V2.3 2026-02-10

Grid-Tied PV Inverter

SDT Series (4.0-50kW) G3

User Manual

GOODWE

Copyright Statement

About This Manual

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

Applicable Model

This document applies to the following models of inverters:

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

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

Applicable Personnel

This product is intended for use only by qualified professionals who are familiar with local regulatory standards and electrical systems, have received specialized training, and possess thorough knowledge of this product.

Symbol Definition

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

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

Table of Contents

1 Safety Precautions

⚠ WARNING
The inverter has been strictly designed and tested in accordance with safety regulations, but as an electrical device, before performing any operation on the device, it is necessary to follow the relevant safety instructions. Improper operation may cause serious injury or property damage.

1.1 General Safety

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

1.2 DC Side

⚠ DANGER

Use the DC connector supplied with the unit to connect the inverter DC cables. Using other models of DC connectors may lead to severe consequences. Any equipment damage caused thereby is beyond the manufacturer's liability.

⚠WARNING

- Ensure the component frames and mounting system are properly grounded.
- After connecting the DC cables, ensure the cable connections are tight and secure, with no looseness.
- Use a multimeter to measure the PV string. Damage caused by reverse connection, overvoltage, or overcurrent is beyond the manufacturer's liability.
- PV modules connected to the same MPPT must be of the same model. The voltage difference between different MPPTs must be <160V.
- When the input voltage is between 1000V~1100V, the inverter will enter standby mode. The inverter will resume normal operation when the voltage returns to the MPPT operating voltage range (140V~1000V).
- 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.
- When the inverter is connected to multiple PV strings, it is recommended to connect at least one string per MPPT, with no MPPT left unconnected.
- The PV modules used with the inverter must comply with IEC 61730 Class A standards.

1.3 AC Side

⚠WARNING

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

1.4 Inverter

⚠ DANGER
• During inverter installation, please avoid bearing weight on the bottom wiring terminals, otherwise it will cause terminal damage.   • After inverter installation, the labels and warning signs on the enclosure must be clearly visible; blocking, altering, or damaging them is prohibited.   • The warning labels on the inverter enclosure are as follows:

No.	Symbol	Meaning
1	⚠	Potential hazard exists during equipment operation. Take protective measures when operating the equipment.
2	⚠	High voltage hazard. High voltage is present during equipment operation. Ensure the equipment is powered off before performing any operations.
3	⚠	High temperature on inverter surface. Do not touch during operation to avoid burns.
4	⚠ 5min	Delayed discharge. After powering off the equipment, wait for 5 minutes for complete discharge.
5	📖	Read the product manual thoroughly before operating the equipment.
6	⌧	Do not dispose of the equipment as household waste. Dispose of it according to local regulations or return it to the manufacturer.
7	⏚	Grounding point.
8	CE	CE certification mark.

1.5 EU Declaration of Conformity

1.5.1 Equipment with Wireless Communication Modules

Equipment with Wireless Communication Modules sold in the European market must comply with 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 Capabilities

Devices without wireless communication capabilities sold in the European market must comply with 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 Installation and maintenance of equipment must first undergo strict training, understand all product safety precautions, and master the correct operating methods. • Installation, operation, maintenance, and replacement of equipment or components are only permitted to be performed by qualified professionals or trained personnel.

2 Product Introduction

2.1 Introduction

The SDT series inverter is a three-phase string photovoltaic grid-connected inverter, which converts the DC power generated by photovoltaic solar panels into AC power that meets grid requirements and feeds it into the grid. The main application scenarios of the inverter are as follows:
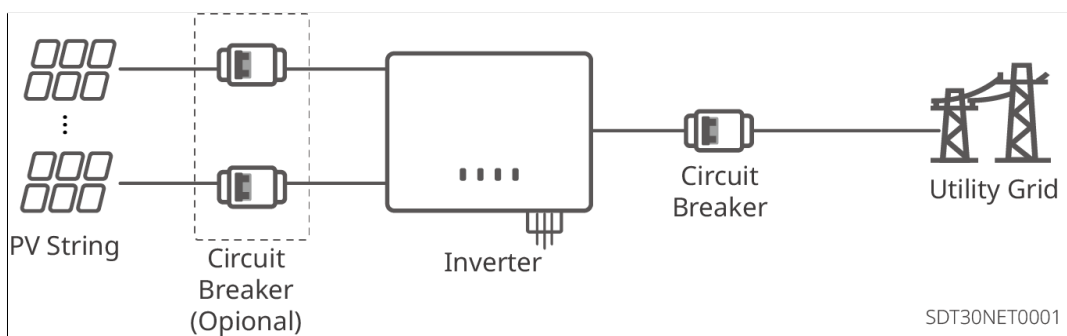
Model Number Meaning
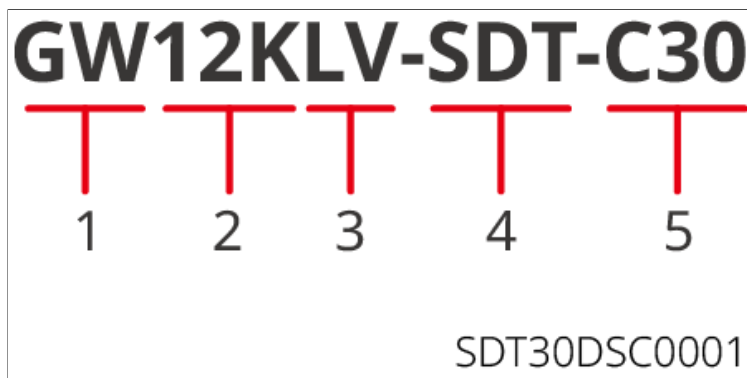
No.	Meaning	Description
1	Brand code	GW: GoodWe
2	Rated Power	12K: Rated power is 12kW
3	Type of Electrical Supply System	LV: Low-voltage grid
4	Series code	SDT: SDT Series
5	Version code	Third-generation product

