V2.4 2026-03-25

Grid-Tied PV Inverter

SDT Series (4.0-50kW) G3

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.

About This Manual

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 of the materials and more product information from the official website.

Applicable Model

This document is applicable to the following inverter models:

model	Nominal output power	Nominal output voltage
GW4000-SDT-30	4kW	220/380, 230/400, 240/415, 3L/N/PE or 3L/PE
GW5000-SDT-30	5kW	
GW6000-SDT-30	6kW	
GW8000-SDT-30	8kW	
GW10K-SDT-30	10kW	
GW10K-SDT-EU30	10kW	
GW12K-SDT-30	12kW	
GW15K-SDT-30	15kW	
GW17K-SDT-30	17kW	
GW20K-SDT-30	20kW	
GW25K-SDT-C30	25kW	
GW25K-SDT-30	25kW	

GW30K-SDT-30	30kW	
GW30K-SDT-C30	30kW	
GW33K-SDT-C30	33kW	
GW36K-SDT-C30	36kW	
GW37K5-SDT-BR30	37.5kW	
GW40K-SDT-C30	40kW	
GW40K-SDT-P30	40kW	
GW20K-SDT-31	20kW	
GW25K-SDT-P31	25kW	
GW50K-SDT-C30	50kW	
GW12KLV-SDT-C30	12kW	127/220,3L/N/PE or 3L/PE
GW17KLV-SDT-C30	17kW	
GW23KLV-SDT-BR30	23kW	
GW12KLV-SDT-C31	12kW	
GW30KLV-SDT-C30	30kW	
GW5000-SDT-AU30	5kW	230/400,3L/N/PE or 3L/PE
GW6000-SDT-AU30	6kW	
GW8000-SDT-AU30	8kW	
GW9990-SDT-AU30	9.99kW	
GW15K-SDT-AU30	15kW	
GW20K-SDT-AU30	20kW	
GW25K-SDT-AU30	25kW	
GW29K9-SDT-AU30	29.9kW	

Applicable Personnel

Only applicable to professionals who are familiar with local regulations and standards, electrical systems, have received professional training, and possess thorough knowledge of this product.

Symbol Definition

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

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

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1 Safety Precautions

⚠WARNING

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

1.1 General Safety

NOTICE

- Due to product version upgrades or other reasons, document content will be updated periodically. Unless otherwise agreed, document content cannot replace 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 device operations must be performed by professional, qualified electrical technicians who are familiar with 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 touching 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 the requirements of 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.

1.2 DC Side

⚠DANGER

Use the DC connector provided with the box to connect the inverter DC cables. Using other models of DC connectors may lead to serious consequences, and any equipment damage caused thereby is beyond the manufacturer's liability.

⚠WARNING

- Ensure that the component frames and bracket system are properly grounded.
- After connecting the DC cables, ensure that the cable connections are tight and secure without looseness.
- Use a multimeter to measure the PV strings. Damage caused by reverse connection, overvoltage, or overcurrent is beyond the manufacturer's liability.
- Photovoltaic components connected to the same MPPT must use the same model of photovoltaic panels. The voltage difference between different MPPTs must be <160V.
- When the input voltage is between 1000V and 1100V, the inverter will enter standby mode. When the voltage returns to the MPPT operating voltage range (140V to 1000V), the inverter will resume normal operation.
- It is recommended that the sum of the peak power currents of the strings connected to each MPPT does not exceed the maximum input current of each MPPT of the inverter.
- When the inverter is connected to multiple PV strings, it is recommended that each MPPT is connected to at least one string, with no MPPT left unconnected.
- Photovoltaic components used with the inverter must comply with the IEC 61730 Class A standard.

1.3 AC Side

⚠WARNING

- Ensure that the voltage and frequency at the grid connection point comply with the inverter's grid-connection specifications.
- It is recommended to add protective devices such as circuit breakers or fuses on the AC side of the inverter, and the rating of the protective devices should be greater than 1.25 times the inverter's maximum output current.
- The inverter's protective ground wire must be securely connected.
- It is recommended to use copper-core cables for the AC output lines; if aluminum wires are to be used, please use copper-aluminum transition terminals for connection.

1.4 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		Potential hazard exists during equipment operation. Take protective measures when operating the equipment.
2		High voltage hazard. High voltage is present during equipment operation. Ensure the equipment is powered off before performing any operations.
3		High temperature on inverter surface. Do not touch during operation to avoid burns.
4		Delayed discharge. After powering off the equipment, wait for 5 minutes for complete discharge.
5		Read the product manual carefully before operating the equipment.
6		Do not dispose of the equipment as household waste. Dispose of it according to local regulations or return it to the manufacturer.
7		Grounding point.
8		CE certification mark.

1.5 EU Declaration of Conformity

1.5.1 Equipment with Wireless Communication Modules

Equipment with Wireless Communication Modules that can be 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)

1.5.2 Devices without wireless communication functionality

Devices without wireless communication functionality that can be sold in the European market meet the following directive requirements:

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

1.6 personnel requirements

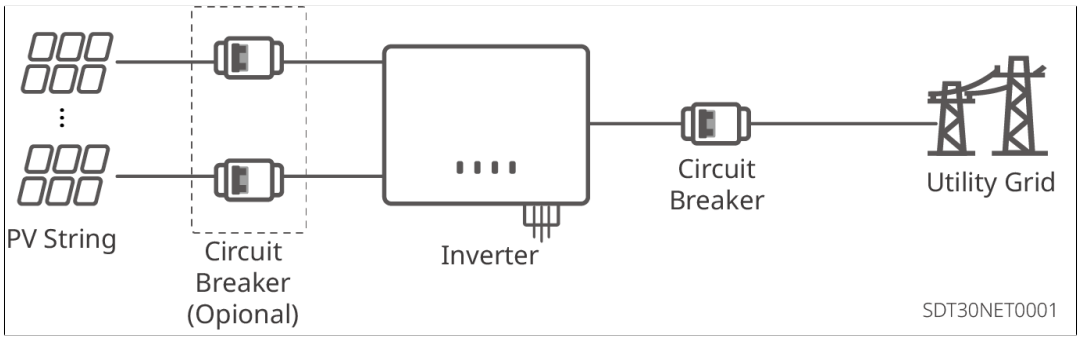
NOTICE

- Personnel responsible for the installation and maintenance of the equipment must first undergo rigorous training to understand all product safety precautions and master the correct operating methods.
- Installation, operation, maintenance, and replacement of equipment or components are only permitted to be performed by qualified professionals or trained personnel.

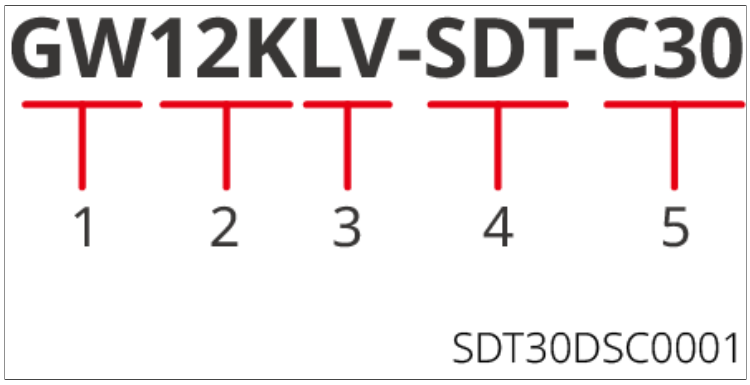
2 Product Introduction

2.1 Introduction

The SDT series inverters are three-phase string photovoltaic grid-connected inverters that convert the direct current generated by photovoltaic solar panels into alternating current that meets grid requirements and feeds it into the grid. The main application scenarios of the inverters are as follows:



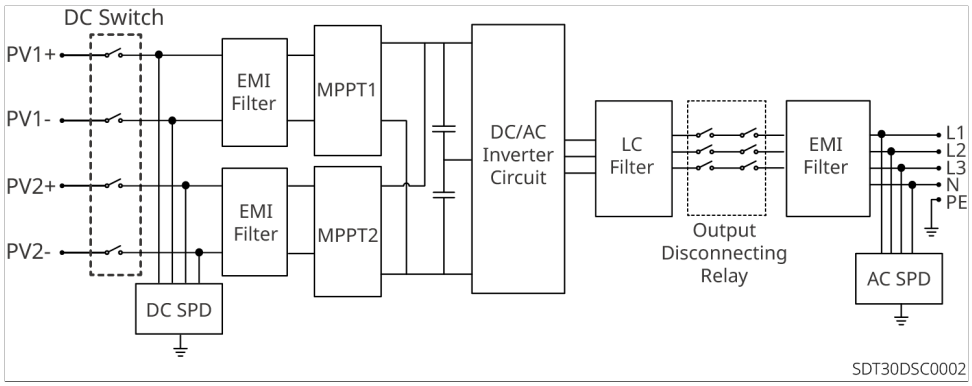
Model Number Meaning



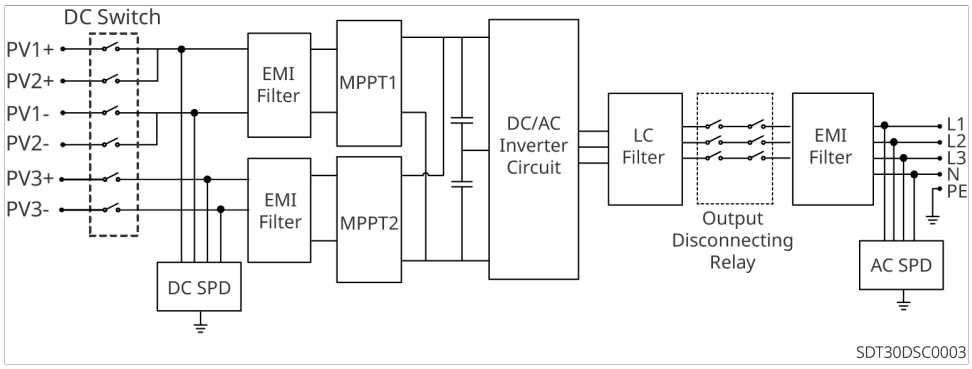
No.	Meaning	Description
1	Brand code	GW: GoodWe
2	Rated Power	12K: Rated power is 12kW
3	Type of Electrical Supply System	LV: Low-voltage grid
4	Series code	SDT: SDT series
5	Version code	Third-generation product

2.2 Circuit Block Diagram

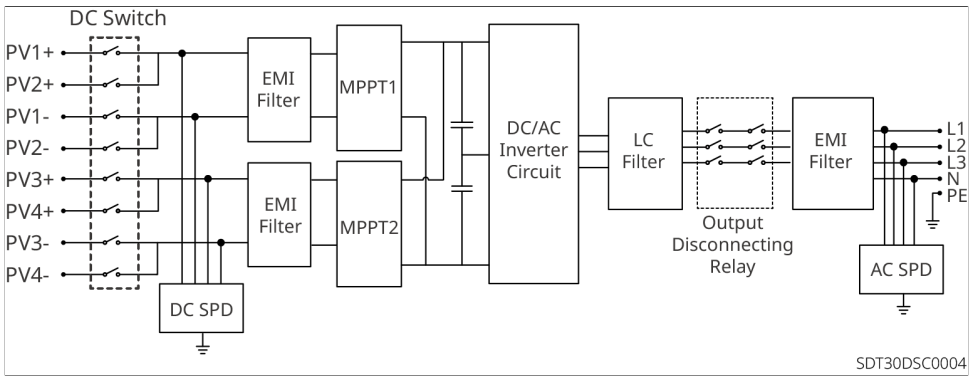
GW4000-SDT-30, GW5000-SDT-30, GW6000-SDT-30, GW8000-SDT-30, GW10K-SDT-30, GW10K-SDT-EU30, GW12K-SDT-30, GW15K-SDT-30:



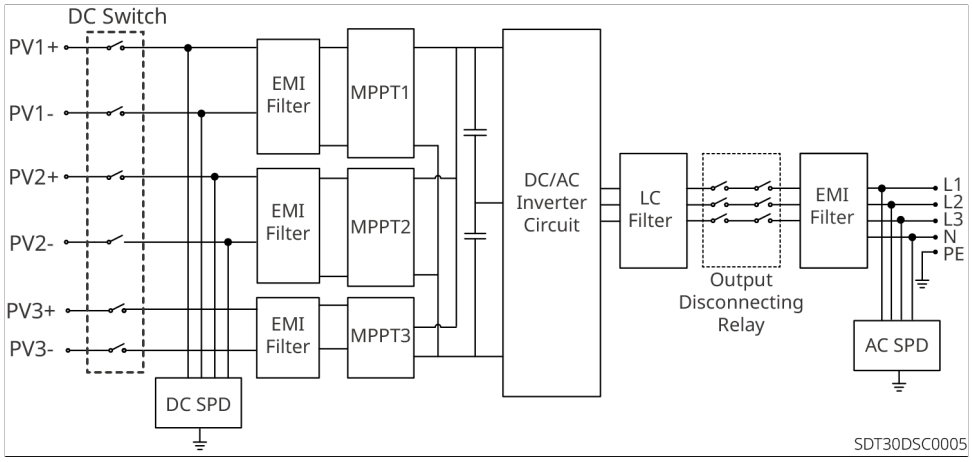
GW12KLV-SDT-C30, GW17K-SDT-30, GW20K-SDT-30, GW25K-SDT-C30:



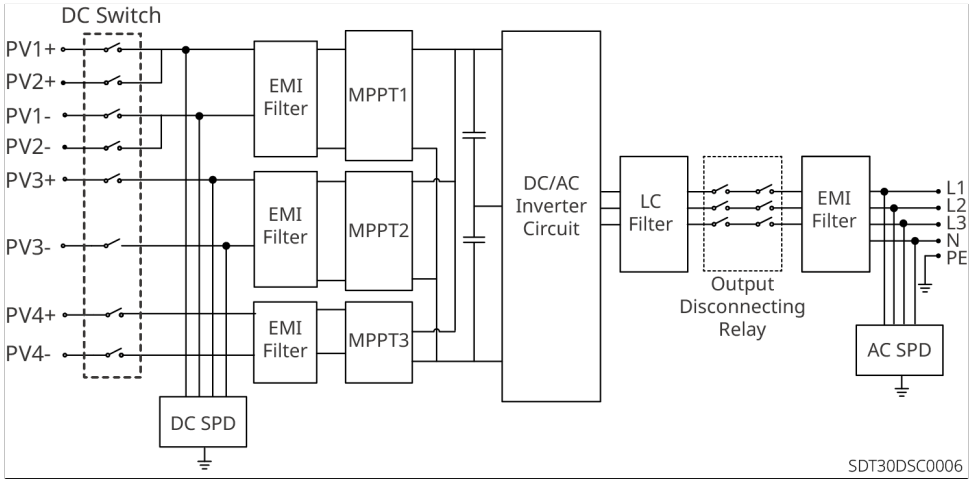
GW17KLV-SDT-C30, GW30K-SDT-C30, GW20K-SDT-31, GW12KLV-SDT-C31, GW25K-SDT-P31:



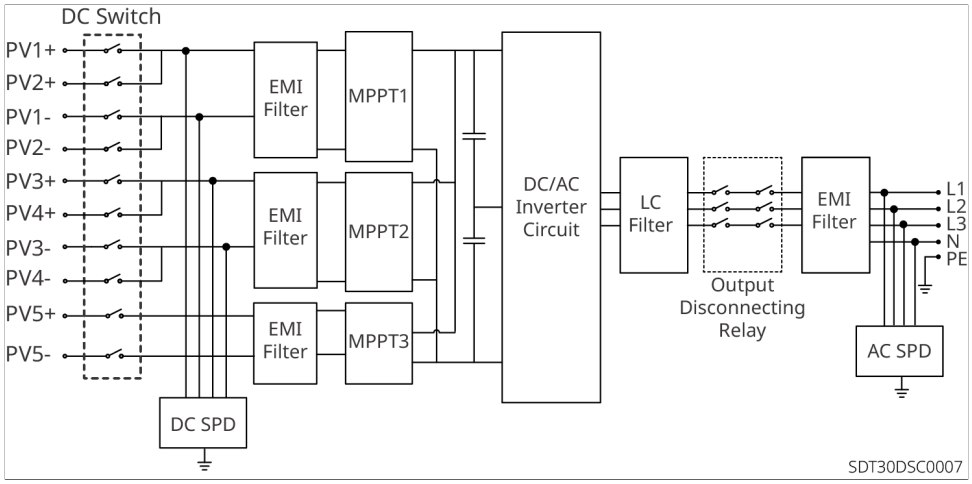
GW5000-SDT-AU30, GW6000-SDT-AU30:



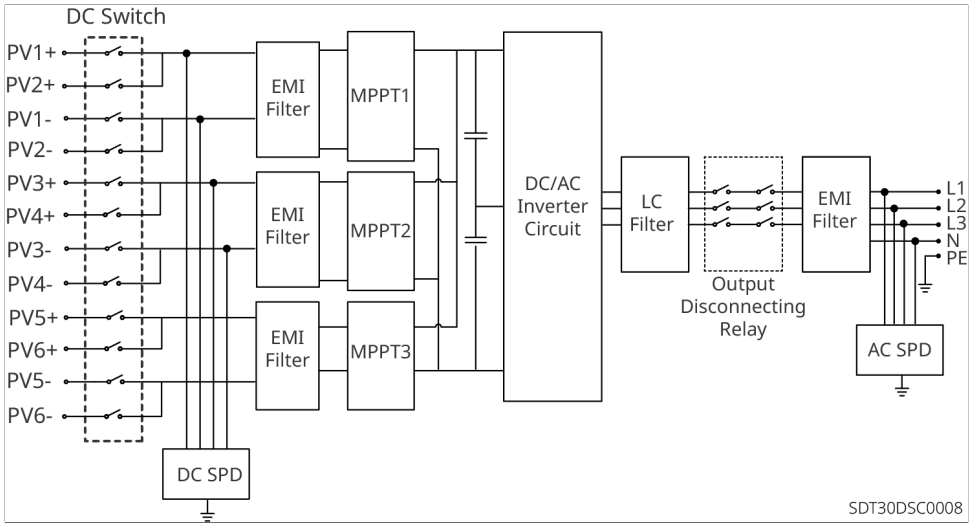
GW8000-SDT-AU30, GW9990-SDT-AU30:



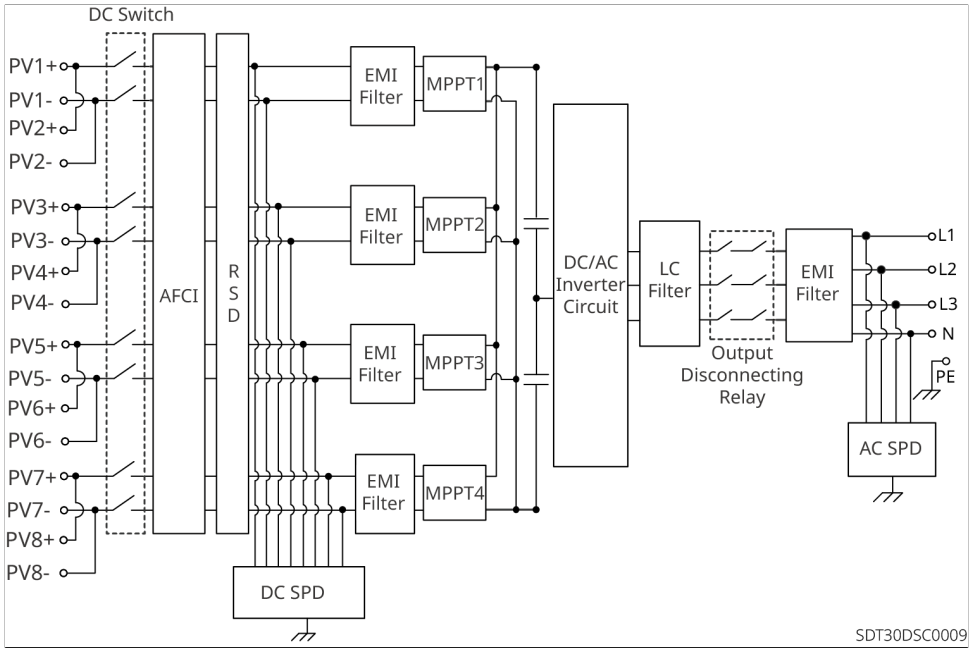
GW15K-SDT-AU30, GW20K-SDT-AU30:



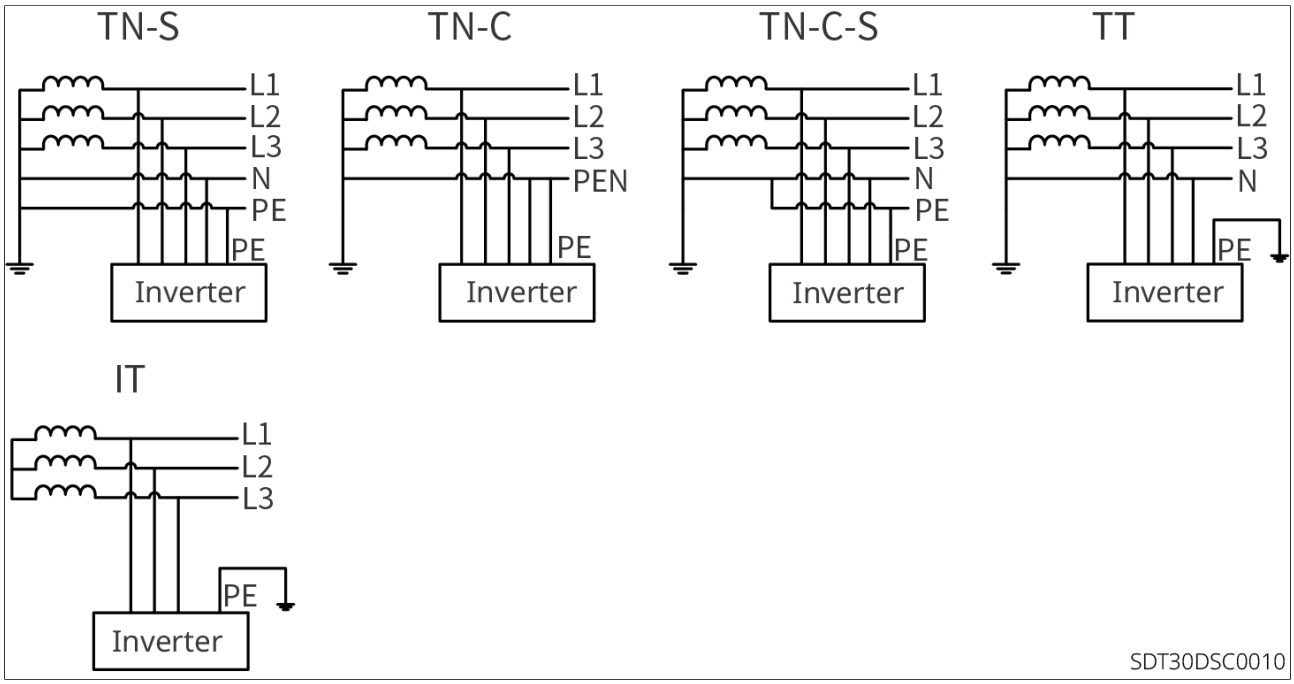
GW25K-SDT-AU30, GW29K9-SDT-AU30, GW25K-SDT-30, GW30K-SDT-30, GW23KLV-SDT-BR30, GW37K5-SDT-BR30, GW33K-SDT-C30, GW36K-SDT-C30, GW40K-SDT-C30:



GW40K-SDT-P30, GW30KLV-SDT-C30, GW50K-SDT-C30:



2.3 Supported Grid Types



2.4 Features

AFCI

AFCI function is used to detect arc faults on the DC side of the inverter. When an arc

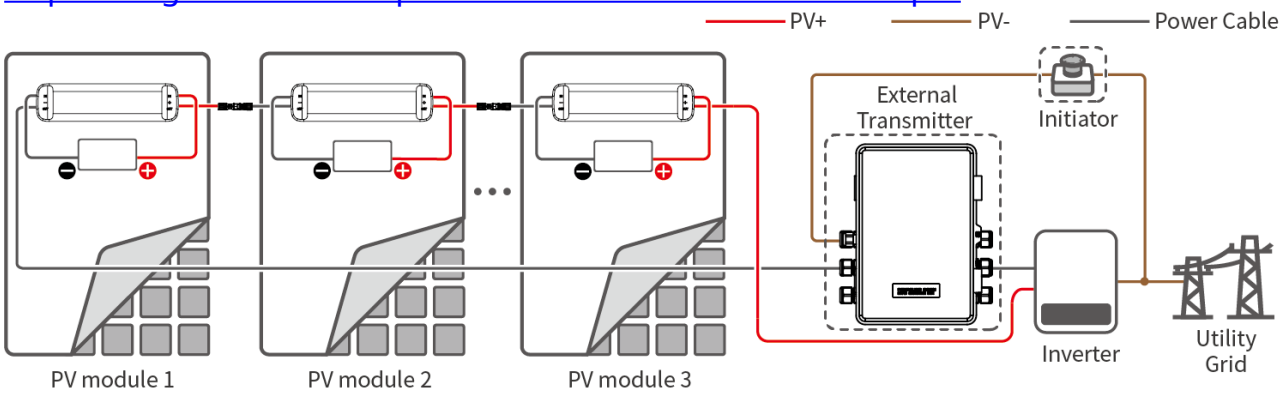
fault occurs, the inverter will automatically protect itself.
Causes of arc faults:

- DC connectors in the photovoltaic system are damaged or improperly connected.
- Cables are incorrectly connected or damaged.
- Connectors or cables are aged.

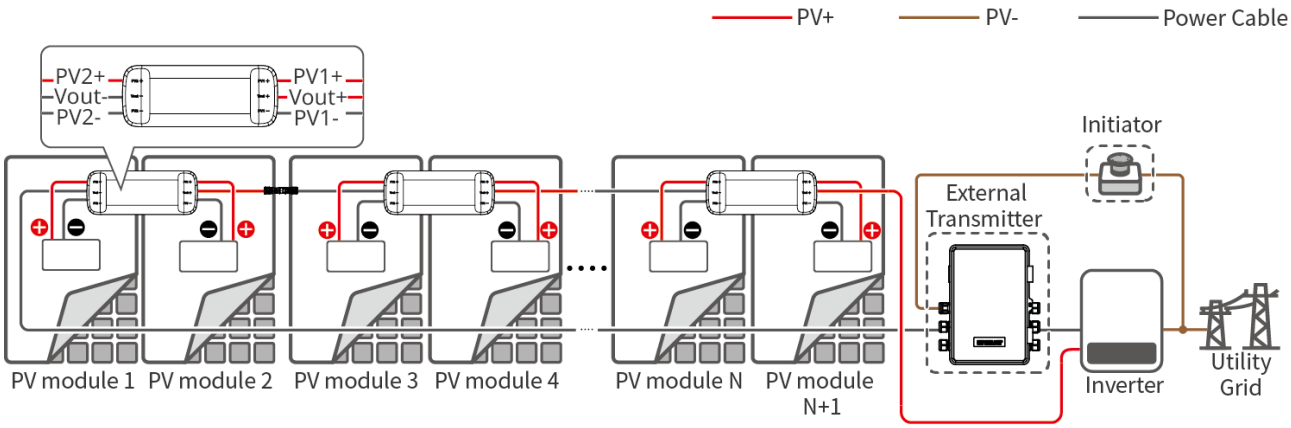
Arc detection method:
When the inverter detects an arc fault, the fault type can be viewed via the App. When arc is detected, the inverter alarms and shuts down for protection. After waiting for 60 seconds, the machine will automatically reconnect to the grid. If multiple shutdown protections occur, confirm the inverter wiring to eliminate arc phenomena. For specific operations, refer to the 'SolarGo APP User Manual'.

RSD
In a rapid shutdown system, the rapid shutdown transmitter and receiver work together to achieve rapid system shutdown. The receiver maintains component output by receiving signals from the transmitter. The transmitter can be external or built into the inverter. In case of an emergency, by enabling an external trigger device, the transmitter can be stopped, thereby shutting down the components.

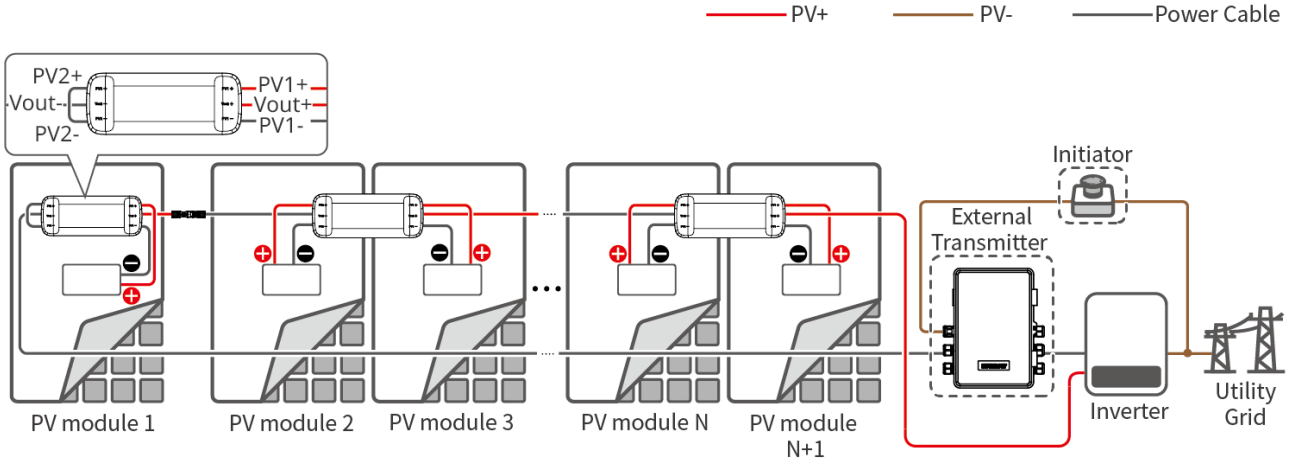
External transmitter:
Transmitter models: GTP-F2L-20, GTP-F2M-20
https://en.goodwe.com/Ftp/Installation-instructions/RSD2.0-transmitter.pdf
Receiver models: GR-B1F-20, GR-B2F-220
https://en.goodwe.com/Ftp/Installation-instructions/RSD2.0.pdf



RSD20NET0003



RSD20NET0004

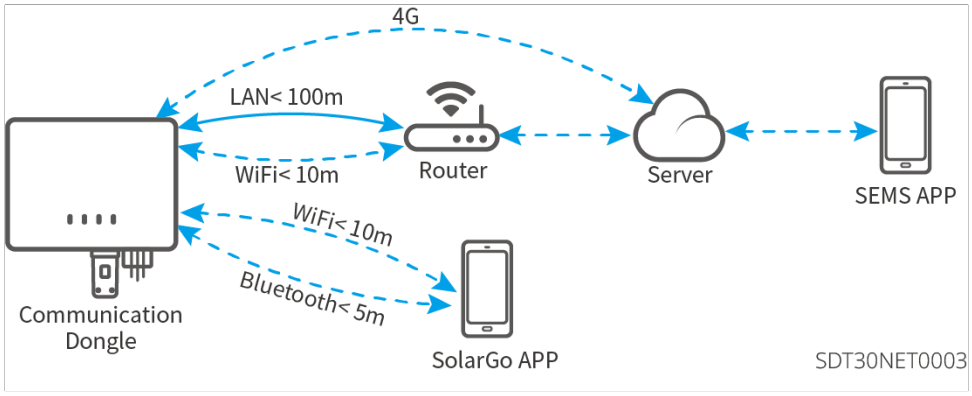


RSD20NET0005

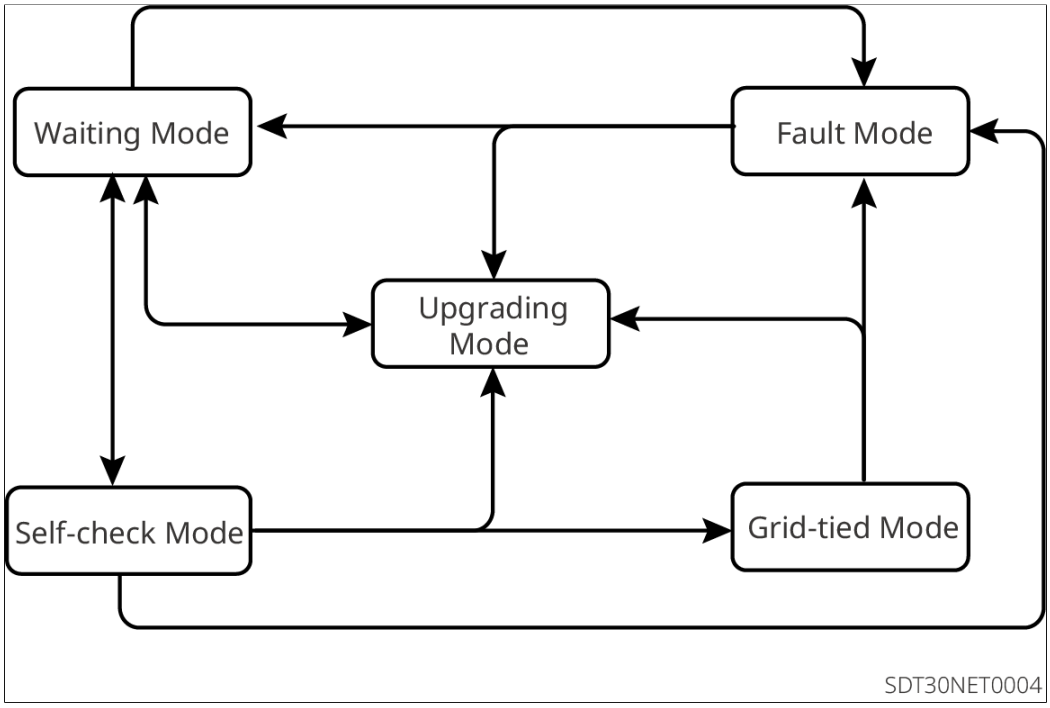
Built-in transmitter:
External trigger device: AC side circuit breaker;
Receiver models: GR-B1F-20, GR-B2F-+20
https://en.goodwe.com/Ftp/Installation-instructions/RSD2.0.pdf

Communication
The inverter supports parameter setting via Bluetooth locally; supports connection to the monitoring platform via 4G to monitor inverter operation status, power plant operation, etc.

- Bluetooth: Complies with Bluetooth 5.1 standard.
- 4G: Supports connection to third-party monitoring platforms via the MQTT communication protocol.



2.5 Inverter Operation Mode



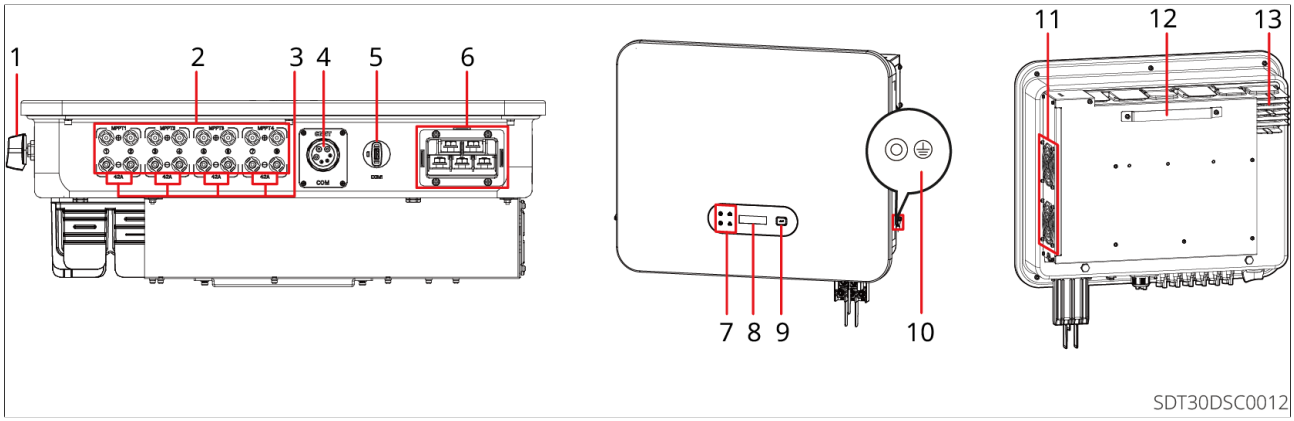
No.	Component	Description
1	Waiting mode	The waiting phase after the machine is powered on. • When conditions are met, it enters the self-check mode. • If a fault is detected, the inverter enters fault mode. • If an update request is received, it enters upgrade mode.

