the battery, otherwise components could be damaged.

Before installation, please check the equipment list carefully, if there is any damage or missing, please contact the dealer in time, do not buy non-compliant spare parts for installation.

Inverter packing list				
				
1x Hybrid Inverter	3x M6*50	1x L-type Wrench	1x Cable	1x CT
				
1x Mounting Plate	1x WIFI Dongle	1x Ferrite Core	1x Temperature Sensor PT1000	2x PV Male Connector
				
2x PV Female Connector	4x OT Terminal	1x Certificate	1x Quick Guide	10x AWG24 Wire Terminal
	 or 			
AWG10 Wire Terminal (3-4kW: 6PCS 4.6-6kW: 7PCS)	4x AWG8 Wire Terminal (4.6-6kW)	5x AWG12 Wire Terminal (3-4kW)		

4.4 Installation Requirements

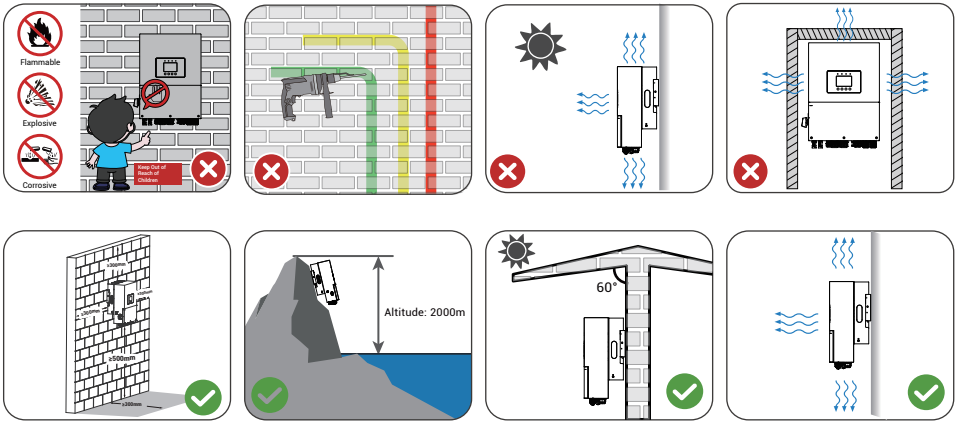
Installation Precaution

MEI2 series is designed for outdoor installation (IP 66). Make sure the installation site meets the following conditions:

- Not in direct sunlight.
- Not in areas where highly flammable materials are stored.
- Not in potential explosive areas.
- Not in the cool air directly.
- Not near the television antenna or antenna cable.
- Not higher than altitude of about 2000m above sea level.
- Not in environment of precipitation or humidity.
- Under good ventilation condition.
- The ambient temperature in the range of -20°C to +60°C.
- The wall hanging the inverter should meet conditions below:
    1. Solid brick/concrete, or strength equivalent mounting surface;
    2. Inverter must be supported or strengthened if the wall's strength isn't enough.

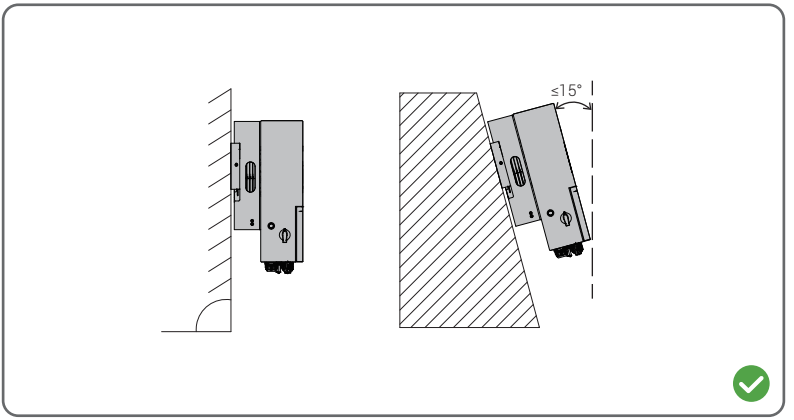
    (Such as wooden wall, the wall covered by thick layer of decoration.)

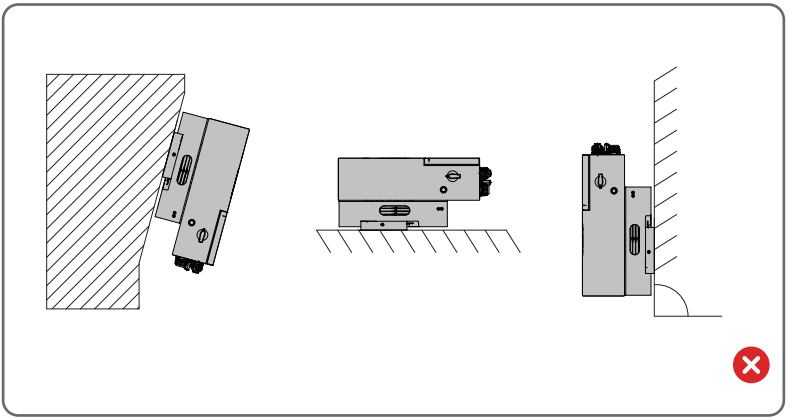
Physical environment: The product design meets IP66 standards, it can be installed indoors or outdoors, ensuring stability and reliability.



4.4.1 Mounting Angle Requirements

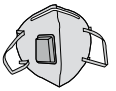
- Recommended inverter installation angle: vertical or tilted back ≤ 15°.
- Do not install the inverter upside down, tilted forward, tilted back beyond the angle, or horizontally.
- Please install this inverter at eye level to ensure that the LCD display can be read at all times.

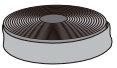
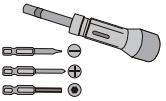
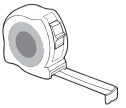




4.4.2 Installation Tool Requirements

For installation, the following installation tools are recommended. If necessary, other auxiliary tools can be used on site.

Personal Protective Equipment			
 Safety Gloves	 Safety Goggles	 Dust masks	 Safety shoes

Installation tools			
 Impact Drill (Φ10mm drill)	 Torque Socket Wrench	 Marker Pen	 Vacuum Cleaner
 Heat Shrink Tube	 Torque Screwdriver	 Steel Tape	 Level Ruler
 Electric Batch (with M6 socket)	 Multimeter	 Rubber Mallet	 Wire Stripper
 Wire Cutting Pliers	 Crimping Pliers (for PV terminals)	 Art Knife	 PV Plug Unlocking Tool
 Hex key: 27mm; 34mm	 Cable Ties	 Hot Air Gun	

4.5 Installation Steps and Precautions

4.5.1 Handling Inverters



Caution

Before installation, you need to carry the inverter to the installation place, please pay attention to the following matters in order to avoid personnel injury or equipment damage during the carrying process:

1. According to the weight of the inverter, please allocate enough staff to carry the inverter. Ensure that the equipment is balanced and not tilted during the process to avoid the equipment tipping over and injuring the personnel;
2. Wear gloves during handling to avoid injury during handling;
3. The equipment should be held and put down gently during the process, and the equipment should not be placed directly on the ground.

When placing the equipment, make sure the socket is not in direct contact with the ground to prevent damage to the interface.

4.5.2 Installation of the Inverter

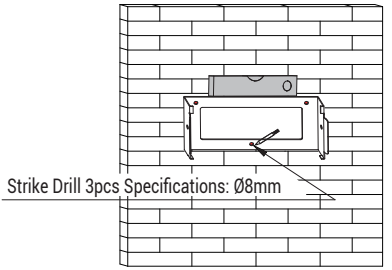


Notice

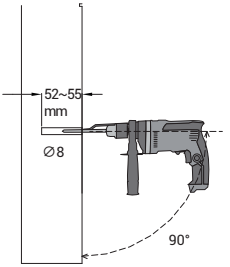
- When installing, make sure the wall has enough load bearing and the wall surface is flat.
- When installing, avoid all kinds of pipes and cables inside the wall to avoid any injury or danger caused by piercing the pipes and cables. The operator must wear a dust mask and goggles.

Step 1: Place the backplane horizontally on the wall or bracket, and use a marker to mark the location of the hole;
Step 2: Use an impact drill with a drill bit diameter of 8mm to make holes, ensuring that the hole depth is about 52mm;
Step 3: Place the backplane on the hole, and fix it to the wall or bracket using the expansion screws M6*50mm;
Step 4: Mount the inverter on the backplane, and use the M4*10 screws on both sides of the backplane bracket fastening.

Step1



Step2

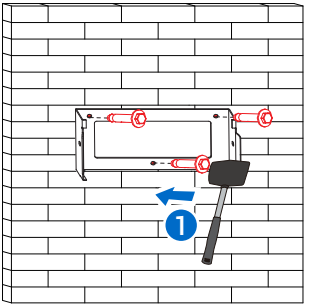


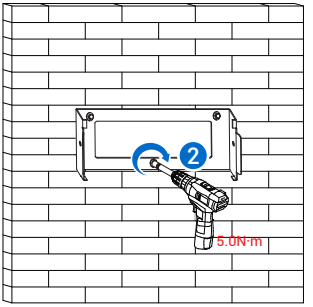
Drilling depth:52~55mm


Level


Ø8mm

Step3

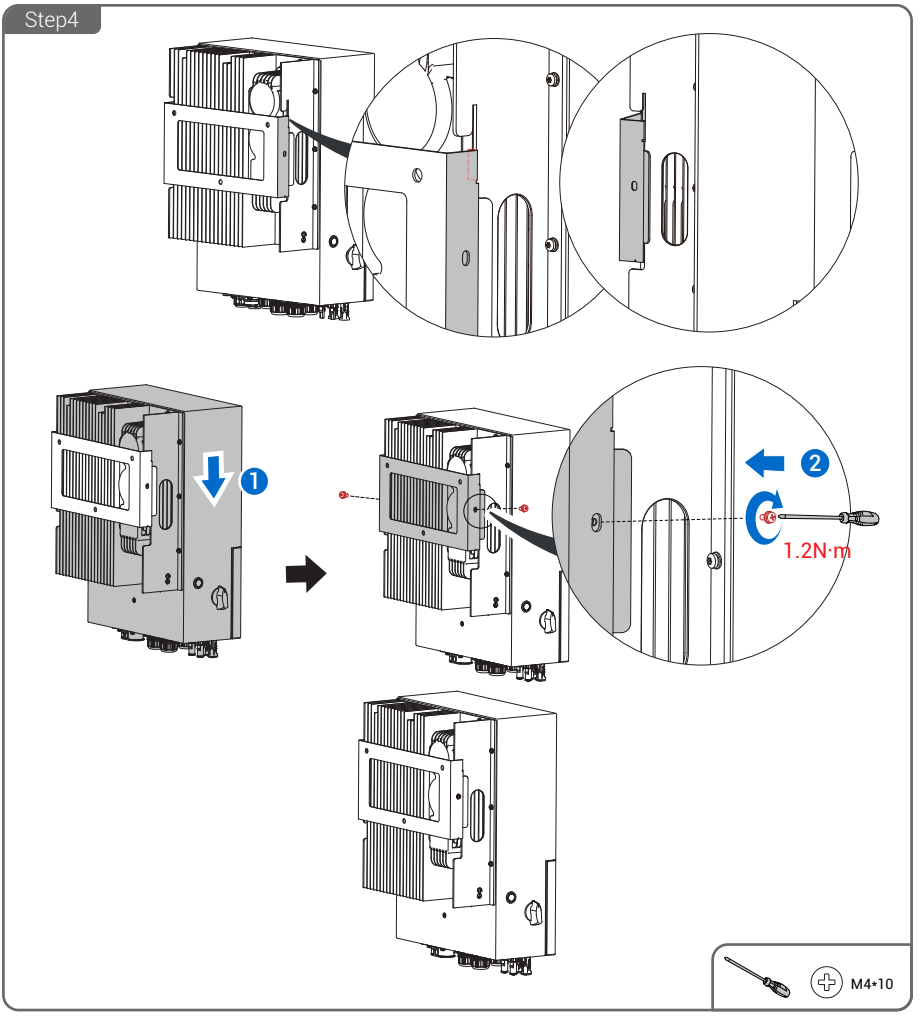





M6*50


10mm

Step4



5 Electrical Connections

5.1 Safety Precautions



Danger!

- Before electrical wiring, disconnect the DC isolation switch and AC output protection switch of the inverter to ensure that the DC and AC sides of the equipment are disconnected. It is prohibited to operate with electricity, which may lead to electric shock and endanger personal safety.
- All operations, cables and components used in the electrical connection process must comply with local laws and regulations.
- When connecting the cables, reserve a certain length of cable before connecting to the inverter connector; if a certain length is not reserved, the cable may be subjected to a large tensile force, resulting in a poor connection.



Notice

- Before making electrical connections, wear protective equipment such as helmets, safety shoes, insulated gloves, etc. as required.
- Only specialised technicians are allowed to carry out electrical installation and related operations.
- Cable sizes are subject to local regulations and the cable colours shown in the brochure are for reference only.

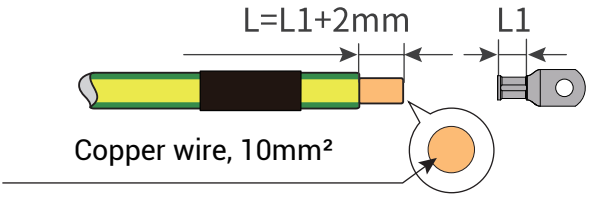
5.2 Protection Ground Wiring Connection



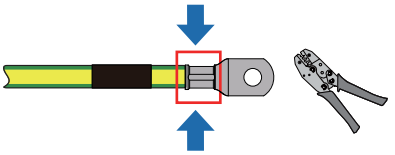
Warning!

- The system ground of the AC output connector of the inverter and the protective ground of the chassis case must be connected reliably, and it is forbidden to connect only one of them;
- When more than one inverter is installed, make sure that all inverters are grounded reliably;
- After the installation of the protective earth wire, it is advisable to paint the outside of the earth terminal to improve the corrosion resistance of the terminal;
- Please provide your own protective earth wire for installation.
Recommended specifications :
Type: Outdoor single-core copper wire;
Conductor cross section: 10mm².

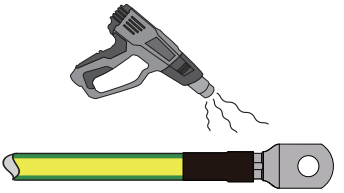
1



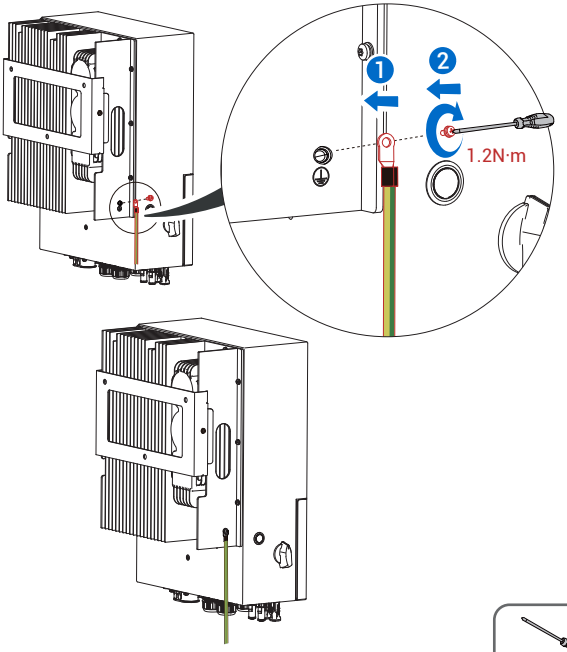
2



3



4





5.3 PV DC Input Connection



Danger!

