V2.1-2026-02-04

Hybrid Inverter

EH Series/EH Plus Series
3.6-6kW User Manual

GOODWE

Copyright Statement

NOTICE

Due to product version upgrades or other reasons, the content of this document is updated periodically. Unless otherwise agreed, the content of this document cannot replace the safety precautions on the product label. All descriptions in this document are for guidance only.

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1 Preface

This document primarily introduces the inverter's product information, installation and wiring, configuration and commissioning, troubleshooting, and maintenance. Please read this manual carefully before installing and using this product to understand the product safety information and familiarize yourself with the product's functions and features. The document may be updated periodically; please obtain the latest version and more product information from the official website.

1.1 Applicable Model

This document applies to the following inverter models:

model	Nominal output power	Nominal output voltage
GW3600-EH	3.6kW	230/220V
GW5000-EH	5kW	
GW6000-EH	6kW	
GW3600N-EH	3.6kW	
GW5000N-EH	5kW	
GW6000N-EH	6kW	

1.2 Applicable Personnel

Applicable only to trained professionals who are familiar with local regulatory standards and electrical systems, and possess in-depth knowledge of this product.

1.3 Symbol Definition

To better use this manual, the following symbols are used to highlight important information. Please carefully read the symbols and explanations.

DANGER
Indicates a high potential hazard which, if not avoided, will result in death or serious injury.
WARNING
Indicates a medium potential hazard which, if not avoided, could result in death or serious injury.
CAUTION
Indicates a low potential hazard which, if not avoided, could result in moderate or minor injury.
NOTICE
Emphasizes or supplements the content, may also provide tips or tricks for optimal product use, helping you solve a problem or save time.

2 Safety Precautions

The safety precautions information contained in this document must always be followed when operating the device.

⚠WARNING

The inverter has been strictly designed and tested in accordance with safety regulations, but as an electrical device, before performing any operation on the device, relevant safety instructions must be followed. If operated improperly, it may cause serious injury or property damage.

2.1 General Safety

NOTICE

- Due to product version upgrades or other reasons, document content will be updated periodically. Unless otherwise agreed, document content cannot replace the safety precautions on product labels. All descriptions in the document are for guidance only.
- Please read this document carefully before installing the device to understand the product and precautions.
- All operations on the device must be performed by professional, qualified electrical technicians who are familiar with the relevant standards and safety regulations at the project location.
- When operating the device, use insulated tools and wear personal protective equipment to ensure personal safety. When handling electronic components, wear anti-static gloves, anti-static wrist straps, anti-static clothing, etc., to protect the device from electrostatic damage.
- Unauthorized disassembly or modification may cause device damage, and such damage is not covered by the warranty.
- Device damage or personal injury caused by not installing, using, or configuring the device according to this document or the corresponding user manual is beyond the manufacturer's liability. For more product warranty information, please obtain it through the official website: https://en.goodwe.com/warrantyrelated.html.

2.2 PV String Safety

⚠DANGER

Please use the DC terminal blocks provided with the box to connect the inverter DC cables. If other models of DC terminal blocks are used, it may lead to serious consequences, and any equipment damage caused thereby is not within the responsibility range of the equipment manufacturer.

⚠WARNING

- Ensure the component frame and mounting system are properly grounded.
- After completing the DC cable connections, ensure the connections are tight and secure, with no looseness.
- Use a multimeter to measure the positive and negative poles of the DC cables to ensure correct polarity and no reverse connection; also ensure the voltage is within the allowable range.
- Do not connect the same PV string to multiple inverters, as this may cause inverter damage.

2.3 Inverter

⚠DANGER

- During inverter installation, avoid placing weight on the bottom wiring terminals, as this may cause terminal damage.
- After inverter installation, labels and warning signs on the enclosure must remain clearly visible. Do not cover, alter, or damage them.
- The warning labels on the inverter enclosure are as follows:

No.	Symbol	Meaning
1		There is potential danger when the equipment is operating. Please take precautions when operating the equipment.
2		High voltage danger. High voltage is present when the equipment is operating. Ensure the equipment is powered off before operating it.
3		The inverter surface is at high temperature. Do not touch it when the equipment is operating, as it may cause burns.
4		Delayed discharge. After powering off the equipment, please wait for 5 minutes until the equipment is completely discharged.
5		Before operating the equipment, please read the product manual carefully.
6		The equipment must not be disposed of as household waste. Please dispose of the equipment according to local laws and regulations, or return it to the equipment manufacturer.
7		Grounding point.
8		CE certification mark.

2.4 Battery Safety

WARNING

- Batteries used with the inverter must be approved by the inverter manufacturer. The approved battery list can be obtained through the official website.
- Before installing the device, please carefully read the user manual corresponding to the battery to understand the product and operational matters. Operate strictly according to the requirements of the battery user manual.
- If the battery is fully discharged, please charge the battery strictly according to the user manual for the corresponding model.
- Battery current may be affected by some factors, such as: temperature, humidity, weather conditions, etc., which may cause current limiting and affect load capacity.
- If the battery cannot start, please contact the after-sales service center as soon as possible. Otherwise, the battery may be permanently damaged.
- Use a multimeter to measure the positive and negative poles of the DC cable to ensure the polarity is correct; and the voltage is within the allowable range.
- Do not connect the same battery bank to multiple inverters, otherwise it may cause inverter damage.

2.5 personnel requirements

NOTICE

To ensure safety, compliance, and efficiency throughout the entire process of equipment transportation, Installation, wiring, operation, and maintenance, all tasks must be performed by professionals or qualified personnel.

1. Professionals or qualified personnel include:
   - Personnel who have mastered knowledge of equipment working principles, system structure, risks and hazards, and have received professional operation training or possess extensive practical experience.
   - Personnel who have received relevant technical and safety training, possess certain operational experience, are aware of potential dangers specific tasks may pose to themselves, and can take protective measures to minimize risks to themselves and others.
   - Qualified electrical technicians who meet the regulatory requirements of the country/region where they are located.
   - Personnel holding a degree in electrical engineering/an advanced diploma in electrical disciplines or equivalent/professional qualifications in the electrical field, and with at least 2/3/4 years of experience in testing and regulatory work using electrical equipment safety standards.
2. Personnel involved in special tasks such as electrical work, work at height, and special equipment operation must hold valid qualification certificates as required by the location of the equipment.
3. Operation of medium-voltage equipment must be performed by certified high-voltage electricians.
4. Replacement of equipment and components is only permitted to be carried out by authorized personnel.

2.6 EU Declaration of Conformity

2.6.1 Equipment with Wireless Communication Modules

GoodWe Technologies Co., Ltd. hereby declares that the Equipment with Wireless Communication Modules sold in the European market meets the following directive requirements:

- Radio Equipment Directive 2014/53/EU (RED)
- Restrictions of Hazardous Substances Directive 2011/65/EU and (EU) 2015/863

(RoHS)
- Waste Electrical and Electronic Equipment 2012/19/EU
- Registration, Evaluation, Authorization and Restriction of Chemicals (EC) No 1907/2006 (REACH)

2.6.2 Devices without Wireless Communication Function

GoodWe Technologies Co., Ltd. hereby declares that the devices without wireless communication function available for sale in the European market comply with the requirements of the following directives:

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

More EU Declarations of Conformity can be obtained from the official website: https://en.goodwe.com.

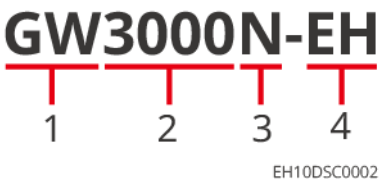
3 Product Introduction

3.1 Product Overview

Functional Overview

Inverters in photovoltaic systems control and optimize energy flow through an integrated energy management system. The electricity generated in the photovoltaic system can be used for loads, stored in batteries, or fed into the grid, among other uses.

Model Specifications



No.	Meaning	Description
1	Brand code	GW: GoodWe
2	Rated Power	3000: Rated Power is 3000W 5000: Rated Power is 5000W 6000: Rated Power is 6000W
3	Product Feature	N: Boost Current Version
4	Series Code	EH: EH Series Single-phase Energy Storage Inverter

3.1.1 Feature Overview

The inverter controls and optimizes the energy flow within the photovoltaic system through its integrated energy management system. It can supply the electricity generated by the photovoltaic system for use by loads, store it in batteries, or feed it into the grid.

3.1.2 Model Specifications

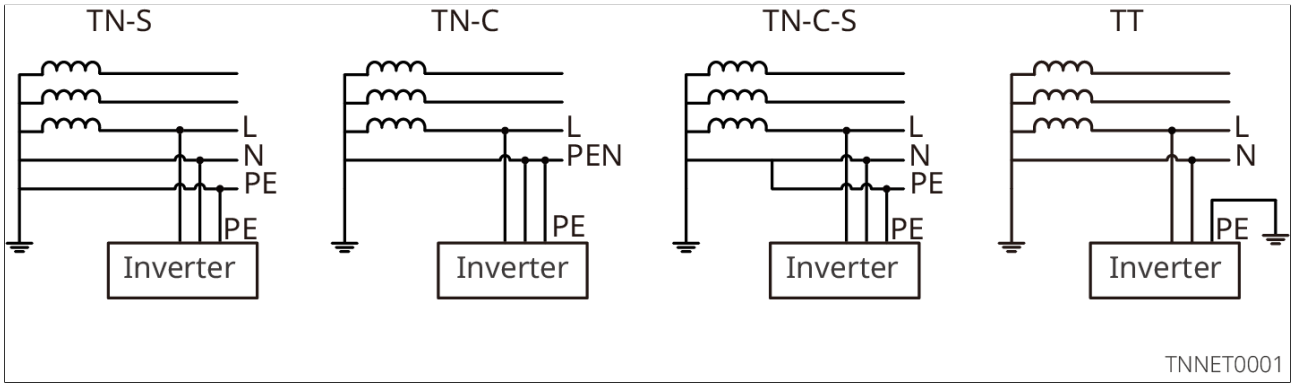
This document applies to the following inverter models:

- GW3600-EH
- GW5000-EH
- GW6000-EH
- GW3600N-EH
- GW5000N-EH
- GW6000N-EH

Model Number Meaning

No.	Meaning	Description
1	Brand code	GW: GoodWe
2	Rated Power	3000: Rated Power is 3000W 5000: Rated Power is 5000W 6000: Rated Power is 6000W
3	Product Feature	N: Boost Current Version
4	Series Code	EH: EH Series Single-phase Energy Storage Inverter

3.1.3 Supported Grid Types

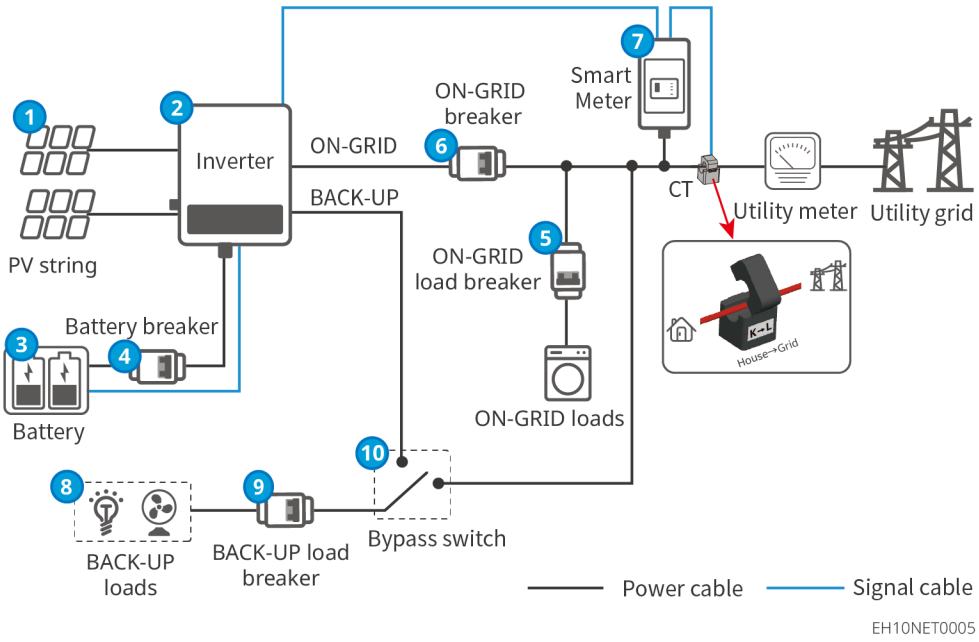


3.2 Application Scenarios

⚠WARNING

- The photovoltaic system is not suitable for connecting devices that require stable power supply, such as life-sustaining medical equipment, etc. Please ensure that system power failure does not cause personal injury.
- In the photovoltaic system, please try to avoid using loads with high starting current, such as high-power water pumps, etc. Otherwise, it may cause off-grid output failure due to instantaneous power overload.
- If the battery is not configured in the photovoltaic system, it is not recommended to use the BACK-UP function. The system power risks caused by this will exceed the warranty scope of the equipment manufacturer.
- The BACK-UP port does not support connecting auto-transformer or isolation transformer.
- Battery current may be affected by some factors, such as temperature, humidity, weather conditions, etc., which may cause battery current limiting and affect load capacity.
- The inverter has UPS function, with switching time <10ms.
- When the inverter experiences a single overload protection, the inverter can automatically restart; if it occurs multiple times, the inverter restart time will be extended. If you need to restart the inverter as soon as possible, you can immediately restart the inverter via the App.
- When the grid power fails, if the load capacity exceeds the inverter's rated power, the inverter's off-grid function will automatically shut down; to start it, you need to turn off large loads to ensure that the load power < inverter's rated power.
- When the inverter is in off-grid mode, it can be used normally for ordinary household loads, such as:
  - Inductive loads: Supports the use of 1.5P non-inverter air conditioners. Connecting two or more non-inverter air conditioners may cause UPS mode instability.
  - Capacitive loads: Total power ≤0.6x inverter rated output power.

Self-Consumption Solution



No.	Component	Description
1	PV String	A PV string is composed of photovoltaic modules connected in series.
2	Inverter	Supports EH series and EHPlus series inverters.
3	Battery	Selection should be based on the inverter and battery compatibility list. The approved battery list can be obtained from the official website.
4	Battery Switch	Recommended specifications: Rated current ≥40A, Nominal voltage ≥600V.
5	ON-GRID Load Breaker	Specification requirements should be determined based on the actual connected loads.
6	ON-GRID Breaker	• Customer provides their own AC breaker. Recommended specifications: GW3600-EH, GW3600N-EH, GW5000-EH, GW5000N-EH: Rated current ≥50A, Nominal voltage ≥230V. • GW6000-EH, GW6000N-EH: Rated current ≥63A, Nominal voltage >230V.

No.	Component	Description
7	Smart Meter	Purchase from the inverter manufacturer. Recommended models: GM3000/GM1000.
8	BACK-UP Loads	• Supports connection of backup loads, such as loads requiring 24-hour power supply or other critical loads. • The BACK-UP port does not support connection of autotransformers or isolation transformers.
9	BACK-UP Load Breaker	Customer provides their own AC breaker. Recommended specifications: • GW3600-EH, GW3600N-EH, GW5000-EH, GW5000N-EH: Rated current ≥50A, Nominal voltage ≥230V. • GW6000-EH, GW6000N-EH: Rated current ≥63A, Nominal voltage ≥230V.
10	Single Pole Double Throw Switch	To ensure BACK-UP port loads can continue operating during inverter maintenance shutdown, installation of a single pole double throw switch is recommended. Recommended specifications: • GW3600-EH, GW3600N-EH, GW5000-EH, GW5000N-EH: Rated current ≥50A, Nominal voltage ≥230V. • GW6000-EH, GW6000N-EH: Rated current ≥63A, Nominal voltage >230V.

3.3 Work Mode

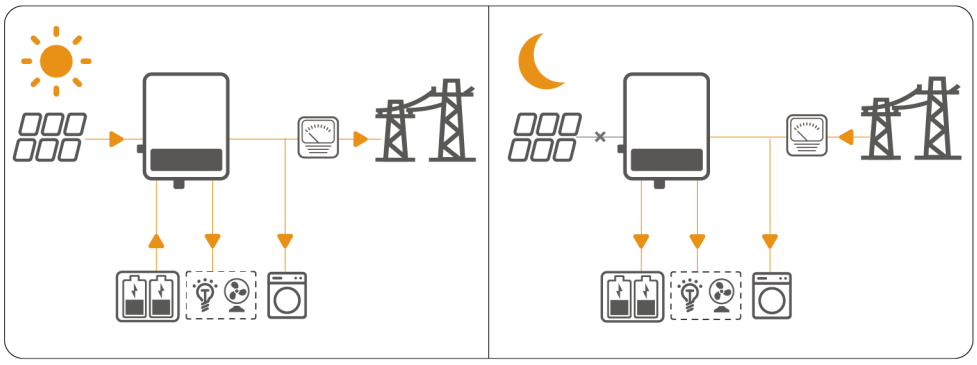
3.3.1 System Working Mode

Economic Mode

NOTICE

- The Economic Mode should only be selected in compliance with local laws and regulations. For example, if it is not permitted for the grid to charge the battery, do not use this mode.
- It is recommended to use the Economic Mode in scenarios where there is a significant difference between peak and off-peak electricity prices.

- Daytime: When electricity rates are at peak, prioritize using the battery to power the load, and the remaining power can be sold to the grid.
- Nighttime: When electricity rates are at valley, you can set the grid to charge the battery at specific times, charging the battery.



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Self-consumption Mode

NOTICE

- Solar power generation prioritizes self-consumption, with excess electricity charging the battery; during nighttime when there is no solar power generation, use the battery to power the load; increase the self-consumption rate of the solar power system, saving electricity costs.
- Applicable to areas with high electricity prices and low or no subsidies for solar power feed-in tariffs.

Daytime:

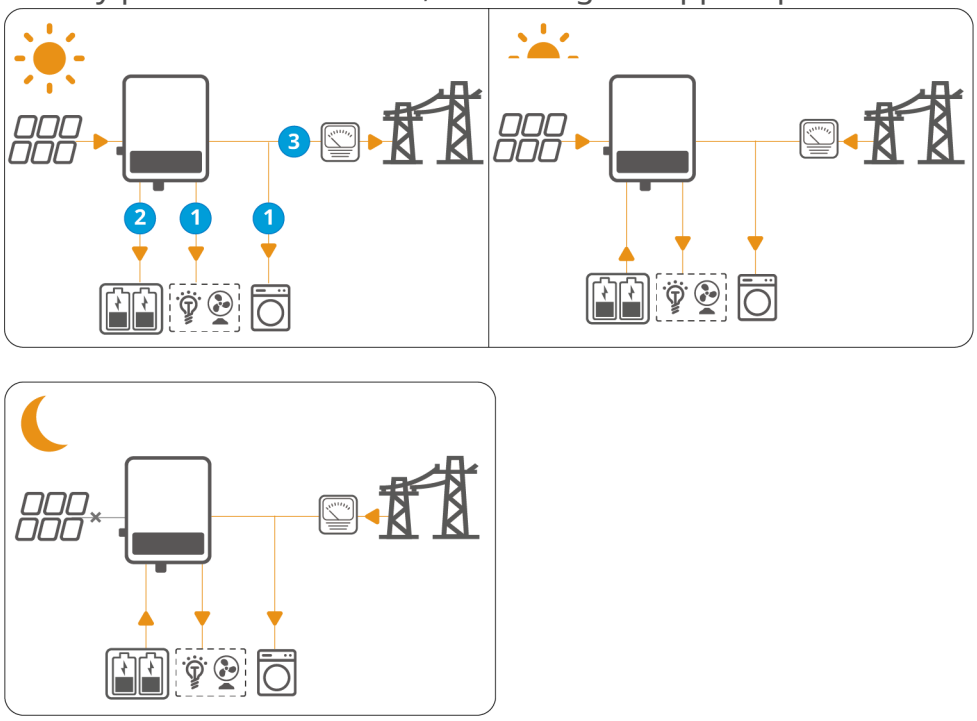
- When the power generated by the photovoltaic system is sufficient, the power generated by the photovoltaic system is prioritized to supply the household load,

excess power charges the battery, and the remaining power is sold to the grid.

- When the power generated by the photovoltaic system is insufficient, prioritize using battery power to supply the load. If the battery power is insufficient, then the grid supplies power to the load.

Nighttime:

- If the battery power is sufficient, the battery supplies power to the load. If the battery power is insufficient, then the grid supplies power to the load.



