

V2.5-2026-10-14

光伏并网逆变器

SDT系列(8-50kW) G3

用户手册

GOODWE

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NOTICE

This document may be updated periodically due to product version upgrades or other reasons. Unless otherwise agreed, its contents do not replace the safety precautions on product labels. All descriptions in this document are for guidance only.

Preface

This document provides information on the inverter, including installation and wiring, configuration and commissioning, troubleshooting, and maintenance. Before installing or using this product, read this manual carefully to understand the product safety information and become familiar with its functions and features. This document may be updated periodically. Visit the official website for the latest documentation and more product information.

Applicable Products

This document applies to inverters of the following models:

Model	Rated Power	Output	Rated 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

This document is intended only for professionals who are familiar with local regulations and electrical systems, have received professional training, and understand this product.

Symbol Definitions

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

 DANGER
Indicates a highly hazardous situation that, if not avoided, will result in death or serious injury.
 WARNING
Indicates a moderately hazardous situation that, if not avoided, could result in death or serious injury.
 CAUTION
Indicates a low-level hazard that, if not avoided, may result in minor or moderate injury.
NOTICE
Highlights or supplements information and may also provide tips or tricks for optimizing product use to help you solve a problem or save time.

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1 Safety Precautions

Always observe the safety precautions in this document when operating the equipment.

WARNING

The equipment has been designed in strict accordance with safety regulations and has passed testing. However, as electrical equipment, it must be operated in compliance with the relevant safety instructions. Improper operation may result in serious injury or property damage.

1.1 General Safety

NOTICE

- This document may be updated periodically due to product version upgrades or other reasons. Unless otherwise agreed, its contents do not replace the safety precautions on product labels. All descriptions in this document are for guidance only.
- Before installing the equipment, read this document carefully to learn about the product and its precautions.
- All work on the equipment must be performed by qualified electrical technicians who are familiar with the applicable standards and safety regulations in the project location.
- When working on the equipment, use insulated tools and wear personal protective equipment to ensure personal safety. When handling electronic components, wear antistatic gloves, an antistatic wrist strap, and antistatic clothing to protect the equipment from electrostatic damage.
- Unauthorized disassembly or modification may damage the equipment, and such damage is not covered by the warranty.
- The equipment manufacturer is not liable for equipment damage or personal injury resulting from installation, use, or configuration that does not comply with this document or the applicable user manual. For more information about the product warranty, visit the official website: <https://www.goodwe.com/warrantyrelated.html>.

1.2 DC Side

DANGER

- Use the supplied DC Connectors to connect the inverter DC cables. Using other models of DC connectors may result in serious consequences. The equipment manufacturer shall not be liable for any resulting equipment damage.
- For equipment that supports PV string connections, the PV input terminals have a low withstand capability against surge current. Never power up the equipment by directly connecting a DC voltage source to the PV terminals. If power-up via the PV terminals is required, follow the steps below. Damage to the equipment caused by improper operation is considered user-caused damage and is not covered by the product warranty.
 1. First, limit the output current of the DC voltage source to within the maximum input current permitted at the PV port.
 2. Then close the inverter DC Switch.
 3. Finally, slowly increase the DC source output voltage from zero to the target value at a rate of ≤ 50 V/s.

WARNING

- Ensure that the module frames and mounting system are properly grounded.
- After connecting the DC cables, ensure that all cable connections are secure and free of looseness.
- The equipment manufacturer shall not be liable for damage caused by reverse polarity, Overvoltage, or Overcurrent when measuring PV strings with a multimeter.
- PV modules connected to the same MPPT must be of the same model. The voltage difference between MPPTs must be < 160 V.
- When the input voltage is between 1000 V and 1100 V, the inverter will enter standby mode. When the voltage returns to the MPPT operating voltage range (140 V–1000 V), the inverter will resume normal operation.
- It is recommended that the sum of the peak power currents of the strings connected to each MPPT not exceed the inverter's Max. MPPT Current.
- When multiple PV strings are connected to the inverter, it is recommended to connect at least one string to each MPPT; do not leave any MPPT unconnected.
- PV modules used with the inverter must comply with IEC 61730 Class A.

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 install a circuit breaker, fuse, or other Protection device on the inverter AC side. The rating of the Protection device must be greater than 1.25 times the inverter's Max. Current to Grid.
- The inverter's protective earth conductor must be securely connected.
- Copper-core cable is recommended for the AC output. If an aluminum cable is used, connect it using copper-aluminum transition terminals.

1.4 Abnormal Inverter

DANGER

- During inverter installation, ensure that no load is applied to the terminals at the bottom, as this may damage them.
- After installing the inverter, ensure that all labels and warning signs on the enclosure are clearly visible. Do not cover, alter, or damage them.
- The warning labels on the inverter enclosure are as follows:

No.	Symbol	Meaning
1		Potential hazards are present while the equipment is operating. Take appropriate precautions when operating the equipment.
2		High-voltage hazard. High voltage is present while the equipment is operating. Ensure that the equipment is de-energized before working on it.
3		The inverter surface becomes hot. Do not touch it while the equipment is operating, as this may cause burns.
4		Delayed discharge. After de-energizing the equipment, wait 5 minutes for it to fully discharge.

No.	Symbol	Meaning
5		Read the product manual carefully before operating the equipment.
6		Do not dispose of the equipment as household waste. Dispose of it in accordance with local laws and regulations, or return it to the equipment manufacturer.
7		Protective earth conductor connection point.
8		CE Certification mark.

1.5 EU Declaration of Conformity

1.5.1 Devices with Wireless Communication Capability

Equipment with wireless communication capability that can be sold on the European market complies with the requirements of the following directives:

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

1.5.2 Devices Without Wireless Communication Capability

Equipment without wireless communication capability that can be sold on the European market complies with the requirements of the following directives:

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

1.6 Personnel Requirements

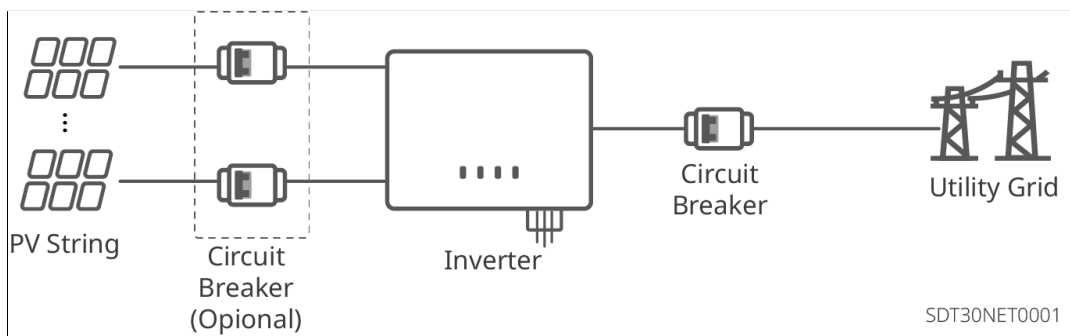
NOTICE

- Personnel responsible for installing and maintaining the equipment must first undergo rigorous training, understand the safety precautions for each product, and master the correct operating procedures.
- Only qualified professionals or trained personnel are permitted to install, operate, maintain, or replace the equipment or its components.

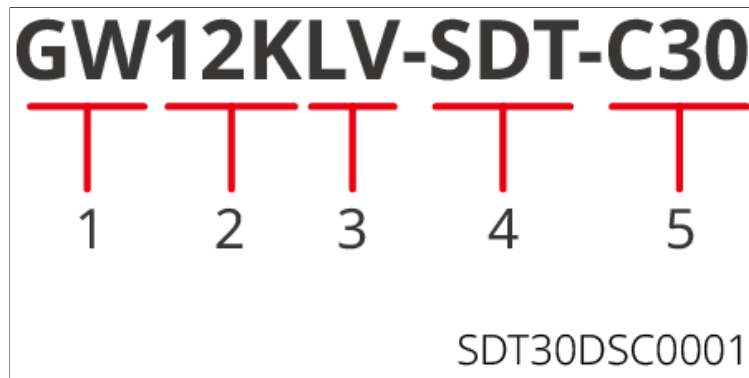
2 Product Overview

2.1 Introduction

The SDT series inverters are three-phase string PV grid-connected inverters that convert the DC power generated by PV modules into AC power that meets grid requirements and feed it into the grid. The main applications of the inverters are as follows:



Model Designation

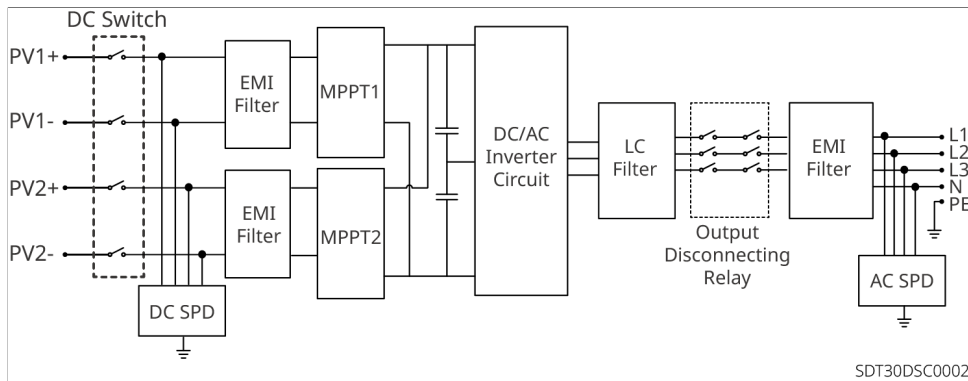


No.	Meaning	Description
1	Brand Code	GW: GoodWe
2	Rated Power	12K: Rated Power of 12 kW
3	Type of Electrical Supply System	LV: Low-voltage grid
4	Series Name	SDT: SDT series

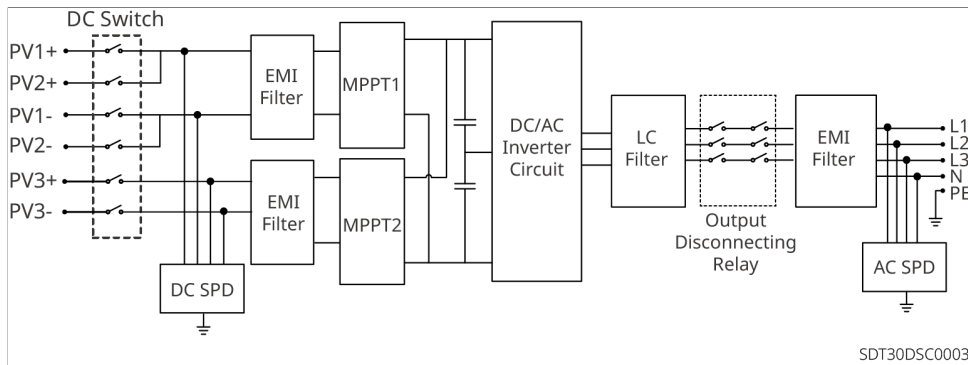
5	Version Code	Third-generation product
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2.2 Circuit Diagram

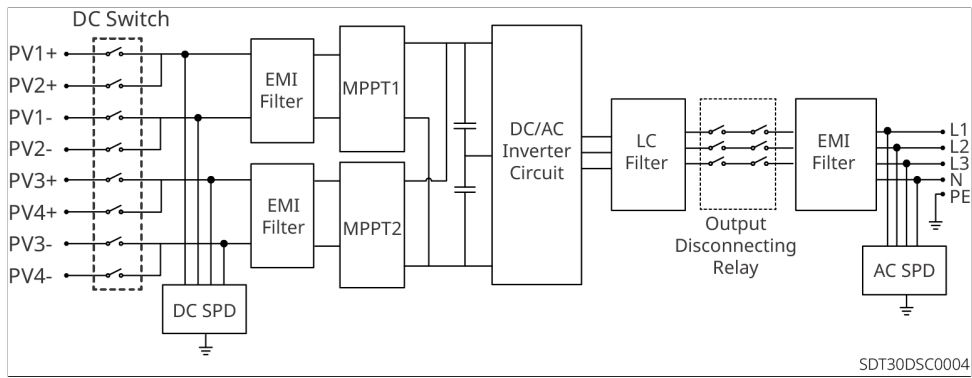
GW4000-SDT-30、GW5000-SDT-30、GW6000-SDT-30、GW8000-SDT-30、GW10K-SDT-30、GW10K-SDT-EU30、GW12K-SDT-30、GW15K-SDT-30:



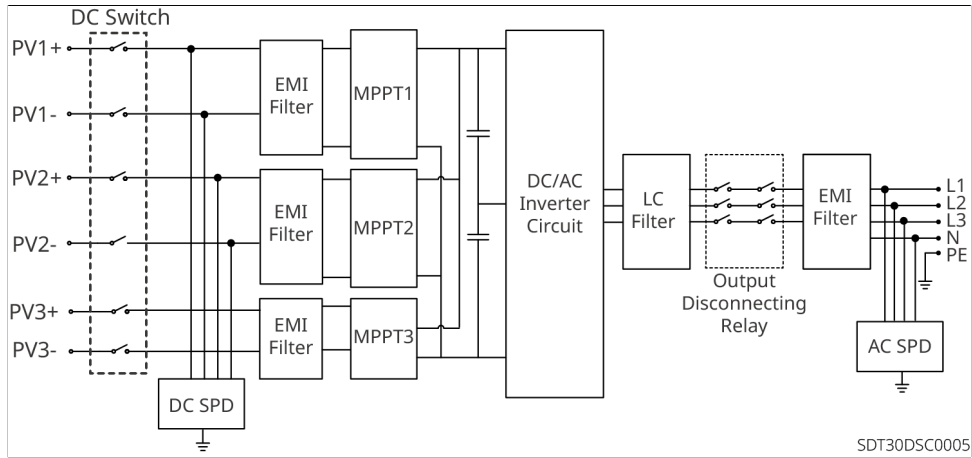
GW12KLV-SDT-C30、GW17K-SDT-30、GW20K-SDT-30、GW25K-SDT-C30:



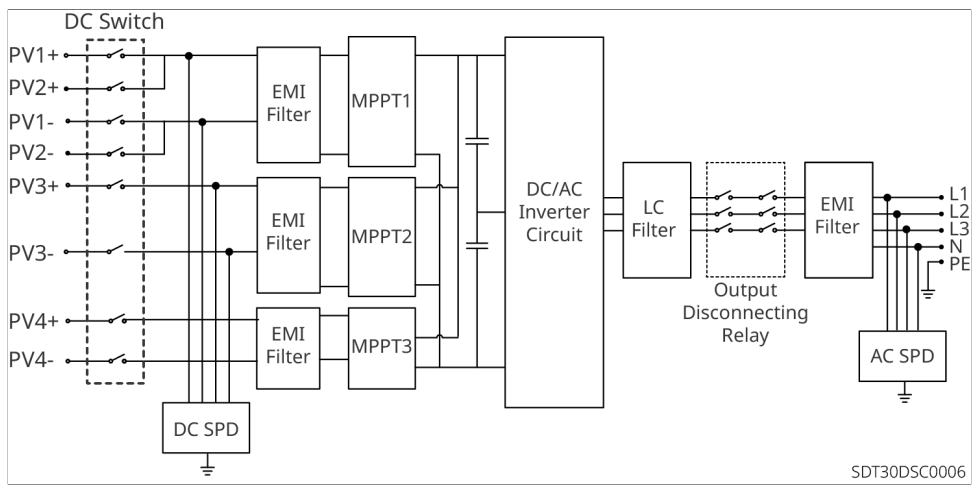
GW17KLV-SDT-C30、GW30K-SDT-C30、GW20K-SDT-31、GW12KLV-SDT-C31、GW25K-SDT-P31:



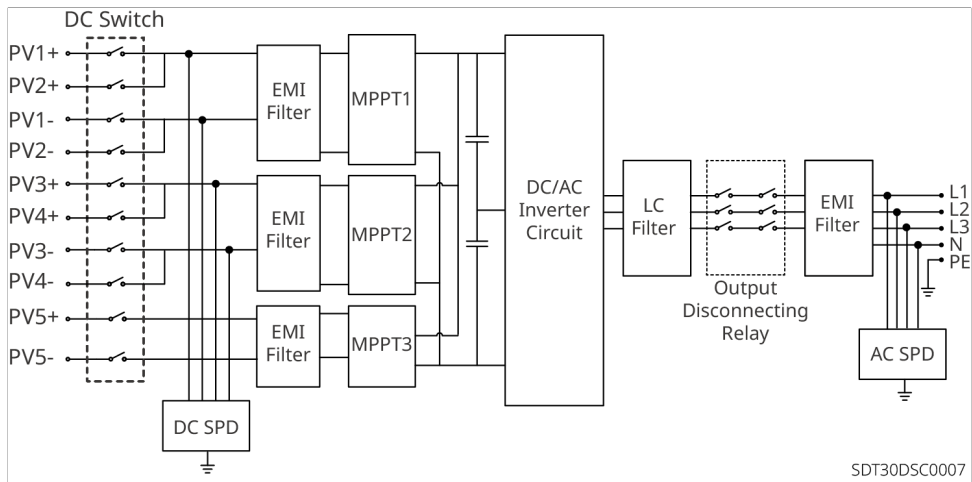
GW5000-SDT-AU30、GW6000-SDT-AU30:



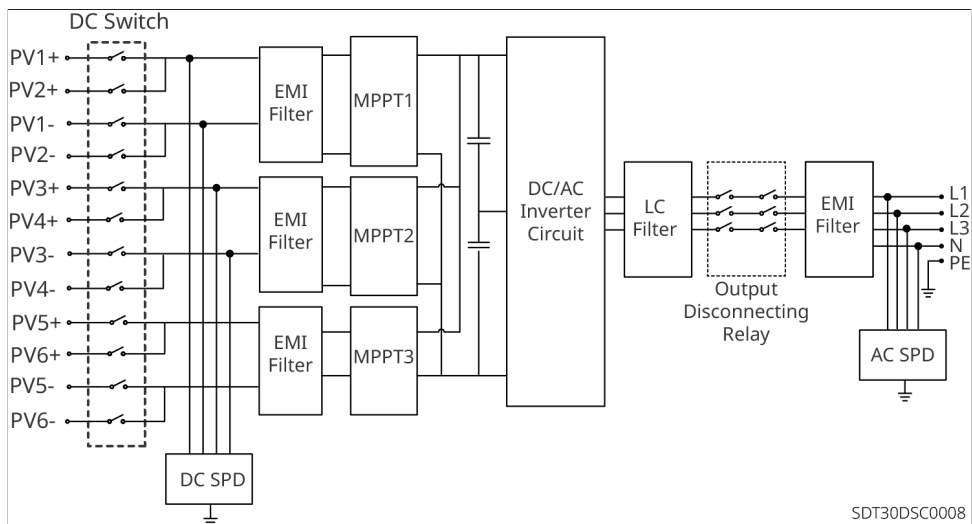
GW8000-SDT-AU30、GW9990-SDT-AU30:



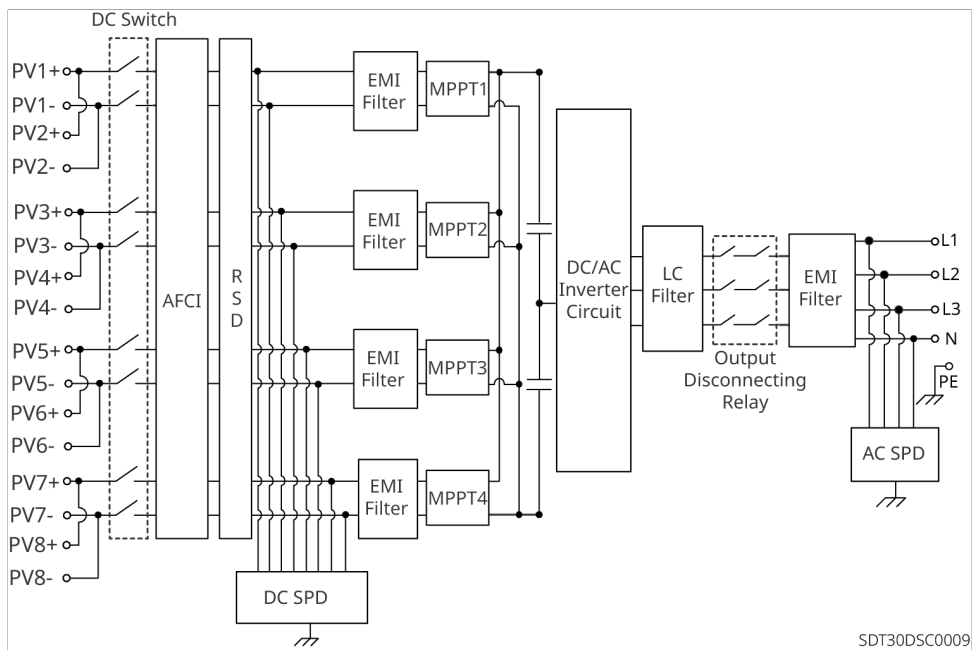
GW15K-SDT-AU30、GW20K-SDT-AU30:



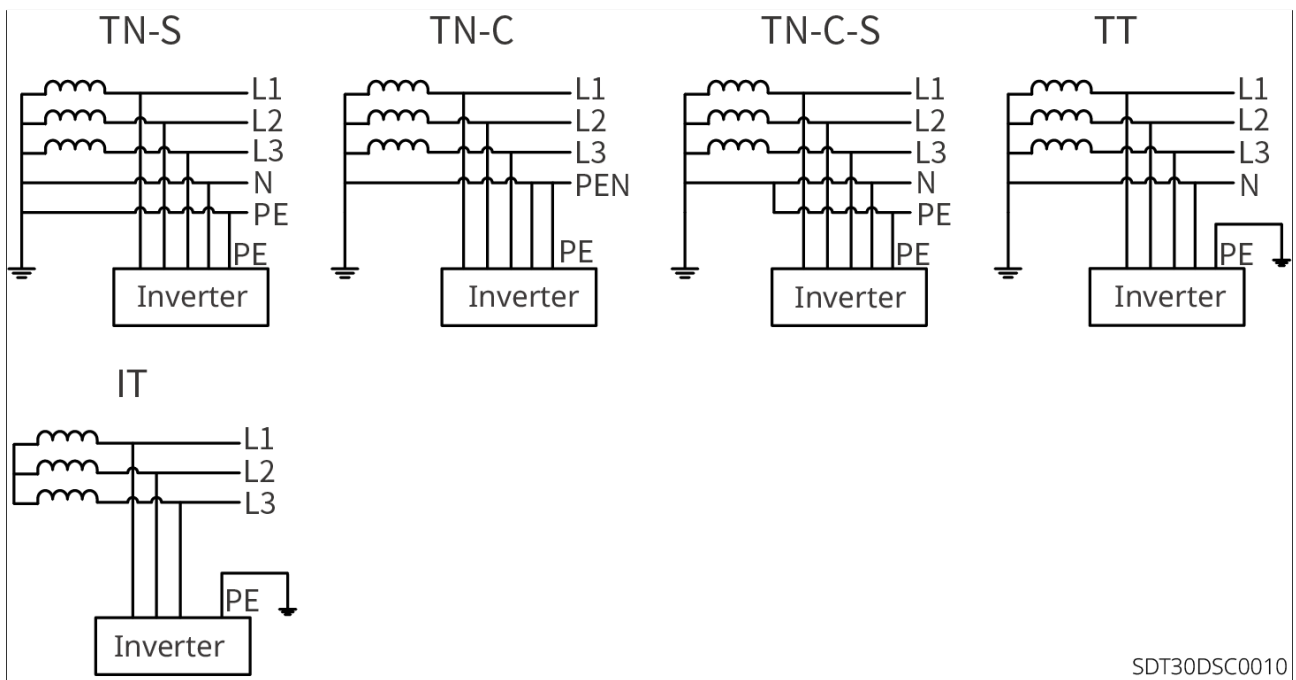
GW25K-SDT-AU30、GW29K9-SDT-AU30、GW25K-SDT-30、GW30K-SDT-30、GW23KLV-SDT-BR30、GW37K5-SDT-BR30、GW33K-SDT-C30、GW36K-SDT-C30、GW40K-SDT-C30:



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



2.3 Supported Grid Types



2.4 Functional Features

AFCI

The AFCI function detects arc faults on the DC side of the inverter. When an arc fault occurs, the inverter automatically provides Protection.

Causes of arc faults:

- The DC Connector in the PV system is damaged or improperly connected.
- The cables are connected incorrectly or damaged.
- The connectors or cables have aged.

Arc Detection method:

When the inverter detects an arc, you can view the fault type in the app.

When an Arc Failure is detected, the inverter issues an alarm and shuts down for Protection. The inverter will automatically resume grid connection after 60 seconds.

If it shuts down for Protection repeatedly, check the inverter wiring and eliminate the arc. For details, refer to the SEMS+ App User Manual.

RSD

In a Rapid Shutdown system, the Rapid Shutdown transmitter works with the receiver to rapidly shut down the system. The receiver maintains module output by receiving signals from the transmitter. The transmitter can be installed externally or integrated into the inverter. In an emergency, enable the external trigger device to stop the transmitter, thereby shutting down the modules.

- If the inverter cannot be connected to an external synchronization signal and multiple inverters need to operate in parallel, ensure that the PV cables for different inverters are routed through separate cable trays and that the cable trays are kept at least 20 cm apart.
- If the inverter can be connected to an external synchronization signal, ensure that no more than 5 transmitters are connected to the same synchronization group.