2.2 Circuit Block Diagram

GW4000-SDT-30, GW5000-SDT-30, GW6000-SDT-30, GW8000-SDT-30, GW10K-SDT-30, GW10K-SDT-EU30, GW12K-SDT-30, GW15K-SDT-30:
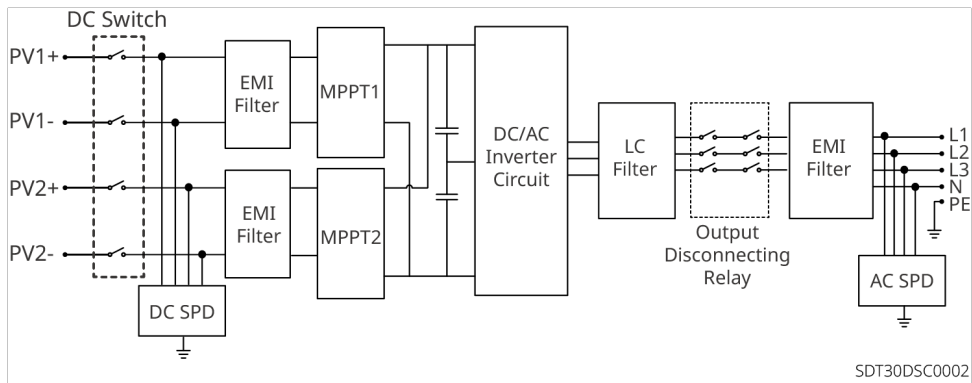
GW12KLV-SDT-C30, GW17K-SDT-30, GW20K-SDT-30, GW25K-SDT-C30:
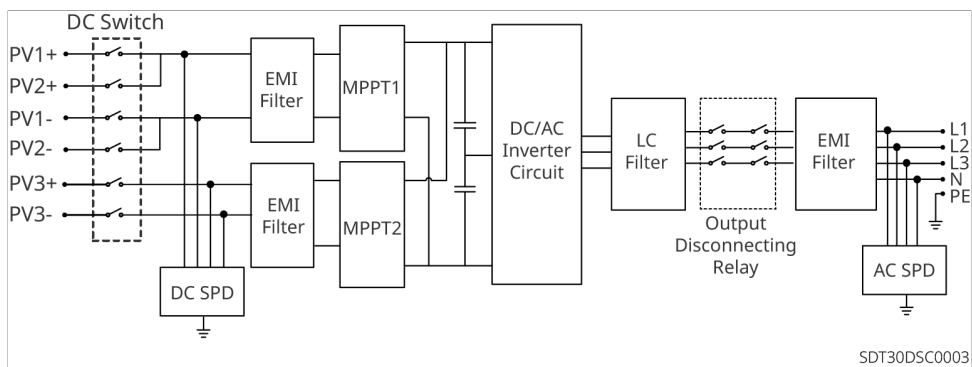
GW17KLV-SDT-C30, GW30K-SDT-C30, GW20K-SDT-31, GW12KLV-SDT-C31, GW25K-SDT-P31:
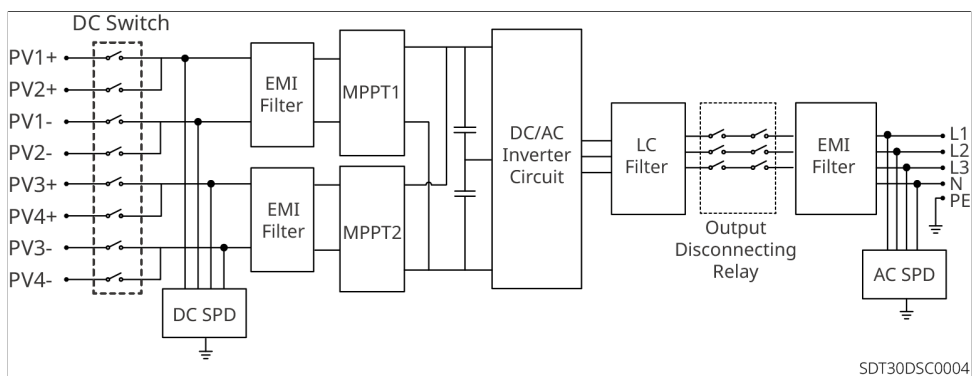
GW5000-SDT-AU30, GW6000-SDT-AU30:

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

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

SDT30DSC0007

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:

SDT30DSC0008

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

SDT30DSC0009
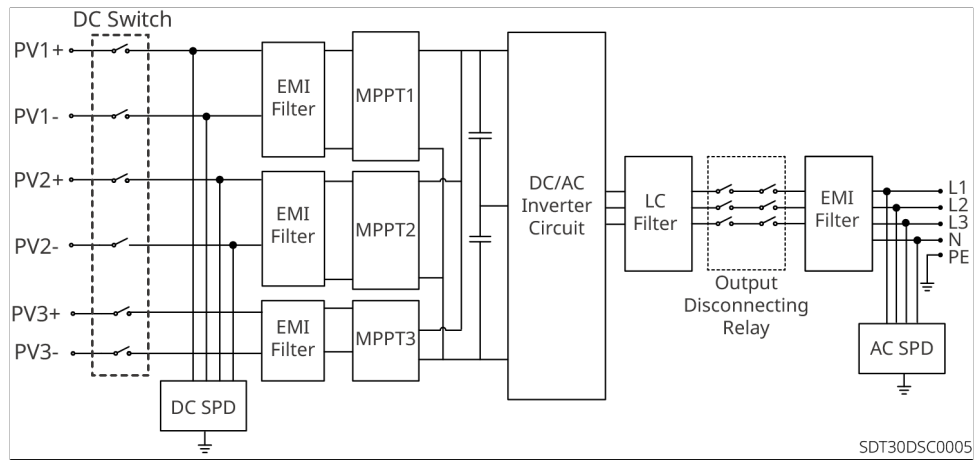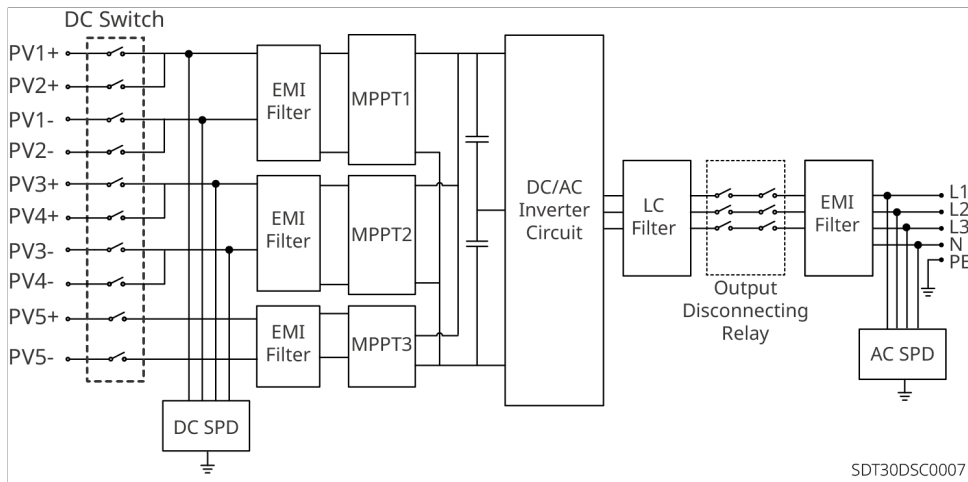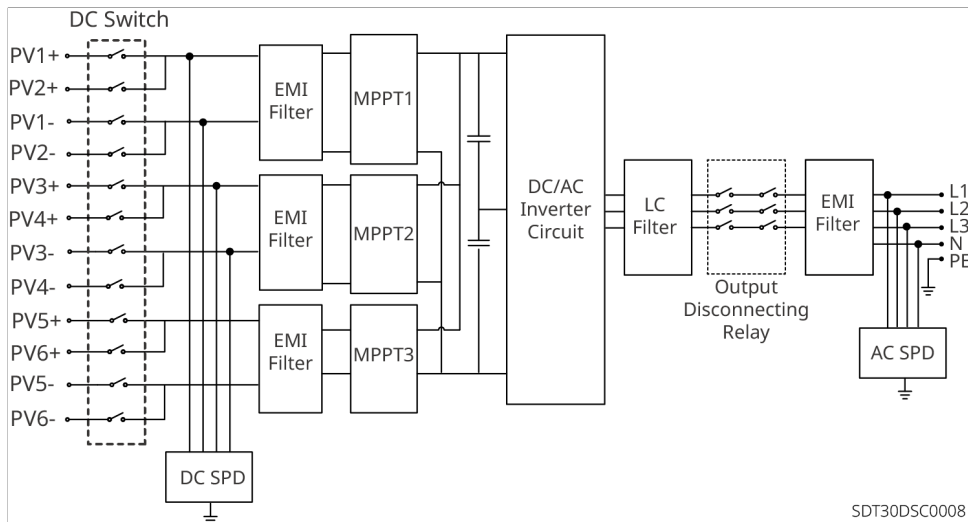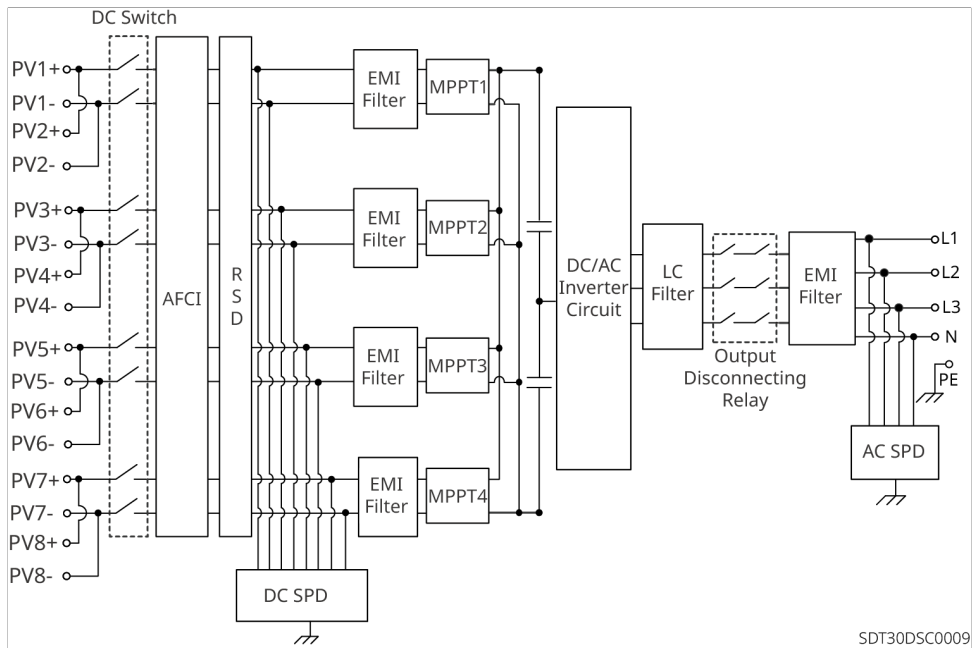
2.3 Supported Grid Types

SDT30DSC0010
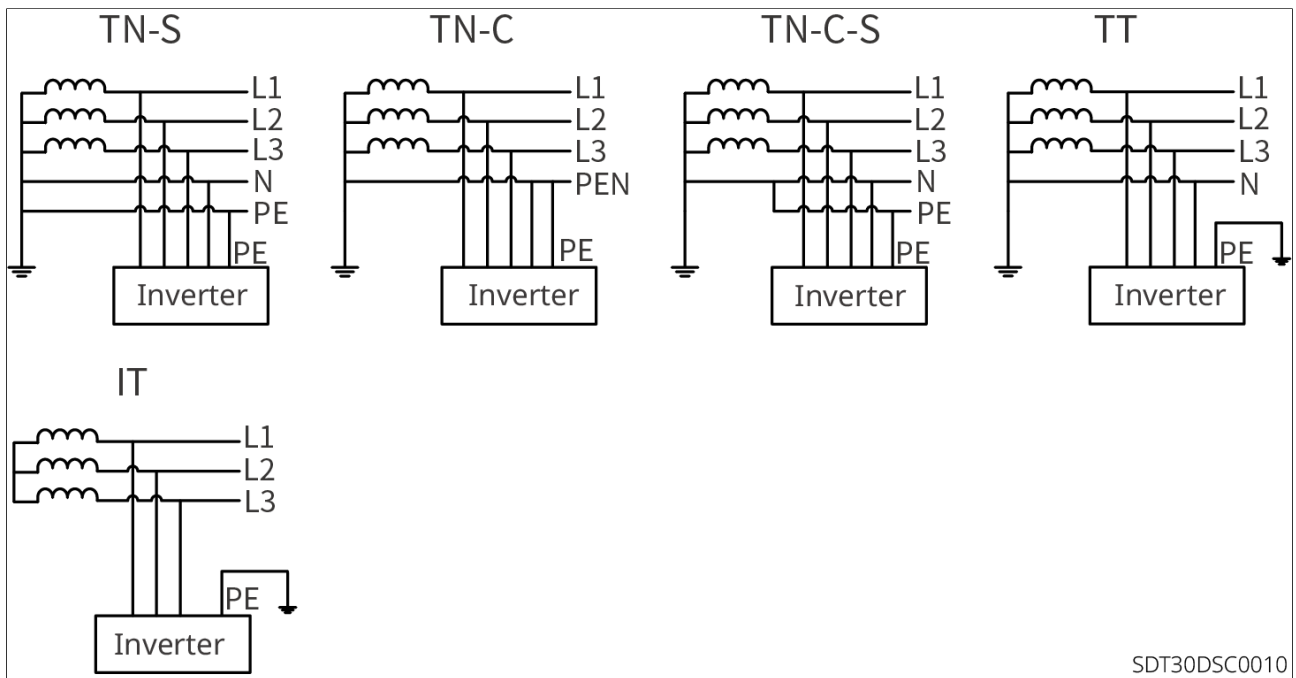
2.4 Features

AFCI

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

fault occurs, the inverter will automatically protect itself.