• Before connecting the PV string to the PV DC input connector of the inverter, please make sure that the following conditions are met. Failure to meet these conditions may result in damage to the inverter, which may seriously endanger the safety of people and property.

1. Please ensure that the maximum operating current, short circuit current and maximum input voltage of MPPT to be connected to each string are within the allowable operating range of the inverter;

2. Please make sure that PV+ and PV- are wired in the correct order in the PV string, the positive pole of the corresponding PV string is connected to the PV+ connector of the inverter, and the negative pole of the PV string is connected to the PV- connector of the inverter;

3. It is recommended not to disconnect the DC PV switch under load. The machine should be shut down first, and then the switch should be disconnected;

4. It is recommended that the voltage difference between the two MPPTs be less than 250V.



Warning!

• PV modules of different manufacturers and models should not be connected in the same MPPT, or PV modules with different tilting and azimuth angles should be strung in the same PV string, which will lead to a reduction in the power generation efficiency of the PV system;

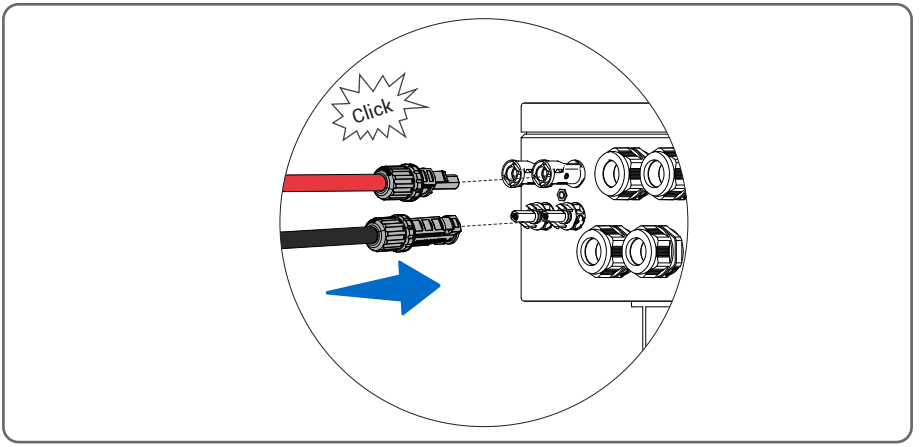
• The maximum open circuit voltage of each PV string should not exceed 500V;

• Please use the PV DC connectors in the inverter accessory kit. Using connectors of different manufacturers and specifications may lead to risky use of the equipment, and the damage caused by the equipment is not covered by the warranty;

• Before connecting the PV string to the PV input side of the inverter, please ensure that the minimum insulation resistance of the PV string meets the minimum insulation impedance requirement.

• Please provide your own PV DC cable for installation.

Recommended specifications:
Type: Outdoor PV cable that meets the maximum inverter input voltage and string short circuit current;
Conductor cross section: 4-6mm².



Notice

If there is no PV string wiring connect to the inverter PV input connector, please use the attached waterproof cover for the PV connector to block it, so as to avoid affecting the IP waterproof rating of the device and causing damage to the device.

PV DC Input Wire Terminal Installation Steps:

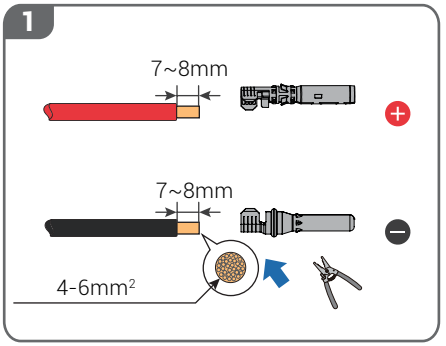
Step 1: Prepare DC cable that meets the requirements;

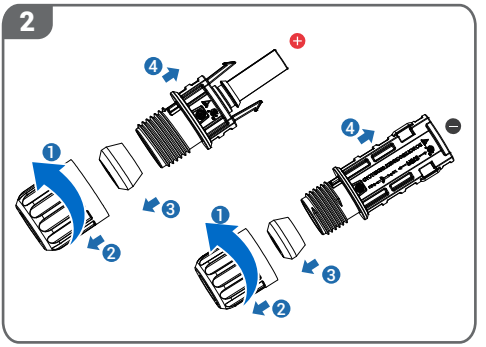
Step 2: Crimp the PV DC input terminal;

Step 3: Detach the PV DC connector;

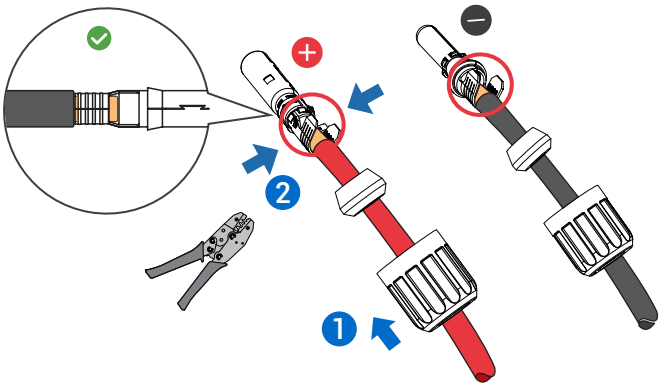
Step 4: Make a DC cable and check the input voltage using a multimeter;

Step 5: Connect the DC connector of the string line end to the inverter PV DC input connector.

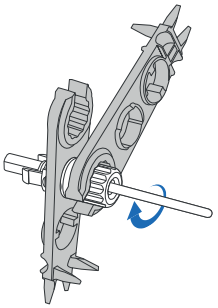




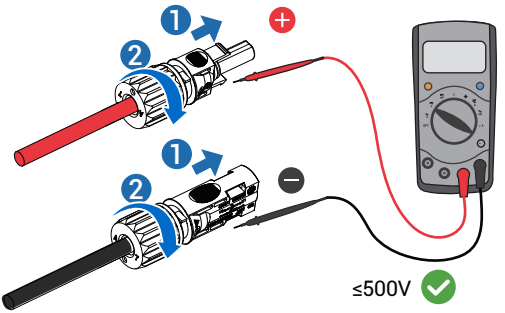
3



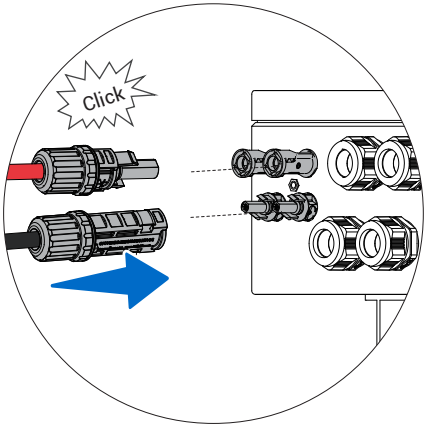
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5



6



5.4 AC Output Connection

Caution

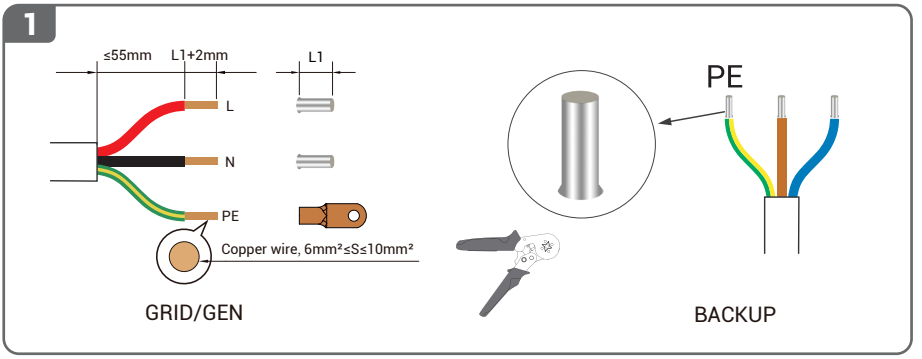
- It is strictly forbidden to connect the load without going through the AC protection switch of the inverter (i.e. between the inverter and the AC protection switch).
- The inverter is equipped with a residual current detection function. When the inverter detects a leakage current greater than the threshold value, it will immediately disconnect from the grid for protection.
- To ensure that there is a clear disconnection point between the inverter and the grid in the event of an inverter fault, an AC protective switch is connected to the AC output side of the inverter, and the corresponding protective switch is selected according to local regulations.
- Multiple inverters should be equipped with their own AC protection switches and should not be shared.
- There are "L" "N" "PE", Symbols marked inside the connector, the Live wire of grid must be connected to "L" terminal; the Neutral wire of grid must be connected to "N" terminal; the Earth of grid must be connect to "PE".

Step 1: Crimp the AC output cable tube terminals;

Step 2: Disassemble the AC connector and tighten the screws;

Step 3: Secure the AC output cable to the AC connector and tighten the screws;

Step 4: Secure the connector external waterproof cover to the inverter AC connector port..

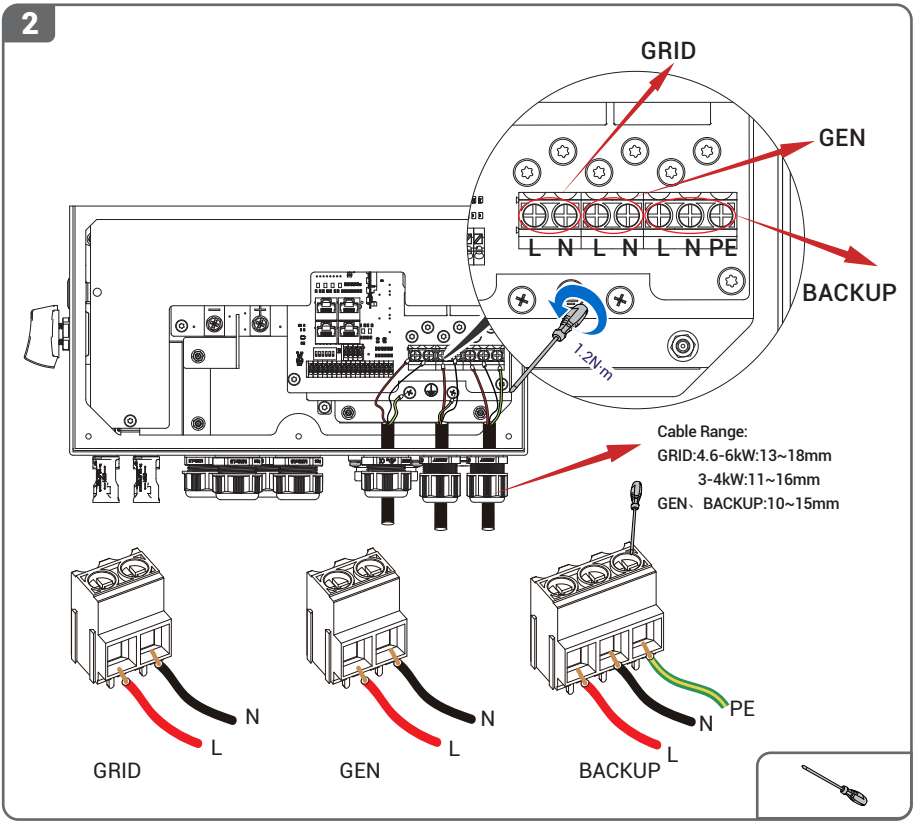


Inverter Model	GRID Connector			GEN Connector			BACKUP Connector		
	Cable		Torque value	Cable		Torque value	Cable		Torque value
MEI2-HS3L	6mm²	10AWG	1.2N·m	6mm²	10AWG	1.2N·m	4mm²	12AWG	1.2N·m
MEI2-HS3.6L	6mm²	10AWG		6mm²	10AWG		4mm²	12AWG	
MEI2-HS4L	10mm²	8AWG		6mm²	10AWG		6mm²	10AWG	
MEI2-HS4.6L	10mm²	8AWG		6mm²	10AWG		6mm²	10AWG	
MEI2-HS5L	10mm²	8AWG		6mm²	10AWG		6mm²	10AWG	
MEI2-HS6L	10mm²	8AWG		6mm²	10AWG		6mm²	10AWG	
MEI2-HS5L2	10mm²	8AWG		6mm²	10AWG		6mm²	10AWG	



Warning!

- Ensure that the wire core is connected to the AC output connector terminal hole without any exposure;
- Ensure that the cables are reliably connected to the AC output connectors, otherwise there is a risk of damage to the inverter due to heat generation at the terminals.



Notice

1. Connect the GRID and GEN port PE cable first, then connect L, N cables.

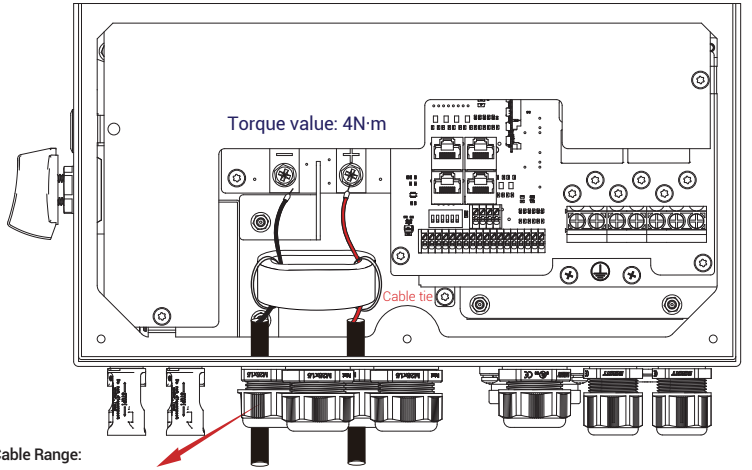
2. After the installation is completed, it is necessary to check whether the wiring sequence is correct, whether the wiring is solid, and remove the construction debris left at the site.

The AC output connector needs to be sealed to ensure the system protection level.

5.5 Battery Connection

Notice

1. Before installation, please select the appropriate size battery cable and the correct connector to ensure a good fit to the battery terminals.
2. Ensure that the positive and negative terminals of the batteries and the inverter are correctly connected.



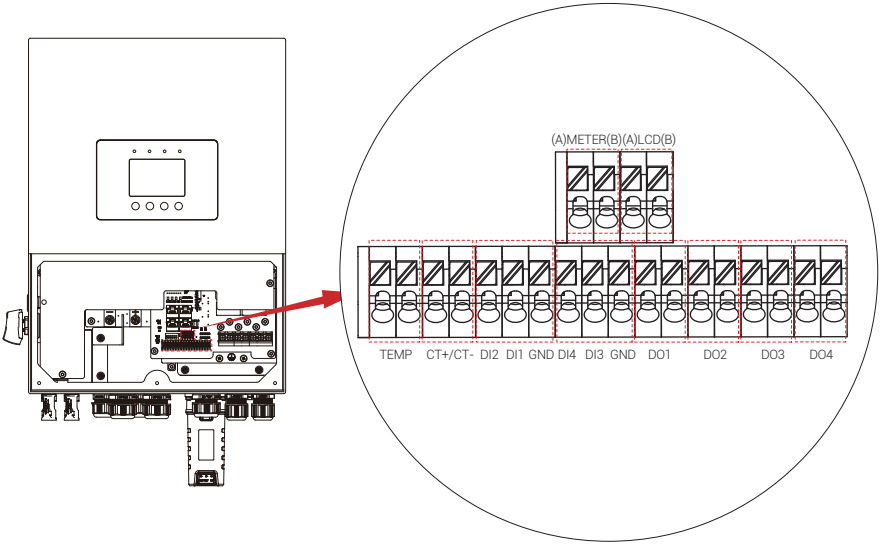
NOTE: The accessory magnetic ring needs to be assembled onto the battery input line, passing through with a single turn. It is recommended to secure it with a strap (as shown in the figure above).