External transmitter:

Transmitter models: GTP-F2L-20, GTP-F2M-20

<https://www.goodwe.com/Ftp/Installation-instructions/RSD2.0-transmitter.pdf>

Receiver models: GR-B1F-20, GR-B2F-20

<https://www.goodwe.com/Ftp/Installation-instructions/RSD2.0.pdf>

Integrated transmitter:

External trigger device: AC-side circuit breaker;

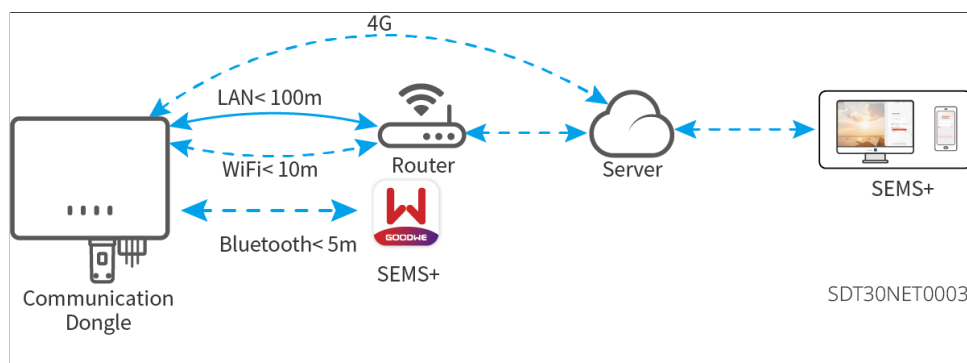
Receiver models: GR-B1F-20, GR-B2F-20

<https://www.goodwe.com/Ftp/Installation-instructions/RSD2.0.pdf>

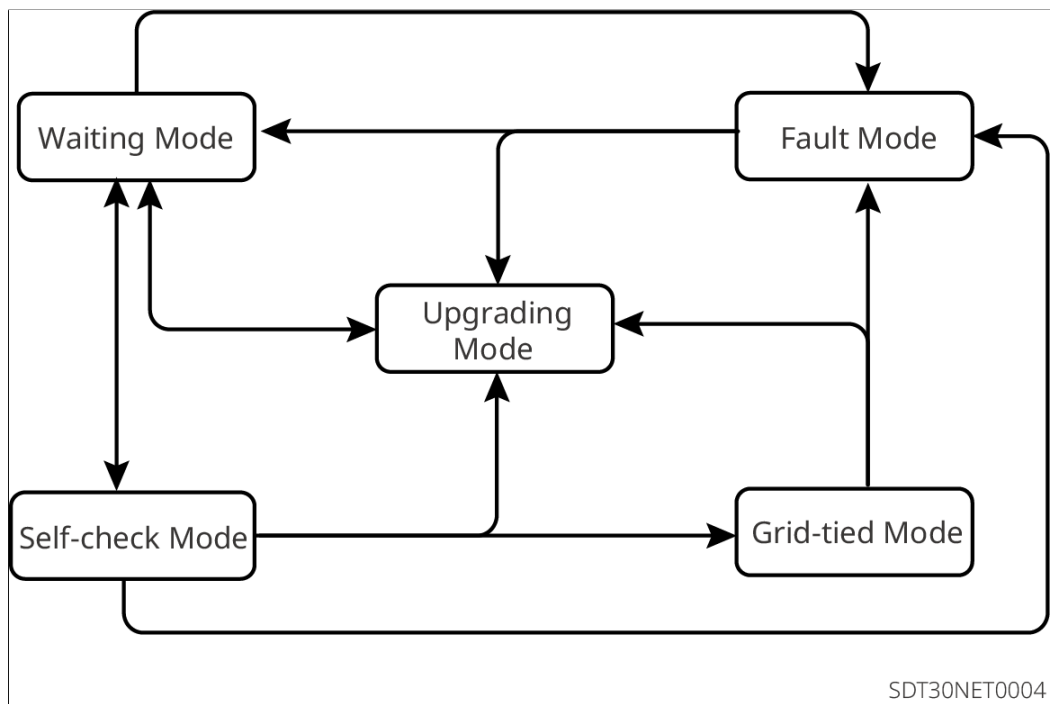
Communication

The inverter supports local parameter configuration via Bluetooth and connection to a monitoring platform via 4G to monitor inverter operating status, power plant operations, and other information.

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



2.5 Inverter Operating Mode



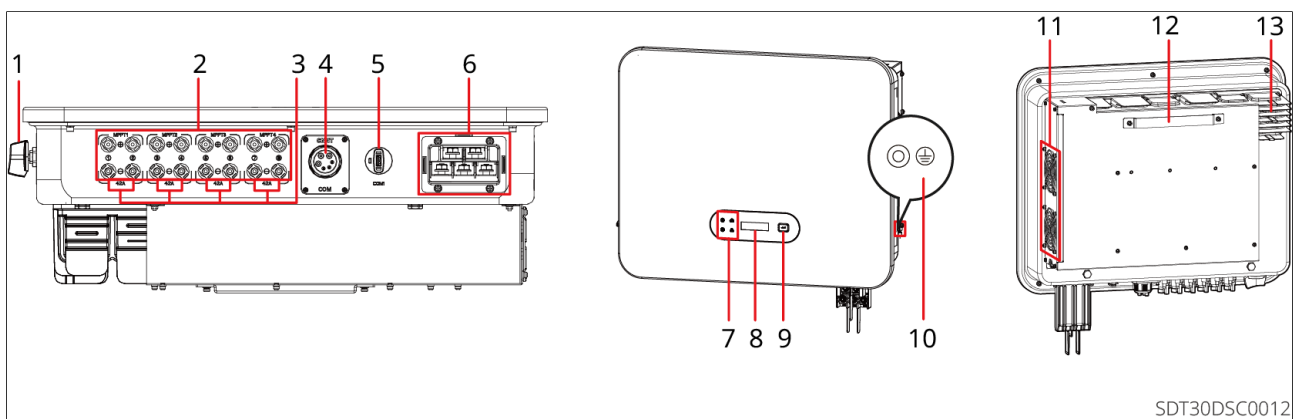
No.	Component	Description
1	Standby Mode	The inverter is in the waiting stage after power-on. - Once the conditions are met, the inverter enters Self-Check Mode. - If a fault occurs, the inverter enters Fault Mode. - If an upgrade request is received, the inverter enters Upgrade Mode.
2	Self-Check Mode	Before starting, the inverter continuously performs self-checks, initialization, and other procedures. - If the conditions are met, the inverter enters Grid-Connected Mode and starts grid-connected operation. - If an upgrade request is received, the inverter enters Upgrade Mode. - If the self-check fails, the inverter enters Fault Mode.

3	Grid-Connected Mode	The inverter operates normally while connected to the grid. • If a fault is detected, the inverter enters Fault Mode. • If an upgrade request is received, the inverter enters Upgrade Mode.
4	Fault Mode	If a fault is detected, the inverter enters Fault mode. Once the fault is cleared, it enters Standby mode. After Standby mode ends, the inverter checks its operating status and then enters the next Operating Mode.
5	Upgrade Mode	The inverter enters this state while its firmware is being updated. Once the update is complete, it enters Standby mode. After Standby mode ends, the inverter checks its operating status and then enters the next Operating Mode.

2.6 Appearance

The Color and Appearance of Inverters Vary by Model. the Actual Product Takes Precedence.

2.6.1 Component Description



No.	Component/Label	Description
1	DC Switch	Controls the connection and disconnection of the DC input.

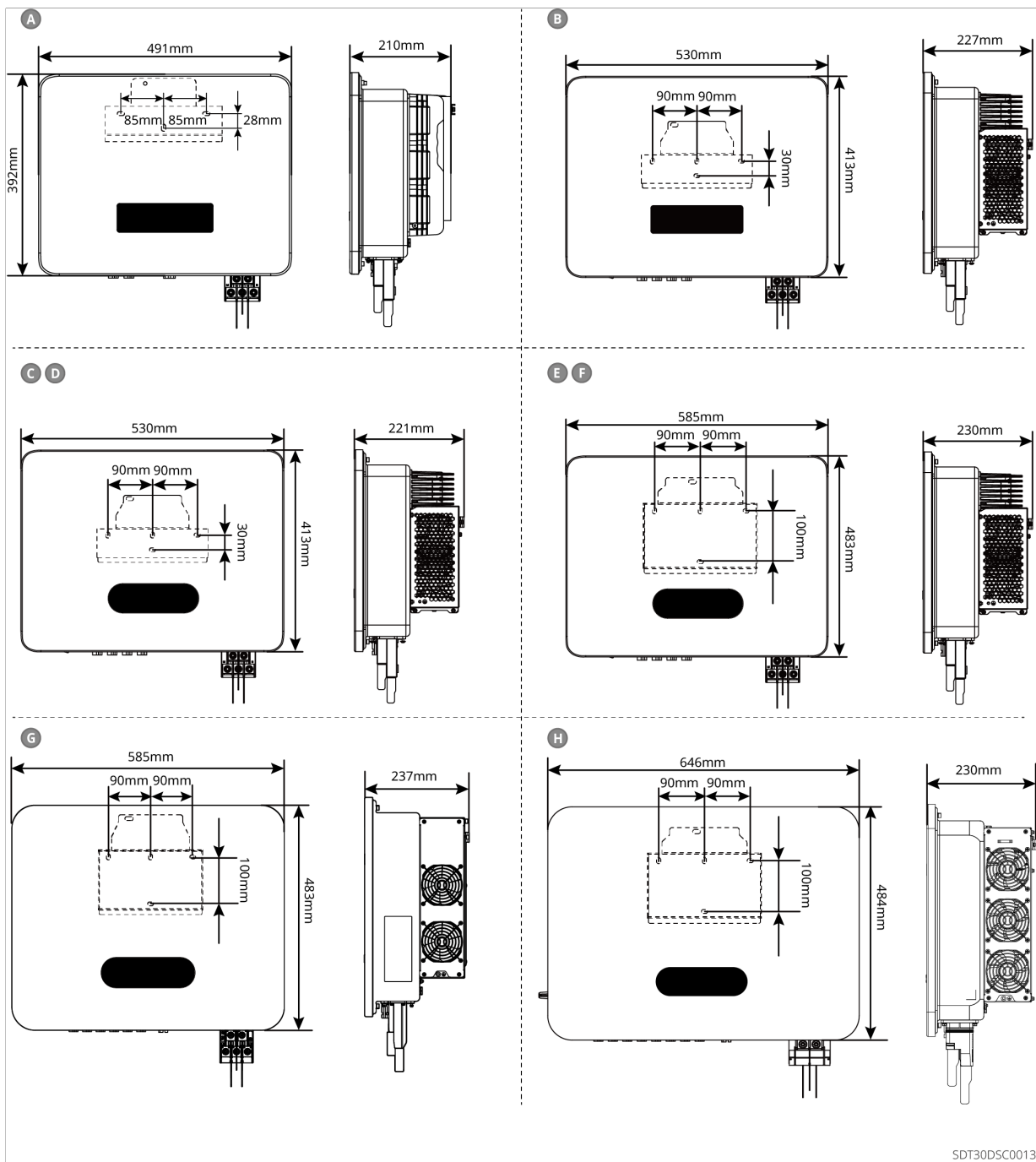
2	PV Input Terminals	Connect the DC input cables from the PV modules.
3	Label indicating the maximum input current for each MPPT	The maximum current that can be connected to each MPPT of the inverter. This value varies by inverter model; refer to the inverter technical specifications for details.
4	Communication Port	Connects to RS485 and the energy meter.
5	Communication Module Port	Connect a communication module. Select the module type according to your requirements.
6	AC Output Port	Connect the AC output cable to connect the inverter to the grid.
7	Indicator Lights	Indicate the operating status of the inverter.
8	Display (Optional)	View inverter data.
9	Buttons (Optional)	Operate the inverter in conjunction with the display.
10	Grounding Terminal	Connect the protective earth (PE) conductor.

11	Fan	The inverter is equipped with an external fan to cool it when the temperature is too high. - GW8000-SDT-30, GW10K-SDT-30, GW10K-SDT-EU30, GW12K-SDT-30, GW15K-SDT-30, GW4000-SDT-30, GW5000-SDT-30, and 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: 1 external fan. - 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: 2 external fans. - GW30KLV-SDT-C30, GW50K-SDT-C30: 3 external fans.
12	Mounting bracket	Used to mount the inverter.
13	Heat sink	Dissipates heat from 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 GW13K-SDT-30 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 Description

Three indicators

Indicator Lights	Status	Description
------------------	--------	-------------

 Power		Steady on: Wireless monitoring is operating normally
		Single flash: Wireless module is being reset or restarted
		Two flashes: Not Connected to the router / Not Connected to the base station
		Four flashes: Not Connected to the monitoring server
		Flashing: RS485 communication is normal
		Off: Wireless module is restoring factory settings
 Operation		Steady on: Grid is normal and grid connection is successful
		Off: Not connected to the grid
 Communication		Steady on: System fault
		Off: No fault

Four indicators

Indicator Lights	Status	Description
Power		Steady on: Device powered on
		Off: Device not powered on
Operation		Steady on: Grid is normal and grid connection is successful
		Off: Not connected to the grid

		Single slow flash: Pre-grid-connection self-check
		Single fast flash: About to connect to the grid
Communi cation		Steady on: Wireless monitoring is normal
		One flash: Wireless module reset
		Two flashes: Not Connected to the base station or router
		Four flashes: Not Connected to the monitoring server
		Flashing: RS485 communication is normal
		Off: Wireless module is restoring factory settings
Fault		Steady on: System fault
		Off: No fault

2.6.4 Nameplate Description

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

GOODWE	
Product: Grid-Tied PV Inverter	
Model : ***** ** *	
PV Input	UDCmax: **** Vd.c.
	UMPP: ** ... ** Vd.c.
	IDC,max: ** Ad.c.
	ISC,PV: ** Ad.c.
Output	UAC,r: *** Va.c
	fAC,r: ** Hz
	PAC,r: ** kW
	IAC,max: ** Aa.c.*
	Sr: ** kVA
	Smax: ** kVA**
P.F.: ~, **cap...**ind Toperating: -** ** °C Non-isolated, IP** , Protective Class I, OVC DCII/ACIII	
S/N:	
***** Co, Ltd. E-mail: *****@*****.com ***** S/N	

Goodwe trademark, product type, and product model

Technical parameters

Safety symbols and certification marks

Contact information and serial number

SDT30DSC0014

2.7 Equipment Inspection

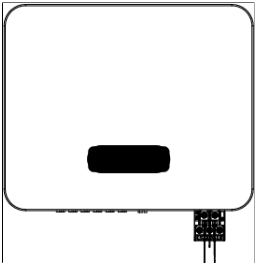
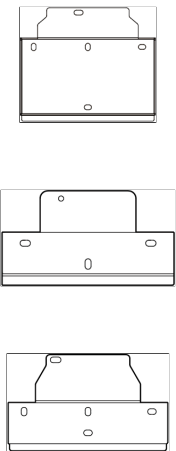
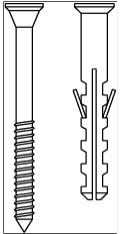
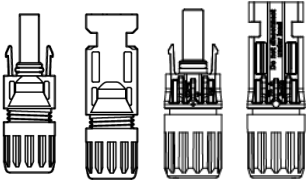
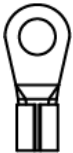
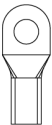
Before accepting the product, carefully check the following:

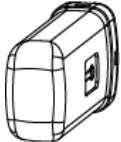
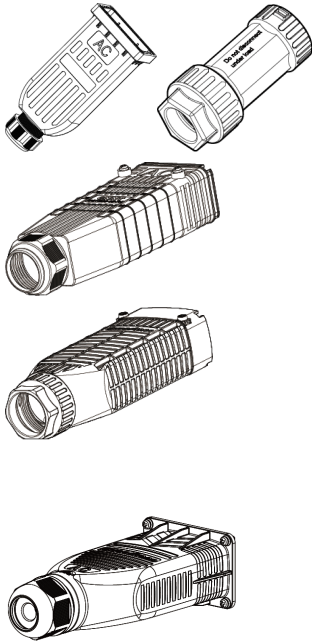
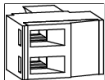
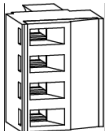
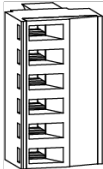
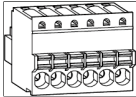
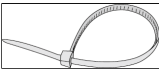
1. Check the outer packaging for damage, such as deformation, holes, cracks, or any other signs that may indicate damage to the equipment inside the package. If damage is found, do not open the package and contact your distributor.
2. Check that the inverter model is correct. If it does not match, do not open the package and contact your distributor.
3. Check that the types and quantities of delivered items are correct and that they are undamaged. If any item is damaged, contact your distributor.

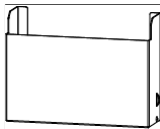
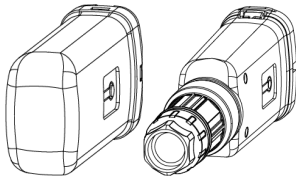
2.8 Items Supplied

NOTICE

- [1] The type of rear mounting plate depends on the inverter model.
- [2] The number of DC Connectors matches the number of DC terminals on the inverter. Confirm the quantity based on the number of DC terminals on the inverter.
- [3] The number of expansion bolts matches the number of holes in the rear mounting plate.
- [4] The number of communication terminals and tubular terminals depends on the selected communication method. Confirm the quantity based on the communication configuration. The number of 2-pin, 3-pin, and 4-pin communication terminals or DRED/RCR communication terminals supplied varies depending on the inverter configuration. Refer to the actual items supplied.
- [5] Communication module types: 4G and WiFi/LAN communication modules. The type shipped 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、GW25KSDT-AU30、GW29K9-SDT-AU30、GW25K-SDT-30、GW50K-SDT-C30
- [7] Quantity of AC OT terminals: 0 for models GW5000-SDT-AU30, GW6000-SDT-AU30, GW8000-SDT-AU30, GW9990-SDT-AU30, GW15K-SDTAU30, and GW20K-SDT-AU30; quantity of AC OT terminals: 5 for models GW25K-SDT-AU30, GW29K9-SDT-AU30, GW25K-SDT-30, and GW30K-SDT-30
- [8] The cable harness and protective cover support plate retaining straps are only applicable to models with a protective cover. GW5000-SDT-AU30, GW6000-SDT-AU30、GW8000-SDT-AU30、GW9990-SDT-AU30、GW15K-SDTAU30、GW20K-SDT-AU30, GW25K-SDT-AU30, GW29K9-SDT-AU30, and GW25K-SDT-30 models: quantity 3; GW50K-SDT-C30 model: quantity 5
- [9] Quantity of AC OT terminals for models GW4000-SDT-30, GW5000-SDT-30, and GW6000-SDT-30: 6
- [10] Quantity of sealing rings for models GW4000-SDT-30, GW5000-SDT-30, and GW6000-SDT-30: 1

Component	Description	Component	Description
	Inverter x 1		Rear mounting plate x 1 ^[1]
	Expansion bolts x N ^[3]		DC Connectors x N ^[2]
	Grounding OT terminal x 1		Product documentation x 1
	AC OT terminals x N ^[7]		Tubular terminals x N ^[4]

Component	Description	Component	Description
	Communication module x 1		AC terminal protective cover x 1
	2-pin communication terminal x N ^[4]		3-pin communication terminal x N ^[4]
	4-pin communication terminal x N ^[4]		6-pin communication terminal x 1
	DRED/RCR communication terminal x N ^[4]		Secure the wiring harness to the protective cover support plate with cable ties strap x N ^[8]

Component	Description	Component	Description
 	Protective cover x 1 ^[6]		Communication module x 1 ^[5]
	AC OT terminals x N ^[9]		Sealing ring x N ^[10]

2.9 Equipment Storage

If the equipment will not be put into operation immediately, store it as follows:

1. Ensure that the outer packaging is unopened and that the desiccant inside has not been removed.
2. Ensure that the storage environment is clean, the temperature and humidity are within the appropriate ranges, and there is no condensation.
3. Ensure that the inverter stacking height and orientation comply with the instructions on the packaging labels.
4. Ensure that the stacked inverters are not at risk of toppling.
5. If the inverter has been stored for more than two years or has been installed but not operated for more than 6 months, it is recommended that it be inspected and tested by qualified personnel before being put into operation.
6. To ensure that the inverter's internal electronic components remain in good electrical condition, it is recommended that the inverter be powered on once every 6 months during storage. If it has not been powered on for more than 6 months, it is recommended that it be inspected and tested by qualified personnel before being put into operation.

2.9.1 Installation Requirements

Installation Environment Requirements

1. The equipment must not be installed in environments that are flammable, explosive, highly corrosive, or similar.
2. The mounting structure must be sturdy and reliable and capable of supporting the inverter's Weight.
3. The installation space must meet the equipment's ventilation and heat dissipation requirements, as well as provide sufficient clearance for operation.
4. The equipment's Ingress Protection Rating is suitable for indoor and outdoor installation. The temperature and humidity of the installation environment must be within the appropriate range.
5. Avoid installing the inverter where it is exposed to direct sunlight, rain, or snow accumulation. Installation in a sheltered location is recommended; install a sunshade if necessary.
6. Install the equipment out of children's reach and avoid locations where it can be easily touched. The surface may become hot during operation, posing a burn hazard.
7. Install the equipment at a height that allows convenient operation and maintenance. Ensure that the indicator lights and all labels are easy to view and that the terminals are readily accessible.
8. The installation altitude for GW5000-SDT-AU30, GW6000-SDT-AU30, GW8000-SDT-AU30, GW9990-SDT-AU30, GW15K-SDT-AU30, and GW20K-SDT-AU30 must be below 3,000 m. The inverter will derate above 2,000 m. The installation altitude 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, and GW30K-SDT-C30 must be below 4,000 m.
9. Installing the inverter in areas affected by salt spray may cause corrosion. Salt-affected areas are defined as locations within 1,000 m of the coast or areas exposed to sea breezes. The extent of sea breeze exposure varies according to weather conditions (such as typhoons and seasonal winds) and terrain (such as the presence of seawalls or hills).
10. Keep away from strong magnetic fields to avoid electromagnetic interference. If a radio station or wireless communication equipment operating below 30 MHz is located near the installation site, install the equipment as follows:
 - Add a ferrite core with multiple turns of the conductor on the inverter's DC input or AC output cable, or install a low-pass EMI filter.
 - Maintain a distance of more than 30 m between the inverter and radio-frequency

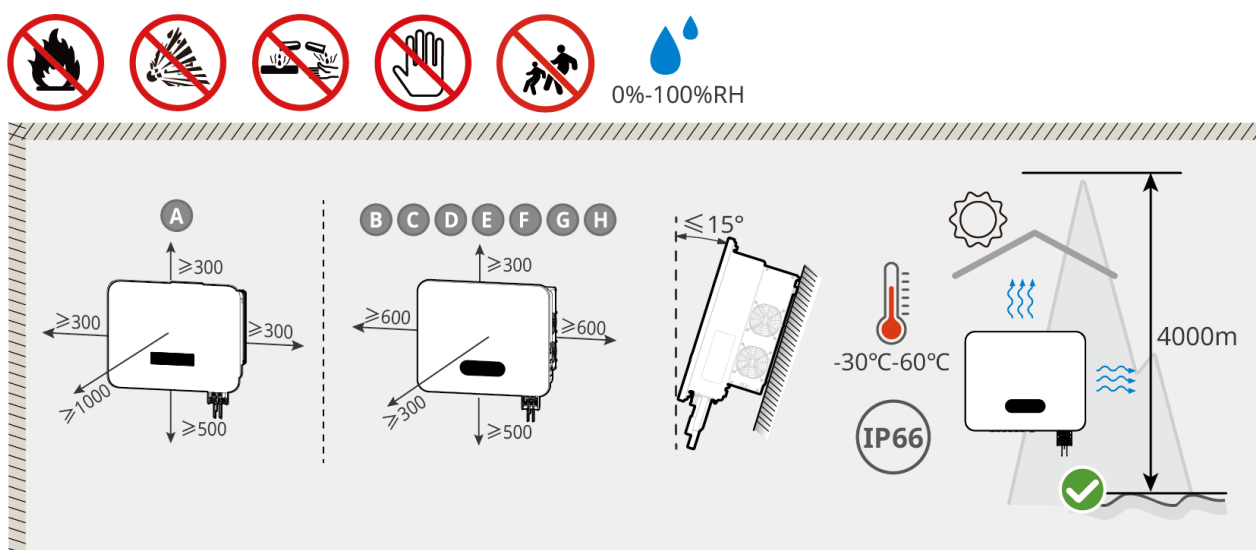
interference equipment.

Mounting Structure Requirements

- The mounting structure must be made of non-flammable material and provide fire protection.
- Ensure that the mounting surface is sturdy and can support the equipment's weight.
- The equipment vibrates during operation. Do not install it on a structure with poor sound insulation, as operating Noise Emission may disturb residents in living areas.

Installation Angle Requirements

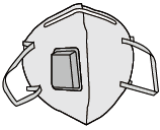
- Recommended Installation Angle for the inverter: vertical or tilted backward $\leq 15^\circ$.
- Do not install the inverter upside down, tilted forward, tilted backward beyond the specified angle, or horizontally.

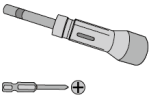
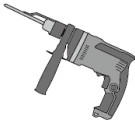
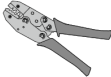
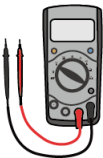
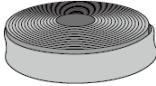
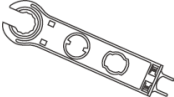


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Installation Tool Requirements

The following installation tools are recommended. Other auxiliary tools may be used on site as necessary.

Tool Type	Description	Tool Type	Description
	Safety gloves		Dust mask

Tool Type	Description	Tool Type	Description
	Safety glasses		Safety shoes
	Torque wrench M4、 M5、 M6		Hammer drill
	Diagonal cutters		Heat gun
	Wire stripper		Crimping tool
	Rubber mallet		Marker
	Multimeter		Heat-shrink tubing
	Vacuum cleaner		Spirit level
	MC4 DC connector unlocking tool		Jinko DC connector unlocking tool

3 Installation

3.1 Installing the Inverter

3.1.1 Handling the Inverter

CAUTION

Before installation, transport the inverter to the installation location. To prevent personal injury or equipment damage during transport, observe the following precautions:

1. Assign an appropriate number of people based on the equipment weight to ensure it does not exceed the load that can be safely carried, which could cause injury if dropped.
2. Wear safety gloves to prevent injury.
3. Keep the equipment balanced during transport to prevent it from falling.

3.1.2 Installing the Inverter

NOTICE

- When drilling, ensure that the drilling locations avoid water pipes, cables, and other items inside the wall to prevent hazards.
- Wear safety goggles and a dust mask when drilling to prevent dust from entering your respiratory tract or getting into your eyes.
- The anti-theft lock is to be supplied by the user. Select a lock of the appropriate size; otherwise, it may not be possible to install it.
- The illustrations in this document are for reference only. The appearance may vary between models or versions of the same model. The actual product shall prevail.
- Step 4 applies only to 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, and GW30K-SDT-30.

Step 1: Position the mounting plate level against the wall and mark the drilling locations with a marker.

Step 2: Drill the holes using a hammer drill.

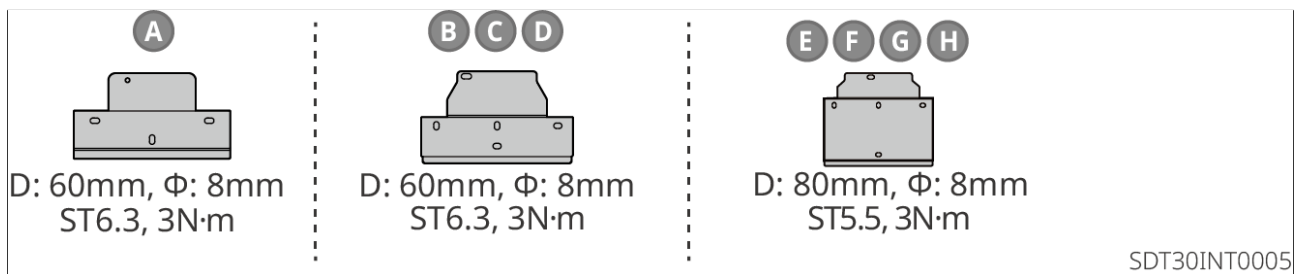
Step 3: Secure the mounting plate to the wall using expansion bolts.