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 on-grid. • If an update request is received, it enters upgrade mode. • If the self-check fails, it enters fault mode.
3	On-grid mode	The inverter operates normally on-grid. • If a fault is detected, it enters fault mode. • If an update request is received, it enters upgrade mode.
4	Fault mode	If a fault is detected, the inverter enters fault mode. After the fault is cleared, it enters waiting mode. After the waiting mode ends, the inverter checks its operating status and then enters the next operating mode.
5	Upgrade mode	The inverter transitions to this state when updating its program. When the program update is complete, it enters waiting mode. After the waiting mode ends, the inverter checks its operating status and then enters the next operating mode.

2.6 Appearance Description

The color and appearance of different inverter models may vary. Please refer to the actual product.

2.6.1 Component Introduction



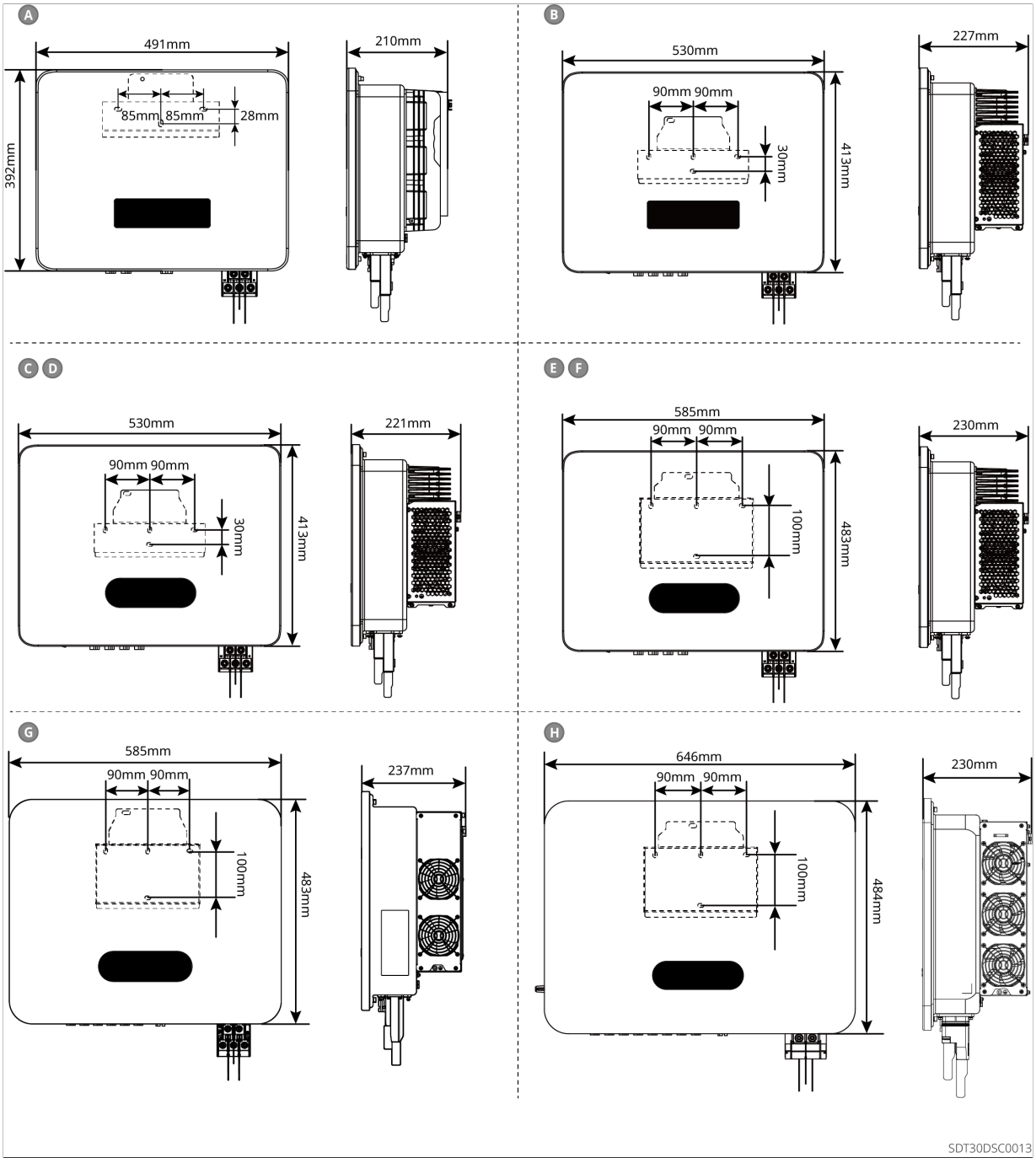
No.	Component/Marking	Description
1	DC Switch	Controls the connection or disconnection of DC input.
2	PV input terminals	Can connect PV module DC input cables.
3	Maximum input current silkscreen value per MPPT	The maximum current that each MPPT of the inverter can accept. The value varies for different inverter models. For specific values, refer to the inverter technical parameters.
4	Communication Port	Can connect RS485, power meter.
5	Communication module port	Can connect communication modules. Please select the module type based on actual requirements.
6	AC output port	Can connect AC output cables to connect the inverter to the grid.
7	indicator	Indicates the working status of the inverter.
8	Display (optional)	View inverter-related data.
9	Buttons (optional)	Operate the inverter in conjunction with the display.
10	Grounding terminal	Connecting the PE cable.

11	Fan	The inverter is equipped with an external fan. When the temperature is too high, it can cool down the inverter. • GW8000-SDT-30, GW10K-SDT-30, GW10K-SDT-EU30, GW12K-SDT-30, GW15K-SDT-30, GW4000-SDT-30, GW5000-SDT-30, GW6000-SDT-30: No external fan. • GW12KLV-SDT-C30, GW17K-SDT-30, GW20K-SDT-30, GW12KLV-SDT-C31, GW20K-SDT-31, GW5000-SDT-AU30, GW6000-SDT-AU30, GW8000-SDT-AU30, GW9990-SDT-AU30: External fan x 1. • GW17KLV-SDT-C30, GW25K-SDT-C30, GW30K-SDT-C30, GW25K-SDT-P31, GW40K-SDT-P30, GW15K-SDT-AU30, GW20K-SDT-AU30, GW25K-SDT-AU30, GW29K9-SDT-AU30, GW25K-SDT-30, GW30K-SDT-30, GW23KLV-SDT-BR30, GW37K5-SDT-BR30, GW33K-SDT-C30, GW36K-SDT-C30, GW40K-SDT-C30: External fan x 2. • GW30KLV-SDT-C30, GW50K-SDT-C30: External fan x 3.
12	Mounting bracket	Can mount the inverter.
13	heat sink	Provides heat dissipation for the inverter.

2.6.2 Product Dimensions

A	B	C	D	E	F	G
GW4000-SDT-30 GW5000-SDT-30 GW6000-SDT-30 GW8000-SDT-30 GW10K-SDT-30 GW10K-SDT-EU30 GW12K-SDT-30 GW12KLV-SDT-C30 GW15K-SDT-30	GW17K-SDT-30 GW17KLV-SDT-C30 GW20K-SDT-30 GW25K-SDT-C30 GW30K-SDT-C30	GW20K-SDT-31 GW12KLV-SDT-C31 GW25K-SDT-P31	GW5000-SDT-AU30 GW6000-SDT-AU30 GW8000-SDT-AU30 GW9990-SDT-AU30 GW15K-SDT-AU30 GW20K-SDT-AU30	GW25K-SDT-AU30 GW29K9-SDT-AU30 GW25K-SDT-30 GW30K-SDT-30	GW23KLV-SDT-BR30 GW37K5-SDT-BR30 GW33K-SDT-C30 GW36K-SDT-C30 GW40K-SDT-C30	GW40K-SDT-P30 H GW30KLV-SDT-C30 GW50K-SDT-C30

SDT30INT0004



2.6.3 Indicator Light Description

Three Lights

indicator	Status	Description
		Constantly lit: Wireless monitoring normal

Power		Single blink: Wireless module reset or restored
		Two blinks: Not connected to router/Not connected to base station
		Four blinks: Not connected to monitoring server
		Blinking: RS485 communication normal
		Off: Wireless module is restoring factory settings
Operation		Constantly lit: Grid normal, grid connection successful
		Off: Not grid-connected
Communication		Constantly lit: System fault
		Off: No fault

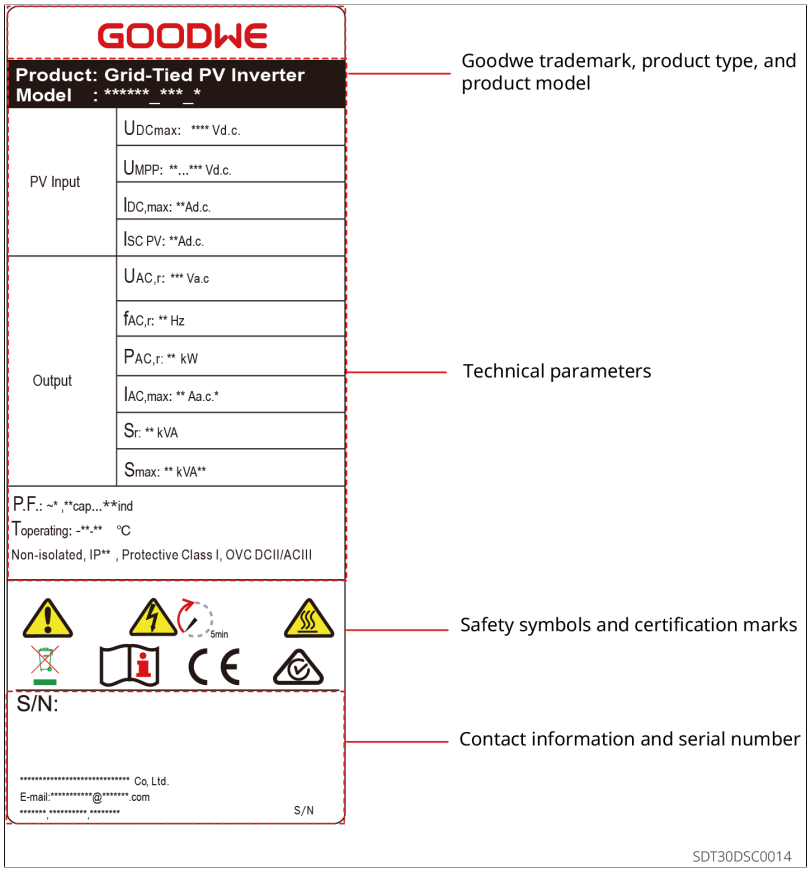
Four Lights

Indicator	Status	Description
Power		Steady on: Device powered on
		Off: Device not powered on
Run		Steady on: Grid normal, grid-connected successfully
		Off: Not grid-connected

		Single slow flash: Self-check before grid connection
		Single fast flash: About to connect to grid
Communication		Steady on: Wireless monitoring normal
		Single flash: Wireless module reset or reconfiguration
		Two flashes: Not connected to base station or router
		Four flashes: Not connected to monitoring server
		Flashing: RS485 communication normal
		Off: Wireless module restoring factory settings
Fault		Steady on: System fault
		Off: No fault

2.6.4 Nameplate Instructions

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



2.7 Check Before Receiving

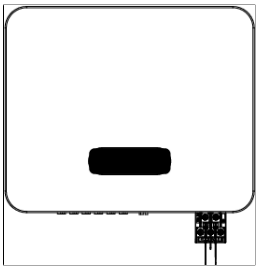
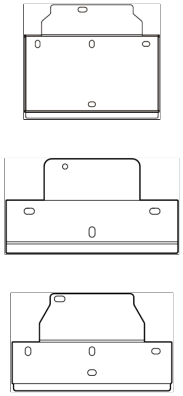
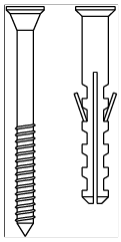
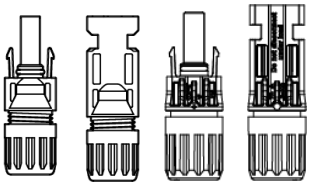
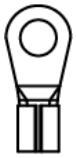
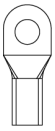
Before receiving the product, please carefully check the following:

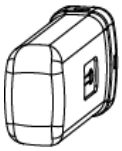
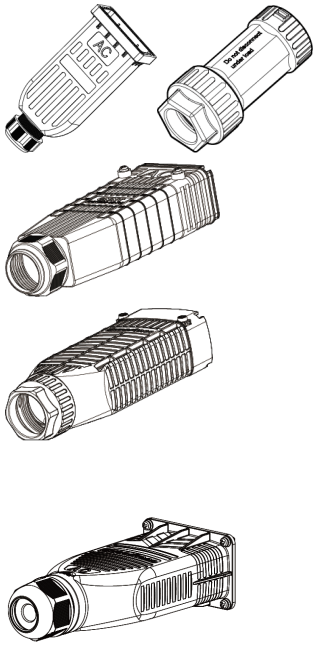
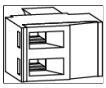
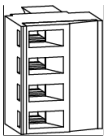
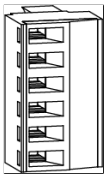
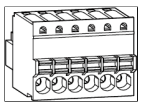
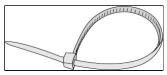
1. Check if the outer packaging is damaged, such as deformation, holes, cracks, or other signs that could cause damage to the equipment inside the packaging. If damaged, do not open the packaging and contact your dealer.
2. Check if the inverter model is correct. If it does not match, do not open the packaging and contact your dealer.
3. Check if the type and quantity of delivered items are correct, and if the appearance is damaged. If damaged, contact your dealer.

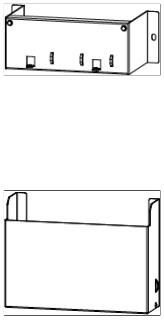
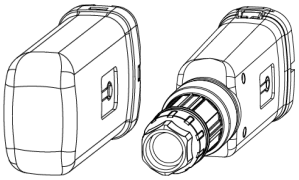
2.8 deliverables

NOTICE

[1] The type of back mounting plate depends on the inverter model.
[2] The number of DC connectors matches the number of inverter DC terminals. Please confirm based on the number of inverter DC terminals.
[3] The number of expansion screws matches the holes in the back mounting plate.
[4] The number of communication terminals and tubular terminals matches the selected communication method. Please confirm based on the communication configuration. Depending on the inverter configuration, the quantity of 2PIN communication terminals, 3PIN communication terminals, 4PIN communication terminals, or DRED/RCR communication terminals included in the box may vary. Please refer to the actual shipment.
[5] The types of communication modules include: 4G, WiFi/LAN communication modules. The actual shipment type depends on the selected inverter communication method.
[6] The protective cover is only applicable to the following models: GW5000-SDT-AU30, GW6000-SDT-AU30, GW8000-
SDT-AU30, GW9990-SDT-AU30, GW15K-SDTAU30, GW20K-SDT-AU30, GW25K-SDT-AU30, GW29K9-SDT-AU30, GW25K-SDT-30, GW50K-SDT-C30
[7] For models GW5000-SDT-AU30, GW6000-SDT-AU30, GW8000-SDT-AU30, GW9990-SDT-AU30, GW15K-SDTAU30, GW20K-SDT-AU30, the quantity of AC OT terminals is 0; for models GW25K-SDT-AU30, GW29K9-SDT-AU30, GW25K-SDT-30, GW30K-SDT-30, the quantity of AC OT terminals is 5
[8] The harness and protective cover support plate fixing cable ties are only applicable to models with a protective cover. For models GW5000-SDT-AU30, GW6000-SDT-AU30, GW8000-SDT-AU30, GW9990-SDT-AU30, GW15K-SDTAU30, GW20K-SDT-AU30, GW25K-SDT-AU30, GW29K9-SDT-AU30, GW25K-SDT-30, the quantity is 3; for model GW50K-SDT-C30, the quantity is 5
[9] For models GW4000-SDT-30, GW5000-SDT-30, GW6000-SDT-30, the quantity of AC OT terminals is 6
[10] For models GW4000-SDT-30, GW5000-SDT-30, GW6000-SDT-30, the quantity of sealing rings is 1

Part	Description	Part	Description
	Inverter x1		mounting plate x1[1]
	Expansion screw x N[3]		DC Connector x N[2]
	Grounding OT terminal x 1		Product documentation x 1
	AC OT terminal x N[7]		Tube terminal x N[4]

Part	Description	Part	Description
	smart dongle x 1		AC terminal Protective coverP x 1
	2PIN communication terminal x N[4]		3PIN communication terminal x N[4]
	4PIN communication terminal x N[4]		6PIN communication terminal x 1
	DRED/RCR communication terminal x N[4]		Cable tie for wire harness and protective cover support plate x N[8]

Part	Description	Part	Description
	Protective coverP x 1[6]		smart dongle x 1[5]
	AC OT terminal x N[9]		Sealing ring x N[10]

2.9 Storage

If the device 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 the box 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 inverters 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. If the storage time of the inverter exceeds two years or the time after installation without operation exceeds 6 months, it is recommended to have it inspected and tested by professionals before putting it into use.
6. To ensure the good electrical performance of the internal electronic components of the inverter, it is recommended to power it on every 6 months during storage. If it has not been powered on for over 6 months, it is recommended to have it inspected and tested by professionals before putting it into use.

3 Installation

3.1 Installation Requirements

Installation Environment Requirements

1. The device must not be installed in flammable, explosive, corrosive, or similar environments.
2. The installation carrier must be sturdy and reliable, capable of bearing the weight of the inverter.
3. The installation space must meet the ventilation and heat dissipation requirements of the device, as well as the operational space requirements.
4. The device's protection rating is suitable for indoor and outdoor installation, and the installation environment temperature and humidity must be within the appropriate range.
5. The inverter should avoid installation environments with direct sunlight, rain, snow accumulation, etc. It is recommended to install it in a sheltered location, and if necessary, a sunshade can be built.
6. The installation location must be out of reach of children and avoid being placed in easily accessible positions. During operation, the device surface may be hot to prevent burns.
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. For GW5000-SDT-AU30, GW6000-SDT-AU30, GW8000-SDT-AU30, GW9990-SDT-AU30, GW15K-SDT-AU30, GW20K-SDT-AU30, the installation altitude is below 3000m; when above 2000 meters, the inverter will be derated. For GW4000-SDT-30, GW5000-SDT-30, GW6000-SDT-30, GW30KLV-SDT-C30, GW50K-SDT-C30, GW20K-SDT-31, GW12KLV-SDT-C31, GW25K-SDT-P31, GW25K-SDT-AU30, GW29K9-SDT-AU30, GW25K-SDT-30, GW30K-SDT-30, GW23KLV-SDT-BR30, GW37K5-SDT-BR30, GW33K-SDT-C30, GW36K-SDT-C30, GW40K-SDT-C30, GW40K-SDT-P30, GW8000-SDT-30, GW10K-SDT-30, GW10K-SDT-EU30, GW12K-SDT-30, GW12KLV-SDT-C30, GW15K-SDT-30, GW17K-SDT-30, GW17KLV-SDT-C30, GW20K-SDT-30, GW25K-SDT-C30, GW30K-SDT-C30, the installation altitude is below 4000 meters.
9. Inverters installed in salt damage areas will be corroded. Salt damage areas refer to areas within 1000m from the coast or affected by sea breeze. The areas affected by sea breeze vary depending on meteorological conditions (e.g., typhoons, seasonal winds) or terrain (with embankments, hills).

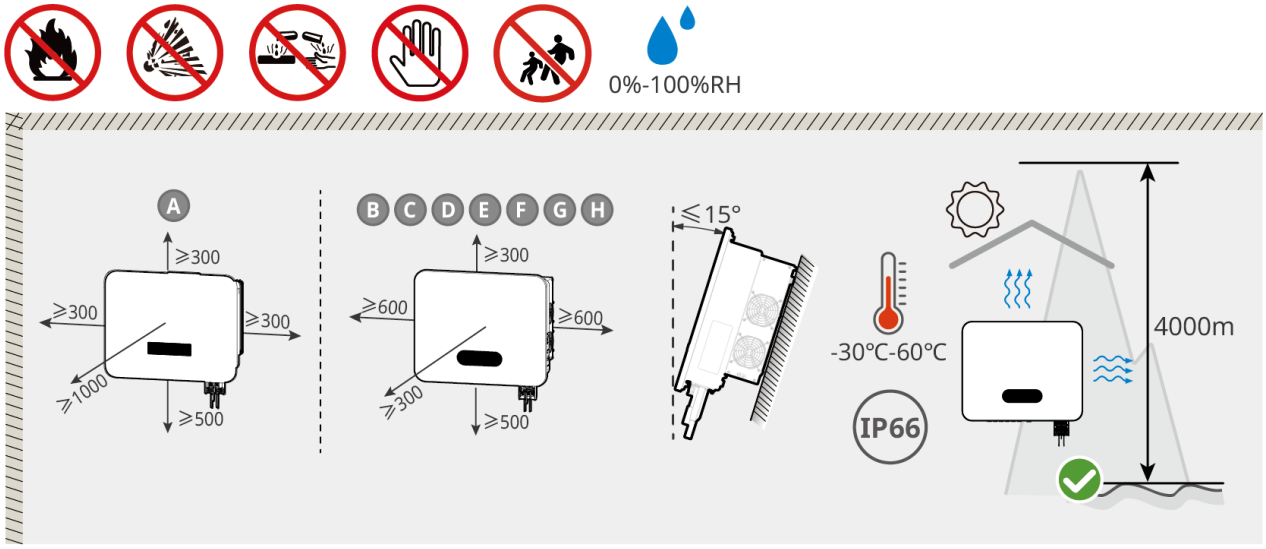
10. Stay away from strong magnetic field environments to avoid electromagnetic interference. If there are radio stations or wireless communication devices below 30MHz near the installation location, please install the device according to the following requirements:
    - Add ferrite cores with multiple windings at the inverter's 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.

Installation Carrier Requirements

- The installation carrier must not be made of flammable materials and must have fire-resistant properties.
- Please ensure the installation surface is sturdy, guaranteeing that the carrier meets the load-bearing requirements of the device.
- During operation, the device will produce vibrations. Do not install it on a carrier with poor sound insulation to avoid the noise generated during device operation disturbing residents in living areas.

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 angle, or horizontally.



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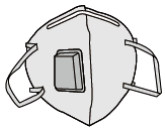
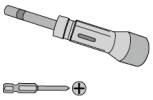
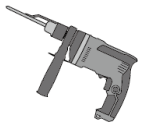
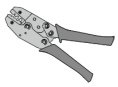
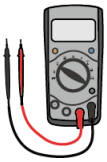
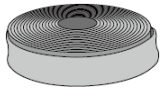
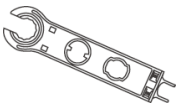
Installation Tool Requirements

During installation, it is recommended to use the following installation tools. If

necessary, other auxiliary tools can be used on site.

Tool Type	Description	Tool Type	Description
	Safety gloves		Dust mask
	goggle		Safety shoes
	torque wrench M4, M5, M6		hammer drill
	diagonal plier		Heat gun
	wire stripper		Terminal crimping tool
	rubber hammer		Marker pen
	multimeter		Heat shrink tubing
	Vacuum cleaner		Level bar
	MC4 DC unlocking tool		Jinko DC unlocking tool

3.2 Installing the Inverter

3.2.1 Portable Inverter

⚠CAUTION

Before installation, the inverter must be transported to the installation site. To avoid personal injury or equipment damage during transportation, please note the following:

1. Based on the equipment weight, allocate a sufficient number of personnel to avoid exceeding the human carrying capacity, which could cause injury from dropping.
2. Please wear safety gloves to prevent injury.
3. Ensure the equipment remains balanced during transportation to prevent falling.

3.2.2 Installing the Inverter

NOTICE

- When drilling holes, 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 avoid inhaling dust into your respiratory tract or getting it in your eyes.
- The security lock is user-provided. Please select a security lock of appropriate size, otherwise installation may not be possible.
- The product appearance in the graphics is for reference only. The appearance may vary between different models or different versions of the same model. Please refer to the actual product.
- Step 4 only applies to GW5000-SDT-AU30, GW6000-SDT-AU30, GW8000-SDT-AU30, GW9990-SDT-AU30, GW15K-SDTAU30, GW20K-SDT-AU30, GW25K-SDT-AU30, GW29K9-SDT-AU30, GW25K-SDT-30, GW30K-SDT-30

Step 1: Place the backplate horizontally on the wall, and use a marker to mark the drilling positions.
Step 2: Use an impact drill to drill the holes.
Step 3: Use expansion screws to secure the backplate to the wall.
Step 4: Mount the inverter onto the backplate, and secure the backplate and the inverter.
Step 5 (Optional): Install the anti-theft lock.

A	B	C	D	E	F	G
GW4000-SDT-30 GW5000-SDT-30 GW6000-SDT-30 GW8000-SDT-30 GW10K-SDT-30 GW10K-SDT-EU30 GW12K-SDT-30 GW12KLV-SDT-C30 GW15K-SDT-30	GW17K-SDT-30 GW17KLV-SDT-C30 GW20K-SDT-30 GW25K-SDT-C30 GW30K-SDT-C30	GW20K-SDT-31 GW12KLV-SDT-C31 GW25K-SDT-P31	GW5000-SDT-AU30 GW6000-SDT-AU30 GW8000-SDT-AU30 GW9990-SDT-AU30 GW15K-SDT-AU30 GW20K-SDT-AU30	GW25K-SDT-AU30 GW29K9-SDT-AU30 GW25K-SDT-30 GW30K-SDT-30	GW23KLV-SDT-BR30 GW37K5-SDT-BR30 GW33K-SDT-C30 GW36K-SDT-C30 GW40K-SDT-C30	GW40K-SDT-P30 **H** GW30KLV-SDT-C30 GW50K-SDT-C30

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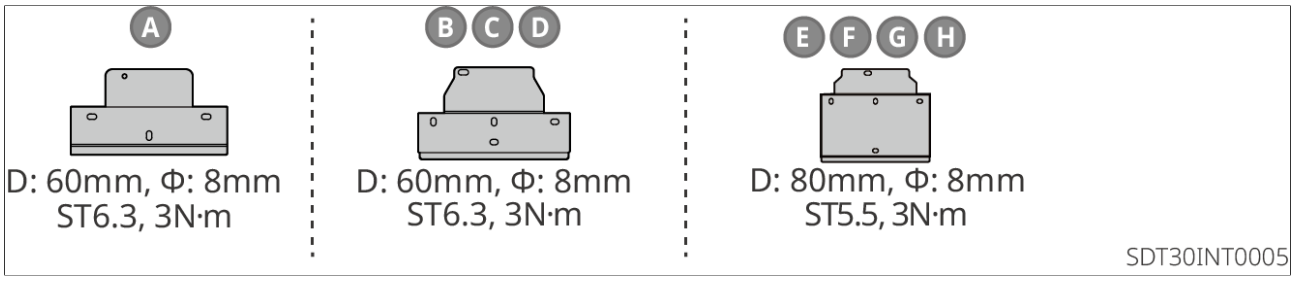
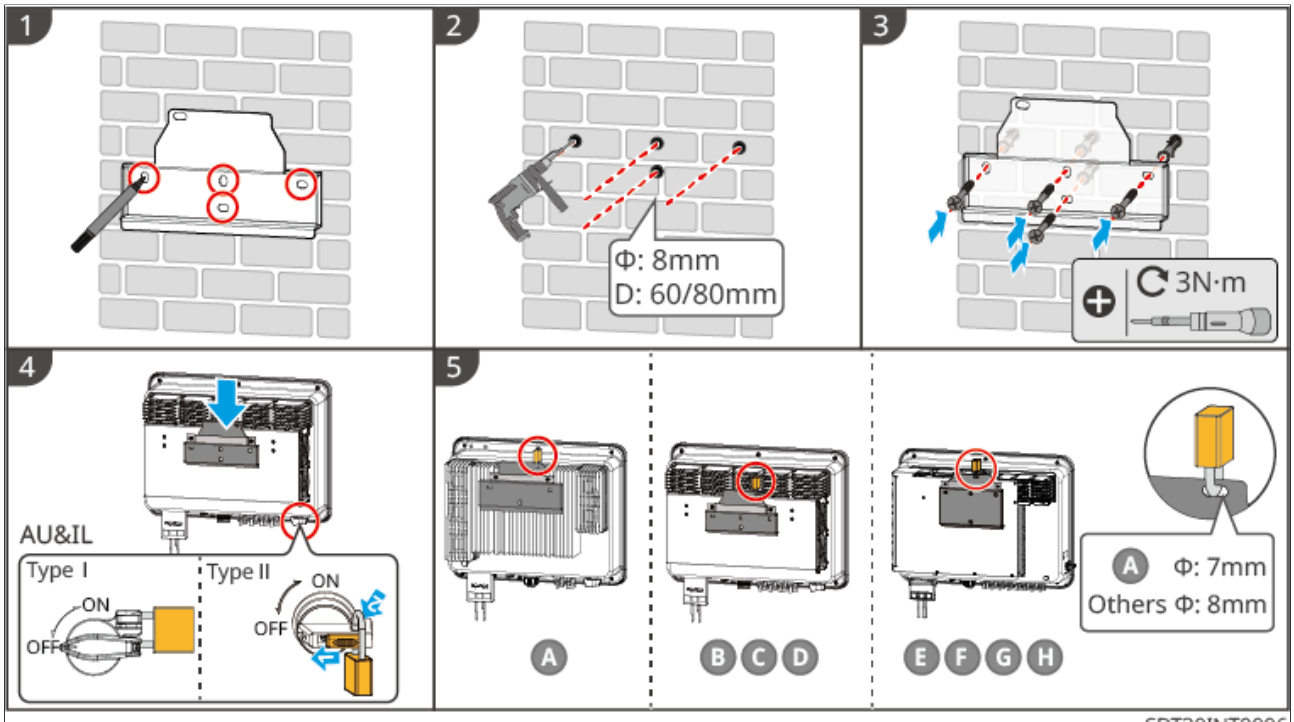


SDT30INT0005



SDT30INT0006

4 Electrical Connections

4.1 Safety Precautions

DANGER

- Before making electrical connections, 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 or other dangers may occur.
- All operations during electrical connection, as well as the specifications of cables and components used, must comply with local laws and regulations.
- If the cable is subjected to excessive tension, poor connections may result. When wiring, leave a certain length of cable slack before connecting it to the inverter's terminals.

NOTICE

- When performing electrical connections, wear personal protective equipment such as safety shoes, protective gloves, and insulated 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.
- The appearance shown in the graphics of this document is for reference only. The appearance may vary between different models or different versions of the same model. Please refer to the physical product.

Cable Specifications Requirements

Cable	Type	Cable Specification	
		Cable Outer Diameter (mm)	Conductor Cross-sectional Area (mm^2)
DC cable		4.8~6.3	Recommend: 4~6

Cable	Type	Cable Specification		
		Cable Outer Diameter (mm)	Conductor Cross-sectional Area (mm^2)	
	Photovoltaic cable meeting 1100V standard	5.9-8.8	Recommend: 4~6	
AC cable	Outdoor single-core four-strand/five-strand copper wire/aluminum wire[1]	GW30KLV-SDT-C30, GW50K-SDT-C30: 22~38 GW5000-SDT-AU30, GW6000-SDT-AU30, GW8000-SDT-AU30, GW9990-SDT-AU30, GW15K-SDTAU30, GW20K-SDT-AU30: 13~18 Others: 12 ~ 30	Copper core (supports single-strand or multi-strand wire): GW4000-SDT-30, GW5000-SDT-30, GW6000-SDT-30, GW8000-SDT-30: 2.5-4 GW10K-SDT-30, GW10K-SDT-EU30, GW12K-SDT-30, GW12KLV-SDT-C30, GW15K-SDT-30, GW5000-SDT-AU30, GW6000-SDT-AU30, GW8000-SDT-AU30, GW9990-SDT-AU30, GW15K-SDTAU30, GW20K-SDT-AU30: 6-10. GW17K-SDT-30, GW17KLV-SDT-C30, GW20K-SDT-30, GW25K-SDT-C30, GW30K-SDT-C30, GW20K-SDT-31, GW12KLV-SDT-C31, GW25K-SDT-P31:	Aluminum core (supports single-strand or multi-strand wire): GW4000-SDT-30, GW5000-SDT-30, GW6000-SDT-30, GW8000-SDT-30, GW10K-SDT-30, GW10K-SDT-EU30, GW12K-SDT-30, GW12KLV-SDT-C30, GW15K-SDT-30: 10~16. GW17K-SDT-30, GW17KLV-SDT-C30, GW20K-SDT-30, GW25K-SDT-C30, GW30K-SDT-C30, GW20K-SDT-31, GW12KLV-SDT-C31, GW25K-SDT-P31: 16~25. GW12KLV-SDT-C30, GW17KLV-SDT-C30, GW30K-SDT-C30: 25.

Cable	Type	Cable Specification		
		Cable Outer Diameter (mm)	Conductor Cross-sectional Area (mm^2)	
			16~25. GW12KLV-SDT-C30, GW17KLV-SDT-C30: 25. Copper core (only supports multi-strand wire) GW25K-SDT-AU30, GW29K9-SDT-AU30, GW25K-SDT-30, GW30K-SDT-30, GW23KLV-SDT-BR30, GW37K5-SDT-BR30, GW33K-SDT-C30, GW36K-SDT-C30, GW40K-SDT-C30, GW40K-SDT-P30: 16-25. GW30KLV-SDT-C30, GW50K-SDT-C30: 25~70.	Aluminum core (only supports multi-strand wire) GW25K-SDT-AU30, GW29K9-SDT-AU30, GW25K-SDT-30, GW30K-SDT-30, GW23KLV-SDT-BR30, GW37K5-SDT-BR30, GW33K-SDT-C30, GW36K-SDT-C30, GW40K-SDT-C30, GW40K-SDT-P30: 25-35 GW30KLV-SDT-C30, GW50K-SDT-C30: 35~70

Cable	Type	Cable Specification		
		Cable Outer Diameter (mm)	Conductor Cross-sectional Area (mm^2)	
PE cable	Outdoor cable	-	Copper core: GW4000-SDT-30, GW5000-SDT-30, GW6000-SDT-30, GW8000-SDT-30, GW10K-SDT-30, GW10K-SDT-EU30, GW12K-SDT-30, GW12KLV-SDT-C30, GW15K-SDT-30: 4. GW17K-SDT-30, GW17KLV-SDT-C30, GW20K-SDT-30, GW25K-SDT-C30, GW30K-SDT-C30, GW20K-SDT-31, GW12KLV-SDT-C31, GW25K-SDT-P31, GW5000-SDT-AU30, GW6000-SDT-AU30, GW8000-SDT-AU30, GW9990-SDT-AU30, GW15K-SDTAU30, GW20K-SDT-AU30: 10. GW25K-SDT-AU30, GW29K9-SDT-AU30, GW25K-SDT-30, GW30K-SDT-30, GW23KLV-SDT-BR30, GW37K5-SDT-BR30, GW33K-SDT-C30, GW36K-SDT-C30,	Aluminum core: GW25K-SDT-AU30, GW29K9-SDT-AU30, GW25K-SDT-30, GW30K-SDT-30, GW23KLV-SDT-BR30, GW37K5-SDT-BR30, GW33K-SDT-C30, GW36K-SDT-C30, GW40K-SDT-C30, GW40K-SDT-P30, GW30KLV-SDT-C30, GW50K-SDT-C30: 16 ~ 25. Other models do not support.