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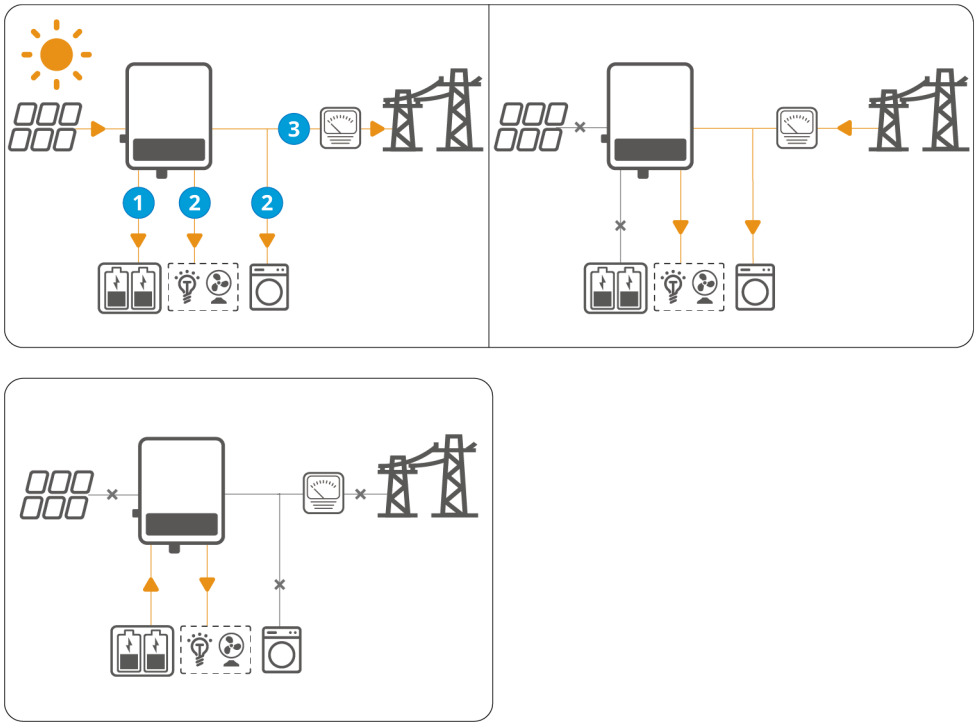
Backup Mode

NOTICE

- The backup mode is primarily suitable for scenarios with an unstable grid and critical loads. When grid power fails, the inverter switches to off-grid operation mode to supply power to the loads; when grid power is restored, the inverter switches its operation mode back to grid-tied.
- When the battery discharges to the cutoff SOC, it stops discharging. When there is sunlight the next day and the battery is charged to a certain level, the battery starts to supply power to the loads.

- When the power generated by the photovoltaic system is sufficient, the power generated by the photovoltaic system is prioritized to charge the battery, excess power is used for the load, and the remaining power is sold to the grid.
- When there is no PV power generated in the photovoltaic system:
  - When the grid is normal, the grid supplies power to the load. (If local laws and regulations do not allow the grid to charge the battery, do not use this scenario.)
  - When the grid is abnormal, the inverter enters off-grid mode operation, and the battery supplies power to the load.



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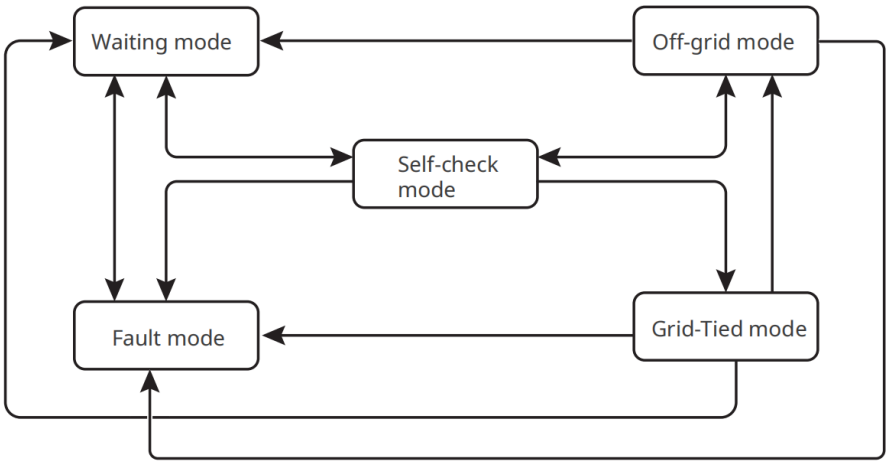
3.3.2 Inverter Operation Mode



No.	Component	Description
1	Waiting Mode	The waiting phase after the machine is powered on. • When conditions are met, it enters Self-check Mode. • If a fault is detected, the inverter enters Fault Mode.
2	Self-check Mode	Before the inverter starts, it continuously performs self-checks and initialization. • If conditions are met, it enters On-grid mode, and the inverter starts and operates connected to the grid. • If no grid is detected, it enters Off-grid mode, and the inverter operates off-grid; if the inverter does not have off-grid functionality, it enters Waiting Mode. • If the self-check fails, it enters Fault Mode.
3	On-grid mode	The inverter operates normally connected to the grid. • If it detects that the grid is absent, it enters Off-grid Operation Mode. • If it detects a fault occurrence, it enters Fault Mode. • If it detects that grid conditions do not meet the grid-connection requirements, and the off-grid output function is not enabled, it enters Waiting Mode.

No.	Component	Description
4	Off-grid Mode	When the grid power is off, the inverter switches its operation mode to Off-grid Mode to continue supplying power to the load. • If it detects a fault occurrence, it enters Fault Mode. • If it detects that grid conditions do not meet the grid-connection requirements, and the off-grid output function is not enabled, it enters Waiting Mode. • If it detects that grid conditions meet the grid-connection requirements, and the off-grid output function is enabled, it enters Self-check Mode.
5	Fault Mode	If a fault is detected, the inverter enters Fault Mode. After the fault is cleared, it enters Waiting Mode.

3.4 Features

Power Derating

To ensure the inverter operates safely, when the operating environment is not ideal, the inverter will automatically reduce output power.

The following are factors that may cause power derating; please try to avoid them during use.

- Adverse environmental conditions, such as: direct sunlight, high temperature, etc.
- The output power percentage of the inverter has been set.
- Over-frequency derating.
- Input voltage value is high.
- Input current value is high.

Earth Fault Alarm

The inverter reserves ports to implement the earth fault alarm function.

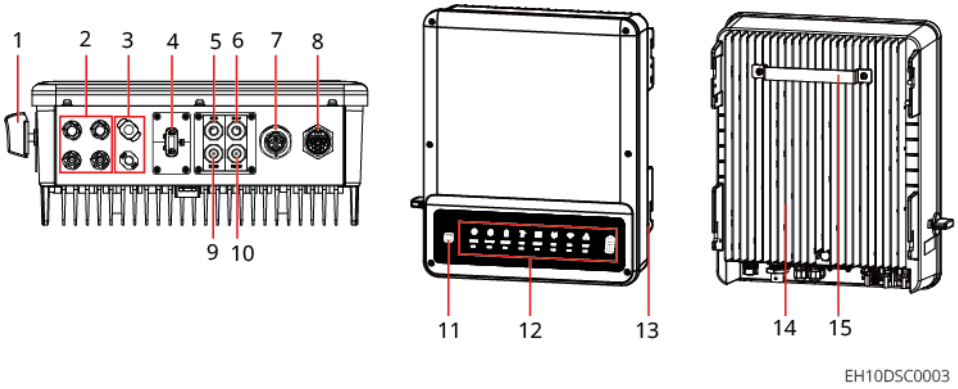
When an earth fault occurs, the inverter's LED fault indicator will light up. At the same time, the system will send a fault reminder email to the customer's preset email

address.
To avoid missing fault prompts, please install the inverter in a position where the indicator light is easily observable.

3.5 Appearance Description

3.5.1 Appearance Description

Appearance Introduction

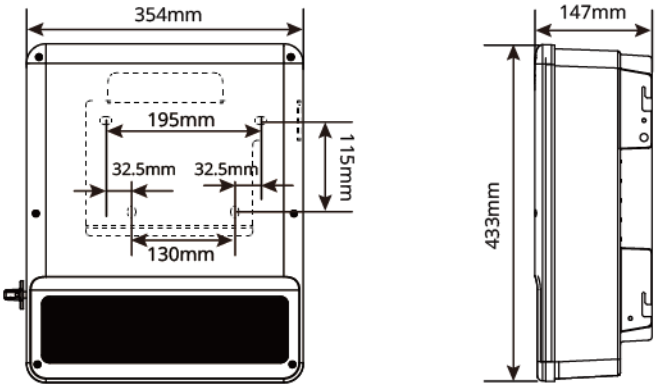


No.	Component	No.	Component
1	DC Switch 【1】	2	PV DC Input Port (PV1/PV2)
3	Battery DC Input Port (BAT+/-)	4	Communication Module Interface (WiFi or LAN)
5	BMS Communication Port	6	METER Communication Port
7	Back-Up Output Port	8	On-Grid Output Port
9	DRED Communication Port	10	RS485 Communication Port
11	WiFi Reset Button	12	indicator
13	Grounding terminal	14	heat sink
15	Mounting Bracket	-	-

【1】If the inverter is not configured with a DC switch, an external DC circuit breaker must be added. This DC circuit breaker should have AU/NZ certification; comply with the AS60947.3:2018 standard; be classified as DC-PV2; and its protection level and characteristics

should be suitable for specific conditions, such as outdoor use, direct sunlight, and mounting on non-combustible material surfaces.

3.5.2 Dimensions



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3.5.3 Indicator Light Instructions

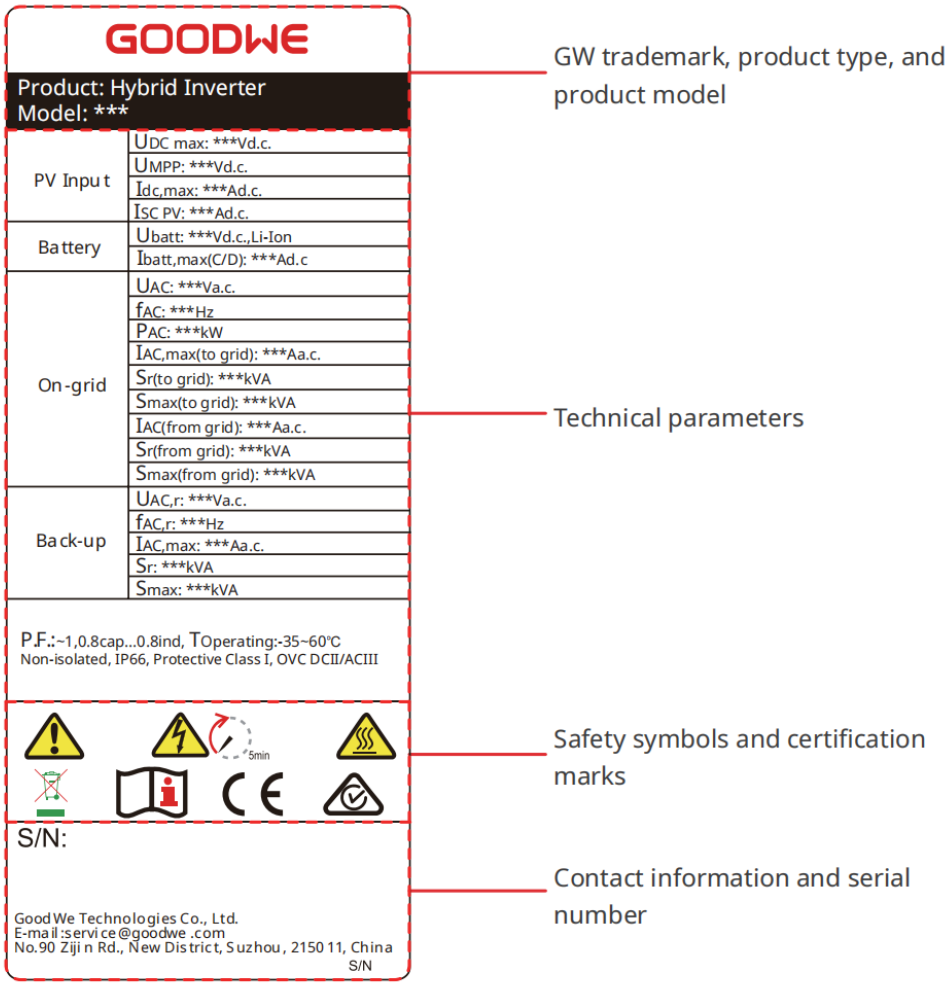
indicator	status	description
SYSTEM		Steady on = system is ready
		Single blink = system is starting up
		Off = system is not working
BACK-UP		Steady on = BACKUP function is ready
		Off = BACKUP function is turned off
BATTERY		Steady on = battery is charging
		Single blink = battery is discharging
		Flashes twice = battery level low / SOC low
		Off = battery disconnected / not working properly

indicator	status	description
GRID		Steady on = grid connected, working normally
		Flashing = grid is normal, but not connected to the grid
		Off = grid not working properly
ENERGY		Steady on = buy power from the grid / buying power
		Single blink = supply power to the grid / not buying or selling
		Flashes twice = supply power to the grid / Export Energy
		Off = not connected to the grid, or system not working
COM		Steady on = BMS and electric meter communication normal
		Single blink = electric meter communication normal, BMS disconnected
		Flashes twice = BMS normal, electric meter communication disconnected
		Off = BMS and electric meter connections both disconnected
WiFi		Steady on = WiFi normal, connected
		Single blink = WiFi is resetting
		Flashes twice = WiFi not connected to router
		Flashes four times = WiFi server issue
		Off = WiFi not working properly

indicator	status	description
FAULT		Steady on = fault
		Single blink = BACKUP overload / reduce load
		Flashes four times = electric meter detection result abnormal
		Off = no fault

3.5.4 Nameplate Instructions

The nameplate is for reference only; please refer to the actual product.



4 Check and Storage

4.1 Pre-delivery Inspection

Before signing for the product, please carefully inspect the following:
1. Check if the outer packaging is damaged, such as deformation, holes, cracks, or any other signs that could potentially damage the equipment inside the box. If damaged, do not open the packaging and contact your distributor.
2. Check if the inverter model is correct. If it does not match, do not open the packaging and contact your distributor.
3. Check if the type and quantity of delivered items are correct, and if their appearance is damaged. If damaged, please contact your distributor.

4.2 deliverables

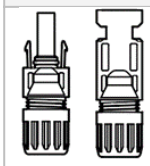
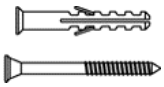
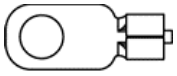
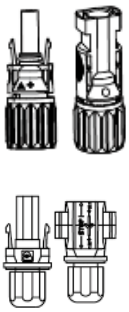
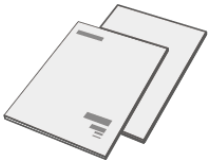
WARNING

When making electrical connections, please use the terminal blocks shipped with the unit. Damage caused by using incompatible connectors is not covered under warranty.

NOTICE

- Depending on the inverter configuration, the quantities of expansion screws, PV DC terminals, battery DC terminals, ON-GRID connector removal tools, and BACK-UP connector removal tools provided with the package may vary. Please refer to the actual items.
- Battery-Ready models do not include a meter. If needed, please contact the manufacturer or distributor to purchase one.

Component	Quantity	Component	Quantity
	Inverter x 1		Backplate x 1

Component	Quantity	Component	Quantity
	PV connector x 2		expansion bolt x 4
	Grounding terminal x 1		smart dongle x 1
	ON-GRID AC connector x1		BACK-UP AC connector x1
	ON-GRID connector removal tool x1*		BACK-UP connector removal tool x1*
	Meter and accessoriesx 1	 or	Battery connector x 1
	Product documentation x 1		

4.3 Storage

NOTICE
The inverter's storage time should not exceed two years. When the storage time exceeds two years, it must be inspected and tested by professionals before being put into use.

If the inverter is not put into use immediately, please store it according to the

following requirements:
1. Ensure that the outer packaging box is not removed and the desiccant inside is not lost.
2. Ensure that the storage environment is clean, with appropriate temperature and humidity ranges, and no condensation.
3. Ensure that the stacking height and direction of the inverter are arranged according to the instructions on the packaging box label.
4. Ensure that there is no risk of tipping after the inverters are stacked.
5. After long-term storage, the inverter must be inspected and confirmed by professionals before it can continue to be used.

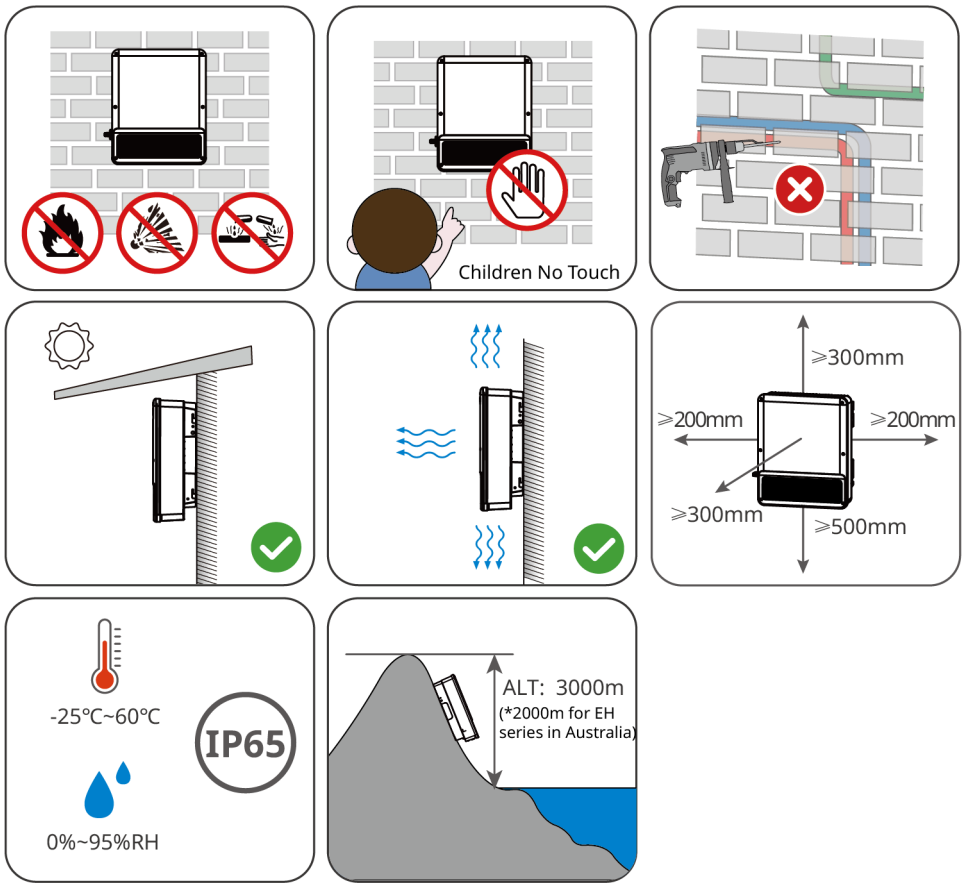
5 Installation

5.1 Installation Requirements

5.1.1 Installation Environment Requirements

1. The device must not be installed in flammable, explosive, corrosive, or similar environments.
2. The installation location should be out of reach of children and avoid easily accessible spots. The device surface may become hot during operation to prevent burns.
3. Avoid installing near water pipes, cables, etc., inside walls to prevent hazards during drilling.
4. The inverter should avoid installation environments with direct sunlight, rain, snow accumulation, etc. It is recommended to install in a sheltered location, and if necessary, a sunshade can be set up.
5. The installation space must meet the ventilation and heat dissipation requirements of the device as well as the operational space requirements.
6. The device protection level is suitable for indoor and outdoor installation. The installation environment temperature and humidity must be within the appropriate range.
7. The device installation height should facilitate operation and maintenance, ensuring that device indicators, all labels are easily visible, and terminal connections are easy to operate.
8. The inverter installation altitude should be below the maximum working altitude of 3000m.
9. Stay away from strong magnetic field environments to avoid electromagnetic interference. If there are radio or wireless communication devices below 30MHz near the installation location, please install the device according to the following requirements:

- Add ferrite cores with multiple turns on the inverter DC input lines or AC output lines, or add low-pass EMI filters.
- The distance between the inverter and wireless electromagnetic interference devices should exceed 30m.



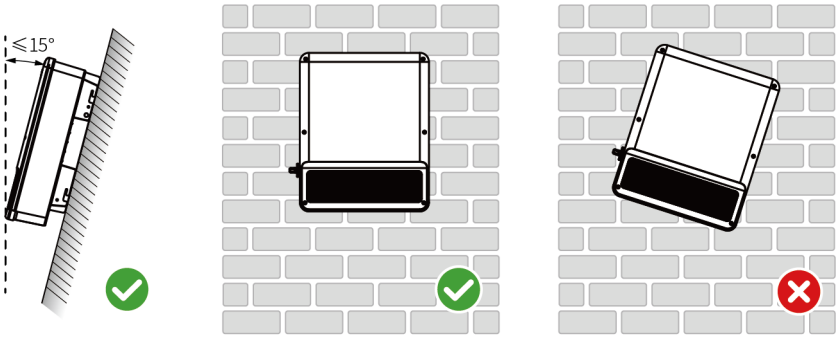
EH10INT0005

5.1.2 Installation Surface Requirements

- The installation surface must not be flammable and must possess fire-resistant properties.
- Ensure the installation surface is sturdy and reliable, capable of bearing the weight of the inverter.
- During operation, the equipment generates vibration. Do not install it on a surface with poor sound insulation to prevent operational noise from disturbing residents in living areas.