Step 4: Hang the inverter on the mounting plate and secure the plate to the inverter.

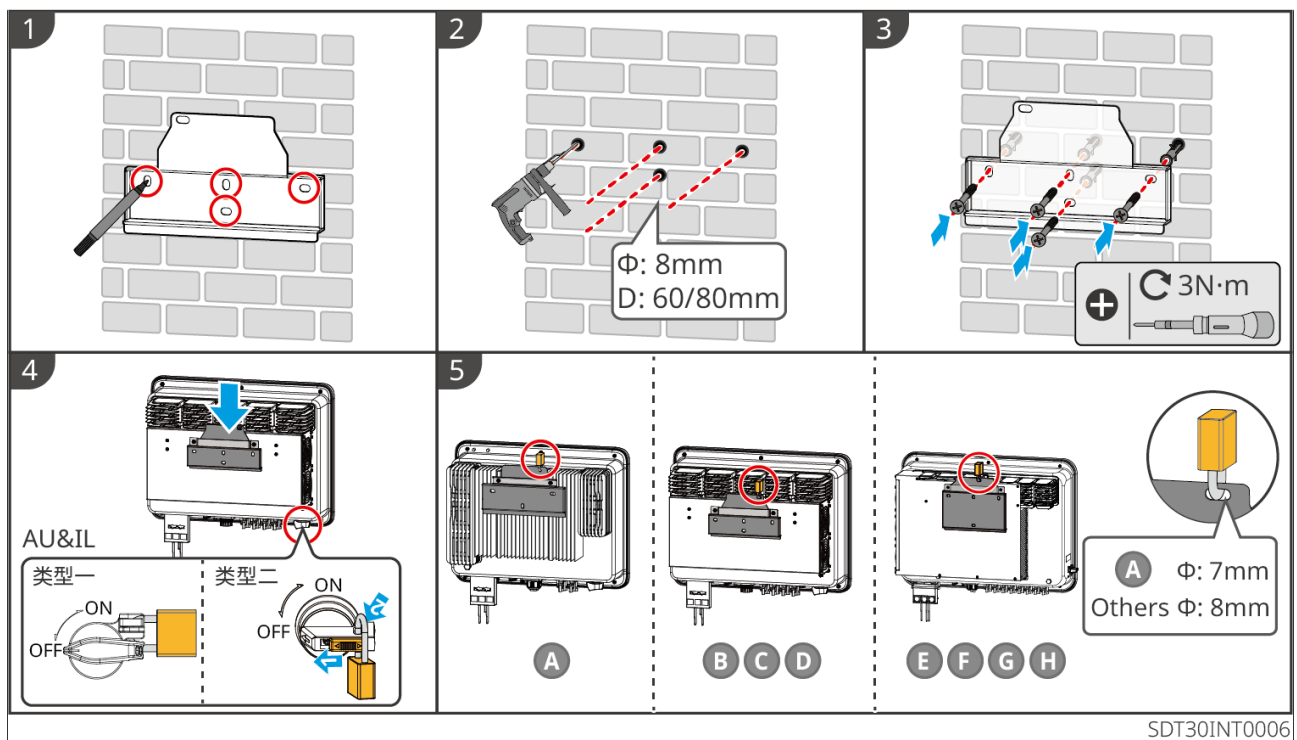
Step 5 (optional): Install the anti-theft lock.

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 GW13K-SDT-30 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, turn off the inverter's DC Switch and AC output switch, and ensure that the equipment is de-energized. Never work on energized equipment, as this may cause electric shock or other hazards.
- All operations performed and cable and component specifications used during electrical connection must comply with local laws and regulations.
- Excessive tension on the cables may result in poor connections. Leave sufficient slack in the cables before connecting them to the inverter terminals.
-

NOTICE

- Wear personal protective equipment, including safety shoes, protective gloves, and insulated gloves, as required when making electrical connections.
- Only qualified personnel may perform electrical connection work.
- Cable colors in the illustrations in this document are for reference only. Actual cable specifications must comply with local regulations.
- The illustrations in this document are for reference only. The appearance may vary between models or versions of the same model. The actual product shall prevail.

Cable Specifications

Cable	Type	Cable Specifications	
		Cable outer diameter (mm)	Conductor cross-sectional area (mm ²)
DC cable	PV cable rated for 1100 V	4.8~6.3	Recommended: 4~6
		5.9-8.8	Recommended: 4~6

Cable	Type	Cable Specifications		
		Cable outer diameter (mm)	Conductor cross-sectional area (mm ²)	
AC cable	Outdoor single-run, four- or five-core copper/aluminum cable[1]	GW30KLV-SDT-C30、GW50K-SDT-C30: 22~38 GW5000-SDT-AU30、GW6000-SDT-AU30、GW8000-SDT-AU30、GW9990-SDT-AU30、GW15K-SDT-AU30、GW20K-SDT-AU30: 13~18 Other: 12~30	Copper conductor (supports single-strand or stranded cable): 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-SDT-AU30、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: 16~25。 GW12KLV-SDT-C30、GW17KLV-SDT-C30、	Aluminum conductor (supports solid or stranded 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: 25。 Aluminum conductor (stranded wire only)

Cable	Type	Cable Specifications		
		Cable outer diameter (mm)	Conductor cross-sectional area (mm ²)	
			C30: 25。 Copper conductor (stranded cable only) 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。	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 Specifications		
		Cable outer diameter (mm)	Conductor cross-sectional area (mm2)	
Protective earth conductor	Outdoor cable	-	Copper conductor: 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-SDT-AU30、 GW20K-SDT-AU30: 10。 GW25K-SDT-AU30、 GW29K9-SDT-AU30、 GW25K-SDT-30、 GW30K-SDT-30、 GW23KLV-SDT-BR30、 GW37K5-SDT-BR30、	Aluminum conductor: 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。 Not supported by other models.

Cable	Type	Cable Specifications		
		Cable outer diameter (mm)	Conductor cross-sectional area (mm ²)	
			GW33K-SDT-C30、 GW36K-SDT-C30、 GW40K-SDT-C30、 GW40K-SDT-P30、 GW30KLV-SDT-C30、 GW50K-SDT-C30: 10-16。	
Communication cable	Outdoor shielded twisted-pair cable that complies with local standards [2]	3~7	0.2~0.5	
Note: [1] When using aluminum wire, connect it using a copper-aluminum transition terminal. [2] The total communication cable length must not exceed 1000 m. The values in this table are valid only when the external protective earth conductor is made of the same metal as the phase conductor. Otherwise, the cross-sectional area of the external protective earth conductor must provide equivalent conductivity to that specified in this table.				

4.2 Connecting the Protective Grounding Conductor

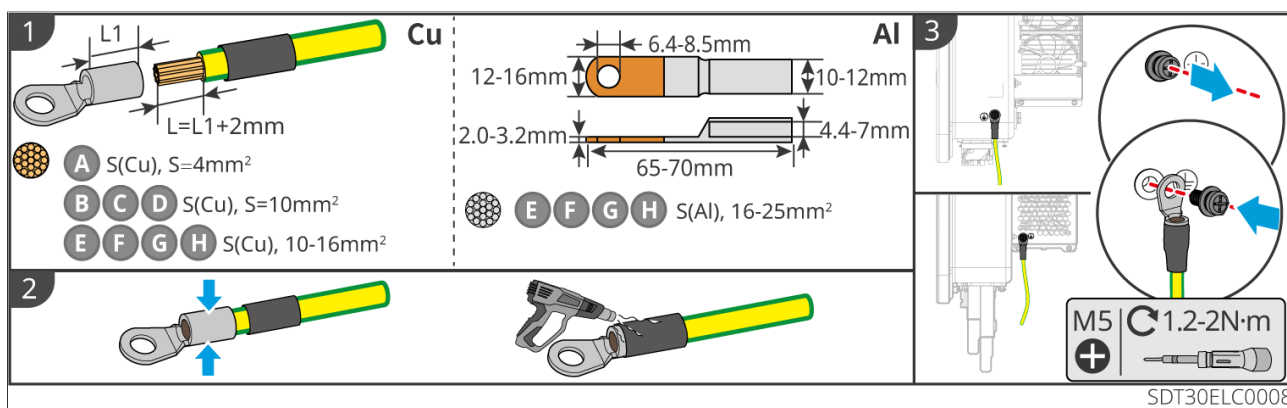


WARNING

- The protective earthing of the enclosure cannot replace the protective earth conductor at the AC output port. When wiring, ensure that the protective earth conductors at both locations are securely connected.
- If multiple inverters are installed, ensure that the protective earthing points on all inverter enclosures are equipotentially bonded.
- To improve the corrosion resistance of the terminal, after completing the protective earth conductor connection, apply silicone sealant or paint to the outside of the grounding terminal for protection.
- Provide the protective earth conductor. A copper-core cable is recommended for the grounding conductor. If aluminum wire is used, connect it using a copper-aluminum transition terminal.
Copper-aluminum transition terminals must be provided separately.

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 GW13K-SDT-30 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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4.3 Connecting the AC Output Cable



- Do not connect any load between the inverter and the AC Switch directly connected to the inverter.
- A Residual Current Monitoring Unit (RCMU) is integrated into the inverter. If the inverter detects leakage current exceeding the permitted value, it will quickly disconnect from the grid.

Recommended RCD specifications	Remarks
Select according to local laws and regulations • Type A • Grid-connected side^{*1}: 300mA	Provided by the customer
^{*1}: The inverter has a built-in general-purpose, current-sensing residual current monitoring unit. If leakage current exceeding the limit is detected, the inverter immediately disconnects from the utility grid. However, if regulations require an external residual current device (RCD), an RCD Type A with a rated residual operating current of at least 300 mA is recommended (for apparent power below 30 kVA, 300 mA is recommended; for apparent power above 30 kVA, 10 mA/kVA is recommended). Alternatively, select an RCD with a residual operating current that meets local regulatory requirements. For example, in Chile, local regulations require an RCD with a residual operating current of no more than 30 mA between the grid and inverters rated at 5 kVA or less. Note, however, that due to the PV panels, RCDs with lower residual operating currents are more prone to nuisance tripping in adverse conditions such as rainy weather.	

NOTICE

Each inverter must be equipped with an AC output switch. Multiple inverters must not be connected to the same AC Switch.

To ensure that the inverter can be safely disconnected from the grid in the event of an abnormal condition, install an AC Switch on the inverter's AC side. Select a suitable AC Switch in accordance with local regulations. The following switch specifications are for reference only:

Inverter model	AC Switch specifications
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

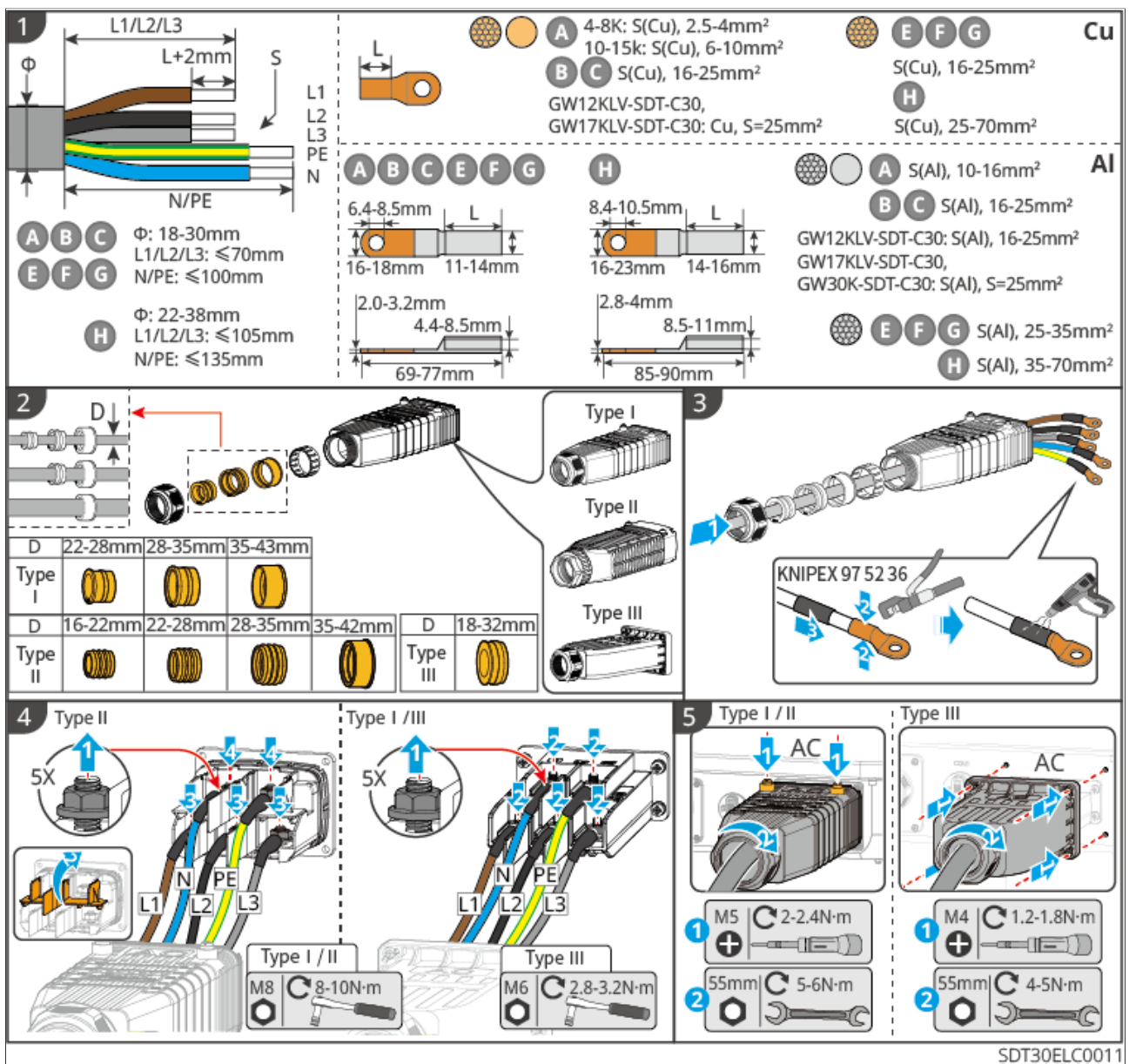
 **WARNING**

- When wiring, ensure that the AC output cable matches the "L1," "L2," "L3," "N," and "PE" terminals on the AC terminal block exactly. Incorrect cable connections will damage the inverter.
- Ensure the conductor core is fully inserted into the AC terminal opening, with no exposed strands.
- Ensure the cable connection is secure. Otherwise, the terminals may overheat during operation, damaging the inverter.
- The AC output terminals support both three-phase, four-wire and three-phase, five-wire connections. Use the configuration applicable to the actual installation. This section uses a three-phase, five-wire connection as an example.
- Leave sufficient slack in the Protection earth wire so that it is the last conductor to bear the strain if the AC output cable is pulled due to force majeure.
- When using aluminum wire, connect it via a copper-to-aluminum transition terminal. Provide the AC cable OT terminals yourself. Select the terminals in accordance with T/CEEIA 281-2017 or an equivalent standard.
- When crimping OT terminals, ensure the crimped joint is tight and has no gaps to maintain connection reliability.
- Use the KNIPEX 97 52 36 crimping tool. If this tool is unavailable, use a tool of the same type.

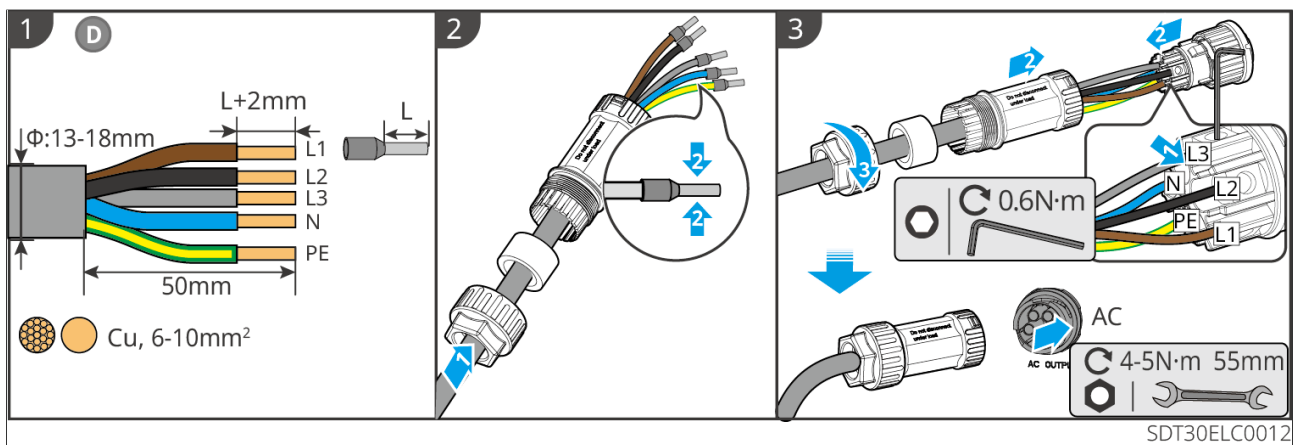
Type 1:

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 GW13K-SDT-30 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

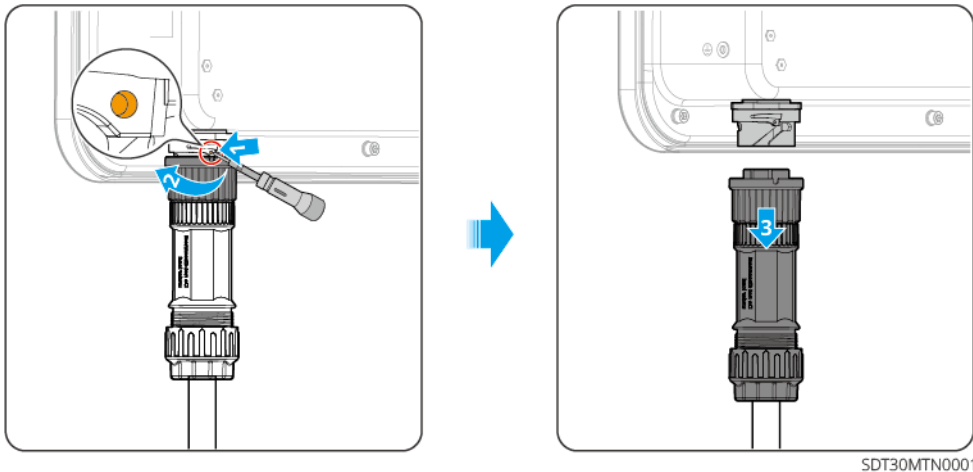
SDT30INT0004



Type 2:



Removing the AC terminals



4.4 Connecting the DC Input Cables

! DANGER

Before connecting PV strings to the inverter, verify the following. Failure to do so may cause permanent damage to the inverter and, in severe cases, may cause a fire resulting in personal injury or property damage.

1. Ensure that the maximum input voltage is within the inverter's permissible range.
2. Ensure that the positive pole of each PV string is connected to the inverter's PV+ terminal and the negative pole is connected to the inverter's PV- terminal.

! WARNING

- Mixing PV modules of different brands or models on the same MPPT, or connecting PV modules with different azimuths or tilt angles in the same PV string, may not damage the inverter but will reduce system performance.
- A voltage difference of no more than 160 V between MPPTs is recommended.
- 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 per MPPT of the inverter.
- For an inverter with a maximum DC input voltage of 1100 V, ensure that the open-circuit voltage of the PV strings connected to each MPPT does not exceed 1100 V. When the input voltage is between 1000 V and 1100 V, the inverter will enter standby mode. The inverter will resume normal operation when the voltage returns to the MPPT operating voltage range (140 V–1000 V).
- For an inverter with a maximum DC input voltage of 850 V, ensure that the open-circuit voltage of the PV strings connected to each MPPT does not exceed 850 V. When the input voltage is between 700 V and 850 V, the inverter will enter standby mode. The inverter will resume normal operation when the voltage returns to the MPPT operating voltage range (140 V–700 V).
- When connecting multiple PV strings to the inverter, it is recommended to use the maximum number of MPPTs available.
- Use the DC connectors supplied with the inverter. Damage to the equipment caused by using incompatible connectors is not covered by the warranty.
- PV string outputs are not designed to be grounded. Before connecting PV strings to the inverter, ensure that the minimum insulation resistance to ground of the PV strings meets the minimum insulation resistance requirement.
- Provide the DC input cables separately.
- DC input cable type: outdoor PV cable rated for the inverter's maximum input voltage.

PV String Connection Configuration

NOTE

For optimal power generation, it is recommended that PV strings be connected as follows.

Select the number of MPPTs and strings according to the actual inverter model.

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

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

PV Connection Mode

When installing the inverter for the first time, set the corresponding MPPT connection mode according to the actual wiring configuration using the Xiaogu Cloud Window+ App (contact after-sales support for detailed instructions). After completing the settings, disconnect the PV and AC power supplies and restart the inverter. The configuration is successful if the inverter does not report a PV connection mode fault.

There are three PV connection modes:

1. Independent connection (default mode): MPPT1, MPPT2, MPPT3, and MPPT4 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 to the same PV array.
- For details on how to select the connection mode, see Chapter 8 of this manual or the Xiaogu Cloud Window+ App User Manual.

Connecting the DC Input Cables

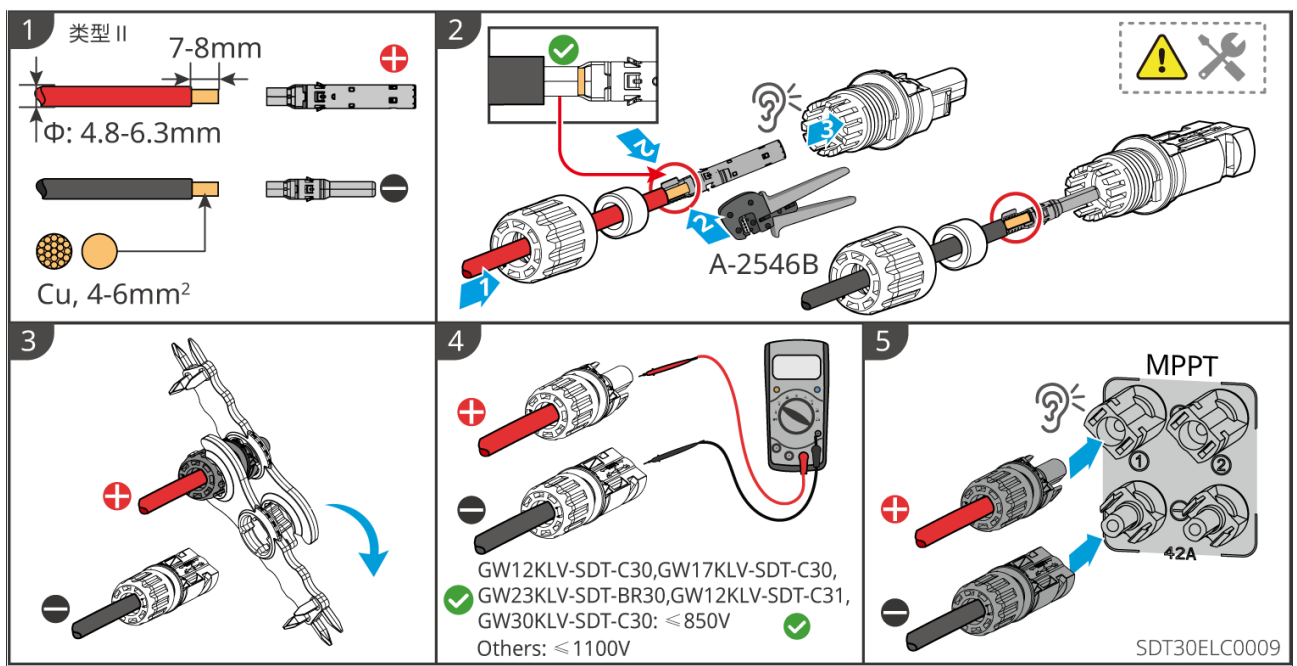
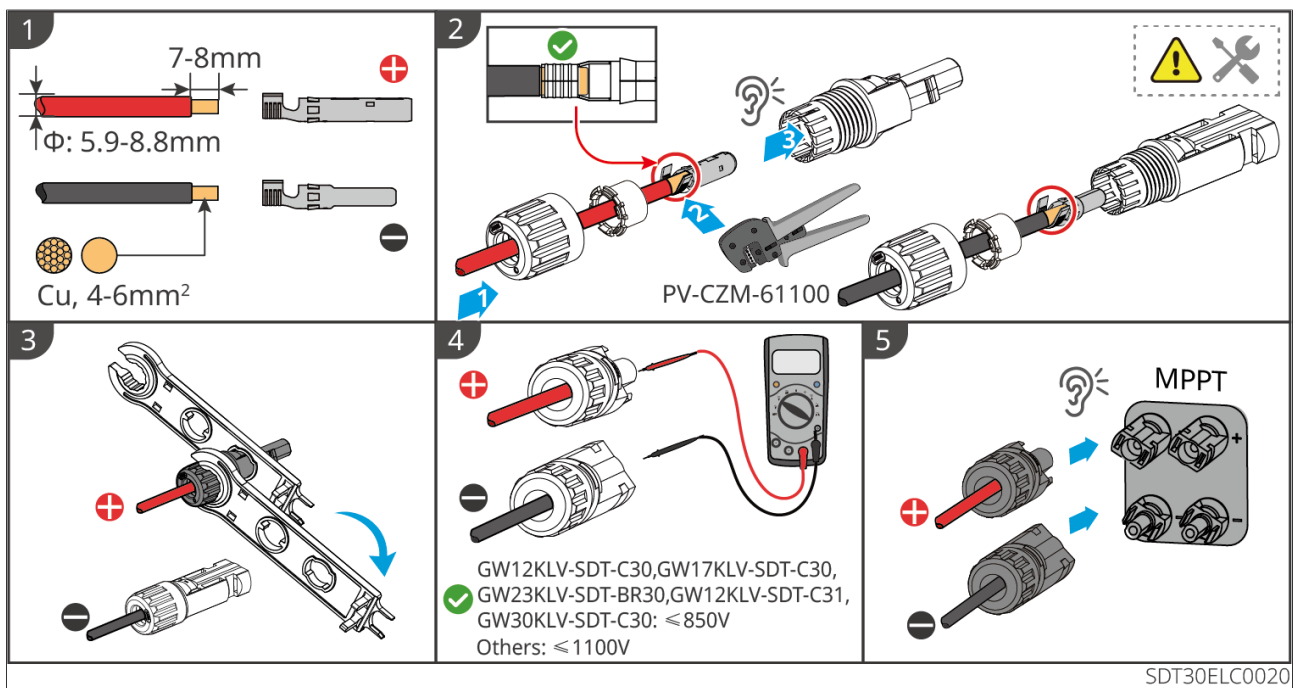
Step 1: Prepare the DC cables.