10mm

Inverter Model	BAT Connector		
	Cable		Torque value
MEI2-HS3L	16mm²	6AWG	4N·m
MEI2-HS3.6L	25mm²	4AWG	
MEI2-HS4L	25mm²	4AWG	
MEI2-HS4.6L	35mm²	2AWG	
MEI2-HS5L	35mm²	2AWG	
MEI2-HS6L	35mm²	2AWG	
MEI2-HS5L2	35mm²	2AWG	

5.6 Hybrid Inverter Communication

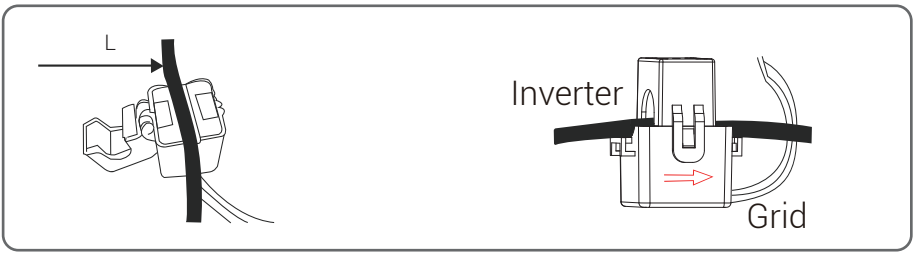
5.6.1 External Interface

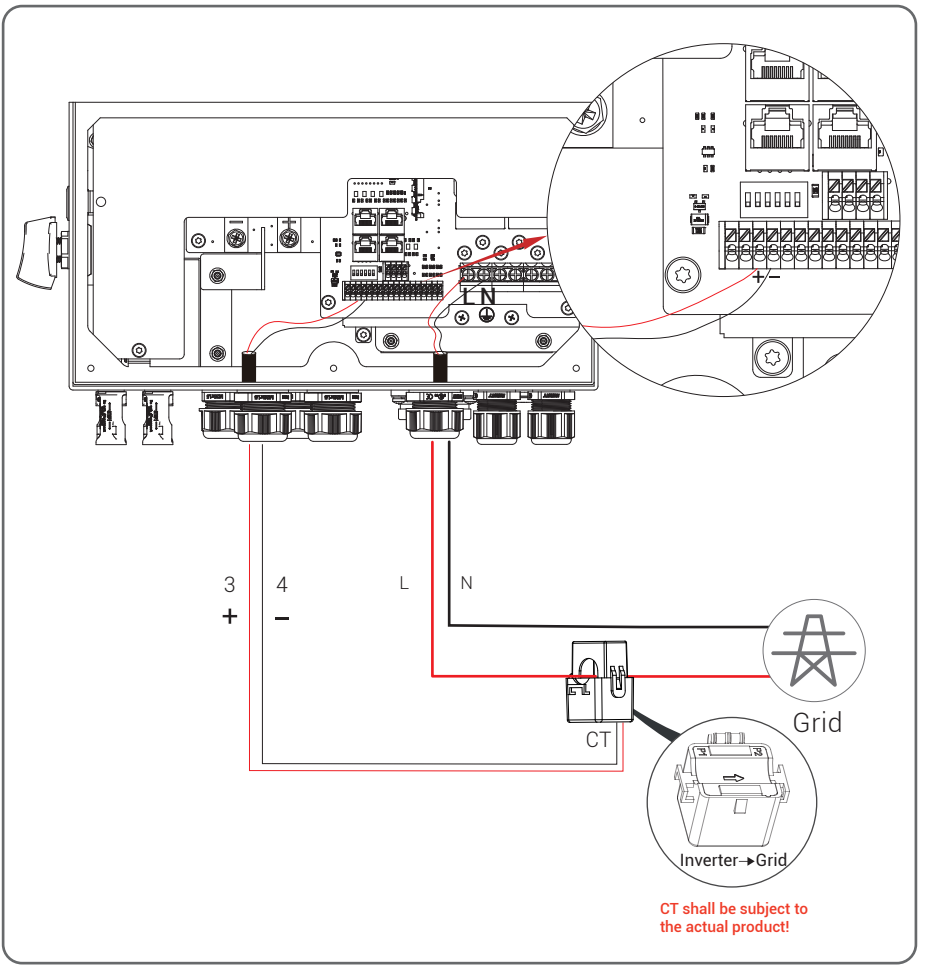


Interface	Function
METER	Energy Meter Communication Interface
LCD	Reserve Communication Interface
TEMP	Battery Temperature Sampling Interface
CT+/CT-	Current Sampling Interface
DI2	Reserved
DI1	Reserved
DI4	Diesel Generator ATS Status Feedback Interface
DI3	Reserved
DO1	Reserved
DO2	Reserved
DO3	Heat Pump Start/Stop Control Interface
DO4	Diesel Generator Start/Stop Control Interface

5.6.1.1 CT Connection

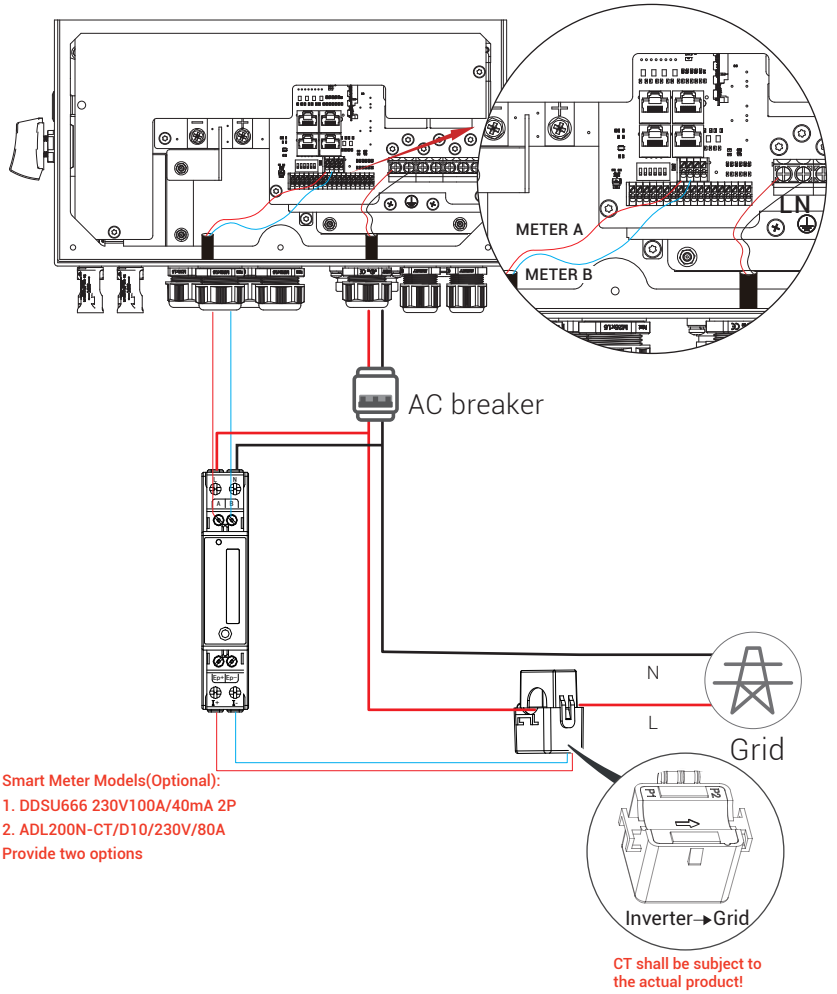
Open the external CT wiring port, the arrow points to the direction of the power grid, put the wire into the external CT card slot, and buckle the buckle.





5.6.1.2 Meter Connection

The electricity meter should be mounted and connected at the grid transition point (feed-in point) so that it can measure the grid reference and feed-in power.

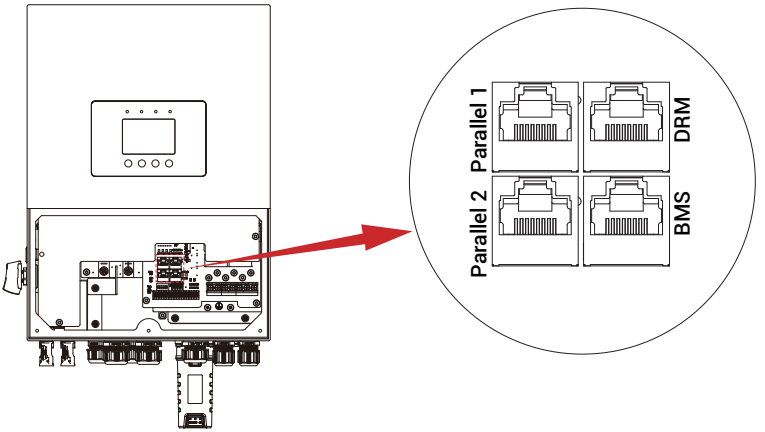


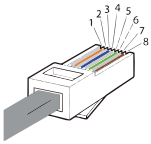
Notice

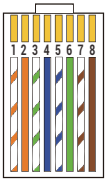
Note:

Make sure the grid main power and PV switch are turned off during the installation.

5.6.2 Communication Connection

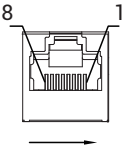






Color

1 White-orange
2 orange
3 white-green
4 blue
5 white-blue
6 green
7 white-brown
8 brown



Interface Description

5.6.2.1 Parallel 1/2 Interface

This interface is used to implement the inverter parallel function. The communication between parallel inverters is CAN.

Pin	Description	Pin	Description
1	Sys_LS	5	Sys_HS_B
2	GNDD_ISO	6	Para_CAN_L
3	Para_CAN_H	7	CAN0_H
4	Sys_HS_A	8	CAN0_L

5.6.2.2 DRM Interface (Optional)

This interface is a dry contact (only for Australia)

DRM means demand response enable device. The AS/NZS 4777.2:2020 required inverter need to support demand response mode (DRM). This function is for inverter that comply with AS/NZS 4777.2:2020 standard. Inverter is fully comply with all DRM. A RJ45 is used for DRM connection.

Pin	Description	Pin	Description
1	DRM1/5	5	REF
2	DRM2/6	6	DRM0
3	DRM3/7	7	5VD
4	DRM4/8	8	DGND

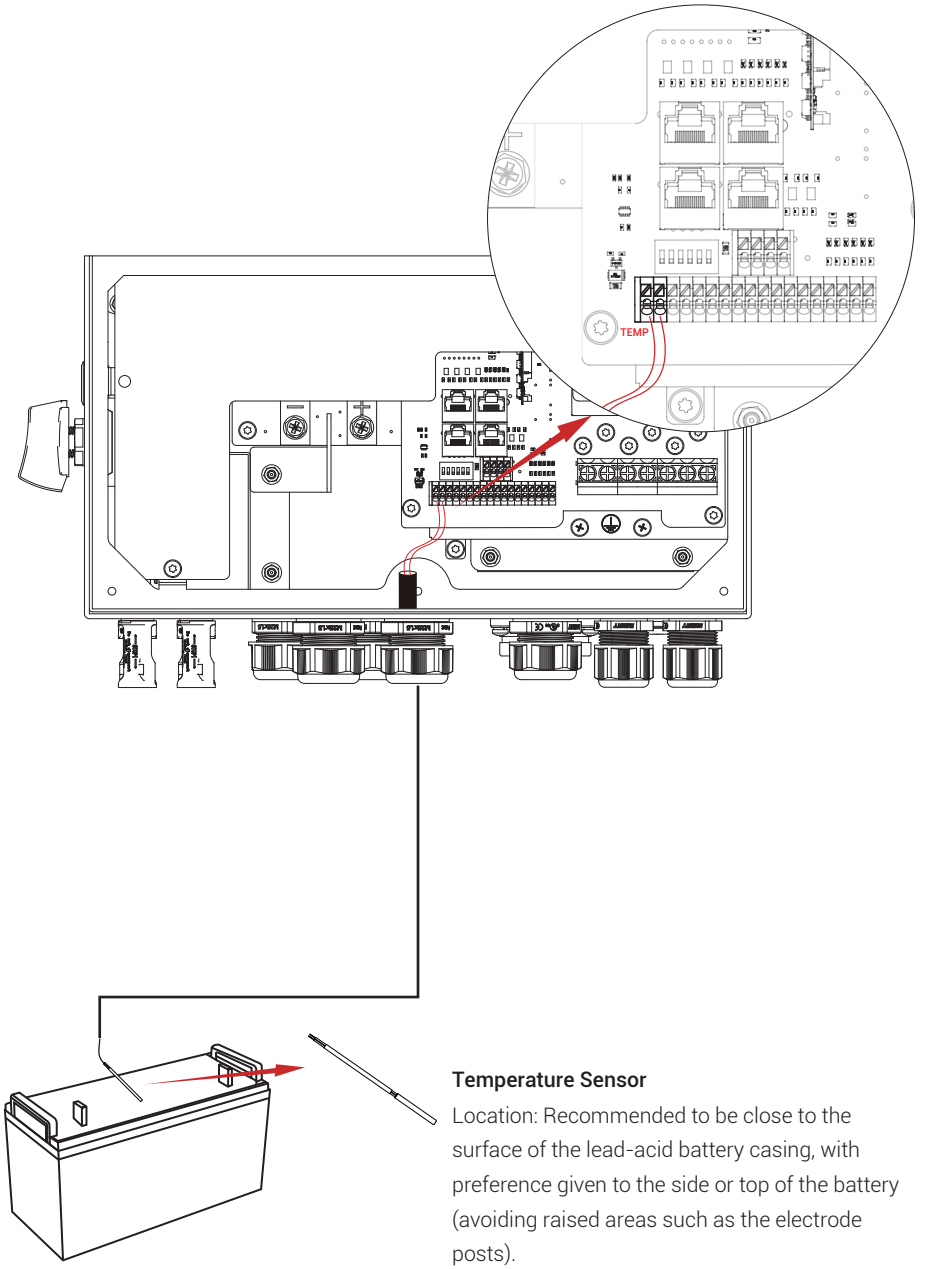
DEMAND RESPONSE MODES (DRMs)

Mode	Requirement
DRM 0	Operate the disconnection device
DRM 1	Do not consume power
DRM 2	Do not consume at more than 50% of rated power
DRM 3	Do not consume at more than 75% of rated power AND Source reactive power if capable
DRM 4	Increase power consumption (subject to constraints from other active DRMs)
DRM 5	Do not generate power
DRM 6	Do not generate at more than 50% of rated power
DRM 7	Do not generate at more than 75% of rated power AND Sink reactive power if capable
DRM 8	Increase power generation (subiect to constraints from other active DRMs)

5.6.2.3 BMS Interface

Pin	Description	Pin	Description
1	NA	5	CAN_L
2	NA	6	NA
3	NA	7	NA
4	CAN_H	8	NA

5.6.3 Temperature sensor connecon for lead-acid battery



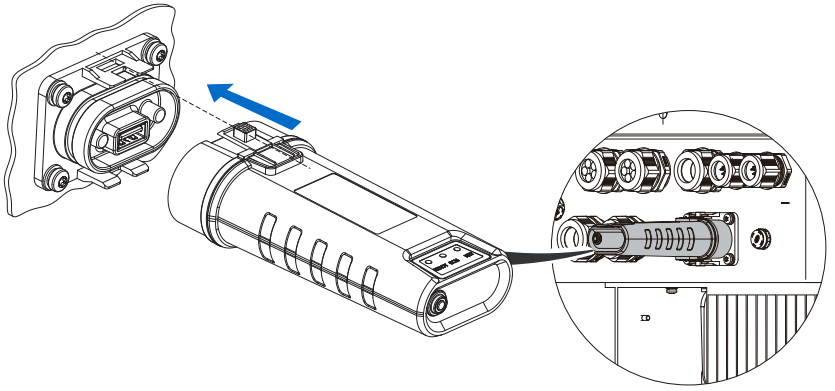
Temperature Sensor

Location: Recommended to be close to the surface of the lead-acid battery casing, with preference given to the side or top of the battery (avoiding raised areas such as the electrode posts).