Cable	Type	Cable Specification		
		Cable Outer Diameter (mm)	Conductor Cross-sectional Area (mm^2)	
			GW40K-SDT-C30, GW40K-SDT-P30, GW30KLV-SDT-C30, GW50K-SDT-C30: 10-16.	
Communication cable	Outdoor shielded twisted pair cable meeting local standards [2]	3~7	0.2~0.5	

Note: [1] When using aluminum wire, please connect copper-aluminum transition terminals.
[2] The total length of communication cable must not exceed 1000m. The values in this table are valid only when the external protective earth conductor uses the same metal as the phase conductor. Otherwise, the cross-sectional area of the external protective earth conductor should be such that its conductivity is equivalent to that specified in this table.

4.2 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 that the protective ground wires at both locations are reliably connected.
- If there are multiple inverters, ensure that the protective grounding points of all inverter chassis are connected at equal potential.
- To improve the corrosion resistance of the terminals, it is recommended to apply silicone or paint on the outside of the grounding terminals for protection after the protective ground wire connection is installed.
- Please prepare your own protective ground wire. It is recommended to use copper-core cables for the ground wire. If aluminum wire is needed, please use copper-aluminum transition terminals for wiring.
  Copper-aluminum transition terminals should be prepared by yourself.

A	B	C	D	E	F	G
GW4000-SDT-30 GW5000-SDT-30 GW6000-SDT-30 GW8000-SDT-30 GW10K-SDT-30 GW10K-SDT-EU30 GW12K-SDT-30 GW12KLV-SDT-C30 GW15K-SDT-30	GW17K-SDT-30 GW17KLV-SDT-C30 GW20K-SDT-30 GW25K-SDT-C30 GW30K-SDT-C30	GW20K-SDT-31 GW12KLV-SDT-C31 GW25K-SDT-P31	GW5000-SDT-AU30 GW6000-SDT-AU30 GW8000-SDT-AU30 GW9990-SDT-AU30 GW15K-SDT-AU30 GW20K-SDT-AU30	GW25K-SDT-AU30 GW29K9-SDT-AU30 GW25K-SDT-30 GW30K-SDT-30	GW23KLV-SDT-BR30 GW37K5-SDT-BR30 GW33K-SDT-C30 GW36K-SDT-C30 GW40K-SDT-C30	GW40K-SDT-P30 H GW30KLV-SDT-C30 GW50K-SDT-C30

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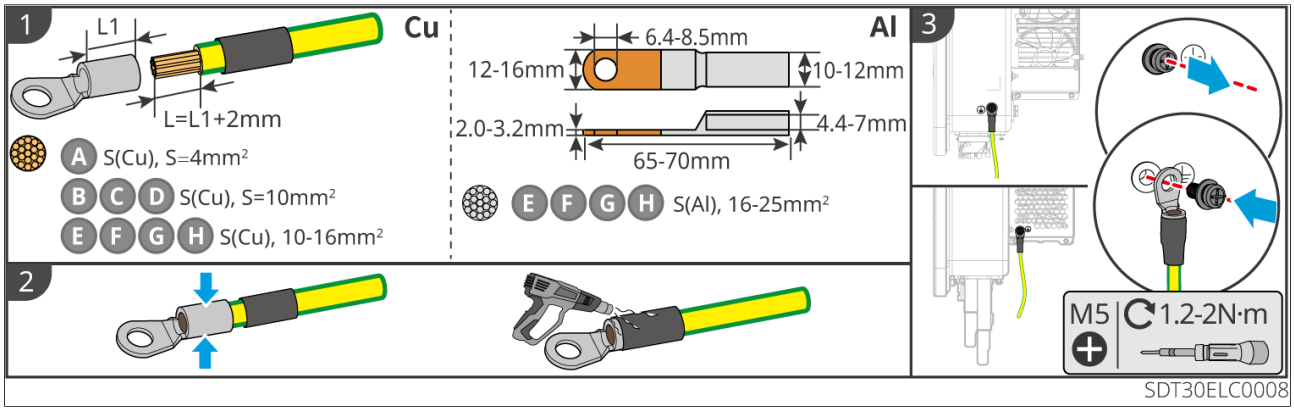


SDT30ELC0008

4.3 Connecting AC Output Cables

WARNING

- Do not connect loads between the inverter and the AC switch directly connected to the inverter.
- The inverter integrates a Residual Current Monitoring Unit (RCMU). When the inverter detects a leakage current greater than the permitted value, it will quickly disconnect from the grid.

Determine whether to install an RCD (Residual Current Monitoring Device) based on local laws and regulations. The inverter can be connected to an external Type A RCD for protection when the DC component of the leakage current exceeds the limit. The following RCD specification is for reference: 300mA.

NOTICE
Each inverter must be equipped with an AC output switch. Multiple inverters cannot be connected to a single AC switch simultaneously.

To ensure the inverter can be safely disconnected from the grid in case of an abnormality, please install an AC switch on the AC side of the inverter. Select a suitable AC switch according to local regulations. The following switch specifications are for reference:

Inverter Model	AC Switch Specification
GW4000-SDT-30/GW5000-SDT-30/GW6000-SDT-30/GW5000-SDT-AU30/GW6000-SDT-AU30/GW8000-SDT-AU30/GW9990-SDT-AU30/GW8000-SDT-30/GW10K-SDT-30/GW10K-SDT-EU30	20A
GW12K-SDT-30/GW15K-SDT-30/GW15K-SDT-AU30/GW17K-SDT-30	32A
GW12KLV-SDT-C30/GW20K-SDT-30/GW20K-SDT-AU30/GW20K-SDT-31/GW12KLV-SDT-C31	40A
GW25K-SDT-C30/GW25K-SDT-AU30/GW25K-SDT-30/GW25K-SDT-P31	50A
GW17KLV-SDT-C30/GW30K-SDT-C30/GW29K9-SDT-AU30/GW30K-SDT-30/GW33K-SDT-C30	63A

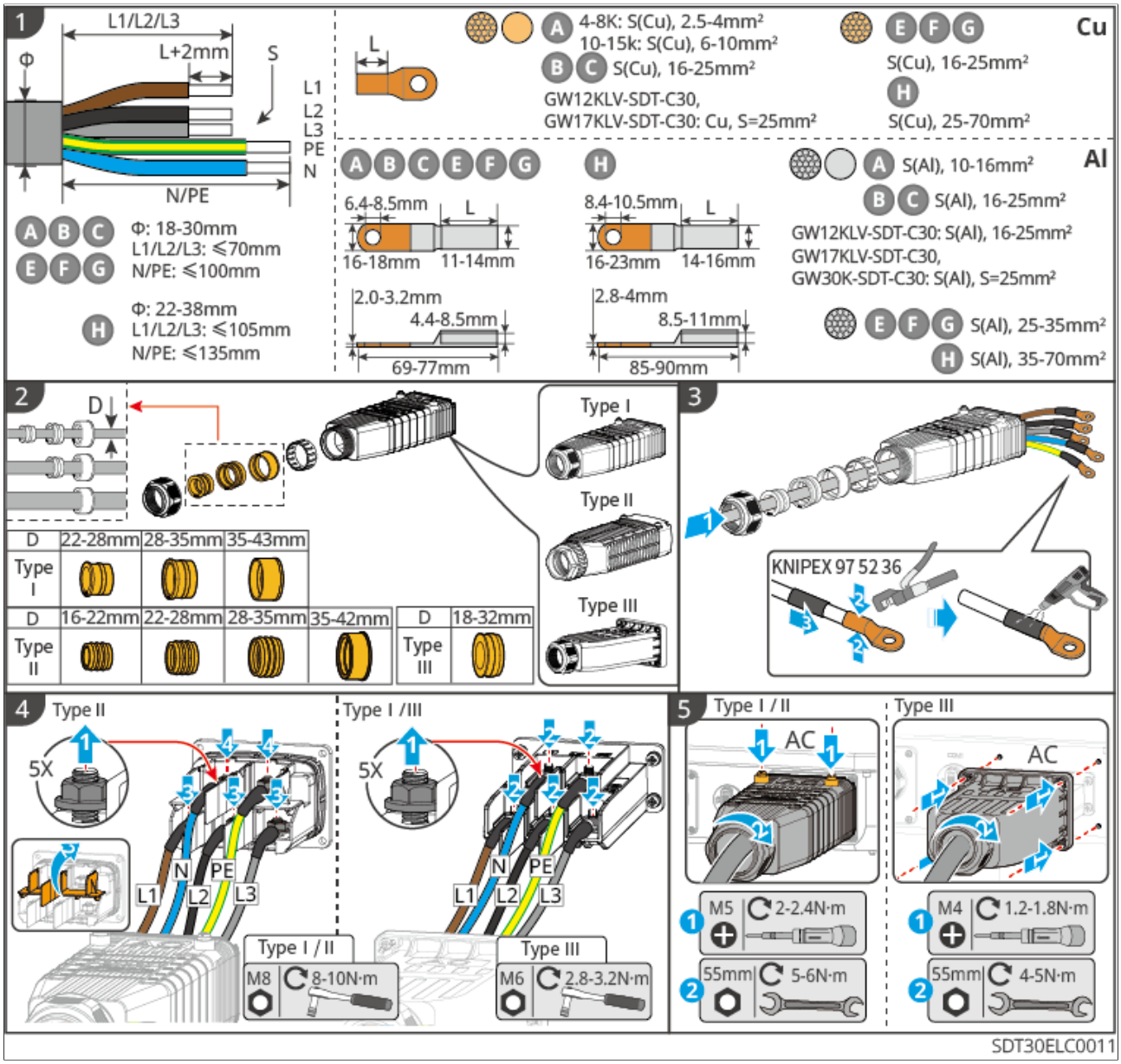
GW36K-SDT-C30/GW40K-SDT-C30/GW40K-SDT-P30	80A
GW30KLV-SDT-C30/GW50K-SDT-C30	100A

⚠WARNING

- During wiring, ensure that the AC output wires fully match the 'L1', 'L2', 'L3', 'N', and 'PE' ports of the AC terminal. Incorrect cable connection will damage the inverter.
- Ensure that the wire cores are fully inserted into the AC terminal wiring holes without exposure.
- Ensure that the cable connections are tight; otherwise, during equipment operation, the terminal may overheat and damage the inverter.
- The AC output terminals have wiring forms such as three-phase four-wire system and three-phase five-wire system. The specific form should be based on the actual wiring scenario. This article uses the three-phase five-wire system as an example for introduction.
- The protective earth wire length should have some slack reserved. When the AC output wires are subjected to tension due to force majeure, ensure that the protective earth wire bears the stress last.
- When using aluminum wires, connect copper-aluminum transition terminals. Please prepare AC wiring OT terminals yourself. When selecting terminals, refer to T/CEEIA 281-2017 or equivalent standards.
- When crimping OT terminals, ensure that the crimping point is tight without gaps to avoid affecting connection reliability.
- For crimping tools, choose KNIPEX 97 52 36. If this tool is not available, select a similar type of tool.

A	B	C	D	E	F	G
GW4000-SDT-30 GW5000-SDT-30 GW6000-SDT-30 GW8000-SDT-30 GW10K-SDT-30 GW10K-SDT-EU30 GW12K-SDT-30 GW12KLV-SDT-C30 GW15K-SDT-30	GW17K-SDT-30 GW17KLV-SDT-C30 GW20K-SDT-30 GW25K-SDT-C30 GW30K-SDT-C30	GW20K-SDT-31 GW12KLV-SDT-C31 GW25K-SDT-P31	GW5000-SDT-AU30 GW6000-SDT-AU30 GW8000-SDT-AU30 GW9990-SDT-AU30 GW15K-SDT-AU30 GW20K-SDT-AU30	GW25K-SDT-AU30 GW29K9-SDT-AU30 GW25K-SDT-30 GW30K-SDT-30	GW23KLV-SDT-BR30 GW37K5-SDT-BR30 GW33K-SDT-C30 GW36K-SDT-C30 GW40K-SDT-C30	GW40K-SDT-P30 H GW30KLV-SDT-C30 GW50K-SDT-C30

SDT30INT0004



4.4 Connecting DC Input Cables

DANGER

Before connecting the PV string to the inverter, please confirm the following information. Otherwise, it may cause permanent damage to the inverter, and in severe cases, it may lead to fire causing personal injury and property loss.

1. Please ensure that the maximum input voltage is within the allowable range of the inverter.
2. Please ensure that the positive pole of the PV string is connected to the PV+ of the inverter, and the negative pole of the PV string is connected to the PV- of the inverter.

⚠WARNING

- Mixing PV modules of different brands or models within the same MPPT input, or connecting PV modules with different azimuths or tilt angles to the same PV string, will not necessarily damage the inverter but will lead to a decrease in system performance.
- It is recommended that the voltage difference between different MPPT inputs does not exceed 160V.
- It is recommended that the sum of the peak power currents of the PV strings connected to each MPPT input does not exceed the maximum input current per MPPT of the inverter.
- When the maximum DC input voltage of the inverter is 1100V, please ensure the open-circuit voltage of the PV strings connected to each MPPT input does not exceed 1100V. When the input voltage is between 1000V and 1100V, the inverter will enter standby mode. The inverter will resume normal operation when the voltage returns within the MPPT operating voltage range (140V to 1000V).
- When the maximum DC input voltage of the inverter is 850V, please ensure the open-circuit voltage of the PV strings connected to each MPPT input does not exceed 850V. When the input voltage is between 700V and 850V, the inverter will enter standby mode. The inverter will resume normal operation when the voltage returns within the MPPT operating voltage range (140V to 700V).
- When connecting multiple PV strings to the inverter, it is recommended to maximize the number of MPPT inputs utilized.
- Please use the DC connectors shipped with the unit. Damage caused by using incompatible connector models is not covered under warranty.
- The PV string output does not support grounding. Before connecting the PV strings to the inverter, please ensure the minimum insulation resistance to ground of the PV strings meets the minimum insulation impedance requirement.
- Please prepare the DC input cables yourself.
- Type of DC input cable: Outdoor photovoltaic cable that meets the maximum input voltage of the inverter.

PV String Connection Method

NOTICE
To achieve optimal power generation efficiency, it is recommended that PV strings be connected in the following manner.

Please connect the MPPT channels and the number of strings according to the actual unit.

●: Connect one PV string ●●: Connect two PV strings

Number of PV Strings	MPPT1	MPPT2	MPPT3	MPPT4
4	•	•	•	•
5	••	•	•	•
6	••	••	•	•
7	••	••	••	•
8	••	••	••	••

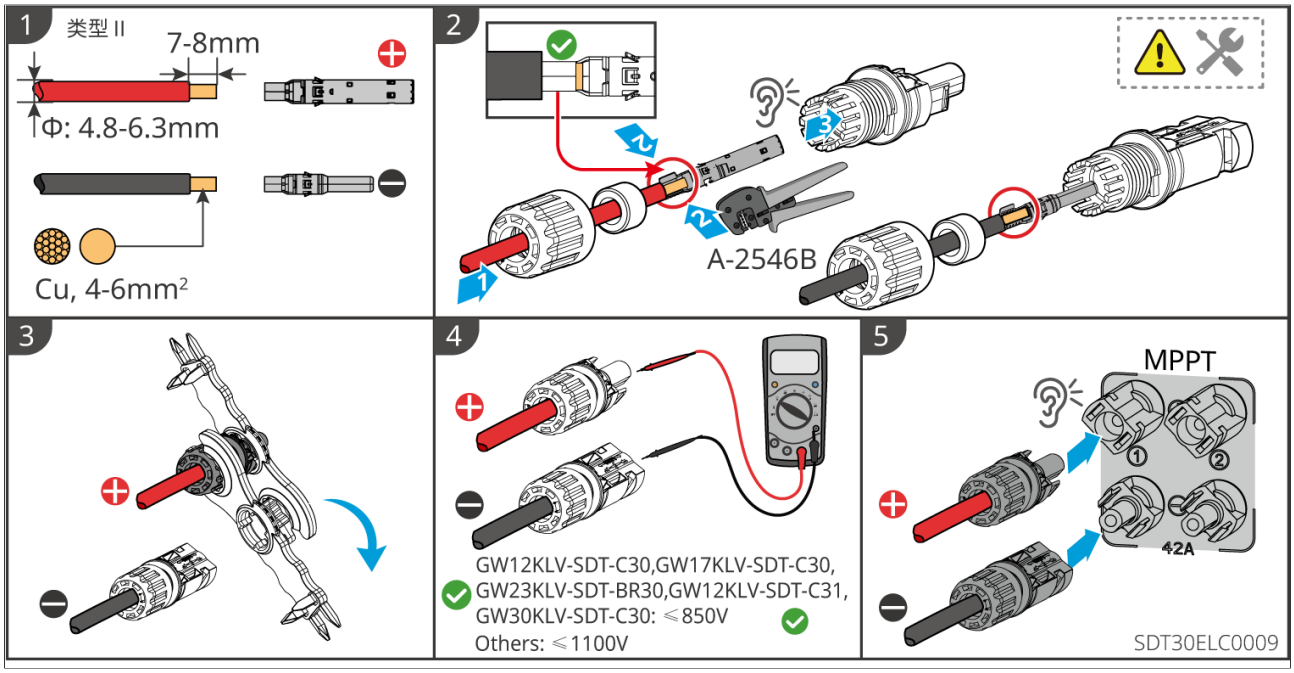
PV Connection Mode

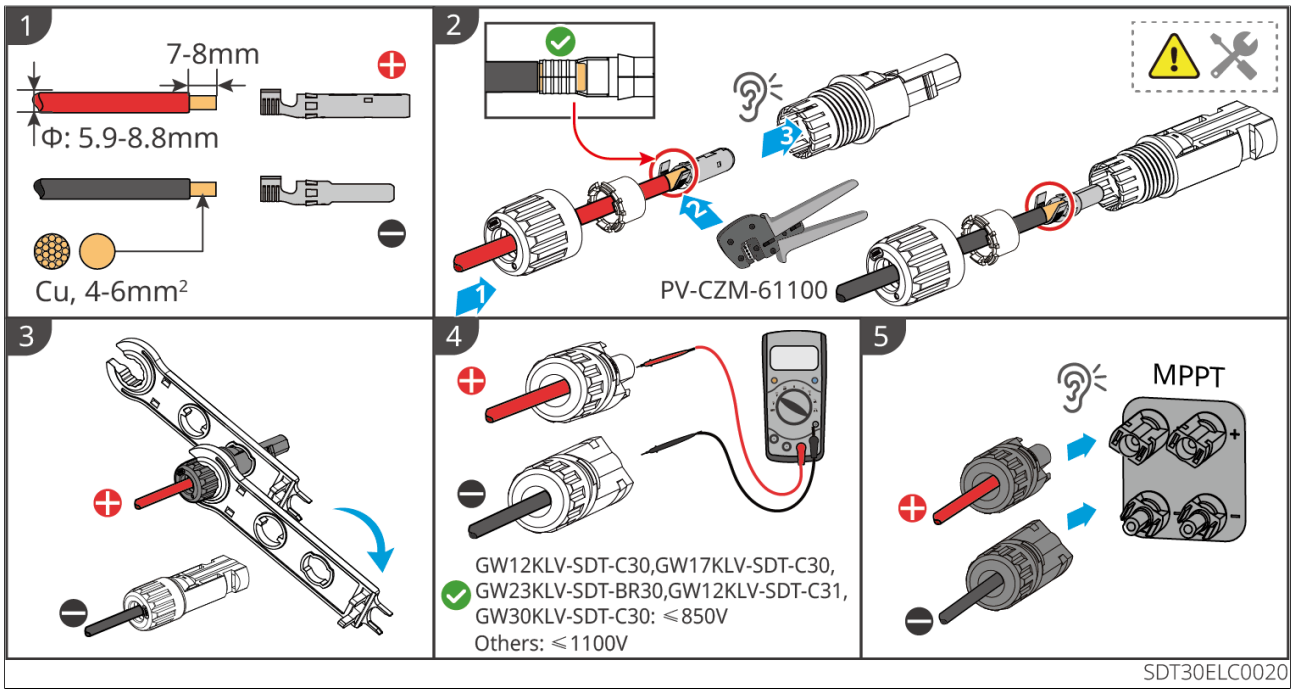
During the initial installation of the inverter, the corresponding MPPT connection mode must be configured via the Solar Go App (contact after-sales service for specific setup instructions) based on the actual wiring method. After configuration, disconnect the PV and AC power supply and restart the inverter. The configuration is successful if the inverter does not report a PV connection mode abnormality fault.

The PV connection mode is divided into the following three types:
1. Independent connection (default mode): MPPT1, 2, 3, and 4 are connected independently.
2. Partial parallel connection: MPPT1 and MPPT2 are connected in parallel, while MPPT3 and MPPT4 are connected independently.
3. Parallel connection: MPPT1 - MPPT4 are connected in parallel, linked to the same PV module.
For the method of selecting the connection mode, please refer to Chapter 8 of this manual or the SolarGo User Manual.

Connecting DC Input Cables

Step 1: Prepare the DC cables.
Step 2: Disassemble the DC connector. Crimp the DC terminals and assemble the DC connector.
Step 3: Tighten the DC connector.
Step 4: Measure the DC input voltage.
Step 5: Connect the DC connector to the inverter's DC terminals.

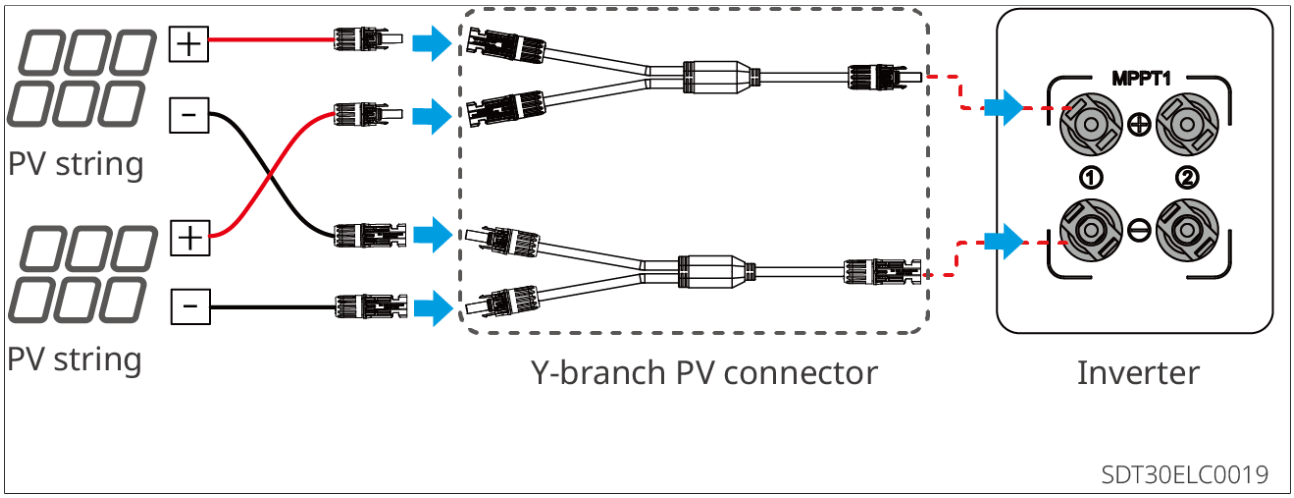




Connecting the Y-Type PV Connector (Optional)

NOTICE

1. If using a Y-cable, ensure the DC connector model of the Y-cable is identical to the model and specifications of the inverter's PV input terminals. Damage to equipment caused by using an incompatible Y-cable is not covered under the manufacturer's warranty.
2. Ensure all PV strings connected to one MPPT via a Y-cable have identical configurations, including model, quantity, tilt angle, and azimuth.
3. The total current of the PV strings connected via the Y-cable must be less than the maximum current rating of each PV input.
4. For PV strings connected via a Y-cable, if the total number of strings connected to a single MPPT is ≥ 3, each string must be equipped with a corresponding fuse.



4.5 Communication Connection

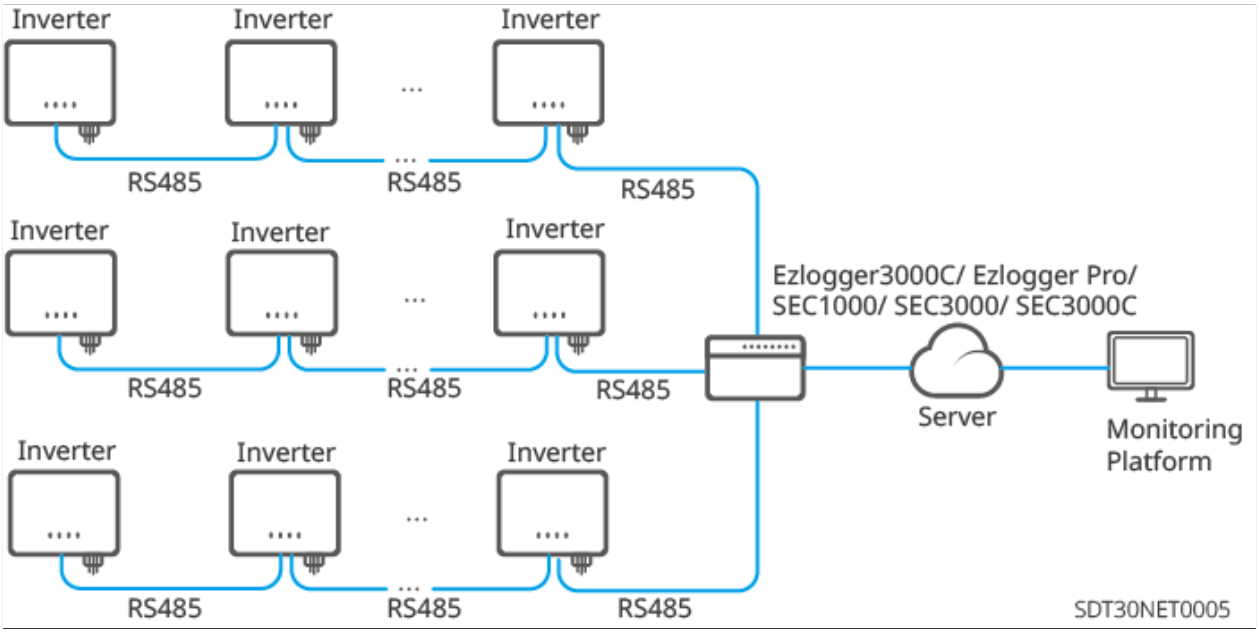
NOTICE

- The specific functional configuration of the product is subject to the actual model of the inverter in your region.
- Due to product version upgrades or other reasons, the document content is updated periodically. For the compatibility relationship between inverters and IoT products, please refer to: https://en.goodwe.com/Ftp/EN/Downloads/User%20Manual/GW_Compatibility-list-of-GoodWe-inverters-and-IoT-products-EN.pdf

4.5.1 RS485 Communication Networking Solution

NOTICE

- When using a data collector to network multiple inverters via RS485, multiple inverters can be connected to each COM port of the data collector. When using EzLogger Pro or SEC1000, up to 20 inverters can be connected to each COM port; when using EzLogger 3000C, SEC3000, or SEC3000C, up to 25 inverters can be connected to each COM port. The total length of the RS485 cable for each COM port must not exceed 1000m.
- When using EzLogger 3000C, SEC3000, or SEC3000C for parallel operation of multiple inverters, to ensure normal communication, please confirm that only the terminal inverter's terminal resistor DIP switch is set to ON (factory default), and the others are set to OFF.
- Only GW50K-SDT-C30 supports SEC3000C.



4.5.2 Power Limiting and Load Monitoring

Power Limiting

When a PV power plant generates more electricity than the on-site equipment can consume, and the surplus needs to be fed into the grid, the power generation of the plant can be monitored, and the amount of electricity fed into the grid can be controlled via a smart meter, data logger, or the Smart Energy Controller SEC1000.

WARNING

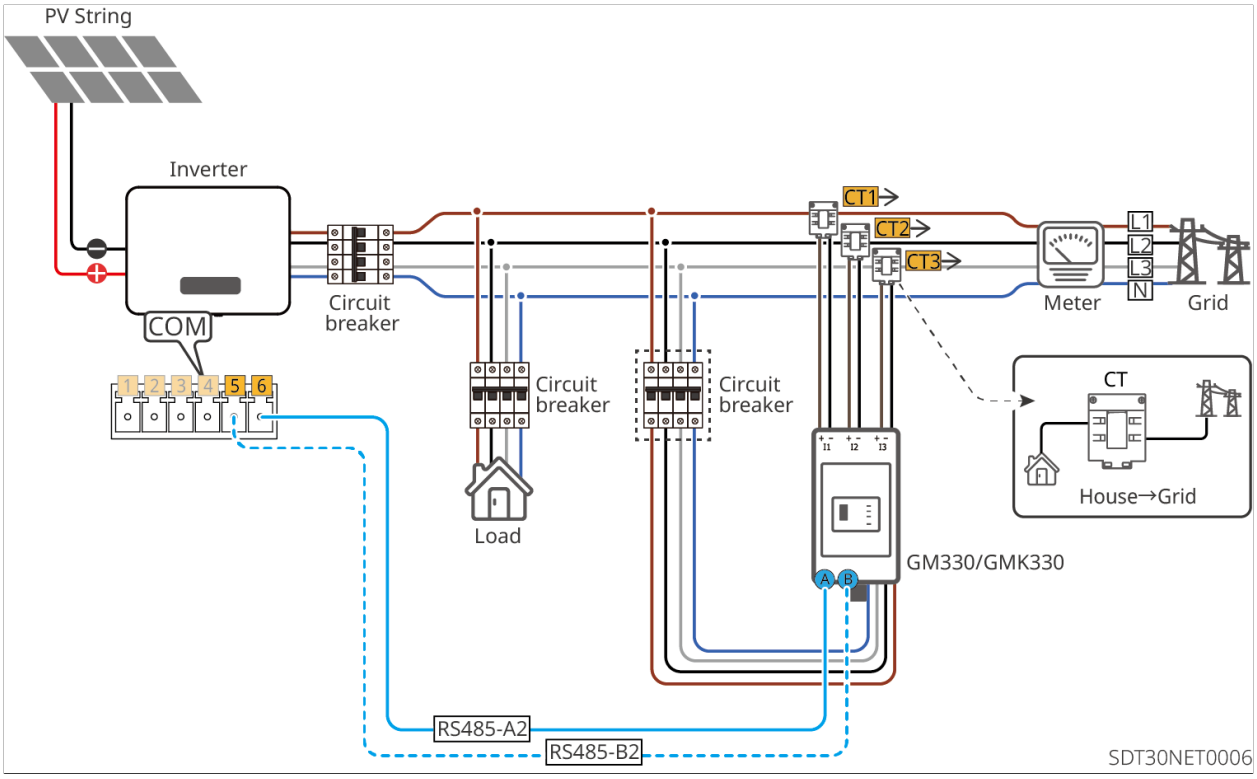
1. The CT installation location should be close to the grid connection point, with the correct installation direction. The '-->' in the CT indicates the direction of inverter current pointing towards the grid. If reversed, the inverter will trigger an alarm and cannot achieve anti-reverse flow function.
2. The aperture of the CT must be larger than the outer diameter of the AC power line to ensure that the AC power line can pass through the CT.
3. For the specific wiring method of the CT, please refer to the corresponding manufacturer's documentation to ensure correct wiring direction and normal function.
4. The CT must be clamped on the L1, L2, and L3 cables. Do not clamp it on the N cable.
5. CT specifications requirements:
   - For the current transformation ratio specification of the CT, please select nA/5A. (nA: CT primary side input current, where n ranges from 200 to 5000, selected by the user based on actual needs. 5A: CT secondary side output current.)
   - The accuracy value of the CT is recommended to be 0.5, 0.5s, 0.2, or 0.2s, ensuring that the current sampling error of the CT is ≤1%.
6. To ensure the current detection accuracy of the CT, it is recommended that the CT cable length does not exceed 30m.
7. The inverter supports setting parameters locally via WiFi or Bluetooth signals, connecting to a mobile phone or WEB interface to set device-related parameters, view device operation information, error information, and promptly understand the system status.
   - When there is only one inverter in the system, you can use the 4G Kit-CN-G20, 4G Kit-CN-G21, Wi-Fi Kit, Wi-Fi/LAN Kit, WiFi Kit-20, or WiFi/LAN Kit-20 smart communication stick.
   - When the system includes multiple inverters and they are networked in groups, the main inverter needs to install the Ezlink3000 smart communication stick for networking.