5.1.3 Installation Angle Requirements

- Recommended inverter installation angle: vertical or tilted backward ≤15°.
- Do not install the inverter upside down, tilted forward, tilted backward beyond the specified angle, or horizontally.

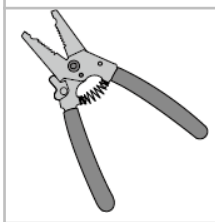
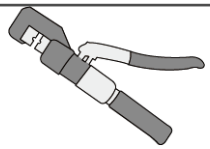
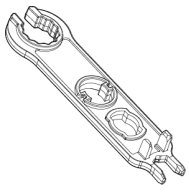


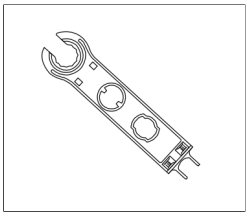
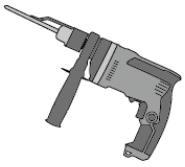
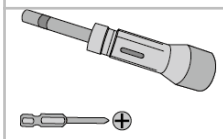
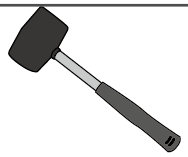
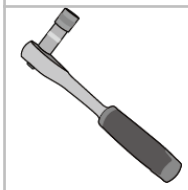
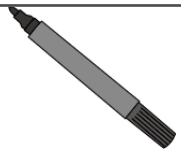
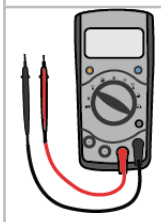
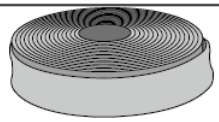
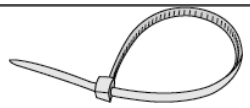
EH10INT0006

5.1.4 Tool Requirements

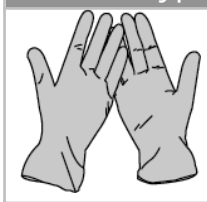
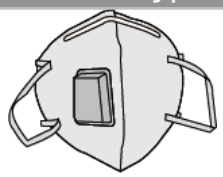
NOTICE
During installation, it is recommended to use the following installation tools. If necessary, other auxiliary tools can be used on site.

Installation Tools

Tool Type	Description	Tool Type	Description
	diagonal plier		RJ45 crimping tool
	wire stripper		YQK-70 hydraulic pliers
	Dianwei unlocking wrench		open-end wrench

	MC4 unlocking wrench		hammer drill
	torque wrench M5, M3		rubber hammer
	socket wrench		marker pen
	multimeter Range ≤1100V		heat shrink tubing
	heat gun		cable tie
	vacuum cleaner		Level bar

personal protective equipment

Tool Type	Description	Tool Type	Description
	Insulated gloves, protective gloves		Dust mask

	goggle		Safety shoes

5.2 Installing the Inverter

5.2.1 Carrying Inverter

CAUTION

- During operations such as transportation, handling, and installation, it is necessary to comply with the laws, regulations, and relevant standards of the country or region.
- Before installation, the inverter needs to be moved to the installation site. To avoid personal injury or equipment damage during handling, please note the following:
  1. Please allocate personnel according to the equipment weight to prevent the equipment from exceeding the weight range that can be manually handled, which could cause injury.
  2. Please wear safety gloves to avoid injury.
  3. Please ensure that the equipment remains balanced during handling to prevent falling.

5.2.2 Installing the Inverter

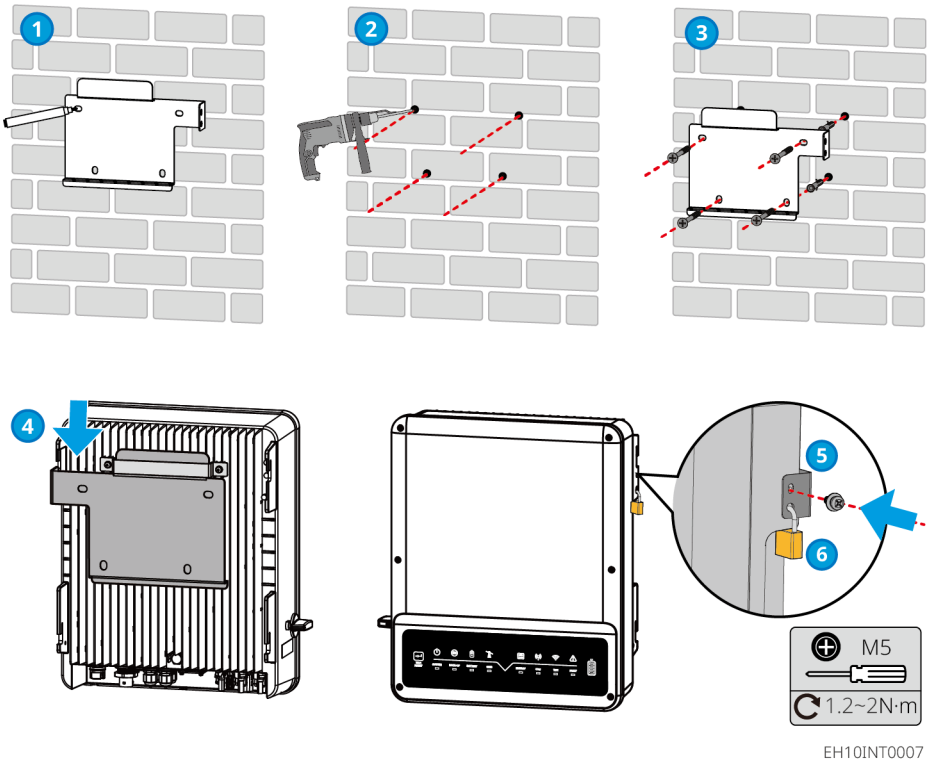
NOTICE

- When drilling, ensure the drilling location avoids water pipes, cables, etc., inside the wall to prevent hazards.
- When drilling, please wear safety goggles and a dust mask to prevent dust from being inhaled into the respiratory tract or falling into the eyes.
- Ensure the inverter is securely installed to prevent it from falling and injuring personnel.
- Please prepare your own DC switch lock.

1. Place the back mounting plate horizontally on the wall, and use a marker pen to mark the drilling positions.
2. Use an impact drill with an 8mm diameter drill bit to drill holes, ensuring the hole depth is about 80mm.
3. Use expansion screws to fix the inverter back mounting plate bracket to the wall.
4. (Australia only) Install the DC switch lock, ensuring the DC switch is in the "OFF"

state during installation.

5. Hang the inverter on the back plate.
6. Secure the back plate and the inverter, ensuring the inverter is installed firmly.
7. Install the inverter anti-theft lock.



6 Electrical Connection

6.1 Appliance Wiring Diagram

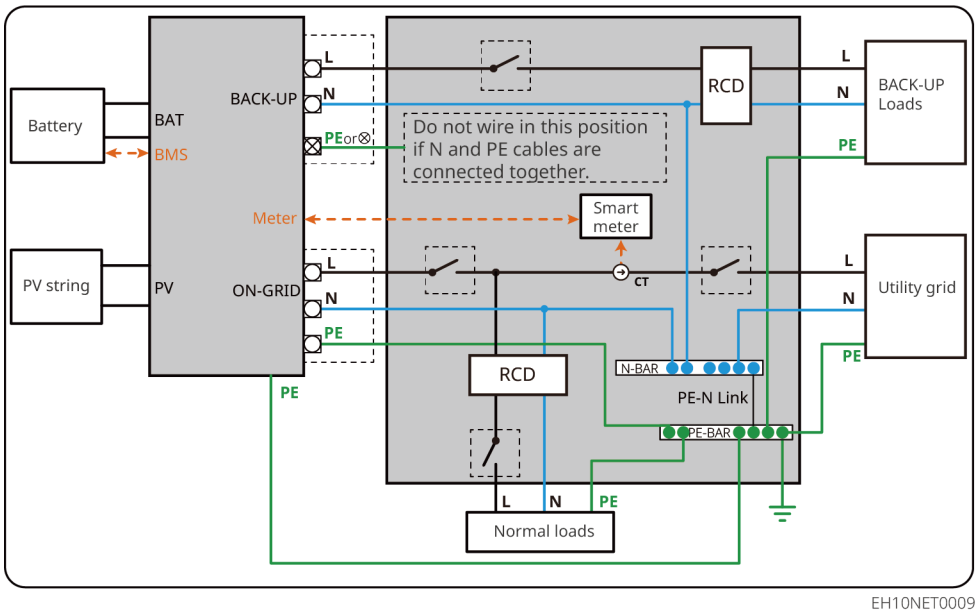
NOTICE

- Depending on regional regulatory requirements, the wiring methods for the N and PE lines of the inverter's ON-GRID and BACK-UP ports differ. Please follow local regulations.
- The inverter's ON-GRID and BACK-UP AC ports have built-in relays. When the inverter is in off-grid mode, the built-in ON-GRID relay is open; when the inverter is in grid-connected mode, the built-in ON-GRID relay is closed.
- The BACK-UP AC port is live after the inverter is powered on. If maintenance is required on the BACK-UP Loads, please power down the inverter first, otherwise electric shock may occur.

N and PE wires are connected together in the distribution box

NOTICE

The following wiring methods apply to regions such as Australia and New Zealand.

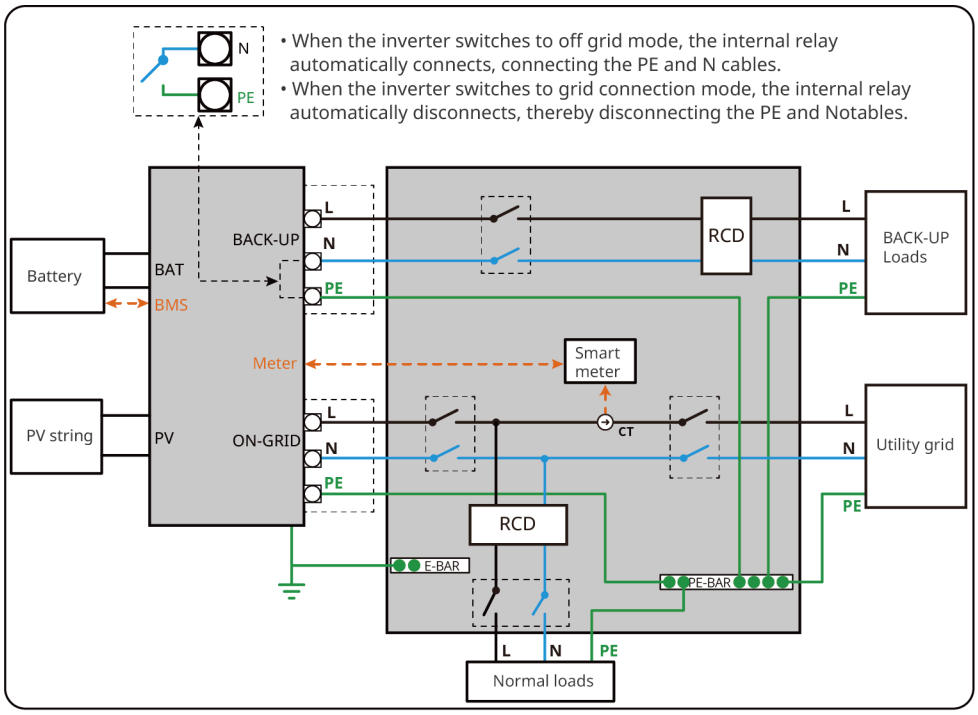


EH10NET0009

N and PE wires are separately wired in the distribution box

NOTICE

The following wiring method applies to regions other than Australia, New Zealand, etc.



EH10NET0010

6.2 Safety Precautions

DANGER

- All operations during electrical connection, the cables used, and component specifications must comply with local laws and regulations.
- Before performing electrical connections, please disconnect the inverter's DC switch and AC output switch to ensure the device is powered off. Live operation is strictly prohibited; otherwise, electric shock and other DANGER may occur.
- Cables of the same type should be bundled together and arranged separately from different types of cables. Intertwining or crossing arrangements are prohibited.
- If the cable is subjected to excessive tension, it may lead to poor connections. When wiring, please leave a certain length of wire before connecting to the inverter's terminal ports.
- When crimping terminals, ensure that the conductor part of the cable makes full contact with the terminal. Do not crimp the cable insulation together with the terminal. Otherwise, it may cause the device to fail to operate, or after operation, due to unreliable connections leading to heating, etc., resulting in damage to the inverter terminal block.

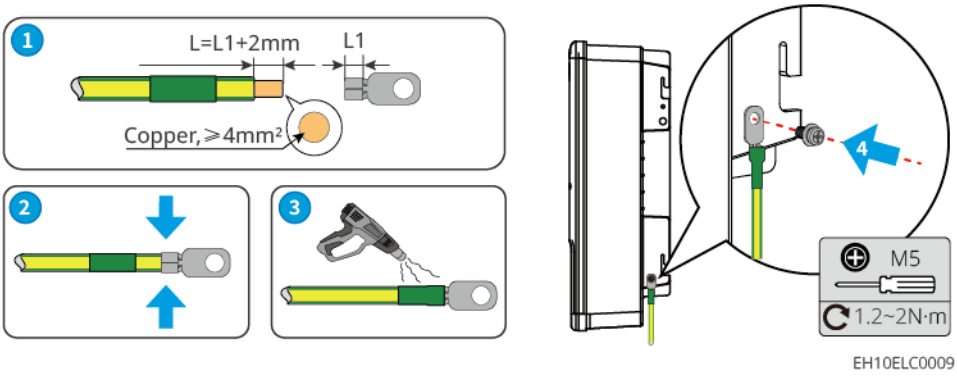
NOTICE

- When performing electrical connections, wear personal protective equipment such as safety shoes, protective gloves, and insulating gloves as required.
- Only qualified personnel are permitted to perform electrical connection operations.
- The cable colors shown in the graphics of this document are for reference only. Specific cable specifications must comply with local regulations.

6.3 Connecting the PE cable

WARNING

- The protective grounding of the chassis cannot replace the protective ground wire of the AC output port. When wiring, ensure the protective ground wires at both locations are reliably connected.
- For multiple inverters, ensure all inverter chassis protective grounding points are equipotentially connected.
  To improve terminal corrosion resistance, it is recommended to apply silicone or paint to the external part of the grounding terminal after the protective ground wire connection installation is complete. Please prepare your own protective ground wire. Recommended specifications:
  - Type: Outdoor single-core copper wire
  - Conductor cross-sectional area: 4mm^2



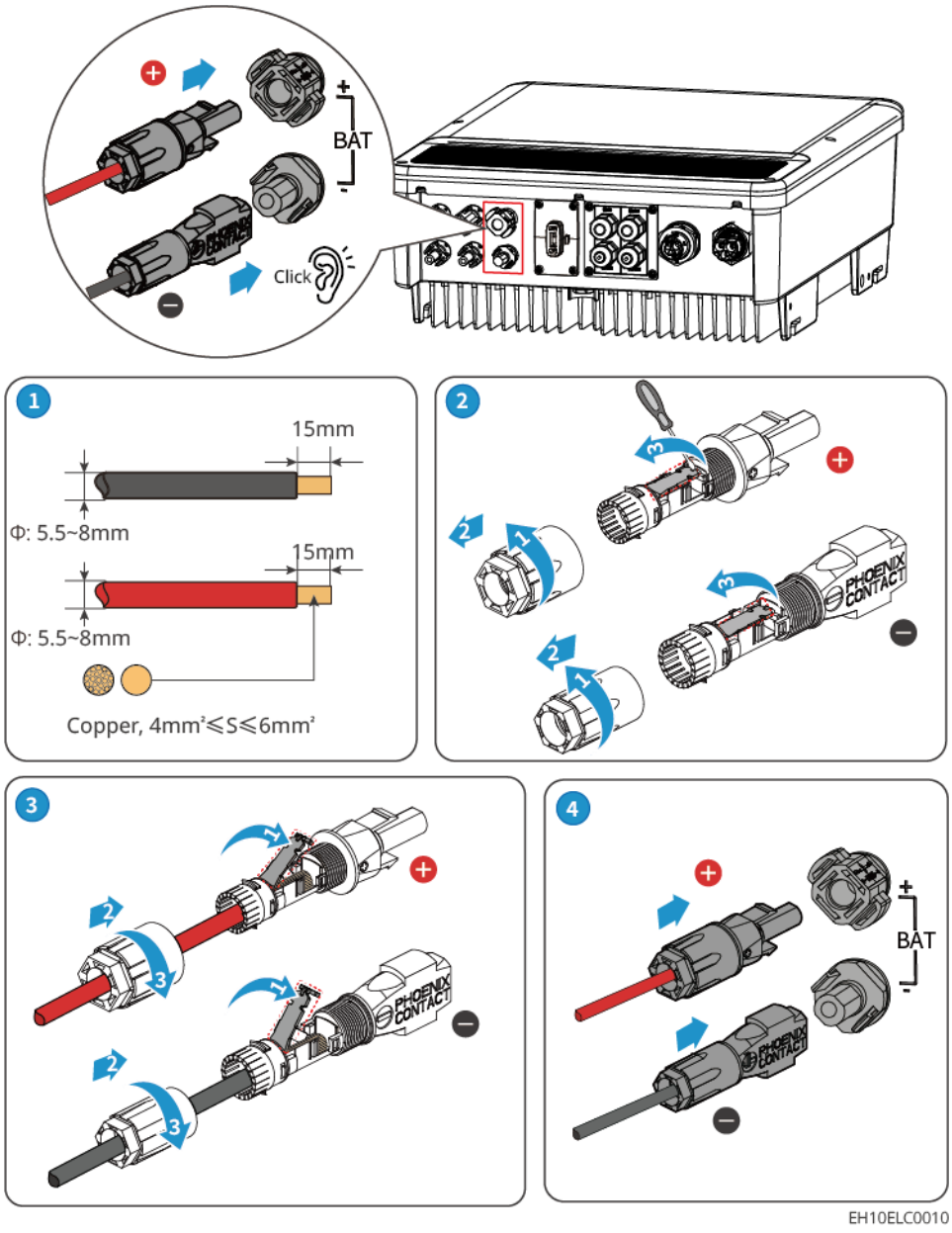
6.4 Connecting DC Input Cables (PV)

DANGER

- Do not connect the same PV string to multiple inverters, as this may cause inverter damage.
- Before connecting the PV string to the inverter, confirm the following information. Failure to do so may cause permanent damage to the inverter, and in severe cases, may lead to fire resulting in personal injury and property loss.
  1. Ensure the maximum short-circuit current and maximum input voltage for each MPPT are within the inverter's allowable range.
  2. Ensure the positive pole of the PV string is connected to the inverter's PV+, and the negative pole of the PV string is connected to the inverter's PV-.

WARNING

PV string output does not support grounding. Before connecting the PV string to the inverter, please ensure that the minimum insulation resistance to ground of the PV string meets the minimum insulation impedance requirement R (R = Max. Input Voltage / 30mA).