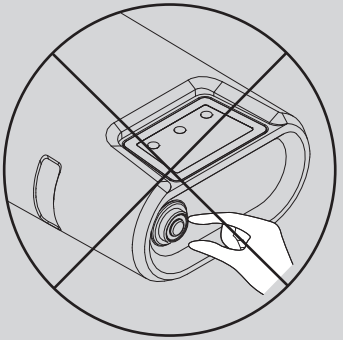
5.6.4 WiFi Module Connection

Plug the WiFi module into the corresponding port;

You can connect to mobile phone or WEB interface through 4G/WIFI communication module to set relevant parameters, view operation information and understand the working status of the system.



Warning!
Do not remove the SETTING soft rubber button on the from the dongle body.



Notice

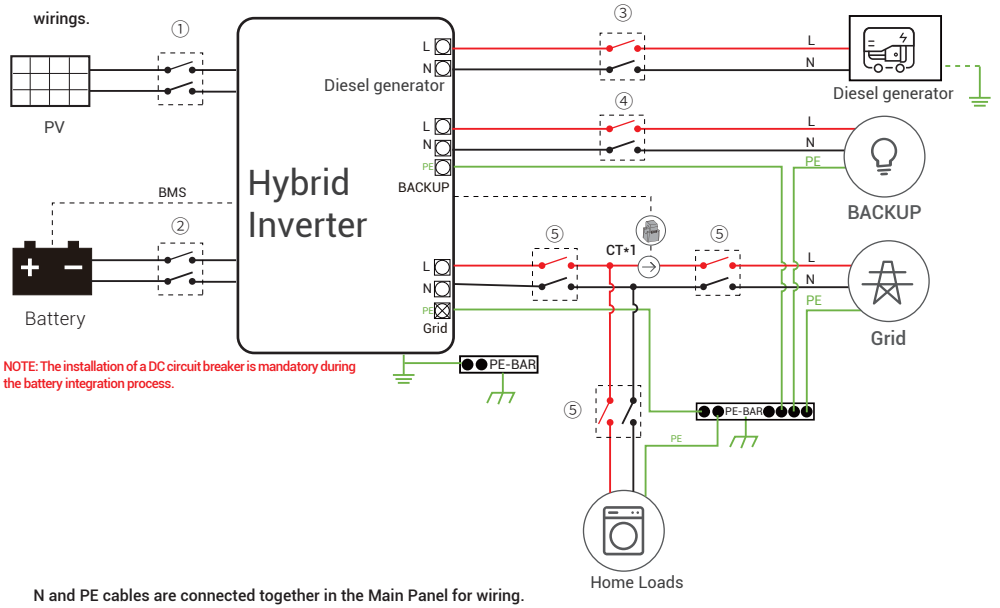
Please refer to the corresponding distribution information for the communication module introduction, and get more information from the official website.

5.7 Hybrid Inverter Wiring

N and PE cables in the Main Panel shall be wired separately.

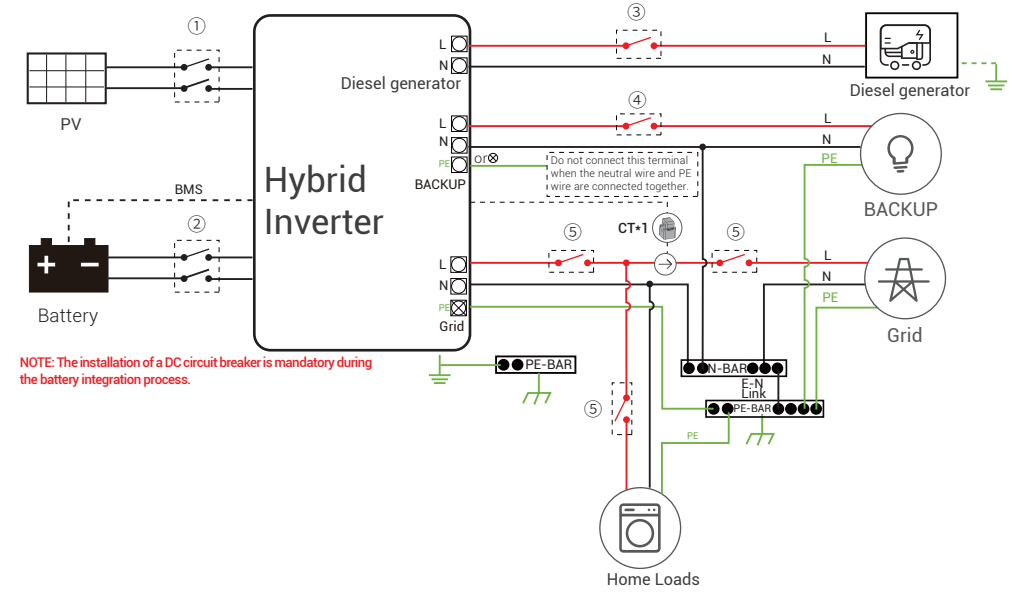
NOTE: Ensure that the grounding of BACK-UP is correctly and tightened. Otherwise, the BACK-UP function may be abnormal in case of grid failure.

Other areas except Australia, New Zealand, etc., are applicable to the following wirings.



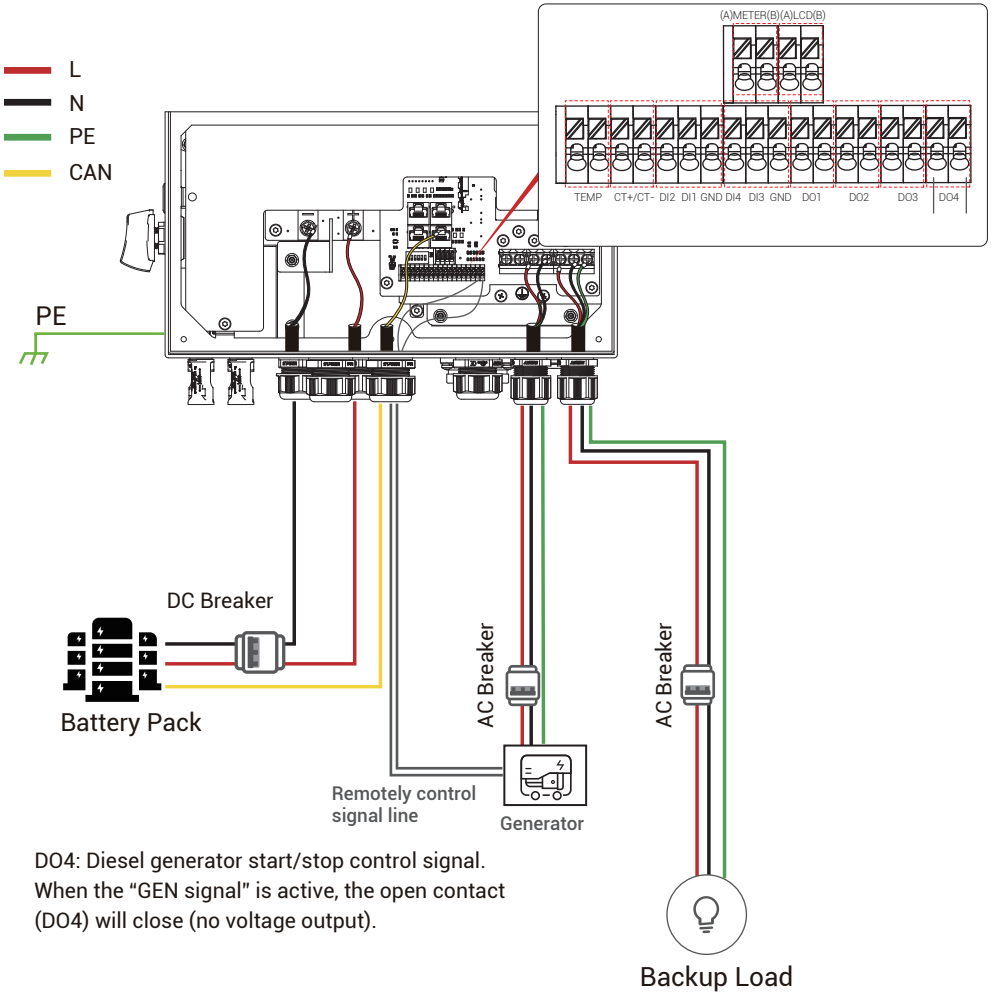
N and PE cables are connected together in the Main Panel for wiring.

NOTE: Below wirings are applicable to areas in Australia, New Zealand, and etc.



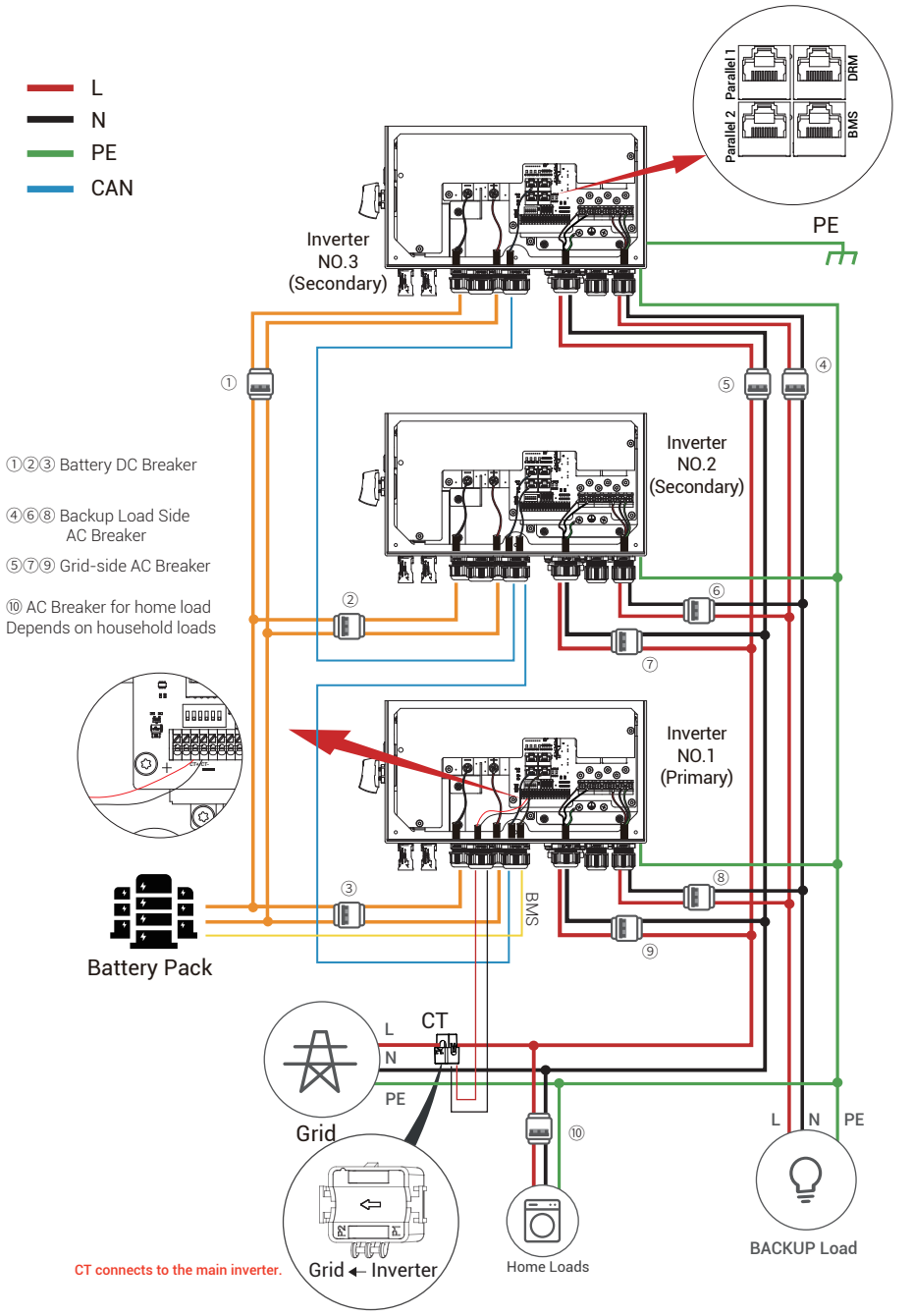
NO.	①	②	③	④	⑤
MEI2-HS3L	≥32A/≥500V DC Breaker	≥90A/≥60V DC Breaker	≥40A/≥230V AC Breaker	Specifications need to be determined based on actual usage load.	≥40A/≥230V AC Breaker
MEI2-HS3.6L		≥125A/≥60V DC Breaker			≥50A/≥230V AC Breaker
MEI2-HS4L					
MEI2-HS4.6L		≥160A/≥60V DC Breaker			≥63A/≥230V AC Breaker
MEI2-HS5L					
MEI2-HS6L		≥180A/≥60V DC Breaker			
MEI2-HS5L2		≥160A/≥60V DC Breaker			

5.8 Diesel Generator Application Examples



DO4: Diesel generator start/stop control signal. When the "GEN signal" is active, the open contact (DO4) will close (no voltage output).

5.9 Parallel Connection Diagram



6 LCD Introduction

6.1 Function Introduction

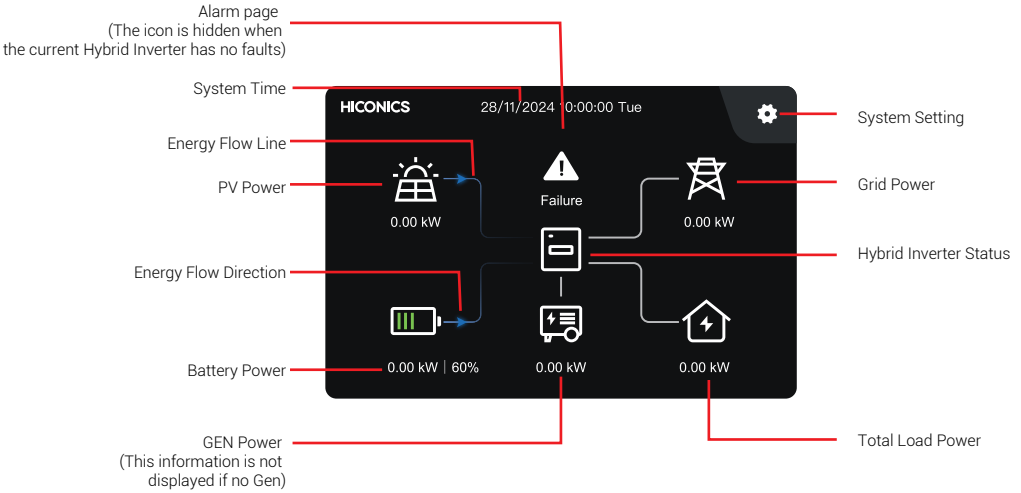
LCD function: for commissioning, maintenance and monitoring of System;



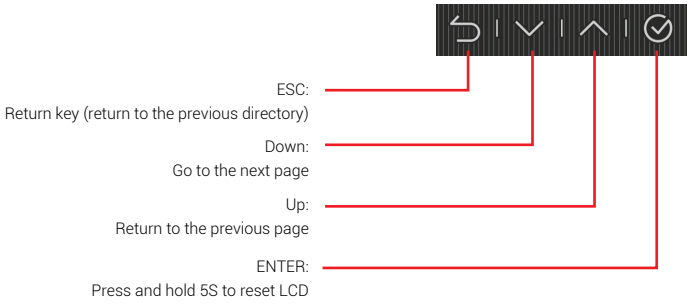
Main Screen

The LCD component consists of an LCD screen, a touch screen and a keypad. The LCD is used for display, the touch screen is used to receive the user's touch signals, and the keypad is used to receive the user's input signals.