NOTICE

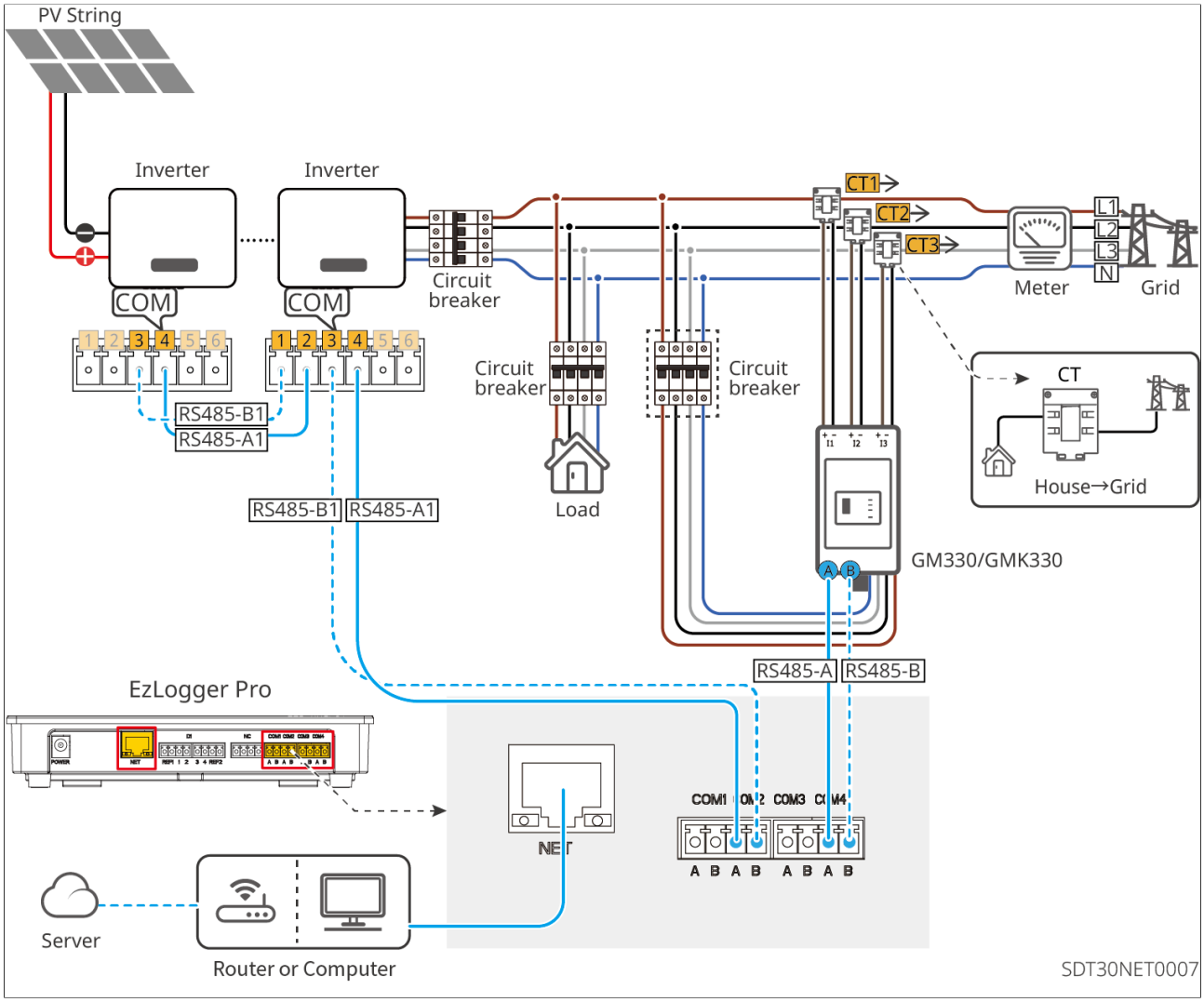
- Please ensure the meter wiring and phase sequence are correct. Recommended cross-sectional area for meter input voltage cables: 1mm² (18AWG).
- The external CT ratio can be set via the SolarGo APP. For example: If a 200A/5A CT is selected, the CT ratio should be set to 40.
- For detailed setup information, please refer to:

SolarGo APP
User Manual

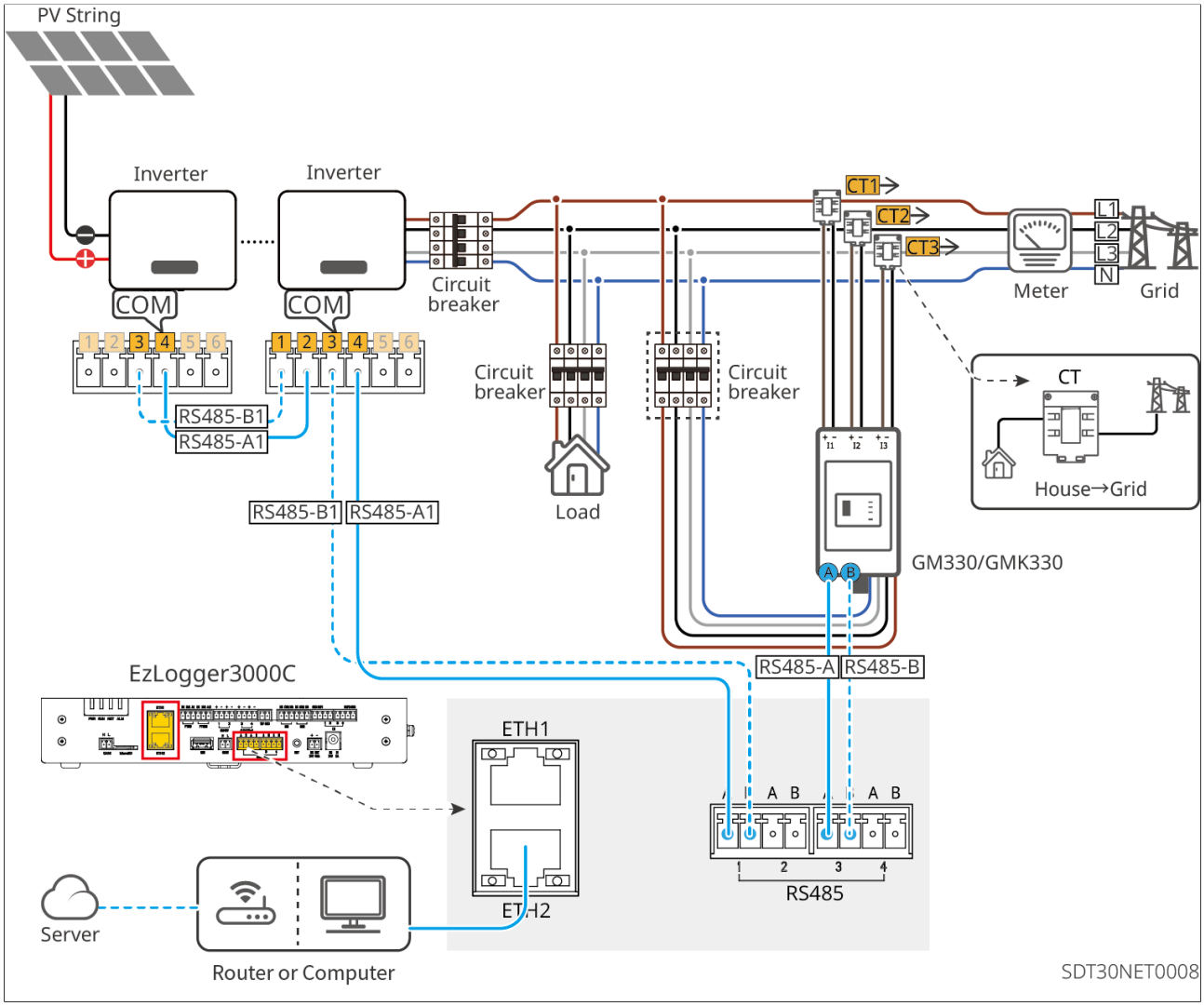
Single-Unit Power Limiting Networking Solution (GMK330/GM330)



Multi-Unit Power Limiting Networking Solution (EzLogger Pro+GM330/GMK330)



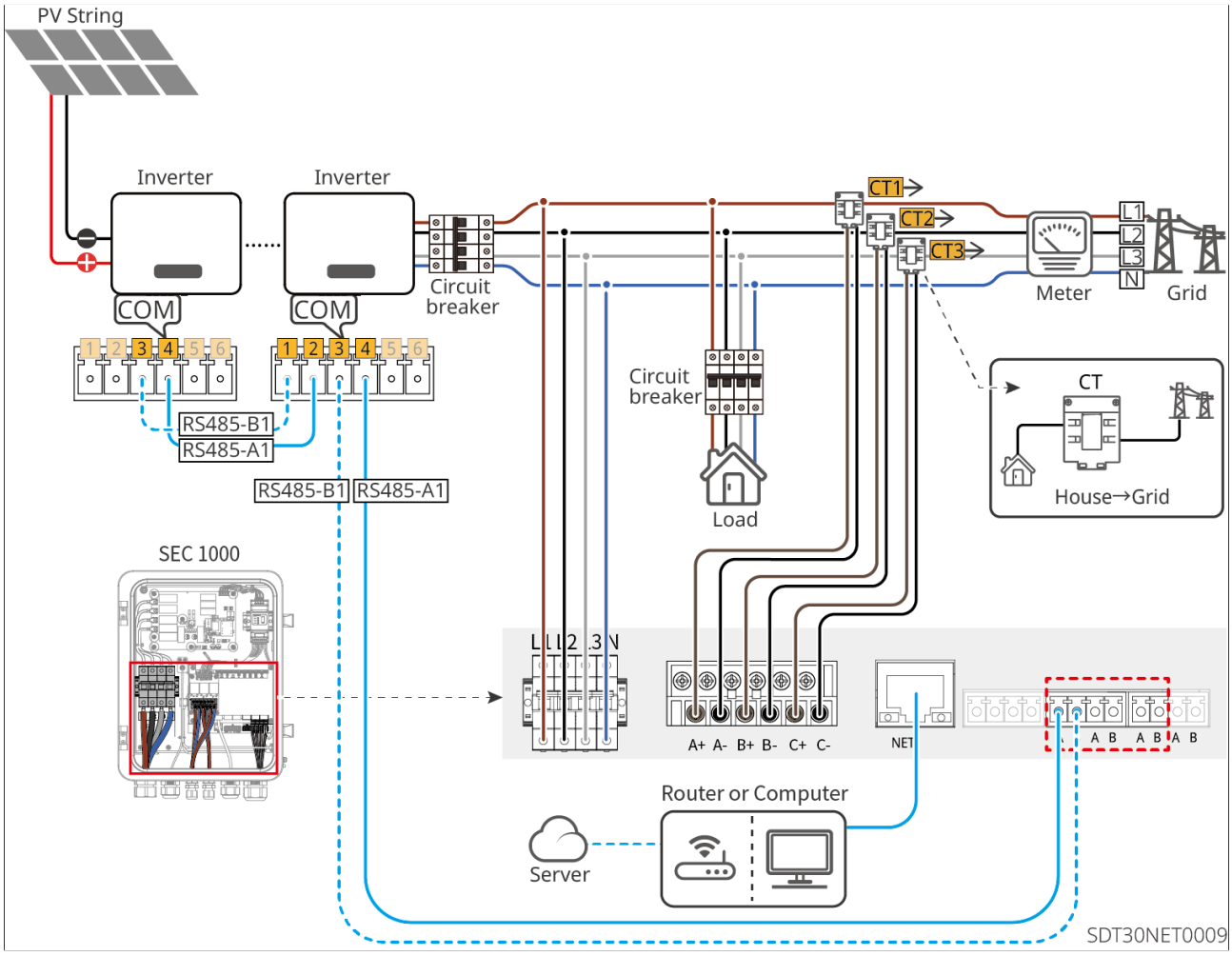
Multi-Unit Power Limiting Networking Solution (EzLogger3000C+GM330)



Multi-Unit Power Limiting Networking Solution (SEC1000)

⚠WARNING

1. When connecting the SEC1000 AC line to the grid, the 3L/N/PE must be connected, and the grid voltage must be within the allowable voltage sampling range of the SEC1000.
2. The CT installation position should be close to the grid connection point. When installing the CT, ensure the CT direction is correct. If reversed, the reverse power flow prevention function cannot be achieved.
3. When using the SEC1000, an external CT must be prepared by the user.
4. The aperture of the CT must be larger than the outer diameter of the AC power line to ensure the AC power line can pass through the CT.
5. Please refer to the corresponding manufacturer's documentation for the specific wiring method of the CT to ensure correct wiring direction and proper function.
6. The CT must be clamped onto the L1, L2, L3 cables. Do not clamp it onto the N cable.

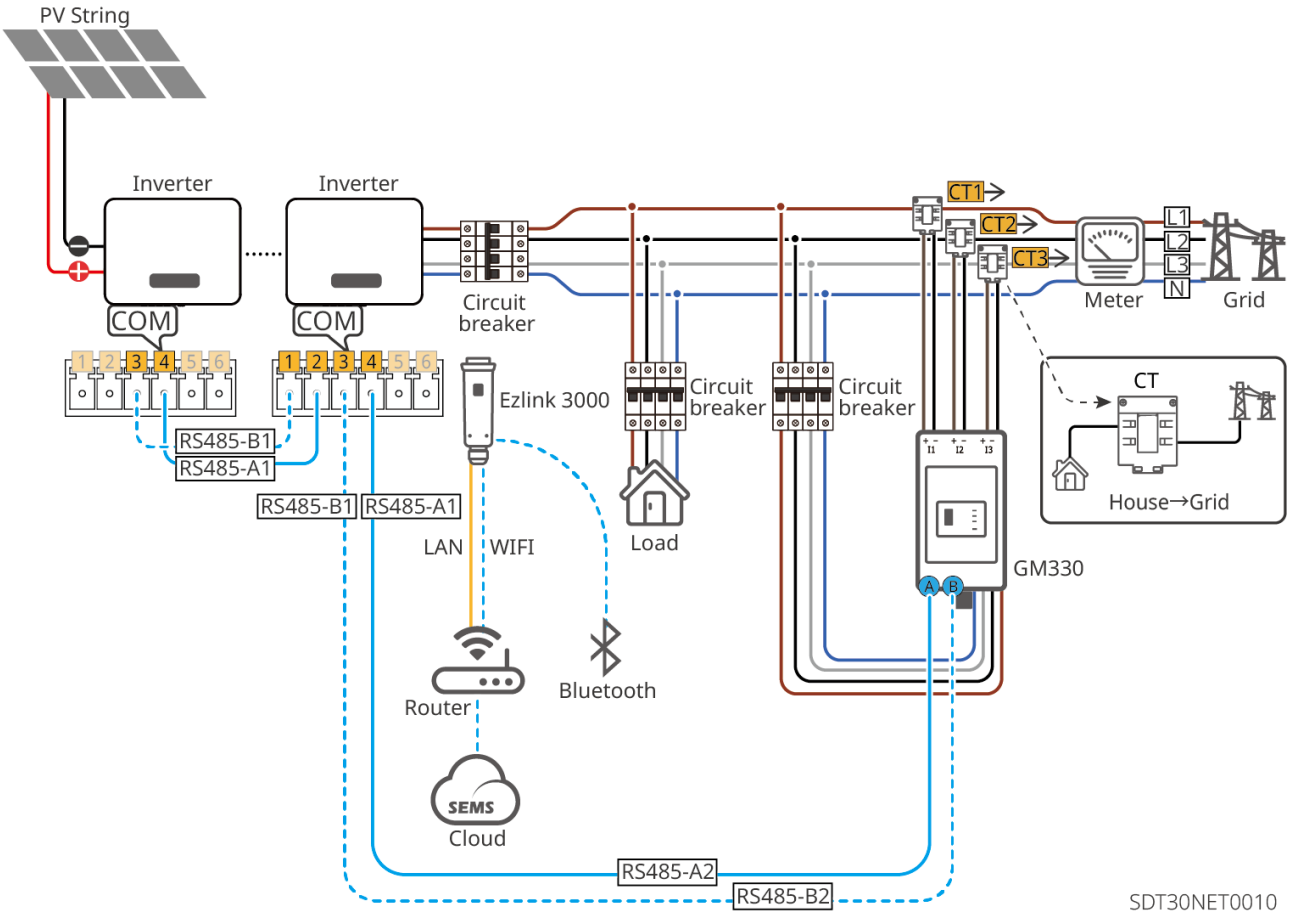


Recommended Specifications for External CTs:

No.	Current Range	Specification Description	Remarks
1	Imax < 250A	CT 200A Acrel/AKH-0.66(200A/5A)	Anti-reverse flow CT, closed type (aperture size 31mm*11mm, Φ22mm)
		CT 250A/5A Acrel/AKH-0.66-K-30x20-250/5	Anti-reverse flow CT, split-core type (opening size 32mm*22mm), accuracy 0.5%
		CT 250A/5A Acrel/AKH-0.66-K-60x40-250/5	Anti-reverse flow CT, split-core type (opening size 62mm*42mm), accuracy 1.0%
2	250A ≤ Imax < 1000A	CT 1000A/5A Acrel/AKH-0.66-K-60x40-1000/5	Anti-reverse flow CT, split-core type (opening size 62mm*42mm), accuracy 0.5%
		CT 1000A/5A Acrel/AKH-0.66-K-80x40-1000/5	Anti-reverse flow CT, split-core type (opening size 82mm*42mm), accuracy 0.5%
3	1000A ≤ Imax < 5000A	CT 5000A/5A Acrel/AKH-0.66-K-140x60-5000/5	Anti-reverse flow CT, split-core type (opening size 142mm*62mm), accuracy 0.2%
		CT 5000A/5A Acrel/AKH-0.66-K-160x80-5000/5	Anti-reverse flow CT, split-core type (opening size 162mm*82mm), accuracy 0.2%

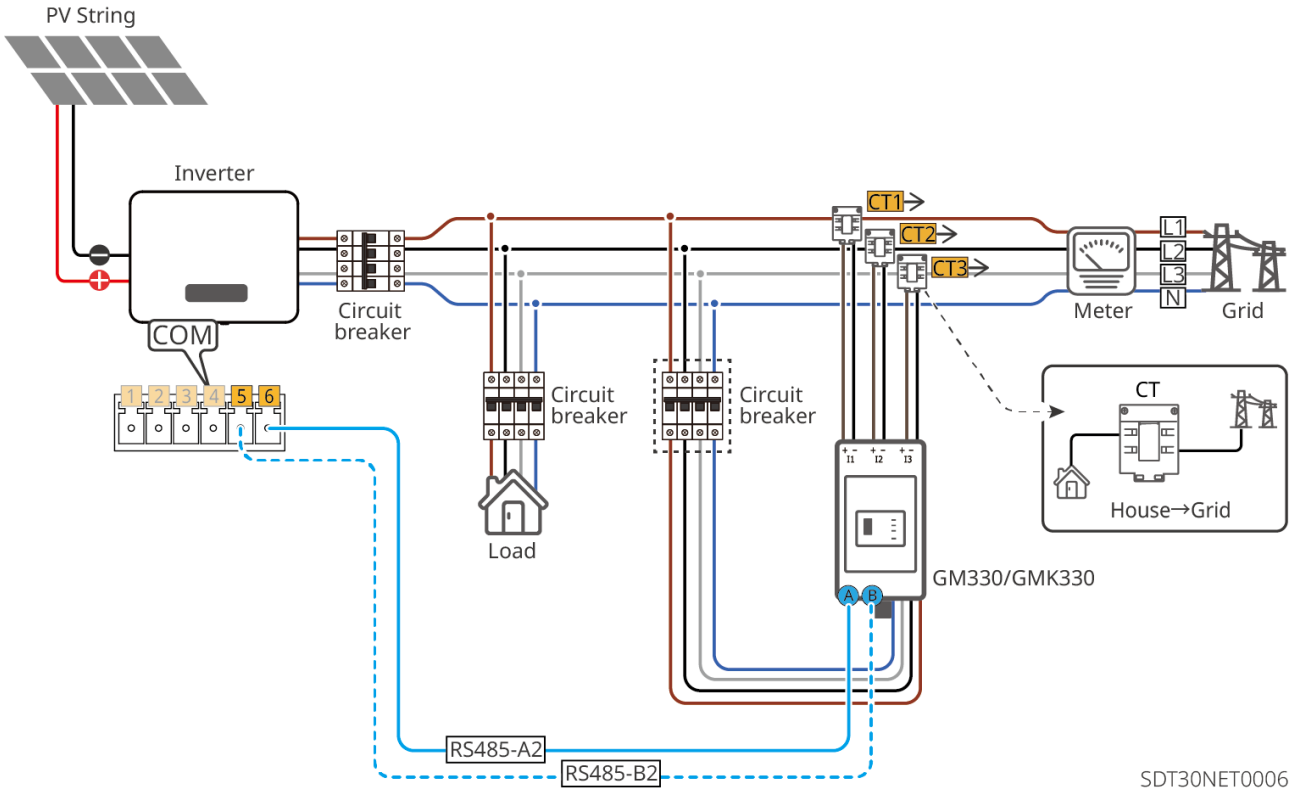
Multi-Unit Power Limiting Networking Solution (Ezlink3000+GM330)

Applicable only to the following models: GW5000-SDT-AU30, GW6000-SDT-AU30, GW8000-SDT-AU30, GW9990-SDT-AU30, GW15K-SDTAU30, GW20K-SDT-AU30, GW25K-SDT-AU30, GW29K9-SDT-AU30, GW25K-SDT-30, GW30K-SDT-30



24-Hour Load Monitoring 24-Hour Load Monitoring

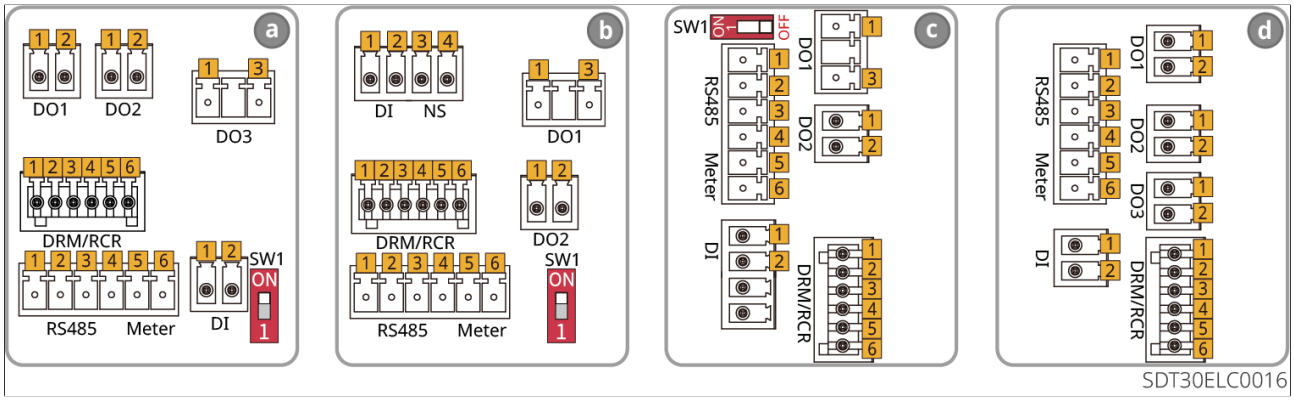
Inverters equipped with optional night power supply feature 24-hour load monitoring functionality. The GMK330 or GM330 smart meter measures grid-side data and transmits it to the inverter. The inverter then sends the power generation information and grid-side data to the cloud monitoring platform via the communication module. The monitoring platform calculates the load power consumption data, thereby enabling real-time 24-hour monitoring of load power consumption.



4.5.3 Connecting the Communication Cable

NOTICE

- When connecting the communication cable, ensure the pinout definitions exactly match the device. Route the cable away from sources of interference, such as power lines, to avoid affecting signal reception.
- The Remote Shutdown and DRED/RCR functions are disabled by default. To use them, please enable them via the SolarGo app. For details, refer to the "SolarGo User Manual".
- For detailed information about the communication module, please refer to the documentation included in the module's packaging. More detailed materials are available on the official website.



Model a includes: GW23KLV-SDT-BR30, GW37K5-SDT-BR30, GW33K-SDT-C30, GW36K-SDT-C30, GW40K-SDT-C30

Model b includes: GW25K-SDT-AU30, GW29K9-SDT-AU30, GW25K-SDT-30, GW30K-SDT-30, GW40K-SDT-P30, GW30KLV-SDT-C30, GW50K-SDT-C30

Model c includes: GW5000-SDT-AU30, GW6000-SDT-AU30, GW8000-SDT-AU30, GW9990-SDT-AU30, GW15K-SDT-AU30, GW20K-SDT-AU30

Model d includes: GW8000-SDT-30, GW10K-SDT-30, GW10K-SDT-EU30, GW12K-SDT-30, GW12KLV-SDT-C30, GW15K-SDT-30, GW17K-SDT-30, GW17KLV-SDT-C30, GW20K-SDT-30, GW25K-SDT-C30, GW30K-SDT-C30, GW20K-SDT-31, GW12KLV-SDT-C31, GW25K-SDT-P31, GW4000-SDT-30, GW5000-SDT-30, GW6000-SDT-30

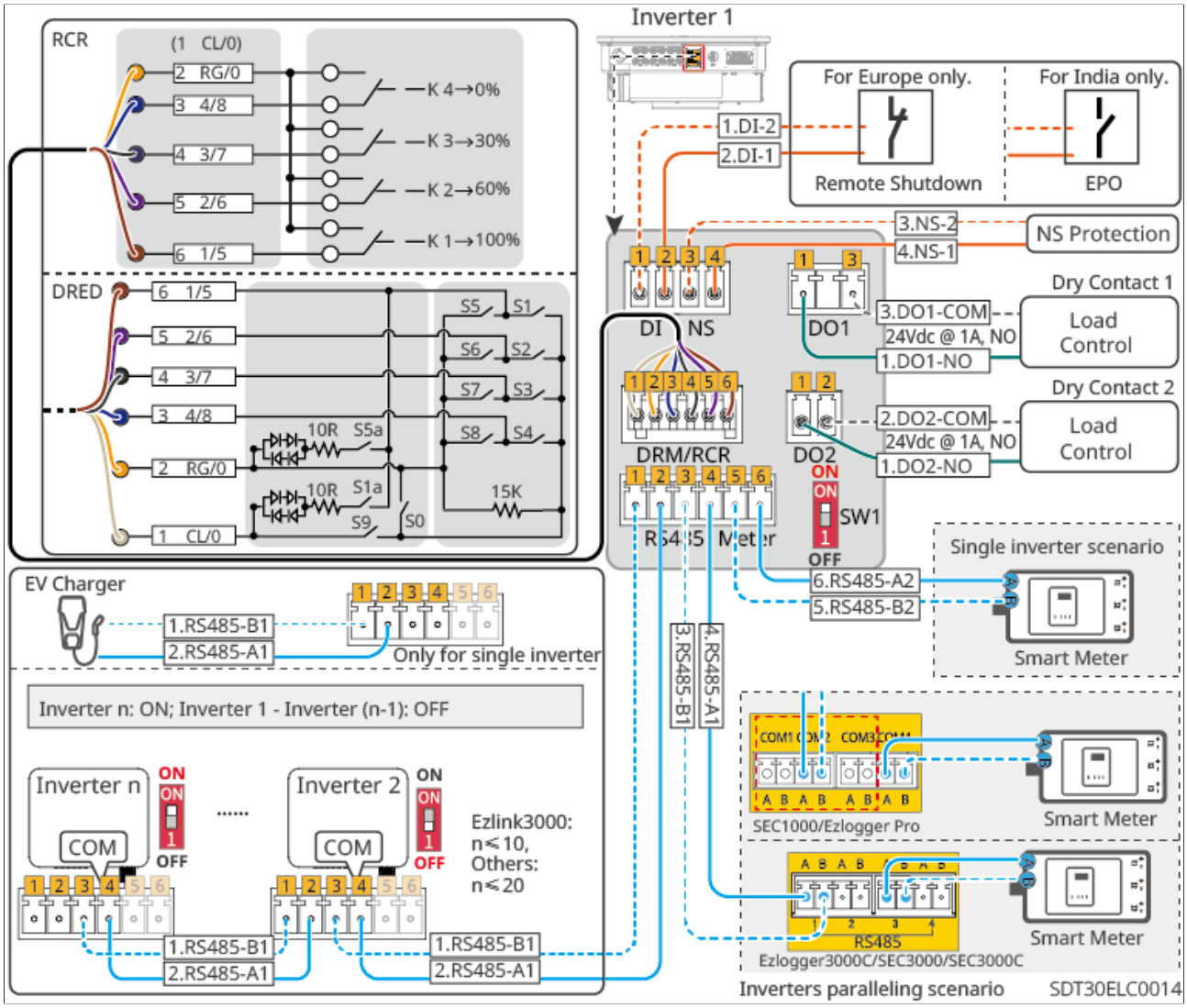
Function	Port Definition (Model a)	Port Definition (Model b)	Port Definition (Model c)	Port Definition (Model d)	Function Description
Meter	5: RS485-B2 6: RS485-A2	5: RS485-B2 6: RS485-A2	5: RS485-B2 6: RS485-A2	5: RS485-B2 6: RS485-A2	Implements anti-reverse power flow function with a meter and CT. Contact the inverter manufacturer to purchase compatible equipment if needed.

Function	Port Definition (Model a)	Port Definition (Model b)	Port Definition (Model c)	Port Definition (Model d)	Function Description
RS485	1: RS485-B1 2: RS485-A1 3: RS485-B1 4: RS485-A1	1: RS485-B1 2: RS485-A1 3: RS485-B1 4: RS485-A1	1: RS485-B1 2: RS485-A1 3: RS485-B1 4: RS485-A1	1: RS485-B1 2: RS485-A1 3: RS485-B1 4: RS485-A1	RS485 port for connecting multiple inverters or connecting to a data logger.
DRM/ RCR	1: CL/0 2: RG/0 3: 4/8 4: 3/7 5: 2/6 6: 1/5	1: CL/0 2: RG/0 3: 4/8 4: 3/7 5: 2/6 6: 1/5	1: CL/0 2: RG/0 3: 4/8 4: 3/7 5: 2/6 6: 1/5	1: CL/0 2: RG/0 3: 4/8 4: 3/7 5: 2/6 6: 1/5	DRM (Demand Response Modes): Meets Australian DRM requirements and provides DRED signal control ports. RCR (Ripple Control Receiver): Provides RCR signal control ports to meet grid dispatch requirements in regions like Germany. The inverter has reserved wiring ports. Related devices need to be prepared by the user.

Function	Port Definition (Model a)	Port Definition (Model b)	Port Definition (Model c)	Port Definition (Model d)	Function Description
DI	1: DI-2 2: DI-1	1: DI-2 2: DI-1	1: DI-2 2: DI-1	1: DI-2 2: DI-1	After receiving a shutdown signal from an emergency switch, the inverter's AC side automatically disconnects and stops grid connection. Requires an external emergency poweroff switch and is controlled via the DI port: • Remote Shutdown: Inverter starts when the DI port is closed; inverter stops when the DI port is open. • Emergency Poweroff: Inverter stops when the DI port is closed; inverter starts when the DI port is open.
DO1	1: DO1-NO 2: DO1-COM	1: DO1-NO 3: DO1-COM	1: DO1-NO 3: DO1-COM	1: DO1-NO 2: DO1-COM	load control

Function	Port Definition (Model a)	Port Definition (Model b)	Port Definition (Model c)	Port Definition (Model d)	Function Description
DO2	1: DO2-NO 2: DO2-COM	21: DO2-NO 2: DO2-COM	1: DO2-NO 2: DO2-COM	21: DO2-NO 2: DO2-COM	load control
DO3	1: DO3-NO 3: DO3-COM	Reserved	Reserved	1: DO3-NO 2: DO3-COM	load control
NS	Reserved	3: NS-2 4: NS-1	Reserved	Reserved	Connect to NS protection (Germany only)

Using Model b as an example:



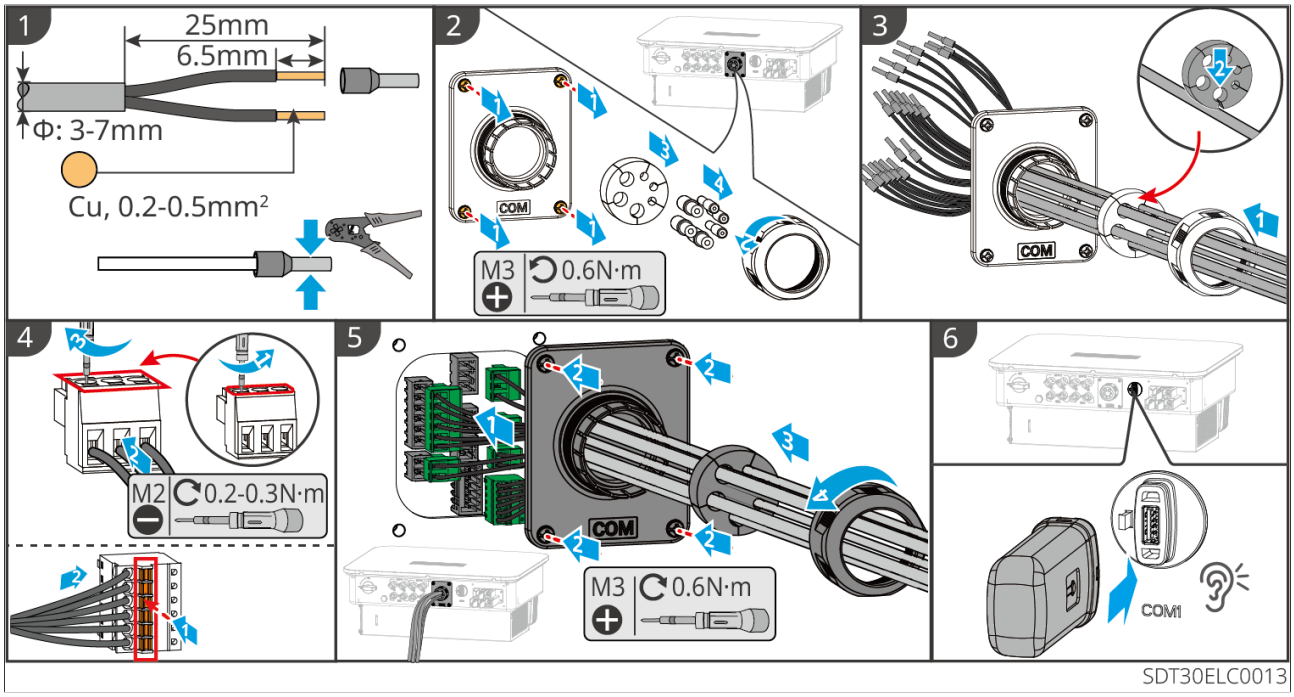
Step 1: Prepare the communication cable.

Step 2: Open the communication connector.

Step 3-4: Connect the communication cable to the terminal and secure it.

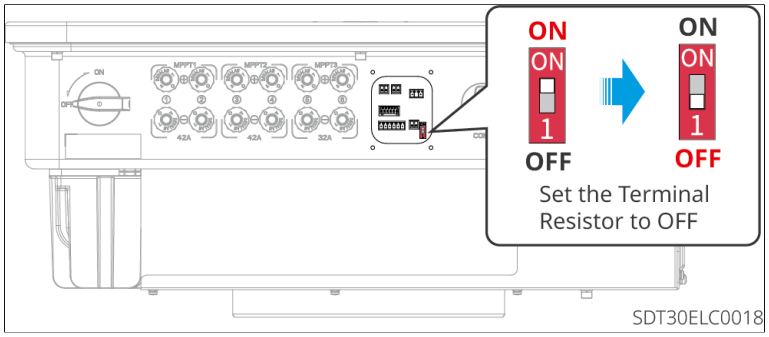
Step 5: Connect the communication terminal to the device.

Step 6: Install the smart communication stick.



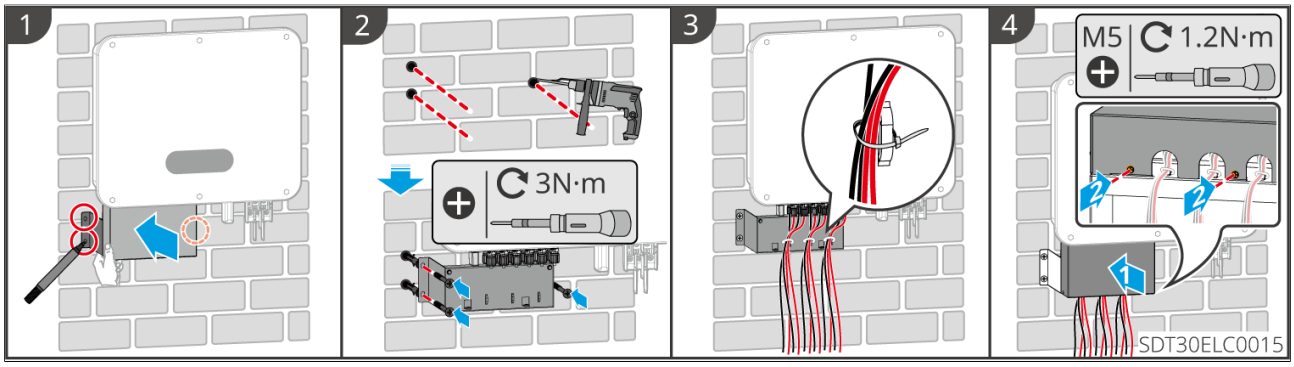
Turn off the terminal resistor DIP switch

Some inverter models are equipped with an RS485 terminal resistor. The terminal resistor DIP switch is ON by default. "ON" represents enabled, and "1" represents disabled. Operation method: Open the outer cover of the communication port (refer to 6.5.4), and use an insulated pick to set the terminal resistor DIP switch to "1" (OFF).



4.6 Install Protective Cover

For Australia only: GW5000-SDT-AU30, GW6000-SDT-AU30, GW8000-SDT-AU30, GW9990-SDT-AU30, GW15K-SDTAU30, GW20K-SDT-AU30, GW25K-SDT-AU30, GW29K9-SDT-AU30, GW50K-SDT-C30.


1
2
3N·m
3
4
M5
1.2N·m
SDT30ELC0015

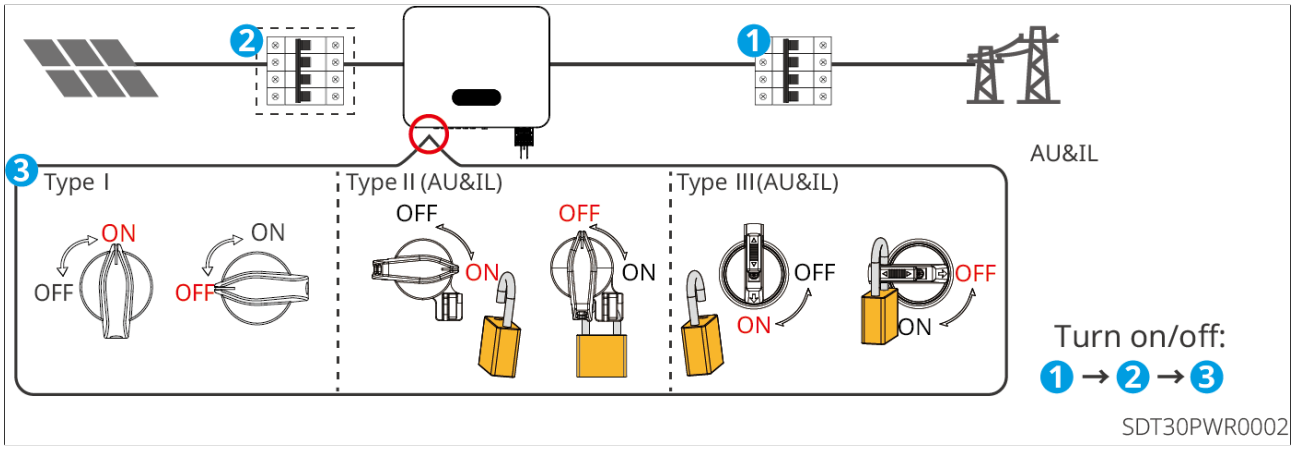
5 Equipment Trial Run

5.1 Pre-power-on Check

No.	Inspection Item
1	The inverter is securely installed, the location is convenient for operation and maintenance, the installation space allows for ventilation and heat dissipation, and the installation environment is clean and tidy.
2	The PE cable, DC input cable, AC output cable, and communication cable are connected correctly and securely.
3	Cables are bundled according to routing requirements, distributed reasonably, and show no damage.
4	Unused ports are sealed.
5	The voltage and frequency at the inverter grid connection point meet the grid connection requirements.