Causes of arc generation:

- DC connectors in the photovoltaic system are damaged or improperly connected.
- Cable connections are incorrect or damaged.
- Connectors or cables are aged.

Arc detection method:

When the inverter detects an arc occurrence, the fault type can be viewed via the App.

When arcing is detected, the inverter alarms and shuts down for protection. After waiting 60 seconds, the machine will automatically restore grid connection. If multiple shutdown protections occur, it is necessary to confirm the inverter wiring and eliminate the arc phenomenon. For specific operations, please refer to the 'SolarGo APP User Manual'.

RSD

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

External transmitter:

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

https://en.goodwe.com/Ftp/Installation-instructions/RSD2.0-transmitter.pdf

Receiver models: GR-B1F-20, GR-B2F-220

https://en.goodwe.com/Ftp/Installation-instructions/RSD2.0.pdf
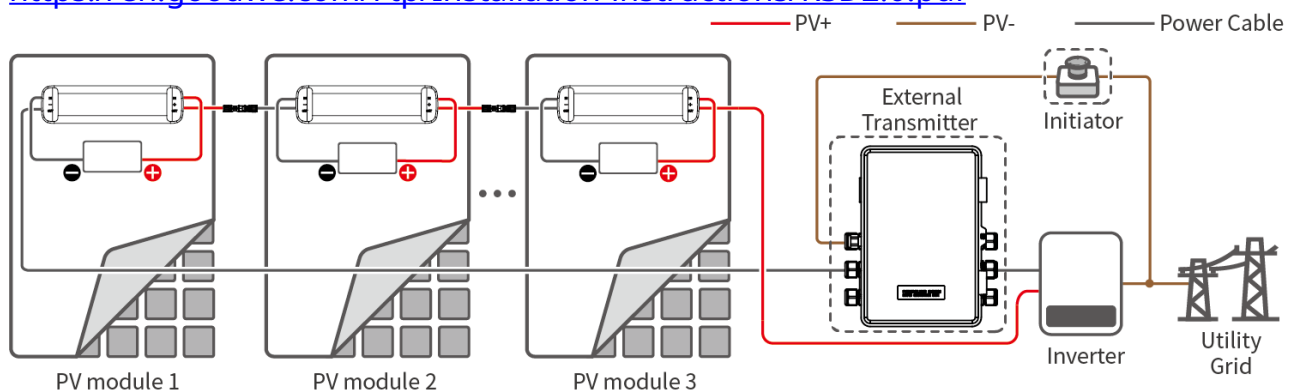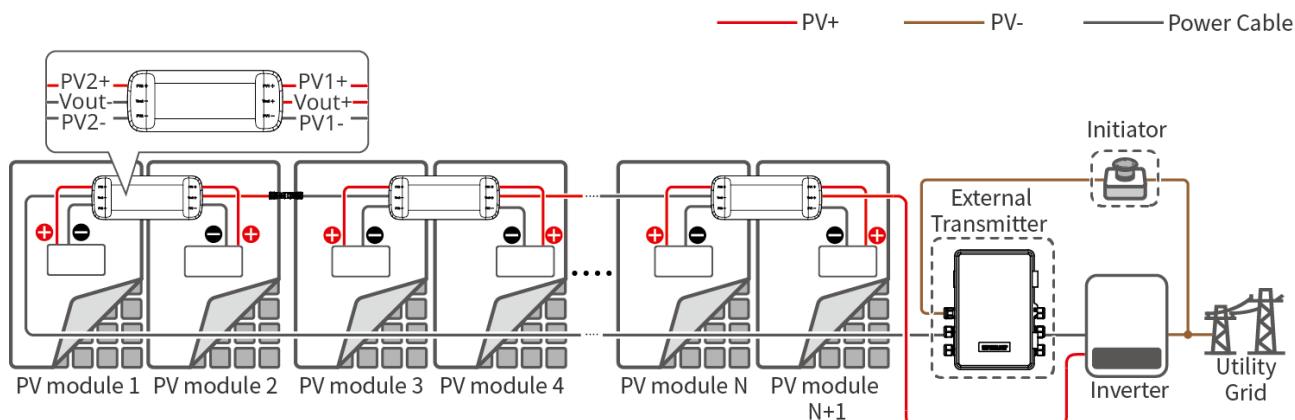
RSD20NET0003

RSD20NET0004
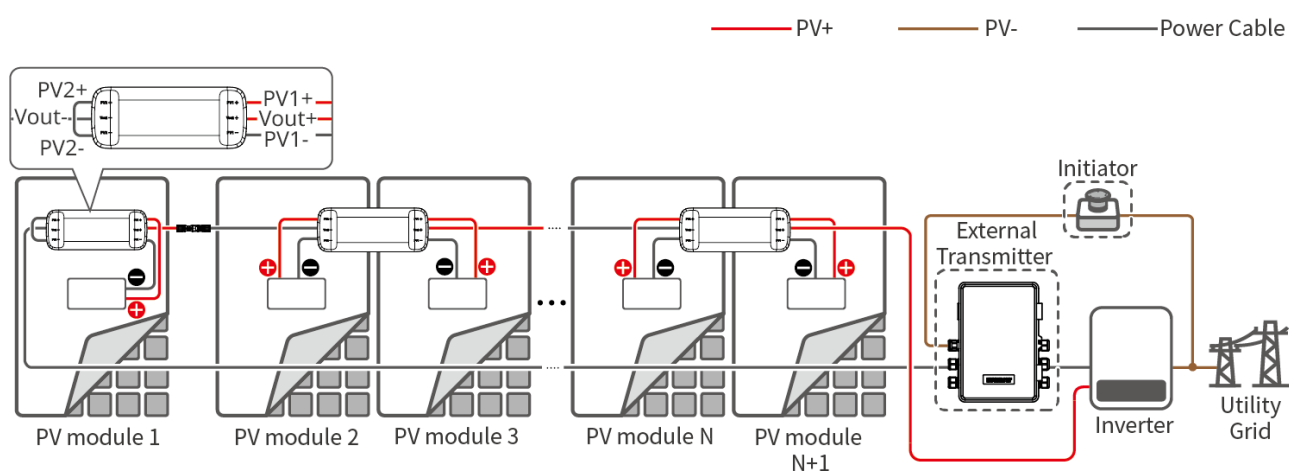
RSD20NET0005

Built-in transmitter:

External trigger device: AC side circuit breaker;

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

https://en.goodwe.com/Ftp/Installation-instructions/RSD2.0.pdf

Communication

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

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

Figure showing communication network: 4G, LAN< 100m, WiFi< 10m, Router, Server, SEMS APP, WiFi< 10m, Bluetooth< 5m, Communication Dongle, SolarGo APP, SDT30NET0003
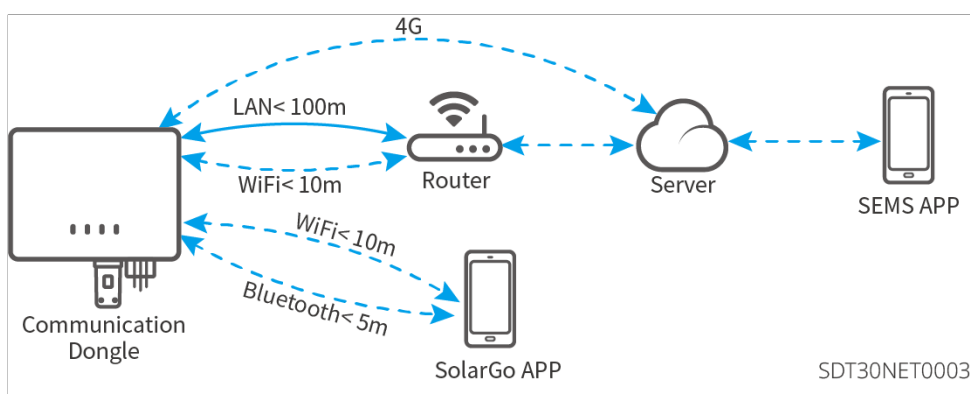
2.5 Inverter Operating Modes

Diagram showing: Waiting Mode, Fault Mode, Upgrading Mode, Self-check Mode, Grid-tied Mode, SDT30NET0004
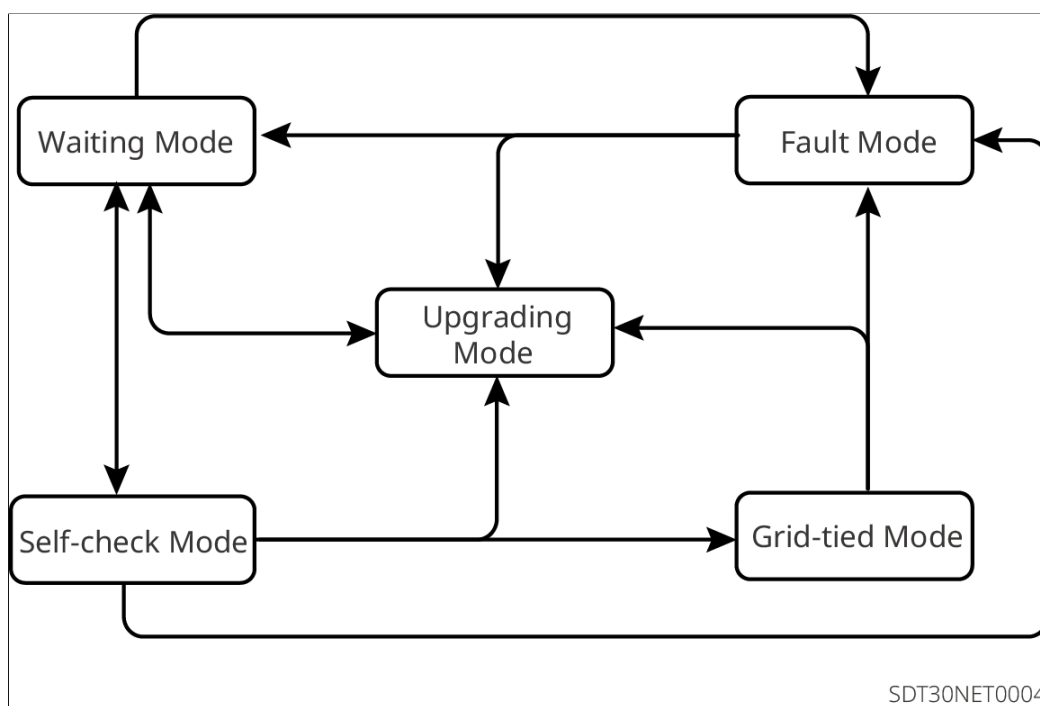
No.	Component	Description
1	Waiting mode	The waiting phase after the machine is powered on. • When conditions are met, it enters Self-check mode. • If a fault is detected, the inverter enters Fault mode. • If an upgrade request is received, it enters Upgrade mode.

2	Self-check mode	Before the inverter starts, it continuously performs self-checks, initialization, etc. • If conditions are met, it enters On-grid mode, and the inverter starts and operates connected to the grid. • If an upgrade request is received, it enters Upgrade mode. • If the self-check fails, it enters Fault mode.
3	On-grid mode	The inverter operates normally connected to the grid. • If a fault is detected, it enters Fault mode. • If an upgrade request is received, it enters Upgrade mode.
4	Fault mode	If a fault is detected, the inverter enters Fault mode. After the fault is cleared, it enters Waiting mode. After the Waiting mode ends, the inverter checks its operating status and then enters the next operating mode.
5	Upgrade mode	The inverter transitions to this state when updating its program. When the program update is complete, it enters Waiting mode. After the Waiting mode ends, the inverter checks its operating status and then enters the next operating mode.

2.6 Appearance Description

The color and appearance of different inverter models may vary and are subject to the actual product.