Step 2: Disassemble the DC connectors. Crimp the DC terminals and assemble the DC connectors.

Step 3: Tighten the DC connectors.

Step 4: Measure the DC input voltage.

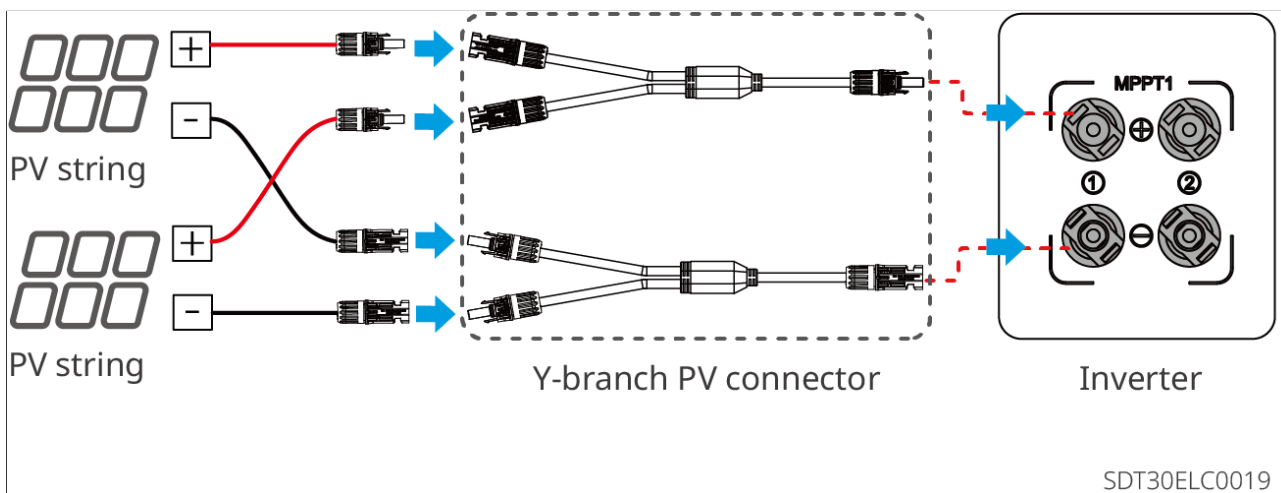
Step 5: Connect the DC connectors to the inverter's DC terminals.



Connecting Y-type PV connectors (optional)

NOTE

1. If using Y-type connectors, ensure that their DC connector model matches the model and specifications of the inverter's PV input terminals. Damage to the equipment caused by incompatible Y-type connectors is not covered by the equipment manufacturer's warranty.
2. Ensure that all PV strings connected to one MPPT via Y-type connectors have the same configuration, including model, quantity, tilt angle, and azimuth.
3. The total current of the strings connected via Y-type connectors must be less than the maximum current per PV input.
4. For PV strings connected via Y-type connectors, if three or more strings are connected to a single MPPT, each string must be equipped with the appropriate fuse.



4.5 Communication Connections

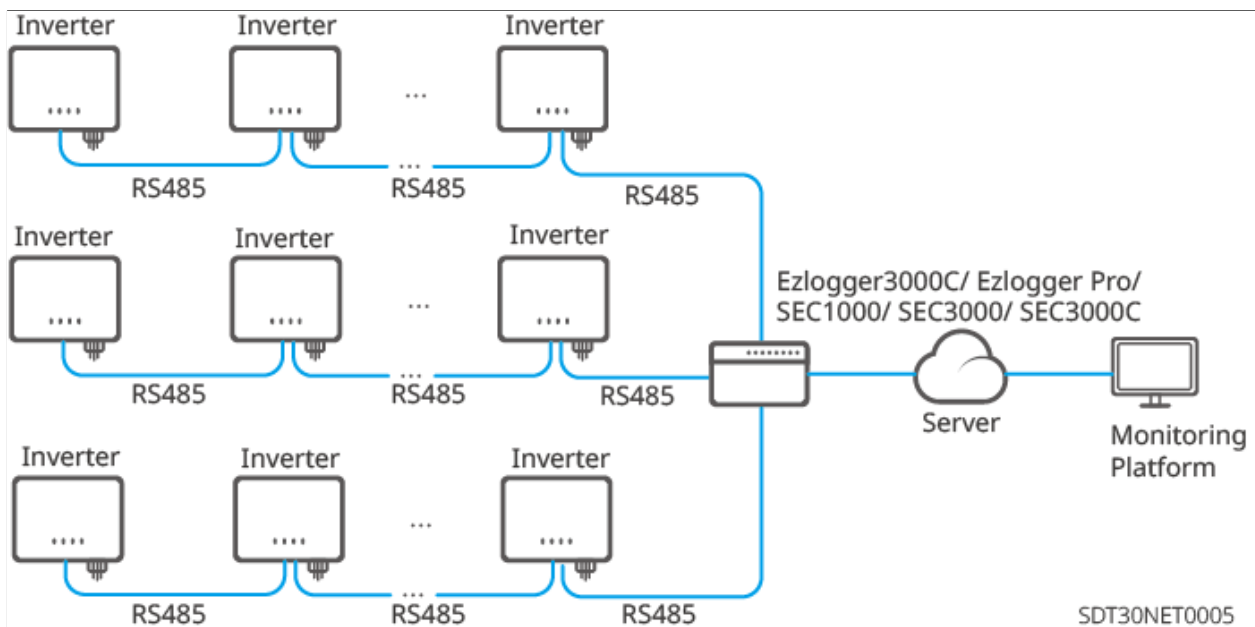
NOTICE

- For the product's specific functions and configuration, refer to the actual inverter model available in your region.
- As product versions are upgraded or for other reasons, this document may be updated periodically. For compatibility between inverters and IoT products, 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 Scheme

NOTICE

- When using a data logger to connect multiple inverters over RS485, multiple inverters can be connected to each COM port on the data logger. With an EzLogger Pro or SEC1000, a maximum of 20 inverters can be connected to each COM port. With an EzLogger 3000C, SEC3000, or SEC3000C, a maximum of 25 inverters can be connected to each COM port. The total length of the RS485 cables connected to each COM port must not exceed 1,000 m.
- When using an EzLogger 3000C, SEC3000, or SEC3000C for parallel operation of multiple inverters, ensure that only the terminating resistor DIP switch on the last inverter is set to ON (the factory default) and that all other inverters are set to OFF to ensure reliable communication.



4.5.2 Power Limitation and Load Monitoring

Power Limiting

When a PV plant operates in self-consumption mode and the loads cannot consume all the Energy Generation, excess energy must be fed into the grid. A smart meter, data logger, SEC1000 Smart Energy Controller, or SEC can monitor the plant's Energy Generation and control the amount of power fed into the grid.

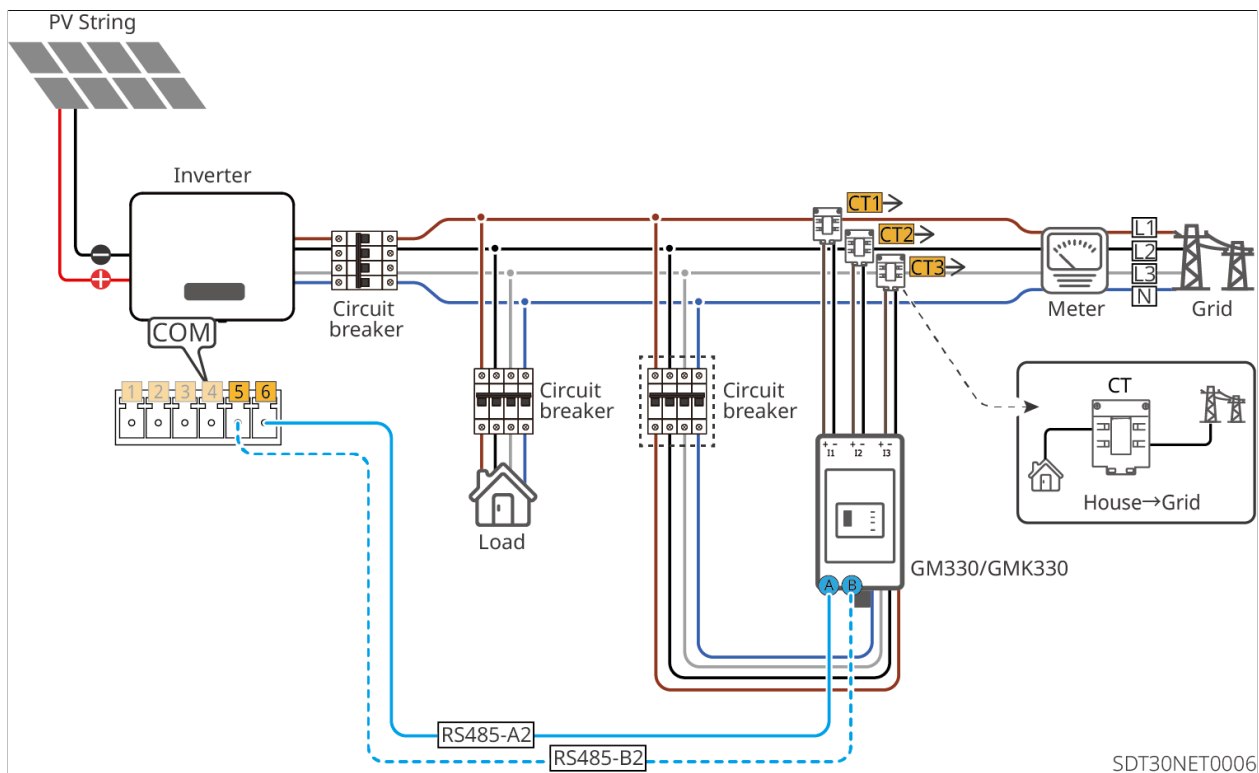
 WARNING

1. Install the CT close to the grid connection point and in the correct orientation. The "-->" marking on the CT indicates the direction of current flow from the inverter to the grid. If the CT is reversed, the inverter will trigger an alarm and the Power Limit function will not work.
2. The CT aperture must be larger than the outer diameter of the AC power cable to allow the cable to pass through the CT.
3. For the specific CT wiring method, refer to the manufacturer's documentation and ensure that the CT is connected in the correct direction and functions properly.
4. Clamp the CTs onto the L1, L2, and L3 cables. Do not clamp them onto the N cable.
5. CT Specifications:
 - Select a CT current ratio of $n \text{ A}/5 \text{ A}$ ($n \text{ A}$: CT primary-side input current; n ranges from 200 to 5,000 and should be selected by the user according to actual requirements. 5 A : CT secondary-side output current).
 - A CT accuracy class of 0.5, 0.5s, 0.2, or 0.2s is recommended to ensure a CT current measurement error of $\leq 1\%$.
6. To ensure CT current measurement accuracy, the CT cable length should not exceed 30 m.
7. The inverter supports local parameter configuration via Wi-Fi or Bluetooth. Connect to a mobile phone or the web interface to configure device parameters, view operating and error information, and stay informed of the system status.
 - When the system contains only one inverter, you can use a 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 module.
 - When the system contains multiple inverters connected in a parallel network, install an Ezlink3000 smart communication module on the master inverter to establish the network.

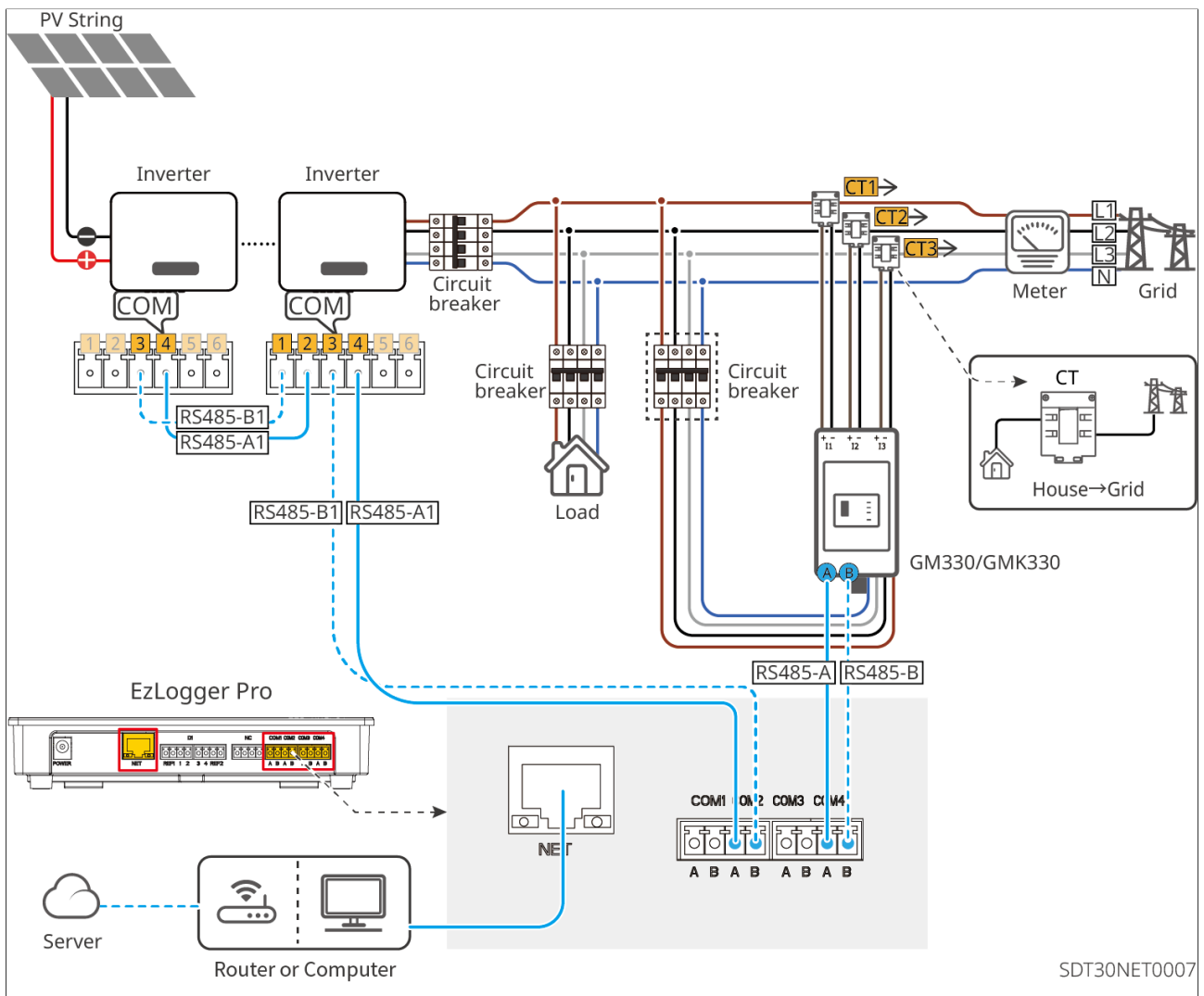
NOTICE

- Ensure that the meter is wired correctly and that the phase sequence is correct. Recommended cross-sectional area for the meter input voltage cables: 1 mm² (18 AWG).
- The external CT ratio can be configured using the SEMS+ App. For example, if a 200 A/5 A CT is used, set the CT ratio to 40. For detailed configuration instructions, refer to:
https://admin.goodwe.com/Ftp/EN/Downloads/User%20Manual/GW_SEMS-PLUS-APP_User-Manual-EN.pdf

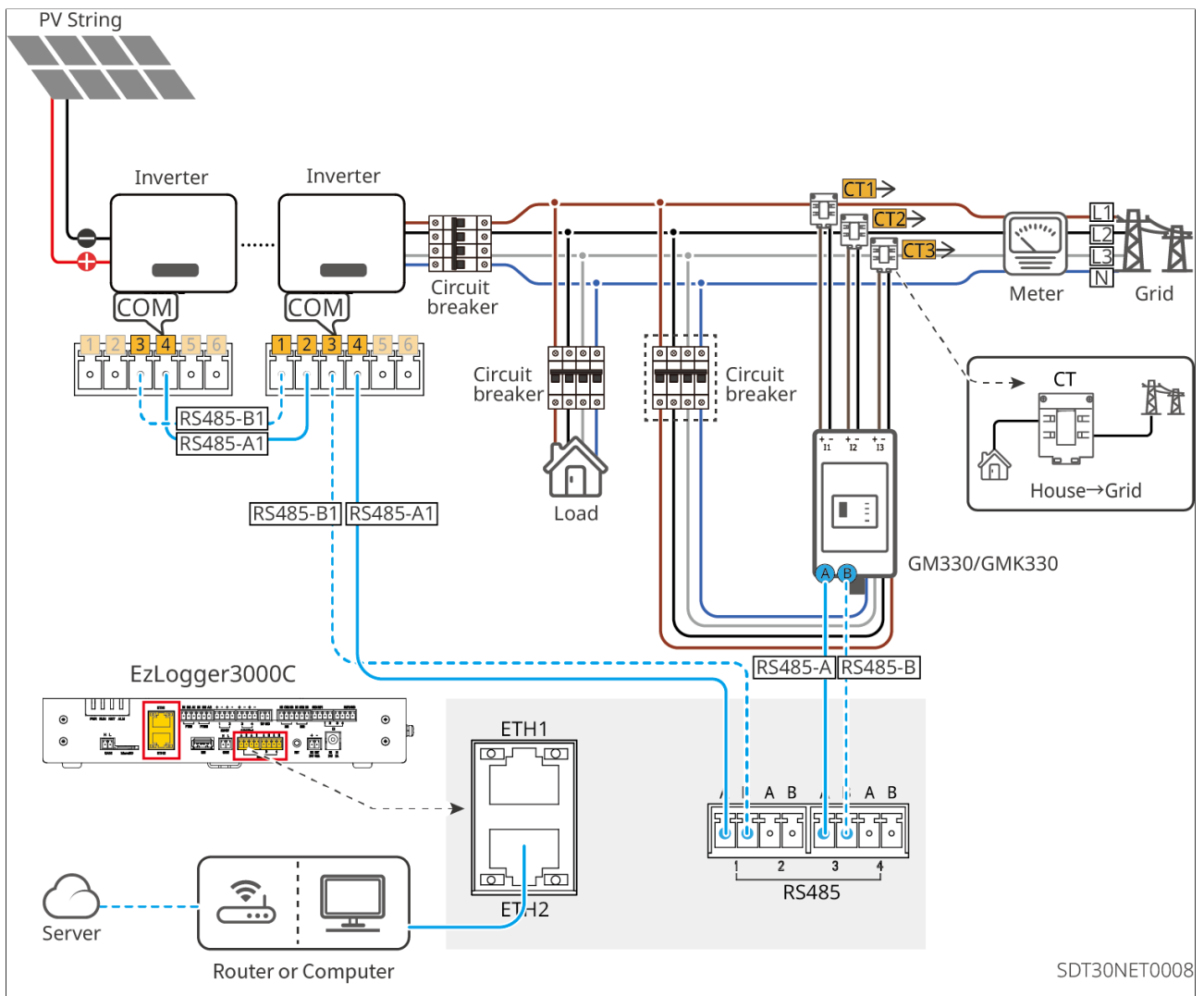
Single-Inverter Power Limit Networking Solution (GMK330/GM330)



Multi-Inverter Power Limit Networking Solution (EzLogger Pro+GM330/GMK330)



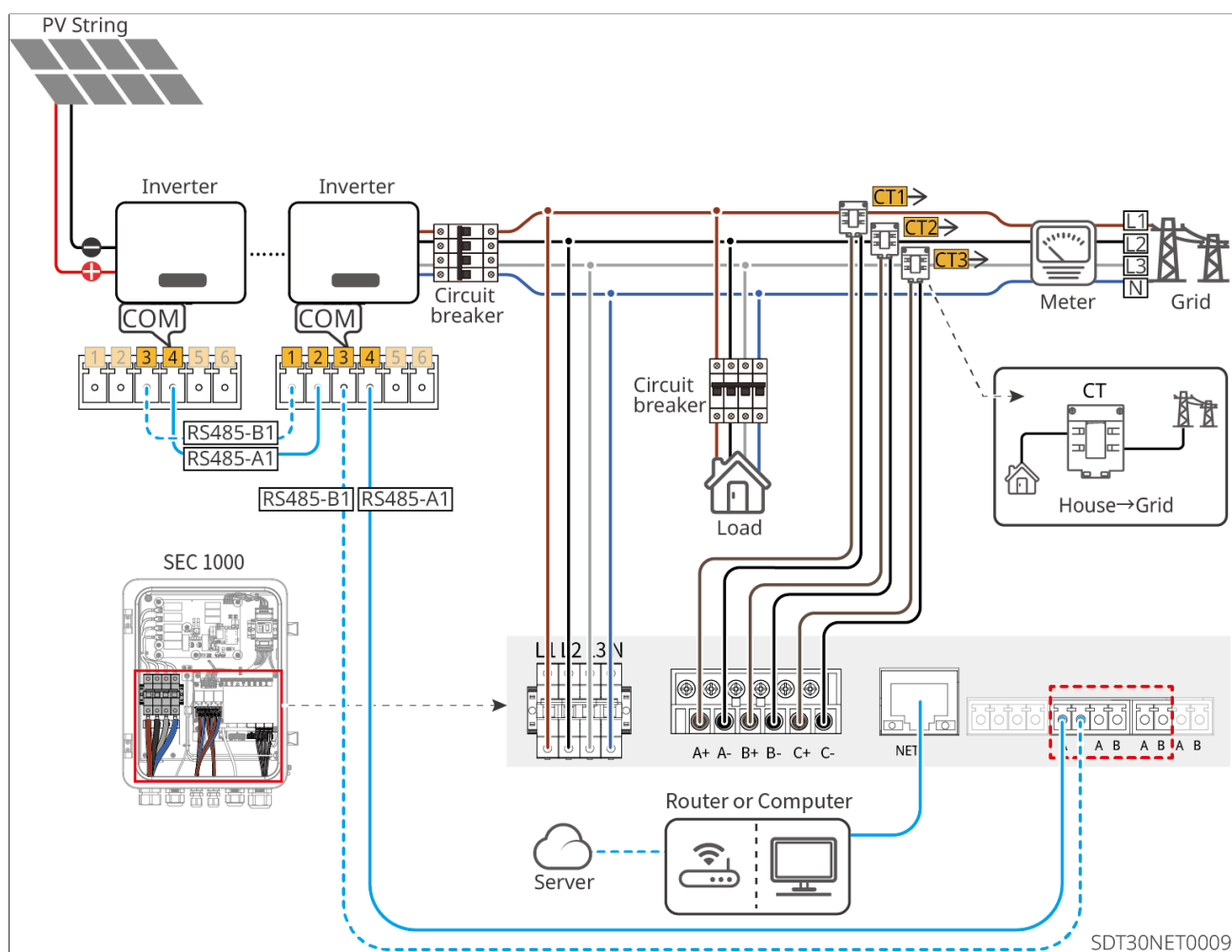
Multi-Inverter Power Limit Networking Solution (EzLogger3000C+GM330)



Multi-Inverter Power Limit Networking Solution (SEC1000)

⚠ WARNING

1. When connecting the SEC1000 AC line to the grid, 3L/N/PE must be connected, and the grid voltage must be within the SEC1000's allowable voltage sampling range.
2. The CT should be installed close to the grid connection point. Ensure that the CT is installed in the correct direction; otherwise, the Power Limit function cannot be implemented.
3. When using the SEC1000, you must provide an external CT.
4. The CT aperture must be larger than the outer diameter of the AC power cable to allow the cable to pass through the CT.
5. For the specific CT wiring method, refer to the relevant manufacturer's documentation to ensure correct wiring direction and proper operation.
6. Clamp the CTs onto the L1, L2, and L3 cables. Do not clamp them onto the N cable.
7. The GW50K-SDT-C30 does not support the SEC1000.