5.2 Power On the Device

Step 1: Close the AC switch between the inverter and the grid.
Step 2: (Optional) Close the DC switch between the inverter and the PV modules.
Step 3: Close the DC switch of the inverter.



6 System Commissioning

6.1 Setting Inverter Parameters via the Display

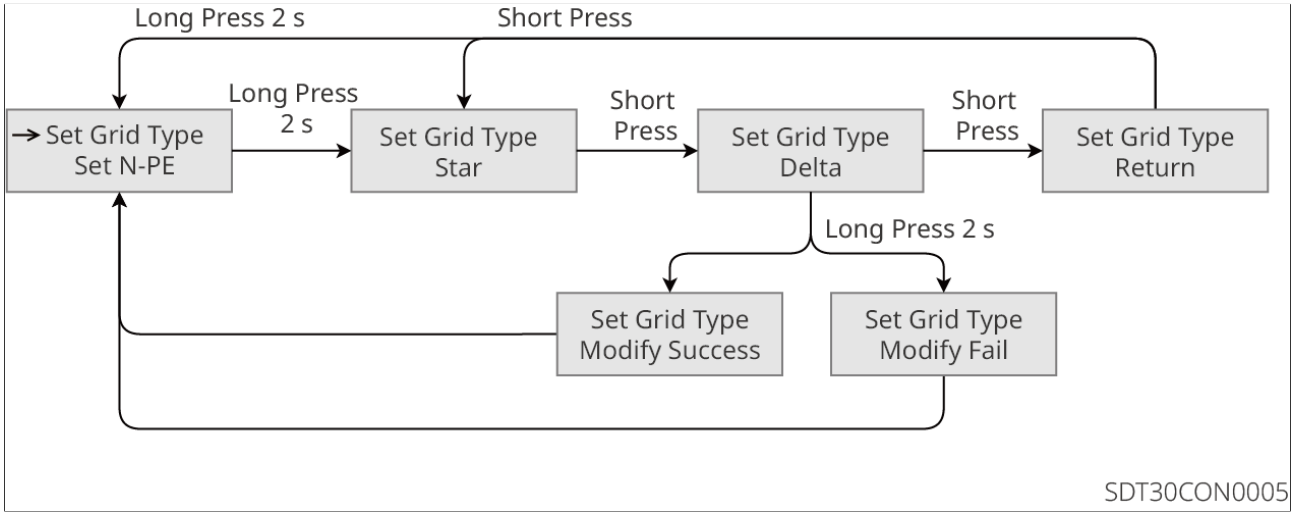
NOTICE

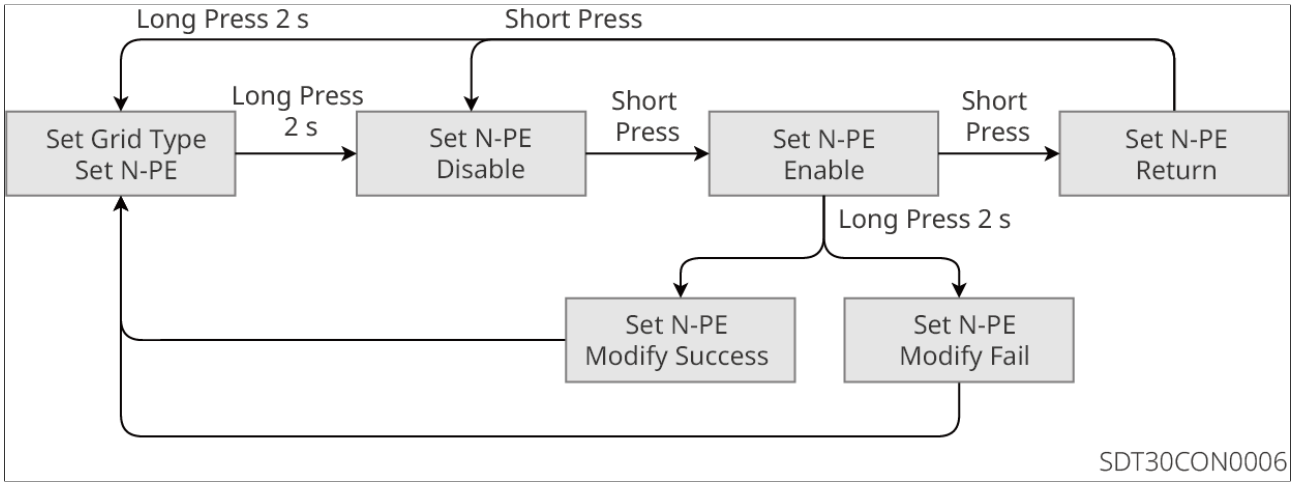
- The interface images in this document correspond to inverter software version V1.00.00. The interface is for reference only; refer to the actual device.
- Parameter names, ranges, and default values may be changed or adjusted in the future; refer to the actual display.
- Inverter power parameters must be set and monitored by professionals to avoid setting errors that affect inverter power generation.

Display Button Description

- At any menu level, if no button is pressed for a certain period, the LCD display will dim, and the interface will automatically return to the initial screen.
- Short press the display operation button: Switch menu screens, adjust parameter values.
- Long press the display operation button: After adjusting a parameter value, a long press confirms the setting; Enter the next sub-menu level.

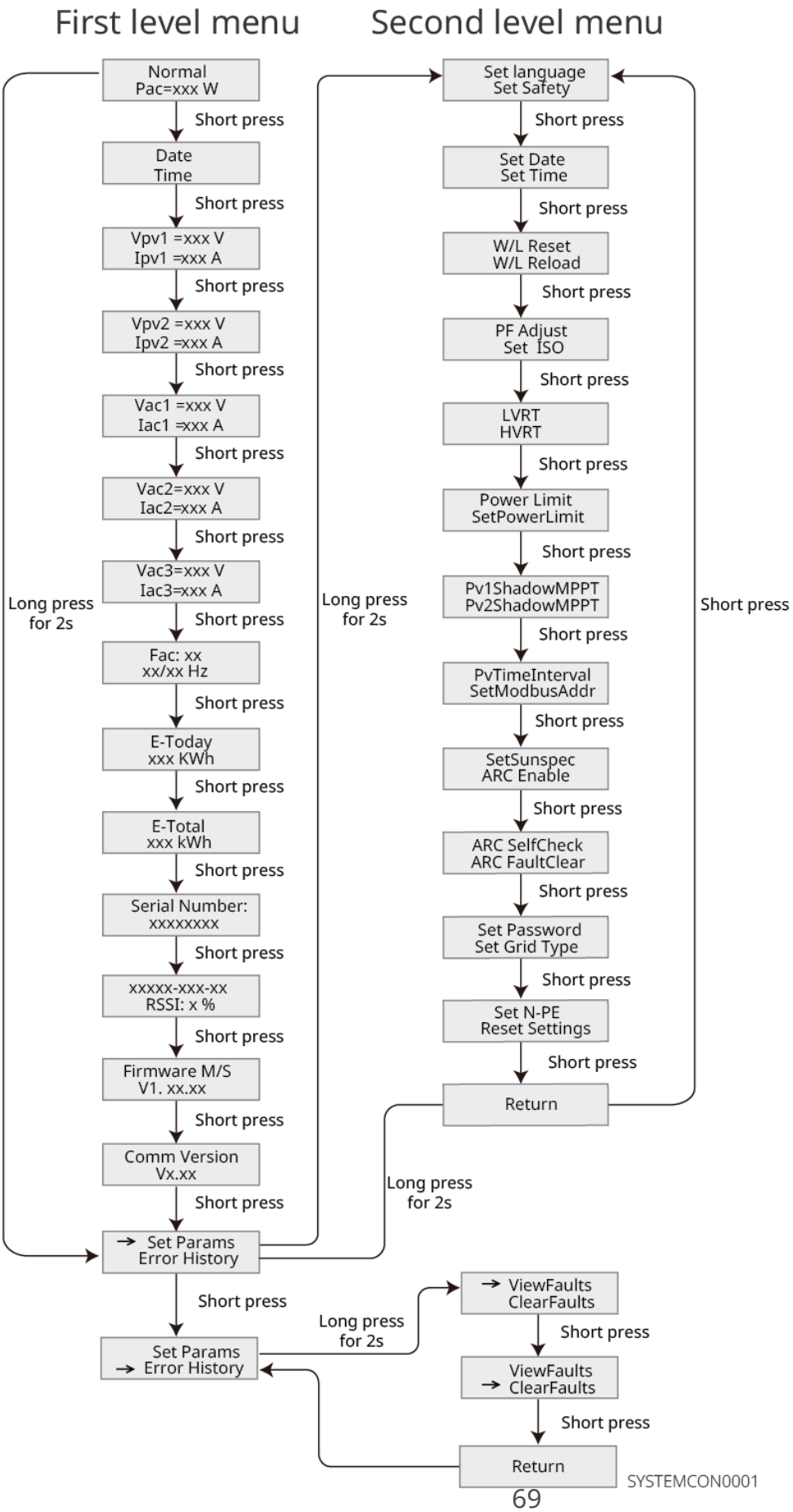
Button Operation Example:





6.1.1 Display Screen Menu Introduction

Introduces the display screen menu structure, allowing you to navigate through various menu levels to view inverter information and configure related inverter parameters.


First level menu
Second level menu
Normal
Pac=xxx W
Short press
Date
Time
Vpv1 =xxx V
Ipv1 =xxx A
Vpv2 =xxx V
Ipv2 =xxx A
Vac1 =xxx V
Iac1 =xxx A
Vac2=xxx V
Iac2=xxx A
Vac3=xxx V
Iac3=xxx A
Fac: xx
xx/xx Hz
E-Today
xxx KWh
E-Total
xxx kWh
Serial Number:
xxxxxxxx
xxxxx-xxx-xx
RSSI: x %
Firmware M/S
V1. xx.xx
Comm Version
Vx.xx
Set Params
Error History
Long press
for 2s
Set language
Set Safety
Set Date
Set Time
W/L Reset
W/L Reload
PF Adjust
Set ISO
LVRT
HVRT
Power Limit
SetPowerLimit
Pv1ShadowMPPT
Pv2ShadowMPPT
PvTimeInterval
SetModbusAddr
SetSunspec
ARC Enable
ARC SelfCheck
ARC FaultClear
Set Password
Set Grid Type
Set N-PE
Reset Settings
Return
ViewFaults
ClearFaults
Return
SYSTEMCON0001

6.1.2 Inverter Parameter Introduction

Parameter Name	Description
Grid-connected Generation Power=0.0W	On the standby interface, displays the inverter's real-time power.
Date & Time	View the time of the country/region where the inverter is located.
Input Voltage	View the inverter's DC input voltage.
Input Current	View the inverter's DC input current.
Grid Voltage	View the grid voltage.
Output Current	View the inverter's AC output current.
Grid Frequency	View the grid frequency.
Daily Generation	View the inverter's power generation for the current day.
Total Generation	View the inverter's total power generation.
serial number	View the inverter's serial number.
XXXXX-XXX-XX Signal Strength: xx%	View the communication module's signal strength.
Firmware Version	View the inverter's firmware version.
Communication Version	View the inverter's communication version.
Language Setting	Set according to actual needs.
Safety Standard Setting	Set according to the grid standards of the country/region where the inverter is located and the inverter's application scenario.
Date Setting	Set according to the actual time of the country/region where the inverter is located.
Time Setting	

Parameter Name	Description
W/L Restart	Power cycle restart of the communication module.
W/L Reload	Restore the communication module to factory settings. After restoration, the communication module's network parameters need to be reconfigured.
Power Factor Adjustment	Set the inverter's power factor according to actual needs.
Set ISO	Set the insulation impedance threshold for PV-PE. When the detected actual value is less than the set value, an ISO fault will be reported.
Low Voltage Ride-Through (LVRT)	After enabling this function, when a short-term low voltage anomaly occurs in the grid, the inverter will not immediately experience grid disconnection and can support for a period of time.
High Voltage Ride-Through (HVRT)	After enabling this function, when a short-term high voltage anomaly occurs in the grid, the inverter will not immediately experience grid disconnection and can support for a period of time.
Power Limiting Enable	Set according to the actual power that can be fed into the grid.
Set Power Limit	
PV1 Shading Mode	If the PV panels are severely shaded, the shading scan function can be enabled.
PV2 Shading Mode	
Shading Scan Interval	Set the shading scan time according to actual needs.
Set Modbus Address	Set according to the actual Modbus address the inverter is connected to.

Parameter Name	Description
Set Sunspec	Set the Sunspec protocol according to actual communication needs.
Arc Detection Enable	The arc detection function is optional and disabled by default. Please enable or disable it according to actual needs.
Arc Detection Self-test	Check if the inverter's arc detection function is normal.
Clear Arc Detection Faults	Clear arc detection alarm records.
Password Setting	The inverter's password can be modified. After changing the password, please remember it. If forgotten, please contact the after-sales service center for assistance.
Type of Electrical Supply System	Set according to the actual grid the inverter is connected to. Currently supports Wye and Delta grid types.
N-PE Detection	Switch for Neutral line to ground detection.
Restore Factory Settings	Restores some inverter settings to their factory default values.
View Faults	View the inverter's historical fault records.
Clear Faults	Clear the inverter's historical fault records.

6.2 Setting Inverter Parameters via SolarGo APP

SolarGo APP is a mobile application software that can communicate with inverters via Bluetooth and WiFi. The following are common functions:

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

For detailed functions, 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

6.3 Download SEMS+ APP

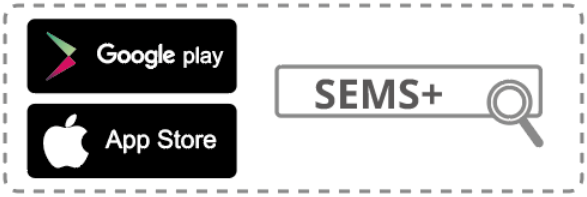
Mobile Phone Requirements:

- Operating System: Android 6.0 and above, iOS 13.0 and above.
- The phone must support a web browser and have an Internet connection.
- The phone must support WLAN/Bluetooth functionality.

Download Methods:

Method 1:

Search for SEMS+ in Google Play (Android) or the App Store (iOS) to download and install.



Method 2:

Scan the QR code below to download and install.

7 Maintenance

7.1 Inverter Power-off

DANGER

- When performing operation and maintenance on the inverter, please power off the inverter. Operating the equipment while energized may cause inverter damage or electric shock DANGER.
- After the inverter is powered off, internal components require a certain time to discharge. Please wait until the equipment is completely discharged according to the label time requirements.

Step 1: (Optional) Issue a grid disconnection command to the inverter.
Step 2: Disconnect the AC switch between the inverter and the grid.
Step 3: Disconnect the DC switch of the inverter.
Step 4: (Optional) Disconnect the switch between the inverter and the PV modules.

7.2 Removing the Inverter

WARNING

- Ensure the inverter is powered off.
- When operating the inverter, please wear personal protective equipment.

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

7.3 Scrapped Inverters

When an inverter can no longer be used and needs to be scrapped, please dispose of

it according to the electrical waste disposal requirements of the country/region where the inverter is located. The inverter must not be treated as household waste.

7.4 Inverter Fault

7.4.1 Troubleshooting (Fault Codes F01-F40)

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 if the AC line or AC switch is disconnected.
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 setting value.	1. If it occurs occasionally, it may be due to a short-term grid abnormality. The inverter will resume normal operation after detecting a normal grid, requiring no manual intervention. 2. If it occurs frequently, check if the grid voltage is within the allowable range. If not, contact the local power operator. If it is, also modify the grid overvoltage protection point after obtaining consent from the local power operator. 3. If it cannot be restored for a long time, check if 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 setting value.	1. If it occurs occasionally, it may be due to a short-term grid abnormality. The inverter will resume normal operation after detecting a normal grid, requiring no manual intervention. 2. If it occurs frequently, check if the grid voltage is within the allowable range. If not, contact the local power operator. If it is, also modify the grid undervoltage protection point after obtaining consent from the local power operator. 3. If it cannot be restored for a long time, check if 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 ultra-high voltage triggers the fault.	1. If it occurs occasionally, it may be due to a short-term grid abnormality. The inverter will resume normal operation after detecting a normal grid, requiring no manual intervention. 2. If it occurs frequently, check if the grid voltage is within the allowable range. If not, contact the local power operator. If it is, also modify the grid undervoltage protection point after obtaining consent from the local power operator. 3. If it cannot be restored for a long time, check if the AC side circuit breaker and output cables are properly connected.
F05	10min Overvoltage Protection	Within 10min, the moving average of grid voltage exceeds the range specified by safety regulations.	Check if the grid voltage has been operating at a high level for a long time. If it occurs frequently, check if the grid frequency is within the allowable range. If not, contact the local power operator. If it is, also modify the grid 10min overvoltage protection point after obtaining consent from the local power operator.

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F06	Grid Overfrequency	Grid abnormality: The actual grid frequency is higher than the local grid standard requirements.	1. If it occurs occasionally, it may be due to a short-term grid abnormality. The inverter will resume normal operation after detecting a normal grid, requiring no manual intervention. 2. If it occurs frequently, check if the grid frequency is within the allowable range. If not, contact the local power operator. If it is, also modify the grid overfrequency protection point after obtaining consent from the local power operator.
F07	Grid Underfrequency	Grid abnormality: The actual grid frequency is lower than the local grid standard requirements.	1. If it occurs occasionally, it may be due to a short-term grid abnormality. The inverter will resume normal operation after detecting a normal grid, requiring no manual intervention. 2. If it occurs frequently, check if the grid frequency is within the allowable range. If not, contact the local power operator. If it is, also modify the grid overfrequency protection point after obtaining consent from the local power operator.

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F08	Grid Frequency Instability	Grid abnormality: The rate of change of the actual grid frequency does not comply with local grid standards.	1. If it occurs occasionally, it may be due to a short-term grid abnormality. The inverter will resume normal operation after detecting a normal grid, requiring no manual intervention. 2. If it occurs frequently, check if the grid frequency is within the allowable range. If not, contact the local power operator.
F09	Anti-islanding Protection	The grid has been disconnected, but the 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 short-term grid abnormality. The inverter will resume normal operation after detecting a normal grid, requiring no manual intervention. 2. If it occurs frequently, check if the grid frequency is within the allowable range. If not, contact the local power operator.
F10	LVRT Undervoltage	Grid abnormality: The duration of abnormal grid voltage exceeds the time specified by the high/low voltage ride-through requirements.	1. If it occurs occasionally, it may be due to a short-term grid abnormality. The inverter will resume normal operation after detecting a normal grid, requiring no manual intervention. 2. If it occurs frequently, check if the grid voltage and frequency are within the allowable range and stable. If not, contact the local power operator.

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F11	HVRT Overvoltage	Grid abnormality: The duration of abnormal grid voltage exceeds the time specified by the high/low voltage ride-through requirements.	1. If it occurs occasionally, it may be due to a short-term grid abnormality. The inverter will resume normal operation after detecting a normal grid, requiring no manual intervention. 2. If it occurs frequently, check if the grid voltage and frequency are within the allowable range and stable. If not, contact the local power operator.
F12	30mA GFCI Protection	The input-to-ground insulation impedance becomes low during inverter operation.	1. If it occurs occasionally, it may be caused by occasional external line abnormalities. It will resume normal operation after the fault is cleared, requiring no manual intervention. 2. If it occurs frequently or cannot be restored for a long time, check if the PV string's ground impedance is too low.
F13	60mA GFCI Protection	The input-to-ground insulation impedance becomes low during inverter operation.	1. If it occurs occasionally, it may be caused by occasional external line abnormalities. It will resume normal operation after the fault is cleared, requiring no manual intervention. 2. If it occurs frequently or cannot be restored for a long time, check if the PV string's ground impedance is too low.

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F14	150mA GFCI Protection	The input-to-ground insulation impedance becomes low during inverter operation.	1. If it occurs occasionally, it may be caused by occasional external line abnormalities. It will resume normal operation after the fault is cleared, requiring no manual intervention. 2. If it occurs frequently or cannot be restored for a long time, check if the PV string's ground impedance is too low.
F15	GFCI Gradual Change Protection	The input-to-ground insulation impedance becomes low during inverter operation.	1. If it occurs occasionally, it may be caused by occasional external line abnormalities. It will resume normal operation after the fault is cleared, requiring no manual intervention. 2. If it occurs frequently or cannot be restored for a long time, check if the PV string's ground impedance is too low.
F16	DCI Primary Protection	The DC component of the inverter output current exceeds the safety regulations or the default allowable range of the machine.	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 and affects 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
F17	DCI Secondary Protection	The DC component of the inverter output current exceeds the safety regulations or the default allowable range of the machine.	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 and affects 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
F18	Low Insulation Resistance	1. Photovoltaic string short-circuited to protective earth. 2. The photovoltaic string is installed in a long-term humid environment with poor line-to-ground insulation. 3. Low insulation resistance of the battery port lines to ground.	1. Check the impedance of the PV string/battery port to protective earth. A resistance greater than 80kΩ is normal. If the measured resistance is less than 80kΩ, please locate and 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 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 in the following ways: 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 will sound again every 30 minutes. 2. If the inverter is added to the 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 photovoltaic string output is grounded, the inverter output side is not connected to an isolation transformer.	1. Please confirm whether the inverter's protective earth wire is connected properly. 2. In scenarios where the photovoltaic string output is grounded, please confirm whether an isolation transformer is connected to the inverter output side.
F20	Hard Anti-backflow 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 and affects 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
F21	Internal Comm Loss	Slave DSP1 communication timeout - Master DSP, Slave DSP2 communication timeout - Master DSP, Slave DSP2 communication timeout - Slave DSP1, Master DSP communication timeout - Slave DSP1, Master DSP communication timeout - Slave DSP2 or Slave DSP1 communication timeout - Slave DSP2: 1. Chip not powered on 2. Chip program version error	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.

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
		Master DSP can module error, Slave DSP1 can module error or Slave DSP2 can module error: 1. Frame format error 2. Parity check error 3. can bus offline 4. Hardware CRC check error 5. Control bit is receive (transmit) during transmission (reception) 6. Transmission to a disallowed unit	
F22	Generator Waveform Detection Fault	1. This fault will be displayed continuously when 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. If this fault appears when the generator has a fault, it is normal. Wait for a period after the generator recovers, and the fault will clear automatically. 3. This fault does not affect the normal operation of off-grid mode. 4. When both generator and grid are connected and meet safety requirements, the grid has priority for grid connection, and the system will operate in grid-connected state.
F23	Generator Abnormal Connection		
F24	Generator Voltage Low		
F25	Generator Voltage High		
F26	Generator Frequency Low		

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F27	Generator Frequency High		
F28	Parallel I/O Self-test Abnormal	Parallel communication cable not securely connected or parallel IO chip damaged	Check if the parallel communication cable is securely connected, then check if the IO chip is damaged. If so, replace the IO chip.
F29	Paralell Grid Line Reversed	Grid lines of some machines are reversed with others	Reconnect the grid lines.
F30	AC HCT check Abnormal	Abnormal sampling detected in the AC sensor	Disconnect the AC output side switch and the DC input side switch. After 5 minutes, 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.
F31	GFCI HCT Check Abnormal	Abnormal sampling detected in the ground fault current sensor	Disconnect the AC output side switch and the DC input side switch. After 5 minutes, 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.
F32	Inverter Internal Failure	A fault is detected in the inverter	Disconnect the AC output side switch and the DC input side switch. After 5 minutes, 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.

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F33	Flash Read/Write Error	Possible causes: Flash content changed; Flash life exhausted;	1. Upgrade to the latest firmware. 2. Contact the dealer or after-sales service center.
F34	AFCI Check Failure	The arc fault module failed to detect an arc fault during the self-check process.	Disconnect the AC output side switch and the DC input side switch. After 5 minutes, 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.
F35	Cabinet Overtemperature	Cabinet temperature is too high. Possible causes: 1. Inverter installation location is poorly ventilated. 2. Ambient temperature is too high. 3. Internal fan operation is abnormal.	1. Check if the ventilation at the inverter installation location is adequate and if the ambient temperature exceeds the maximum allowable range. 2. If ventilation is poor or ambient temperature is too high, improve the ventilation and heat dissipation conditions. 3. If both ventilation and ambient temperature are normal, 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 is abnormal; 3. The isolation effect of the dual-split transformer behind the inverter is poor, causing mutual interference when two inverters are grid-connected, resulting in DC overvoltage in one inverter during grid connection;	Disconnect the AC output side switch and the DC input side switch. After 5 minutes, 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.

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F37	PV Input Overvoltage	PV input voltage is too high. Possible cause: Incorrect photovoltaic array configuration. Too many PV panels are 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 photovoltaic array string to ensure the string's open-circuit voltage does not exceed the inverter's maximum operating voltage. The inverter alarm will automatically disappear after the photovoltaic array is configured correctly.
F38	PV Sustained Hardware Overcurrent	1. Unreasonable module configuration 2. Hardware damage	Disconnect the AC output side switch and the DC input side switch. After 5 minutes, 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.
F39	PV Sustained Software Overcurrent	1. Unreasonable module configuration 2. Hardware damage	Disconnect the AC output side switch and the DC input side switch. After 5 minutes, 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.

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F40, F98	String Reverse Connection (String 1-n) n: Determined based on the actual number of inverter strings	PV String Reverse Connection	Check if the string is reversely connected.

7.4.2 Troubleshooting (Fault Codes F41-F80)

Fault Code	Fault Name	Fault Cause	Fault Handling Suggestion
F41	Generator Port Overload	1. Off-grid side output exceeds the specifications. 2. Off-grid side short circuit. 3. Off-grid terminal voltage is too low. 4. When used as a large load port, the large load exceeds the specifications.	Confirm the off-grid side output voltage, current, power and other data to identify the cause of the problem.

Fault Code	Fault Name	Fault Cause	Fault Handling Suggestion
F42	DC Arcing Failure (String 1-n) n: Determined based on the actual number of inverter strings.	1. DC side connection terminals are loose. 2. DC side connection terminals have poor contact. 3. DC cable cores are damaged, causing poor contact.	1. After the unit reconnects to the grid, check if the voltage and current of each string abnormally decrease or become zero. 2. Check if the DC side terminals are securely connected.
F43	Grid Waveform Abnormal	Utility grid abnormal: Abnormal grid voltage detection triggers the fault.	1. If it occurs occasionally, it may be due to a short-term grid abnormality. The inverter will resume normal operation after detecting a normal grid, requiring no manual intervention. 2. If it occurs frequently, please check if the grid voltage and frequency are within the allowable range and stable. If not, contact the local power operator.
F44	Grid Phase Loss	Utility grid abnormal: Single-phase voltage dip in the grid.	1. If it occurs occasionally, it may be due to a short-term grid abnormality. The inverter will resume normal operation after detecting a normal grid, requiring no manual intervention. 2. If it occurs frequently, please check if the grid voltage and frequency are within the allowable range and stable. If not, contact the local power operator.

Fault Code	Fault Name	Fault Cause	Fault Handling Suggestion
F45	Grid Voltage Imbalance	Excessive difference in grid phase voltages.	1. If it occurs occasionally, it may be due to a short-term grid abnormality. The inverter will resume normal operation after detecting a normal grid, requiring no manual intervention. 2. If it occurs frequently, please check if the grid voltage and frequency are within the allowable range and stable. If not, contact the local power operator.
F46	Grid Phase Sequence Failure	Inverter and grid wiring abnormal: Wiring is not in positive sequence.	1. Check if the inverter and grid wiring are in positive sequence. The fault will automatically disappear after correct wiring (e.g., swapping any two live wires). 2. If the fault persists despite correct wiring, contact the dealer or after-sales service center.
F47	Grid Rapid Shutdown Protection	Quickly shuts down output after detecting a grid power outage condition.	The fault automatically disappears after grid power supply is restored.
F48	Grid Neutral Wire Loss (Split grid)	Neutral wire loss in a split-phase grid.	1. The alarm automatically disappears after grid power supply is restored. 2. Check if the AC line or AC switch is disconnected.
F49	L-PE Short Circuit	Output phase line has low impedance or short circuit to PE.	Measure the impedance between the output phase line and PE, locate the position with low impedance and repair it.

Fault Code	Fault Name	Fault Cause	Fault Handling Suggestion
F50	DCV Level 1 Protection	Load abnormal fluctuation	1. If it is due to an abnormality introduced 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 plant, contact the dealer or after-sales service center.
F51	DCV Level 2 Protection	Load abnormal fluctuation	
F52	Leakage current (GFCI) Multiple Fault Shutdown	North American safety regulations require no automatic recovery after multiple faults; manual recovery or waiting 24h is required.	Please check if the PV string's impedance to ground is too low.
F53	DC Arcing (AFCI) Multiple Fault Shutdown	North American safety regulations require no automatic recovery after multiple faults; manual recovery or waiting 24h is required.	1. After the unit reconnects to the grid, check if the voltage and current of each string abnormally decrease or become zero. 2. Check if the DC side terminals are securely connected.

Fault Code	Fault Name	Fault Cause	Fault Handling Suggestion
F54	External Communication Disconnection	Inverter external device communication lost. Possible causes: peripheral device power issue, communication protocol mismatch, corresponding peripheral not configured, etc.	Determine based on the actual model and detection enable bits. Some models do not support certain peripherals and will not detect them.
F55	Back-up Port Overload Fault	Prevents the inverter from sustaining overload output.	Turn off some off-grid loads to reduce the inverter's off-grid output power.
F56	Back-up Port Overvoltage Fault	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, contact the dealer or after-sales service center.
F57	External Box Fault	Waiting too long for the Box to switch the relay during grid-to-off-grid transition.	1. Check if the Box is working properly. 2. Check if the Box communication wiring is correct.
F58	CT Loss Fault	CT connection wire disconnected (Japanese safety regulation requirement)	Check if the CT wiring is correct.
F59	Parallel Unit CAN Communication Abnormal	Parallel communication cable not securely connected or a unit is offline.	Check if all units are powered on and if the parallel communication cable is securely connected.

Fault Code	Fault Name	Fault Cause	Fault Handling Suggestion
F60	Parallel Unit Back-up Connection Reversed	Some units' backup lines are reversed with others.	Reconnect the backup lines.
F61	Inverter Soft Start Failure	Inverter soft start failure during off-grid cold start.	Check if the inverter module is damaged.
F62	AC HCT Failure	HCT sensor abnormality exists.	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 persists, contact the dealer or after-sales service center.
F63	GFCI HCT Failure	Leakage current sensor abnormality exists.	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 persists, contact the dealer or after-sales service center.
F64	Inverter Internal Failure	Inverter fault exists.	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 persists, contact the dealer or after-sales service center.

Fault Code	Fault Name	Fault Cause	Fault Handling Suggestion
F65	AC Terminal Overtemperature	AC terminal temperature is too high. Possible causes: 1. Inverter installation location is not ventilated. 2. Ambient temperature is too high. 3. Internal fan operation is abnormal.	1. Check if the ventilation at the inverter installation location is adequate and if the ambient temperature exceeds the maximum allowable range. 2. If ventilation is poor or ambient temperature is too high, improve its ventilation and heat dissipation conditions. 3. If both ventilation and ambient temperature are normal, contact the dealer or after-sales service center.
F66	INV Module Overtemperature	Inverter module temperature is too high. Possible causes: 1. Inverter installation location is not ventilated. 2. Ambient temperature is too high. 3. Internal fan operation is abnormal.	1. Check if the ventilation at the inverter installation location is adequate and if the ambient temperature exceeds the maximum allowable range. 2. If ventilation is poor or ambient temperature is too high, improve its ventilation and heat dissipation conditions. 3. If both ventilation and ambient temperature are normal, contact the dealer or after-sales service center.

Fault Code	Fault Name	Fault Cause	Fault Handling Suggestion
F67	Boost Module Overtemperature	Boost module temperature is too high. Possible causes: 1. Inverter installation location is not ventilated. 2. Ambient temperature is too high. 3. Internal fan operation is abnormal.	1. Check if the ventilation at the inverter installation location is adequate and if the ambient temperature exceeds the maximum allowable range. 2. If ventilation is poor or ambient temperature is too high, improve its ventilation and heat dissipation conditions. 3. If both ventilation and ambient temperature are normal, contact the dealer or after-sales service center.
F68	AC Capacitor Overtemperature	Output filter capacitor temperature is too high. Possible causes: 1. Inverter installation location is not ventilated. 2. Ambient temperature is too high. 3. Internal fan operation is abnormal.	1. Check if the ventilation at the inverter installation location is adequate and if the ambient temperature exceeds the maximum allowable range. 2. If ventilation is poor or ambient temperature is too high, improve its ventilation and heat dissipation conditions. 3. If both ventilation and ambient temperature are normal, contact the dealer or after-sales service center.
F69	PV IGBT Short Circuit Fault	Possible causes: 1. IGBT short circuit 2. Inverter sampling circuit abnormal	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 persists, contact the dealer or after-sales service center.

Fault Code	Fault Name	Fault Cause	Fault Handling Suggestion
F70	PV IGBT Open Circuit Fault	1. Software issue causing no PWM generation: 2. Drive circuit abnormal: 3. IGBT open circuit	
F71	NTC Abnormal	NTC temperature sensor abnormality.	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 persists, contact the dealer or after-sales service center.
F72	PWM Abnormal	PWM abnormal waveform detected.	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 persists, contact the dealer or after-sales service center.
F73	CPU Interrupt Abnormal	CPU interrupt abnormality.	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 persists, contact the dealer or after-sales service center.
F74	Microelectronics Fault	Functional safety detection detected an abnormality.	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 persists, contact the dealer or after-sales service center.
F75	PV HCT Fault	boost current sensor abnormal.	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 persists, contact the dealer or after-sales service center.

Fault Code	Fault Name	Fault Cause	Fault Handling Suggestion
F76	1.5V Reference Abnormal	Reference circuit 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 persists, contact the dealer or after-sales service center.
F77	0.3V Reference Abnormal	Reference circuit fault.	
F78	CPLD Version Identification Error	CPLD version identification error.	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 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 for 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 for 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.

7.4.3 Troubleshooting (Fault Codes F81-F121)

Fault Code	Fault Name	Fault Cause	Fault Handling Recommendations
F81	P-Bus Overvoltage	BUS overvoltage, possible causes: 1. PV voltage too high; 2. Inverter BUS voltage sampling abnormal; 3. Poor isolation effect of the dual-split transformer at the inverter backend, causing two inverters to affect each other when grid-connected, with one inverter reporting DC overvoltage when grid-connected;	Disconnect the AC output side switch and DC input side switch, close after 5 minutes. If the fault still exists, please contact the dealer or after-sales service center.
F82	N-Bus Overvoltage		
F83	Bus Overvoltage (Sub CPU1)		

Fault Code	Fault Name	Fault Cause	Fault Handling Recommendations
F84	P-Bus Overvoltage (Sub CPU1)	BUS overvoltage, possible causes: 1. PV voltage too high; 2. Inverter BUS voltage sampling abnormal; 3. Poor isolation effect of the dual-split transformer at the inverter backend, causing two inverters to affect each other when grid-connected, with one inverter reporting DC overvoltage when grid-connected;	Disconnect the AC output side switch and DC input side switch, close after 5 minutes. If the fault still exists, please contact the dealer or after-sales service center.
F85	N-Bus Overvoltage (Sub CPU1)		
F86	Bus Overvoltage (Sub CPU2)		Disconnect the AC output side switch and DC input side switch, close after 5 minutes. If the fault still exists, please contact the dealer or after-sales service center.
F87	P-Bus Overvoltage (Sub CPU2)		

Fault Code	Fault Name	Fault Cause	Fault Handling Recommendations
F88	N-Bus Overvoltage (Sub CPU2)	BUS overvoltage, possible causes: 1. PV voltage too high; 2. Inverter BUS voltage sampling abnormal; 3. Poor isolation effect of the dual-split transformer at the inverter backend, causing two inverters to affect each other when grid-connected, with one inverter reporting DC overvoltage when grid-connected;	
F89	P-Bus Overvoltage(CPLD)		Disconnect the AC output side switch and DC input side switch, close after 5 minutes. If the fault still exists, please contact the dealer or after-sales service center.