2.6.1 Component Introduction
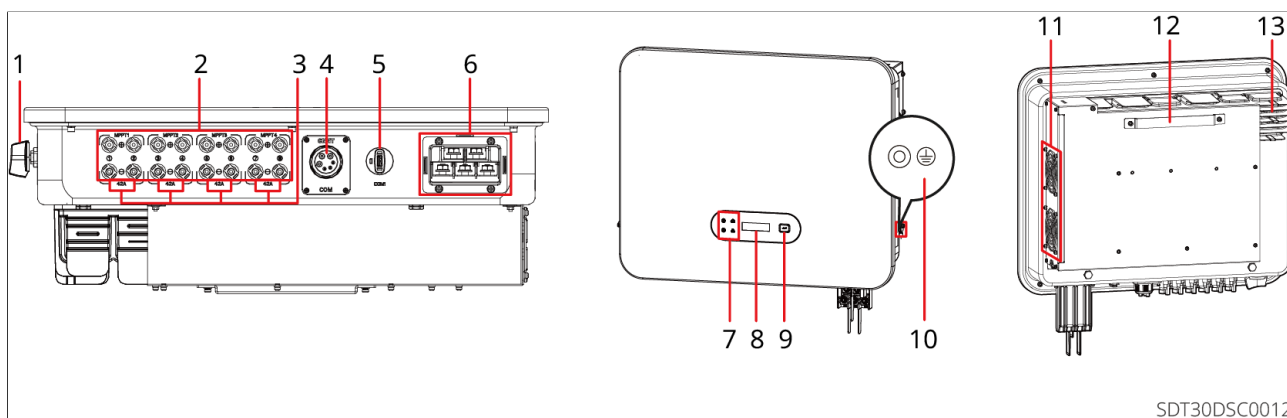
SDT30DSC0012

No.	Component/Silkscreen	Description
1	DC Switch	Controls the connection or disconnection of the DC input.
2	PV Input Terminals	For connecting the PV module DC input cables.
3	Maximum Input Current Silkscreen Value per MPPT Circuit	The maximum current that each MPPT circuit of the inverter can accept. This value varies for different inverter models. Please refer to the inverter technical specifications for the specific value.
4	Communication Port	For connecting RS485 devices or power meters.
5	Communication Module Port	For connecting a communication module. Please select the module type according to actual requirements.
6	AC Output Port	For connecting the AC output cable to connect the inverter to the grid.
7	indicator	Indicates the operating status of the inverter.
8	Display Screen (Optional)	View inverter-related data.
9	Buttons (Optional)	Used in conjunction with the display screen to operate the inverter.
10	Grounding terminal	Connecting the PE cable.

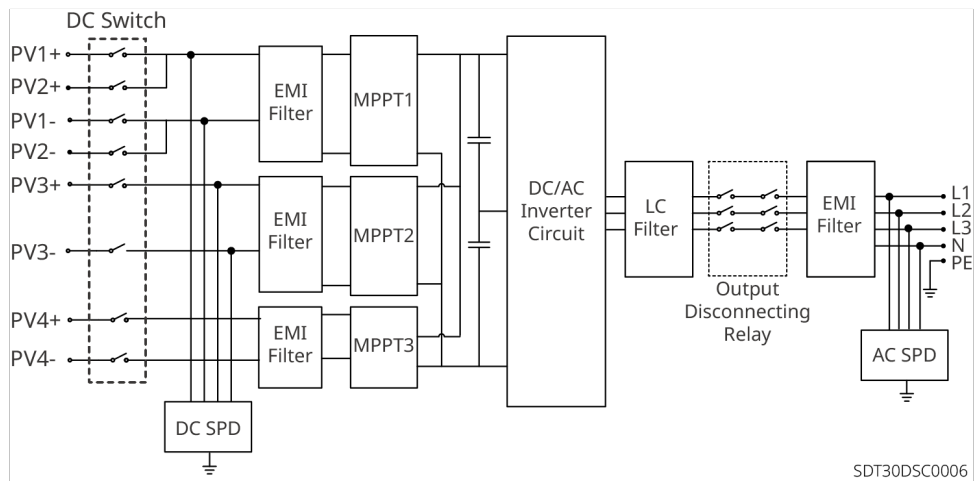| 11	Fan	The inverter is equipped with external fan(s) to cool it down when the temperature is too high. • GW8000-SDT-30, GW10K-SDT-30, GW10K-SDT-EU30, GW12K-SDT-30, GW15K-SDT-30, GW4000-SDT-30, GW5000-SDT-30, GW6000-SDT-30: No external fan. • GW12KLV-SDT-C30, GW17K-SDT-30, GW20K-SDT-30, GW12KLV-SDT-C31, GW20K-SDT-31, GW5000-SDT-AU30, GW6000-SDT-AU30, GW8000-SDT-AU30, GW9990-SDT-AU30: External fan x 1. • GW17KLV-SDT-C30, GW25K-SDT-C30, GW30K-SDT-C30, GW25K-SDT-P31, GW40K-SDT-P30, GW15K-SDT-AU30, GW20K-SDT-AU30, GW25K-SDT-AU30, GW29K9-SDT-AU30, GW25K-SDT-30, GW30K-SDT-30, GW23KLV-SDT-BR30, GW37K5-SDT-BR30, GW33K-SDT-C30, GW36K-SDT-C30, GW40K-SDT-C30, GW30KLV-SDT-C30, GW50K-SDT-C30: External fan x 2.
12	Mounting Bracket	For mounting the inverter.
13	heat sink	For inverter heat dissipation.

2.6.2 Product Dimensions

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

SDT30INT0004

SDT30DSC0013
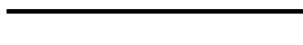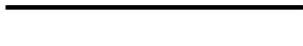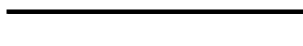
2.6.3 Indicator Light Instructions
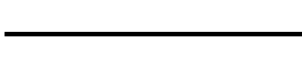
Three Lights

Indicator	Status	Description
	 	Steady on: Wireless monitoring normal

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Power	▮▮▮▮▮▮▮▮	Single blink: Wireless module reset or restored to factory settings
	▮▮ ▮▮	Double blink: Not connected to router/Not connected to base station
	▮▮▮▮ ▮▮▮▮	Four blinks: Not connected to monitoring server
	▮▮ ▮▮	Blinking: RS485 communication normal
	——————	Off: Wireless module is restoring factory settings
Run	▮▮▮▮▮▮ (green)	Steady on: Grid normal, grid connection successful
	——————	Off: Not connected to grid
Comm	▮▮▮▮▮▮ (red)	Steady on: System fault
	——————	Off: No fault

Four Lights

indicator	Status	Description
Power	▮▮▮▮▮▮ (green)	Steady on: Device powered on
	——————	Off: Device not powered on
Operation	▮▮▮▮▮▮ (green)	Steady on: Grid normal, grid-connected successfully
	——————	Off: Not grid-connected

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

2.6.4 Nameplate Specifications

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

GOODWE

Product: Grid-Tied PV Inverter
Model : ******_*_***_***** **

PV Input	U_{DCmax}: **** Vd.c.
	U_{MPP}: **...*** Vd.c.
	$I_{DC,max}$: **Ad.c.
	$I_{SC\,PV}$: **Ad.c.