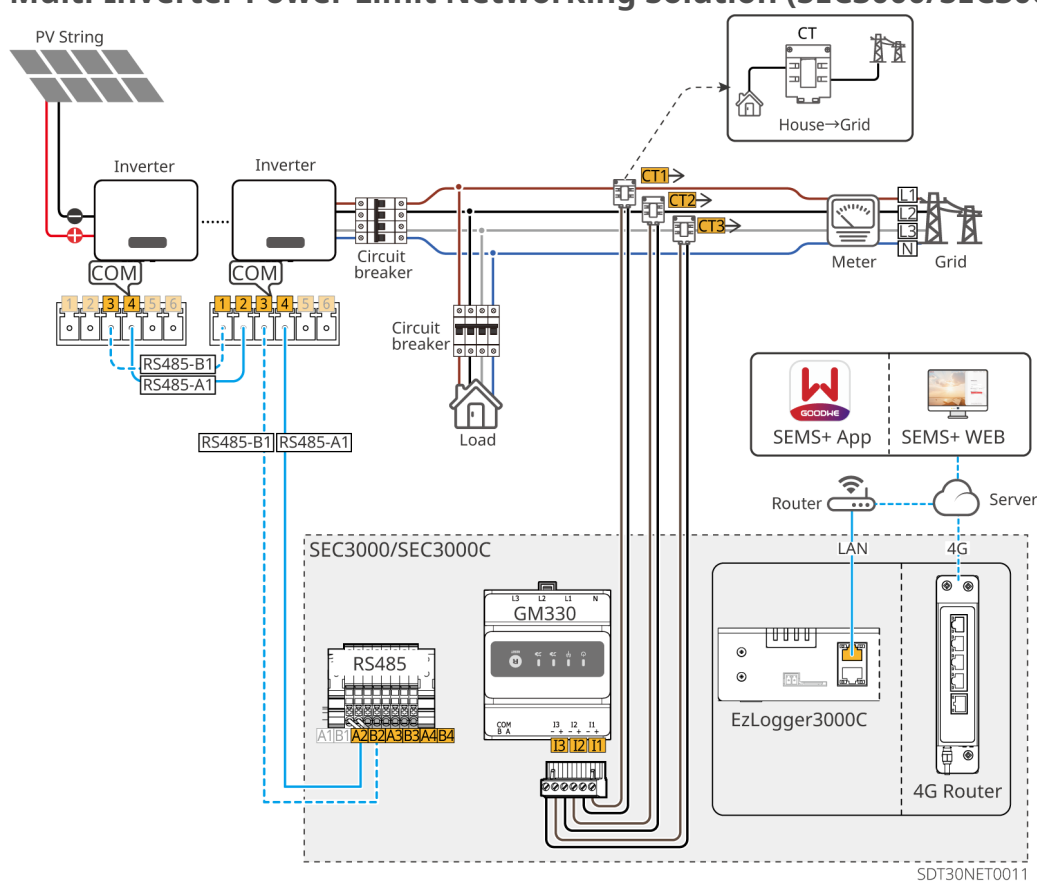


Recommended specifications for external CTs:

No.	Current Range	Description	Remarks
1	$I_{max} < 250A$	CT 200A Acrel/AKH-0.66(200A/5A)	Power Limit CT, solid-core (aperture size: 31 mm × 11 mm, Φ22 mm)
		CT 250A/5A Acrel/AKH-0.66-K-30x20-250/5	Power Limit CT, split-core (opening size: 32 mm × 22 mm), accuracy: 0.5%
		CT 250A/5A Acrel/AKH-0.66-K-60x40-250/5	Power Limit CT, split-core (opening size: 62 mm × 42 mm), accuracy: 1.0%
2	$250A \leq I_{max} < 1000A$	CT 1000A/5A Acrel/AKH-0.66-K-60x40-1000/5	Power Limit CT, split-core (opening size: 62 mm × 42 mm), accuracy: 0.5%

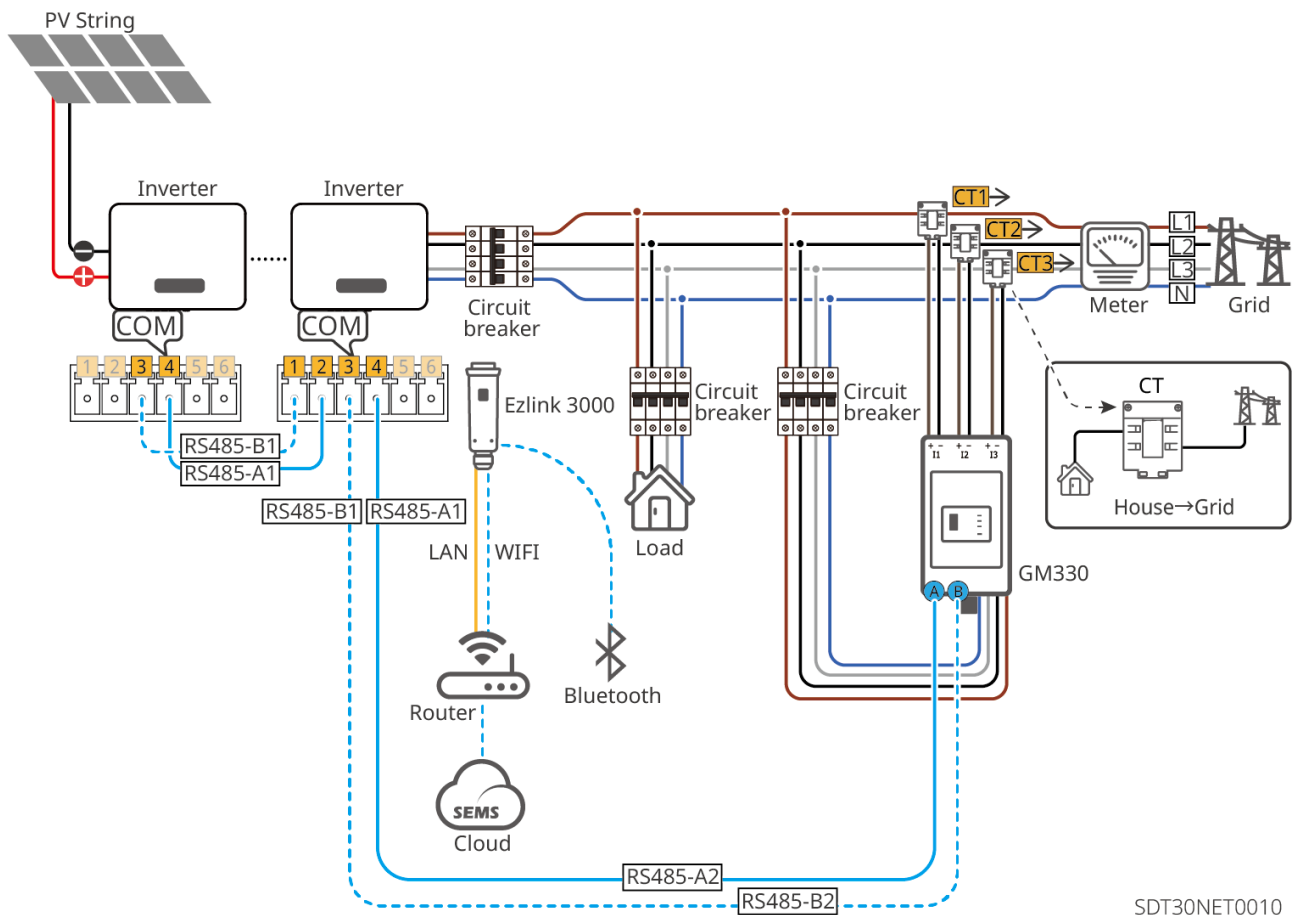
No.	Current Range	Description	Remarks
		CT 1000A/5A Acrel/AKH-0.66-K-80x40-1000/5	Power Limit CT, split-core (opening size: 82 mm × 42 mm), accuracy: 0.5%
3	$1000A \leq I_{max} < 5000A$	CT 5000A/5A Acrel/AKH-0.66-K-140x60-5000/5	Power Limit CT, split-core (opening size: 142 mm × 62 mm), accuracy: 0.2%
		CT 5000A/5A Acrel/AKH-0.66-K-160x80-5000/5	Power Limit CT, split-core (opening size: 162 mm × 82 mm), accuracy: 0.2%

Multi-Inverter Power Limit Networking Solution (SEC3000/SEC3000C)



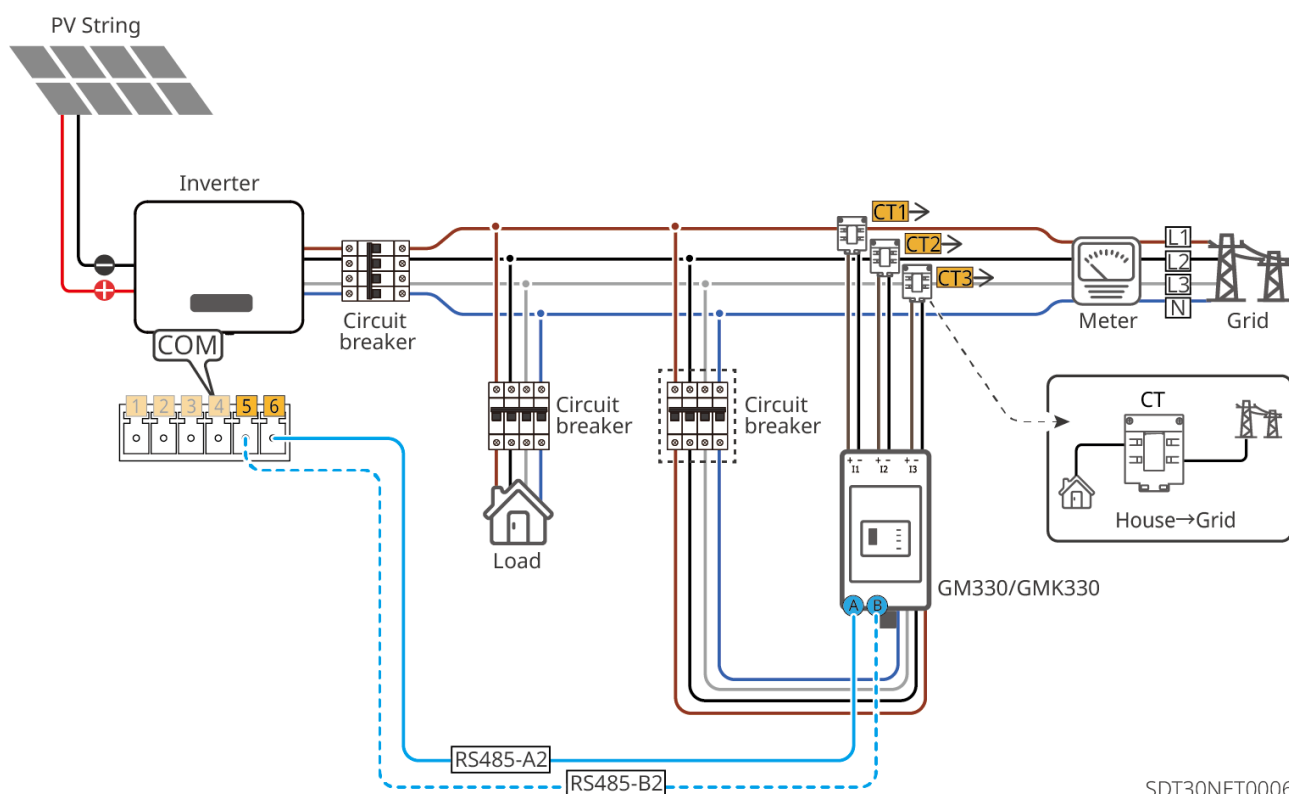
Multi-Inverter Power Limit Networking Solution (Ezlink3000+GM330)

Applicable only to the following models: 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

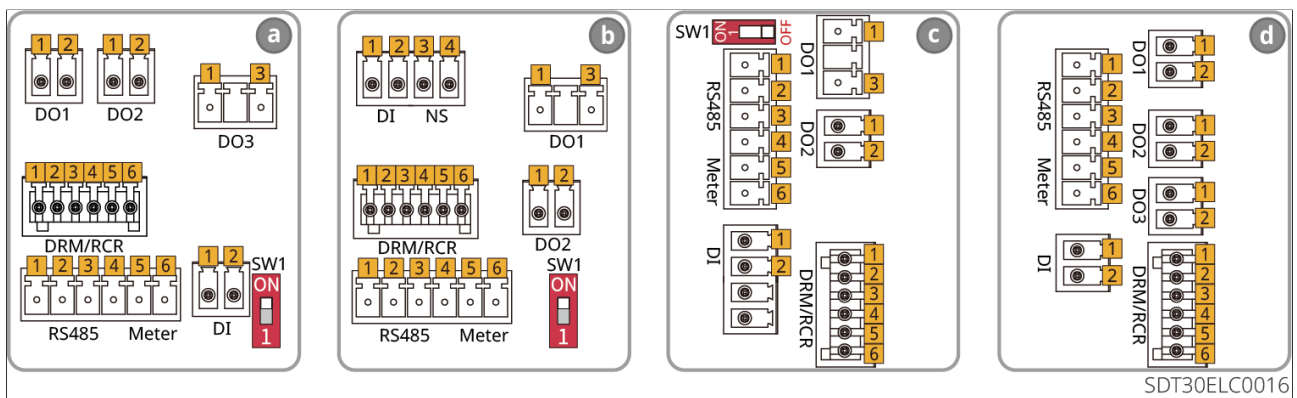


24-Hour Load Monitoring

Inverters configured for nighttime power supply are equipped with a 24-hour load monitoring function. The GMK330 and GM330 smart meters measure data at the grid connection point and send it to the inverter. The inverter transmits power generation information and grid connection point data to the cloud monitoring platform via the communication module. The platform calculates the load power consumption data, enabling real-time 24-hour monitoring of load power consumption.



4.5.3 Connect the Communication Cables



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

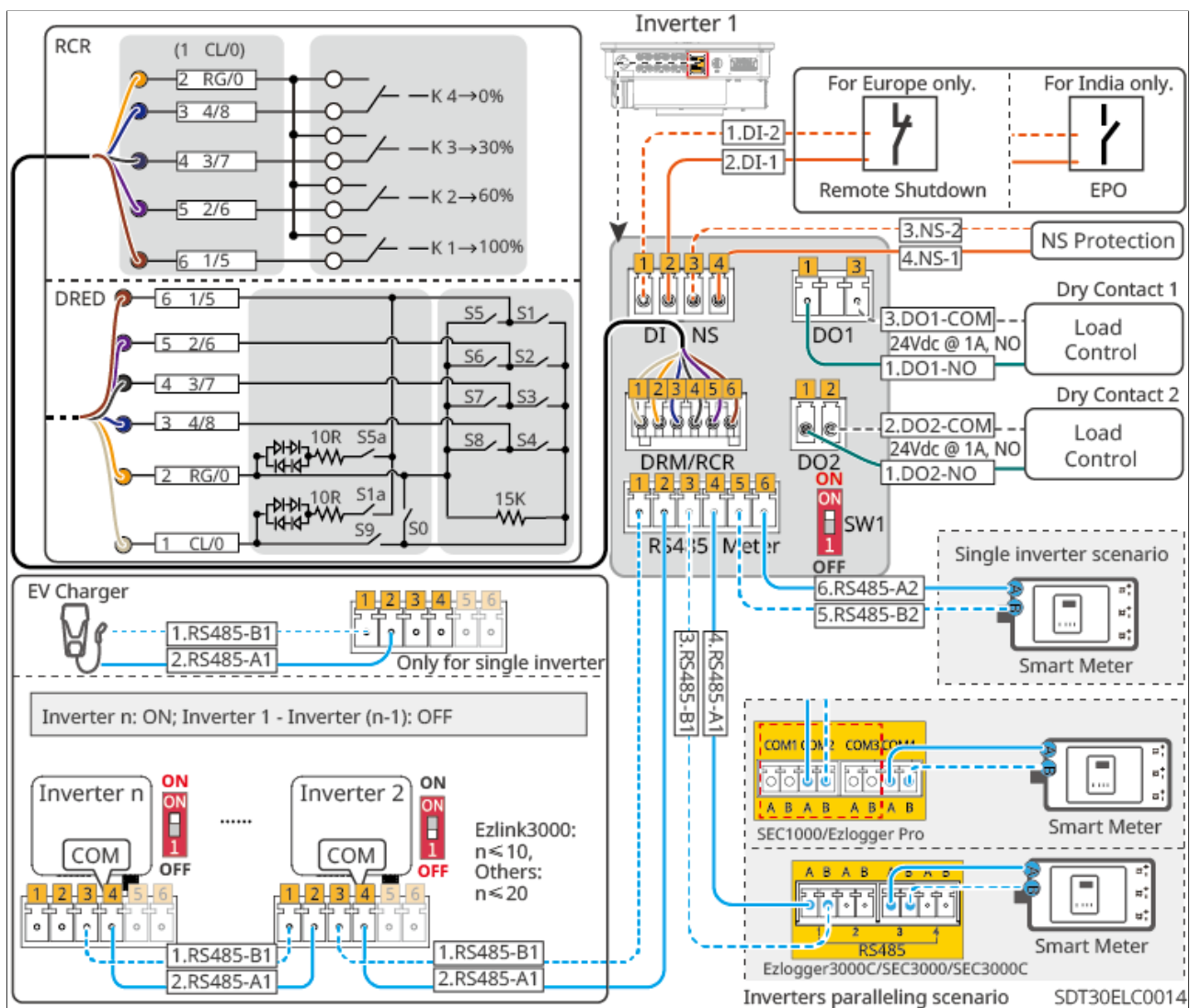
Function	Port Definition (Model a)	Port Definition (Model b)	Port Definition (Model c)	Port Definition (Model d)	Function Description
Meter	5: RS485-B2 6: RS485-A2	5: RS485-B2 6: RS485-A2	5: RS485-B2 6: RS485-A2	5: RS485-B2 6: RS485-A2	The Power Limit function is implemented using an energy meter and CTs. Contact the inverter manufacturer to purchase the required accessories.

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 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) : Supports the Australian DRM function and provides a DRED signal control port. RCR (Ripple Control Receiver): Provides an RCR signal control port to meet grid dispatch requirements in Germany and other regions. Reserved wiring terminals on the inverter; the associated equipment must be provided by the user.

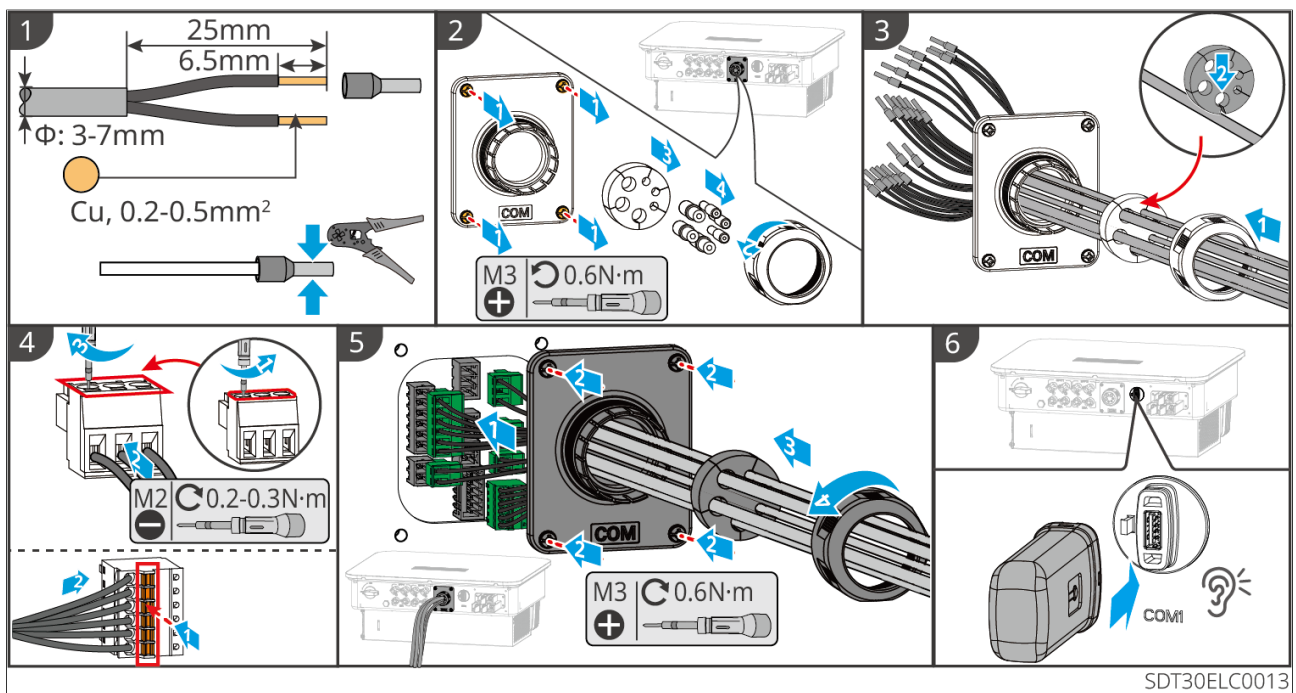
Function	Port Definition (Model a)	Port Definition (Model b)	Port Definition (Model c)	Port Definition (Model d)	Function Description
DI	1: DI-2 2: DI-1	1: DI-2 2: DI-1	1: DI-2 2: DI-1	1: DI-2 2: DI-1	When the Emergency Power Off switch sends a shutdown signal, the inverter's AC side is automatically disconnected and grid-tied operation stops. An external Emergency Power Off switch is required and must be controlled through the DI port: • Remote Shutdown: The unit starts when the DI port is closed and stops when the DI port is open. • Emergency Power Off: The unit stops when the DI port is closed and 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 the NS Protection device (Germany only)

Taking Model b as an example:

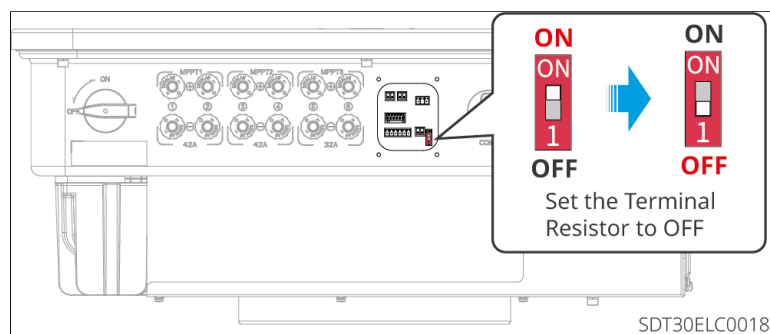


- Step 1: Prepare the communication cable.
- Step 2: Disassemble the communication connector.
- Steps 3–4: Insert the communication cable into the terminals and tighten.
- Step 5: Connect the communication terminal to the device.
- Step 6: Install the Smart Communication Stick.



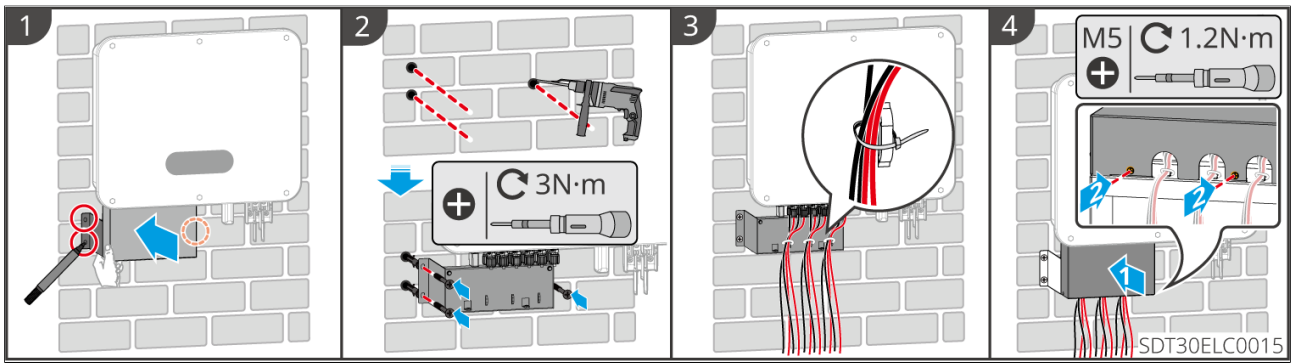
Turn off the terminal resistor DIP switch

Some inverter models are equipped with an RS485 termination resistor. Its DIP switch is enabled by default. "ON" indicates enabled, and "1" indicates disabled. Procedure: Open the cover of the communication port (see 6.5.4), then use an insulated tool to set the termination resistor DIP switch to "1" (OFF).



4.6 Install the Protective Cover

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



5 Equipment Commissioning

5.1 Pre-Energization Checks

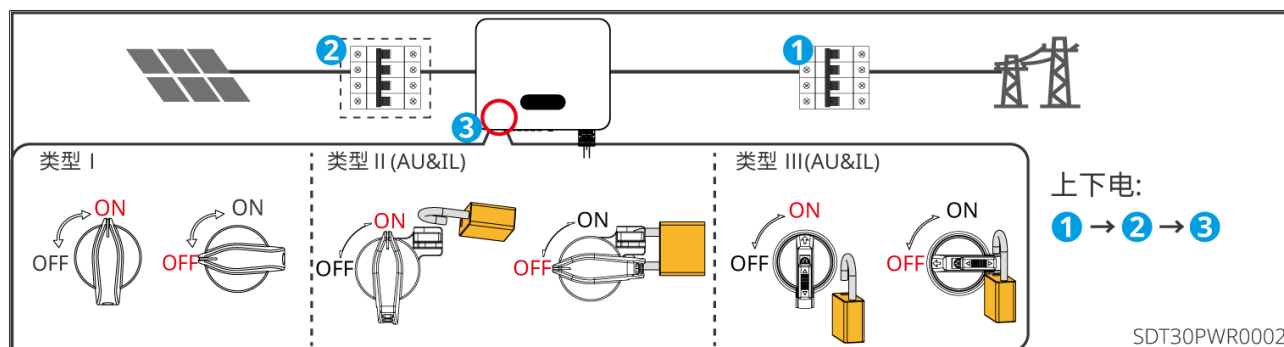
No.	Check Item
1	The inverter is securely installed in a location that allows easy operation and maintenance, provides sufficient space for ventilation and heat dissipation, and is clean and tidy.
2	The protective earth conductor, DC input cables, AC output cables, and communication cables are correctly and securely connected.
3	Cables are bundled in accordance with routing requirements, arranged properly, and undamaged.
4	Unused ports are sealed.
5	The voltage and frequency at the inverter's grid connection point meet grid connection requirements.

5.2 Energize the Equipment

Step 1: Close the AC Switch between the inverter and the power grid.

Step 2: (Optional) Close the DC Switch between the inverter and the PV modules.

Step 3: Close the inverter's DC Switch.