6.5 Connecting the Battery Cable

NOTICE

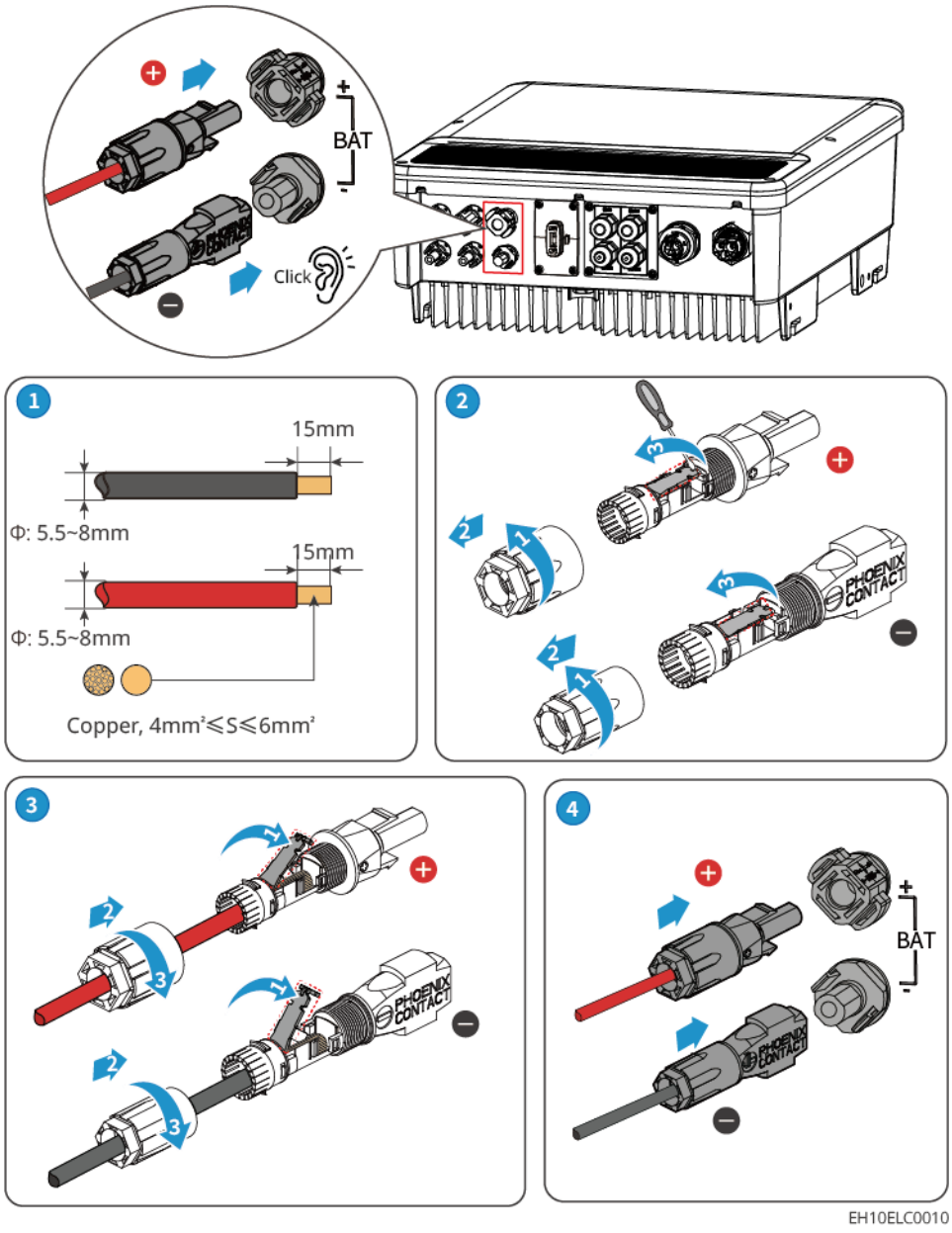
- For Battery-Ready models, if battery-related functions are required, please contact the manufacturer to activate the feature first. Before activating the battery function, do not connect the battery to the inverter, otherwise the inverter will stop working.
- When the battery is not connected, please ensure the battery connection port is well sealed.

DANGER

- Batteries used with the inverter must be approved by the inverter manufacturer. The approved battery list can be obtained from the official website.
- Battery short circuits may cause personal injury. The instantaneous high current from a short circuit can release a large amount of energy, potentially causing a fire.
- Before connecting battery cables, ensure that the inverter and battery are powered off, and both the front and rear switches of the equipment are disconnected.
- When the inverter is running, it is prohibited to connect or disconnect battery cables. Violation may lead to electric shock DANGER.
- Do not connect the same battery bank to multiple inverters, as this may cause inverter damage.
- It is prohibited to connect loads between the inverter and the battery.
- When connecting battery cables, use insulated tools to prevent accidental electric shock or causing a battery short circuit.
- Ensure that the battery open-circuit voltage is within the allowable range of the inverter.

WARNING

- When wiring, ensure the battery cables match the "BAT+", "BAT-" terminals and the grounding port on the battery exactly. Incorrect cable connection will cause equipment damage.
- Ensure the wire core is fully inserted into the terminal connection hole with no exposed part.
- Ensure the cable connections are tight. Otherwise, during equipment operation, loose connections may cause terminal overheating and equipment damage.
- If the battery does not have a built-in DC circuit breaker internally, please connect an external DC circuit breaker. Recommended specification: 40A/600V.



6.6 Connecting AC Power Cord

NOTICE

- Each inverter must be equipped with an AC output switch. Multiple inverters must not be connected to a single AC switch simultaneously. Do not connect any load between the inverter and the AC switch directly connected to it.
- To ensure the inverter can safely disconnect from the grid in case of an abnormality, an AC switch must be installed on the AC side of the inverter. Select a suitable AC switch according to local regulations.
- The protective earth (PE) wire of the AC cable should be longer than the Neutral (N) and Line (L) wires, so that if the AC cable slips out or is pulled, the protective earth conductor is the last to bear the strain.
- The method for removing the AC terminal protective cover is subject to the physical product.

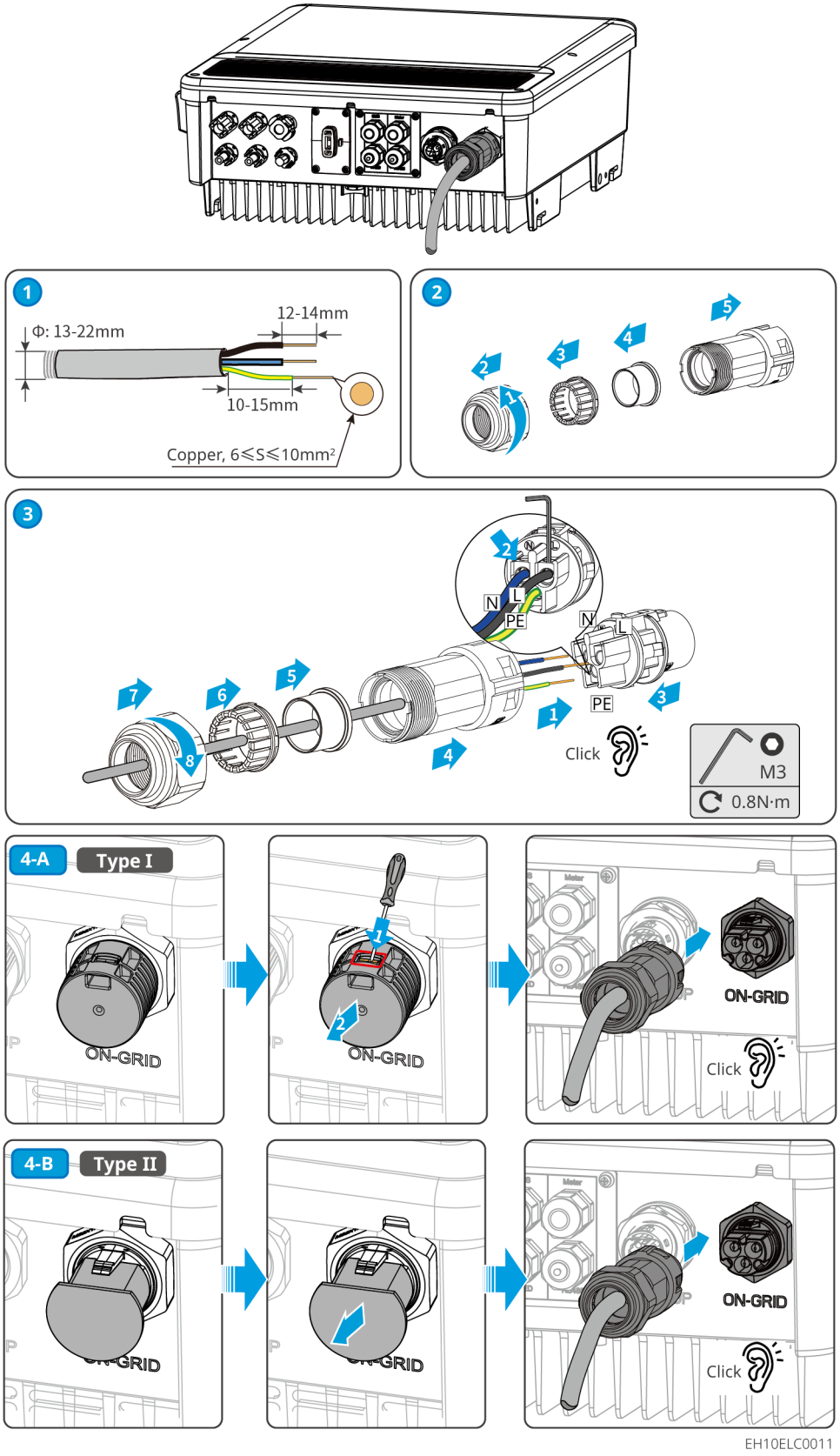
WARNING

- During wiring, ensure the AC wires correspond exactly to the "L", "N", and "PE" terminals on the AC terminal block. Incorrect cable connection will cause equipment damage.
- Ensure the wire cores are fully inserted into the terminal wiring holes with no exposed parts.
- Ensure the cable connections are tight. Otherwise, during equipment operation, the terminal block may overheat, leading to equipment damage.
- Even if the BACK-UP port is not in use, the BACK-UP connector from the accessory box must be installed on the BACK-UP port to ensure port protection and eliminate any risk of electric shock to personnel.

WARNING

- Do not directly connect a generator to the AC side.
- The inverter has an integrated Residual Current Monitoring Unit (RCMU). When a leakage current exceeding the permissible value is detected, the inverter will quickly disconnect from the grid.
- The inverter's ON-GRID and BACK-UP AC ports have built-in relays. When the inverter is in off-grid mode, the built-in ON-GRID relay is in the open state; when the inverter is in grid-connected operation mode, the built-in ONGRID relay is in the closed state.
- After the inverter is powered on, the BACK-UP AC port is live. If maintenance is required on the BACK-UP Loads, power down the inverter; otherwise, it may cause electric shock.
- Choose whether to connect a Residual Current Device (RCD) according to local laws and regulations. The inverter can additionally be connected to a Type A RCD, which provides protection when the DC component of the leakage current exceeds the limit. Recommended RCD specification: ≥30mA.
- When the usage scenario does not require connecting AC cables, install connectors on the ON-GRID and BACK-UP ports to ensure the ports are protected and there is no risk of electric shock.

6.6.1 Connect AC Cable (ON-GRID)



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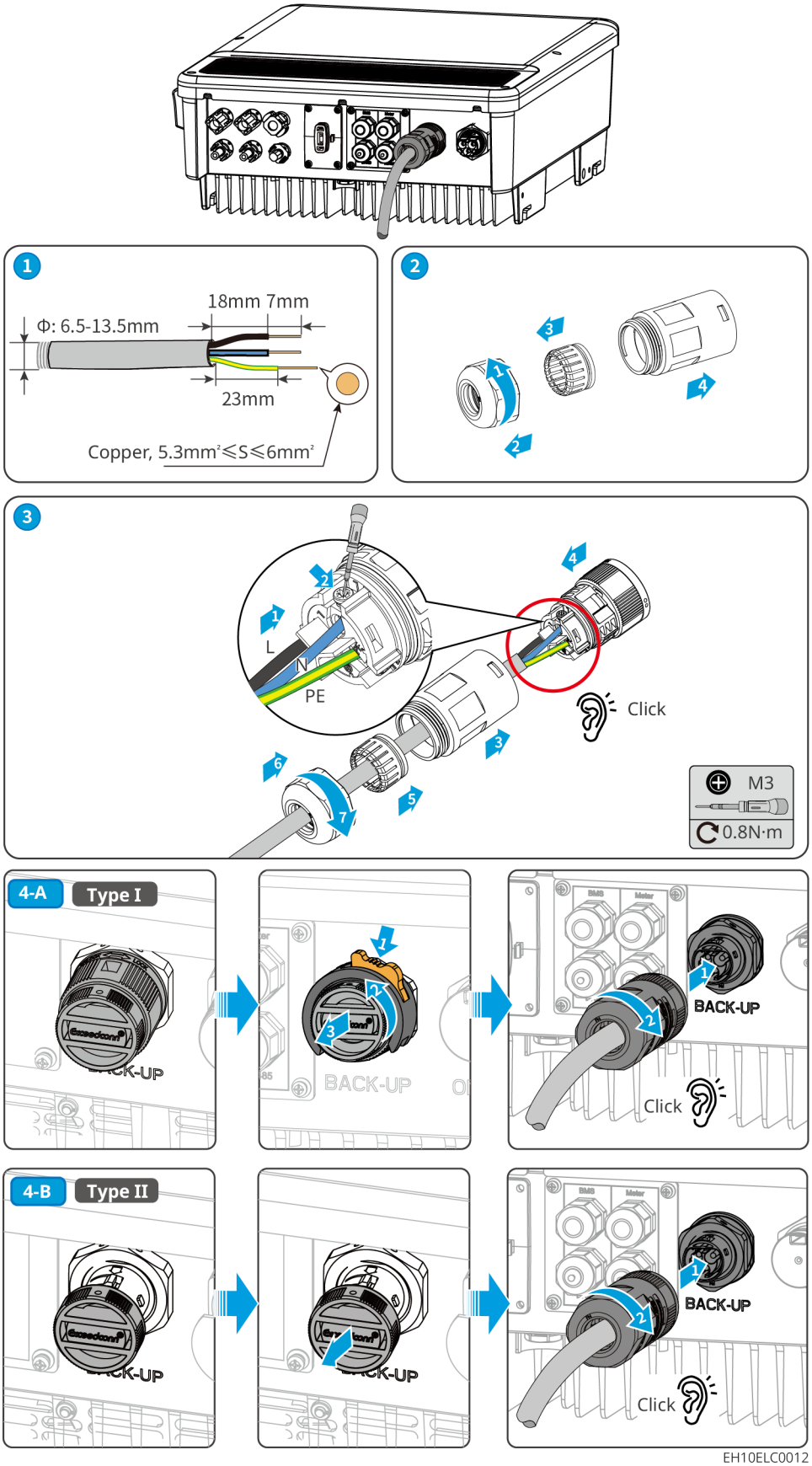
6.6.2 Connecting AC Cable (BACK-UP)

NOTICE

- Ensure the protective grounding wire for BACK-UP is correctly and securely connected; otherwise, the BACK-UP function may malfunction during a grid fault.
- The BACK-UP side of the inverter must not be connected to the grid or to other inverters.
- For maintenance convenience, it is recommended to install a Double-Pole Three-Throw (DP3T) switch on the BACK-UP side.

WARNING

- If an AC circuit breaker is not used on the off-grid side, electrical short circuits may damage the inverter, and the inverter's off-grid function cannot be turned off during grid connection.
- Recommended circuit breaker specification: 32A/230V.



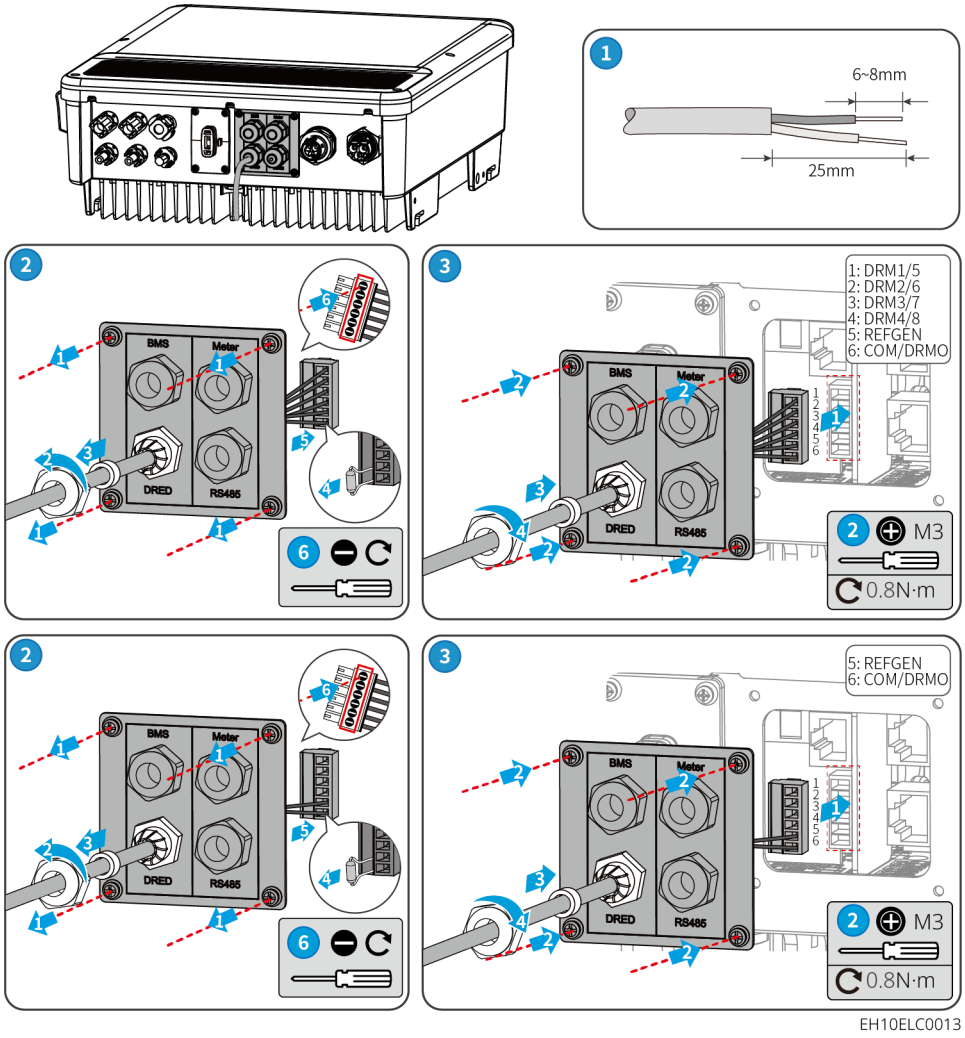
EH10ELC0012

6.7 Communication Connection

6.7.1 Connect Communication Cable

NOTICE

- When connecting communication cables, ensure the port definitions match the device exactly. Route cables away from interference sources and power lines to avoid affecting signal reception.
- The DRED function is applicable in Australia and New Zealand. When connecting the DRED communication cable, use the 6PIN communication terminal. Prepare your own communication cable and third-party DRED device.
- When connecting the remote shutdown communication cable, prepare your own communication cable and connect it to the 2PIN of the communication terminal.
- The communication terminal is equipped with resistors. Remove and store the resistors properly before use.



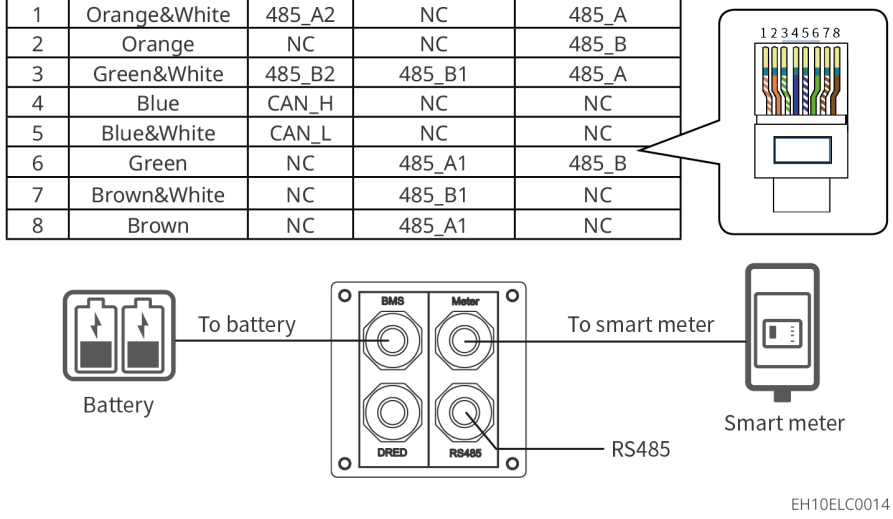
EH10ELC0013

6.7.2 Connecting the Meter or Battery Communication Cable (Optional)

NOTICE

- The electricity meter and CT are shipped with the package, and relevant parameters have been preset at the factory. Please do not modify them.
- The inverter package includes a BMS battery communication cable and a communication cable between the meter and the inverter. For Battery Ready models, please prepare your own BMS battery communication cable not exceeding 5 meters.
- The electricity meter shipped with the package is for use with a single inverter only. Do not connect one meter to multiple inverters. If multiple inverters are required, please consult the manufacturer to purchase meters separately.
- Please ensure the CT connection direction is correct and connected to the correct phase line, e.g., CT1 to L1, CT2 to L2, CT3 to L3. For specific operations, please refer to the electricity meter manual.
- The battery and meter communication supports connection with a standard RJ45 connector. The port definition is as follows:

No.	Color	BMS	Smart meter	RS485
1	Orange&White	485_A2	NC	485_A
2	Orange	NC	NC	485_B
3	Green&White	485_B2	485_B1	485_A
4	Blue	CAN_H	NC	NC
5	Blue&White	CAN_L	NC	NC
6	Green	NC	485_A1	485_B
7	Brown&White	NC	485_B1	NC
8	Brown	NC	485_A1	NC

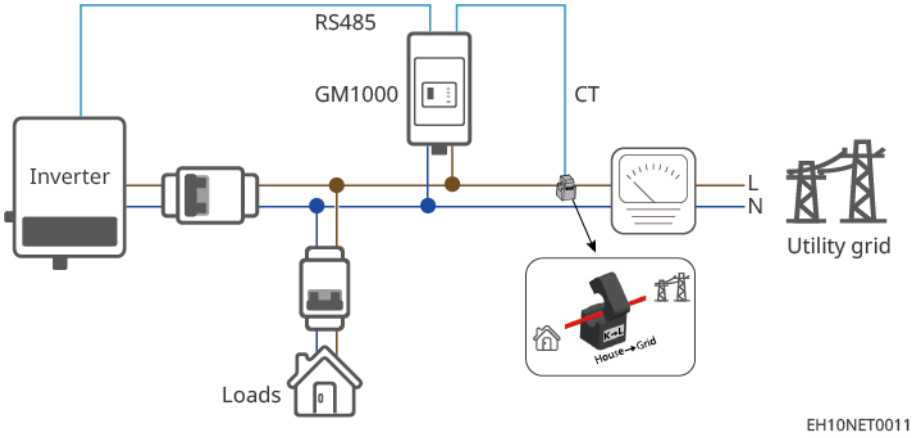


NOTICE

Paired with an electricity meter, it enables anti-backflow functionality. The specific networking scheme is as follows.