6.1.1 Description of Screen Content

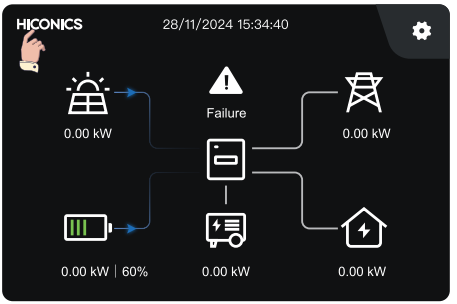


· A grey energy line indicates no energy, a blue energy line indicates energy; Arrows indicate the direction of the energy flow.



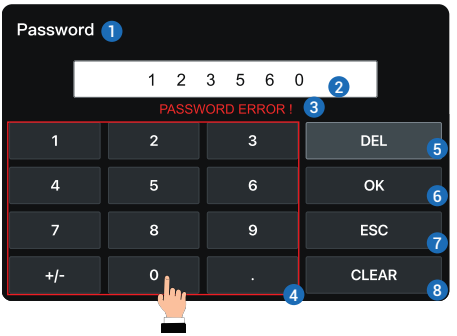
* There are some buttons on the page, click on these buttons page will go to the corresponding page, specific reference to the subsequent page instructions

* Click on the HICONICS logo to view Hybrid Inverter device information.



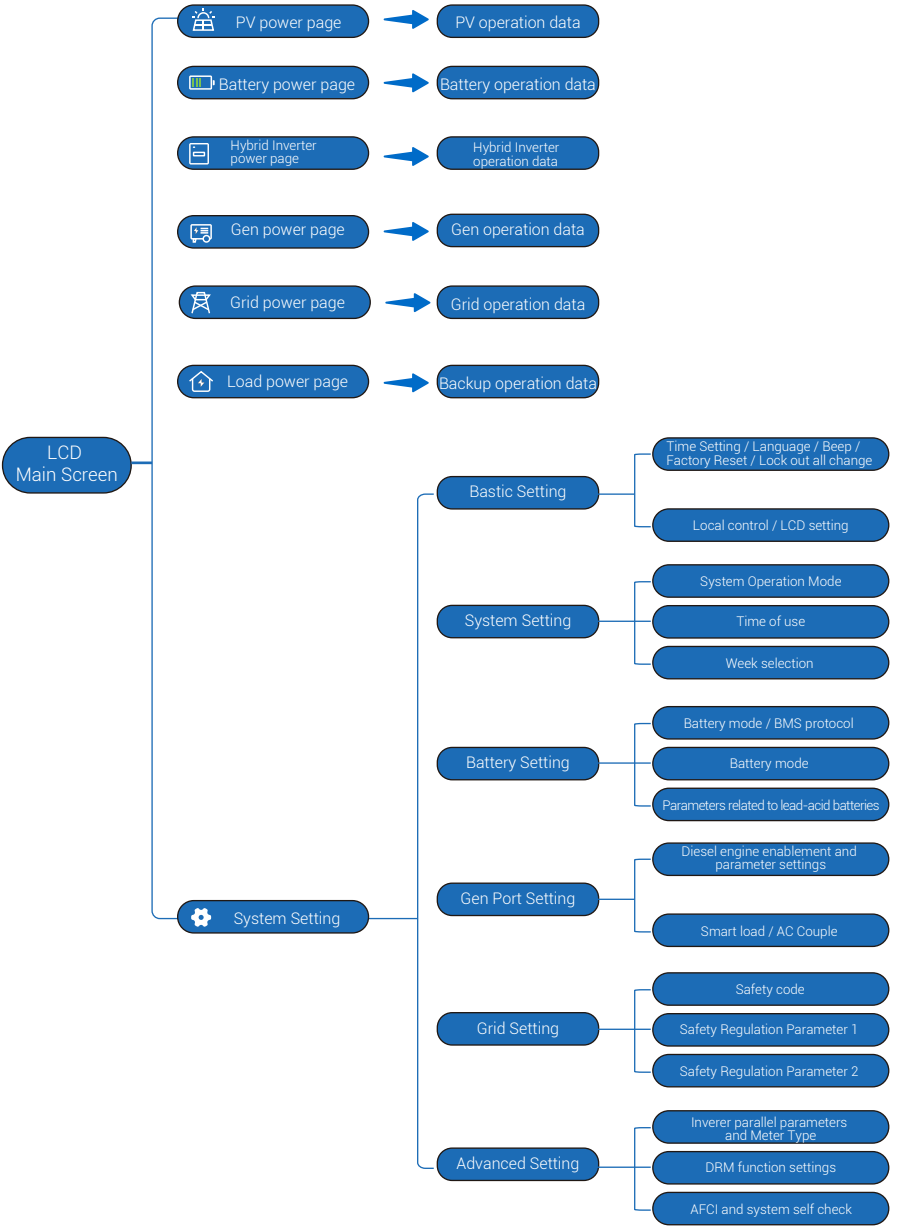


* User parameter input



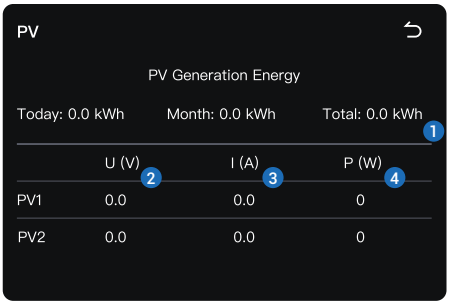
Set Up	Descriptions
①	Current Page Name;
②	The characters currently entered;
③	Tooltip: Indicates the maximum/minimum value range of the input box; Indicates whether the currently set number is successful;
④	Add the corresponding character to the text input box when a button is clicked;
⑤	Delete the current character;
⑥	After the user finishes inputting, click this button to send the current settings;
⑦	Cancel this parameter setting operation;
⑧	Clear all characters.

6.1.2 LCD Operation Flowchart



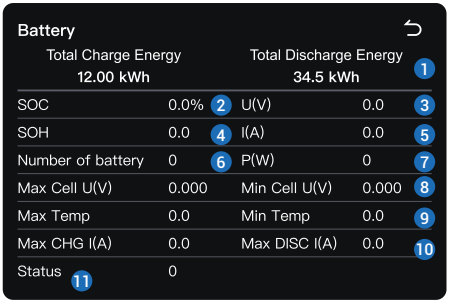
6.2 Introduction to LCD Statistical Interface

6.2.1 PV Operation Data



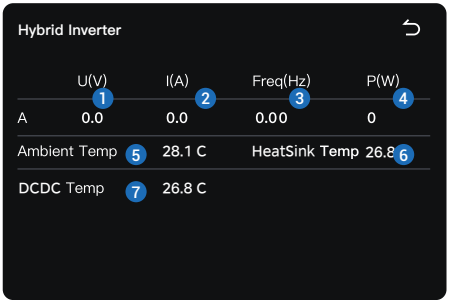
① PV daily power generation, PV monthly power generation, PV total power generation;
② PV Voltage;
③ PV Current;
④ PV Power.

6.2.2 Battery Operation Data



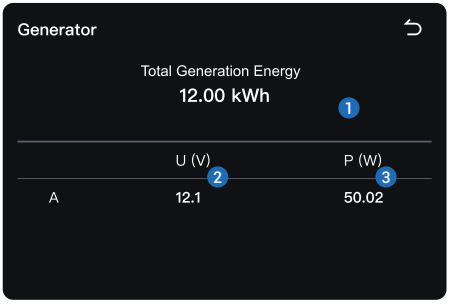
① Total Battery Charge/Discharge Energy;
② Battery State of Charge;
③ Battery Voltage;
④ Battery Health Status;
⑤ Battery Current;
⑥ Total Number of Clusters;
⑦ Power;
⑧ Maximum and Minimum CELL Voltage;
⑨ Maximum and Minimum CELL Temperature;
⑩ Maximum Charging and Discharging Current;
⑪ Operation Status: Battery Operation Status.

6.2.3 Hybrid Inverter Operation Data



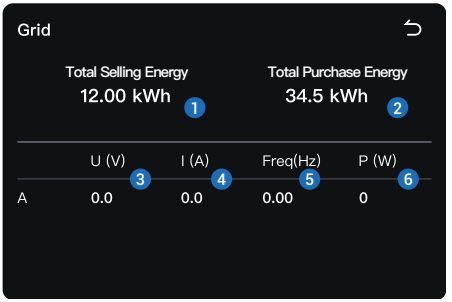
① Inverter Side Voltage;
② Inverter Side Current;
③ Inverter Side Frequency;
④ Inverter Side Power;
⑤ Environmental Temperature;
⑥ Radiator Temperature;
⑦ DCDC Temperature.

6.2.4 GEN Operation Data



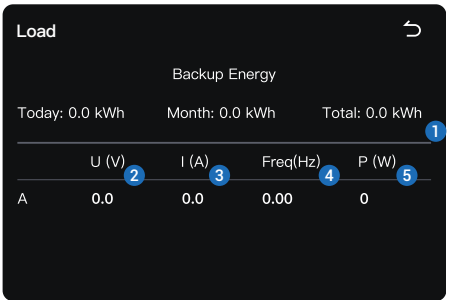
① Total Generation Energy;
② Generator Side Voltage;
③ Generator Side Power.

6.2.5 Grid Operation Data



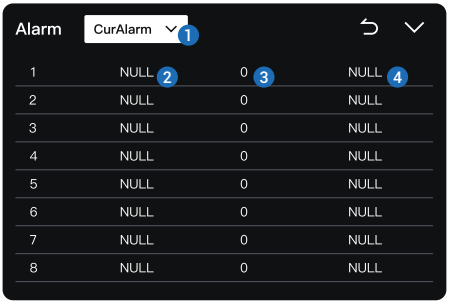
① Total Grid feed in Power;
② Total electricity consumption;
③ Grid-side Voltage;
④ Grid-side Current;
⑤ Grid-side Frequency;
⑥ Grid-side Power.

6.2.6 Backup Operation Data (The statistical interface of important loads)



① Daily Backup Consumption, Monthly Backup Consumption, Total Backup Consumption;
② Backup Side Voltage;
③ Backup side Current;
④ Backup Side Frequency;
⑤ Backup Side Power.

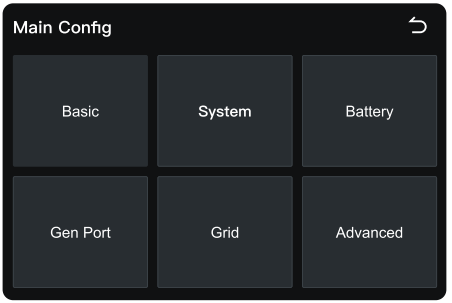
6.2.7 Alarm Information



① Alarm Selection: Current Alarm / Historical Alarm;
② Alarm Name;
③ Alarm Level: H: High; M: Middle; L: Low.
④ Alarm Time: Year, Month, Day / Hour, Minute and Second.

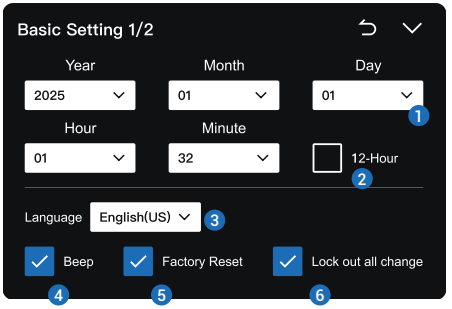
6.3 LCD System Configuration

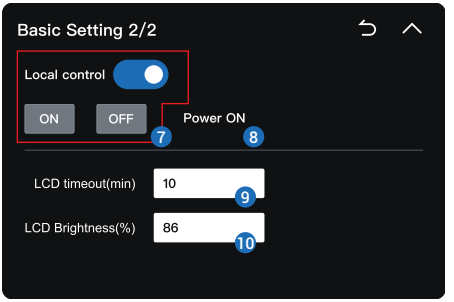
6.3.1 Configure navigation



Click ⚙ Enter the configuration navigation interface; if it is the first time to commission the inverter, the user needs to set the inverter time, meter or CT setting, grid standard, operation mode, battery type and protocol first.
If it involves parameter modification steps, you need to enter the Basic Setting interface to cancel "Lock out all change", and the password is 888888.

6.3.2 Basic Setting





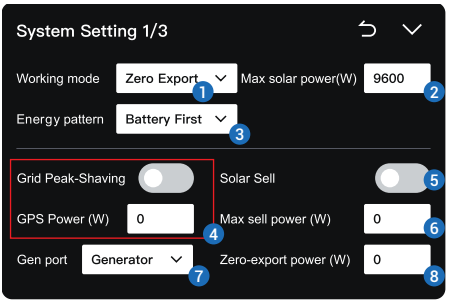
Set Up	Descriptions
①	Set RTC time: Set Year, Month, Day, Hour, and Minute;
②	Time display format： Selected: Display for 12-hour; Not Selected: Display for 24-hour;
③	Language Selection
④	Selected: The buzzer will sound after OTA upgrade successfully or inverter powered on;
⑤	Click on Restore Parameters to Factory Values, you need to provide a password, the password is 999999;
⑥	Selected： Lock all parameters to disallow modification; Enter the password 888888 to unlock;
⑦	You need to turn on this enable before the following on or off buttons will take effect; Click ON button: switch on; Click OFF button: switch off;
⑧	Hybrid Inverter Switching Status;
⑨	LCD Timeout Time: default 2 minutes; it will be locked automatically after the screen is automatically turned off;
⑩	LCD Brightness Setting: 10~100% adjustable, default 80% brightness.

Notice

①②is the configuration parameter of time class. You can manually configure the current time and time display format。(If the system time is available, the home page will be in system time.)

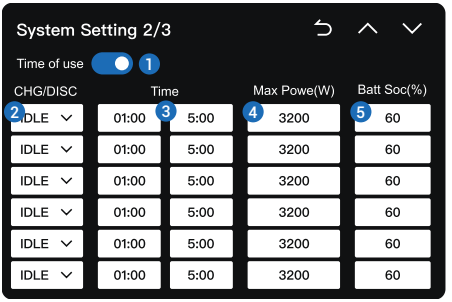
⑦⑧ is for the remote control function, and the device switching status display. Both belong to a class of functions. The switching machine setting is only the control action sent, and the response depends on the switching status.