6 System Commissioning

6.1 Setting Inverter Parameters via the Display

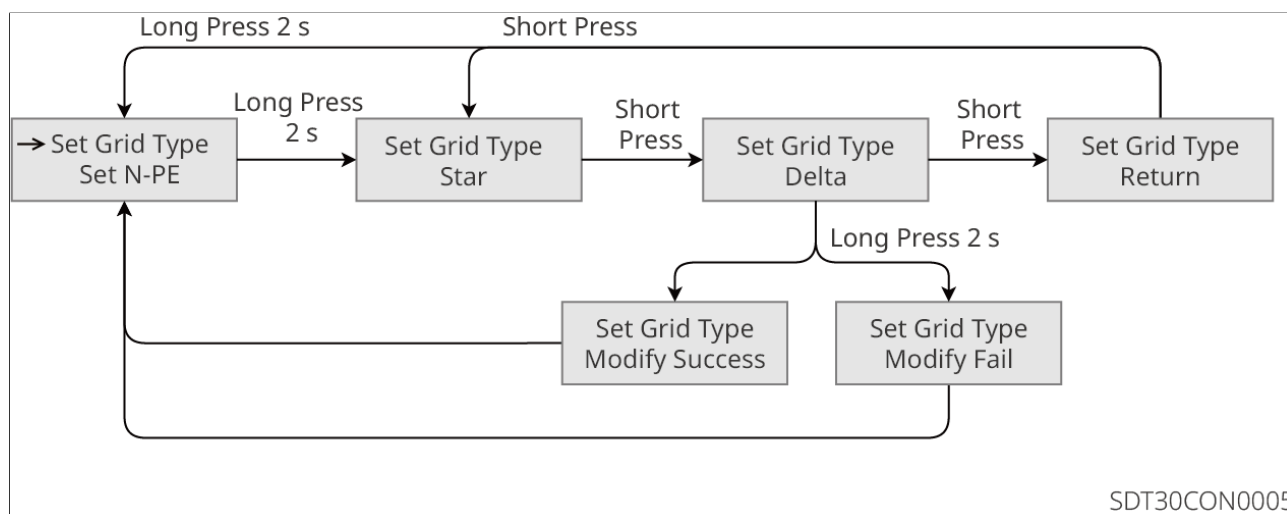
NOTICE

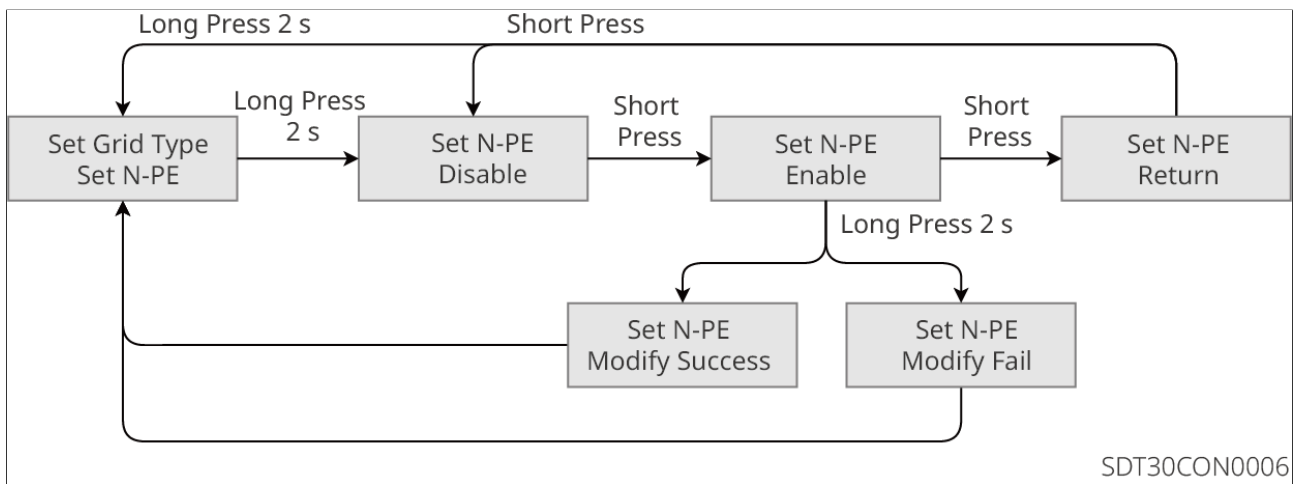
- The screenshots in this document correspond to inverter software version V1.00.00. The interfaces are for reference only; the actual interfaces prevail.
- Parameter names, ranges, and default values may change or be adjusted. Refer to the actual display.
- Inverter power parameters must be configured and monitored by qualified personnel to avoid incorrect settings that may affect the inverter's energy generation.

Display Button Instructions

- At any menu level, if no button is pressed for a certain period, the LCD will dim and the display will automatically return to the home screen.
- Short press the display button: switch menu screens or adjust parameter values.
- Long press the display button: after adjusting a parameter value, long press to confirm the setting; enter the next submenu.

Button Operation Example:





6.1.1 Display Menu Overview

This section describes the display menu structure to help you navigate the menu levels, view inverter information, and configure inverter parameters.

Parameter Name	Description
Date and Time	View the time for 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 Energy Generation	View the inverter's energy generation for the current day.
Total Energy Generation	View the inverter's total energy 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 Settings	Configure as required.
Grid Code Settings	Configure according to the grid standards of the country/region where the inverter is installed and the inverter's application scenario.
Date Settings	Configure according to the local time in the country/region where the inverter is installed.
Time Settings	
W/LRestart	Power-cycle the communication module.

Parameter Name	Description
W/LReload	Restore the communication module to factory settings. After the reset, reconfigure the network parameters of the communication module.
Power Factor Adjustment	Set the inverter Power Factor according to actual requirements.
SetISO	Set the insulation resistance threshold forPV-PE. If the measured value is below the set value, anISOfault will be reported.
Low Voltage Ride Through	When this function is enabled, if a brief Low Voltage anomaly occurs on the grid, the inverter will not immediately report a Grid Power Outage and can remain operational for a period of time.
High Voltage Ride Through	When this function is enabled, if a brief high-voltage anomaly occurs on the grid, the inverter will not immediately report a Grid Power Outage and can remain operational for a period of time.
Power Limit Enable	Set according to the power that can actually be fed into the grid.
Set Power Limit	
PV1Shadow Mode	This fault is reported if the actualPVpanels are heavily shaded, enable the shadow scanning function.
PV2Shadow Mode	
Shadow Scan Interval	Set the shadow scan interval according to actual requirements.
SetModbusAddress	Set according to the actualModbusaddress used by the inverter.
SetSunspec	Set theSunspecprotocol according to actual communication requirements.

Parameter Name	Description
Arc Failure Enable	The Arc Failure function is optional and disabled by default. Enable or disable it according to actual requirements.
Arc Failure Self-Test	Check whether the inverter's Arc Failure function is operating correctly.
Arc Failure Fault Clear	Clear Arc Alarm
Password Settings	The inverter password can be changed. After changing it, be sure to remember the password. If you forget it, contact the after-sales service center for assistance.
Type of Electrical Supply System	Configure according to the electrical supply system connected to the inverter. Star and delta electrical supply system types are currently supported.
N-PE Detection	N-to-ground detection switch.
Restore Factory Settings	Restore some inverter settings to their factory defaults.
View Faults	View the inverter's historical fault records.
Clear Faults	Clear the inverter's historical fault records.

6.2 Download the SEMS+ App

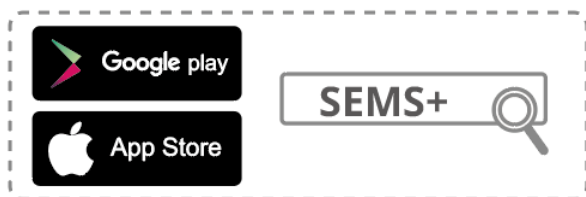
Phone Requirements:

- Phone operating system requirements: Android 6.0 or later, iOS 13.0 or later.
- The phone must support a web browser and be connected to the Internet.
- The phone must support WLAN/Bluetooth.

Download Methods:

Method 1:

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



Method 2:

Scan the QR code below to download and install the app.



7 System Maintenance

7.1 De-Energize the Inverter



- Before performing operation or maintenance on the inverter, shut it down. Operating the equipment while energized may damage the inverter or cause electric shock.
- After the inverter is powered off, its internal components take some time to discharge. Wait until the equipment is fully discharged, as specified on the label.

Step 1: (Optional) Send a command to the inverter to stop grid connection.

Step 2: Open the AC Switch between the inverter and the power grid.

Step 3: Open the inverter's DC Switch.

Step 4: (Optional) Open the switch between the inverter and the PV modules.

7.2 Remove the Inverter



- Ensure that the inverter is powered off.
- Wear personal protective equipment when working on the inverter.

Step 1: Disconnect all electrical connections to the inverter, including the DC cables, AC cables, communication cables, communication module, and protective ground cable.

Step 2: Remove the inverter from the mounting bracket.

Step 3: Remove the mounting bracket.

Step 4: Store the inverter properly. If it will be used again, ensure that the storage conditions meet the requirements.

7.3 Dispose of the Inverter

When the inverter can no longer be used and must be disposed of, dispose of it in

accordance with the electrical waste disposal requirements of the laws and regulations in the country/region where it is located. Do not dispose of the inverter as household waste.

7.4 Inverter Faults

7.4.1 Troubleshooting (Fault Codes F01–F40)

Fault Code	Fault Name	Cause	Recommended Troubleshooting
F01	Grid Power Outage	1. Grid power outage. 2. The AC cable or AC Switch is disconnected.	1. The alarm will clear automatically once grid power is restored. 2. Check whether the AC cable or AC Switch is disconnected.
F02	Grid Overvoltage Protection	The grid voltage exceeds the permitted range, or the duration of the high voltage exceeds the high-voltage ride-through setting.	1. If this occurs occasionally, it may be due to a brief grid abnormality. The inverter will resume normal operation once it detects that the grid is normal; no manual intervention is required. 2. If this occurs frequently, check whether the grid voltage is within the permissible range. If not, contact the local utility. If it is, the Grid Overvoltage Protection threshold must still be adjusted only after obtaining approval from the local utility. 3. If normal operation does not resume for an extended period, check that the AC-side circuit breaker and output cables are properly connected.

Fault Code	Fault Name	Cause	Recommended Troubleshooting
F03	Grid Undervoltage Protection	The grid voltage is below the permissible range, or the duration of the low voltage exceeds the low-voltage ride-through setting.	1. If this occurs occasionally, it may be due to a brief grid abnormality. The inverter will resume normal operation once it detects that the grid is normal; no manual intervention is required. 2. If this occurs frequently, check whether the grid voltage is within the permissible range. If not, contact the local utility. If it is, the Grid Undervoltage Protection threshold must still be adjusted only after obtaining approval from the local utility. 3. If normal operation does not resume for an extended period, check that the AC-side circuit breaker and output cables are properly connected.

Fault Code	Fault Name	Cause	Recommended Troubleshooting
F04	Grid Rapid Overvoltage Protection	An abnormal grid voltage measurement or an excessively high voltage has triggered a fault.	1. If this occurs occasionally, it may be due to a brief grid abnormality. The inverter will resume normal operation once it detects that the grid is normal; no manual intervention is required. 2. If this occurs frequently, check whether the grid voltage is within the permissible range. If not, contact the local utility. If it is, the Grid Undervoltage Protection threshold must still be adjusted only after obtaining approval from the local utility. 3. If normal operation does not resume for an extended period, check that the AC-side circuit breaker and output cables are properly connected.
F05	10minOvervoltage Protection	The rolling average grid voltage over 10min exceeds the range specified by the applicable safety standards.	Check whether the grid voltage has remained high for an extended period. If this occurs frequently, check whether the grid frequency is within the permissible range. If not, contact the local utility. If it is, the grid 10min Overvoltage Protection threshold must still be adjusted only after obtaining approval from the local utility.

Fault Code	Fault Name	Cause	Recommended Troubleshooting
F06	Grid Overfrequency	Grid abnormality: The actual grid frequency is higher than the requirements of the local grid standard.	1. If this occurs occasionally, it may be due to a brief grid abnormality. The inverter will resume normal operation once it detects that the grid is normal; no manual intervention is required. 2. If this occurs frequently, check whether the grid frequency is within the permissible range. If not, contact the local utility. If it is, the Grid Overfrequency threshold must still be adjusted only after obtaining approval from the local utility.
F07	Grid Underfrequency	Grid abnormality: The actual grid frequency is lower than the requirements of the local grid standard.	1. If this occurs occasionally, it may be due to a brief grid abnormality. The inverter will resume normal operation once it detects that the grid is normal; no manual intervention is required. 2. If this occurs frequently, check whether the grid frequency is within the permissible range. If not, contact the local utility. If it is, the Grid Underfrequency threshold must still be adjusted only after obtaining approval from the local utility.

Fault Code	Fault Name	Cause	Recommended Troubleshooting
F08	Grid Frequency Instability	Grid abnormality: The rate of change of the actual grid frequency does not comply with the local grid standard.	1. If this occurs occasionally, it may be due to a brief grid abnormality. The inverter will resume normal operation once it detects that the grid is normal; no manual intervention is required. 2. If this occurs frequently, check whether the grid frequency is within the permissible range. If not, contact the local utility.
F09	Anti-islanding Protection	The grid has been disconnected, but the load is sustaining the grid voltage. Grid connection is stopped in accordance with safety protection requirements.	1. If this occurs occasionally, it may be due to a brief grid abnormality. The inverter will resume normal operation once it detects that the grid is normal; no manual intervention is required. 2. If this occurs frequently, check whether the grid frequency is within the permissible range. If not, contact the local utility.
F10	Voltage Ride-Through Undervoltage Fault	Grid abnormality: The duration of the abnormal grid voltage exceeds the specified high-/low-voltage ride-through duration.	1. If this occurs occasionally, it may be due to a brief grid abnormality. The inverter will resume normal operation once it detects that the grid is normal; no manual intervention is required. 2. If this occurs frequently, check whether the grid voltage and frequency are within the permissible ranges and stable. If not, contact the local utility.

Fault Code	Fault Name	Cause	Recommended Troubleshooting
F11	HVRT Overvoltage	Grid abnormality: The duration of the abnormal grid voltage exceeds the specified high-/low-voltage ride-through duration.	1. If this occurs occasionally, it may be due to a brief grid abnormality. The inverter will resume normal operation once it detects that the grid is normal; no manual intervention is required. 2. If this occurs frequently, check whether the grid voltage and frequency are within the permissible ranges and stable. If not, contact the local utility.
F12	30mAGfciProtection	During inverter operation, the input-to-ground insulation resistance decreases.	1. If this occurs occasionally, it may be caused by a temporary abnormality in the external wiring. Normal operation will resume once the fault is cleared; no manual intervention is required. 2. If this occurs frequently or does not clear for an extended period, check whether the insulation resistance from the PV strings to ground is too low.

Fault Code	Fault Name	Cause	Recommended Troubleshooting
F13	60mAGfciProtection	During inverter operation, the input-to-ground insulation resistance decreases.	1. If this occurs occasionally, it may be caused by a temporary abnormality in the external wiring. Normal operation will resume once the fault is cleared; no manual intervention is required. 2. If this occurs frequently or does not clear for an extended period, check whether the insulation resistance from the PV strings to ground is too low.
F14	150mAGfciProtection	During inverter operation, the input-to-ground insulation resistance decreases.	1. If this occurs occasionally, it may be caused by a temporary abnormality in the external wiring. Normal operation will resume once the fault is cleared; no manual intervention is required. 2. If this occurs frequently or does not clear for an extended period, check whether the insulation resistance from the PV strings to ground is too low.

Fault Code	Fault Name	Cause	Recommended Troubleshooting
F15	GfciGradual-Change Protection	During inverter operation, the input-to-ground insulation resistance decreases.	1. If this occurs occasionally, it may be caused by a temporary abnormality in the external wiring. Normal operation will resume once the fault is cleared; no manual intervention is required. 2. If this occurs frequently or does not clear for an extended period, check whether the insulation resistance from the PV strings to ground is too low.
F16	DCILevel 1 Protection	The DC component of the inverter output current exceeds the limit allowed by safety regulations or the default limit of the device.	1. If the abnormality is caused by an external fault, the inverter will automatically resume normal operation after the fault is cleared; no manual intervention is required. 2. If this alarm occurs frequently and affects normal power generation at the plant, contact your distributor or after-sales service center.
F17	DCILevel 2 Protection	The DC component of the inverter output current exceeds the limit allowed by safety regulations or the default limit of the device.	1. If the abnormality is caused by an external fault, the inverter will automatically resume normal operation after the fault is cleared; no manual intervention is required. 2. If this alarm occurs frequently and affects normal power generation at the plant, contact your distributor or after-sales service center.

Fault Code	Fault Name	Cause	Recommended Troubleshooting
F18	Low Insulation Resistance	1. The PV string is short-circuited to protective earth. 2. The PV string is installed in a persistently humid environment, and the insulation resistance of the wiring to ground is poor. 3. The insulation resistance to ground of the battery port wiring is low.	1. Check the resistance between the PV strings/battery port and protective earth. If a short circuit is found, locate and rectify the short-circuit point. 2. Check whether the inverter's protective earth wire is connected correctly. 3. If you confirm that the resistance is indeed below the default value in rainy or overcast conditions, use the App to reset the inverter's "Insulation Resistance Protection Threshold". For inverters in the Australian and New Zealand markets, an insulation resistance fault can also trigger the following alarms: 1. The inverter is equipped with a buzzer. When a fault occurs, the buzzer sounds continuously for 1 minute; if the fault is not resolved, the buzzer sounds again every 30 minutes. 2. If the inverter is added to a monitoring platform and alarm notifications are configured, alarm messages can be sent to the customer by email.

Fault Code	Fault Name	Cause	Recommended Troubleshooting
F19	Grounding Abnormal	1. The inverter's protective earth wire is Not Connected. 2. When the PV string output is grounded, no isolation transformer is connected on the inverter output side.	1. Check whether the inverter's protective earth wire is properly connected. 2. If the PV string output is grounded, check whether an isolation transformer is connected on the inverter output side.
F20	Hard Power Limit Protection	Abnormal Load Fluctuation	1. If the abnormality is caused by an external fault, the inverter will automatically resume normal operation after the fault is cleared; no manual intervention is required. 2. If this alarm occurs frequently and affects normal power generation at the plant, contact your distributor or after-sales service center.

Fault Code	Fault Name	Cause	Recommended Troubleshooting
F21	Internal Comm Loss	SlaveDSP1Communication Timeout-MasterDSP, SlaveDSP2Communication Timeout-MasterDSP, SlaveDSP2Communication Timeout-SlaveDSP1, MasterDSPCommunication Timeout-SlaveDSP1, MasterDSPCommunication Timeout-SlaveDSP2or SlaveDSP1Communication Timeout-SlaveDSP2: 1. The chip is not powered on 2. The chip program version is incorrect	Disconnect the AC output-side switch and the DC input-side switch,5 minutes later, close the AC output-side switch and the DC input-side switch. If the fault persists, please contact your distributor or after-sales service center.

Fault Code	Fault Name	Cause	Recommended Troubleshooting
		MasterDSPcanmodule error, secondaryDSP1can module error, or secondaryDSP2can module error: 1. Frame format error 2. Parity error 3. can busoffline 4. HardwareCRCcheck error 5. Control bit is set to receive (transmit) during transmission (reception) 6. Transmission to a prohibited unit	
F22	Generator waveform detection fault	1. This fault will remain displayed when the generator is Not Connected; 2. When the generator is operating, this fault is triggered if the generator fails to meet safety requirements.	
F23	Abnormal generator connection		
F24	Generator voltage too low		
F25	Generator voltage too high		

Fault Code	Fault Name	Cause	Recommended Troubleshooting
F26	Generator frequency too low		1. Ignore this fault if no generator is connected; 2. This fault may occur normally when the generator has a fault. After the generator recovers, wait for a while and the fault will clear automatically; 3. This fault will not affect normal operation in off-grid mode 4. When the generator and grid are both connected and safety requirements are met, the grid takes priority for grid-connected operation.
F27	Generator frequency too high		
F28	Parallel operation I/O self-test abnormality	Parallel communication cable not securely connected or parallel IO chip damaged	Check that the parallel communication cable is securely connected, then check whether the IO chip is damaged. If so, replace the IO chip.
F29	Parallel Grid Line Reversed	The grid wiring on some units is reversed relative to the others	Reconnect the grid wiring.
F30	AC HCT check Abnormal	Abnormal sampling by the AC sensor	Disconnect the AC output-side switch and the DC input-side switch, 5 minutes later, close the AC output-side switch and the DC input-side switch. If the fault persists, please contact your distributor or after-sales service center.

Fault Code	Fault Name	Cause	Recommended Troubleshooting
F31	GFCI HCT Check Abnormal	Abnormal sampling by the leakage current sensor	Disconnect the AC output-side switch and the DC input-side switch, 5 minutes later, close the AC output-side switch and the DC input-side switch. If the fault persists, please contact your distributor or after-sales service center.
F32	Inverter Internal Failure	Inverter fault	Disconnect the AC output-side switch and the DC input-side switch, 5 minutes later, close the AC output-side switch and the DC input-side switch. If the fault persists, please contact your distributor or after-sales service center.
F33	FlashR/W Abnormal	Possible causes: flash content has changed; flash has reached the end of its service life;	1. Upgrade to the latest firmware version; 2. Contact your dealer or after-sales service center.
F34	AFCI Check Failure	During the arc detection self-check, the arc detection module failed to detect an Arc Failure	Disconnect the AC output-side switch and the DC input-side switch, 5 minutes later, close the AC output-side switch and the DC input-side switch. If the fault persists, please contact your distributor or after-sales service center.

Fault Code	Fault Name	Cause	Recommended Troubleshooting
F35	Cabinet Overtemperature	Cabinet Overtemperature, possible causes: 1. The inverter is installed in a poorly ventilated location. 2. Ambient Overtemperature. 3. The internal fans are operating abnormally.	1. Check whether the inverter installation location is well ventilated and whether the ambient temperature exceeds the maximum permitted ambient temperature range. 2. If ventilation is inadequate or Ambient Overtemperature occurs, improve ventilation and heat dissipation. 3. If ventilation and ambient temperature are both normal, contact your dealer or after-sales service center.

Fault Code	Fault Name	Cause	Recommended Troubleshooting
F36	Bus Overvoltage	BUSOvervoltage, possible causes: 1. PVVoltage too high; 2. Abnormal InverterBUSvoltage sampling; 3. The isolation performance of the dual-split transformer downstream of the inverter is poor, causing the two inverters to interfere with each other when connected to the grid. A DC overvoltage fault is reported when one inverter connects to the grid;	Disconnect the AC output-side switch and the DC input-side switch,5 minutes later, close the AC output-side switch and the DC input-side switch. If the fault persists, please contact your distributor or after-sales service center.

Fault Code	Fault Name	Cause	Recommended Troubleshooting
F37	PVInput Overvoltage	PVInput voltage too high, possible causes: Incorrect PV array configuration: too many PV modules 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 PV array string to ensure that its open-circuit voltage does not exceed the inverter's maximum operating voltage. The inverter alarm will clear automatically once the PV array is configured correctly.
F38	PVContinuous Hardware Overcurrent	1. Improper module configuration 2. Hardware damage	Disconnect the AC output-side switch and the DC input-side switch, 5 minutes later, close the AC output-side switch and the DC input-side switch. If the fault persists, please contact your distributor or after-sales service center.
F39	PVContinuous Software Overcurrent	1. Improper module configuration 2. Hardware damage	Disconnect the AC output-side switch and the DC input-side switch, 5 minutes later, close the AC output-side switch and the DC input-side switch. If the fault persists, please contact your distributor or after-sales service center.

Fault Code	Fault Name	Cause	Recommended Troubleshooting
F40, F98	String Reverse Connection(String1-n) n: Determine based on the actual number of strings connected to the inverter	PVString Reverse Connection	Check whether the string is connected in reverse polarity.

7.4.2 Troubleshooting (Fault Codes F41–F80)

Fault Code	Fault Name	Cause	Recommended Troubleshooting
F41	Generator Port Overload	1. Off-grid output exceeds the limits specified in the datasheet 2. Short circuit on the off-grid side 3. Off-grid terminal voltage is too low 4. When used as a high-load port, the load exceeds the limits specified in the datasheet	Check the off-grid output voltage, current, power, and other data, and identify the cause of the issue.

Fault Code	Fault Name	Cause	Recommended Troubleshooting
F42, F164,F 165	DC Arcing Failure(String1-n) n: Determine based on the actual number of strings connected to the inverter	1. DC-side terminals are loose; 2. Poor contact at the DC-side terminals; 3. The conductor in the DC cable is damaged, causing poor contact	1. After the inverter reconnects to the grid, check whether the voltage or current on any input has dropped abnormally or fallen to zero; 2. Check that the DC-side terminals are securely connected.
F43	Grid Waveform Abnormal	Grid abnormality: A fault is triggered when grid voltage detection is abnormal.	1. If this occurs occasionally, it may be due to a brief grid abnormality. The inverter will resume normal operation once it detects that the grid is normal; no manual intervention is required. 2. If this occurs frequently, check whether the grid voltage and frequency are within the permissible ranges and stable. If not, contact the local utility.
F44	Grid Phase Loss	Grid abnormality: A single-phase voltage dip has occurred.	1. If this occurs occasionally, it may be due to a brief grid abnormality. The inverter will resume normal operation once it detects that the grid is normal; no manual intervention is required. 2. If this occurs frequently, check whether the grid voltage and frequency are within the permissible ranges and stable. If not, contact the local utility.

Fault Code	Fault Name	Cause	Recommended Troubleshooting
F45	Grid Voltage Imbalance	The difference between grid phase voltages is too large.	1. If this occurs occasionally, it may be due to a brief grid abnormality. The inverter will resume normal operation once it detects that the grid is normal; no manual intervention is required. 2. If this occurs frequently, check whether the grid voltage and frequency are within the permissible ranges and stable. If not, contact the local utility.
F46	Grid Phase Sequence Failure	Abnormal wiring between the inverter and the grid: incorrect phase sequence	1. Check that the phase sequence of the wiring between the inverter and the grid is correct. The fault clears automatically once the wiring is corrected (for example, by swapping any two phase wires). 2. If the wiring is correct but the fault persists, contact your distributor or after-sales service center.
F47	Grid Rapid Shutdown Protection	Rapidly shuts down output when a grid power outage is detected	The fault clears automatically once grid power is restored.
F48	Grid Neutral Wire Loss (Split-phase grid)	Split-Phase Grid Neutral Wire Loss	1. The alarm will clear automatically once grid power is restored. 2. Check whether the AC cable or AC Switch is disconnected.
F49	L-PE Short Circuit	Output phase-to-PE impedance is low or short-circuited	Measure the output phase-to-PE impedance to locate and repair the point with low impedance.

Fault Code	Fault Name	Cause	Recommended Troubleshooting
F50	DCVLevel 1 Protection	Abnormal Load Fluctuation	1. If the abnormality is caused by an external fault, the inverter will automatically resume normal operation after the fault is cleared; no manual intervention is required. 2. If this alarm occurs frequently and affects normal power generation at the plant, contact your distributor or after-sales service center.
F51	DCVLevel 2 Protection	Abnormal Load Fluctuation	
F52	Multiple leakage current (GFCI) faults causing shutdown	North American safety regulations prohibit automatic recovery after multiple faults. Manual recovery or waiting 24h is required	Check whether the PV string-to-ground impedance is too low.
F53	Multiple DC arc (AFCI) faults causing shutdown	North American safety regulations prohibit automatic recovery after multiple faults. Manual recovery or waiting 24h is required	1. After the inverter reconnects to the grid, check whether the voltage or current on any input has dropped abnormally or fallen to zero; 2. Check that the DC-side terminals are securely connected.