Fault Code	Fault Name	Fault Cause	Fault Handling Recommendations
F90	N-Bus Overvoltage(CPLD)	BUS overvoltage, possible causes: 1. PV voltage too high; 2. Inverter BUS voltage sampling abnormal; 3. Poor isolation effect of the dual-split transformer at the inverter backend, causing two inverters to affect each other when grid-connected, with one inverter reporting DC overvoltage when grid-connected;	
F91	FlyCap Software Overvoltage	FlyCap overvoltage, possible causes: 1. PV voltage too high; 2. Inverter FlyCap voltage sampling abnormal;	Disconnect the AC output side switch and DC input side switch, close after 5 minutes. If the fault still exists, please contact the dealer or after-sales service center.
F92	FlyCap Hardware Overvoltage		

Fault Code	Fault Name	Fault Cause	Fault Handling Recommendations
F93	FlyCap Undervoltage	FlyCap undervoltage, possible causes: 1. PV energy insufficient; 2. Inverter FlyCap voltage sampling abnormal;	Disconnect the AC output side switch and DC input side switch, close after 5 minutes. If the fault still exists, please contact the dealer or after-sales service center
F94	FlyCap Precharge Failure	FlyCap precharge failure, possible causes: 1. PV energy insufficient; 2. Inverter FlyCap voltage sampling abnormal;	Disconnect the AC output side switch and DC input side switch, close after 5 minutes. If the fault still exists, please contact the dealer or after-sales service center
F95	FlyCap Precharge Abnormal	1. Control loop parameters unreasonable 2. Hardware damage	Disconnect the AC output side switch and DC input side switch, close after 5 minutes. If the fault still exists, please contact the dealer or after-sales service center
F96, F97	String Overcurrent(String 1-n) n: Determined based on the actual number of inverter strings	Possible causes: 1. String overcurrent; 2. String current sensor abnormal	Disconnect the AC output side switch and DC input side switch, close after 5 minutes. If the fault still exists, please contact the dealer or after-sales service center

Fault Code	Fault Name	Fault Cause	Fault Handling Recommendations
F99, F100	String Loss(String 1-n) n: Determined based on the actual number of inverter strings	String fuse disconnected (if present)	Check if the fuse is disconnected.
F101	Battery 1 Precharge Fault	Battery 1 precharge circuit fault (e.g., precharge resistor burned out)	Check if the precharge circuit is in good condition. After powering on the battery only, check if the battery voltage and bus voltage are consistent. If not, please contact the dealer or after-sales service center.
F102	Battery 1 Relay Failure	Battery 1 relay cannot operate normally	After powering on the battery, check if the battery relay is working, and if the 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 (e.g., precharge resistor burned out)	Check if the precharge circuit is in good condition. After powering on the battery only, check if the battery voltage and bus voltage are consistent. If not, please contact the dealer or after-sales service center.

Fault Code	Fault Name	Fault Cause	Fault Handling Recommendations
F105	Battery 2 Relay Failure	Battery 2 relay cannot operate normally	After powering on the battery, check if the battery relay is working, and if the 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.
F107	On-grid PWM Sync Failure	Abnormality in carrier synchronization during grid connection	1. Check if the synchronization line connection is normal 2. Check if the master-slave settings are normal; 3. Disconnect the AC output side switch and DC input side switch, close after 5 minutes. If the fault still exists, please contact the dealer or after-sales service center.
F108	DSP Communication Fault	-	-
F109	External STS Fault	Abnormal connection cable between inverter and STS	Check if the wiring sequence of the harness connection between inverter and STS corresponds one by one.

Fault Code	Fault Name	Fault Cause	Fault Handling Recommendations
F110	Export Limit Protection	1. Inverter reports error and disconnects from grid 2. meter communication unstable 3. Reverse power flow condition occurs	1. Check if there are other error messages in the inverter. If yes, handle them accordingly; 2. Check if the meter connection is reliable; 3. If this alarm frequently appears, affecting the normal power generation of the power station, please contact the dealer or after-sales service center.
F111	Bypass Overload	-	-
F112	Black Start Failure	-	-
F113	Offgrid AC Ins Volt High	-	-

Fault Code	Fault Name	Fault Cause	Fault Handling Recommendations
F114	Relay Failure 2	Relay abnormal, reasons: 1. Relay abnormal (relay short circuit) 2. Relay sampling circuit abnormal. 3. AC side wiring abnormal (可能存在虚接或短路现象) - Preserving the Chinese phrase as it seems technical and not fully translated in context, but for consistency: "may have poor contact or short circuit phenomenon"	Disconnect the AC output side switch and DC input side switch, close after 5 minutes. If the fault still exists, please 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	Night SVG PID Prevention Fault	PID prevention hardware abnormal	
F117	DSP Version Identification Error	DSP software version identification error	Disconnect the AC output side switch and DC input side switch, close after 5 minutes. If the fault still exists, please contact the dealer or after-sales service center.

Fault Code	Fault Name	Fault Cause	Fault Handling Recommendations
F118	MOS Continuous Overvoltage	1. Software issue causing inverter drive to turn off earlier than flyback drive; 2. Inverter drive circuit abnormal causing inability to turn on; 3. PV voltage too high; 4. Mos voltage sampling abnormal;	Disconnect the AC output side switch and DC input side switch, close after 5 minutes. If the fault still exists, please contact the dealer or after-sales service center.
F119	Bus Short Circuit Fault	Hardware damage	If after a BUS short circuit fault, the inverter remains disconnected from the grid, please contact the dealer or after-sales service center.
F120	Bus Sampling Anomaly	1. BUS voltage sampling hardware fault	Disconnect the AC output side switch and DC input side switch, close after 5 minutes. If the fault still exists, please contact the dealer or after-sales service center.
F121	DC Side Sampling Anomaly	1. BUS voltage sampling hardware fault 2. Battery voltage sampling hardware fault 3. Dcrly relay fault	Disconnect the AC output side switch and DC input side switch, close after 5 minutes. If the fault still exists, please contact the dealer or after-sales service center.

Fault Code	Fault Name	Fault Cause	Fault Handling Recommendations
F122	PV Access Mode Setting Error	There are three modes for PV access mode, taking four MPPT channels as an example: 1. Parallel mode: i.e., AAAA mode (same source mode), PV1-PV4 same source, 4 PV channels connected to the same photovoltaic panel 2. Partial parallel mode: i.e., AACC mode, PV1 and PV2 connected with same source, PV3 and PV4 connected with same source 3. Independent mode: i.e., ABCD mode (different sources), PV1, PV2, PV3, PV4 independently connected, 4 PV channels each connected to one photovoltaic panel If the actual PV access mode does	Check if the PV access mode is correctly set (ABCD, AACC, AAAA), reset the PV access mode in the correct way 1. Confirm if the actually connected PV channels are correctly connected; 2. If the PV is correctly connected, check through APP or screen if 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, need to set the "PV access mode" through APP or screen to the mode consistent with the actual situation; 4. After setting, disconnect PV and AC power supply and restart; 5. 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	Fault Handling Recommendations
		not match the device-set PV access mode, this fault will be reported	

7.4.4 Troubleshooting (Fault Codes F122-F163)

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestion
F123	Multi-channel PV Phase Error	PV Input Mode Setting Error	Check if the PV Access Mode is set correctly (ABCD, AACC, AAAA), and reset the PV Access Mode correctly. 1. Confirm that all connected PV strings are correctly wired. 2. If the PV strings are correctly connected, check via the APP or screen whether the currently set "PV Access Mode" corresponds to the actual connection mode. 3. If the currently set "PV Access Mode" does not match the actual connection mode, use the APP or screen to set the "PV Access Mode" to the mode consistent with the actual situation. After setting, disconnect and restart the PV and AC power supply. 4. After setting, if the current "PV Access Mode" matches the actual connection mode but this fault still occurs, please contact the dealer or after-sales service center.
F124	Battery 1 Reverse Polarity fault	Battery 1 positive and negative terminals reversed	Check if the polarity of the battery and the machine's terminals is consistent.
F125	Battery 2 Reverse Polarity fault	Battery 2 positive and negative terminals reversed	Check if the polarity of the battery and the machine's terminals is consistent.
F126	Abnormal Battery Connection	Abnormal Battery Connection	Check if the battery is working normally.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestion
F127	BAT Overtemperature	Battery temperature is too high. Possible causes: 1. Poor ventilation at the inverter installation location. 2. Ambient temperature is too high. 3. Internal fan operation is abnormal.	Disconnect the AC output side switch and DC input side switch, wait for 5 minutes and then close the AC output side switch and DC input side switch. If the fault persists, please contact the dealer or after-sales service center.
F128	Ref Voltage Abnormal	Reference circuit fault	Disconnect the AC output side switch and DC input side switch, wait for 5 minutes and then close the AC output side switch and 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 cause: Ambient temperature is too low.	Disconnect the AC output side switch and DC input side switch, wait for 5 minutes and then close the AC output side switch and DC input side switch. If the fault persists, please contact the dealer or after-sales service center.
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.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestion
F132	Internal Fan Abnormal	Internal fan abnormal. Possible causes: 1. Abnormal fan power supply. 2. Mechanical fault (stall). 3. Fan aging or damage.	Disconnect the AC output side switch and DC input side switch, wait for 5 minutes and then close the AC output side switch and 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 PID paused due to high PV voltage	PID pause warning caused by high PV voltage requires no action. PID hardware fault can be cleared by turning the PID switch off and then on. Replace the PID device.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestion
F135	Trip-Switch Trip Warning	Possible causes: Overcurrent or PV reverse polarity caused the trip-switch to open.	Contact the dealer or after-sales service center. The cause of tripping is a PV short circuit or reverse connection. Check if there is a historical PV short circuit warning or historical PV reverse connection warning. If present, a technician needs to inspect the corresponding PV condition. After checking and 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 open.	Contact the dealer or after-sales service center. The technician needs to check the Boost hardware and external string for faults according to the historical PV short circuit warning subcode. After checking and confirming no fault, you can clear this warning via the APP interface's clear historical fault operation.
F137, F138	Historical PV Reverse Connection Warning (String 1-n) (n: determined by the actual number of inverter strings)	Possible causes: PV reverse connection caused the trip-switch to open.	Contact the dealer or after-sales service center. The technician needs to check the corresponding string for reverse connection and check for voltage differences in the PV panel configuration according to the historical PV reverse connection warning subcode. After checking and confirming no fault, you can clear this warning via the APP interface's clear historical fault operation.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestion
F139	Flash Read/Write Error Warning	Possible causes: 1. Flash content changed. 2. Flash lifespan exhausted.	1. Upgrade to the latest firmware. 2. Contact the dealer or after-sales service center.
F140	Meter Comm Loss	This warning may only occur after enabling the 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 and connect the meter correctly. After checking, if the fault persists, 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. Long-term string mismatch poses a safety hazard.
F143	CT Not Connected	CT not connected	Check the CT wiring.
F144	CT Reverse Connection	CT reverse connection	Check the CT wiring.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestion
F145	PE Loss	Ground wire not connected	Check the ground wire.
F146	String Terminal High Temperature (String 1~8)	Register 37176 PV terminal temperature alarm subcode 1 is set.	-
F147	String Terminal High Temperature (String 9~16)	Register 37177 PV terminal temperature alarm subcode 2 is set.	-
F148	String Terminal High 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 trip-switch to open.	Contact the dealer or after-sales service center. The technician needs to check the corresponding string for reverse connection and check for voltage differences in the PV panel configuration according to the historical PV reverse connection warning subcode. After checking and confirming no fault, you can clear this warning via the APP interface's clear historical fault operation.
F150	Battery 1 Low Voltage	Battery voltage below set value	-

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestion
F151	Battery 2 Low Voltage	Battery voltage below set value	-
F152	Low Voltage of Battery Power	Battery in non-charging mode, voltage below shutdown voltage	-
F153	Battery 1 High Voltage	-	-
F154	Battery 2 High Voltage	-	-
F155	Online Low Insulation Resistance	1. PV string shorted to protective earth. 2. PV string installed in a long-term humid environment with poor line-to-ground insulation.	1. Check the impedance of the PV string to protective earth. If a short circuit is found, rectify the short 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/cloudy conditions, please reset the "Insulation Resistance Protection Point".
F156	Micro-grid Overload Warning	Backup port input current 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 Suggestion
F159	Multiplexed Port Configuration Abnormal	Multiplexed (Generator) port configured as micro-grid or large load, but a generator is actually connected	Use the APP to change the Multiplexed (Generator) port configuration.
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 according to the actual grid type.
F163	Grid Phase Instability	Grid abnormal: Grid voltage phase change rate does not comply with local grid standards.	1. If it occurs occasionally, it may be a temporary grid anomaly. The inverter will resume normal operation after detecting a normal grid, requiring no manual intervention. 2. If it occurs frequently, check if the grid frequency is within the allowable range. If not, please contact the local power operator.

7.4.5 Troubleshooting

Fault Name	Fault Cause	Fault Handling Suggestions
Generator Failure	1. This fault will always be displayed when the generator is not connected. 2. When the generator is operating, if it does not meet the generator safety regulations, this fault will be triggered.	1. When the generator is not connected, ignore this fault; 2. When this fault occurs due to generator failure, it is normal; after the generator recovers, wait for a period of time, and the fault will automatically clear; 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 grid connection, and the system will operate in grid-connected state.
BMS Status Bit Error	BMS module failure	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.
Ambient Overtemperature	1. Poor ventilation of the machine 2. Hot air flow back to the ambient temperature sampling point	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.

Fault Name	Fault Cause	Fault Handling Suggestions
PV Terminal Overtemperature	PV terminal overtemperature, possible causes: 1. Inverter installation location is not ventilated. 2. Ambient temperature is too high. 3. Internal fan operation is abnormal.	1. Check whether the ventilation at the inverter installation location is good and whether the ambient temperature exceeds the maximum allowable ambient temperature range. 2. If it is not ventilated or the 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 dealer or after-sales service center.
BAT Terminal Overtemperature	BAT terminal overtemperature, possible causes: 1. Inverter installation location is not ventilated. 2. Ambient temperature is too high.	1. Check whether the ventilation at the inverter installation location is good and whether the ambient temperature exceeds the maximum allowable ambient temperature range. 2. If it is not ventilated or the 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 dealer or after-sales service center.
AC Terminal Overtemperature Warning	AC terminal overtemperature, possible causes: 1. Inverter installation location is not ventilated. 2. Ambient temperature is too high. 3. Internal fan operation is abnormal.	

Fault Name	Fault Cause	Fault Handling Suggestions
BAT Terminal Overtemperature Warning	BAT terminal overtemperature, possible causes: 1. Inverter installation location is not ventilated. 2. Ambient temperature is too high.	1. Check whether the ventilation at the inverter installation location is good and whether the ambient temperature exceeds the maximum allowable ambient temperature range. 2. If it is not ventilated or the 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 dealer or after-sales service center.
Three-phase on-grid fault	Three-phase external wiring error	Rewire.
External STS Failure	Abnormal connection cable between inverter and STS	Check whether the wiring sequence of the harness connection between the inverter and STS corresponds one by one in order.

Fault Name	Fault Cause	Troubleshooting Recommendation
Parallel Comm Timeout Shutdown	In parallel operation, if a slave unit has not communicated with the master for over 400 seconds.	Check if the parallel communication harness is securely connected. Check for duplicate slave addresses.
Three-phase off-grid phase loss fault	Phase loss in a three-phase system.	1. Check if all inverters are powered on. 2. Check if each phase of the three-phase system is connected to an inverter.

Fault Name	Fault Cause	Troubleshooting Recommendation
EPO	External trigger of hardware EPO button or remote trigger of EPO command.	1. If initiated by remote shutdown command, it can be ignored. 2. If not actively triggered, please contact the dealer or after-sales service center.
High Combustible Gas Concentration	Automatically triggered when the combustible gas device detects a concentration of 20% LEL or higher.	1. After the fault occurs, the system will automatically open the air valve to exhaust and reduce the concentration. The fault will automatically clear after the concentration remains below 5% LEL for 15 minutes. 2. If a cluster-level fire protection fault is triggered after this fault occurs, the air valve will automatically close. Confirm the air valve status within 30s to ensure cluster-level fire protection operates in a sealed space. 3. Please contact the dealer or after-sales service center.
Combustible Gas Device Air Valve Open Signal Mismatch	Mismatch between the control signal to open the air valve and the feedback signal.	1. Check the harness signal connection for issues. 2. Please contact the dealer or after-sales service center.
One-click Shutdown	Check via the App if the one-click shutdown function is enabled.	Disable the one-click shutdown.
Offline Shutdown	-	-

Fault Name	Fault Cause	Troubleshooting Recommendation
Remote Shutdown	-	-
On-Grid SPD Fault	-	1. Try restarting the unit and observe if the fault clears; 2. If the fault persists after restart, please contact the dealer or after-sales service center.
Off-Grid SPD Fault	-	1. Try restarting the unit and observe if the fault clears; 2. If the fault persists after restart, please contact the dealer or after-sales service center.
Child Node Communication Failure	Internal communication abnormal	1. Try restarting the unit and observe if the fault clears; 2. If the fault persists after restart, please contact the dealer or after-sales service center.
Dehumidifier Communication Fault	Abnormal communication link between the dehumidifier and the LC control box.	1. Check the communication harness link, observe if the fault clears; 2. Try restarting the unit, observe if the fault clears; 3. If the fault persists after restart, please contact the dealer or after-sales service center.

Fault Name	Fault Cause	Troubleshooting Recommendation
Combustible Gas Detection Device Communication Fault	1. The combustible gas device was not properly configured with the 485 address set to 2 during factory setup. 2. Abnormal communication link between the combustible gas device and the LC control box.	1. Check the communication harness link, observe if the fault clears; 2. Try restarting the unit, observe if the fault clears; 3. Use the method provided by the combustible gas device manufacturer to check if the device address is 2. If not, modify it; 4. If the fault persists after restart, please contact the dealer or after-sales service center.
DG Communication Failure	Abnormal communication link between the control board and the diesel generator.	1. Check the communication harness link, observe if the fault clears; 2. Try restarting the unit, observe if the fault clears; 3. If the fault persists after restart, please contact the dealer or after-sales service center.
Battery Over Voltage	1. Individual cell voltage too high 2. Voltage sense line abnormal	Record the fault phenomenon, restart the battery, wait a few minutes, confirm if the fault disappears. If the problem persists after restart, please contact the after-sales service center.
	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	Troubleshooting Recommendation
	1. Total battery voltage too low 2. Voltage sense line abnormal	
Battery Overcurrent	1. Charging current too high, battery current limit abnormal: sudden change in temperature and voltage values 2. Inverter response abnormal	
	Battery discharge current too high	
Battery Overtemperature	1. Ambient temperature too high 2. Temperature sensor abnormal	
Battery Undertemperature	1. Ambient temperature too low 2. Temperature sensor abnormal	
Battery Terminal Overtemperature	Terminal temperature too high	

Fault Name	Fault Cause	Troubleshooting Recommendation
Battery Imbalance	1. Excessive temperature difference. At different stages, the battery will limit power, i.e., limit charge/discharge current. Therefore, this issue is generally difficult to occur. 2. Cell capacity degradation, leading to excessive internal resistance, large temperature rise during overcurrent, resulting in large temperature difference. 3. Poor welding of cell tabs, causing rapid temperature rise during overcurrent. 4. Temperature sampling issue; 5. Power line connection loose	

Fault Name	Fault Cause	Troubleshooting Recommendation
	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. Harness issues	
Insulation Resistance	Insulation resistance damaged	Check if the ground wire is properly connected, restart the battery. If the problem persists after restart, please contact the after-sales service center.
Pre-charging Failure	Pre-charging failure	Indicates that during pre-charging, the voltage across the pre-charge MOS consistently exceeds the specified threshold. Power off and restart to 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, please 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, please contact the after-sales service center.
	Cell temperature sense line poor contact or disconnected	

Fault Name	Fault Cause	Troubleshooting Recommendation
	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	
	Overvoltage level 5 or overtemperature level 5, tripped three-terminal fuse	Tripped three-terminal fuse, contact the after-sales service center to replace the main control board.
Relay or MOS Overtemperature	Relay or MOS overtemperature	This fault indicates the MOS temperature exceeds the specified threshold. Power off and let it cool for 2 hours.
Shunt Overtemperature	Shunt overtemperature	This fault indicates the shunt temperature exceeds the specified threshold. Power off and let it cool for 2 hours.
BMS1 Other Fault 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.

Fault Name	Fault Cause	Troubleshooting Recommendation
	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.
	Communication abnormal between master and slave racks, or cell inconsistency between racks	1. Check the slave battery information, software version, and if the communication cable to the master is properly connected. 2. Upgrade software.
	Battery system loop harness abnormal, causing interlock signal loop not formed.	Check if the terminal resistor is installed correctly.
	BMS and PCS communication abnormal	1. Confirm if the communication cable interface definition between the inverter and the connected battery is correct; 2. Please contact the after-sales service center to check backend data and observe if the inverter and battery software are correctly matched.
	BMS master and slave control communication harness abnormal	1. Check wiring, restart the battery; 2. Upgrade battery software, if the problem persists after restart, please contact the after-sales service center.
	Communication loss between main negative chips	

Fault Name	Fault Cause	Troubleshooting Recommendation
	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 blind-mating connectors at the bottom of the PACK and PCU, 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, causing excessive inrush current during battery pre-charge.	1. Upgrade software, observe if the fault persists. 2. For parallel systems, black-start the battery first, then start the inverters.
	MCU internal fault	Upgrade software, restart the battery. Usually indicates MCU or external component damage. If the problem persists after restart, please contact the after-sales service center.
	Main bus 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 the bus load capacity;
	Parallel racks have inconsistent cell types	Confirm if the cells in the parallel racks are consistent.

Fault Name	Fault Cause	Troubleshooting Recommendation
	Parallel racks positive/negative polarity reversed	Check if the positive/negative polarity of the parallel racks is 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, please contact the after-sales service center.
	Cabinet door not closed	Check if the cabinet door is properly closed.
	Supply voltage too high	Confirm if the supply voltage meets the air conditioner input voltage requirements. Confirm compliance before reapplying power.
	Supply voltage insufficient	
	No voltage input	
	Supply voltage unstable	
	Compressor voltage unstable	Try restarting the system. If the fault is not resolved, please contact the after-sales service center.
	Sensor poor contact or damaged	
	Air conditioner fan abnormal	
	DCDC internal voltage or current abnormal	Refer to specific DC fault content.

Fault Name	Fault Cause	Troubleshooting Recommendation
BMS1 Other Fault 2 (Residential Storage)	DCDC overload or heatsink temperature too high, etc.	
	Cell sampling abnormal or inconsistent aging levels	Please contact the after-sales service center.
	Fan operation 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, please contact the after-sales service center.
	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, causing excessive inrush current during battery pre-charge.	1. Upgrade software, observe if the fault persists. 2. For parallel systems, black-start the battery first, then start the inverters.
	Heating film damaged	Please contact the after-sales service center.

Fault Name	Fault Cause	Troubleshooting Recommendation
	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, Cell Type, and hardware model are consistent. If not, please contact the after-sales service center.
	Thermal management board communication wire broken	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	
DCDC Fault	Output terminal voltage too high	Check output terminal voltage. If voltage is normal and fault persists after battery restart, please contact the after-sales service center.
	DCDC module detects battery voltage exceeds maximum charging voltage	Stop charging, discharge to SOC below 90% or let it sit for 2h. If ineffective and fault persists after restart, please contact the after-sales service center.
	Heatsink temperature too high	Let the battery sit for 1h for heatsink temperature to drop. If ineffective and fault persists after restart, please contact the after-sales service center.
	Battery discharge current too high	Check if load exceeds battery discharge capability. Turn off load or stop PCS operation for 60s. If ineffective and fault persists after restart, please contact the after-sales service center.

Fault Name	Fault Cause	Troubleshooting Recommendation
	Output terminal power harness positive/negative reversed with parallel rack or PCS	Turn off battery manual switch, check if output terminal wiring is correct, restart the battery.
	Output power relay cannot close	Check if output terminal wiring is correct, if there is a short circuit. If ineffective and fault persists after restart, please 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 fault persists after restart, please contact the after-sales service center.
	Relay welded/stuck	If fault persists after restart, please contact the after-sales service center.
Battery Rack Circulating Current Failure	1. Cell imbalance 2. First power-on without full charge calibration	Record the fault phenomenon, restart the battery, wait a few minutes, confirm if the fault disappears. If the problem persists after restart, please contact the after-sales service center.
BMS1 Other Fault 3 (Utility Storage)	Communication abnormal with linux module	1. Check if communication cable connection is normal. 2. Upgrade software, restart the battery and observe if the fault persists. If it exists, please contact the after-sales service center.
	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, please contact the after-sales service center.

Fault Name	Fault Cause	Troubleshooting Recommendation
	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 rack. 2. Confirm the usage status of each rack, such as cumulative charge/discharge capacity, cycle count, etc. 3. Please contact the after-sales service center.
	High humidity inside pack	-
	Fuse blown	Contact after-sales to replace the pack.
	Battery low power	Charge the battery.
BMS1 Other Fault 4 (Utility Storage)	Circuit breaker abnormal	Contact after-sales to replace the pack.
	External device abnormal	Contact after-sales to replace the pack.
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.
Overcurrent Protection (Ksic)	-	-

Fault Name	Fault Cause	Troubleshooting Recommendation
Overcurrent Protection (Smart Port)	-	-
Master AC On Meter Comm Error	1. Meter may not be connected to the master. 2. Meter communication cable may be loose.	1. Check if the meter is connected to the master. 2. Check if the meter communication cable 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 cable loose.	1. Check for duplicate slave addresses. 2. Check if the parallel communication cable is loose.

7.5 Routine Maintenance

DANGER

When performing operation and maintenance on the inverter, please power down the inverter. Operating the equipment while energized may cause inverter damage or electrical shock hazard.

Maintenance Item	Maintenance Method	Maintenance Cycle
System Cleaning	Check the heat sinks and air inlets/outlets for foreign objects or dust.	Once every six months - Once a year
Fan	Check if the fan is operating normally, for any abnormal noise, and if its appearance is normal.	Once a year
DC Switch	Turn the DC Switch on and off 10 times consecutively to ensure its function is normal.	Once a year

Electrical Connections	Check electrical connections for looseness, and inspect cable appearance for damage or exposed copper.	Once every six months - Once a year
Sealing	Check if the sealing of the equipment cable entry holes meets requirements. If gaps are too large or unsealed, reseal them.	Once a year

8 technical parameter

Technical Data	GW4000-SDT-30	GW5000-SDT-30	GW6000-SDT-30	GW8000-SDT-30
Input				
Max. Input Power (kW)	6	7.5	9	12
Max. Input Voltage (V)*1	1100	1100	1100	1100
MPPT Operating Voltage Range (V)*2*3	140 ~ 1000	140 ~ 1000	140 ~ 1000	140 ~ 1000
MPPT Voltage Range at Nominal Power (V)	250~850*4	250~850*4	250~850*4	250~850
Start-up Voltage (V)	160	160	160	160
Nominal Input Voltage (V)	600	600	600	600
Max. Input Current per MPPT (A)	22	22	22	22
Max. Short Circuit Current per MPPT (A)	27.5	27.5	27.5	27.5
Max. Backfeed Current to The Array (A)	0	0	0	0
Number of MPP Trackers	2	2	2	2

Technical Data	GW4000-SDT-30	GW5000-SDT-30	GW6000-SDT-30	GW8000-SDT-30
Number of Strings per MPPT	1	1	1	1
Output				
Nominal Output Power (kW)	4	5	6	8
Nominal Output Apparent Power (kVA)	4	5	6	8
Max. AC Active Power (kW)	4.4	5.5	6.6	8.8
Max. AC Apparent Power (kVA)	4.4	5.5	6.6	8.8
Nominal Power at 40℃ (kW)	4	5	6	8
Max. Power at 40℃ (Including AC Overload) (kW)	4	5	6	8
Nominal Output Voltage (V)	220/380,230/400,240/415, 3L/N/PE or 3L/PE	220/380,230/400,240/415, 3L/N/PE or 3L/PE	220/380,230/400,240/415, 3L/N/PE or 3L/PE	220/380,230/400,240/415, 3L/N/PE or 3L/PE
Output Voltage Range (V)	180~280 (according to local standard)	180~280 (according to local standard)	180~280 (according to local standard)	180~280 (according to local standard)
Nominal AC Grid Frequency (Hz)	50/60	50/60	50/60	50/60
AC Grid Frequency Range (Hz)	45~55 / 55~65	45~55 / 55~65	45~55 / 55~65	45~55 / 55~65

Technical Data	GW4000-SDT-30	GW5000-SDT-30	GW6000-SDT-30	GW8000-SDT-30
Max. Output Current (A)	6.7	8.4	10	13.4
Max. Output Fault Current (Peak and Duration) (A/μs)	42 ,6.5μs	42 ,6.5μs	42 ,6.5μs	42 ,6.5μs
Inrush Current (Peak and Duration) (A/μs)	23.7 ,50μs	23.7 ,50μs	23.7 ,50μs	23.7 ,50μs
Nominal Output Current (A)	6.1	7.6	9.2	11.6
Power Factor	~1 (Adjustable from 0.8 leading to 0.8 lagging)	~1 (Adjustable from 0.8 leading to 0.8 lagging)	~1 (Adjustable from 0.8 leading to 0.8 lagging)	~1 (Adjustable from 0.8 leading to 0.8 lagging)
Max. Total Harmonic Distortion	<3%	<3%	<3%	<3%
Maximum Output Overcurrent Protection (A)	42	42	42	42
Efficiency				
Max. Efficiency	98.4%	98.4%	98.4%	98.5%
European Efficiency	97.7%	97.7%	97.7%	98.0%
Protection				
PV String Current Monitoring	Integrated	Integrated	Integrated	Integrated

Technical Data	GW4000-SDT-30	GW5000-SDT-30	GW6000-SDT-30	GW8000-SDT-30
PV Insulation Resistance Detection	Integrated	Integrated	Integrated	Integrated
Residual Current Monitoring	Integrated	Integrated	Integrated	Integrated
PV 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
DC Switch	Integrated	Integrated	Integrated	Integrated
DC Surge Protection	Type III (Type II Optional)	Type III (Type II Optional)	Type III (Type II Optional)	Type III (Type II Optional)
AC Surge Protection	Type III (Type II Optional)	Type III (Type II Optional)	Type III (Type II Optional)	Type III (Type II Optional)
AFCI	Optional	Optional	Optional	Optional
Rapid Shutdown	Optional	Optional	Optional	Optional
Remote Shutdown	Integrated	Integrated	Integrated	Integrated
PID Recovery	Optional	Optional	Optional	Optional
Power Supply at Night	Optional	Optional	Optional	Optional

Technical Data	GW4000-SDT-30	GW5000-SDT-30	GW6000-SDT-30	GW8000-SDT-30
General Data				
Operating Temperature Range (℃)	-30~+60	-30~+60	-30~+60	-30~+60
Derating temperature (℃)	45	45	45	45
Storage Temperature (℃)	-40~+70	-40~+70	-40~+70	-40~+70
Relative Humidity	0~100%	0~100%	0~100%	0~100%
Max. Operating Altitude (m)	4000	4000	4000	4000
Cooling Method	Natural Convection	Natural Convection	Natural Convection	Natural Convection
User Interface	LED, LCD (Optional), WLAN+APP	LED, LCD (Optional), WLAN+APP	LED, LCD (Optional), WLAN+APP	LED, LCD (Optional), WLAN+APP
Communication	RS485, WiFi+LAN+Bluetooth, 4G+Bluetooth (Optional)	RS485, WiFi+LAN+Bluetooth, 4G+Bluetooth (Optional)	RS485, WiFi+LAN+Bluetooth, 4G+Bluetooth (Optional)	RS485, WiFi+LAN+Bluetooth, 4G+Bluetooth (Optional)
Communication Protocols	Modbus-RTU (SunSpec Compliant), Modbus-TCP	Modbus-RTU (SunSpec Compliant), Modbus-TCP	Modbus-RTU (SunSpec Compliant), Modbus-TCP	Modbus-RTU (SunSpec Compliant), Modbus-TCP
Weight (kg)	15.1	15.1	15.1	15.1
Dimension (W×H×D mm)	491*392*210	491*392*210	491*392*210	491*392*210

Technical Data	GW4000-SDT-30	GW5000-SDT-30	GW6000-SDT-30	GW8000-SDT-30
Noise Emission (dB)	< 30	< 30	< 30	< 30
Topology	Non-isolated	Non-isolated	Non-isolated	Non-isolated
Self-consumption at Night (W)	<1	<1	<1	<1
Ingress Protection Rating	IP66	IP66	IP66	IP66
Anti-corrosion Class	C4	C4	C4	C4
DC Connector	MC4 (4~6 mm^2)	MC4 (4~6 mm^2)	MC4 (4~6 mm^2)	MC4 (4~6 mm^2)
AC Connector	OT/DT terminal (Max.10 mm^2)	OT/DT terminal (Max.10mm^2)	OT/DT terminal (Max.10mm^2)	OT/DT terminal (Max.10 mm^2)
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
The Decisive Voltage Class (DVC)	PV：C AC：C Com：A	PV：C AC：C Com：A	PV：C AC：C Com：A	PV：C AC：C Com：A
Active Anti-islanding Method	AFDPF + AQDPF *5	AFDPF + AQDPF *5	AFDPF + AQDPF *5	AFDPF + AQDPF *5
Country of Manufacture	China	China	China	China

*1: When the input voltage is 1000V-1100V, the inverter will enter standby mode. The inverter will return to normal operation state when the voltage returns to the MPPT working voltage range.
*2: PV modules connected to the same MPPT need to be of the same type of PV panel. The voltage difference between the different MPPTs must be <160 V.
*3: Please refer to the user manual for the MPPT Voltage Range at Nominal Power.
*4: GW4000-SDT-30, GW5000-SDT-30, GW6000-SDT-30 MPPT Voltage Range at Nominal Power are 150V~850V, 180V~850V, 220V~850V in 182*182 panel; 250V~850V in all panel. (Only in the manual)
*5: AFDPF: Active Frequency Drift with Positive Feedback, AQDPF: Active Q Drift with Positive Feedback.