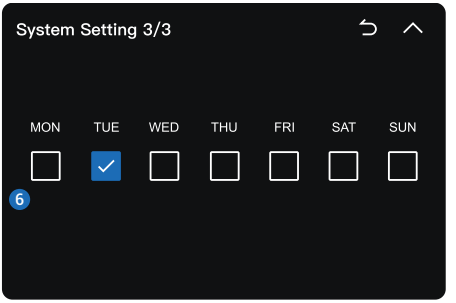
6.3.3 System Setting



Set Up	Descriptions
①	**Application Scenarios: Selling First Model, Zero Export Model;** **Selling First Mode:** In the selling first mode, the hybrid Inverer is allowed to sell excess energy to the grid. If the TOU function is activated, the battery power can also be sold to the grid. The PV energy will be used to power the load and charge the battery and then excess energy will flow to grid. Power source priority for the load is as follows: 1. Solar Panels; 2. Grid; 3. Batteries (until programable % discharge is reached). **Zero Export Mode:** The hybrid inverter can supply power to both normal and backup loads. When energy from the PV system and batteries is insufficient, the deficit is supplemented by the grid. In this mode, battery energy does not feed back into the grid. A meter or current transformer (CT) is required for operation and must be installed as outlined in Section 5.6.
②	**Max solar power:** The maximum DC power allowed for PV input by the inverter;
③	**Battery First:** PV power is firstly used to charge the battery and then used to power the load. If PV power is insufficient, grid will make supplement for battery and load simultaneously. **Load First:** PV power is firstly used to power the load and then used to charge the battery. If PV power is insufficient, grid will make supplement for battery and load simultaneously.
④	**Grid Peak-shaving：** when it is active, grid output power will be limited within the set value. If the load power exceeds the allowed value, it will take PV energy and battery as supplement. If still can't meet the load requirement, grid power will increase to meet the load needs.
⑤	**Solar Sell:** It is for Zero export mode: when this item is active, the surplus energy can be sold back to grid. When it is active, PV Power source priority usage is as follows: load consumption and charge battery and feed into grid .

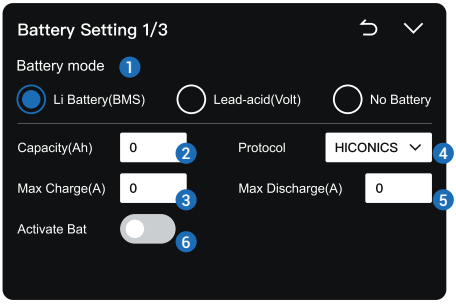
Set Up	Descriptions
⑥	**Maximum Selling Power:** Maximum power allowed to flow into the grid (meter/CT required);
⑦	**Gen port:** Gen port support Diesel generator / AC couple(Third party PV Inverter)/ smart load installation system you can select one of three options;
⑧	**Zero-export power:** for the maximum power sold is 0 or zero export mode, this value is the power taken from the grid, the default setting is 20w to ensure that the inverter output power will not flow into the grid.

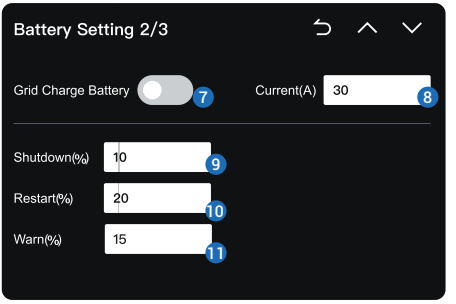




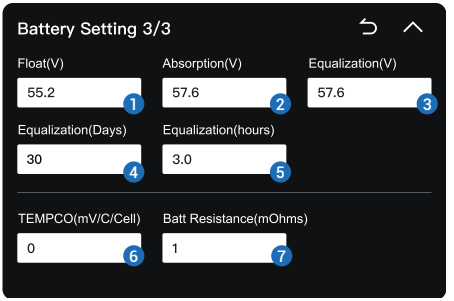
Set Up	Descriptions
①	**Time of use(TOU):** When the system is in grid-connected state, enabling TOU allows for charging and discharging settings for the battery in different time periods. If the system's RTC time is within a certain period and the setting is for discharging, if the battery's SOC is higher than the set SOC limit, the battery will discharge to the SOC limit; if the period is set for charging and the battery's SOC is lower than the set SOC limit, the battery will charge up to the SOC limit. **NOTE: In selling first mode, the current battery SOC is higher than the set SOC, and the battery can be discharged to the grid even during the charging time period.**
②	**Charge and Discharge Time Period Configuration :** Idle, Charge and Discharge Functions Selectable.
③	**Start and end times:**6 configured times need to cover 24 hours and be related to each other. Such as, for T1 end time period, the value range is [T1 start time period, T2 end time period]; after T1 start time period is modified, the start time period of T2 should be changed synchronously. **Example:** The first time slot is [1:00-5:00], the second time slot is [5:00-9:00] The end of the first period of time, and the beginning of the second period of time, can be modified in the range of [1:00-9:00] If the end time period of the first time period is changed to 6:00, the first time period is changed to [1:00-6:00], and the second time period need be changed to [6:00-9:00].
④	**Max Power:** If the time period is charging time period, it means the maximum charging power of the battery; if the time period is discharging time period, then here represents the maximum discharging power of the battery.
⑤	**Target SOC/ Voltage:** If it is configured as discharge time period, here is the minimum SOC/ voltage for discharge; if configured as charge time period, here is the maximum SOC/ voltage for charge. **Note: If the battery type is lithium battery, the configurable item here is SOC, otherwise it is voltage.**
⑥	**Day of the week selection:** Users can choose which day of the week they want to use the above TOU function from Monday to Sunday.

6.3.4 Battery Setting



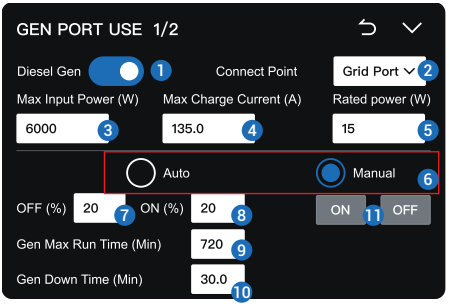


Set Up	Descriptions
①	Type of battery;
②	**Battery capacity:** the value depends on the actual battery capacity;
③	Set the maximum charging current of the battery;
④	This is BMS protocol. Please check with manufacturer for approved battery list;
⑤	Set the maximum discharge current of the battery;
⑥	**Activate Bat:** Hybrid Inverter timed activation wakes up the battery pack to avoid the battery over discharged;
⑦	**Charging from grid enable:** Default does not allow the grid to charge the battery, only configure to allow the grid to charge the battery;
⑧	Set the maximum charging current;
⑨	**Shutdown:** It indicates the inverter will shutdown if the SOC below this value.
⑩	**Restart:** Battery voltage at this value, inverter AC output will resume.
⑪	**Warn:** It indicates the inverter will alarm if the SOC below this value.

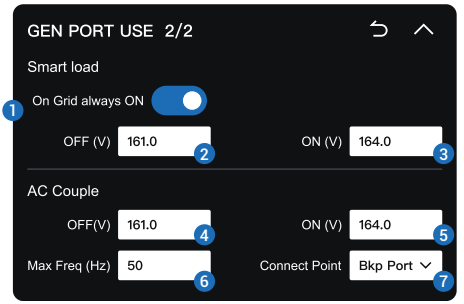


Set Up	Descriptions
①	Battery corresponding float voltage threshold;
②	The corresponding constant voltage charging voltage threshold of the battery;
③	The battery's corresponding homogeneous charging voltage threshold;
④	How many days between equalization of lead-acid batteries;
⑤	Lead-acid battery equalization time per charge;
⑥	Lead-acid battery float voltage can be affected by temperature, This configuration parameter is used to compensate for temperature-induced float voltage variations;
⑦	Installer-configured Hybrid Inverter and battery cable impedance values; used to compensate for the internal resistance of the line between the battery and the Hybrid Inverter port, the Calculates true battery-side port voltage.

6.3.5 GEN PORT USE

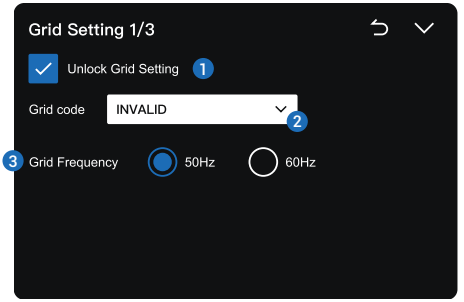


Set Up	Descriptions
①	Diesel generator function enable switch;
②	**Diesel connection port;** **NOTE:The correct access location needs to be configured here, otherwise it will affect the system operation.**
③	**Max Input Power:** Maximum permissible AC power of diesel generators;
④	Diesel generator, the maximum charging current allowed for the diesel generator ;
⑤	The rated power of diesel generator;
⑥	**Diesel generator mode:** Auto or Manual;
⑦	After the battery reaches this threshold, the diesel generator is stopped via the dry contact;
⑧	After the battery reaches this threshold, the diesel generator is activated via the dry contact;
⑨	Diesel generator maximum single operation time
⑩	Forced cooling time for diesel generators;
⑪	Through this interface, users can set the manual start or stop of the diesel generator.

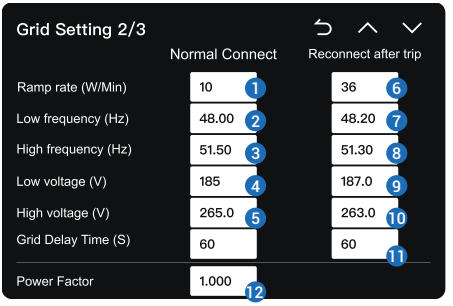


Set Up	Descriptions
①	When the switch is switched on, the smart load is always connected during grid connection without battery SOC or voltage constraints;
②	After the battery reaches this threshold, the smart load is cut off;
③	After the battery reaches this threshold, the smart load is reconnected;
④	After the battery reaches this threshold, Cut off the AC PV inverter;
⑤	After the battery reaches this threshold, reconnected the AC PV inverter;
⑥	Hybrid Inverter linearly reduces the AC inverter output frequency as it approaches the AC PV inverter disconnect threshold; when the inverter disconnect threshold is reached, the AC inverter output frequency needs to reach this configured frequency value to stop the AC output;
⑦	AC PV inverter access location: backup port, GEN port; **NOTE:The correct access location needs to be configured here, otherwise it will affect the system operation.**

6.3.6 Grid Setting



Set Up	Descriptions
①	Enter the Grid Configuration page, you need to enter the password, and the relevant off page is greyed out before it is cancelled; when you exit and come in again, you need to re-enter the password; the password is 555555;
②	Grid connection safety regulation settings;
③	Grid frequency setting.

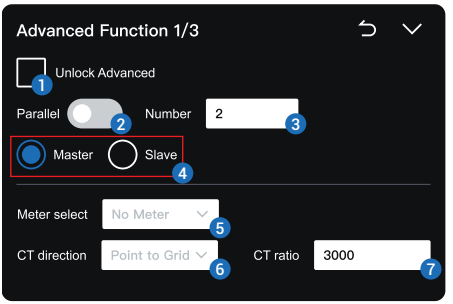


Set Up	Descriptions
①	Grid-connected power slope;
②	Lowest frequency of grid-connected;
③	Highest frequency of grid-connected;
④	Lowest Voltage of grid-connected;
⑤	Highest Voltage of grid-connected;
⑥	Reconnection power slope;
⑦	Lowest frequency of reconnection;
⑧	Highest frequency of reconnection;
⑨	Lowest voltage of reconnection;
⑩	Highest voltage of reconnection;
⑪	Time delay of grid reconnection ;
⑫	PF setting

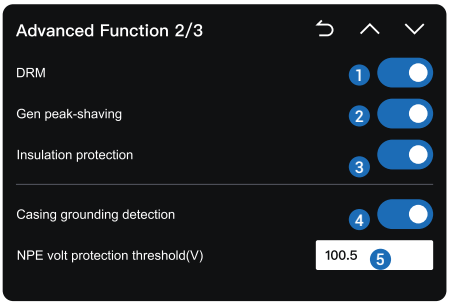


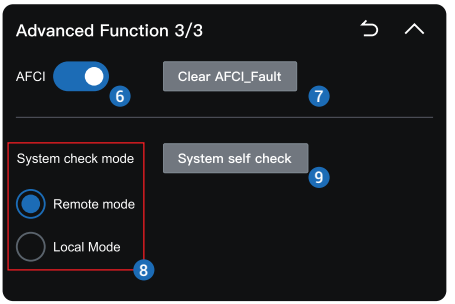
Set Up	Descriptions
①	Grid 10-minute overvoltage threshold;
②	Grid overvoltage threshold levels for levels 1 and level 2;
③	Grid overvoltage detection time or levels 1 and level 2;
④	Grid over frequency threshold levels for levels 1 and level 2;
⑤	Grid over frequency detection time or levels 1 and level 2;
⑥	Grid undervoltage threshold levels for levels 1 and level 2;
⑦	Grid undervoltage detection time or levels 1 and level 2;
⑧	Grid under frequency threshold levels for levels 1 and level 2;
⑨	Grid under frequency detection time or levels 1 and level 2;

6.3.7 Advanced Function



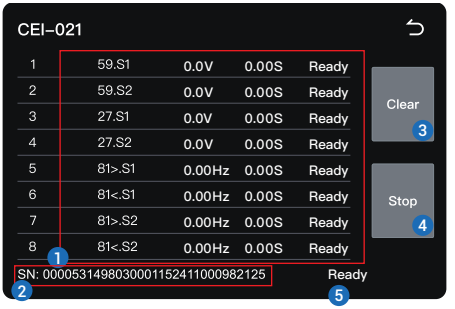
Set Up	Descriptions
①	**Unlock advanced parameters configurable with password 666666;** **NOTE: Every time you go to the advanced configuration page, you need to select here;**
②	Hybrid Inverter parallel switch, to be selected when the system is connected in parallel;
③	Number of parallel inverters;
④	Hybrid Inverter parallel master-slave configuration;
⑤	Feedback source selection;
⑥	Meter CT orientation: CT installation direction towards the grid;
⑦	CT Ratio.





Set Up	Descriptions
①	DRM enable
②	**Gen Peak Shaving switch:** Enable When the power of the generator exceeds the rated value of it, the inverter will provide the redundant part to ensure that the generator will not overload.
③	Insulation protection enable
④	Enclosure grounding test
⑤	NPE Voltage protection threshold
⑥	AFCI enable
⑦	AFCI fault clearance
⑧	System self-check mode Remote mode: 6 Local Mode: 8
⑨	Click this button to jump to the system self-check page.