Output	$U_{AC,r}$: *** Va.c
	$f_{AC,r}$: ** Hz
	$P_{AC,r}$: ** kW
	$I_{AC,max}$: ** Aa.c.*
	S_r: ** kVA
	S_{max}: ** kVA**

P.F.: ~* ,**cap...**ind
$T_{operating}$: -**.** ℃
Non-isolated, IP** , Protective Class I, OVC DCII/ACIII

5min

S/N:

**************************** Co, Ltd.
E-mail:**********@*******.com
*******,**********,*******   S/N

SDT30DSC0014

Goodwe trademark, product type, and product model

Technical parameters

Safety symbols and certification marks

Contact information and serial number

2.7 Check Before Receiving
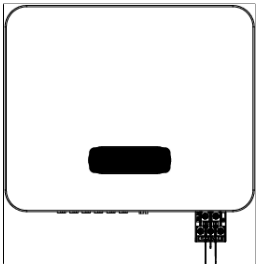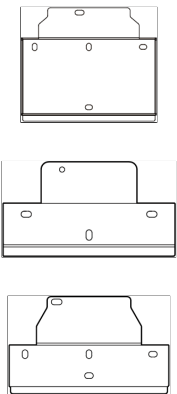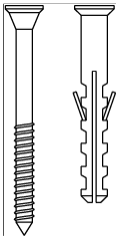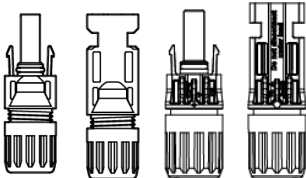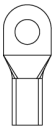
Before receiving the product, please carefully check the following:
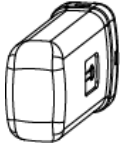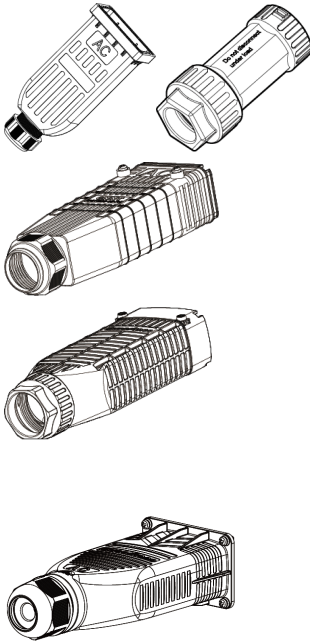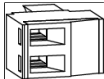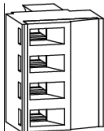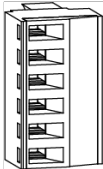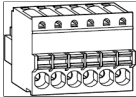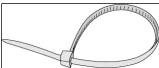
1. Check if the outer packaging is damaged, such as deformation, holes, cracks, or other signs that could cause damage to the equipment inside the box. If damaged, do not open the packaging and contact your dealer.
2. Check if the inverter model is correct. If it does not match, do not open the packaging and contact your dealer.
3. Check if the type and quantity of delivered items are correct, and if there is any damage to the appearance. If damaged, contact your dealer.
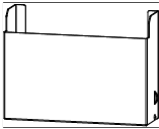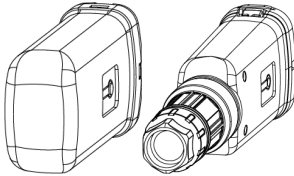
2.8 deliverables

NOTICE

[1] The type of back mounting plate depends on the inverter model.

[2] The number of DC connectors matches the number of inverter DC terminals. Please confirm based on the number of inverter DC terminals.

[3] The number of expansion screws matches the hole positions on the back mounting plate.

[4] The number of communication terminals and tubular terminals matches the selected communication method. Please confirm based on the communication configuration. Depending on the inverter configuration, the quantity of 2PIN communication terminals, 3PIN communication terminals, 4PIN communication terminals, or DRED/RCR communication terminals provided with the box may vary. Please refer to the actual shipment.

[5] Communication module types include: 4G, WiFi/LAN communication modules. The actual shipment type depends on the selected inverter communication method.

[6] The protective cover is only applicable to the following models: GW5000-SDT-AU30, GW6000-SDT-AU30, GW8000-SDT-AU30, GW9990-SDT-AU30, GW15K-SDTAU30, GW20K-SDT-AU30, GW25KSDT-AU30, GW29K9-SDT-AU30, GW25K-SDT-30, GW50K-SDT-30

[7] For models GW5000-SDT-AU30, GW6000-SDT-AU30, GW8000-SDT-AU30, GW9990-SDT-AU30, GW15K-SDTAU30, GW20K-SDT-AU30, the number of AC OT terminals: 0; for models GW25K-SDT-AU30, GW29K9-SDT-AU30, GW25K-SDT-30, GW30K-SDT-30, the number of AC OT terminals: 5

[8] The cable harness and protective cover support plate fixing tie are only applicable to models with a protective cover. For models GW5000-SDT-AU30, GW6000-SDT-AU30, GW8000-SDT-AU30, GW9990-SDT-AU30, GW15K-SDTAU30, GW20K-SDT-AU30, GW25K-SDT-AU30, GW29K9-SDT-AU30, GW25K-SDT-30, the quantity: 3; for model GW50K-SDT-30, the quantity: 5

[9] For models GW4000-SDT-30, GW5000-SDT-30, GW6000-SDT-30, the number of AC OT terminals: 6

[10] For models GW4000-SDT-30, GW5000-SDT-30, GW6000-SDT-30, the number of sealing rings: 1

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

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

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

2.9 Storage

If the device is not put into use immediately, please store it according to the following requirements:

1. Ensure the outer packaging box is not removed and the desiccant inside the box is not lost.
2. Ensure the storage environment is clean, with appropriate temperature and humidity ranges, and free from condensation.
3. Ensure the stacking height and orientation of the inverters are arranged according to the instructions on the packaging box label.
4. Ensure there is no risk of toppling after the inverters are stacked.
5. If the storage time of the inverter exceeds two years, or if it remains unused for more than 6 months after installation, it is recommended to have it inspected and tested by professional personnel before putting it into use.
6. To ensure the good electrical performance of the internal electronic components of the inverter, it is recommended to power it on once every 6 months during storage. If it has not been powered on for more than 6 months, it is recommended to have it inspected and tested by professional personnel before putting it into use.