Technical Data	GW10K-SDT-30	GW10K-SDT-EU30	GW12K-SDT-30
Input			
Max. Input Power (kW)	15	15	18
Max. Input Voltage (V)*1	1100	1100	1100
MPPT Operating Voltage Range (V)*2*3	140 ~ 1000	140 ~ 1000	140 ~ 1000
MPPT Voltage Range at Nominal Power (V)	310~850	310~850	380~850
Start-up Voltage (V)	160	160	160
Nominal Input Voltage (V)	600	600	600
Max. Input Current per MPPT (A)	22	22	22
Max. Short Circuit Current per MPPT (A)	27.5	27.5	27.5
Max. Backfeed Current to The Array (A)	0	0	0

Technical Data	GW10K-SDT-30	GW10K-SDT-EU30	GW12K-SDT-30
Number of MPP Trackers	2	2	2
Number of Strings per MPPT	1	1	1
Output			
Nominal Output Power (kW)	10	10	12
Nominal Output Apparent Power (kVA)	10	10	12
Max. AC Active Power (kW)	11	10	13.2
Max. AC Apparent Power (kVA)	11	10	13.2
Nominal Power at 40℃ (kW)	10	10	12
Max. Power at 40℃ (Including AC Overload) (kW)	10	10	12
Nominal Output Voltage (V)	220/380,230/400, 240/415, 3L/N/PE or 3L/PE	220/380,230/400, 240/415, 3L/N/PE or 3L/PE	220/380,230/400, 240/415, 3L/N/PE or 3L/PE
Output Voltage Range (V)	180~280 (according to local standard)	180~280 (according to local standard)	180~280 (according to local standard)
Nominal AC Grid Frequency (Hz)	50/60	50/60	50/60
AC Grid Frequency Range (Hz)	45~55 / 55~65	45~55 / 55~65	45~55 / 55~65

Technical Data	GW10K-SDT-30	GW10K-SDT-EU30	GW12K-SDT-30
Max. Output Current (A)	16.7	15.2	20
Max. Output Fault Current (Peak and Duration) (A/μs)	42 ,6.5μs	42 ,6.5μs	67 ,6.5μs
Inrush Current (Peak and Duration) (A/μs)	23.7 ,50μs	23.7 ,50μs	23.7 ,50μs
Nominal Output Current (A)	14.5	14.5	17.4
Power Factor	~1 (Adjustable from 0.8 leading to 0.8 lagging)	~1 (Adjustable from 0.8 leading to 0.8 lagging)	~1 (Adjustable from 0.8 leading to 0.8 lagging)
Max. Total Harmonic Distortion	<3%	<3%	<3%
Maximum Output Overcurrent Protection (A)	42	42	67
Efficiency			
Max. Efficiency	98.5%	98.5%	98.5%
European Efficiency	98.0%	98.0%	98.2%
Protection			
PV String Current Monitoring	Integrated	Integrated	Integrated
PV Insulation Resistance Detection	Integrated	Integrated	Integrated
Residual Current Monitoring	Integrated	Integrated	Integrated

Technical Data	GW10K-SDT-30	GW10K-SDT-EU30	GW12K-SDT-30
PV Reverse Polarity Protection	Integrated	Integrated	Integrated
Anti-islanding Protection	Integrated	Integrated	Integrated
AC Overcurrent Protection	Integrated	Integrated	Integrated
AC Short Circuit Protection	Integrated	Integrated	Integrated
AC Overvoltage Protection	Integrated	Integrated	Integrated
DC Switch	Integrated	Integrated	Integrated
DC Surge Protection	Type III (Type II Optional)	Type III (Type II Optional)	Type III (Type II Optional)
AC Surge Protection	Type III (Type II Optional)	Type III (Type II Optional)	Type III (Type II Optional)
AFCI	Optional	Optional	Optional
Rapid Shutdown	Optional	Optional	Optional
Remote Shutdown	Integrated	Integrated	Integrated
PID Recovery	Optional	Optional	Optional
Power Supply at Night	Optional	Optional	Optional
General Data			
Operating Temperature Range (℃)	-30~+60	-30~+60	-30~+60
Derating temperature (℃)	45	45	45

Technical Data	GW10K-SDT-30	GW10K-SDT-EU30	GW12K-SDT-30
Storage Temperature (℃)	-40~+70	-40~+70	-40~+70
Relative Humidity	0~100%	0~100%	0~100%
Max. Operating Altitude (m)	4000	4000	4000
Cooling Method	Natural Convection	Natural Convection	Natural Convection
User Interface	LED, LCD (Optional), WLAN+APP	LED, LCD (Optional), WLAN+APP	LED, LCD (Optional), WLAN+APP
Communication	RS485, WiFi+LAN+Bluetooth, 4G+Bluetooth (Optional)	RS485, WiFi+LAN+Bluetooth, 4G+Bluetooth (Optional)	RS485, WiFi+LAN+Bluetooth, 4G+Bluetooth (Optional)
Communication Protocols	Modbus-RTU (SunSpec Compliant), Modbus-TCP	Modbus-RTU (SunSpec Compliant), Modbus-TCP	Modbus-RTU (SunSpec Compliant), Modbus-TCP
Weight (kg)	15.1	15.1	16.6
Dimension (W×H×D mm)	491*392*210	491*392*210	491*392*210
Noise Emission (dB)	< 30	< 30	< 30
Topology	Non-isolated	Non-isolated	Non-isolated
Self-consumption at Night (W)	<1	<1	<1
Ingress Protection Rating	IP66	IP66	IP66

Technical Data	GW10K-SDT-30	GW10K-SDT-EU30	GW12K-SDT-30
Anti-corrosion Class	C4	C4	C4
DC Connector	MC4 (4~6 mm^2)	MC4 (4~6 mm^2)	MC4 (4~6 mm^2)
AC Connector	OT/DT terminal (Max.10mm^2)	OT/DT terminal (Max.10mm^2)	OT/DT terminal (Max. 16 mm^2)
Environmental Category	4K4H	4K4H	4K4H
Pollution Degree	III	III	III
Overvoltage Category	DC II / AC III	DC II / AC III	DC II / AC III
Protective Class	I	I	I
The Decisive Voltage Class (DVC)	PV：C AC：C Com：A	PV：C AC：C Com：A	PV：C AC：C Com：A
Active Anti-islanding Method	AFDPF + AQDPF *5	AFDPF + AQDPF *5	AFDPF + AQDPF *5
Country of Manufacture	China	China	China

*1: When the input voltage is 1000V-1100V, the inverter will enter standby mode. The inverter will return to normal operation state when the voltage returns to the MPPT working voltage range.
*2: PV modules connected to the same MPPT need to be of the same type of PV panel. The voltage difference between the different MPPTs must be <160 V.
*3: Please refer to the user manual for the MPPT Voltage Range at Nominal Power.
*4: GW4000-SDT-30, GW5000-SDT-30, GW6000-SDT-30 MPPT Voltage Range at Nominal Power are 150V~850V, 180V~850V, 220V~850V in 182*182 panel; 250V~850V in all panel. (Only in the manual)
*5: AFDPF: Active Frequency Drift with Positive Feedback, AQDPF: Active Q Drift with Positive Feedback.

Technical Data	GW15K-SDT-30	GW17K-SDT-30	GW20K-SDT-30
Input			
Max. Input Power (kW)	22.5	25.5	30
Max. Input Voltage (V)*1	1100	1100	1100
MPPT Operating Voltage Range (V)*2*3	140 ~ 1000	140 ~ 1000	140 ~ 1000
MPPT Voltage Range at Nominal Power (V)	480~850	520~850	520~850
Start-up Voltage (V)	160	160	160
Nominal Input Voltage (V)	600	600	600
Max. Input Current per MPPT (A)	22	32/22	32/22
Max. Short Circuit Current per MPPT (A)	27.5	40/27.5	40/27.5
Max. Backfeed Current to The Array (A)	0	0	0
Number of MPP Trackers	2	2	2
Number of Strings per MPPT	1	2/1	2/1
Output			
Nominal Output Power (kW)	15	17	20

Technical Data	GW15K-SDT-30	GW17K-SDT-30	GW20K-SDT-30
Nominal Output Apparent Power (kVA)	15	17	20
Max. AC Active Power (kW)	16.5	18.7	22
Max. AC Apparent Power (kVA)	16.5	18.7	22
Nominal Power at 40℃ (kW)	15	17	20
Max. Power at 40℃ (Including AC Overload) (kW)	15	17	20
Nominal Output Voltage (V)	220/380,230/400, 240/415, 3L/N/PE or 3L/PE	220/380,230/400, 240/415, 3L/N/PE or 3L/PE	220/380,230/400, 240/415, 3L/N/PE or 3L/PE
Output Voltage Range (V)	180~280 (according to local standard)	180~280 (according to local standard)	180~280 (according to local standard)
Nominal AC Grid Frequency (Hz)	50/60	50/60	50/60
AC Grid Frequency Range (Hz)	45~55 / 55~65	45~55 / 55~65	45~55 / 55~65
Max. Output Current (A)	25	28.3	33.3
Max. Output Fault Current (Peak and Duration) (A/μs)	67 ,6.5μs	73 ,6.5μs	73 ,6.5μs
Inrush Current (Peak and Duration) (A/μs)	23.7,50μs	30.2 ,50μs	30.2 ,50μs

Technical Data	GW15K-SDT-30	GW17K-SDT-30	GW20K-SDT-30
Nominal Output Current (A)	21.8	24.7	29
Power Factor	~1 (Adjustable from 0.8 leading to 0.8 lagging)	~1 (Adjustable from 0.8 leading to 0.8 lagging)	~1 (Adjustable from 0.8 leading to 0.8 lagging)
Max. Total Harmonic Distortion	<3%	<3%	<3%
Maximum Output Overcurrent Protection (A)	67	73	73
Efficiency			
Max. Efficiency	98.5%	98.5%	98.5%
European Efficiency	98.2%	98.2%	98.2%
Protection			
PV String Current Monitoring	Integrated	Integrated	Integrated
PV Insulation Resistance Detection	Integrated	Integrated	Integrated
Residual Current Monitoring	Integrated	Integrated	Integrated
PV Reverse Polarity Protection	Integrated	Integrated	Integrated
Anti-islanding Protection	Integrated	Integrated	Integrated
AC Overcurrent Protection	Integrated	Integrated	Integrated
AC Short Circuit Protection	Integrated	Integrated	Integrated

Technical Data	GW15K-SDT-30	GW17K-SDT-30	GW20K-SDT-30
AC Overvoltage Protection	Integrated	Integrated	Integrated
DC Switch	Integrated	Integrated	Integrated
DC Surge Protection	Type III (Type II Optional)	Type III (Type II Optional)	Type III (Type II Optional)
AC Surge Protection	Type III (Type II Optional)	Type III (Type II Optional)	Type III (Type II Optional)
AFCI	Optional	Optional	Optional
Rapid Shutdown	Optional	Optional	Optional
Remote Shutdown	Integrated	Integrated	Integrated
PID Recovery	Optional	Optional	Optional
Power Supply at Night	Optional	Optional	Optional
General Data			
Operating Temperature Range (℃)	-30~+60	-30~+60	-30~+60
Derating temperature (℃)	45	45	45
Storage Temperature (℃)	-40~+70	-40~+70	-40~+70
Relative Humidity	0~100%	0~100%	0~100%
Max. Operating Altitude (m)	4000	4000	4000
Cooling Method	Natural Convection	Smart Fan Cooling	Smart Fan Cooling

Technical Data	GW15K-SDT-30	GW17K-SDT-30	GW20K-SDT-30
User Interface	LED, LCD (Optional), WLAN+APP	LED, LCD (Optional), WLAN+APP	LED, LCD (Optional), WLAN+APP
Communication	RS485, WiFi+LAN+Bluetooth, 4G+Bluetooth (Optional)	RS485, WiFi+LAN+Bluetooth, 4G+Bluetooth (Optional)	RS485, WiFi+LAN+Bluetooth, 4G+Bluetooth (Optional)
Communication Protocols	Modbus-RTU (SunSpec Compliant), Modbus-TCP	Modbus-RTU (SunSpec Compliant), Modbus-TCP	Modbus-RTU (SunSpec Compliant), Modbus-TCP
Weight (kg)	16.6	18.8	18.8
Dimension (W×H×D mm)	491*392*210	530*413*227	530*413*227
Noise Emission (dB)	< 30	< 45	< 45
Topology	Non-isolated	Non-isolated	Non-isolated
Self-consumption at Night (W)	<1	<1	<1
Ingress Protection Rating	IP66	IP66	IP66
Anti-corrosion Class	C4	C4	C4
DC Connector	MC4 (4~6 mm^2)	MC4 (4~6 mm^2)	MC4 (4~6 mm^2)
AC Connector	OT/DT terminal (Max. 16 mm^2)	OT/DT terminal (Max. 25 mm^2)	OT/DT terminal (Max. 16mm^2)
Environmental Category	4K4H	4K4H	4K4H
Pollution Degree	III	III	III

Technical Data	GW15K-SDT-30	GW17K-SDT-30	GW20K-SDT-30
Overvoltage Category	DC II / AC III	DC II / AC III	DC II / AC III
Protective Class	I	I	I
The Decisive Voltage Class (DVC)	PV：C AC：C Com：A	PV：C AC：C Com：A	PV：C AC：C Com：A
Active Anti-islanding Method	AFDPF + AQDPF *4	AFDPF + AQDPF *4	AFDPF + AQDPF *4
Country of Manufacture	China	China	China

*1: When the input voltage is 1000V-1100V, the inverter will enter standby mode. The inverter will return to normal operation state when the voltage returns to the MPPT working voltage range.
*2: PV modules connected to the same MPPT need to be of the same type of PV panel. The voltage difference between the different MPPTs must be <160 V.
*3: Please refer to the user manual for the MPPT Voltage Range at Nominal Power.
*4: AFDPF: Active Frequency Drift with Positive Feedback, AQDPF: Active Q Drift with Positive Feedback.

Technical Data	GW20K-SDT-31	GW25K-SDT-C30	GW25K-SDT-30	GW25K-SDT-P31
Input				
Max. Input Power (kW)	30	37.5	37.5	37.5
Max. Input Voltage (V)*1	1100	1100	1100	1100
MPPT Operating Voltage Range (V)*2*3	140 ~ 1000	140 ~ 1000	140~950	140 ~ 1000

Technical Data	GW20K-SDT-31	GW25K-SDT-C30	GW25K-SDT-30	GW25K-SDT-P31
MPPT Voltage Range at Nominal Power (V)	400~850	550~850	400~850	450~850
Start-up Voltage (V)	160	160	160	160
Nominal Input Voltage (V)	600	600	600	600
Max. Input Current per MPPT (A)	40/40	42/22	40/40/40	40/40
Max. Short Circuit Current per MPPT (A)	52.5/52.5	52.5/27.5	50/50/50	52.5/52.5
Max. Backfeed Current to The Array (A)	0	0	0	0
Number of MPP Trackers	2	2	3	2
Number of Strings per MPPT	2/2	2/1	2	2/2
Output				
Nominal Output Power (kW)	20	25	25	25
Nominal Output Apparent Power (kVA)	20	25	25	25
Max. AC Active Power (kW)	20	27.5	25	27.5

Technical Data	GW20K-SDT-31	GW25K-SDT-C30	GW25K-SDT-30	GW25K-SDT-P31
Max. AC Apparent Power (kVA)	20	27.5	25	27.5
Nominal Power at 40℃ (kW)	22	25	25	25
Max. Power at 40℃ (Including AC Overload) (kW)	22	25	25	25
Nominal Output Voltage (V)	220/380,230/400,240/415, 3L/N/PE or 3L/PE	220/380,230/400,240/415, 3L/N/PE or 3L/PE	220/380, 230/400, 240/415, 3L/N/PE or 3L/PE	220/380,230/400,240/415, 3L/N/PE or 3L/PE
Output Voltage Range (V)	180~280 (according to local standard)	180~280 (according to local standard)	180 ~ 260 (According to local standard)	180~280 (according to local standard)
Nominal AC Grid Frequency (Hz)	50/60	50/60	50/60	50/60
AC Grid Frequency Range (Hz)	45~55 / 55~65	45~55 / 55~65	45~55 / 55~65	45~55 / 55~65
Max. Output Current (A)	30.3	41.7	37.9	37.9
Max. Output Fault Current (Peak and Duration) (A/μs)	73 ,6.5μs	95 ,6.5μs	126 ,6.5μs	95 ,6.5μs
Inrush Current (Peak and Duration) (A/μs)	30.2 ,50μs	29.4 ,50μs	48.12 ,50μs	29.4 ,50μs
Nominal Output Current (A)	30.3	36.3	37.9	37.9

Technical Data	GW20K-SDT-31	GW25K-SDT-C30	GW25K-SDT-30	GW25K-SDT-P31
Power Factor	~1 (Adjustable from 0.8 leading to 0.8 lagging)	~1 (Adjustable from 0.8 leading to 0.8 lagging)	~1 (Adjustable from 0.8 leading to 0.8 lagging)	~1 (Adjustable from 0.8 leading to 0.8 lagging)
Max. Total Harmonic Distortion	<3%	<3%	<3%	<3%
Maximum Output Overcurrent Protection (A)	73	95	126	95
Efficiency				
Max. Efficiency	98.5%	98.6%	98.7%	98.5%
European Efficiency	97.9%	98.2%	98.3%	97.9%
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
Anti-islanding Protection	Integrated	Integrated	Integrated	Integrated
AC Overcurrent Protection	Integrated	Integrated	Integrated	Integrated

Technical Data	GW20K-SDT-31	GW25K-SDT-C30	GW25K-SDT-30	GW25K-SDT-P31
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 III (Type II Optional)	Type III (Type II Optional)	Type II	Type III (Type II Optional)
AC Surge Protection	Type III (Type II Optional)	Type III (Type II Optional)	Type II	Type III (Type II Optional)
AFCI	Optional	Optional	Optional	Optional
Rapid Shutdown	Optional	Optional	Optional	Optional
Remote Shutdown	Integrated	Integrated	Integrated	Integrated
PID Recovery	Optional	Optional	Optional	Optional
Power Supply at Night	Optional	Optional	Optional	Optional
General Data				
Operating Temperature Range (℃)	-30~+60	-30~+60	-30~+60	-30~+60
Derating temperature (℃)	45	45	45	45
Storage Temperature (℃)	-40~+70	-40~+70	-40~+70	-40~+70
Relative Humidity	0~100%	0~100%	0~100%	0~100%
Max. Operating Altitude (m)	4000	4000	4000	4000

Technical Data	GW20K-SDT-31	GW25K-SDT-C30	GW25K-SDT-30	GW25K-SDT-P31
Cooling Method	Smart Fan Cooling	Smart Fan Cooling	Smart Fan Cooling	Smart Fan Cooling
User Interface	LED, LCD (Optional), WLAN+APP	LED, LCD (Optional), WLAN+APP	LED, LCD (Optional), WLAN+APP	LED, LCD (Optional), WLAN+APP
Communication	RS485, WiFi+LAN+Bluetooth, 4G+Bluetooth (Optional)	RS485, WiFi+LAN+Bluetooth, 4G+Bluetooth (Optional)	RS485, WiFi+LAN+Bluetooth, 4G+Bluetooth (Optional)	RS485, WiFi+LAN+Bluetooth, 4G+Bluetooth (Optional)
Communication Protocols	Modbus RTU, Modbus TCP	Modbus-RTU (SunSpec Compliant), Modbus-TCP	Modbus RTU, Modbus TCP	Modbus RTU, Modbus TCP
Weight (kg)	16.6	20.8	30.0	17.7
Dimension (W×H×D mm)	530*413*221	530*413*227	585×483×230	530*413*221
Noise Emission (dB)	< 45	< 45	< 45	< 45
Topology	Non-isolated	Non-isolated	Non-isolated	Non-isolated
Self-consumption at Night (W)	<1	<1	<1	<1
Ingress Protection Rating	IP66	IP66	IP66	IP66
Anti-corrosion Class	C4	C4	C4	C4
DC Connector	MC4 (4~6 mm^2)	MC4 (4~6 mm^2)	MC4 (4~6 mm^2)	MC4 (4~6 mm^2)

Technical Data	GW20K-SDT-31	GW25K-SDT-C30	GW25K-SDT-30	GW25K-SDT-P31
AC Connector	OT/DT terminal (Max. 16mm²)	OT/DT terminal (Max. 16 mm²)	OT terminal (Max. 25mm²)	OT/DT terminal (Max. 16mm²)
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
The Decisive Voltage Class (DVC)	PV：C AC：C Com：A	PV：C AC：C Com：A	PV：C AC：C Com：A	PV：C AC：C Com：A
Active Anti-islanding Method	AFDPF + AQDPF *4	AFDPF + AQDPF *4	AFDPF + AQDPF *4	AFDPF + AQDPF *4
Country of Manufacture	China	China	China	China

*1: When the input voltage is 1000V-1100V, the inverter will enter standby mode. The inverter will return to normal operation state when the voltage returns to the MPPT working voltage range.
*2: PV modules connected to the same MPPT need to be of the same type of PV panel. The voltage difference between the different MPPTs must be <160 V.
*3: Please refer to the user manual for the MPPT Voltage Range at Nominal Power.
*4: AFDPF: Active Frequency Drift with Positive Feedback, AQDPF: Active Q Drift with Positive Feedback.

Technical Data	GW30K-SDT-C30	GW30K-SDT-30	GW33K-SDT-C30	GW36K-SDT-C30
Input				
Max. Input Power (kW)	45	45	49.5	54
Max. Input Voltage (V)*1	1100	1100	1100	1100
MPPT Operating Voltage Range (V)*2*3	140 ~ 1000	140~950	140~1000	140~1000
MPPT Voltage Range at Nominal Power (V)	550~850	400~850	480~850	480~850
Start-up Voltage (V)	160	160	160	160
Nominal Input Voltage (V)	600	600	600	600
Max. Input Current per MPPT (A)	42/32	40/40/40	42/42/32	42/42/32
Max. Short Circuit Current per MPPT (A)	52.5/40	50/50/50	52.5/52.5/40	52.5/52.5/40
Max. Backfeed Current to The Array (A)	0	0	0	0
Number of MPP Trackers	2	3	3	3
Number of Strings per MPPT	2	2	2	2

Technical Data	GW30K-SDT-C30	GW30K-SDT-30	GW33K-SDT-C30	GW36K-SDT-C30
Output				
Nominal Output Power (kW)	30	30	33	36
Nominal Output Apparent Power (kVA)	30	30	33	36
Max. AC Active Power (kW)	33	30	33	36
Max. AC Apparent Power (kVA)	33	30	33	36
Nominal Power at 40℃ (kW)	30	30	33	36
Max. Power at 40℃ (Including AC Overload) (kW)	30	30	33	36
Nominal Output Voltage (V)	220/380,230/400,240/415, 3L/N/PE or 3L/PE	220/380, 230/400, 240/415, 3L/N/PE or 3L/PE	220/380, 230/400, 240/415, 3L/N/PE or 3L/PE	220/380, 230/400, 240/415, 3L/N/PE or 3L/PE
Output Voltage Range (V)	180~280 (according to local standard)	180 ~ 260 (According to local standard)	180~280 (according to local standard)	180~280 (according to local standard)
Nominal AC Grid Frequency (Hz)	50/60	50/60	50	50
AC Grid Frequency Range (Hz)	45~55 / 55~65	45~55 / 55~65	45~55	45~55

Technical Data	GW30K-SDT-C30	GW30K-SDT-30	GW33K-SDT-C30	GW36K-SDT-C30
Max. Output Current (A)	50	45.5	50.1	54.6
Max. Output Fault Current (Peak and Duration) (A/μs)	115 ,6.5μs	126 ,6.5us	126 ,6.5μs	157 ,6.5μs
Inrush Current (Peak and Duration) (A/μs)	29.4 ,50μs	48.12 ,50us	60 ,500μs	60 ,500μs
Nominal Output Current (A)	45.5 @380V 43.5 @400V 41.7 @415V	45.5 @380V 43.5 @400V 41.7 @415V	50.1 @380V 47.9 @400V 45.9 @415V	54.6 @380V 52.3 @400V 50.1 @415V
Power Factor	~1 (Adjustable from 0.8 leading to 0.8 lagging)	~1 (Adjustable from 0.8 leading to 0.8 lagging)	~1 (Adjustable from 0.8 leading to 0.8 lagging)	~1 (Adjustable from 0.8 leading to 0.8 lagging)
Max. Total Harmonic Distortion	<3%	<3%	<3%	<3%
Maximum Output Overcurrent Protection (A)	115	126	126	157
Efficiency				
Max. Efficiency	98.6%	98.7%	98.6%	98.6%
European Efficiency	98.3%	98.3%	97.8%	97.8%
Protection				
PV String Current Monitoring	Integrated	Integrated	Integrated	Integrated

Technical Data	GW30K-SDT-C30	GW30K-SDT-30	GW33K-SDT-C30	GW36K-SDT-C30
PV Insulation Resistance Detection	Integrated	Integrated	Integrated	Integrated
Residual Current Monitoring	Integrated	Integrated	Integrated	Integrated
PV 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
DC Switch	Integrated	Integrated	Integrated	Integrated
DC Surge Protection	Type III (Type II Optional)	Type II	Type III（Type II Optional）	Type III（Type II Optional）
AC Surge Protection	Type III (Type II Optional)	Type II	Type III（Type II Optional）	Type III（Type II Optional）
AFCI	Optional	Optional	Optional	Optional
Rapid Shutdown	Optional	Optional	Optional	Optional
Remote Shutdown	Integrated	Integrated	Integrated	Integrated
PID Recovery	Optional	Optional	Optional	Optional
Power Supply at Night	Optional	Optional	Optional	Optional

Technical Data	GW30K-SDT-C30	GW30K-SDT-30	GW33K-SDT-C30	GW36K-SDT-C30
General Data				
Operating Temperature Range (℃)	-30~+60	-30~+60	-30~+60	-30~+60
Derating temperature (℃)	45	45	45	45
Storage Temperature (℃)	-40~+70	-40~+70	-40~+70	-40~+70
Relative Humidity	0~100%	0~100%	0~100%	0~100%
Max. Operating Altitude (m)	4000	4000	4000	4000
Cooling Method	Smart Fan Cooling	Smart Fan Cooling	Smart Fan Cooling	Smart Fan Cooling
User Interface	LED, LCD (Optional), WLAN+APP	LED, LCD (Optional), WLAN+APP	LED, LCD (Optional), WLAN+APP	LED, LCD (Optional), WLAN+APP
Communication	RS485, WiFi+LAN+Bluetooth, 4G+Bluetooth (Optional)	RS485, WiFi+LAN+Bluetooth, 4G+Bluetooth (Optional)	RS485, WiFi+LAN+Bluetooth, 4G+Bluetooth (Optional)	RS485, WiFi+LAN+Bluetooth, 4G+Bluetooth (Optional)
Communication Protocols	Modbus-RTU (SunSpec Compliant), Modbus TCP	Modbus RTU, Modbus TCP	Modbus RTU, Modbus TCP	Modbus RTU, Modbus TCP
Weight (kg)	21.1	30.0	28.0	28.0
Dimension (W×H×D mm)	530*413*227	585*483*230	585*483*230	585*483*230

Technical Data	GW30K-SDT-C30	GW30K-SDT-30	GW33K-SDT-C30	GW36K-SDT-C30
Noise Emission (dB)	45	45	45	45
Topology	Non-isolated	Non-isolated	Non-isolated	Non-isolated
Self-consumption at Night (W)	< 1	< 1	< 1	< 1
Ingress Protection Rating	IP66	IP66	IP66	IP66
Anti-corrosion Class	C4	C4	C4	C4
DC Connector	MC4 (4~6 mm^2)	MC4 (Max. 4 ~ 6 mm^2)	MC4 (Max. 4 ~ 6 mm^2)	MC4 (Max. 4 ~ 6 mm^2)
AC Connector	OT/DT terminal (Max. 25 mm^2)	OT/DT terminal (Max. 25mm^2)	OT/DT terminal (Max. 35mm^2)	OT/DT terminal (Max. 35mm^2)
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
The Decisive Voltage Class (DVC)	PV：C AC：C Com：A	PV：C AC：C Com：A	PV：C AC：C Com：A	PV：C AC：C Com：A
Active Anti-islanding Method	AFDPF + AQDPF*4	AFDPF + AQDPF*4	AFDPF + AQDPF*4	AFDPF + AQDPF*4

Technical Data	GW30K-SDT-C30	GW30K-SDT-30	GW33K-SDT-C30	GW36K-SDT-C30
Country of Manufacture	China	China	China	China

*1: When the input voltage is 1000V-1100V, the inverter will enter standby mode. The inverter will return to normal operation state when the voltage returns to the MPPT working voltage range.
*2: PV modules connected to the same MPPT need to be of the same type of PV panel. The voltage difference between the different MPPTs must be <160 V.
*3: Please refer to the user manual for the MPPT Voltage Range at Nominal Power.
*4: AFDPF: Active Frequency Drift with Positive Feedback, AQDPF: Active Q Drift with Positive Feedback.

Technical Data	GW40K-SDT-C30	GW40K-SDT-P30	GW50K-SDT-C30
Input			
Max. Input Power (kW)	60	60	75
Max. Input Voltage (V)*1	1100	1100	1100
MPPT Operating Voltage Range (V)*2*3	140~1000	140~1000	140 ~ 1000
MPPT Voltage Range at Nominal Power (V)	480~850	480~850	450~850
Start-up Voltage (V)	160	160	160
Nominal Input Voltage (V)	600	600	600
Max. Input Current per MPPT (A)	42/42/32	40	40
Max. Short Circuit Current per MPPT (A)	52.5/52.5/40	56	52

Technical Data	GW40K-SDT-C30	GW40K-SDT-P30	GW50K-SDT-C30
Max. Backfeed Current to The Array (A)	0	0	0
Number of MPP Trackers	3	4	4
Number of Strings per MPPT	2	2	2
Output			
Nominal Output Power (kW)	40	40	50
Nominal Output Apparent Power (kVA)	40	40	50
Max. AC Active Power (kW)	40	40	50
Max. AC Apparent Power (kVA)	40	40	50
Nominal Power at 40℃ (kW)	40	40	50
Max. Power at 40℃ (Including AC Overload) (kW)	40	40	50
Nominal Output Voltage (V)	220/380, 230/400, 240/415, 3L/N/PE or 3L/PE	220/380,230/400, 240/415, 3L/N/PE or 3L/PE	220/380,230/400, 240/415, 3L/N/PE or 3L/PE
Output Voltage Range (V)	180~280 (according to local standard)	180~280 (according to local standard)	180~280 (according to local standard)

Technical Data	GW40K-SDT-C30	GW40K-SDT-P30	GW50K-SDT-C30
Nominal AC Grid Frequency (Hz)	50	50/60	50/60
AC Grid Frequency Range (Hz)	45~55	45~55 / 55~65	45~55 / 55~65
Max. Output Current (A)	60.7	60.6	75.7
Max. Output Fault Current (Peak and Duration) (A/μs)	157 ,6.5μs	157 ,6.5μs	230 ,4.36μs
Inrush Current (Peak and Duration) (A/μs)	60 ,500μs	60 ,500μs	26.4 ,8.5ms)
Nominal Output Current (A)	60.7 @380V 58.0 @400V 55.6 @415V	60.7 @380V 58.0 @400V 55.6 @415V	75.7 @380V 72.4 @400V 69.4 @415V
Power Factor	~1 (Adjustable from 0.8 leading to 0.8 lagging)	~1 (Adjustable from 0.8 leading to 0.8 lagging)	~1 (Adjustable from 0.8 leading to 0.8 lagging)
Max. Total Harmonic Distortion	<3%	<3%	<3%
Maximum Output Overcurrent Protection (A)	157	157	196.6
Efficiency			
Max. Efficiency	98.6%	98.6%	98.7%
European Efficiency	97.8%	97.7%	98.0%
Protection			

Technical Data	GW40K-SDT-C30	GW40K-SDT-P30	GW50K-SDT-C30
PV String Current Monitoring	Integrated	Integrated	Integrated
PV Insulation Resistance Detection	Integrated	Integrated	Integrated
Residual Current Monitoring	Integrated	Integrated	Integrated
PV Reverse Polarity Protection	Integrated	Integrated	Integrated
Anti-islanding Protection	Integrated	Integrated	Integrated
AC Overcurrent Protection	Integrated	Integrated	Integrated
AC Short Circuit Protection	Integrated	Integrated	Integrated
AC Overvoltage Protection	Integrated	Integrated	Integrated
DC Switch	Integrated	Integrated	Integrated
DC Surge Protection	Type III（Type II Optional）	Type II	Type II
AC Surge Protection	Type III（Type II Optional）	Type II	Type II
AFCI	Optional	Optional	Optional
Rapid Shutdown	Optional	Optional	Optional
Remote Shutdown	Integrated	Integrated	Integrated
PID Recovery	Optional	Optional	Optional
Power Supply at Night	Optional	Optional	Optional

Technical Data	GW40K-SDT-C30	GW40K-SDT-P30	GW50K-SDT-C30
General Data			
Operating Temperature Range (℃)	-30~+60	-30~+60	-30~+60
Derating temperature (℃)	45	45	45
Storage Temperature (℃)	-40~+70	-40~+70	-40~+70
Relative Humidity	0~100%	0~100%	0~100%
Max. Operating Altitude (m)	4000	4000	4000
Cooling Method	Smart Fan Cooling	Smart Fan Cooling	Smart Fan Cooling
User Interface	LED, LCD (Optional), WLAN+APP	LED, LCD (Optional), WLAN+APP	LED, LCD (Optional), WiFi+APP
Communication	RS485, WiFi+LAN+Bluetooth, 4G+Bluetooth(Optional)	RS485, WiFi+LAN+Bluetooth, 4G+Bluetooth(Optional)	RS485, WiFi+LAN+Bluetooth, 4G+Bluetooth(Optional)
Communication Protocols	Modbus RTU, Modbus TCP	Modbus RTU, Modbus TCP	Modbus-RTU (SunSpec Compliant), Modbus-TCP
Weight (kg)	28.0	31.0	33.0
Dimension (W×H×D mm)	585*483*230	585*483*237	646*484*230
Noise Emission (dB)	45	45	50

Technical Data	GW40K-SDT-C30	GW40K-SDT-P30	GW50K-SDT-C30
Topology	Non-isolated	Non-isolated	Non-isolated
Self-consumption at Night (W)	< 1	<1	<1
Ingress Protection Rating	IP66	IP66	IP66
Anti-corrosion Class	C4	C4	C4
DC Connector	MC4 (Max. 4 ~ 6 mm²)	MC4 (4~6 mm²)	MC4 (4 ~ 6mm²)
AC Connector	OT/DT terminal (Max. 35mm²)	OT/DT terminal (Max.35mm²)	OT/DT terminal (Max. 70 mm²)
Environmental Category	4K4H	4K4H	4K4H
Pollution Degree	III	III	III
Overvoltage Category	DC II / AC III	DC II / AC III	DC II / AC III
Protective Class	I	I	I
The Decisive Voltage Class (DVC)	PV：C AC：C Com：A	PV：C AC：C Com：A	PV：C AC：C Com：A
Active Anti-islanding Method	AFDPF + AQDPF*4	AFDPF + AQDPF*4	AFDPF + AQDPF*4
Country of Manufacture	China	China	China

*1: When the input voltage is 1000V-1100V, the inverter will enter standby mode. The inverter will return to normal operation state when the voltage returns to the MPPT working voltage range.
*2: PV modules connected to the same MPPT need to be of the same type of PV

panel. The voltage difference between the different MPPTs must be <160 V.
*3: Please refer to the user manual for the MPPT Voltage Range at Nominal Power.
*4: AFDPF: Active Frequency Drift with Positive Feedback, AQDPF: Active Q Drift with Positive Feedback.