Fault Code	Fault Name	Cause	Recommended Troubleshooting
F54	External communication link lost	Communication with an external inverter device has been lost. Possible causes include a power supply issue with the external device, incompatible Communication Protocols, or the required external device not being configured.	The determination depends on the actual model and detection enable settings. External devices unsupported by some models will not be detected.
F55	Back-upOutput Overload	Prevent the inverter from continuously outputting power under Overload conditions.	Disconnect some off-grid loads to reduce the inverter's off-grid output power.
F56	Back-upOutput Overvoltage	Prevent load damage caused by inverter output overvoltage.	1. If this occurs occasionally, it may be caused by load switching and requires no manual intervention. 2. If this occurs frequently, contact your dealer or after-sales service center.
F57	External connection BoxFault	The wait for theBoxrelay to switch takes too long when switching from on-grid to off-grid	1. Check whether theBoxis operating normally; 2. Check whether theBoxcommunication wiring is correct;
F58	CTLoss	CTconnection cable disconnected (required by Japanese safety regulations)	Check whether theCTwiring is correct;

Fault Code	Fault Name	Cause	Recommended Troubleshooting
F59	Parallel operationCANParalell CAN Comm Abnormal	Parallel communication cable is not securely connected, or a unit is offline	Check that all units are powered on and that the parallel communication cable is securely connected
F60	Parallel operationBackupConnecte d in Reverse	Some units have theirbackupline connected in reverse compared with the others	Reconnect thebackupline.
F61	Inverter Soft Start Failure	Inverter Soft Start Failure during off-grid cold start	Check whether the inverter module is damaged.
F62	AC HCT Failure	HCTsensor is abnormal	Disconnect the AC output-side switch and the DC input-side switch,5 minutes later, close the AC output-side switch and the DC input-side switch. If the fault persists, please contact your distributor or after-sales service center.
F63	GFCI HCT Failure	Leakage current sensor is abnormal	Disconnect the AC output-side switch and the DC input-side switch,5 minutes later, close the AC output-side switch and the DC input-side switch. If the fault persists, please contact your distributor or after-sales service center.
F64	Inverter Internal Failure	Inverter fault	Disconnect the AC output-side switch and the DC input-side switch,5 minutes later, close the AC output-side switch and the DC input-side switch. If the fault persists, please contact your distributor or after-sales service center.

Fault Code	Fault Name	Cause	Recommended Troubleshooting
F65	AC Terminal Overtemperature	AC Terminal Overtemperature. Possible causes: 1. The inverter is installed in a poorly ventilated location. 2. Ambient Overtemperature. 3. The internal fans are operating abnormally.	1. Check whether the inverter installation location is well ventilated and whether the ambient temperature exceeds the maximum permitted ambient temperature range. 2. If ventilation is inadequate or Ambient Overtemperature occurs, improve ventilation and heat dissipation. 3. If ventilation and ambient temperature are both normal, contact your dealer or after-sales service center.
F66	INVModule Overtemperature	Inverter module overtemperature. Possible causes: 1. The inverter is installed in a poorly ventilated location. 2. Ambient Overtemperature. 3. The internal fans are operating abnormally.	1. Check whether the inverter installation location is well ventilated and whether the ambient temperature exceeds the maximum permitted ambient temperature range. 2. If ventilation is inadequate or Ambient Overtemperature occurs, improve ventilation and heat dissipation. 3. If ventilation and ambient temperature are both normal, contact your dealer or after-sales service center.

Fault Code	Fault Name	Cause	Recommended Troubleshooting
F67	BoostModule Overtemperature	BoostModule Overtemperature. Possible causes: 1. The inverter is installed in a poorly ventilated location. 2. Ambient Overtemperature. 3. The internal fans are operating abnormally.	1. Check whether the inverter installation location is well ventilated and whether the ambient temperature exceeds the maximum permitted ambient temperature range. 2. If ventilation is inadequate or Ambient Overtemperature occurs, improve ventilation and heat dissipation. 3. If ventilation and ambient temperature are both normal, contact your dealer or after-sales service center.
F68	AC Capacitor Overtemperature	Output filter capacitor overtemperature. Possible causes: 1. The inverter is installed in a poorly ventilated location. 2. Ambient Overtemperature. 3. The internal fans are operating abnormally.	1. Check whether the inverter installation location is well ventilated and whether the ambient temperature exceeds the maximum permitted ambient temperature range. 2. If ventilation is inadequate or Ambient Overtemperature occurs, improve ventilation and heat dissipation. 3. If ventilation and ambient temperature are both normal, contact your dealer or after-sales service center.
F69	PV IGBT short-circuit fault	Possible causes: 1. IGBT short circuit 2. Inverter sampling circuit is abnormal	

Fault Code	Fault Name	Cause	Recommended Troubleshooting
F70	PV IGBTOpen Circuit	1. Software issue prevents PWM output: 2. Drive circuit is abnormal: 3. IGBTOpen circuit	Disconnect the AC output-side switch and the DC input-side switch,5 minutes later, close the AC output-side switch and the DC input-side switch. If the fault persists, please contact your distributor or after-sales service center.
F71	NTCAbnormal	NTCtemperature sensor is abnormal	Disconnect the AC output-side switch and the DC input-side switch,5 minutes later, close the AC output-side switch and the DC input-side switch. If the fault persists, please contact your distributor or after-sales service center.
F72	PWM Abnormal	PWMAbnormal waveform detected	Disconnect the AC output-side switch and the DC input-side switch,5 minutes later, close the AC output-side switch and the DC input-side switch. If the fault persists, please contact your distributor or after-sales service center.
F73	CPUInterrupt Abnormal	CPUInterrupt anomaly detected	Disconnect the AC output-side switch and the DC input-side switch,5 minutes later, close the AC output-side switch and the DC input-side switch. If the fault persists, please contact your distributor or after-sales service center.
F74	Microelectronics fault	Function Safety detected an anomaly	Disconnect the AC output-side switch and the DC input-side switch,5 minutes later, close the AC output-side switch and the DC input-side switch. If the fault persists, please contact your distributor or after-sales service center.

Fault Code	Fault Name	Cause	Recommended Troubleshooting
F75	PV HCTFault	boostCurrent sensor abnormal	Disconnect the AC output-side switch and the DC input-side switch,5 minutes later, close the AC output-side switch and the DC input-side switch. If the fault persists, please contact your distributor or after-sales service center.
F76	1.5VBaseline Abnormality	Reference circuit failure	Disconnect the AC output-side switch and the DC input-side switch,5 minutes later, close the AC output-side switch and the DC input-side switch. If the fault persists, please contact your distributor or after-sales service center.
F77	0.3VBaseline Abnormality	Reference circuit failure	
F78	CPLDVersion Identification Error	CPLDVersion Identification Error	Disconnect the AC output-side switch and the DC input-side switch,5 minutes later, close the AC output-side switch and the DC input-side switch. If the fault persists, please contact your distributor or after-sales service center.
F79	CPLDCommunication Fault	CPLDandDSPcommunication data error or timeout	Disconnect the AC output-side switch and the DC input-side switch,5 minutes later, close the AC output-side switch and the DC input-side switch. If the fault persists, please contact your distributor or after-sales service center.
F80	Model recognition failure	Fault related to Model Recognition Error	Disconnect the AC output-side switch and the DC input-side switch,5 minutes later, close the AC output-side switch and the DC input-side switch. If the fault persists, please contact your distributor or after-sales service center.

7.4.3 Fault Handling (Fault Codes F81–F121)

Fault Code	Fault Name	Cause	Recommended Troubleshooting
F81	P-Bus Overvoltage	BUS Overvoltage, possible causes: 1. PV Voltage too high; 2. Abnormal Inverter BUS voltage sampling; 3. The isolation performance of the dual-split transformer downstream of the inverter is poor, causing the two inverters to interfere with each other when connected to the grid. A DC overvoltage fault is reported when one inverter connects to the grid;	Disconnect the AC output-side switch and the DC input-side switch, 5 minutes later, close the AC output-side switch and the DC input-side switch. If the fault persists, please contact your distributor or after-sales service center.
F82	N-Bus Overvoltage		
F83	Bus Overvoltage (secondary C PU1)		

Fault Code	Fault Name	Cause	Recommended Troubleshooting
F84	P-Bus Overvoltage (secondaryC PU1)	BUSOvervoltage, possible causes: 1. PVVoltage too high; 2. Abnormal InverterBUSvoltage sampling; 3. The isolation performance of the dual-split transformer downstream of the inverter is poor, causing the two inverters to interfere with each other when connected to the grid. A DC overvoltage fault is reported when one inverter connects to the grid;	Disconnect the AC output-side switch and the DC input-side switch,5 minutes later, close the AC output-side switch and the DC input-side switch. If the fault persists, please contact your distributor or after-sales service center.
F85	N-Bus Overvoltage (secondaryC PU1)		
F86	Bus Overvoltage (secondaryC PU2)		Disconnect the AC output-side switch and the DC input-side switch,5 minutes later, close the AC output-side switch and the DC input-side switch. If the fault persists, please contact your distributor or after-sales service center.
F87	P-Bus Overvoltage (secondaryC PU2)		

Fault Code	Fault Name	Cause	Recommended Troubleshooting
F88	N-Bus Overvoltage (secondaryC PU2)	BUSOvervoltage, possible causes: 1. PVVoltage too high; 2. Abnormal InverterBUSvoltage sampling; 3. The isolation performance of the dual-split transformer downstream of the inverter is poor, causing the two inverters to interfere with each other when connected to the grid. A DC overvoltage fault is reported when one inverter connects to the grid;	
F89	P-Bus Overvoltage(CPLD)		Disconnect the AC output-side switch and the DC input-side switch,5 minutes later, close the AC output-side switch and the DC input-side switch. If the fault persists, please contact your distributor or after-sales service center.

Fault Code	Fault Name	Cause	Recommended Troubleshooting
F90	N-Bus Overvoltage(CPLD)	BUSOvervoltage, possible causes: 1. PVVoltage too high; 2. Abnormal InverterBUSvoltage sampling; 3. The isolation performance of the dual-split transformer downstream of the inverter is poor, causing the two inverters to interfere with each other when connected to the grid. A DC overvoltage fault is reported when one inverter connects to the grid;	
F91	FlyCap Software Overvoltage	Flying capacitor overvoltage, possible causes: 1. PVVoltage too high; 2. Abnormal inverter flying capacitor voltage sampling;	Disconnect the AC output-side switch and the DC input-side switch,5minutes later, close the AC output-side switch and the DC input-side switch. If the fault persists, please contact your distributor or after-sales service center.
F92	FlyCap Hardware Overvoltage		

Fault Code	Fault Name	Cause	Recommended Troubleshooting
F93	FlyCap Undervoltage	FlyCap Undervoltage, possible causes: 1. PVenergy is insufficient; 2. Abnormal inverter flying capacitor voltage sampling;	Disconnect the AC output-side switch and the DC input-side switch, 5 minutes later, close the AC output-side switch and the DC input-side switch. If the fault persists, please contact your distributor or after-sales service center.
F94	FlyCap Precharge Failure	FlyCap Precharge Failure, possible causes: 1. PVenergy is insufficient; 2. Abnormal inverter flying capacitor voltage sampling;	Disconnect the AC output-side switch and the DC input-side switch, 5 minutes later, close the AC output-side switch and the DC input-side switch. If the fault persists, please contact your distributor or after-sales service center.
F95	FlyCap Precharge Abnormal	1. Control loop parameters are unreasonable 2. Hardware damage	Disconnect the AC output-side switch and the DC input-side switch, 5 minutes later, close the AC output-side switch and the DC input-side switch. If the fault persists, please contact your distributor or after-sales service center.

Fault Code	Fault Name	Cause	Recommended Troubleshooting
F96, F97	String overcurrent(String1-n) n: Determine based on the actual number of strings connected to the inverter	Possible causes: 1. String overcurrent; 2. String current sensor fault	Disconnect the AC output-side switch and the DC input-side switch, 5 minutes later, close the AC output-side switch and the DC input-side switch. If the fault persists, please contact your distributor or after-sales service center.
F99, F100	String loss(String1-n) n: Determine based on the actual number of strings connected to the inverter	String fuse open (if applicable)	Check whether the fuse is open.
F101	Battery1Precharge Failure	Battery1precharge circuit fault (e.g., precharge resistor burned out)	Check whether the precharge circuit is functioning properly. After powering on the battery only, check whether the Battery Voltage matches the bus voltage. If they do not match, contact your dealer or service center.

Fault Code	Fault Name	Cause	Recommended Troubleshooting
F102	Battery1Relay Failure	Battery1relay is not operating properly	After powering on the battery, check whether the battery relay operates and whether a closing sound can be heard. If it does not operate, contact your dealer or service center.
F103	Battery1BAT1 Overvoltage	Battery1input voltage exceeds the rated range of the unit	Confirm that the Battery Voltage is within the unit's rated range.
F104	Battery2Precharge Failure	Battery2precharge circuit fault (e.g., precharge resistor burned out)	Check whether the precharge circuit is functioning properly. After powering on the battery only, check whether the Battery Voltage matches the bus voltage. If they do not match, contact your dealer or service center.
F105	Battery2Relay Failure	Battery2relay is not operating properly	After powering on the battery, check whether the battery relay operates and whether a closing sound can be heard. If it does not operate, contact your dealer or service center.
F106	Battery2BAT1 Overvoltage	Battery2input voltage exceeds the rated range of the unit	Confirm that the Battery Voltage is within the unit's rated range.

Fault Code	Fault Name	Cause	Recommended Troubleshooting
F107	On-grid PWM Sync Failure	Abnormality during grid connection with carrier synchronization	1. Check that the synchronization cable is connected properly 2. Check that the master/slave settings are correct; 3. Disconnect the AC output-side switch and the DC input-side switch, 5 minutes later, close the AC output-side and DC input-side switches. If the fault persists, contact your dealer or after-sales service center.
F108	DSP Communication Failure	-	-
F109	External connection STS Fault	Inverter and STS connection cable abnormality	Check that the wire sequence of the harness connecting the inverter and STS corresponds one-to-one.
F110	Export Limit Protection	1. The inverter reports a grid disconnection error 2. meter Communication is unstable 3. Reverse power flow occurs	1. Check whether the inverter has any other error messages. If so, take appropriate corrective action; 2. Check whether the meter is connected securely; 3. If this alarm occurs frequently and affects normal power generation at the plant, contact your distributor or after-sales service center.
F111	Bypass Overload	-	-
F112	Black Start Failure	-	-
F113	Offgrid AC Ins Volt High	-	-

Fault Code	Fault Name	Cause	Recommended Troubleshooting
F114	Relay Failure2	Relay abnormality, cause: 1. Relay abnormality (relay short circuit) 2. Relay sampling circuit abnormality. 3. Abnormal AC-side wiring (possible loose connection or short circuit)	Disconnect the AC output-side switch and the DC input-side switch, 5 minutes later, close the AC output-side switch and the DC input-side switch. If the fault persists, please contact your distributor or after-sales service center.
F115	SVGPrecharge Disabled	SVGPrecharge hardware failure	Contact your dealer or after-sales service center.
F116	NighttimeSVG PIDPrevention Failure	PIDprevention hardware abnormality	
F117	DSPVersion Identification Error	DSPsoftware version identification error	Disconnect the AC output-side switch and the DC input-side switch, 5 minutes later, close the AC output-side switch and the DC input-side switch. If the fault persists, please contact your distributor or after-sales service center.

Fault Code	Fault Name	Cause	Recommended Troubleshooting
F118	MOSContinuous Overvoltage	1. Software issue causes the inverter drive to shut down before the flyback drive: 2. Abnormal inverter drive circuit prevents startup: 3. PVVoltage too high; 4. Mosvoltage sampling;	Disconnect the AC output-side switch and the DC input-side switch, 5 minutes later, close the AC output-side switch and the DC input-side switch. If the fault persists, please contact your distributor or after-sales service center.
F119	Bus short-circuit fault	Hardware damage	If the inverter remains disconnected from the grid after a BUS short-circuit fault occurs, contact your distributor or after-sales service center.
F120	Bus sampling abnormal	1. BUSvoltage sampling hardware fault	Disconnect the AC output-side switch and the DC input-side switch, 5 minutes later, close the AC output-side switch and the DC input-side switch. If the fault persists, please contact your distributor or after-sales service center.
F121	DCDC Sample Abnormal	1. BUSvoltage sampling hardware fault 2. Battery Voltage sampling hardware fault 3. DcrlyRelay Failure	Disconnect the AC output-side switch and the DC input-side switch, 5 minutes later, close the AC output-side switch and the DC input-side switch. If the fault persists, please contact your distributor or after-sales service center.

7.4.4 Fault Handling (Fault Codes F122–F171)

Fault Code	Fault Name	Cause	Recommended Troubleshooting
F122	PVPV Input Mode Error	PVThere are three PV access modes. Taking a four-MPPT system as an example:MPPT: 1. Parallel mode: i.e.,AAAAmode(same-source mode) ,PV1-PV4same source,4stringPVconnected to the same PV module 2. Partially parallel mode: theAACCmode, in whichPV1andPV2are connected to a common source, andPV3andPV4are connected to a common source 3. Independent mode: i.e.,ABCDmode(different sources) ,PV1、PV2、PV3、PV4connected independently,4stringPVeach connected to a PV module This fault is reported if the actualPVaccess	Check whether thePVAccess Mode is set correctly (ABCD、AACC、AAAA). Set thePVAccess Mode 1. Confirm that each connectedPVinput is connected correctly; 2. If thePVinputs are connected correctly, use theAPPor the display to check whether the configured "PVAccess Mode" matches the actual access mode; 3. If the configured "PVAccess Mode" does not match the actual access mode, use theAPPor the display to set the "PVAccess Mode" to match the actual configuration. After completing the setting, disconnect thePVandACpower supplies and restart the inverter; 4. After completing the setting, if the current "PVAccess Mode" matches the actual access mode but this fault is still reported, contact your distributor or after-sales service center.

Fault Code	Fault Name	Cause	Recommended Troubleshooting
		mode does not match thePVaccess mode configured on the device	
F123	Multi-channelPVphase error	PVInput mode setting error	Check whether thePVAccess Mode is set correctly (ABCD、AACC、AAAA). Set thePVAccess Mode 1. Confirm that each connectedPVinput is connected correctly; 2. If thePVinputs are connected correctly, use theAPPor the display to check whether the configured "PVAccess Mode" matches the actual access mode; 3. If the configured "PVAccess Mode" does not match the actual access mode, use theAPPor the display to set the "PVAccess Mode" to match the actual configuration. After completing the setting, disconnect thePVandACpower supplies and restart the inverter; 4. After completing the setting, if the current "PVAccess Mode" matches the actual access mode but this fault is still reported, contact your distributor or after-sales service center.
F124	Battery1BAT1 Reversed	Battery1 positive and negative terminals reversed	Check that the battery polarity matches the polarity of the machine terminals.

Fault Code	Fault Name	Cause	Recommended Troubleshooting
F125	Battery2BAT 1 Reversed	Battery2positive and negative terminals reversed	Check that the battery polarity matches the polarity of the machine terminals.
F126	Abnormal Battery Connection	Abnormal Battery Connection	Check whether the battery is operating normally.
F127	BAT Overtemperature	Battery overtemperature. Possible causes: 1. The inverter is installed in a poorly ventilated location. 2. Ambient Overtemperature. 3. The internal fans are operating abnormally.	Disconnect the AC output-side switch and the DC input-side switch,5 minutes later, close the AC output-side switch and the DC input-side switch. If the fault persists, please contact your distributor or after-sales service center.
F128	Ref Voltage Abnormal	Reference circuit failure	Disconnect the AC output-side switch and the DC input-side switch,5 minutes later, close the AC output-side switch and the DC input-side switch. If the fault persists, please contact your distributor or after-sales service center.
F129	Cabinet Under Temperature	Cabinet Under Temperature. Possible cause: ambient temperature is too low.	Disconnect the AC output-side switch and the DC input-side switch,5 minutes later, close the AC output-side switch and the DC input-side switch. If the fault persists, please contact your distributor or after-sales service center.
F130	AC-SideSPDFault	AC-side surge protection device failure	Replace theAC-side surge protection device.

Fault Code	Fault Name	Cause	Recommended Troubleshooting
F131	DC-Side SPD Fault	DC-side surge protection device failure	Replace the DC-side surge protection device.
F132	Fan Abnormal	Fan Abnormal. Possible causes: 1. Abnormal fan power supply; 2. Mechanical failure (locked rotor) ; 3. Fan aging and damage.	Disconnect the AC output-side switch and the DC input-side switch, 5 minutes later, close the AC output-side switch and the DC input-side switch. If the fault persists, please contact your distributor or after-sales service center.
F133	External Fan Abnormal	External Fan Abnormal. Possible causes: 1. Abnormal fan power supply; 2. Mechanical failure (locked rotor) ; 3. Fan aging and damage.	
F134	PID Abnormal	PID hardware failure or PV overvoltage caused the PID to pause	PV caused by overvoltage. PID The pause warning requires no action, PID hardware fault can be cleared by turning the PID switch off and then back on. PID Fault; replace PID the device.

Fault Code	Fault Name	Cause	Recommended Troubleshooting
F135	Trip-Switch Trip Warning	Possible causes: Overcurrent or PV reverse polarity caused the trip switch to open;	Contact your dealer or after-sales service center. The trip may have been caused by a PV short circuit or reverse polarity. Check for historical PV short-circuit warnings or historical PV reverse-polarity warnings. If any are present, have a service technician inspect the corresponding PV condition. Once inspection is complete and no fault is found, manually close the trip switch, then clear this warning by clearing the historical fault via the APP interface.
F136	Historical PV IGBT Short-Circuit Warning	Possible causes: Overcurrent caused the trip switch to open;	Contact your dealer or after-sales service center. The service technician should use the historical PV short-circuit warning subcode to inspect the affected Boost hardware and external strings for faults. Once the inspection is complete and no faults are found, clear this warning using the Clear Historical Faults operation in the APP interface.

Fault Code	Fault Name	Cause	Recommended Troubleshooting
F137 , F138	HistoricalPV Reverse Polarity Warning(String1-n) (n: determine based on the actual number of strings supported by the inverter)	Possible causes: ThePVreverse polarity caused the trip switch to open;	Contact your dealer or after-sales service center. The service technician should use the historicalPVreverse polarity warning subcode to check whether the corresponding string is reverse-connected, and inspect thePVmodule configuration for voltage differences. Once the inspection is complete and no faults are found, clear this warning using the Clear Historical Faults operation in theAPPinterface.
F139	FlashR/W Error	Possible causes: 1. Flashcontent has changed; 2. Flashhas reached the end of its service life;	1. Upgrade to the latest firmware version; 2. Contact your dealer or after-sales service center.
F140	Meter Comm Loss	This warning may occur only when the Power Limit function is enabled. Possible causes: 1. The meter is not connected. 2. The communication cable between the meter and inverter is wired incorrectly.	Check the meter wiring and connect the meter correctly. If the fault persists after inspection, contact your dealer or after-sales service center.

Fault Code	Fault Name	Cause	Recommended Troubleshooting
F141	PVType Identification Failure	PVmodule identification hardware fault	Contact your dealer or after-sales service center.
F142	PV String Mismatch	PVString Mismatch: the open-circuit voltage configurations of two strings connected to the sameMPPTare different	Check the open-circuit voltages of the two strings, and connect strings with the same open-circuit voltage to the sameMPPT. A prolonged string mismatch presents a safety hazard.
F143	CTnot connected	CTnot connected	Check whether theCTwiring.
F144	CTReversed	CTReversed	Check whether theCTwiring.
F145	PE Loss	Ground wire not connected	Check the ground wire.
F146	PV String Terminal Overtemperature(String 1~8)	37176registerPVterminal temperature warning subcode1is set	-
F147	PV String Terminal Overtemperature(String 9~16)	37177registerPVterminal temperature warning subcode2is set	-
F148	PV String Terminal Overtemperature(String 17~20)	37178registerPVterminal temperature warning subcode3is set	-

Fault Code	Fault Name	Cause	Recommended Troubleshooting
F149	HistoricalPV Reverse Polarity Warning(String33~48)	Possible causes: ThePVreverse polarity caused the trip switch to open;	Contact your dealer or after-sales service center. The service technician should use the historicalPVreverse polarity warning subcode to check whether the corresponding string is reverse-connected, and inspect thePVmodule configuration for voltage differences. Once the inspection is complete and no faults are found, clear this warning using the Clear Historical Faults operation in theAPPinterface.
F150	Battery1Voltage Low	Battery Voltage below the setpoint	-
F151	Battery2Voltage Low	Battery Voltage below the setpoint	-
F152	Low Voltage of Battery Power	In non-charging mode, the battery voltage is below the shutdown voltage	-
F153	Battery1Voltage High	-	-
F154	Battery2Voltage High	-	-

Fault Code	Fault Name	Cause	Recommended Troubleshooting
F155	Online Low Insulation Resistance	1. The PV string is short-circuited to protective earth. 2. The PV string is installed in a persistently humid environment, and the insulation resistance of the wiring to ground is poor.	1. Check the insulation resistance between the PV strings and protective earth. If a short circuit is present, rectify the short-circuit fault. 2. Check whether the inverter's protective earth wire is connected correctly. 3. If the resistance is confirmed to be below the default value in rainy or overcast conditions, reset the "Insulation Resistance Protection Threshold."
F156	Micro-grid Overload Warning	backupport input current too high	No action is required if this occurs occasionally. If this alarm occurs frequently, contact your dealer or after-sales service center.
F157	Manual Reset	-	-
F158	Generator Phase Sequence Abnormal	-	-
F159	Multiplexed Port Configuration Abnormal	The multiplexed port(generator) is configured for a micro-grid or large load, but a generator is actually connected	Use theAPPto change the multiplexed(generator) port configuration.
F160	EMSForced Off-grid	EMSissued a forced off-grid command, but the off-grid function is not enabled	Enable the off-grid function.

Fault Code	Fault Name	Cause	Recommended Troubleshooting
F161	Passive Anti-islanding Protection	-	-
F162	Grid Type Fault	The actual(() does not match the configured grid code	Select the appropriate grid code according to the actual Type of Electrical Supply System.
F163	Grid Phase Instability	Grid fault: The rate of change of the grid voltage phase does not comply with local grid standards.	1. If this occurs occasionally, it may be due to a brief grid abnormality. The inverter will resume normal operation once it detects that the grid is normal; no manual intervention is required. 2. If this occurs frequently, check whether the grid frequency is within the permissible range. If not, contact the local utility.
F166	PV Terminal Overtemperature	PV Terminal Overtemperature; possible causes: 1. The inverter is installed in a poorly ventilated location. 2. Ambient Overtemperature. 3. The internal fans are operating abnormally.	

Fault Code	Fault Name	Cause	Recommended Troubleshooting
F167	AC Terminal Overtemperature Warning	AC Terminal Overtemperature. Possible causes: 1. The inverter is installed in a poorly ventilated location. 2. Ambient Overtemperature. 3. The internal fans are operating abnormally.	1. Check whether the inverter installation location is well ventilated and whether the ambient temperature exceeds the maximum permitted ambient temperature range. 2. If ventilation is inadequate or Ambient Overtemperature occurs, improve ventilation and heat dissipation. 3. If ventilation and ambient temperature are both normal, contact your dealer or after-sales service center.
F168	Bat Terminal Overtemperature	Bat terminal overtemperature, possible causes: 1. The inverter is installed in a poorly ventilated location. 2. Ambient Overtemperature.	
F169	Bat Terminal Overtemperature Warning	Bat terminal overtemperature, possible causes: 1. The inverter is installed in a poorly ventilated location. 2. Ambient Overtemperature.	