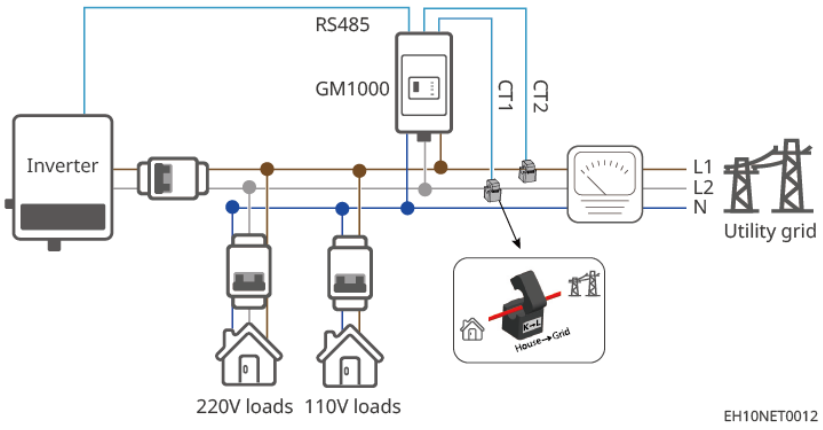
Anti-reverse power flow networking solution (Single-phase scenario)

When the connected load is a single-phase load, the EH and EH Plus series inverters can be paired with the GM1000 meter to achieve anti-reverse power flow functionality.



Anti-reverse power flow networking solution (Split-phase scenario)

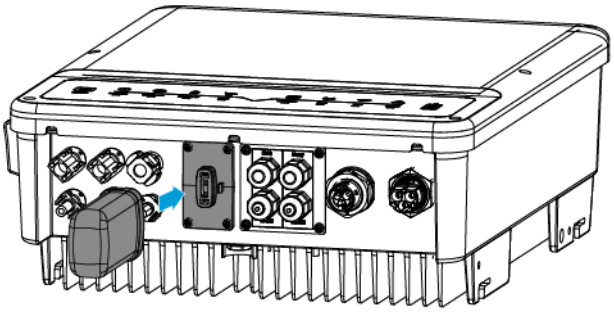
When the connected load is a split-phase load, the EH and EH Plus series inverters can be paired with the GM3000 meter to achieve anti-reverse power flow functionality.



6.7.3 Install Communication Module (Optional)

The inverter supports connecting to mobile phones or the WEB interface via Bluetooth, WiFi, LAN, and 4G communication modules to set device-related parameters, view device operation information, error information, and promptly understand the system status.

WiFi Kit, Wi-Fi/LAN Kit module: optional.



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Reset and Reload WiFi

Short press the WiFi reset button, the WiFi indicator will blink for a few seconds until the WiFi module restarts.

Long press the WiFi reset button, the WiFi indicator will continuously flash twice until the WiFi is reconfigured or the module is restored to factory settings.

When encountering the following WiFi function issues, you can reset or reload the WiFi module.

- Unable to connect to the PV Master app;
- Cannot find the Solar-WiFi signal;
- Wi-Fi disconnects from the network and other configuration issues.

7 Equipment Trial Run

7.1 Pre-power-on Check

No.	Inspection Item
1	The inverter is securely installed, the installation location facilitates operation and maintenance, the installation space allows for ventilation and heat dissipation, and the installation environment is clean and tidy.
2	PE cable, DC input cables, AC output cables, and communication cables are connected correctly and securely.
3	Cable bundling meets wiring requirements, is reasonably distributed, and shows no damage.
4	Ensure waterproof covers are installed on unused cable feed-through holes.
5	The voltage and frequency at the inverter grid connection point comply with grid interconnection requirements.

7.2 Device Power-On

1. Close the inverter ON-GRID side AC circuit breaker.
2. Close the inverter BACK-UP side AC circuit breaker.
3. Close the energy storage circuit breaker between the inverter and the battery.
4. Close the inverter's DC switch.

8 System Commissioning

8.1 Indicator Lights and Buttons Introduction

Indicator	Status	Description
SYSTEM		Steady on = System is ready
		Single blink = System is starting up
		Off = System is not working
BACK-UP		Steady on = BACKUP function is ready
		Off = BACKUP function is disabled
BATTERY		Steady on = Battery charging
		Single blink = Battery discharging
		Double blink = Battery low / Low SOC
		Off = Battery disconnected / Not working properly
GRID		Steady on = Grid connected, working normally
		Blinking = Grid normal, but failed to connect to grid
		Off = Grid not working properly
ENERGY		Steady on = buy power from the grid / Buying power
		Single blink = Supplying power to grid / Neither buying nor selling
		Double blink = Supplying power to grid / Export Energy

Indicator	Status	Description
		Off = Not connected to grid, or system not working
COM		Steady on = BMS and meter communication normal
		Single blink = Meter communication normal, BMS disconnected
		Double blink = BMS normal, meter communication disconnected
		Off = Both BMS and meter connections disconnected
WiFi		Steady on = WiFi normal, connected
		Single blink = WiFi resetting
		Double blink = WiFi not connected to router
		Quadruple blink = WiFi server issue
		Off = WiFi not working properly
FAULT		Steady on = fault
		Single blink = BACKUP overload / Reduce load
		Quadruple blink = Abnormal meter detection result
		Off = No fault

8.2 Configuring Inverter Parameters via SolarGo App

SolarGo App is a mobile application software that can communicate with inverters via Bluetooth signals and WiFi signals. The common features are as follows:

1. View the inverter's operational data, software version, alarm information, etc.
2. Configure the inverter's grid parameters, communication parameters, etc.
3. Maintain the device.

For details, please refer to the "SolarGo APP User Manual". The user manual can be obtained from the official website or by scanning the QR code below.

SolarGo APP

SolarGo APP User Manual

8.3 Power Plant Monitoring via SEMS Portal

SEMS Portal is a monitoring platform that can communicate with devices via WiFi, LAN, or 4G. The following are the commonly used functions of Xiaogu Cloud Window:

1. Manage organization or user information, etc.
2. Add and monitor power plant information, etc.
3. Maintain equipment.

SEMS Portal App

9 Maintenance

9.1 Inverter Shutdown

DANGER

- When performing operation and maintenance on the inverter, please power it off. Operating the equipment while energized may cause inverter damage or pose an electrical shock hazard.
- After the inverter is powered off, the internal components require a certain amount of time to discharge. Please wait according to the time requirement on the label until the device is completely discharged.

1. Disconnect the inverter ON-GRID side AC circuit breaker.
2. Disconnect the inverter BACK-UP side AC circuit breaker.
3. Disconnect the energy storage circuit breaker between the inverter and the battery.
4. Disconnect the inverter's DC switch.

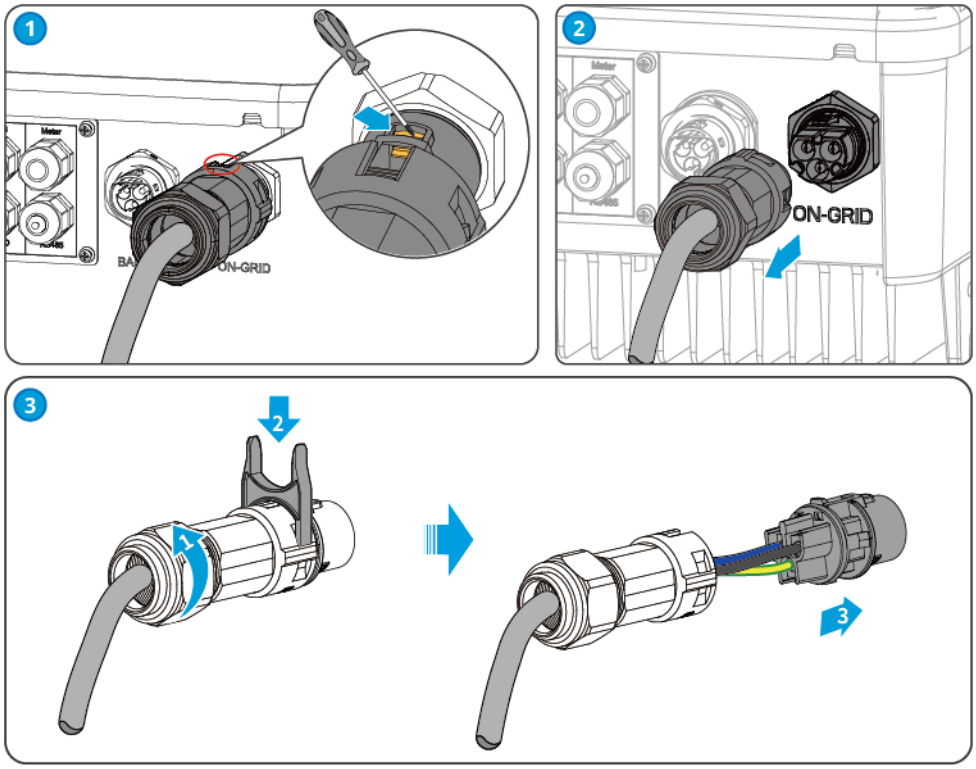
9.2 Inverter Removal

WARNING

- Ensure the inverter is powered off.
- Wear personal protective equipment when operating the inverter.

1. Disconnect all electrical connections of the inverter, including: DC cables, AC cables, Communication cable, smart dongle, PE cable.
2. Remove the inverter from the back mounting plate.
3. Remove the back mounting plate.
4. Store the inverter properly. If the inverter is to be put into use again later, ensure the storage conditions meet the requirements.

Removing ON-GRID AC Terminals



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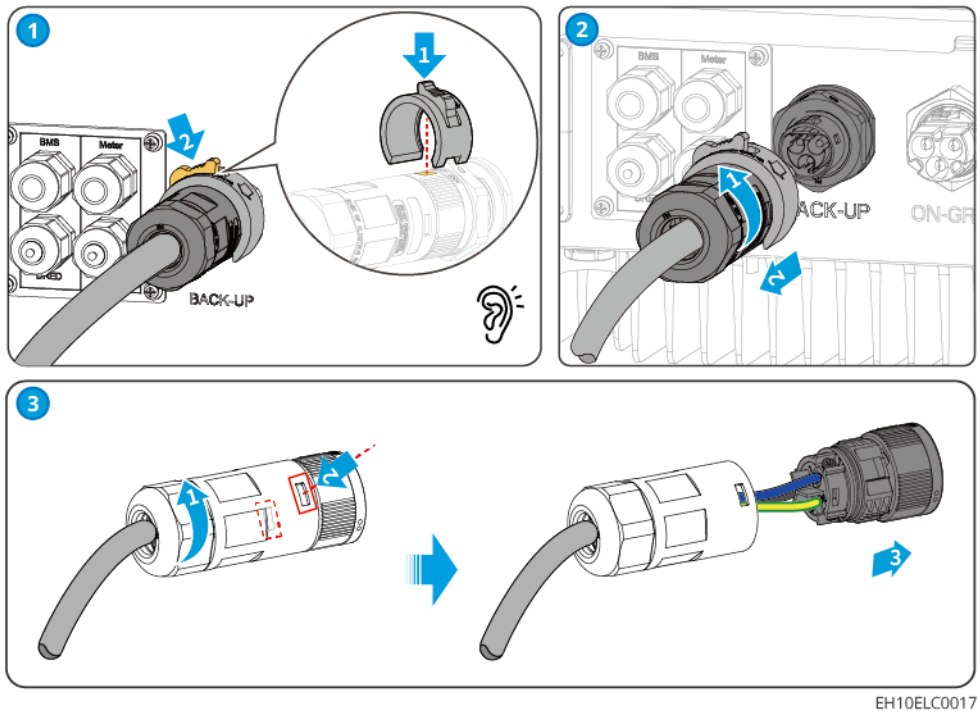
Removing BACK-UP AC Terminals



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9.3 Scrapped Inverter

When an inverter can no longer be used and needs to be scrapped, it must be disposed of in accordance with the electrical waste disposal requirements of the regulations in the country/region where the inverter is located. The inverter must not be disposed of as general household waste.

9.4 Inverter Fault

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F01	Grid Power Outage	1. Grid power outage. 2. AC line or AC switch is disconnected.	1. The alarm will disappear automatically after grid power is restored. 2. Check whether the AC line or AC switch is disconnected.

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F02	Grid Overvoltage Protection	The grid voltage is higher than the allowable range, or the duration of high voltage exceeds the high voltage ride-through (HVRT) setting.	1. If it occurs occasionally, it may be due to a temporary grid anomaly. The inverter will resume normal operation after detecting the grid is normal, requiring no manual intervention. 2. If it occurs frequently, check whether the grid voltage is within the allowable range. • If the grid voltage is outside the allowable range, contact the local power operator. • If the grid voltage is within the allowable range, after obtaining consent from the local power operator, modify the inverter's grid overvoltage protection point, HVRT settings, or disable the grid overvoltage protection function. 3. If normal operation cannot be restored for a long time, check whether the AC side circuit breaker and output cables are properly connected.

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F03	Grid Undervoltage Protection	The grid voltage is lower than the allowable range, or the duration of low voltage exceeds the low voltage ride-through (LVRT) setting.	1. If it occurs occasionally, it may be due to a temporary grid anomaly. The inverter will resume normal operation after detecting the grid is normal, requiring no manual intervention. 2. If it occurs frequently, check whether the grid voltage is within the allowable range. • If the grid voltage is outside the allowable range, contact the local power operator. • If the grid voltage is within the allowable range, after obtaining consent from the local power operator, modify the inverter's grid undervoltage protection point, LVRT settings, or disable the grid undervoltage protection function. 3. If normal operation cannot be restored for a long time, check whether the AC side circuit breaker and output cables are properly connected.

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F04	Grid Rapid Overvoltage Protection	Abnormal grid voltage detection or extremely high voltage triggers the fault.	1. If it occurs occasionally, it may be due to a temporary grid anomaly. The inverter will resume normal operation after detecting the grid is normal, requiring no manual intervention. 2. If it occurs frequently, check whether the grid voltage is within the allowable range. • If the grid voltage is outside the allowable range, contact the local power operator. • If the grid voltage is within the allowable range, after obtaining consent from the local power operator, modify the inverter's grid undervoltage protection point, LVRT settings, or disable the grid undervoltage protection function. 3. If normal operation cannot be restored for a long time, check whether the AC side circuit breaker and output cables are properly connected.

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F05	10min Overvoltage Protection	The moving average of grid voltage exceeds the range specified by safety regulations within 10min.	1. If it occurs occasionally, it may be due to a temporary grid anomaly. The inverter will resume normal operation after detecting the grid is normal, requiring no manual intervention. 2. Check if the grid voltage has been operating at a high level for a long time. If it occurs frequently, check whether the grid voltage is within the allowable range. • If the grid voltage is outside the allowable range, contact the local power operator. • If the grid voltage is within the allowable range, after obtaining consent from the local power operator, modify the grid 10min overvoltage protection point.

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F06	Grid Overfrequency	Grid anomaly: The actual grid frequency is higher than the local grid standard requirement.	1. If it occurs occasionally, it may be due to a temporary grid anomaly. The inverter will resume normal operation after detecting the grid is normal, requiring no manual intervention. 2. If it occurs frequently, check whether the grid frequency is within the allowable range. • If the grid frequency is outside the allowable range, contact the local power operator. • If the grid frequency is within the allowable range, after obtaining consent from the local power operator, modify the grid overfrequency protection point.

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F07	Grid Underfrequency	Grid anomaly: The actual grid frequency is lower than the local grid standard requirement.	1. If it occurs occasionally, it may be due to a temporary grid anomaly. The inverter will resume normal operation after detecting the grid is normal, requiring no manual intervention. 2. If it occurs frequently, check whether the grid frequency is within the allowable range. • If the grid frequency is outside the allowable range, contact the local power operator. • If the grid frequency is within the allowable range, after obtaining consent from the local power operator, modify the grid overfrequency protection point.

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F08	Grid Frequency Instability	Grid anomaly: The rate of change of the actual grid frequency does not comply with the local grid standard.	1. If it occurs occasionally, it may be due to a temporary grid anomaly. The inverter will resume normal operation after detecting the grid is normal, requiring no manual intervention. 2. If it occurs frequently, check whether the grid frequency is within the allowable range. • If the grid frequency is outside the allowable range, contact the local power operator. • If the grid frequency is within the allowable range, contact your distributor or after-sales service center.

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F163	Grid Phase Instability	Grid anomaly: The rate of change of the grid voltage phase does not comply with the local grid standard.	1. If it occurs occasionally, it may be due to a temporary grid anomaly. The inverter will resume normal operation after detecting the grid is normal, requiring no manual intervention. 2. If it occurs frequently, check whether the grid frequency is within the allowable range. • If the grid frequency is outside the allowable range, contact the local power operator. • If the grid frequency is within the allowable range, contact your distributor or after-sales service center.

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F09	Anti-islanding Protection	The grid has been disconnected, but grid voltage is maintained due to the presence of loads. Grid connection is stopped according to safety protection requirements.	1. If it occurs occasionally, it may be due to a temporary grid anomaly. The inverter will resume normal operation after detecting the grid is normal, requiring no manual intervention. 2. If it occurs frequently, check whether the grid frequency is within the allowable range. • If the grid frequency is outside the allowable range, contact the local power operator. • If the grid frequency is within the allowable range, contact your distributor or after-sales service center.
F10	LVRT Undervoltage Fault	Grid anomaly: The duration of abnormal grid voltage exceeds the time specified for high/low voltage ride-through.	1. If it occurs occasionally, it may be due to a temporary grid anomaly. The inverter will resume normal operation after detecting the grid is normal, requiring no manual intervention. 2. If it occurs frequently, check whether the grid voltage and frequency are within the allowable range and stable. If not, contact the local power operator; if yes, contact your distributor or after-sales service center.
F11	HVRT Overvoltage	Grid anomaly: The duration of abnormal grid voltage exceeds the time specified for high/low voltage ride-through.	

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F43	Grid Waveform Abnormal	Grid anomaly: Abnormal grid voltage detection triggers the fault.	1. If it occurs occasionally, it may be due to a temporary grid anomaly. The inverter will resume normal operation after detecting the grid is normal, requiring no manual intervention. 2. If it occurs frequently, check whether the grid voltage and frequency are within the allowable range and stable. If not, contact the local power operator; if yes, contact your distributor or after-sales service center.
F44	Grid Phase Loss	Grid anomaly: Single-phase voltage dip in the grid.	
F45	Grid Voltage Imbalance	Excessive difference in grid phase voltages.	
F46	Grid Phase Sequence Failure	Abnormal wiring between inverter and grid: wiring is not in positive sequence	1. Check if the wiring between the inverter and the grid is in positive sequence. The fault will automatically clear after correct wiring (e.g., swapping any two live wires). 2. If the fault persists despite correct wiring, please contact the dealer or after-sales service center.
F47	Grid Rapid Shutdown Protection	Quickly shuts down output after detecting grid power loss condition	1. The fault automatically clears after grid power supply is restored.

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F48	Grid Neutral Wire Loss	Loss of neutral wire in split-phase grid	1. The alarm automatically clears after grid power supply is restored. 2. Check if the AC line or AC switch is disconnected.
F160	EMS/Forced Off-grid	EMS issued forced off-grid command, but off-grid function is not enabled	Enable the off-grid function.
F161	Passive Anti-islanding Protection	-	-
F162	Grid Type Fault	Actual grid type (two-phase or split-phase) does not match the set safety standard.	Switch to the corresponding safety standard based on the actual grid type.
F12	30mA GFCI Protection	The insulation resistance of the input to ground becomes low during inverter operation.	1. If it occurs occasionally, it may be caused by temporary external line anomalies. The inverter will resume normal operation after the fault clears, requiring no manual intervention. 2. If it occurs frequently or cannot recover for a long time, please check if the PV string's insulation resistance to ground is too low.