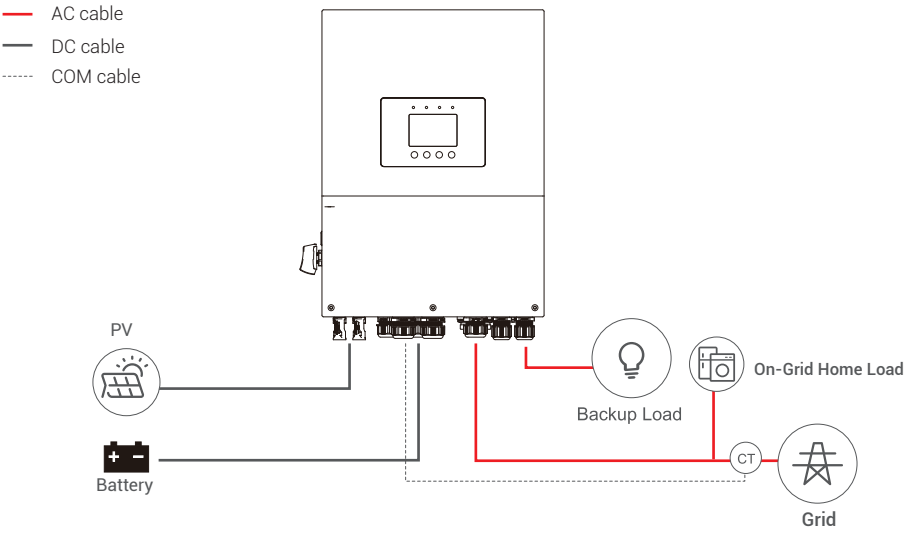
6.3.7.1 System Self-test Information (For Italy Only)



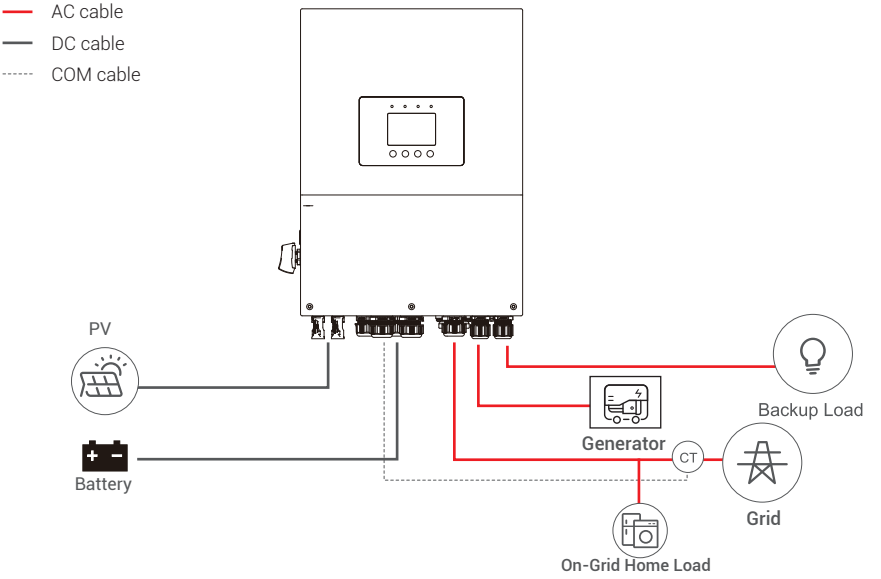
Set Up	Descriptions
①	System self-check result;
②	SN code;
③	Clear self-test data;
④	**Pause process:** Pause the self-test process with this button;
⑤	Self-inspection results (total);

6.4 Operation Mode

Mode I : Basic Mode

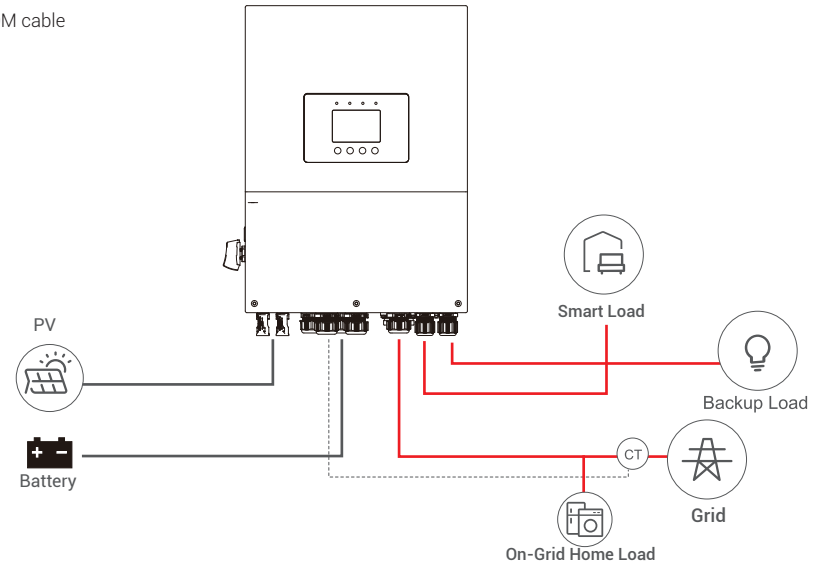


Mode II :Gen Mode



Mode III: With Smart-Load

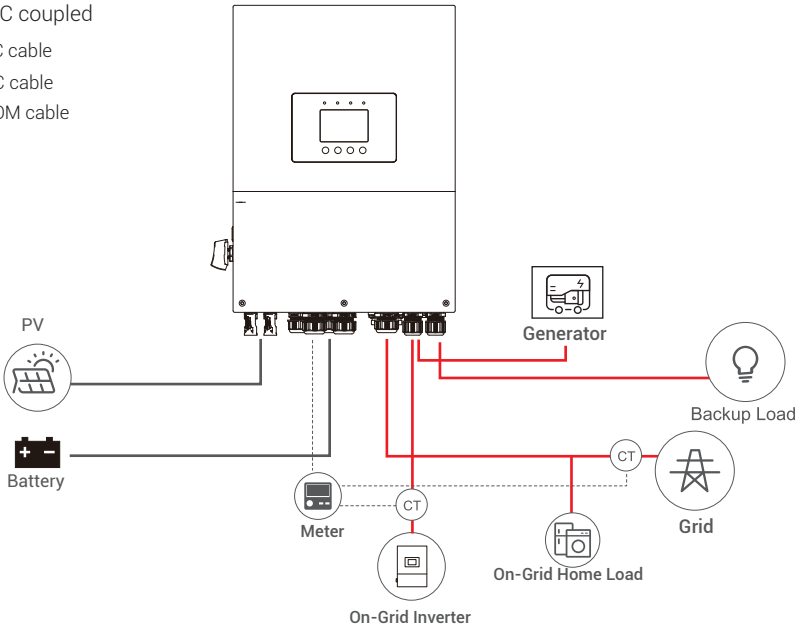
AC cable
DC cable
COM cable



Mode IV: AC Couple

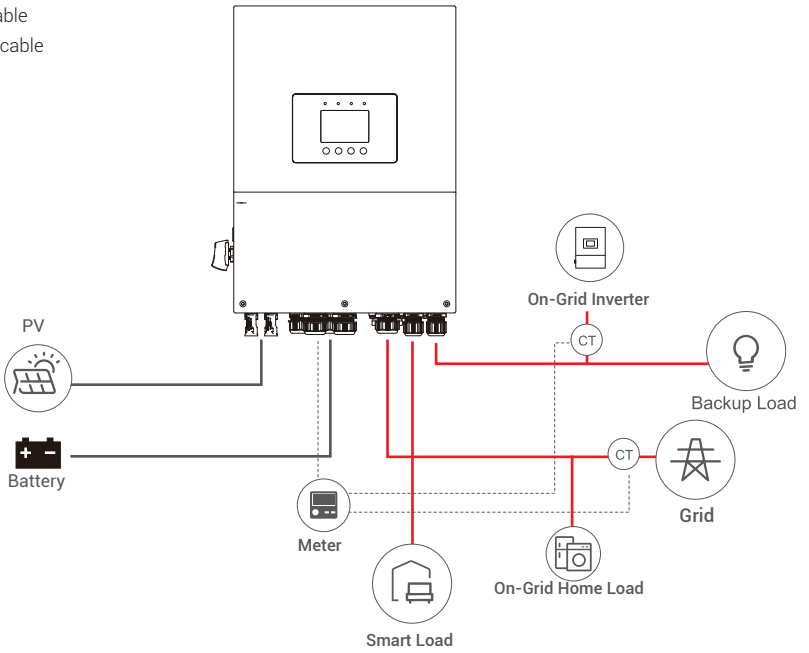
Gen + AC coupled

AC cable
DC cable
COM cable



Load + AC couple

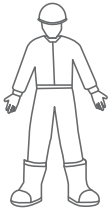
AC cable
DC cable
COM cable



Notice

1. PV power is always the primary power source of the system, followed by the battery pack or the grid.
2. If the generator functions properly, it will serve as the final backup power source.

7 Equipment Commissioning





Preparations before turning on/off the machine.

For a safe operation, the inverter will automatically reduce the output power when the operating environment is not ideal.

The following are the factors that may occur power derating. Please try to avoid them during usage.

- Unfavorable environmental conditions, e.g., direct sunlight, high temperature, etc.
- Inverter's output power percentage has been set.
- Over-frequency derating.
- Higher input voltage value.
- Higher input current value.

7.1 Pre-power-on Inspection

NO.	Inspection Content
1	The inverter should be installed to avoid direct sunlight, avoid flammable and explosive explosion and other dangerous places, installed firmly, and the installation position is convenient for maintenance, and reserve space for heat dissipation;
2	Shell protective earth wire, DC input cable, AC output cable, communication cable is connected correctly, terminal connections firm;
3	The cable is firmly tied, the alignment is reasonable and does not interfere, and the outer insulation is not damaged;
4	Unused AC/DC and communication ports need to be blocked off;
5	The voltage and frequency of the AC output of the inverter meets the requirements for grid connection;

7.2 Equipment Power On

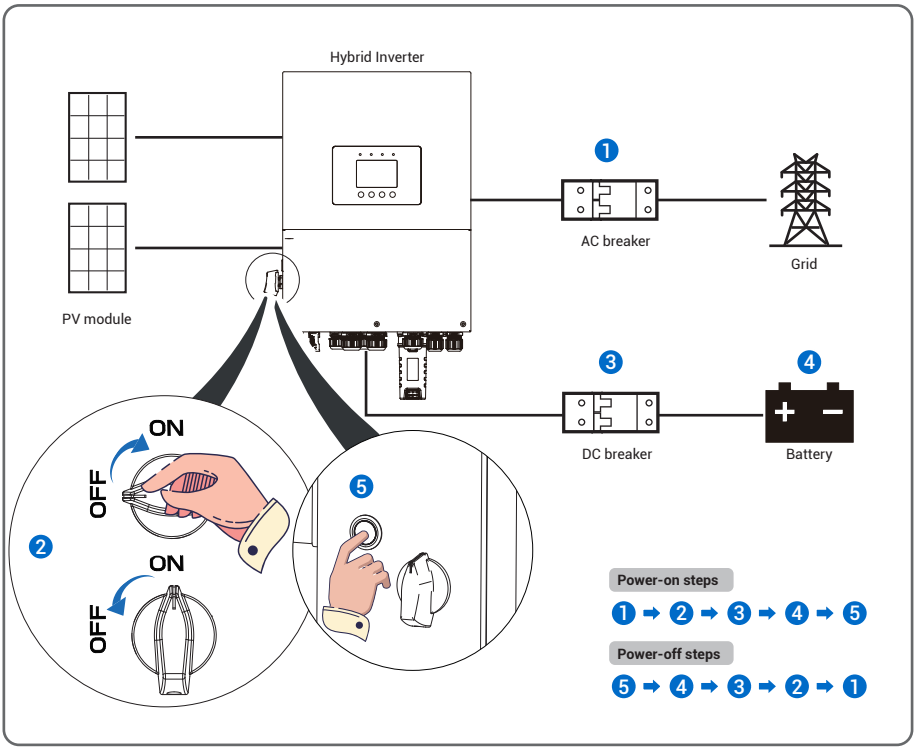
Step 1: Close the AC protection switch on the AC output side of the inverter;

Step 2: Close the DC disconnect switch of the inverter;

Step 3: Close the battery side DC breaker;

Step 4: Turn on the battery switch;

Step 5: Close the battery button Switch.



8 System Commissioning

8.1 Introduction of Hybrid Inverter Parameters

Parameter Name	Clarification
DC Voltage	Inverter PV side DC input voltage
DC Current	Inverter PV side DC input current
Grid Voltage	Grid voltage in the current region
Output Current	Grid-side AC current at the output of the inverter
Grid Frequecy	Grid Frequency of the current region
Power Generate	Current real-time output power displayed by the inverter
Date/Time	Standard time of the current country/region
Daily Generate	Total power output of the system in a day
Total Generating	Cumulative sum of power output after system installation
SN	A series code used to uniquely identify the inverter, located on the side nameplate of the product
Firmware Version	Version number combined from communication software version number and control software version number
WiFi Module Software Version	WIFI module software version number
Setting Up Safety Regulations	The parameters are set according to the mandatory grid regulations of the country/region where the inverter is located, as well as the actual application scenario of the inverter
Setting the Date	Setting according to the actual time in the country where the inverter is located
Power Factor Setting	Set the power factor value of the inverter output according to the actual need
Setting the Modbus Address	Setting according to the Modbus address of the actual inverter connection
ISO Setting	Set the insulation impedance threshold of the DC bus to PE on the PV input side, and when the detection value is lower than the set value When the detection value is lower than the set value, an ISO fault will be alerted
Shadow Scan	If the PV module is shaded, it can be used to increase power generation by switching on the shadow scanning function
Shadow Scan Period	Set the shadow scanning interval according to the actual scene
Shadow Time	Set the shadow scanning time according to the actual need
Warning List	View current and historical alarm information for the inverter

8.2 Setting the Hybrid Inverter Parameters Via the App

HiEco APP is a mobile phone application that can communicate with the inverter via 4G/WIFI/Bluetooth. Common functions are as follows：

1. Check the basic information of the power station system, inverter operation data, software version, alarm and fault information, etc;
2. Set the safety parameters, functional parameters and communication parameters of the inverter, etc;
3. Provide operation and maintenance support information.

Scan the following QR code to download the APP:

Scan the following QR code for commissioning process:



Scan the QR code to download the app for debugging

9 System Maintenance

9.1 Hybrid Inverter Power Off



Danger!

1. When the inverter is operated, the inverter should be disconnected from the power supply first, as the operation with power supply will easily lead to equipment failure or risk of electric shock;
2. After the inverter is disconnected from the power supply, the internal devices need to be discharged for a certain period of time, so you need to wait until the end of the discharge according to the labelled time.

Step 1: (Optional) Remotely send a shutdown command to the inverter;
Step 2: The battery button switch is disconnected, turning off the built-in switch of the battery, and disconnect the GEN source;
Step 3: Disconnect the AC protection switch on the inverter's AC output side;
Step 4: Disconnect the DC isolating switch of the inverter.

9.2 Removal the Hybrid Inverter



Warning!

1. Make sure the inverter is in power-off state;
2. When operating, please wear professional protective samples, such as safety shoes, safety helmets, insulated gloves, etc.

Step 1: Disconnect all electrical connections of the inverter, including: DC cables, AC cables, signal cables, communication modules, and enclosure protective ground wires, in case the inverter power-down operation is completed;
Step 2: Removal personnel holding the inverter handle or lifting, remove the inverter from the back mounting plate;
Step 3: Remove the inverter back mounting plate;
Step 4: Properly store the inverter.

9.3 Disposal of the Hybrid Inverter

When the inverter is to be scrapped, please dispose of it according to the relevant electrical equipment waste disposal requirements of the regulations of your country/region, and do not dispose of the inverter as household waste to avoid polluting the environment.

9.4 Routine Maintenance

Maintenance Content	Maintenance Methods	Maintenance Cycle
System Cleaning	Check the radiator inlet and outlet vents for foreign objects and remove them	Once per half year
DC Switch	The DC disconnect switch opens and closes 10 times consecutively and functions normally	Once per year
Electrical Connection	Check that the cable connections are secure and that the outer insulation is not broken	Once per half year
Fan	Check that the fan is running properly and that there are no strange noises	Once per year
Sealing	Check whether the sealing of the external interface of the inverter meets the requirements, if there is a gap or unsealed, need to be dealt with	Once per year

9.4.1 Maintenance Before Operation

1. Before the inverter is put into operation, read the instruction manual carefully, and strictly execute the connection and installation of the equipment according to the instructions on the manual.

2. Carefully check whether the various parts of the inverter as well as the terminals are loose and fall off in the process of transporting.

3. Carefully check whether the diameter of each wire of the inverter is in accordance with the requirements; whether the insulating property is good or not; and whether the grounding of the system is in accor insulation regulations or not. Note: When using the inverter, it should be operated in strict accordance with the instructions for using and maintaining the inverter, and the warning signs on the inverter should be intact. Maintenance of inverter during operation.

9.4.2 Maintenance During Operation

1. In the process of inverter commissioning, regularly check whether the inverter wirings are firm, and check whether the dust net, fan, power module, terminals and other parts are working normally.

2. The inverter cabinet has high pressure, usually should pay attention to check whether the cabinet door is locked or not.