Fault Code	Fault Name	Cause	Recommended Troubleshooting
F170	STS Overtemperature	STS overtemperature, possible causes: 1. The STS installation location is poorly ventilated. 2. Ambient Overtemperature.	
F171	Abnormal Inverter-to-Battery Wiring	Abnormal power cable connection between the battery and inverter	Check whether the power cable connection between the battery and inverter is normal.

7.4.5 Troubleshooting

Fault Name	Cause	Recommended Troubleshooting
Generator Failure	1. This fault will remain displayed when no generator is connected 2. This fault is triggered if the generator does not comply with safety regulations while operating	1. If no generator is connected, ignore this fault; 2. This fault is normal when the generator has a failure. After the generator recovers, wait for a while and the fault will clear automatically; 3. This fault does not affect normal operation in off-grid mode 4. When both the generator and grid are connected and safety requirements are met, the grid takes priority for grid-connected operation, and the system will operate in grid-connected mode.

Fault Name	Cause	Recommended Troubleshooting
BMS Status Bit Error	BMS Module Failure	Open the AC output-side switch and DC input-side switch. After 5 minutes, close the AC output-side switch and DC input-side switch. If the fault persists, contact your dealer or after-sales service center.
Ambient Overtemperature	- Poor ventilation of the unit - Hot air recirculates to the ambient temperature measurement point	Open the AC output-side switch and DC input-side switch. After 5 minutes, close the AC output-side switch and DC input-side switch. If the fault persists, contact your dealer or after-sales service center.
PV Terminal Overtemperature	PV Terminal Overtemperature; possible causes: - The inverter installation location is poorly ventilated. - Ambient Overtemperature. - The internal fan is operating abnormally.	- Check whether the inverter installation location is well ventilated and whether the ambient temperature exceeds the maximum permitted ambient temperature range. - If ventilation is inadequate or the Ambient Overtemperature condition occurs, improve ventilation and heat dissipation. - If ventilation and ambient temperature are both normal, contact your dealer or after-sales service center.
Bat Terminal Overtemperature	Bat terminal overtemperature, possible causes: - The inverter installation location is poorly ventilated. - Ambient Overtemperature.	- Check whether the inverter installation location is well ventilated and whether the ambient temperature exceeds the maximum permitted ambient temperature range. - If ventilation is inadequate or the Ambient Overtemperature condition occurs, improve ventilation and heat dissipation. - If ventilation and ambient temperature are both normal, contact your dealer or after-sales service center.

Fault Name	Cause	Recommended Troubleshooting
AC Terminal Overtemperature Warning	AC Terminal Overtemperature. Possible causes: 1. The inverter installation location is poorly ventilated. 2. Ambient Overtemperature. 3. The internal fan is operating abnormally.	
Bat Terminal Overtemperature Warning	Bat terminal overtemperature, possible causes: 1. The inverter installation location is poorly ventilated. 2. Ambient Overtemperature.	1. Check whether the inverter installation location is well ventilated and whether the ambient temperature exceeds the maximum permitted ambient temperature range. 2. If ventilation is inadequate or the Ambient Overtemperature condition occurs, improve ventilation and heat dissipation. 3. If ventilation and ambient temperature are both normal, contact your dealer or after-sales service center.
Three-phase on-grid fault	Three-phase external wiring error	Reconnect the wiring.
External STS Failure	Abnormal inverter-to-STS cable connection	Check that the wire sequence of the harness connecting the inverter and STS matches pin to pin.

Fault Name	Cause	Recommended Troubleshooting
Parallel Comm Timeout Shutdown	In parallel operation, if a slave fails to communicate with the master for more than 400 seconds	Check that the parallel communication harness is securely connected and that slave addresses are not duplicated.
Three-phase off-grid phase loss fault	Phase loss in the three-phase system	1. Check whether all inverters are powered on. 2. Check whether an inverter is connected to each phase of the three-phase system.
EPO	The external hardware EPO button was triggered, or an EPO command was issued remotely	1. If Remote Shutdown was triggered intentionally, this can be ignored. 2. If it was not triggered intentionally, please contact your dealer or after-sales service center.

Fault Name	Cause	Recommended Troubleshooting
High concentration of combustible gas	The combustible gas detection device automatically triggers an alarm when the concentration reaches 20% LEL or higher.	1. When a fault occurs, the unit automatically opens the air damper to exhaust gas and reduce the concentration. The fault clears automatically when the concentration remains below 5% LEL for 15 minutes. 2. If a cluster-level Fire Fighting Failure is triggered after a fault occurs, the air damper will close automatically. The damper status is checked within 30 seconds to ensure that cluster-level fire protection is carried out in an enclosed space. 3. Please contact your dealer or after-sales service center.
Inconsistent control and feedback signals for opening the combustible gas device air damper	The control signal for opening the air damper does not match the feedback signal	1. Check that the harness signal connections are correct. 2. Please contact your dealer or after-sales service center.
One-touch shutdown	Check in the app whether the one-touch shutdown function is enabled	Disable one-touch shutdown.
Offline shutdown	-	-
Remote shutdown	-	-

Fault Name	Cause	Recommended Troubleshooting
On-Grid SPD Fault	-	1. Try restarting the unit and check whether the fault clears; 2. If the fault persists after restarting, please contact your dealer or after-sales service center.
Off-Grid SPD Fault	-	1. Try restarting the unit and check whether the fault clears; 2. If the fault persists after restarting, please contact your dealer or after-sales service center.
Child Node Communication Failure	Internal Comm Abnormal	1. Try restarting the unit and check whether the fault clears; 2. If the fault persists after restarting, please contact your dealer or after-sales service center.
Dehumidifier Communication Failure	Communication link between the dehumidifier and the LC control box is abnormal	1. Check the communication cable harness and see if the fault is cleared; 2. Try restarting the unit and check whether the fault clears; 3. If the fault persists after restarting, contact your dealer or an after-sales service center.

Fault Name	Cause	Recommended Troubleshooting
Combustible Gas Detector Communication Failure	1. The combustible gas detector was not properly configured at the factory with the 485 address set to 2. 2. Communication link between the combustible gas detector and the LC control box is abnormal	1. Check the communication cable harness and see if the fault is cleared; 2. Try restarting the unit and check whether the fault clears; 3. Use the method provided by the combustible gas detector manufacturer to check whether the device address is 2. If not, change it; 4. If the fault persists after restarting, contact your dealer or an after-sales service center.
DG Communication Failure	Communication link between the control board and the DG is abnormal	1. Check the communication cable harness and see if the fault is cleared; 2. Try restarting the unit and see if the fault is cleared; 3. If the fault persists after restarting, contact your dealer or an after-sales service center.
Battery Over Voltage	1. Individual cell voltage is too high 2. Voltage sensing cable is faulty	Record the fault symptoms, restart the battery, and wait a few minutes to see if the fault clears. If the problem persists after restarting, contact the after-sales service center.
	1. Total battery voltage is too high 2. Voltage sensing cable is faulty	
Battery Undervoltage	1. Individual cell voltage is too low 2. Voltage sensing cable is faulty	

Fault Name	Cause	Recommended Troubleshooting
	1. Total battery voltage is too low 2. Voltage sensing cable is faulty	
Battery Overcurrent	1. Charging current is too high, or battery current limiting is abnormal: sudden changes in temperature and voltage 2. Inverter response is abnormal	
	Battery discharge current is too high	
Battery Overtemperature	1. Ambient Overtemperature 2. Temperature sensor is faulty	
Battery Undertemperature	1. Ambient temperature is too low 2. Temperature sensor is faulty	
Battery Terminal Overtemperature	High pole temperature	

Fault Name	Cause	Recommended Troubleshooting
Battery Imbalance	1. At different stages, the battery limits its power output when the temperature difference is too large, thereby limiting the charge and discharge current. This issue is therefore generally unlikely to occur. 2. Cell capacity degradation can result in excessive internal resistance, causing a significant temperature rise under Overcurrent and thus a large temperature difference. 3. Poor cell tab welds can cause the cell temperature to rise too quickly under Overcurrent. 4. Temperature measurement issue; 5. Loose power cable connection	

Fault Name	Cause	Recommended Troubleshooting
	1. Cells have aged unevenly 2. A slave board chip issue can also cause an excessive cell voltage difference; 3. A cell balancing issue on the slave board can also cause an excessive cell voltage difference 4. Wiring harness issue	
Insulation Resistance	Insulation resistance failure	Check that the ground wire is connected properly, then restart the battery. If the issue persists after restarting, contact the after-sales service center.
Pre-charging Failure Fault	Pre-charging Failure	This indicates that during pre-charging, the voltage across the pre-charge MOSFET remains above the specified threshold. Power the unit off and restart it, then check whether the fault persists. Check that the wiring is correct and that the pre-charge MOSFET is not damaged.
Acquisition cable fault	The battery acquisition cable is making poor contact or is disconnected	Check the wiring, then restart the battery. If the issue persists after restarting, contact the after-sales service center.

Fault Name	Cause	Recommended Troubleshooting
	The cell voltage acquisition cable is making poor contact or is disconnected	Check the wiring, then restart the battery. If the issue persists after restarting, contact the after-sales service center.
	The cell temperature acquisition cable is making poor contact or is disconnected	
	The current measurement discrepancy between the two channels is excessive, or the current acquisition circuit is abnormal	
	The voltage measurement discrepancy between the two channels, or between the MCU and AFE, is excessive, or the voltage acquisition circuit is abnormal	
	The temperature acquisition circuit is abnormal, making poor contact, or disconnected	

Fault Name	Cause	Recommended Troubleshooting
	Level 5 overvoltage or level 5 overtemperature has blown the three-terminal fuse	The three-terminal fuse has blown. Contact the after-sales service center to replace the main control board.
Relay or MOSFET overtemperature	Relay or MOSFET overtemperature	This fault indicates that the MOSFET temperature has exceeded the specified threshold. Power the unit off and leave it idle for 2 hours to allow the temperature to return to normal.
Shunt overtemperature	Shunt overtemperature	This fault indicates that the shunt temperature has exceeded the specified threshold. Power the unit off and leave it idle for 2 hours to allow the temperature to return to normal.
BMS1 Other Fault 1 (Residential Energy Storage)	Relay or MOSFET open circuit	1. Update the software, power off and leave the unit idle for 5 minutes, then restart it and check whether the fault persists; 2. If the fault persists, replace the battery pack
	Relay or MOSFET short circuit	1. Update the software, power off and leave the unit idle for 5 minutes, then restart it and check whether the fault persists; 2. If the fault persists, replace the battery pack
	Communication failure between the master cluster and slave cluster, or inconsistencies between the cells in different clusters	1. Check the battery information and software version of the slave unit, and verify that the communication cable to the master unit is connected properly. 2. Update the software.

Fault Name	Cause	Recommended Troubleshooting
	The battery system return-path wiring harness is faulty, preventing the interlock signal circuit from being completed.	Check that the termination resistor is installed correctly.
	Communication failure between the BMS and PCS.	1. Verify that the communication interface pinout between the inverter and the connected battery is correct; 2. Contact the after-sales service center to review the backend data and verify that the inverter and battery software versions are compatible.
	Fault in the communication harness between the BMS master controller and slave controller.	1. Check the wiring and restart the battery; 2. Update the battery software. If the issue persists after restarting, contact the after-sales service center.
	Communication lost between the master and slave chips.	
	Circuit breaker or shunt trip malfunction.	1. Leave the system powered off for 5 minutes, then restart it and check whether the fault persists; 2. Check the blind-mate connectors at the bottom of the PACK and PCU for loose or bent communication pins;
	MCU self-test failed.	Update the software and restart the battery. If the issue persists after restarting, contact the after-sales service center.

Fault Name	Cause	Recommended Troubleshooting
	1. The software version is too old, or the BMS board is damaged. 2. A large number of inverters are connected in parallel, causing excessive inrush current during battery pre-charge.	1. Update the software and check whether the fault persists. 2. If the inverters are connected in parallel, black-start the battery before starting the inverters.
	Internal MCU fault.	Update the software and restart the battery. This fault is generally caused by a damaged MCU or external component. If the issue persists after restarting, contact the after-sales service center.
	The master controller current exceeds the specified threshold.	1. Leave the system powered off for 5 minutes, then restart it and check whether the fault persists; 2. Check whether the inverter power setting is too high, causing the bus load to be exceeded;
	Cell inconsistency among paralleled battery clusters.	Verify that the cells in the paralleled battery clusters are consistent.
	Positive and negative terminals of the paralleled battery clusters are reversed.	Check whether the positive and negative terminals of the paralleled battery clusters are reversed.

Fault Name	Cause	Recommended Troubleshooting
	A severe overtemperature, overvoltage, or similar condition has triggered the fire suppression system.	Contact the after-sales service center.
Air Conditioner Failure	Air conditioner fault	Try restarting the system. If the fault persists, contact the after-sales service center.
	Cabinet door not closed	Check that the cabinet door is properly closed
	Supply voltage too high	Check that the supply voltage meets the air conditioner's input voltage requirements. Once confirmed, restore power.
	Insufficient supply voltage	
	No voltage input	
	Unstable supply voltage	
	Unstable compressor voltage	Try restarting the system. If the fault persists, contact the after-sales service center.
	Sensor has a poor connection or is damaged	
	Air conditioner fan fault	
	Abnormal voltage or current detected inside the DCDC converter	See the specific DC Failure details.

Fault Name	Cause	Recommended Troubleshooting
BMS1 Other Fault 2 (residential energy storage)	DCDC Overload or heatsink temperature too high, etc.	
	Abnormal cell data acquisition or inconsistent aging levels	Please contact the after-sales service center.
	Fan did not operate as expected	Please contact the after-sales service center.
	Output terminal screws are loose or have poor contact	1. Shut down the battery and check the wiring and output terminal screws 2. After confirming, restart the battery and check whether the fault persists. If it does, contact the after-sales service center.
	Battery has been in use for too long or cells are severely damaged	Please contact the after-sales service center to replace the pack.
	1. The software version is too old, or the BMS board is damaged. 2. A large number of inverters are connected in parallel, causing excessive inrush current during battery pre-charge.	1. Upgrade the software and check whether the fault persists. 2. For a parallel configuration, black-start the battery before starting the inverter.
	Heating film damaged	Please contact the after-sales service center.

Fault Name	Cause	Recommended Troubleshooting
	The three-terminal fuse for the heating film has blown, disabling the heating function	Please contact the after-sales service center.
	Software model, cell type, and hardware model do not match	Check that the software model, SN, cell type, and hardware model are consistent. If they are not, contact the after-sales service center.
	Thermal management board communication disconnected	1. Leave the system powered off for 5 minutes, then restart it and check whether the fault persists; 2. If the fault persists, contact after-sales service to replace the pack.
	Pack fan fault signal triggered	
DCDC fault	Output port voltage too high	Check the output port voltage. If it is normal but the fault does not clear after restarting the battery, contact the after-sales service center.
	The DCDC module detected that the Battery Voltage exceeds the maximum charging voltage	Stop charging and discharge the battery to below 90% SOC, or leave it idle for 2 hours. If this does not resolve the issue and the fault persists after restarting, contact the after-sales service center.
	Heatsink temperature too high	Leave the battery idle for 1 hour and wait for the heatsink temperature to drop. If this does not resolve the issue and the fault persists after restarting, contact the after-sales service center.

Fault Name	Cause	Recommended Troubleshooting
	Battery discharge current is too high	Check whether the load exceeds the battery's discharge capacity. Turn off the load or stop PCS operation for 60 seconds. If this does not resolve the issue and the fault persists after restarting, contact the after-sales service center.
	The positive and negative power cables at the output port are reversed at the parallel-connected battery or PCS	Turn off the battery manual switch, check that the output port wiring is correct, and restart the battery.
	Output power relay failed to close	Check that the output port wiring is correct and that there is no short circuit. If this does not resolve the issue and the fault persists after restarting, contact the after-sales service center.
	Power device temperature too high	Leave the battery idle for 1 hour and wait for the temperature of the internal power devices to drop. If this does not resolve the issue and the fault persists after restarting, contact the after-sales service center.
	Relay welded closed	If the fault persists after restarting, contact the after-sales service center.
Battery Rack Circulating Current Failure	1. Cell imbalance 2. First power-up not followed by a full-charge calibration	Record the fault symptoms, restart the battery, and wait a few minutes to see if the fault clears. If the problem persists after restarting, contact the after-sales service center.

Fault Name	Cause	Recommended Troubleshooting
BMS1 Other Fault 3 (Utility-Scale)	Communication failure with the Linux module	1. Check that the communication connection is normal 2. Upgrade the software and restart the battery to check whether the fault persists. If it does, contact the after-sales service center.
	Cell temperature rising too rapidly	Cell abnormality; contact after-sales service to replace the pack.
	SOC below 10%	Charge the battery.
	SN entry does not comply with the rules	Check whether the SN length is correct. If it is incorrect, contact the after-sales service center.
	1. Daisy-chain communication fault within the battery cluster 2. Inconsistent cell aging across battery clusters	1. Check the connection of the battery pack in the individual cluster 2. Check the usage of each battery cluster, such as cumulative charge/discharge capacity and cycle count 3. Please contact the after-sales service center.
	Excessive humidity inside the pack	-
	Fuse open	Contact after-sales service to replace the pack.
	Low battery charge	Charge the battery.
BMS1 Other Fault 4 (Utility-Scale Energy Storage)	Circuit breaker abnormality	Contact after-sales service to replace the pack.
	External equipment fault	Contact after-sales service to replace the pack.
Contactor Failure 1	-	-

Fault Name	Cause	Recommended Troubleshooting
Contactor Failure 2	-	-
Overload Protection (Ksic)	Continuous Overload (>690 kVA) for 10 s	Please contact the after-sales service center.
Overload Protection (Smart Port)	Continuous Overload (>690 kVA) for 10 s	Please contact the after-sales service center.
Overcurrent Protection (Ksic)	-	-
Overcurrent Protection (Smart Port)	-	-
Master AC On Meter Comm Error	1. The meter may not be connected to the master unit 2. The meter communication cable may be loose	1. Check whether the meter is connected to the master unit 2. Check whether the meter communication cable is loose
Parallel Slave Meter Error	The meter is connected to a slave unit	The unit connected to the meter is configured as the master
Slave AC On Timeout with Master	1. The slave address is incorrectly configured 2. The slave communication cable is loose	1. Check whether any slave addresses are duplicated 2. Check whether the parallel communication cable is loose

7.5 Periodic Maintenance

 DANGER

Before performing operation or maintenance on the inverter, shut it down. Operating the equipment while energized may damage the inverter or cause electric shock.

Maintenance Item	Maintenance Method	Maintenance Interval
System Cleaning	Check the heat sinks and air inlets/outlets for foreign objects and dust.	Once every 6 months to once a year
Fan	Check that the fans operate normally, are free of unusual noise, and are in good condition.	Once a year
DC Switch	Turn the DC Switch on and off continuously 10 times to ensure that the DC Switch functions properly.	Once a year
Electrical Connections	Check whether the electrical connections are loose and whether the cables are visibly damaged or have exposed copper.	Once every 6 months to once a year
Sealing	Check whether the sealing of the equipment cable entry holes meets the requirements. If the gaps are too large or the holes are not sealed, reseal them.	Once a year

8 Technical Specifications

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°C (kW)	4	5	6	8
Max. Power at 40°C (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 (°C)	-30~+60	-30~+60	-30~+60	-30~+60
Derating temperature (°C)	45	45	45	45
Storage Temperature (°C)	-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), W LAN+APP	LED, LCD (Optional), W LAN+APP	LED, LCD (Optional), W LAN+APP	LED, LCD (Optional), W LAN+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°C (kW)	10	10	12
Max. Power at 40°C (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

Technical Data	GW10K-SDT-30	GW10K-SDT-EU30	GW12K-SDT-30
AC Grid Frequency Range (Hz)	45~55 / 55~65	45~55 / 55~65	45~55 / 55~65
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

Technical Data	GW10K-SDT-30	GW10K-SDT-EU30	GW12K-SDT-30
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 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 (°C)	-30~+60	-30~+60	-30~+60

Technical Data	GW10K-SDT-30	GW10K-SDT-EU30	GW12K-SDT-30
Derating temperature (°C)	45	45	45
Storage Temperature (°C)	-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

Technical Data	GW10K-SDT-30	GW10K-SDT-EU30	GW12K-SDT-30
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.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
Nominal Output Apparent Power (kVA)	15	17	20

Technical Data	GW15K-SDT-30	GW17K-SDT-30	GW20K-SDT-30
Max. AC Active Power (kW)	16.5	18.7*4	22
Max. AC Apparent Power (kVA)	16.5	18.7*4	22
Nominal Power at 40°C (kW)	15	17	20
Max. Power at 40°C (Including AC Overload) (kW)	15	18.7*4	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
Nominal Output Current (A)	21.8	24.7	29

Technical Data	GW15K-SDT-30	GW17K-SDT-30	GW20K-SDT-30
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
AC Overvoltage Protection	Integrated	Integrated	Integrated

Technical Data	GW15K-SDT-30	GW17K-SDT-30	GW20K-SDT-30
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 (°C)	-30~+60	-30~+60	-30~+60
Derating temperature (°C)	45	45	45
Storage Temperature (°C)	-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
User Interface	LED, LCD (Optional), WL AN+APP	LED, LCD (Optional), WLA N+APP	LED, LCD (Optional), WLA N+APP

Technical Data	GW15K-SDT-30	GW17K-SDT-30	GW20K-SDT-30
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
Overvoltage Category	DC II / AC III	DC II / AC III	DC II / AC III
Protective Class	I	I	I

Technical Data	GW15K-SDT-30	GW17K-SDT-30	GW20K-SDT-30
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
MPPT Voltage Range at Nominal Power (V)	400~850	550~850	400~850	450~850

Technical Data	GW20K-SDT-31	GW25K-SDT-C30	GW25K-SDT-30	GW25K-SDT-P31
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
Max. AC Apparent Power (kVA)	20	27.5	25	27.5

Technical Data	GW20K-SDT-31	GW25K-SDT-C30	GW25K-SDT-30	GW25K-SDT-P31
Nominal Power at 40°C (kW)	22	25	25	25
Max. Power at 40°C (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 (°C)	-30~+60	-30~+60	-30~+60	-30~+60
Derating temperature (°C)	45	45	45	45
Storage Temperature (°C)	-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), W LAN+APP	LED, LCD (Optional), W LAN+APP	LED, LCD (Optional), W LAN+APP	LED, LCD (Optional), W LAN+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. 16mm ²)	OT/DT terminal (Max. 16 mm ²)	OT terminal (Max. 25mm ²)	OT/DT terminal (Max. 16mm 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
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°C (kW)	30	30	33	36
Max. Power at 40°C (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 (°C)	-30~+60	-30~+60	-30~+60	-30~+60
Derating temperature (°C)	45	45	45	45
Storage Temperature (°C)	-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), W LAN+APP	LED, LCD (Optional), W LAN+APP	LED, LCD (Optional), W LAN+APP	LED, LCD (Optional), W LAN+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°C (kW)	40	40	50
Max. Power at 40°C (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 (°C)	-30~+60	-30~+60	-30~+60
Derating temperature (°C)	45	45	45
Storage Temperature (°C)	-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), WLA N+APP	LED, LCD (Optional), WLA N+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 mm ²)	MC4 (4~6 mm ²)	MC4 (4 ~ 6mm ²)
AC Connector	OT/DT terminal (Max. 35mm ²)	OT/DT terminal (Max.35mm 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*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°C (kW)	12	12	17
Max. Power at 40°C (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 (°C)	-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°C (kW)	23	30
Max. Power at 40°C (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 (°C)	-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°C (kW)	37.5
Max. Power at 40°C (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 (°C)	-30 ~ 60
Derating temperature (°C)	45
Storage Temperature (°C)	-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°C (W)	5	6	8
Max. Power at 40°C (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 (°C)	-30 ~ 60	-30 ~ 60	-30 ~ 60
Derating temperature (°C)	45	45	45

Technical Data	GW5000-SDT-AU30	GW6000-SDT-AU30	GW8000-SDT-AU30
Storage Temperature (°C)	-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), WLA N+APP	LED, LCD (Optional), WLA N+APP	LED, LCD (Optional), WLA N+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 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. 10 mm ²)	OT terminal (Max. 10 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.

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°C (W)	9.99	15	20
Max. Power at 40°C (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 (°C)	-30 ~ 60	-30 ~ 60	-30 ~ 60
Derating temperature (°C)	45	45	45
Storage Temperature (°C)	-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), WLA N+APP	LED, LCD (Optional), WLA N+APP	LED, LCD (Optional), WLA N+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	< 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°C (W)	25	29.99	50

Technical Data	GW25K-SDT-AU30	GW29K9-SDT-AU30	GW50K-SDT-C30
Max. Power at 40°C (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 (°C)	-30 ~ 60	-30 ~ 60	-30 ~ 60
Derating temperature (°C)	45	45	45
Storage Temperature (°C)	-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), WL AN+APP	LED, LCD (Optional), WL AN+APP	LED, LCD (Optional), WL AN+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 Glossary

Definitions of Overvoltage Categories

- **Overvoltage Category I:** Equipment connected to circuits incorporating measures to limit transient overvoltages to a relatively low level.
- **Overvoltage Category II:** Energy-consuming equipment supplied by fixed electrical installations. This category includes appliances, portable tools, and other household and similar loads. If special requirements apply to the reliability and suitability of such equipment, Overvoltage Category III shall be used.
- **Overvoltage Category III:** Equipment in fixed electrical installations where special requirements apply to its reliability and suitability. This includes switchgear in fixed electrical installations and industrial equipment permanently connected to fixed electrical installations.
- **Overvoltage Category IV:** Equipment used at the source of the electrical installation, including measuring instruments and upstream overcurrent Protection devices.
- **Definitions of Damp Location Categories**

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

- **Environmental Category Definitions:**
 - **Outdoor Inverter:** The ambient air temperature range is -25 to +60°C, and it is suitable for environments with Pollution Degree 3;
 - **Indoor Type II Inverter:** The ambient air temperature range is -25 to +40°C, and it is suitable for environments with Pollution Degree 3;
 - **Indoor Type I Inverter:** The ambient air temperature range is 0 to +40°C, and it is suitable for environments with Pollution Degree 2;
- **Pollution Degree Category Definitions**
 - **Pollution Degree 1:** No pollution or only dry, non-conductive pollution occurs;
 - **Pollution Degree 2:** Normally, only non-conductive pollution occurs; however, temporary conductivity caused by condensation must be expected occasionally;

- **Pollution Degree 3:** Conductive pollution occurs, or non-conductive pollution becomes conductive due to condensation;
- **Pollution Degree 4:** Persistent conductive pollution, such as pollution caused by conductive dust, rain, or snow.

10 Accessing Related Product Manuals

Document Name	Official Website Link
Quick Installation Guide for Smart Meter (GM330, GMK330)	Quick Installation Guide for Smart Meter (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

11 Contact Details

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