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F13	60mA GFCI Protection	The insulation resistance of the input to ground becomes low during inverter operation.	1. If it occurs occasionally, it may be caused by temporary external line anomalies. The inverter will resume normal operation after the fault clears, requiring no manual intervention. 2. If it occurs frequently or cannot recover for a long time, please check if the PV string's insulation resistance to ground is too low.
F14	150mA GFCI Protection	The insulation resistance of the input to ground becomes low during inverter operation.	1. If it occurs occasionally, it may be caused by temporary external line anomalies. The inverter will resume normal operation after the fault clears, requiring no manual intervention. 2. If it occurs frequently or cannot recover for a long time, please check if the PV string's insulation resistance to ground is too low.
F15	GFCI Gradual Change Protection	The insulation resistance of the input to ground becomes low during inverter operation.	1. If it occurs occasionally, it may be caused by temporary external line anomalies. The inverter will resume normal operation after the fault clears, requiring no manual intervention. 2. If it occurs frequently or cannot recover for a long time, please check if the PV string's insulation resistance to ground is too low.

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F16	DCI Level 1 Protection	The DC component of the inverter output current exceeds the safety standard or the machine's default allowable range.	1. If it is caused by an external fault, the inverter will automatically resume normal operation after the fault disappears, requiring no manual intervention. 2. If this alarm occurs frequently, affecting normal power generation of the power station, please contact the dealer or after-sales service center.
F17	DCI Level 2 Protection	The DC component of the inverter output current exceeds the safety standard or the machine's default allowable range.	1. If it is caused by an external fault, the inverter will automatically resume normal operation after the fault disappears, requiring no manual intervention. 2. If this alarm occurs frequently, affecting normal power generation of the power station, please contact the dealer or after-sales service center.

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F18	Low Insulation Resistance	1. PV string shorted to protective earth. 2. The PV string is installed in a long-term humid environment with poor line-to-ground insulation. 3. Low insulation resistance of battery port wiring to ground.	1. Check the insulation resistance of the PV string/battery port to protective earth. A value greater than 80kΩ is normal. If the measured value is less than 80kΩ, locate and rectify the short circuit point. 2. Check if the inverter's protective earth wire is correctly connected. 3. If the resistance is indeed lower than the default value in rainy/overcast environments, please reset the inverter's "Insulation Resistance Protection Point" via the App. For inverters in the Australian and New Zealand markets, insulation resistance faults can also be alerted via: 1. The inverter is equipped with a buzzer. When a fault occurs, the buzzer sounds continuously for 1 minute; if the fault is not resolved, the buzzer sounds again every 30 minutes. 2. If the inverter is added to a monitoring platform and alarm notification methods are set, alarm information can be sent to customers via email.

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F19	Grounding Abnormal	1. The inverter's protective earth wire is not connected. 2. When the PV string output is grounded, the inverter output side is not connected to an isolation transformer.	1. Please confirm if the inverter's protective earth wire is not properly connected. 2. In scenarios where the PV string output is grounded, please confirm if an isolation transformer is connected to the inverter output side.
F49	L-PE Short Circuit	Low impedance or short circuit between output phase line and PE	Measure the impedance between the output phase line and PE, locate the position with low impedance and repair it.
F50	DCV Level 1 Protection	Load Abnormal Fluctuation	1. If the abnormality is caused by an external fault, the inverter will automatically resume normal operation after the fault disappears, requiring no manual intervention. 2. If this alarm occurs frequently, affecting the normal power generation of the power station, please contact the dealer or after-sales service center.

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F51	DCV Level 2 Protection	Load Abnormal Fluctuation	1. If the abnormality is caused by an external fault, the inverter will automatically resume normal operation after the fault disappears, requiring no manual intervention. 2. If this alarm occurs frequently, affecting the normal power generation of the power station, please contact the dealer or after-sales service center.
F20	Hardware Export Limit Protection	Load Abnormal Fluctuation	1. If the abnormality is caused by an external fault, the inverter will automatically resume normal operation after the fault disappears, requiring no manual intervention. 2. If this alarm occurs frequently, affecting the normal power generation of the power station, please contact the dealer or after-sales service center.
F21	Internal Comm Loss	Refer to specific subcode cause	Turn off the AC output side switch and DC input side switch, wait for 5 minutes, then turn on the AC output side switch and DC input side switch. If the fault persists, please contact the dealer or after-sales service center.

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F52	Ground Fault Current (GFCI) Multiple Fault Shutdown	North American safety regulations require no automatic recovery after multiple faults; manual recovery or waiting 24h is needed.	1. Please check if the PV string's ground impedance is too low.
F53	DC Arc (AFCI) Multiple Fault Shutdown	North American safety regulations require no automatic recovery after multiple faults; manual recovery or waiting 24h is needed.	1. After the machine reconnects to the grid, check if the voltage and current of each circuit abnormally decrease or become zero; 2. Check if the DC side terminals are securely connected.
F54	External Communication Loss	Inverter external device communication lost, possibly due to peripheral power supply issues, communication protocol mismatch, or no corresponding peripheral configured, etc.	Determine based on the actual model and detection enable bits; peripherals not supported by some models will not be detected.

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F55	Back-up Port Overload fault	1. Prevents the inverter from continuously outputting overload.	1. Turn off some off-grid loads to reduce the inverter's off-grid output power.
F56	Back-up Port Overvoltage fault	2. Prevents inverter output overvoltage from damaging loads.	1. If it occurs occasionally, it may be caused by load switching and requires no manual intervention. 2. If it occurs frequently, please contact the dealer or after-sales service center.
F107	On-grid PWM Sync Failure	Abnormality occurred during carrier synchronization for grid connection.	1. Check if the synchronization cable connection is normal. 2. Check if the master/slave settings are normal; 3. Turn off the AC output side switch and DC input side switch, wait for 5 minutes, then turn on the AC output side switch and DC input side switch. If the fault persists, please contact the dealer or after-sales service center.
F57	External Box fault	Waiting too long for the Box to switch relays during grid-to-off-grid transition.	1. Check if the Box is working normally; 2. Check if the Box communication wiring is correct;
-	Generator Failure		

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F22	Generator Waveform Detection fault	1. This fault will be displayed continuously if no generator is connected. 2. When the generator is operating, failure to meet generator safety regulations will trigger this fault.	1. Ignore this fault if no generator is connected; 2. This fault appearing when the generator has a fault is normal. The fault will clear automatically after the generator recovers and waits for a period; 3. This fault does not affect the normal operation of off-grid mode; 4. When both the generator and grid are connected and meet safety requirements, the grid has priority for connection, and the system will operate in grid-connected mode.
F23	Generator Abnormal Connection		
F24	Generator Voltage Low		
F25	Generator Voltage High		
F26	Generator Frequency Low		
F27	Generator Frequency High		
F109	External STS fault	Abnormal connection cable between inverter and STS	Check if the wiring sequence of the harness between the inverter and the STS corresponds one by one in order.
F58	CT Loss fault	CT connection wire disconnected (Japanese safety standard requirement)	Check if the CT wiring is correct.

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F110	Export Limit Protection	1. Inverter reports error and disconnects from grid 2. meter communication is unstable 3. Reverse power flow condition occurs	1. Check if there are other error messages from the inverter. If so, handle them accordingly. 2. Check if the meter connection is reliable. 3. If this alarm occurs frequently and affects the normal power generation of the power station, please contact the distributor or after-sales service center.
F111	Bypass Overload	-	-
F112	Black Start Failure	-	-
F28	Parallel IO Self-check Abnormal	Parallel communication cable is not securely connected or parallel IO chip is damaged	Check if the parallel communication cable is securely connected, then check if the IO chip is damaged. If so, replace the IO chip.
F59	Parallel CAN Communication Abnormal	Parallel communication cable is not securely connected or some machines are offline	Check if all machines are powered on and if the parallel communication cables are securely connected.

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F29	Paralell Grid Line Reversed	Grid wires of some machines are reversed compared to others	Reconnect the grid wires.
F60	Parallel Back-up Line Reversed	Backup wires of some machines are reversed compared to others	Reconnect the backup wires.
F61	Inverter Soft Start Failure	Inverter soft start failure during off-grid cold start	Check if the inverter module of the machine is damaged.
F113	Offgrid AC Ins Volt High	-	-
F30	AC HCT check Abnormal	AC sensor has sampling abnormality	Turn off the AC output side switch and the DC input side switch, wait for 5 minutes, then turn on the AC output side switch and the DC input side switch. If the fault still exists, please contact the distributor or after-sales service center.
F62	AC HCT Failure	HCT sensor abnormal	Turn off the AC output side switch and DC input side switch, close them after 5 minutes. If the fault persists, please contact the distributor or after-sales service center.

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F31	GFCI HCT Check Abnormal	GFCI sensor sampling abnormal	Turn off the AC output side switch and DC input side switch, close them after 5 minutes. If the fault persists, please contact the distributor or after-sales service center.
F63	GFCI HCT Failure	GFCI sensor abnormal	Turn off the AC output side switch and DC input side switch, close them after 5 minutes. If the fault persists, please contact the distributor or after-sales service center.
F32	Relay Check Abnormal	Relay abnormal, possible causes: 1. Relay abnormal (relay short circuit) 2. Relay sampling circuit abnormal. 3. AC side wiring abnormal (may have poor connection or short circuit)	Turn off the AC output side switch and DC input side switch, close them after 5 minutes. If the fault persists, please contact the distributor or after-sales service center.

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F64	Relay Failure	1. Relay abnormal (relay short circuit) 2. Relay sampling circuit abnormal. 3. AC side wiring abnormal (may have poor connection or short circuit)	Turn off the AC output side switch and DC input side switch, close them after 5 minutes. If the fault persists, please contact the distributor or after-sales service center.
F164	DC Arcing Failure (String 17~32)	1. DC side connection terminals loose; 2. DC side connection terminals have poor contact; 3. DC cable core damaged leading to poor contact	1. After the machine reconnects to the grid, check if the voltage and current of each channel abnormally decrease to zero; 2. Check if the DC side terminals are securely connected.
F165	DC Arcing Failure (String 33~48)	1. DC side connection terminals loose; 2. DC side connection terminals have poor contact; 3. DC cable core damaged leading to poor contact	1. After the machine reconnects to the grid, check if the voltage and current of each channel abnormally decrease to zero; 2. Check if the DC side terminals are securely connected.

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F33	Flash Read/Write Error	Possible causes: flash content changed; flash lifespan exhausted;	1. Upgrade to the latest firmware. 2. Contact the distributor or after-sales service center.
F42	DC Arcing Failure (String 1~16)	1. DC side connection terminals loose; 2. DC side connection terminals have poor contact; 3. DC cable core damaged leading to poor contact	1. After the machine reconnects to the grid, check if the voltage and current of each channel abnormally decrease to zero; 2. Check if the DC side terminals are securely connected.
F34	AFCI Check Failure	The arc fault module did not detect an arc fault during the arc self-check process	Turn off the AC output side switch and DC input side switch, close them after 5 minutes. If the fault persists, please contact the distributor or after-sales service center.

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F65	AC Terminal Overtemperature	AC terminal overtemperature, possible causes: 1. Inverter installation location lacks ventilation. 2. Ambient temperature too high. 3. Internal fan operation abnormal.	1. Check if the inverter installation location has good ventilation and if the ambient temperature exceeds the maximum allowable range. 2. If ventilation is poor or ambient temperature is too high, please improve its ventilation and heat dissipation conditions. 3. If both ventilation and ambient temperature are normal, please contact the distributor or after-sales service center.
F35	Cabinet Overtemperature	Cabinet overtemperature, possible causes: 1. Inverter installation location lacks ventilation. 2. Ambient temperature too high. 3. Internal fan operation abnormal.	

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F66	INV Module Overtemperature	Inverter module overtemperature, possible causes: 1. Inverter installation location lacks ventilation. 2. Ambient temperature too high. 3. Internal fan operation abnormal.	
F67	Boost Module Overtemperature	Boost module overtemperature, possible causes: 1. Inverter installation location lacks ventilation. 2. Ambient temperature too high. 3. Internal fan operation abnormal.	

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F68	AC Capacitor Overtemperature	Output filter capacitor overtemperature, possible causes: 1. Inverter installation location lacks ventilation. 2. Ambient temperature too high. 3. Internal fan operation abnormal.	
F114	Relay Failure2	Relay abnormality, possible causes: 1. Relay abnormality (relay short circuit) 2. Relay sampling circuit abnormality. 3. AC side wiring abnormality (may have poor connection or short circuit)	Disconnect the AC output side switch and DC input side switch, wait 5 minutes, then close the AC output side switch and DC input side switch. If the fault persists, contact the dealer or after-sales service center.

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F69	PV IGBT Short Circuit Fault	Possible causes: 1. IGBT short circuit 2. Inverter sampling circuit abnormality	Disconnect the AC output side switch and DC input side switch, wait 5 minutes, then close the AC output side switch and DC input side switch. If the fault persists, contact the dealer or after-sales service center.
F70	PV IGBT Open Circuit Fault	1. Software issue causing no PWM signal: 2. Drive circuit abnormality: 3. IGBT open circuit	Disconnect the AC output side switch and DC input side switch, wait 5 minutes, then close the AC output side switch and DC input side switch. If the fault persists, contact the dealer or after-sales service center.
F71	NTC Abnormall	NTC temperature sensor abnormality	Disconnect the AC output side switch and DC input side switch, wait 5 minutes, then close the AC output side switch and DC input side switch. If the fault persists, contact the dealer or after-sales service center.
F72	PWM Abnormal	PWM abnormal waveform	Disconnect the AC output side switch and DC input side switch, wait 5 minutes, then close the AC output side switch and DC input side switch. If the fault persists, contact the dealer or after-sales service center.

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F73	CPU Interrupt Abnormal	CPU interrupt abnormality	Disconnect the AC output side switch and DC input side switch, wait 5 minutes, then close the AC output side switch and DC input side switch. If the fault persists, contact the dealer or after-sales service center.
F74	Microelectronics Fault	Functional safety detected abnormality	Disconnect the AC output side switch and DC input side switch, wait 5 minutes, then close the AC output side switch and DC input side switch. If the fault persists, contact the dealer or after-sales service center.
F75	PV HCT Fault	boost current sensor abnormality	Disconnect the AC output side switch and DC input side switch, wait 5 minutes, then close the AC output side switch and DC input side switch. If the fault persists, contact the dealer or after-sales service center.
F76	1. 5V Reference Abnormal	Reference circuit fault	Disconnect the AC output side switch and DC input side switch, wait 5 minutes, then close the AC output side switch and DC input side switch. If the fault persists, contact the dealer or after-sales service center.
F77	0. 3V Reference Abnormal	Reference circuit fault	

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F78	CPLD Version Identification Error	CPLD version identification error	Disconnect the AC output side switch and DC input side switch, wait 5 minutes, then close the AC output side switch and DC input side switch. If the fault persists, contact the dealer or after-sales service center.
F79	CPLD Communication Fault	CPLD and DSP communication content error or timeout	Disconnect the AC output side switch and DC input side switch, wait 5 minutes, then close the AC output side switch and DC input side switch. If the fault persists, contact the dealer or after-sales service center.
F80	Model Identification Fault	Fault regarding model identification error	Disconnect the AC output side switch and DC input side switch, wait 5 minutes, then close the AC output side switch and DC input side switch. If the fault persists, contact the dealer or after-sales service center.
F115	SVG Precharge Disabled	SVG precharge hardware failure	Contact the dealer or after-sales service center.
F116	Nighttime SVG PID Prevention Fault	PID prevention hardware abnormality	Contact the dealer or after-sales service center.
F117	DSP Version Identification Error	DSP Software Version Identification Error	Disconnect the AC output side switch and DC input side switch, after 5 minutes close the AC output side switch and DC input side switch. If the fault still exists, please contact the dealer or after-sales service center.

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F36	Bus Overvoltage	BUS Overvoltage, possible causes: 1. PV voltage is too high; 2. Inverter BUS voltage sampling abnormal; 3. The isolation effect of the inverter rear-end double-split transformer is poor, causing mutual influence when two inverters are connected to the grid, and one inverter reports DC overvoltage when connected to the grid;	Disconnect the AC output side switch and DC input side switch, after 5 minutes close the AC output side switch and DC input side switch. If the fault still exists, please contact the dealer or after-sales service center.
F81	P-Bus Overvoltage		
F82	N-Bus Overvoltage		
F83	Bus Overvoltage (Sub CPU1)		
F84	P-Bus Overvoltage (Sub CPU1)		
F85	N-Bus Overvoltage (Sub CPU1)		
F86	Bus Overvoltage (Sub CPU2)		
F87	P-Bus Overvoltage (Sub CPU2)		
F88	N-Bus Overvoltage (Sub CPU2)		
F89	P-Bus Overvoltage (CPLD)		
F90	N-Bus Overvoltage (CPLD)		

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F118	MOS Continuous Overvoltage	1. Software issue causes the inverter drive to turn off earlier than the flyback drive; 2. Inverter drive circuit abnormal causing it cannot turn on; 3. PV voltage is too high; 4. Mos voltage sampling abnormal;	Disconnect the AC output side switch and DC input side switch, after 5 minutes close the AC output side switch and DC input side switch. If the fault still exists, please contact the dealer or after-sales service center.
F119	Bus Short Circuit Fault	1. Hardware damage	If a BUS short circuit fault occurs and the inverter remains off-grid, please contact the dealer or after-sales service center.
F120	Bus Sampling Abnormal	1. Bus voltage sampling hardware fault	Disconnect the AC output side switch and DC input side switch, after 5 minutes close the AC output side switch and DC input side switch. If the fault still exists, please contact the dealer or after-sales service center.

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F121	DC Side Sampling Abnormal	1. Bus voltage sampling hardware fault 2. Battery voltage sampling hardware fault 3. Dcrly relay fault	Disconnect the AC output side switch and the DC input side switch, wait for 5 minutes, then close the AC output side switch and the DC input side switch. If the fault persists, please contact the dealer or after-sales service center.
F37	PV Input Overvoltage	PV input voltage is too high. Possible causes: Incorrect photovoltaic array configuration, too many solar panels connected in series in a string, causing the string's open-circuit voltage to exceed the inverter's maximum operating voltage.	Check the series configuration of the corresponding PV array string to ensure the string's open-circuit voltage does not exceed the inverter's maximum operating voltage. The inverter alarm will automatically clear after the PV array is correctly configured.
F38	PV Persistent Hardware Overcurrent	1. Unreasonable module configuration 2. Hardware damage	

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F39	PV Persistent Software Overcurrent	1. Unreasonable module configuration 2. Hardware damage	Disconnect the AC output side switch and the DC input side switch, wait for 5 minutes, then close the AC output side switch and the DC input side switch. If the fault persists, please contact the dealer or after-sales service center.
F91	FlyCap Software Overvoltage	FlyCap overvoltage. Possible causes: 1. PV voltage is too high; 2. Inverter FlyCap voltage sampling abnormal;	Disconnect the AC output side switch and the DC input side switch, wait for 5 minutes, then close the AC output side switch and the DC input side switch. If the fault persists, please contact the dealer or after-sales service center.
F92	FlyCap Hardware Overvoltage	FlyCap overvoltage. Possible causes: 1. PV voltage is too high; 2. Inverter FlyCap voltage sampling abnormal;	

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F93	FlyCap Undervoltage	FlyCap undervoltage. Possible causes: 1. PV energy insufficient; 2. Inverter FlyCap voltage sampling abnormal;	
F94	FlyCap Precharge Failure	FlyCap precharge failure. Possible causes: 1. PV energy insufficient; 2. Inverter FlyCap voltage sampling abnormal;	
F95	FlyCap Precharge Abnormal	1. Unreasonable control loop parameters 2. Hardware damage	
F96	String Overcurrent(String 1~16)	Possible causes: 1. String overcurrent; 2. String current sensor abnormal	
F97	String Overcurrent(String 17~32)		

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F40	String Reverse Connection(String 1~16)	PV string reverse connection	Check if the string is connected in reverse.
F98	String Reverse Connection(String 17~32)	PV string reverse connection	Check if the string is connected in reverse.
F99	String Loss(String 1~16)	String fuse open (if present)	Check if the fuse is open.
F100	String Loss(String 17~32)	String fuse open (if present)	Check if the fuse is open.

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F122	PV Access Mode Setting Error	PV Access Mode has three modes, taking four-channel MPPT as an example: 1. Parallel Mode: i.e., AAAA mode (same-source mode), PV1-PV4 are from the same source, 4-channel PV connected to the same photovoltaic panel 2. Partial Parallel Mode: i.e., AACC mode, PV1 and PV2 are connected from the same source, PV3 and PV4 are connected from the same source 3. Independent Mode: i.e., ABCD mode (different-source), PV1, PV2, PV3, PV4 are independently	Check if the PV access mode is correctly set (ABCD, AACC, AAAA), and reset the PV access mode in the correct way. 1. Confirm that each channel of PV is correctly connected. 2. If the PV is correctly connected, check through the App or screen whether the currently set "PV access mode" corresponds to the actual access mode. 3. If the currently set "PV access mode" does not match the actual access mode, use the App or screen to set the "PV access mode" to a mode consistent with the actual situation. After setting, disconnect the PV and AC power supply and restart. 4. After setting, if the current "PV access mode" is consistent with the actual access mode, but this fault is still reported, please contact the dealer or after-sales service center.