3. When the room temperature exceeds 30℃, effective cooling measures should be taken to prevent the inverter from overheating and burning.

4. The structure and electrical connection of the inverter should be kept intact, and there should be no corrosion, accumulation of dust, etc. The inverter should not have large vibration and abnormal noise during operation.

5. Regularly disconnect the circuit breaker of AC output side of the inverter once.

6. When the DC bus capacitor temperature in the inverter is too high or exceeds the service life, it should be found and replaced in time.

7. the inverter belongs to high reliable operation equipment, can achieve long-term trouble-free operation, weekdays should carry out inspections, listen to the inverter sound is normal, the external debris, whether the vent is dusty, the panel display is normal, found that the problem is dealt with in a timely manner, report.

Note: Non-professionals should not disassemble and overhaul the inverter without permission. Inverter generally have short circuit, over current, over voltage, overheating and other items of automatic protection, when the problem occurs, do not need to manually shut down.

9.5 Fault Information

a. Grid Side

Code	Fault Name	Solution
E100	No AC Connection	1. Alarm disappears automatically when power supply is restored to the network; 2. Check whether the AC line or AC switch is disconnected.
E101	Grid voltage abnormal	1. If it occurs occasionally, it may be a short time abnormality of the power grid, the inverter will return to normal operation after detecting the power grid is normal, no manual intervention is required; 2. If it occurs frequently, please check whether the grid voltage is within the permitted range, if not, please contact the local power operator. If not, please contact the local power operator. If yes, you need to modify the grid voltage protection point with the consent of the local power operator; 3. If recovery is not possible for a long time, please check whether the AC side circuit breaker and the output cable are connected properly.
E102	Grid frequency abnormal	1. If it occurs occasionally, it may be a short time abnormality of the power grid, the inverter will return to normal operation after detecting the power grid is normal, no manual intervention is required; 2. If it occurs frequently, please check whether the grid frequency is within the permitted range, if not, please contact the local power operator. If not, please contact the local power operator. If yes, you need to modify the grid frequency protection point with the consent of the local power operator.
E103	Grid phase sequence is error	1. Confirm that the three-phase phase sequence is in reverse order; 2. Operate the mobile phone APP to set the phase sequence to reverse sequence.
E104	Output DCI over-range	1. If the abnormality is introduced by an external fault, the inverter automatically resumes normal operation after the fault disappears, no manual intervention is required; 2. If the alarm occurs frequently and affects the normal power generation of the power station, please contact the dealer /Our customer service center.
E105	Anti-backflow over-limit fault	1. Switch off the load, check that the wiring is connected and verify that the load does not exceed the requirements of the specification. If the wiring is not connected, check the wiring and reconnect it; 2. If the load exceeds the requirements of the specification, reduce the load; 3. If the wiring is intact and the load does not exceed the specification, and the fault persists, please contact your dealer / our customer service center.
E106	Meter or CT abnormal	1. Please check whether the CT installation direction is correct; 2. Check if the CT is installed in the correct phase; 3. Please check whether the cable from CT to equipment is disconnected.
E107	Meter or CT reverse connection	1. Check whether the wiring of CT is normal.
E108	Grid Other abnormalities	1. if it occurs occasionally, it may be a short time abnormality of the power grid, the inverter will return to normal operation after detecting the power grid is normal, no manual intervention is needed; 2. if it occurs frequently, please check whether the power grid is within the allowable range, if not, please contact dealer / our customer service center.

b. Back Up Side

Code	Fault Name	Solution
E200	The off-grid output voltage is too high	Check the settings of the inverter to ensure that its output voltage is set in the correct range, try increasing the load or adjusting the load distribution.
E201	The off-grid output voltage is too low	Insufficient energy on the PV side and the battery, resulting in a low inverter voltage, waiting for the PV to charge the battery or for the grid to reopen in grid-connected mode.
E202	Off-grid output overload	Reduce the number of loads on the BACK-UP side of the inverter to ensure that the load power is not greater than the maximum BACK-UP output power.

c. PV

Code	Fault Name	Solution
E300	PV input overvoltage	Check the series configuration of the corresponding PV array string to ensure that the open circuit voltage of the string is not higher than the maximum working voltage of the inverter. The inverter alarm disappears automatically after the PV array is correctly configured.
E301	PV string reverse connection	Check that the group string is not reversed
E302	PV overload	Disconnect the AC output side switch and DC input side switch, close the AC output side switch and DC input side switch after 5 minutes, if the fault still exists, please contact the distributor/our customer service center.
E303	AFCI fault	1. Five failures in one day will be automatically recovered, no need to pay attention to; if you need to recover immediately, you can clear the faults manually; 2. Check whether the CT connection on the AFCI veneer is normal; 3. If the arc pulling fault occurs frequently, please contact the distributor/our customer service center;
E304	Residual current High	1. If it occurs by chance, it may be caused by accidental abnormality of external wiring, and the fault will be cleared and normal operation will be resumed. After the fault is cleared, it will resume normal operation without manual intervention. 2. If it occurs frequently or cannot be recovered for a long time, please check whether the impedance of PV string to ground is too low or not. Is it too low.
E305	PV Isolation Low	1. Check the impedance of the PV string to the protective earth, if there is a short circuit, rectify the short circuit point. 2. Check whether the protective earth wire of the inverter is correctly connected. 3. If it is confirmed that the impedance is lower than the default value under rainy weather conditions, please reset the "insulation impedance protection point".

d. Battery

Code	Fault Name	Solution
E400	Battery BMS fault	1. Restart the machine and observe whether the alarm still exists; 2. Please contact the distributor/our customer service center to arrange operation and maintenance personnel to investigate the problem on site.
E401	Battery BMS running abnormal	1. Restart the machine and observe whether the alarm still exists; 2. Please contact the distributor/our customer service center to arrange for on-site troubleshooting of the operation and maintenance personnel to investigate the problem.
E402	Battery BMS communication abnormal	1. Restart the machine and observe whether the alarm still exists; 2. Please contact the distributor/our customer service center to arrange for on-site troubleshooting of the operation and maintenance personnel to investigate the problem.
E403	Battery DCDC fault	1. Restart the machine and observe whether the alarm still exists; 2. Please contact the distributor/our customer service center to arrange operation and maintenance personnel to investigate the problem on site.
E404	Battery DCDC run abnormal	1. Restart the machine and observe whether the alarm still exists; 2. Please contact the distributor/our customer service center to arrange operation and maintenance personnel to investigate the problem on site.
E405	Battery output overload	1. If it occurs occasionally, it may be a short time overload, it will resume normal work automatically, without manual intervention; 2. If it occurs frequently, please reduce the load; 3. If the load has not exceeded the regulations, the fault still exists, please contact the dealer/our company's customer Service Centre.
E406	Battery overvoltage	No manual intervention is required, and the total battery voltage can be automatically recovered after discharge or resting below the fault recovery threshold.
E407	Battery undervoltage	1. After charging or resting the total battery pressure is higher than the fault recovery threshold can be automatically restored; 2. If it is not restored for a long time, the total battery pressure continues to drop, and it is necessary to force electricity.
E408	Battery SOC is low	Charging for the battery.
E409	Battery Over-temperature protection	1. No manual intervention is required, wait for the temperature to drop and recover automatically; 2. If the fault can not be recovered, manual on-site confirmation of the state of the battery cell is required, according to the state of the battery cell to decide to clear the system lock faults and then restart or replace the battery.
E410	Battery Low-temperature protection	No need for manual intervention, wait for the temperature to rise and resume automatically.

e. Gen

Code	Fault Name	Solution
E500	Oil machine overload	1. stop the oil machine operation, check whether the line is connected, if the line is not connected, check the line and reconnect it; 2. Check whether the output voltage, current, power and other parameters of the off-grid side are out of the parameter range, if so, reset the parameters according to the requirements; 3. If the line is intact and the parameter setting is not out of regulation, and the fault still exists, please contact the dealer / our customer service center.
E501	Oil machine fault	1. Restart the machine and oiler and observe whether the fault still exists; 2. Please contact the dealer/our customer service center to arrange operation and maintenance personnel to troubleshoot the problem on site.

f. System

Code	Fault Name	Solution
E600	Internal communication fault	1. Restart the machine and observe whether the fault still exists; 2. Please contact the distributor / our customer service center to arrange for on-site troubleshooting by the operation and maintenance.
E601	Hybrid Inverter is running abnormally	1. Restart the machine and observe whether the fault still exists; 2. Please contact the distributor / our customer service center to arrange the operation and maintenance personnel to investigate the problem on site
E602	Hybrid Inverter fault	1. Restart the machine and observe whether the fault still exists; 2. Please contact the distributor / our customer service center to arrange the operation and maintenance personnel to investigate the problem on site.
E603	OTA upgrade failure	1. Check that the OTA upgrade package is correct; 2. Re-try the OTA; 3. If the upgrade keeps failing, please contact your dealer / our customer service center.
E604	Over-temperature protection	1. Check whether the ventilation of the inverter installation location is good and whether the ambient temperature is beyond the maximum permissible ambient temperature range. 2. If there is no ventilation or the ambient temperature is too high, please improve the ventilation and heat dissipation. 3. If the ventilation and ambient temperature are normal, please contact your dealer/our customer service centre.
E605	Fan abnormal	Disconnect the AC output side switch and DC input side switch, close the AC output side switch and DC input side switch after 5 minutes, if the fault still exists, please contact your dealer/our customer service center.
E606	Parallel machine abnormal	1. Check if the communication line is not in good contact, the fault will disappear automatically after normal wiring, no need for manual intervention; 2. If the alarm keeps appearing, please contact your dealer/our customer service center.

10 Technical Data

Technical Data	MEI2-HS3L	MEI2-HS3.6L	MEI2-HS4L	MEI2-HS4.6L	MEI2-HS5L	MEI2-HS6L	MEI2-HS5L2
PV Input							
Recommended max. PV power	4800Wp	5760Wp	6400Wp	7360Wp	8000Wp	9600Wp	8000Wp
Max. input voltage[1]	500V						
Rated input voltage	370V						
MPPT voltage range	125-425V						
Startup voltage	125V						
Max. input current per MPPT	18.0/18.0A						
Max. short circuit current per MPPT	27.0/27.0A						
Number of MPPTs	2						
Max. number of PV strings per MPPT	1/1						
Max. backfeed current to the PV array	0A						
Battery Data							
Battery type	Li-Ion/Lead-acid						
Max. charge/discharge power	3000/ 3300W	3600/ 4000W	4000/ 4400W	4600/ 5000W	5000/ 5500W	6000/ 6000W	5000/ 5500W
Battery voltage range	40-60V						
Max. charge/discharge current	70/70Ad.c.	90/90Ad.c.	100/100Ad.c.	110/110Ad.c.	120/120Ad.c.	135/135Ad.c.	120/120Ad.c.
AC Grid Side (On-grid)							
Rated output power	3000W	3600W	4000W	4600W	5000W	6000W	5000W
Max. output power	3300W	4000W	4400W	5000W	5500W	6600W	5000W
Rated output apparent power	3000VA	3600VA	4000VA	4600VA	5000VA	6000VA	5000VA
Max. output apparent power	3300VA	4000VA	4400VA	5000VA	5500VA	6600VA	5000VA
Rated input apparent power from grid[2]	6000VA	7200VA	8000VA	9200VA	10000VA	10000VA	10000VA
Max. input apparent power from grid[2]	6000VA	7200VA	8000VA	9200VA	10000VA	10000VA	10000VA
Rated grid voltage	220/230V						
Grid voltage range	154-276V						
Rated grid frequency	50/60Hz						
Max. input / output current	27.3 / 15.0Aa.c.	32.7 / 16.0Aa.c.	36.4 / 20.0Aa.c.	42.0 / 22.7Aa.c.	43.0 / 25.0Aa.c.	43.0 / 30.0Aa.c.	43.0 / 22.7Aa.c.
Rated input / output current	27.3/ 13.6Aa.c.	32.7/ 16.0Aa.c.	36.4/ 18.2Aa.c.	42.0/ 20.9Aa.c.	43.0/ 22.7Aa.c.	43.0/ 27.3Aa.c.	43.0/ 22.7Aa.c.
Power factor	~1 (-0.8...1...+0.8)						
I.THD	<3@Rated power						

Technical Data	MEI2-HS3L	MEI2-HS3.6L	MEI2-HS4L	MEI2-HS4.6L	MEI2-HS5L	MEI2-HS6L	MEI2-HS5L2
Backup Port							
Rated apparent power	3000VA	3600VA	4000VA	4600VA	5000VA	6000VA	5000VA
Max. output apparent power	3300VA	4000VA	4400VA	5000VA	5500VA	6600VA	5000VA
Nominal output voltage	L/N/PE, 220 / 230Va.c.						
Rated output frequency	50/60Hz						
Max. output current	15.0Aa.c.	18.2Aa.c.	20.0Aa.c.	22.7Aa.c.	25.0Aa.c.	30.0Aa.c.	22.7Aa.c.
Output V. THD	<3@Linear Load						
GEN Port (AC)							
Nominal Voltage	L/N/PE, 220 / 230Va.c.						
Nominal Frequency	50 / 60Hz						
Max. Input Apparent Power	6600VA						
Max. Input Current	30.0Aa.c.						
Power Factor	~1 (0.8leading...0.8lagging)						
EFFICIENCY							
MPPT efficiency	99.9%						
Euro efficiency[3]	96.0%			96.2%			
Max. efficiency	96.9%			97.3%			
Battery charge / discharge efficiency[4]	(PV->BAT)95% (AC->BAT)94.5% (BAT->AC)94.5%						
Protection							
LVRT	YES						
HVRT	YES						
Anti-islanding protection	YES						
AC output overvoltage / undervoltage protection	YES						
AC short circuit protection	YES						
AC overcurrent protection	YES						
Leakage current protection	YES						
DC surge protection	YES(Type II)						
AC surge protection	YES(Type II)						
PV insulation resistance detection	YES						
PV reverse polarity protection	YES						
PV input overvoltage protection	YES						
Earthing fault protection	YES						
DC arcing detection and protection	Optional						

Technical Data	MEI2-HS3L	MEI2-HS3.6L	MEI2-HS4L	MEI2-HS4.6L	MEI2-HS5L	MEI2-HS6L	MEI2-HS5L2
System Data							
Ingress protection	IP66						
Protection class	Class Ⅰ						
Pollution degree	PD3						
Overvoltage category	III(MAINS), II (DC)						
Operating temperature range	-20°C~+60°C						
Max. operation altitude	2000m						
Relative humidity	0-100%(No condensing)						
Cooling method	Natural Convection						
User interface	LED，APP，LCD						
Communication with BMS	CAN						
Communication with meter	RS485						
Communication with portal	WIFI						
Typical noise emission	<35dB						
Dimension （W*H*D）	228mm*470mm*340mm						
Weight	19kg						
Isolation method (solar)	non-isolated						
Self-consumption at night	<35W						
PV connector	MC4						
AC connector	Terminal Block						
Battey connector	Terminal Block						
Storage temperature	-40°C~+70°C						
Standard warranty	5years						
STANDARD COMPLIANCE							
Safety	IEC/EN 62109-1&2						
EMC	IEC 61000-6-1, IEC 61000-6-3						
Environment	IEC 60068						
Efficiency	IEC 61683						
Grid code	G98/G99G100, CEI-021						

Remark:

[1] The machine may be damaged if PV port exceeds this voltage, full power operation voltage should be less than 480V, 480V-540V for limited power operation.

[2] The value will appear when the grid is charging battery and support EPS load.

[3] This is the Euro convert efficiency.

[4] This is the Max convert efficiency.

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