Technical Data	GW12KLV-SDT-C31	GW12KLV-SDT-C30	GW17KLV-SDT-C30
Input			
Max. Input Power (kW)	18	18	25.5
Max. Input Voltage (V)*1	850	850	850
MPPT Operating Voltage Range (V)*2*3	140-700	140-700	140-700
MPPT Voltage Range at Nominal Power (V)	260-600	260-600	260-500
Start-up Voltage (V)	160	160	160
Nominal Input Voltage (V)	420	420	420
Max. Input Current per MPPT (A)	40/40	32/22	42/32
Max. Short Circuit Current per MPPT (A)	52.5/52.5	40/27.5	52.5/40
Number of MPP Trackers	2	2	2
Number of Strings per MPPT	45690	45689	2
Output			

Technical Data	GW12KLV-SDT-C31	GW12KLV-SDT-C30	GW17KLV-SDT-C30
Nominal Output Power (kW)	12	12	17
Max. AC Active Power (kW)	13.2	13.2	18.7
Max. AC Apparent Power (kVA)	13.2	13.2	18.7
Nominal Power at 40℃ (kW)	12	12	17
Max. Power at 40℃ (Including AC Overload) (kW)	12	12	17
Nominal Output Voltage (V)	127/220, 3L/N/PE or 3L/PE	127/220, 3L/N/PE or 3L/PE	127/220, 3L/N/PE or 3L/PE
Output Voltage Range (V)	114-139(according to local standard)	114-139(according to local standard)	114-139(according to local standard)
Nominal AC Grid Frequency (Hz)	60	60	60
AC Grid Frequency Range (Hz)	59.5-60.2	59.5-60.2	59.5-60.2
Max. Output Current (A)	31.5	33.3	50
Nominal Output Current (A)	31.5	33.3	50

Technical Data	GW12KLV-SDT-C31	GW12KLV-SDT-C30	GW17KLV-SDT-C30
Power Factor	~1 (Adjustable from 0.8 leading to 0.8 lagging)	~1 (Adjustable from 0.8 leading to 0.8 lagging)	~1 (Adjustable from 0.8 leading to 0.8 lagging)
Max. Total Harmonic Distortion	<3%	<3%	<3%
Efficiency			
Max. Efficiency	98.2%	98.2%	97.5%
European Efficiency	97.2%	97.2%	96.9%
Protection			
PV String Current Monitoring	Integrated	Integrated	Integrated
PV Insulation Resistance Detection	Integrated	Integrated	Integrated
Residual Current Monitoring	Integrated	Integrated	Integrated
Anti-islanding Protection	Integrated	Integrated	Integrated
AC Overcurrent Protection	Integrated	Integrated	Integrated
AC Short Circuit Protection	Integrated	Integrated	Integrated
AC Overvoltage Protection	Integrated	Integrated	Integrated
DC Switch	Integrated	Integrated	Integrated

Technical Data	GW12KLV-SDT-C31	GW12KLV-SDT-C30	GW17KLV-SDT-C30
DC Surge Protection	Type II	Type II	Type II
AC Surge Protection	Type III (Type II Optional)	Type III (Type II Optional)	Type III (Type II Optional)
AFCI	Optional	Optional	Optional
Rapid Shutdown	Optional	Optional	Optional
Remote Shutdown	Integrated	Integrated	Integrated
PID Recovery	Optional	Optional	Optional
Power Supply at Night	Optional	Optional	Optional
General Data			
Operating Temperature Range (℃)	-30~+60	-30~+60	-30~+60
Relative Humidity	0~100%	0~100%	0~100%
Cooling Method	Smart Fan Cooling	Smart Fan Cooling	Smart Fan Cooling
User Interface	LED, LCD (Optional), WLAN+APP	LED, LCD (Optional), WLAN+APP	LED, LCD (Optional), WLAN+APP
Communication	RS485, WiFi+LAN+Bluetooth, 4G+Bluetooth(Optional)	RS485, WiFi+LAN+Bluetooth, 4G+Bluetooth(Optional)	RS485, WiFi+LAN+Bluetooth, 4G+Bluetooth(Optional)
Communication Protocols	Modbus RTU, Modbus TCP	Modbus RTU, Modbus TCP	Modbus RTU, Modbus TCP
Weight (kg)	16.6	18.8	21.1

Technical Data	GW12KLV-SDT-C31	GW12KLV-SDT-C30	GW17KLV-SDT-C30
Dimension (W×H×D mm)	530×413×221	530×413×227	530×413×227
Noise Emission (dB)	< 45	< 45	< 45
Topology	Non-isolated	Non-isolated	Non-isolated
Self-consumption at Night (W)	<1	<1	<1
Ingress Protection Rating	IP66	IP66	IP66
Anti-corrosion Class	C4	C4	C4
DC Connector	MC4 (4~6 mm^2)	MC4 (4~6 mm^2)	MC4 (4~6 mm^2)
AC Connector	OT/DT terminal (Max. 16 mm^2)	OT/DT terminal (Max. 16mm^2)	OT/DT terminal (Max. 16 mm^2)
Environmental Category	4K4H	4K4H	4K4H
Pollution Degree	III	III	III
Overvoltage Category	DC II / AC III	DC II / AC III	DC II / AC III
Protective Class	I	I	I
The Decisive Voltage Class (DVC)	PV：C AC：C Com：A	PV：C AC：C Com：A	PV：C AC：C Com：A
Active Anti-islanding Method	AFDPF + AQDPF*4	AFDPF + AQDPF*4	AFDPF + AQDPF*4
Country of Manufacture	China	China	China

*1: When the input voltage is 700V-850V, the inverter will enter standby mode. The inverter will return to normal operation state when the voltage returns to the MPPT working voltage range.
*2: PV modules connected to the same MPPT need to be of the same type of PV panel. The voltage difference between the different MPPTs must be <160 V.
*3: Please refer to the user manual for the MPPT Voltage Range at Nominal Power.
*4: AFDPF: Active Frequency Drift with Positive Feedback, AQDPF: Active Q Drift with Positive Feedback.

Technical Data	**GW23KLV-SDT-BR30**	**GW30KLV-SDT-C30**
Input		
Max. Input Power (kW)	34.5	45
Max. Input Voltage (V)*1	850	850
MPPT Operating Voltage Range (V)*2*3	140~700	140 ~ 700
MPPT Voltage Range at Nominal Power (V)	350~600	350~600
Start-up Voltage (V)	160	160
Nominal Input Voltage (V)	420	420
Max. Input Current per MPPT (A)	42/42/32	40/40/40/40
Max. Short Circuit Current per MPPT (A)	52.5/52.5/40	52/52/52/52
Number of MPP Trackers	3	4

Technical Data	GW23KLV-SDT-BR30	GW30KLV-SDT-C30
Number of Strings per MPPT	2	2
Output		
Nominal Output Power (kW)	23	30
Max. AC Active Power (kW)	25.3	33
Max. AC Apparent Power (kVA)	25.3	33
Nominal Power at 40℃ (kW)	23	30
Max. Power at 40℃ (Including AC Overload) (kW)	23	30
Nominal Output Voltage (V)	127/220，3L/N/PE or 3L/PE	127/220，3L/N/PE or 3L/PE
Output Voltage Range (V)	114~139(according to local standard)	114~139 (according to local standard)
Nominal AC Grid Frequency (Hz)	60	60
AC Grid Frequency Range (Hz)	59.5~60.2	59.5~60.2
Max. Output Current (A)	60.4	78.8
Nominal Output Current (A)	60.4	78.8

Technical Data	GW23KLV-SDT-BR30	GW30KLV-SDT-C30
Power Factor	~1 (Adjustable from 0.8 leading to 0.8 lagging)	~1 (Adjustable from 0.8 leading to 0.8 lagging)
Max. Total Harmonic Distortion	<3%	<3%
Efficiency		
Max. Efficiency	97.8%	98.0%
European Efficiency	97.0%	97.1%
Protection		
PV String Current Monitoring	Integrated	Integrated
PV Insulation Resistance Detection	Integrated	Integrated
Residual Current Monitoring	Integrated	Integrated
Anti-islanding Protection	Integrated	Integrated
AC Overcurrent Protection	Integrated	Integrated
AC Short Circuit Protection	Integrated	Integrated
AC Overvoltage Protection	Integrated	Integrated
DC Switch	Integrated	Integrated
DC Surge Protection	Type II	Type II

Technical Data	GW23KLV-SDT-BR30	GW30KLV-SDT-C30
AC Surge Protection	Type III（Type II Optional）	Type II
AFCI	Optional	Optional
Rapid Shutdown	Optional	Optional
Remote Shutdown	Integrated	Integrated
PID Recovery	Optional	Optional
Power Supply at Night	Optional	Optional
General Data		
Operating Temperature Range (℃)	-30 ~ 60	-30 ~ 60
Relative Humidity	0 ~ 100%	0 ~ 100%
Cooling Method	Smart Fan Cooling	Smart Fan Cooling
User Interface	LED, LCD (Optional)，WLAN+APP	LED, LCD (Optional)，WLAN+APP
Communication	RS485, WiFi+LAN+Bluetooth, 4G+Bluetooth (Optional)	RS485, WiFi+LAN+Bluetooth, 4G+Bluetooth (Optional)
Communication Protocols	Modbus RTU, Modbus TCP	Modbus RTU, Modbus TCP
Weight (kg)	28.0	33.0
Dimension (W×H×D mm)	585×483×230	646×484×230
Noise Emission (dB)	< 45	< 50

Technical Data	GW23KLV-SDT-BR30	GW30KLV-SDT-C30
Topology	Non-isolated	Non-isolated
Self-consumption at Night (W)	<1	<1
Ingress Protection Rating	IP66	IP66
Anti-corrosion Class	C4	C4
DC Connector	MC4 (4~6 mm^2)	MC4 (4~6 mm^2)
AC Connector	OT/DT terminal（Max 35mm^2)	OT/DT terminal (Max. 70 mm^2)
Environmental Category	4K4H	4K4H
Pollution Degree	III	III
Overvoltage Category	DC II / AC III	DC II / AC III
Protective Class	I	I
The Decisive Voltage Class (DVC)	PV：C AC：C Com：A	PV：C AC：C Com：A
Active Anti-islanding Method	AFDPF + AQDPF*4	AFDPF + AQDPF*4
Country of Manufacture	China	China

*1: When the input voltage is 700V-850V, the inverter will enter standby mode. The inverter will return to normal operation state when the voltage returns to the MPPT working voltage range.
*2: PV modules connected to the same MPPT need to be of the same type of PV panel. The voltage difference between the different MPPTs must be <160 V.
*3: Please refer to the user manual for the MPPT Voltage Range at Nominal Power.

*4: AFDPF: Active Frequency Drift with Positive Feedback, AQDPF: Active Q Drift with Positive Feedback.

Technical Data	GW37K5-SDT-BR30
Input	
Max. Input Power (kW)	67.5
Max. Input Voltage (V)*1	1100
MPPT Operating Voltage Range (V)*2*3	140~1000
MPPT Voltage Range at Nominal Power (V)	480~850
Start-up Voltage (V)	160
Nominal Input Voltage (V)	600
Max. Input Current per MPPT (A)	42/42/32
Max. Short Circuit Current per MPPT (A)	52.5/52.5/40
Max. Backfeed Current to The Array (A)	0
Number of MPP Trackers	3
Number of Strings per MPPT	2
Output	
Nominal Output Power (kW)	37.5
Nominal Output Apparent Power (kVA)	37.5

Technical Data	GW37K5-SDT-BR30
Max. AC Active Power (kW)	37.5
Max. AC Apparent Power (kVA)	37.5
Nominal Power at 40℃ (kW)	37.5
Max. Power at 40℃ (Including AC Overload) (kW)	37.5
Nominal Output Voltage (V)	220/380, 230/400, 240/415, 3L/N/PE or 3L/PE
Output Voltage Range (V)	180~280 (according to local standard)
Nominal AC Grid Frequency (Hz)	60
AC Grid Frequency Range (Hz)	59.5~60.2
Max. Output Current (A)	56.9
Max. Output Fault Current (Peak and Duration) (A/μs)	157 ,6.5μs
Inrush Current (Peak and Duration) (A/μs)	60 ,500μs
Nominal Output Current (A)	56.9 @380Vac 54.4 @400Vac 52.1 @415Vac
Power Factor	~1 (Adjustable from 0.8 leading to 0.8 lagging)

Technical Data	GW37K5-SDT-BR30
Max. Total Harmonic Distortion	<3%
Maximum Output Overcurrent Protection (A)	157
Efficiency	
Max. Efficiency	98.6%
European Efficiency	97.8%
Protection	
PV String Current Monitoring	Integrated
PV Insulation Resistance Detection	Integrated
Residual Current Monitoring	Integrated
PV Reverse Polarity Protection	Integrated
Anti-islanding Protection	Integrated
AC Overcurrent Protection	Integrated
AC Short Circuit Protection	Integrated
AC Overvoltage Protection	Integrated
DC Switch	Integrated
DC Surge Protection	Type II
AC Surge Protection	Type III (Type II Optional)

Technical Data	GW37K5-SDT-BR30
AFCI	Integrated
Rapid Shutdown	Optional
Remote Shutdown	Integrated
PID Recovery	Optional
Power Supply at Night	Optional
General Data	
Operating Temperature Range (℃)	-30 ~ 60
Derating temperature (℃)	45
Storage Temperature (℃)	-40 ~ 70
Relative Humidity	0 ~ 100%
Max. Operating Altitude (m)	4000
Cooling Method	Smart Fan Cooling
User Interface	LED, LCD (Optional), WLAN+APP
Communication	RS485, WiFi+Bluetooth, WiFi+LAN+Bluetooth (Optional)
Communication Protocols	Modbus RTU, Modbus TCP
Weight (kg)	28.0

Technical Data	GW37K5-SDT-BR30
Dimension (W×H×D mm)	585*483*230
Noise Emission (dB)	< 45
Topology	Non-isolated
Self-consumption at Night (W)	< 1
Ingress Protection Rating	IP66
Anti-corrosion Class	C4
DC Connector	MC4 (4~6 mm^2)
AC Connector	OT terminal (Max. 35 mm^2)
Environmental Category	4K4H
Pollution Degree	III
Overvoltage Category	DC II / AC III
Protective Class	I
The Decisive Voltage Class (DVC)	PV：C AC：C Com：A
Active Anti-islanding Method	AFDPF + AQDPF *4
Country of Manufacture	China

*1: When the input voltage is 1000V-1100V, the inverter will enter standby mode. The inverter will return to normal operation state when the voltage returns to the MPPT working voltage range.

*2: PV modules connected to the same MPPT need to be of the same type of PV

panel. The voltage difference between the different MPPTs must be <160 V.
*3: Please refer to the user manual for the MPPT Voltage Range at Nominal Power.
*4: AFDPF: Active Frequency Drift with Positive Feedback, AQDPF: Active Q Drift with Positive Feedback.

Technical Data	GW5000-SDT-AU30	GW6000-SDT-AU30	GW8000-SDT-AU30
Input			
Max. Input Power (kW)	7.5	9	12
Max. Input Voltage (V)*1	1100	1100	1100
MPPT Operating Voltage Range (V)*2*3	140~950	140~950	140~950
MPPT Voltage Range at Nominal Power (V)*4	150~850	150~850	150~850
Start-up Voltage (V)	160	160	160
Nominal Input Voltage (V)	600	600	600
Max. Input Current per MPPT (A)	16/16/16	16/16/16	32/16/16
Max. Short Circuit Current per MPPT (A)	23/23/23	23/23/23	45/23/23
Max. Backfeed Current to The Array (A)	0	0	0
Number of MPP Trackers	3	3	3
Number of Strings per MPPT	1	1	37257
Output			

Technical Data	GW5000-SDT-AU30	GW6000-SDT-AU30	GW8000-SDT-AU30
Nominal Output Power (W)	5	6	8
Nominal Output Apparent Power (VA)	5	6	8
Max. AC Active Power (W)	5	6	8
Max. AC Apparent Power (VA)	5	6	8
Nominal Power at 40℃ (W)	5	6	8
Max. Power at 40℃ (Including AC Overload) (W)	5	6	8
Nominal Output Voltage (V)	230/400, 3L/N/PE or 3L/PE	230/400, 3L/N/PE or 3L/PE	230/400, 3L/N/PE or 3L/PE
Output Voltage Range (V)	180 ~ 260 (According to local standard)	180 ~ 260 (According to local standard)	180 ~ 260 (According to local standard)
Nominal AC Grid Frequency (Hz)	50/60	50/60	50/60
AC Grid Frequency Range (Hz)	45~55 / 55~65	45~55 / 55~65	45~55 / 55~65
Max. Output Current (A)	7.3	8.7	11.6
Max. Output Fault Current (Peak and Duration) (A)	26 @6.5us	26 @6.5us	37 @6.5us

Technical Data	GW5000-SDT-AU30	GW6000-SDT-AU30	GW8000-SDT-AU30
Inrush Current (Peak and Duration) (A)	19.3 @50us	19.3 @50us	28.1 @50us
Nominal Output Current (A)	7.3 @400Vac	8.7 @400Vac	11.6 @400Vac
Power Factor	~1 (Adjustable from 0.8 leading to 0.8 lagging)	~1 (Adjustable from 0.8 leading to 0.8 lagging)	~1 (Adjustable from 0.8 leading to 0.8 lagging)
Max. Total Harmonic Distortion	<3%	<3%	<3%
Maximum Output Overcurrent Protection (A)	26	26	37
Efficiency			
Max. Efficiency	98.5%	98.5%	98.5%
European Efficiency	97.8%	97.8%	97.9%
Protection			
PV String Current Monitoring	Integrated	Integrated	Integrated
PV Insulation Resistance Detection	Integrated	Integrated	Integrated
Residual Current Monitoring	Integrated	Integrated	Integrated
PV Reverse Polarity Protection	Integrated	Integrated	Integrated

Technical Data	GW5000-SDT-AU30	GW6000-SDT-AU30	GW8000-SDT-AU30
Anti-islanding Protection	Integrated	Integrated	Integrated
AC Overcurrent Protection	Integrated	Integrated	Integrated
AC Short Circuit Protection	Integrated	Integrated	Integrated
AC Overvoltage Protection	Integrated	Integrated	Integrated
DC Switch	Integrated	Integrated	Integrated
DC Surge Protection	Type II	Type II	Type II
AC Surge Protection	Type II	Type II	Type II
AFCI	Optional	Optional	Optional
Rapid Shutdown	Optional	Optional	Optional
Remote Shutdown	Integrated	Integrated	Integrated
PID Recovery	Optional	Optional	Optional
Power Supply at Night	Integrated	Integrated	Integrated
Shadow scanning	Integrated	Integrated	Integrated
General Data			
Operating Temperature Range (℃)	-30 ~ 60	-30 ~ 60	-30 ~ 60
Derating temperature (℃)	45	45	45

Technical Data	GW5000-SDT-AU30	GW6000-SDT-AU30	GW8000-SDT-AU30
Storage Temperature (℃)	-30 ~ 70	-30 ~ 70	-30 ~ 70
Relative Humidity	0 ~ 100%	0 ~ 100%	0 ~ 100%
Max. Operating Altitude (m)	3000	3000	3000
Cooling Method	Smart Fan Cooling	Smart Fan Cooling	Smart Fan Cooling
User Interface	LED, LCD (Optional), WLAN+APP	LED, LCD (Optional), WLAN+APP	LED, LCD (Optional), WLAN+APP
Communication	WiFi+Lan+Bluetooth or 4G+Bluetooth（optional）	WiFi+Lan+Bluetooth or 4G+Bluetooth（optional）	WiFi+Lan+Bluetooth or 4G+Bluetooth（optional）
Communication Protocols	Modbus RTU, Modbus TCP	Modbus RTU, Modbus TCP	Modbus RTU, Modbus TCP
Weight (kg)	＜20	＜20	＜20
Dimension (W×H×D mm)	530×413×221	530×413×221	530×413×221
Noise Emission (dB)	＜35	＜35	＜35
Topology	Non-isolated	Non-isolated	Non-isolated
Self-consumption at Night (W)	<1	<1	<1

Technical Data	GW5000-SDT-AU30	GW6000-SDT-AU30	GW8000-SDT-AU30
Ingress Protection Rating	IP66	IP66	IP66
Anti-corrosion Class	C4	C4	C4
DC Connector	MC4 (Max. 4 ~ 6 mm²)	MC4 (Max. 4 ~ 6 mm²)	MC4 (Max. 4 ~ 6 mm²)
AC Connector	OT terminal(Max.10 mm²)	OT terminal (Max. 10 mm²)	OT terminal (Max. 10 mm²)
Environmental Category	4K4H	4K4H	4K4H
Pollution Degree	III	III	III
Overvoltage Category	DC II / AC III	DC II / AC III	DC II / AC III
Protective Class	I	I	I
The Decisive Voltage Class (DVC)	PV：C AC：C Com：A	PV：C AC：C Com：A	PV：C AC：C Com：A
Active Anti-islanding Method	AFDPF + AQDPF *5	AFDPF + AQDPF *5	AFDPF + AQDPF *5
Country of Manufacture	China	China	China

*1: When the input voltage is 1000V-1100V, the inverter will enter standby mode. The inverter will return to normal operation state when the voltage returns to the MPPT working voltage range.
*2: PV modules connected to the same MPPT need to be of the same type of PV panel. The voltage difference between the different MPPTs must be <160 V.
*3: Please refer to the user manual for the MPPT Voltage Range at Nominal Power.
*4: The PV input voltage should be higher than the Max. MPPT Voltage at Nominal Power.

*5: AFDPF: Active Frequency Drift with Positive Feedback, AQDPF: Active Q Drift with Positive Feedback.

Technical Data	GW9990-SDT-AU30	GW15K-SDT-AU30	GW20K-SDT-AU30
Input			
Max. Input Power (kW)	15	22.5	30
Max. Input Voltage (V)*1	1100	1100	1100
MPPT Operating Voltage Range (V)*2*3	140~950	140~950	140~950
MPPT Voltage Range at Nominal Power (V)*4	180~850	210~850	300~850
Start-up Voltage (V)	160	160	160
Nominal Input Voltage (V)	600	600	600
Max. Input Current per MPPT (A)	32/16/16	32/32/16	32/32/16
Max. Short Circuit Current per MPPT (A)	45/23/23	45/45/23	45/45/23
Max. Backfeed Current to The Array (A)	0	0	0
Number of MPP Trackers	3	3	3
Number of Strings per MPPT	37257	37288	37288
Output			
Nominal Output Power (W)	9.99	15	20

Technical Data	GW9990-SDT-AU30	GW15K-SDT-AU30	GW20K-SDT-AU30
Nominal Output Apparent Power (VA)	9.99	15	20
Max. AC Active Power (W)	9.99	15	20
Max. AC Apparent Power (VA)	9.99	15	20
Nominal Power at 40℃ (W)	9.99	15	20
Max. Power at 40℃ (Including AC Overload) (W)	9.99	15	20
Nominal Output Voltage (V)	230/400, 3L/N/PE or 3L/PE	230/400, 3L/N/PE or 3L/PE	230/400, 3L/N/PE or 3L/PE
Output Voltage Range (V)	180 ~ 260 (According to local standard)	180 ~ 260 (According to local standard)	180 ~ 260 (According to local standard)
Nominal AC Grid Frequency (Hz)	50/60	50/60	50/60
AC Grid Frequency Range (Hz)	45~55 / 55~65	45~55 / 55~65	45~55 / 55~65
Max. Output Current (A)	14.5	21.8	29
Max. Output Fault Current (Peak and Duration) (A)	37 @6.5us	70 @6.5us	70 @6.5us
Inrush Current (Peak and Duration) (A)	28.1 @50us	42.3 @50us	42.3 @50us

Technical Data	GW9990-SDT-AU30	GW15K-SDT-AU30	GW20K-SDT-AU30
Nominal Output Current (A)	14.5 @400Vac	21.8 @400Vac	29 @400Vac
Power Factor	~1 (Adjustable from 0.8 leading to 0.8 lagging)	~1 (Adjustable from 0.8 leading to 0.8 lagging)	~1 (Adjustable from 0.8 leading to 0.8 lagging)
Max. Total Harmonic Distortion	<3%	<3%	<3%
Maximum Output Overcurrent Protection (A)	37	70	70
Efficiency			
Max. Efficiency	98.5%	98.6%	98.6%
European Efficiency	97.9%	98.1%	98.3%
Protection			
PV String Current Monitoring	Integrated	Integrated	Integrated
PV Insulation Resistance Detection	Integrated	Integrated	Integrated
Residual Current Monitoring	Integrated	Integrated	Integrated
PV Reverse Polarity Protection	Integrated	Integrated	Integrated
Anti-islanding Protection	Integrated	Integrated	Integrated
AC Overcurrent Protection	Integrated	Integrated	Integrated

Technical Data	GW9990-SDT-AU30	GW15K-SDT-AU30	GW20K-SDT-AU30
AC Short Circuit Protection	Integrated	Integrated	Integrated
AC Overvoltage Protection	Integrated	Integrated	Integrated
DC Switch	Integrated	Integrated	Integrated
DC Surge Protection	Type II	Type II	Type II
AC Surge Protection	Type II	Type II	Type II
AFCI	Optional	Optional	Optional
Rapid Shutdown	Optional	Optional	Optional
Remote Shutdown	Integrated	Integrated	Integrated
PID Recovery	Optional	Optional	Optional
Power Supply at Night	Integrated	Integrated	Integrated
Shadow scanning	Integrated	Integrated	Integrated
General Data			
Operating Temperature Range (℃)	-30 ~ 60	-30 ~ 60	-30 ~ 60
Derating temperature (℃)	45	45	45
Storage Temperature (℃)	-30 ~ 70	-30 ~ 70	-30 ~ 70
Relative Humidity	0 ~ 100%	0 ~ 100%	0 ~ 100%
Max. Operating Altitude (m)	3000	3000	3000
Cooling Method	Smart Fan Cooling	Smart Fan Cooling	Smart Fan Cooling

Technical Data	GW9990-SDT-AU30	GW15K-SDT-AU30	GW20K-SDT-AU30
User Interface	LED, LCD (Optional), WLAN+APP	LED, LCD (Optional), WLAN+APP	LED, LCD (Optional), WLAN+APP
Communication	WiFi+Lan+Blueto oth or 4G+Bluetooth（optional）	WiFi+Lan+Blueto oth or 4G+Bluetooth（optional）	WiFi+Lan+Blueto oth or 4G+Bluetooth（optional）
Communication Protocols	Modbus RTU, Modbus TCP	Modbus RTU, Modbus TCP	Modbus RTU, Modbus TCP
Weight (kg)	＜20	＜20	＜22
Dimension (W×H×D mm)	530×413×221	530×413×221	530×413×221
Noise Emission (dB)	＜35	＜40	＜40
Topology	Non-isolated	Non-isolated	Non-isolated
Self-consumption at Night (W)	<1	<1	<1
Ingress Protection Rating	IP66	IP66	IP66
Anti-corrosion Class	C4	C4	C4
DC Connector	MC4 (Max. 4 ~ 6 mm^2)	MC4 (Max. 4 ~ 6 mm^2)	MC4 (Max. 4 ~ 6 mm^2)
AC Connector	OT terminal (Max.10 mm^2)	OT terminal (Max. 16 mm^2)	OT terminal (Max. 16 mm^2)
Environmental Category	4K4H	4K4H	4K4H
Pollution Degree	III	III	III

Technical Data	GW9990-SDT-AU30	GW15K-SDT-AU30	GW20K-SDT-AU30
Overvoltage Category	DC II / AC III	DC II / AC III	DC II / AC III
Protective Class	I	I	I
The Decisive Voltage Class (DVC)	PV：C	PV：C	PV：C
	AC：C	AC：C	AC：C
	Com：A	Com：A	Com：A
Active Anti-islanding Method	AFDPF + AQDPF *5	AFDPF + AQDPF *5	AFDPF + AQDPF *5
Country of Manufacture	China	China	China

*1: When the input voltage is 1000V-1100V, the inverter will enter standby mode. The inverter will return to normal operation state when the voltage returns to the MPPT working voltage range.
*2: PV modules connected to the same MPPT need to be of the same type of PV panel. The voltage difference between the different MPPTs must be <160 V.
*3: Please refer to the user manual for the MPPT Voltage Range at Nominal Power.
*4: The PV input voltage should be higher than the Max. MPPT Voltage at Nominal Power.
*5: AFDPF: Active Frequency Drift with Positive Feedback, AQDPF: Active Q Drift with Positive Feedback.

Technical Data	GW25K-SDT-AU30	GW29K9-SDT-AU30	GW50K-SDT-C30
Input			
Max. Input Power (kW)	37.5	45	75
Max. Input Voltage (V)*1	1100	1100	1100

Technical Data	GW25K-SDT-AU30	GW29K9-SDT-AU30	GW50K-SDT-C30
MPPT Operating Voltage Range (V)*2*3	140~950	140~950	140~1000
MPPT Voltage Range at Nominal Power (V)*4	400~850	400~850	450~850
Start-up Voltage (V)	160	160	160
Nominal Input Voltage (V)	600	600	600
Max. Input Current per MPPT (A)	40/40/40	40/40/40	40
Max. Short Circuit Current per MPPT (A)	56/56/56	56/56/56	52
Max. Backfeed Current to The Array (A)	0	0	0
Number of MPP Trackers	3	3	4
Number of Strings per MPPT	2	2	2
Output			
Nominal Output Power (W)	25	29.99	50
Nominal Output Apparent Power (VA)	25	29.99	50
Max. AC Active Power (W)	25	29.99	50
Max. AC Apparent Power (VA)	25	29.99	50
Nominal Power at 40℃ (W)	25	29.99	50

Technical Data	GW25K-SDT-AU30	GW29K9-SDT-AU30	GW50K-SDT-C30
Max. Power at 40℃ (Including AC Overload) (W)	25	29.99	50
Nominal Output Voltage (V)	230/400, 3L/N/PE or 3L/PE	230/400, 3L/N/PE or 3L/PE	220/380, 230/400, 240/415, 3L/N/PE or 3L/PE
Output Voltage Range (V)	180~ 260 (According to local standard)	180~ 260 (According to local standard)	180~280 (according to local standard)
Nominal AC Grid Frequency (Hz)	50/60	50/60	50/60
AC Grid Frequency Range (Hz)	45~55 / 55~65	45~55 / 55~65	45~55/55~65
Max. Output Current (A)	37.9	45.5	75.7
Max. Output Fault Current (Peak and Duration) (A)	126 @6.5us	126 @6.5us	230 @ 4.36μs
Inrush Current (Peak and Duration) (A)	48.12 @50us	48.12 @50us	26.4A @8.5ms
Nominal Output Current (A)	36.3 @400Vac	43.5 @400Vac	75.7 @380Vac 72.4 @400Vac 69.4 @415Vac
Power Factor	~1 (Adjustable from 0.8 leading to 0.8 lagging)	~1 (Adjustable from 0.8 leading to 0.8 lagging)	~1 (Adjustable from 0.8 leading to 0.8 lagging)

Technical Data	GW25K-SDT-AU30	GW29K9-SDT-AU30	GW50K-SDT-C30
Max. Total Harmonic Distortion	<3%	<3%	<3%
Maximum Output Overcurrent Protection (A)	126	126	196.6
Efficiency			
Max. Efficiency	98.7%	98.7%	98.7%
European Efficiency	98.3%	98.3%	98.0%
Protection			
PV String Current Monitoring	Integrated	Integrated	Integrated
PV Insulation Resistance Detection	Integrated	Integrated	Integrated
Residual Current Monitoring	Integrated	Integrated	Integrated
PV Reverse Polarity Protection	Integrated	Integrated	Integrated
Anti-islanding Protection	Integrated	Integrated	Integrated
AC Overcurrent Protection	Integrated	Integrated	Integrated
AC Short Circuit Protection	Integrated	Integrated	Integrated
AC Overvoltage Protection	Integrated	Integrated	Integrated
DC Switch	Integrated	Integrated	Integrated
DC Surge Protection	Type II	Type II	Type II
AC Surge Protection	Type II	Type II	Type II

Technical Data	GW25K-SDT-AU30	GW29K9-SDT-AU30	GW50K-SDT-C30
AFCI	Optional	Optional	Optional
Rapid Shutdown	Optional	Optional	Optional
Remote Shutdown	Integrated	Integrated	Integrated
PID Recovery	Optional	Optional	Optional
Power Supply at Night	Integrated	Integrated	Optional
Shadow scanning	Integrated	Integrated	Integrated
General Data			
Operating Temperature Range (℃)	-30~60	-30~60	-30~60
Derating temperature (℃)	45	45	45
Storage Temperature (℃)	-30~70	-30~70	-30~70
Relative Humidity	0~100%	0~100%	0~100%
Max. Operating Altitude (m)	4000	4000	4000
Cooling Method	Smart Fan Cooling	Smart Fan Cooling	Smart Fan Cooling
User Interface	LED, LCD (Optional)，WLAN+APP	LED, LCD (Optional)，WLAN+APP	LED, LCD (Optional)，WLAN+APP
Communication	WiFi+Lan+Bluetooth or 4G+Bluetooth（optional）	WiFi+Lan+Bluetooth or 4G+Bluetooth（optional）	WiFi+Lan+Bluetooth or 4G+Bluetooth（optional）
Communication Protocols	Modbus RTU, Modbus TCP	Modbus RTU, Modbus TCP	Modbus RTU, Modbus TCP

Technical Data	GW25K-SDT-AU30	GW29K9-SDT-AU30	GW50K-SDT-C30
Weight (kg)	< 30	< 30	33
Dimension (W×H×D mm)	585×483×230	585×483×230	646*484*230
Noise Emission (dB)	<45	<45	<50
Topology	Non-isolated	Non-isolated	Non-isolated
Self-consumption at Night (W)	<1	<1	<1
Ingress Protection Rating	IP66	IP66	IP66
Anti-corrosion Class	C4	C4	C4
DC Connector	MC4 (Max. 4~6 mm^2)	MC4 (Max. 4~6 mm^2)	MC4 (4~6mm^2)
AC Connector	OT terminal (Max. 25mm^2)	OT terminal (Max. 25 mm^2)	OT/DT terminal (Max. 70 mm^2)
Environmental Category	4K4H	4K4H	4K4H
Pollution Degree	III	III	III
Overvoltage Category	DC II / AC III	DC II / AC III	DC II / AC III
Protective Class	I	I	I
The Decisive Voltage Class (DVC)	PV：C AC：C Com：A	PV：C AC：C Com：A	PV：C AC：C Com：A
Active Anti-islanding Method	AFDPF + AQDPF *5	AFDPF + AQDPF *5	AFDPF + AQDPF *5
Country of Manufacture	China	China	China

*1: When the input voltage is 1000V-1100V, the inverter will enter standby mode.

The inverter will return to normal operation state when the voltage returns to the MPPT working voltage range.
*2: PV modules connected to the same MPPT need to be of the same type of PV panel. The voltage difference between the different MPPTs must be <160 V.
*3: Please refer to the user manual for the MPPT Voltage Range at Nominal Power.
*4: The PV input voltage should be higher than the Max. MPPT Voltage at Nominal Power.
*5: AFDPF: Active Frequency Drift with Positive Feedback, AQDPF: Active Q Drift with Positive Feedback.

9 Explanation of Terms

Overvoltage Category Definitions

- **Overvoltage Category I**: Equipment connected to circuits with measures to limit transient overvoltages to a relatively low level.
- **Overvoltage Category II**: Energy-consuming equipment supplied from fixed electrical installations. This category includes appliances, portable tools, and other household and similar loads. If special requirements for reliability and suitability apply to such equipment, Overvoltage Category III is used.
- **Overvoltage Category III**: Equipment in fixed electrical installations where reliability and suitability must meet special requirements. This includes switching devices in fixed electrical installations and industrial equipment permanently connected to fixed electrical installations.
- **Overvoltage Category IV**: Equipment used at the origin of the electrical installation, including meters and primary overcurrent protection devices, etc.
- **Damp Location Category Definitions**

Environmental Parameters	Level		
	3K3	4K2	4K4H
Temperature Range	0~+40℃	-33~+40℃	-33~+40℃
Humidity Range	5% to 85%	15% to 100%	4% to 100%

- **Environment Category Definitions:**
  - **Outdoor Inverter**: Ambient air temperature range -25~+60°C, suitable for Pollution Degree 3 environments.
  - **Indoor Type II Inverter**: Ambient air temperature range -25~+40°C, suitable for Pollution Degree 3 environments.
  - **Indoor Type I Inverter**: Ambient air temperature range 0~+40°C, suitable for Pollution Degree 2 environments.
- **Pollution Degree Category Definitions**
  - **Pollution Degree 1**: No pollution or only dry, non-conductive pollution.
  - **Pollution Degree 2**: Normally only non-conductive pollution occurs. Temporary conductivity caused by condensation must be expected occasionally.
  - **Pollution Degree 3**: Conductive pollution occurs, or dry non-conductive pollution

becomes conductive due to condensation.
- **Pollution Degree 4**: Persistent conductive pollution occurs, for example, due to conductive dust, rain, or snow.

10 Related Product Manuals Acquisition

Document Name	Official Website Link
Smart Meter Quick Installation Guide (GM330, GMK330)	Smart Meter Quick Installation Guide (GM330, GMK330)
EzLink3000 Quick Installation Guide	EzLink3000 Quick Installation Guide
Ezlogger3000C Quick Installation Guide	Ezlogger3000C Quick Installation Guide
EzLogger Pro Quick Installation Guide	EzLogger Pro Quick Installation Guide
4G Kit-CN-G20, 4G Kit-CN-G21 Quick Installation Guide	4G Kit-CN-G20, 4G Kit-CN-G21 Quick Installation Guide
WiFi, LAN Kit-20, WiFi Kit-20 Quick Installation Guide	WiFi, LAN Kit-20, WiFi Kit-20 Quick Installation Guide