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
		connected, each of the 4-channel PV connected to one photovoltaic panel If the actual PV access mode does not match the device-set PV access mode, this fault will be reported.	
-	String Reverse Connection (String 33~48)	PV String Reverse Connection	Check if the string is reverse connected.
-	String Loss (String 33~48)	String Fuse Disconnected (if present)	Check if the fuse is disconnected.
-	String Overcurrent (String 33~48)	Possible causes: 1. String overcurrent; 2. String current sensor abnormality	

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F123	Multi-channel PV Phase Error	PV Input Mode Setting Error	Check if the PV access mode is correctly set (ABCD, AACC, AAAA), and reset the PV access mode in the correct way 1. Confirm that each channel of PV is correctly connected 2. If the PV is correctly connected, check through the App or screen whether the currently set "PV access mode" corresponds to the actual access mode 3. If the currently set "PV access mode" does not match the actual access mode, use the App or screen to set the "PV access mode" to a mode consistent with the actual situation. After setting, disconnect the PV and AC power supply and restart 4. After setting, if the current "PV access mode" is consistent with the actual access mode, but this fault is still reported, please contact the dealer or after-sales service center.
F101	Battery 1 Precharge Fault	Battery 1 Precharge Circuit Fault (precharge resistor burned out, etc.)	Check if the precharge circuit is good, and whether the battery voltage and bus voltage are consistent after only the battery is powered on. If not consistent, please contact the dealer or after-sales service center.

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F102	Battery 1 Relay Failure	Battery 1 relay cannot operate normally	After the battery is powered on, check if the battery relay is working, and if a closing sound is heard. If not operating, please contact the dealer or after-sales service center.
F103	Battery 1 Access Overvoltage	Battery 1 access voltage exceeds the machine's rated range	Confirm if the battery voltage is within the machine's rated range.
F104	Battery 2 Precharge Fault	Battery 2 Precharge Circuit Fault (precharge resistor burned out, etc.)	Check if the precharge circuit is good, and whether the battery voltage and bus voltage are consistent after only the battery is powered on. If not consistent, please contact the dealer or after-sales service center.
F105	Battery 2 Relay Failure	Battery 2 relay cannot operate normally	After the battery is powered on, check if the battery relay is working, and if a closing sound is heard. If not operating, please contact the dealer or after-sales service center.
F106	Battery 2 Access Overvoltage	Battery 2 access voltage exceeds the machine's rated range	Confirm if the battery voltage is within the machine's rated range.
F124	Battery 1 Reverse Connection Fault	Battery 1 positive and negative poles reverse connected	Check if the positive and negative terminals of the battery and machine wiring are consistent.

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F125	Battery 2 Reverse Connection Fault	Battery 2 positive and negative poles reverse connected	Check if the positive and negative terminals of the battery and machine wiring are consistent.
F126	Battery Abnormal Access	Battery abnormal access	Check if the battery is working normally.
-	BMS Status Bit Error	BMS module fault	Disconnect the AC output side switch and DC input side switch, wait for 5 minutes, then close the AC output side switch and DC input side switch. If the fault still exists, please contact the dealer or after-sales service center.
F127	BAT Overtemperature	Battery temperature is too high. Possible causes: 1. Poor ventilation at the inverter installation location. 2. Ambient Overtemperature. 3. Internal fan malfunction.	
F128	Ref Voltage Abnormal	Reference circuit fault	Turn off the AC output side switch and the DC input side switch. After 5 minutes, turn on the AC output side switch and the DC input side switch. If the fault persists, please contact the dealer or after-sales service center.
F129	Cabinet Under Temperature	Cabinet temperature is too low. Possible causes: 1. Ambient temperature is too low.	

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F130	AC side SPD fault	AC side surge protective device failure	Replace the AC side surge protective device.
F131	DC side SPD fault	DC side surge protective device failure	Replace the DC side surge protective device.
F132	Internal fan abnormal	Internal fan abnormal. Possible causes: 1. Abnormal fan power supply; 2. Mechanical fault (stall); 3. Fan aging or damage.	Turn off the AC output side switch and the DC input side switch. After 5 minutes, turn on the AC output side switch and the DC input side switch. If the fault persists, please contact the dealer or after-sales service center.
F133	External Fan Abnormal	External fan abnormal. Possible causes: 1. Abnormal fan power supply; 2. Mechanical fault (stall); 3. Fan aging or damage.	
F134	PID diagnosis abnormal	PID hardware fault or PV voltage too high causing PID suspension	The PID suspension warning caused by high PV voltage requires no action. For PID hardware fault, you can clear the PID fault by turning off and then on the PID switch. Replace the PID device.

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F135	Trip-Switch Trip Warning	Possible causes: Overcurrent or PV reverse connection caused the trip-switch to trip.	Please contact the dealer or after-sales service center. The trip reason is PV short circuit or reverse connection. Check if there is a historical PV short circuit warning or a historical PV reverse connection warning. If present, maintenance personnel need to check the corresponding PV condition. After confirming no fault, you can manually close the trip-switch and clear this warning via the App interface's clear historical fault operation.
F136	Historical PV IGBT short circuit warning	Possible causes: Overcurrent caused the trip-switch to trip.	Please contact the dealer or after-sales service center. Maintenance personnel need to check the Boost hardware and the external string where the short circuit occurred according to the historical PV short circuit warning subcode. After confirming no fault, you can clear this warning via the App interface's clear historical fault operation.

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F137	Historical PV reverse connection warning (String 1~16)	Possible causes: PV reverse connection caused the trip-switch to trip.	Contact the dealer or after-sales service center. Maintenance personnel need to check if the corresponding string is reversed according to the historical PV reverse connection warning subcode, and check if there is a voltage difference in the PV panel configuration. After confirming no fault, you can clear this warning via the App interface's clear historical fault operation.
F138	Historical PV reverse connection warning (String 17~32)	Possible causes: PV reverse connection caused the trip-switch to trip.	Contact the dealer or after-sales service center. Maintenance personnel need to check if the corresponding string is reversed according to the historical PV reverse connection warning subcode, and check if there is a voltage difference in the PV panel configuration. After confirming no fault, you can clear this warning via the App interface's clear historical fault operation.
F139	Flash read/write error warning	Possible causes: Flash content changed; Flash lifespan exhausted;	1. Upgrade to the latest firmware. 2. Contact the dealer or after-sales service center.

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F140	Meter Comm Loss	This warning may only occur after enabling anti-reverse flow function. Possible causes: 1. Meter not connected; 2. Incorrect wiring of the communication cable between the meter and the inverter.	Check the meter wiring, correctly connect the meter. If the fault persists after inspection, please contact the dealer or after-sales service center.
F141	PV panel type identification failure	PV panel identification hardware abnormal	Contact the dealer or after-sales service center.
F142	PV String Mismatch	PV string mismatch, two strings under the same MPPT have different open-circuit voltage configurations.	Check the open-circuit voltage of the two strings. Configure strings with the same open-circuit voltage under the same MPPT path. Prolonged string mismatch poses a safety hazard.
F143	CT Not Connected	CT is not connected.	Check the CT wiring.
F144	CT Reverse Connection	CT is reversely connected.	Check the CT wiring.
F145	PE Loss	Protective earth wire is not connected.	Check the protective earth wire.

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F146	High PV Terminal Temperature (String 1~8)	Register 37176 PV terminal temperature alarm subcode 1 is set.	-
F147	High PV Terminal Temperature (String 9~16)	Register 37177 PV terminal temperature alarm subcode 2 is set.	-
F148	High PV Terminal Temperature (String 17~20)	Register 37178 PV terminal temperature alarm subcode 3 is set.	-
F149	Historical PV Reverse Connection Warning (String 33~48)	Possible causes: PV reverse connection caused the disconnect switch to trip.	Please contact the dealer or after-sales service center; Maintenance personnel should check the corresponding string for reverse connection based on the historical PV reverse connection warning subcode, and check if there is a voltage difference in the PV panel configuration; If no fault is found after inspection, this warning can be cleared by performing the clear historical fault operation on the App interface.
F150	Battery 1 Voltage Low	Battery voltage is below the set value.	-
F151	Battery 2 Voltage Low	Battery voltage is below the set value.	-

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F152	Low Voltage of Battery Power	In non-charging mode, battery voltage is below the shutdown voltage.	-
F153	BAT1 Voltage High	-	-
F154	BAT2 Voltage High	-	-
F155	Online Low Insulation Resistance	1. PV string is short-circuited to protective earth. 2. The PV string is installed in a long-term humid environment with poor line-to-earth insulation.	1. Check the impedance between the PV string and protective earth. If a short circuit is found, please rectify the short circuit point. 2. Check if the inverter's protective earth wire is correctly connected. 3. If it is confirmed that the impedance is indeed below the default value in rainy weather, please reconfigure the "Insulation Resistance Protection Point".
F156	Micro-grid Overload Warning	Backup terminal input current is too high.	Occasional occurrence requires no action; If this warning appears frequently, please contact the dealer or after-sales service center.
F157	Manual Reset	-	-
F158	Generator Phase Sequence Abnormal	-	-

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F159	Multiplexed Port Configuration Abnormal	The multiplexed (generator) port is configured for microgrid or large load, but a generator is actually connected.	Use the App to change the configuration of the multiplexed (generator) port.
F41	Generator Port Overload	1. Off-grid side output exceeds the specifications. 2. Off-grid side short circuit. 3. Off-grid side voltage is too low. 4. When used as a large load port, the large load exceeds the specifications.	Verify the off-grid side output voltage, current, power, and other data to confirm the cause of the issue.
F108	DSP Communication Failure	-	-

Fault Name	Fault Cause	Fault Handling Suggestions
Parallel Comm Timeout Shutdown	In parallel mode, if a slave unit fails to communicate with the master for more than 400 seconds.	Check if the parallel communication harness is reliably connected, and check for duplicate slave addresses.
One-Key Shutdown	Check via the App if the one-key shutdown function is enabled.	Disable the one-key shutdown.
Offline Shutdown	-	-
Remote Shutdown	-	-
Child Node Communication Failure	Internal Comm Abnormal	Restart the unit and observe if the fault clears.
DG Communication Failure	Abnormal communication link between the control board and the diesel generator.	1. Check the link communication harness and observe if the fault clears; 2. Try restarting the unit and observe if the fault clears; 3. If the fault persists after restart, contact the after-sales service center.
Battery Over Voltage	1. Individual cell voltage too high. 2. Voltage sense line abnormal.	
	1. Total battery voltage too high. 2. Voltage sense line abnormal.	
Battery Undervoltage	1. Individual cell voltage too low. 2. Voltage sense line abnormal.	

Fault Name	Fault Cause	Fault Handling Suggestions
	1. Total battery voltage too low. 2. Voltage sense line abnormal.	Record the fault phenomenon, restart the battery, wait a few minutes, and confirm if the fault disappears. If the problem persists after restart, please contact the after-sales service center.
Battery Overcurrent	1. Charging current too high, battery current limiting abnormal: temperature and voltage values change abruptly. 2. Inverter response abnormal.	
	Battery discharge current too high.	
Battery Overtemperature	1. Ambient Overtemperature. 2. Temperature sensor abnormal.	
	1. Ambient Overtemperature. 2. Temperature sensor abnormal.	
Battery Undertemperature	1. Ambient temperature too low. 2. Temperature sensor abnormal.	
	1. Ambient temperature too low. 2. Temperature sensor abnormal.	
Battery Terminal Overtemperature	Terminal temperature too high.	

Fault Name	Fault Cause	Fault Handling Suggestions
Battery Imbalance	1. Excessive temperature difference. At different stages, the battery will limit its power, i.e., limit charge/discharge current. Therefore, this issue is generally difficult to occur. 2. Cell capacity degradation leads to excessive internal resistance, causing high temperature rise during overcurrent and thus a large temperature difference. 3. Poor welding of cell tabs causes rapid cell temperature rise during overcurrent. 4. Temperature sampling issue; 5. Power line connection loose.	
	1. Inconsistent cell aging levels. 2. Slave board chip issues can also cause excessive cell voltage difference; 3. Slave board balancing issues can also cause excessive cell voltage difference. 4. Caused by harness issues.	
	1. Inconsistent cell aging levels. 2. Slave board chip issues can also cause excessive cell voltage difference; 3. Slave board balancing issues can also cause excessive cell voltage difference. 4. Caused by harness issues.	
Insulation Resistance	Insulation resistance damaged.	Check if the ground wire is properly connected, restart the battery. If the problem persists after restart, contact the after-sales service center.

Fault Name	Fault Cause	Fault Handling Suggestions
Pre-charging Failure	Pre-charging failed.	Indicates that during pre-charging, the voltage across the pre-charge MOS always exceeds the specified threshold. After powering off and restarting, observe if the fault persists. Check if wiring is correct and if the pre-charge MOS is damaged.
Sense Line Fault	Battery sense line poor contact or disconnected.	Check wiring, restart the battery. If the problem persists after restart, contact the after-sales service center.
	Cell voltage sense line poor contact or disconnected.	Check wiring, restart the battery. If the problem persists after restart, contact the after-sales service center.
	Cell temperature sense line poor contact or disconnected.	
	Dual-channel current comparison error too large, or current sense line loop abnormal.	
	Dual-channel voltage comparison error too large or MCU vs AFE voltage comparison error too large, or voltage sense line loop abnormal.	
	Temperature sense line loop abnormal or poor contact/disconnected.	

Fault Name	Fault Cause	Fault Handling Suggestions
	Overvoltage level 5 or overtemperature level 5, tripping the three-terminal fuse.	Three-terminal fuse blown, need to contact after-sales service center to replace the main control board.
Relay or MOS Overtemperature	Relay or MOS overtemperature.	This fault indicates the MOS transistor temperature exceeds the specified threshold. Power off and let it sit for 2h for temperature recovery.
Shunt Overtemperature	Shunt overtemperature.	This fault indicates the shunt temperature exceeds the specified threshold. Power off and let it sit for 2h for temperature recovery.
BMS1 Other Faults 1 (Residential Storage)	Relay or MOS open circuit.	1. Upgrade software, power off and let it sit for 5 minutes, restart and see if the fault persists; 2. If it persists, replace the battery pack.
	Relay or MOS short circuit.	1. Upgrade software, power off and let it sit for 5 minutes, restart and see if the fault persists; 2. If it persists, replace the battery pack.

Fault Name	Fault Cause	Fault Handling Suggestions
	Communication abnormal between main rack and slave rack, or inconsistent cells between racks.	1. Check the slave battery information and software version, and if the communication line connection to the master is normal. 2. Upgrade software.
	Battery system loop harness abnormal, causing interlock signal not forming a loop.	Check if the terminal resistor is installed correctly.
	BMS and PCS communication abnormal.	1. Confirm if the communication line interface definition between the inverter and the connected battery is correct; 2. Please contact the after-sales service center, check backend data, observe if the inverter and battery software match correctly.
	BMS master and slave control communication harness abnormal.	1. Check wiring, restart the battery; 2. Upgrade battery software, if the problem persists after restart, contact the after-sales service center.
	Communication loss between main negative chips.	

Fault Name	Fault Cause	Fault Handling Suggestions
	Circuit breaker, shunt trip abnormal.	1. Power off and let it sit for 5 minutes, restart and see if the fault persists; 2. Observe the PACK and PCU bottom blind-mate connectors, check if communication pins are loose or bent;
	MCU self-test failure.	Upgrade software, restart the battery. If the problem persists after restart, contact the after-sales service center.
	1. Software version too low or BMS board damaged. 2. Large number of parallel inverters, excessive inrush current during battery pre-charge.	1. Upgrade software, observe if the fault persists. 2. In parallel situations, black-start the battery first, then start the inverters.
	MCU internal fault.	Upgrade software, restart the battery. Usually indicates detection of MCU or external component damage. If the problem persists after restart, contact the after-sales service center.

Fault Name	Fault Cause	Fault Handling Suggestions
	Total control current exceeds specified threshold.	1. Power off and let it sit for 5 minutes, restart and see if the fault persists; 2. Check if the inverter power setting is too high, exceeding bus load;
	Inconsistent cells in parallel battery racks.	Confirm if the cells in the parallel battery racks are consistent.
	Reverse polarity connection of parallel battery rack positive/negative terminals.	Check if the positive/negative terminals of the parallel battery racks are reversed.
	Severe overtemperature/overvoltage etc. triggering fire protection system.	Contact the after-sales service center.
Air Conditioner Failure	Air conditioner abnormal failure.	Try restarting the system. If the fault is not resolved, contact the after-sales service center.
	Cabinet door not closed.	Check if the cabinet door is properly closed.
	Supply voltage too high.	
	Insufficient supply voltage.	
	No voltage input.	

Fault Name	Fault Cause	Fault Handling Suggestions
	Unstable supply voltage.	Confirm if the supply voltage value meets the air conditioner input voltage requirements. Confirm compliance before reapplying power.
	Compressor voltage unstable.	Try restarting the system. If the fault is not resolved, contact the after-sales service center.
	Sensor poor contact or damaged.	
	Air conditioner fan abnormal.	
BMS1 Other Faults 2 (Residential Storage)	DCDC internal voltage or current abnormal.	Refer to specific DC fault content.
	DCDC overload or heatsink temperature too high, etc.	
	Cell sensing abnormal or inconsistent aging levels.	Please contact the after-sales service center.
	Fan action not executed normally.	Please contact the after-sales service center.
	Output terminal screws loose or poor contact.	1. Power off the battery, check wiring and output terminal screw condition. 2. After confirmation, restart the battery, observe if the fault persists. If it exists, contact the after-sales service center.

Fault Name	Fault Cause	Fault Handling Suggestions
	Battery used for too long or cells severely damaged.	Please contact the after-sales service center to replace the pack.
	1. Software version too low or BMS board damaged. 2. Large number of parallel inverters, excessive inrush current during battery pre-charge.	1. Upgrade software, observe if the fault persists. 2. In parallel situations, black-start the battery first, then start the inverters.
	Heating film damaged.	Please contact the after-sales service center.
	Heating film three-terminal fuse blown, heating function unavailable.	Please contact the after-sales service center.
	Software model, Cell Type, hardware model mismatch.	Check if the software model, SN number, Cell Type, and hardware model are consistent. If not, contact the after-sales service center.
	Thermal management board communication wire break.	1. Power off and let it sit for 5 minutes, restart and see if the fault persists; 2. If the fault does not recover, contact after-sales to replace the pack.

Fault Name	Fault Cause	Fault Handling Suggestions
	Thermal management board communication wire break.	1. Power off and let it sit for 5 minutes, restart and see if the fault persists; 2. If the fault does not recover, contact after-sales to replace the pack.
	Thermal management board communication wire break.	1. Power off and let it sit for 5 minutes, restart and see if the fault persists; 2. If the fault does not recover, contact after-sales to replace the pack.
	Pack fan fault signal triggered.	1. Power off and let it sit for 5 minutes, restart and see if the fault persists; 2. If the fault does not recover, contact after-sales to replace the pack.
DCDC Fault	Output port voltage too high.	Check the output port voltage. If the output port voltage is normal and the fault does not clear itself after restarting the battery, contact the after-sales service center.

Fault Name	Fault Cause	Fault Handling Suggestions
	DCDC module detects battery voltage exceeding maximum charging voltage.	Stop charging, discharge to below 90% SOC or let it sit for 2h. If ineffective and the fault persists after restart, contact the after-sales service center.
	Heatsink temperature too high.	Let the battery sit for 1h for heatsink temperature to drop. If ineffective and the fault persists after restart, contact the after-sales service center.
	Battery discharge current too high.	Check if the load exceeds the battery's discharge capability. Turn off the load or stop PCS operation for 60s. If ineffective and the fault persists after restart, contact the after-sales service center.
	Output port power harness positive/negative terminals reversed with parallel battery rack or PCS.	Turn off the battery manual switch, check if the output port wiring is correct, restart the battery.

Fault Name	Fault Cause	Fault Handling Suggestions
	Output power relay cannot close.	Check if the output port wiring is correct, if there is a short circuit. If ineffective and the fault persists after restart, contact the after-sales service center.
	Power device temperature too high.	Let the battery sit for 1h for internal power device temperature to drop. If ineffective and the fault persists after restart, contact the after-sales service center.
	Relay welded/stuck.	If the fault persists after restart, contact the after-sales service center.
Battery Rack Circulating Current Failure	1. Cell imbalance. 2. First power-on without full charge calibration.	-
BMS1 Other Faults 3 (Large-scale Storage)	Communication abnormal with linux module.	1. Check if the communication line connection is normal. 2. Upgrade software, restart the battery and observe if the fault persists. If it exists, contact the after-sales service center.

Fault Name	Fault Cause	Fault Handling Suggestions
	Cell temperature rise too fast.	Cell abnormal, contact after-sales to replace the pack.
	SOC below 10%.	Charge the battery.
	SN writing does not comply with rules.	Check if the SN digit count is normal. If abnormal, contact the after-sales service center.
	1. Daisy chain communication abnormal within battery rack. 2. Inconsistent cell aging levels between battery racks.	1. Check the pack contact condition within a single battery rack. 2. Confirm the usage of each battery rack, such as cumulative charge/discharge capacity, cycle count, etc. 3. Please contact the after-sales service center.
	Pack internal humidity too high.	-
	Fuse blown.	Contact after-sales to replace the pack.
	Battery low power.	Charge the battery.
BMS1 Other Faults 4 (Large-scale Storage)	Circuit breaker abnormal.	Contact after-sales to replace the pack.
	External device abnormal.	Contact after-sales to replace the pack.

Fault Name	Fault Cause	Fault Handling Suggestions
Contactor Failure 1	-	-
Contactor Failure 2	-	-
Overload Protection (Ksic)	Sustained overload (exceeding 690KVA) for 10s.	Please contact the after-sales service center.
Overload Protection (Smart Port)	Sustained overload (exceeding 690KVA) for 10s.	Please contact the after-sales service center.
Master AC On Meter Comm Error	1. Possibly the meter is not connected to the master. 2. Possibly the meter communication line is loose.	1. Check if the meter is connected to the master. 2. Check if the meter communication line is loose.
Parallel Slave Meter Error	Meter connected to a slave unit.	Set the unit with the meter as the master.
Slave AC On Timeout with Master	1. Slave address setting error. 2. Slave communication line loose.	1. Check for duplicate slave addresses. 2. Check if the parallel communication line is loose.

9.5 Routine Maintenance

WARNING

- Ensure the inverter is powered off.
- Wear personal protective equipment when operating the inverter.

Maintenance Content	Maintenance Method	Maintenance Cycle
System Cleaning	Check for foreign objects or dust on the heat sink and air inlet/outlet.	Once every six months to once a year
DC Switch	Turn the DC Switch on and off 10 times consecutively to ensure it functions properly.	Once a year
Electrical Connections	Check if electrical connections are loose, if cables are damaged, or if copper is exposed.	Once every six months to once a year
Sealing	Check if the sealing of the equipment's cable entry holes meets the requirements. If gaps are too large or unsealed, reseal them.	Once a year
THDi Test	According to Australian requirements, Zref must be added between the inverter and the grid during the THDi test. L:0.24 Ω + j0.15 Ω; N:0.16 Ω +j0.10 Ω L:0.15 Ω + j0.15 Ω ; N:0.1 Ω + j0.1 Ω	As required.

10 technical parameter

10.1 Technical Parameters

Technical Data	GW3600N-EH	GW5000N-EH	GW5000N-EH-BE	GW6000N-EH
Battery Input Data				
Battery Type	Li-Ion	Li-Ion	Li-Ion	Li-Ion
Nominal Battery Voltage (V)	350	350	350	350
Battery Voltage Range (V)	85~460	85~460	85~460	85~460
Start-up Voltage (V)	85	85	85	85
Number of Battery Input	1	1	1	1
Max. Continuous Charging Current (A)	25	25	25	25
Max. Continuous Discharging Current (A)	25	25	25	25
Max. Charge Power (W)	6000	6000	6000	6000
Max. Discharge Power (W)	3600	5000	5000	6000
PV String Input Data				
Max. Input Power (W)*1	5400	7500	7500	9000

Technical Data	GW3600N-EH	GW5000N-EH	GW5000N-EH-BE	GW6000N-EH
Max. Input Voltage (V)	580	580	580	580
MPPT Operating Voltage Range (V)	100~550	100~550	100~550	100~550
MPPT Voltage Range at Nominal Power	150~550	210~550	210~550	250~550
Start-up Voltage (V)	85	85	85	85
Nominal Input Voltage (V)	380	380	380	380
Max. Input Current per MPPT (A)	16	16	16	16
Max. Short Circuit Current per MPPT (A)	21.2	21.2	21.2	21.2
Max. Backfeed Current to The Array (A)	0	0	0	0
Number of MPP Trackers	2	2	2	2
Number of Strings per MPPT	1	1	1	1
AC Output Data (On-grid)				
Nominal Output Power (W)	3600	5000	5000	6000

Technical Data	GW3600N-EH	GW5000N-EH	GW5000N-EH-BE	GW6000N-EH
Max. Output Power (W)	3600/3960*2	5000/5500*2	5000	6000/6600*2
Nominal Apparent Power Output to Utility Grid (VA)*3	3600	5000	5000	6000
Max. Apparent Power Output to Utility Grid (VA)*3	3600/3960*2	5000/5500*2	5000	6000/6600*2
Nominal Apparent Power from Utility Grid (VA)	7200	10000	10000	12000
Max. Apparent Power from Utility Grid (VA)	7200 (Charging 3.6kW, Backup Output 3.6kW)	10000 (Charging 5kW, Backup Output 5kW)	10,000 (Charging 5kW, Backup Output 5kW)	12000 (Charging 6kW, Backup Output 6kW)
Nominal Output Voltage (V)	230/220*7	230/220*7	230	230/220*7
Output Voltage Range (V)	0~300	0~300	0~300	0~300
Nominal AC Grid Frequency (Hz)	50/60	50/60	50/60	50/60
AC Grid Frequency Range (Hz)	45~65	45~65	45~65	45~65

Technical Data	GW3600N-EH	GW5000N-EH	GW5000N-EH-BE	GW6000N-EH
Max. AC Current Output to Utility Grid (A)	16/18[*2]	21.7/24[*2]	21.7	26.1/28.7[*2]/27.3[*8]
Max. AC Current From Utility Grid (A)	32	43.4	43.4	52.2
Nominal AC Current From Utility Grid (A)	32	43.4	43.4	52.2
Max. Output Fault Current (Peak and Duration) (A)	65A@5us	65A@5us	65A@5us	65A@5us
Inrush Current (Peak and Duration) (A)	65A@5us	65A@5us	65A@5us	65A@5us
Nominal Output Current (A)	15.6	21.7	21.7	26.1
Power Factor	~1 (Adjustable from 0.8 leading to 0.8lagging)			
Max. Total Harmonic Distortion	<3%	<3%	<3%	<3%
Maximum Output Overcurrent Protection (A)	17.2	23.9	23.9	28.7
Type of Voltage (a.c. or d.c.)	a.c.	a.c.	a.c.	a.c.
AC Output Data (Back-up)				

Technical Data	GW3600N-EH	GW5000N-EH	GW5000N-EH-BE	GW6000N-EH
Back-up Nominal Apparent Power (VA)	3600	5000	5000	6000
Max. Output Apparent Power without Grid(VA)	3600 (4320@60sec)	5000 (6000@60sec)	5000 (6000@60sec)	6000 (7200@60sec)
Max. Output Apparent Power with Grid(VA)	3600	5000	5000	6000
Nominal Output Current (A)	15.7	21.7	21.7	26.1
Max. Output Current (A)	15.7	21.7	21.7	26.1
Max. Output Fault Current (Peak and Duration) (A)	65A@5us	65A@5us	65A@5us	65A@5us
Inrush Current (Peak and Duration) (A)	65A@5us	65A@5us	65A@5us	65A@5us
Maximum Output Overcurrent Protection (A)	18.8	26.1	26.1	31.3
Nominal Output Voltage (V)	230(±2%)	230(±2%)	230(±2%)	65A@5us
Nominal Output Frequency (Hz)	50/60(+0.2%)	50/60(+0.2%)	50/60(+0.2%)	65A@5us

Technical Data	GW3600N-EH	GW5000N-EH	GW5000N-EH-BE	GW6000N-EH
Output THDv (@Linear Load)	<3%	<3%	<3%	65A@5us
Efficiency				
Max. Efficiency	97.6%	97.6%	97.6%	97.6%
European Efficiency	97.0%	97.0%	97.0%	97.0%
Max. Battery to AC Efficiency	96.6%	96.6%	96.6%	96.6%
MPPT Efficiency Protection	99.9%	99.9%	99.9%	99.9%
Protection				
PV String Current Monitoring	Integrated	Integrated	Integrated	Integrated
PV Insulation Resistance Detection	Integrated	Integrated	Integrated	Integrated
Residual Current Monitoring	Integrated	Integrated	Integrated	Integrated
PV Reverse Polarity Protection	Integrated	Integrated	Integrated	Integrated
Battery Reverse Polarity Protection	Integrated	Integrated	Integrated	Integrated
Anti-islanding Protection	Integrated	Integrated	Integrated	Integrated
AC Overcurrent Protection	Integrated	Integrated	Integrated	Integrated

Technical Data	GW3600N-EH	GW5000N-EH	GW5000N-EH-BE	GW6000N-EH
AC Short Circuit Protection	Integrated	Integrated	Integrated	Integrated
AC Overvoltage Protection	Integrated	Integrated	Integrated	Integrated
DC Switch	Integrated	Integrated	Integrated	Integrated
DC Surge Protection	Type II	Type II	Type II	Type II
AC Surge protection	Type III	Type III	Type III	Type III
Remote Shutdown	Integrated	Integrated	Integrated	Integrated
General Data				
Operating Temperature Range (°C)	-25~+60	-25~+60	-25~+60	-25~+60
Relative Humidity	0~95%	0~95%	0~95%	0~95%
Max. Operating Altitude (m)	3000*10	3000*10	3000*10	3000*10
Cooling Method	Natural Convection	Natural Convection	Natural Convection	Natural Convection
User Interface	LED, APP	LED, APP	LED, APP	LED, APP
Communication with BMS*4	RS485, CAN	RS485, CAN	RS485, CAN	RS485, CAN
Communication with Meter	RS485	RS485	RS485	RS485

Technical Data	GW3600N-EH	GW5000N-EH	GW5000N-EH-BE	GW6000N-EH
Communication with Portal	WiFi / Ethernet (Optional)	WiFi / Ethernet (Optional)	WiFi / Ethernet (Optional)	WiFi / Ethernet (Optional)
Weight (kg)	17	17	17	17
Dimension (WxHxD mm)	354x433×147	354x433×147	354x433×147	354x433×147
Noise Emission (dB)	<35	<35	<35	<35
Topology	Non-isolated	Non-isolated	Non-isolated	Non-isolated
Self-consumption at Night (W)*5	<10	<10	<10	<10
Ingress Protection Rating	IP65	IP65	IP65	IP65
DC Connector	MC4 (4~6 mm^2)	MC4 (4~6 mm^2)	MC4 (4~6 mm^2)	MC4 (4~6 mm^2)
AC Connector	Quick Plug	Quick Plug	Quick Plug	Quick Plug
Environmental Category	4K4H	4K4H	4K4H	4K4H
Pollution Degree	III	III	III	III
Overvoltage Category	DC II / AC III	DC II / AC III	DC II / AC III	DC II / AC III
Protective Class	I	I	I	I
Storage Temperature (°C)	-40~+85	-40~+85	-40~+85	-40~+85

Technical Data	GW3600N-EH	GW5000N-EH	GW5000N-EH-BE	GW6000N-EH
The Decisive Voltage Class (DVC)	Battery: C PV: C AC: C Com: A	Battery: C PV: C AC: C Com: A	Battery: C PV: C AC: C Com: A	Battery: C PV: C AC: C Com: A
Mounting Method	Wall Mounted	Wall Mounted	Wall Mounted	Wall Mounted
Active Anti-islanding Method	AFDPF+ AQDPF*9	AFDPF+ AQDPF*9	AFDPF+ AQDPF*9	AFDPF+ AQDPF*9
Type of Electrical Supply System	Single phase TN/TT system	Single phase TN/TT system	Single phase TN/TT system	Single phase TN/TT system
Country of Manufacture	China	China	China	China
Certification*6				
Grid Standards	VDE-AR-N 4105, G98, G100, CEI 0-21,AS/NZS477.2, NRS097-2-1			
Safety Regulation	IEC/EN 62109-1&2			
EMC	EN61000-6-1, EN61000-6-2, EN61000-6-3, EN61000-6-4,EN 61000-4-16,EN 61000-4-18, EN 61000-4-29			

*1: In Australia, for most PV modules, the maximum input power can reach 2*Pn. For example, the max. input power of GW3600N-EH can reach 7200W.
*2: For CEI 0-21.
*3: The grid feed-in power for VDE-AR-N 4105 and NRS097-2-1 is limited to 4600VA.
*4: CAN communication is configured by default. If 485 communication is used, please replace the corresponding communication cable.
*5: No Backup Output.
*6: Not all certifications & standards are listed, check the official website for details.
*7: For Brazil, the voltage is 220V.
*8: For Brazil, the current is 27.3A.

*9: AFDPF: Active Frequency Drift with Positive Feedback, AQDPF: Active Q Drift with Positive Feedback.
*10: 2000m for Australia.

Technical Data	GW3600-EH	GW5000-EH-BE	GW5000-EH	GW6000-EH
Battery Input Data				
Battery Type	Li-Ion	Li-Ion	Li-Ion	Li-Ion
Nominal Battery Voltage (V)	350	350	350	350
Battery Voltage Range (V)	85~460	85~460	85~460	85~460
Max. Continuous Charging Current (A)	25	25	25	25
Max. Continuous Discharging Current (A)	25	25	25	25
Max. Charge Power (W)	3600	5000	5000	6000
Max. Discharge Power (W)	3600	5000	5000	6000
PV String Input Data				
Max. Input Power (W)	4800	6650	6650	8000
Max. Input Voltage (V)	580	580	580	580
MPPT Operating Voltage Range (V)	100~550	100~550	100~550	100~550
MPPT Voltage Range at Nominal Power	150~550	210~550	210~550	250~550

Technical Data	GW3600-EH	GW5000-EH-BE	GW5000-EH	GW6000-EH
Start-up Voltage (V)	90	90	90	90
Nominal Input Voltage (V)	380	380	380	380
Max. Input Current per MPPT (A)	12.5	12.5	12.5	12.5
Max. Short Circuit Current per MPPT (A)	15.2	15.2	15.2	15.2
Max. Backfeed Current to The Array (A)	0	0	0	0
Number of MPP Trackers	2	2	2	2
Number of Strings per MPPT	1	1	1	1
AC Output Data (On-grid)				
Nominal Output Power (W)	3600	5000	5000	6000
Nominal Apparent Power Output to Utility Grid (VA)*3	3600	5000	5000	6000
Max. Apparent Power Output to Utility Grid (VA)*3	3600	5000	5000	6000
Nominal Apparent Power from Utility Grid (VA)	7200	10000	10000	12000

Technical Data	GW3600-EH	GW5000-EH-BE	GW5000-EH	GW6000-EH
Max. Apparent Power from Utility Grid (VA)	7200(Charging 3.6kw, Backup Output 3.6kw)	10000 (Charging 5kW, Backup Output 5kW)	10,000 (Charging 5kW, Backup Output 5kW)	12,000 (Charging 6kW, Backup Output 6kW)
Nominal Output Voltage (V)	230/220*5	230	230/220*5	230/220*5
Output Voltage Range (V)	0~300	0~300	0~300	0~300
Nominal AC Grid Frequency (Hz)	50/60	50/60	50/60	50/60
AC Grid Frequency Range (Hz)	45~65	45~65	45~65	45~65
Max. AC Current Output to Utility Grid (A)	16	21.7	21.7	26.1/27.3*6
Max. AC Current From Utility Grid (A)	32	43.4	43.4	52.2
Max. Output Fault Current (Peak and Duration) (A)	65A@5us	65A@5us	65A@5us	65A@5us
Inrush Current (Peak and Duration) (A)	65A@5us	65A@5us	65A@5us	65A@5us
Nominal Output Current (A)	15.6	21.7	21.7	26.1
Power Factor	Adjustable from 0.8 leading to 0.8 lagging			
Max. Total Harmonic Distortion	<3%	<3%	<3%	<3%

Technical Data	GW3600-EH	GW5000-EH-BE	GW5000-EH	GW6000-EH
Maximum Output Overcurrent Protection (A)	40	54	54	65
AC Output Data (Back-up)				
Back-up Nominal Apparent Power (VA)	3600	5000	5000	6000
Max. Output Apparent Power without Grid(VA)	3600 (43200@60sec)	5000 (6000@60sec)	5000 (6000@60sec)	6000 (7200@60sec
Nominal Output Current (A)	15.7	21.7	21.7	26.1
Max. Output Current (A)	15.7	21.7	21.7	26.1
Max. Output Fault Current (Peak and Duration) (A)	19@60s	26@60s	26@60s	31@60s
Inrush Current (Peak and Duration) (A)	65@5us	65A@5us	65A@5us	A@5us
Maximum Output Overcurrent Protection (A)	16	21.7	21.7	26.1
Nominal Output Voltage (V)	230(±2%)	230(±2%)	230(±2%)	230(±2%)
Nominal Output Frequency (Hz)	50/60(+0.2%)	50/60(+0.2%)	50/60(+0.2%)	50/60(+0.2%)
Output THDv (@Linear Load)	<3%	<3%	<3%	<3%

Technical Data	GW3600-EH	GW5000-EH-BE	GW5000-EH	GW6000-EH
Efficiency		50/60(+0.2%)		
Max. Efficiency	97.6%	97.6%	97.6%	97.6%
European Efficiency	97.0%	97.0%	97.0%	97.0%
Max. Battery to AC Efficiency	96.6%	96.6%	96.6%	96.6%
MPPT Efficiency	99.9%	99.9%	99.9%	99.9%
Protection				
PV Insulation Resistance Detection	Integrated	Integrated	Integrated	Integrated
Residual Current Monitoring	Integrated	Integrated	Integrated	Integrated
Battery Reverse Polarity Protection	Integrated	Integrated	Integrated	Integrated
Anti-islanding Protection	Integrated	Integrated	Integrated	Integrated
AC Overcurrent Protection	Integrated	Integrated	Integrated	Integrated
AC Short Circuit Protection	Integrated	Integrated	Integrated	Integrated
AC Overvoltage Protection	Integrated	Integrated	Integrated	Integrated
General Date				
Operating Temperature Range (°C)	-25~+60	-25~+60	-25~+60	-25~+60
Relative Humidity	0~95%	0~95%	0~95%	0~95%

Technical Data	GW3600-EH	GW5000-EH-BE	GW5000-EH	GW6000-EH
Max. Operating Altitude (m)	3000*8	3000*8	3000*8	3000*8
Cooling Method	Natural Convection	Natural Convection	Natural Convection	Natural Convection
User Interface	LED, APP	LED, APP	LED, APP	LED, APP
Communication with BMS*4	RS485, CAN	RS485, CAN	RS485, CAN	RS485, CAN
Communication with Meter	RS485	RS485	RS485	RS485
Communication with Portal	WiFi / Ethernet (Optional)	WiFi / Ethernet (Optional)	WiFi / Ethernet (Optional)	WiFi / Ethernet (Optional)
Weight (kg)	17	17	17	17
Dimension (WxHxD mm)	354x433×147	354x433×147	354x433×147	354x433×147
Noise Emission (dB)	<35	<35	<35	<35
Topology	Non-isolated	Non-isolated	Non-isolated	Non-isolated
Self-consumption at Night (W)*5	<10	<10	<10	<10
Ingress Protection Rating	IP65	IP65	IP65	IP65
DC Connector	MC4 (4~6 mm^2)	MC4 (4~6 mm^2)	MC4 (4~6 mm^2)	MC4 (4~6 mm^2)
AC Connector	Quick Plug	Quick Plug	Quick Plug	Quick Plug
Environmental Category	4K4H	4K4H	4K4H	4K4H

Technical Data	GW3600-EH	GW5000-EH-BE	GW5000-EH	GW6000-EH
Pollution Degree	III	III	III	III
Overvoltage Category	DC II / AC III	DC II / AC III	DC II / AC III	DC II / AC III
Protective Class	I	I	I	I
Storage Temperature (°C)	-40~+85	-40~+85	-40~+85	-40~+85
The Decisive Voltage Class (DVC)	Battery: C PV: C AC: C Com: A	Battery: C PV: C AC: C Com: A	Battery: C PV: C AC: C Com: A	Battery: C PV: C AC: C Com: A
Mounting Method	Wall Mounted	Wall Mounted	Wall Mounted	Wall Mounted
Active Anti-islanding Method	AFDPF+ AQDPF*7	AFDPF+ AQDPF*7	AFDPF+ AQDPF*7	AFDPF+ AQDPF*7
Type of Electrical Supply System	Single phase TN/TT system	Single phase TN/TT system	Single phase TN/TT system	Single phase TN/TT system
Country of Manufacture	China	China	China	China
Certification*4				
Grid Standards	VDE-AR-N 4105, G98, G100, CEI 0-21,AS/NZS477.2, NRS097-2-1			
Safety Regulation	IEC/EN 62109-1&2			
EMC	EN61000-6-1, EN61000-6-2, EN61000-6-3, EN61000-6-4,EN 61000-4-16,EN 61000-4-18, EN 61000-4-29			

*1: The grid feed-in power for VDE-AR-N 4105 and NRS097-2-1 is limited to 4600VA.
*2: CAN communication is configured by default. If 485 communication is used,

please replace the corresponding communication cable.
*3: No Backup Output.
*4: Not all certifications & standards are listed, check the official website for details.
*5: For Brazil, the voltage is 220V.
*6: For Brazil, the current is 27.3A.
*7: AFDPF: Active Frequency Drift with Positive Feedback, AQDPF: Active Q Drift with Positive Feedback.
*8: 2000m for Australia.