3 Installation

3.1 Installation Requirements

Installation Environment Requirements

1. The device must not be installed in flammable, explosive, corrosive, or similar environments.
2. The mounting surface must be sturdy and reliable, capable of supporting the weight of the inverter.
3. The installation space must meet the equipment's ventilation, heat dissipation, and operational space requirements.
4. The equipment's protection rating is suitable for indoor and outdoor installation; the ambient temperature and humidity must be within the appropriate range.
5. The inverter should be installed away from direct sunlight, rain, snow accumulation, etc. It is recommended to install it in a sheltered location; if necessary, a sunshade canopy can be constructed.
6. The installation location must be out of reach of children and avoid easily accessible spots. The surface may become hot during operation to prevent burns.
7. The installation height should facilitate operation and maintenance, ensuring the indicator lights, all labels are easily visible, and the terminals are easy to operate.
8. For models GW5000-SDT-AU30, GW6000-SDT-AU30, GW8000-SDT-AU30, GW9990-SDT-AU30, GW15K-SDT-AU30, GW20K-SDT-AU30, the installation altitude must be below 3000m. Above 2000 meters, the inverter will be derated. For models GW4000-SDT-30, GW5000-SDT-30, GW6000-SDT-30, GW30KLV-SDT-C30, GW50K-SDT-C30, GW20K-SDT-31, GW12KLV-SDT-C31, GW25K-SDT-P31, GW25K-SDT-AU30, GW29K9-SDT-AU30, GW25K-SDT-30, GW30K-SDT-30, GW23KLV-SDT-BR30, GW37K5-SDT-BR30, GW33K-SDT-C30, GW36K-SDT-C30, GW40K-SDT-C30, GW40K-SDT-P30, GW8000-SDT-30, GW10K-SDT-30, GW10K-SDT-EU30, GW12K-SDT-30, GW12KLV-SDT-C30, GW15K-SDT-30, GW17K-SDT-30, GW17KLV-SDT-C30, GW20K-SDT-30, GW25K-SDT-C30, GW30K-SDT-C30, the installation altitude must be below 4000 meters.
9. The inverter may corrode if installed in a salt-damaged area. A salt-damaged area refers to a region within 1000m of the coast or affected by sea breeze. The area affected by sea breeze varies depending on weather conditions (e.g., typhoons, seasonal winds) or topography (e.g., presence of embankments, hills).
10. Keep away from strong magnetic field environments to avoid electromagnetic interference. If there are radio stations or wireless communication devices below 30MHz near the installation site, install the equipment as follows:

- Add ferrite cores with multiple windings at the inverter's DC input or AC output lines, or add low-pass EMI filters.
- Maintain a distance of over 30m between the inverter and the wireless electromagnetic interference equipment.

Mounting Surface Requirements

- The mounting surface must not be made of flammable materials and must possess fire-resistant properties.
- Ensure the installation surface is sturdy and meets the load-bearing requirements of the equipment.
- During operation, the equipment generates vibration. Do not install it on surfaces with poor sound insulation to prevent operational noise from disturbing residents in living areas.

Installation Angle Requirements
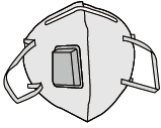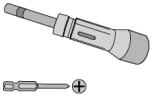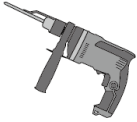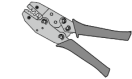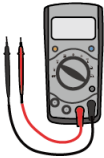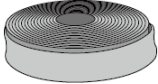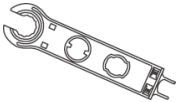
- Recommended inverter installation angle: vertical or tilted backward ≤ 15°.
- Do not install the inverter upside down, tilted forward, tilted backward beyond the specified angle, or horizontally.
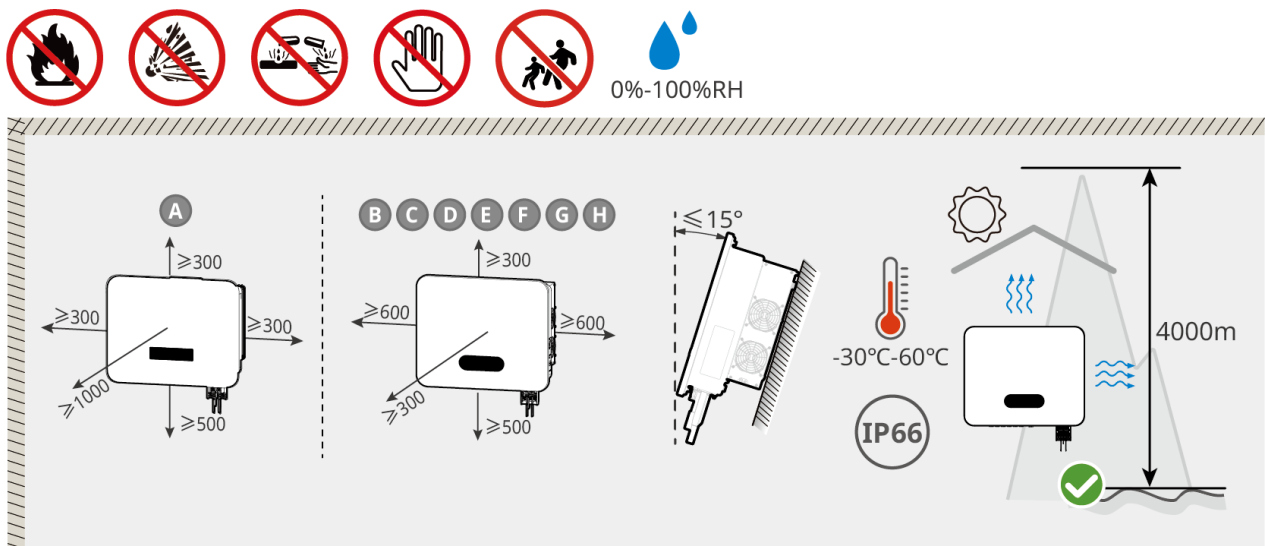
SDT30DSC0014

Installation Tool Requirements
The following tools are recommended for installation. Other auxiliary tools may be used on-site as necessary.

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

3.2 Installing the Inverter

3.2.1 Portable Inverter

⚠️CAUTION
Before installation, the inverter must be moved to the installation site. To avoid personal injury or equipment damage during the moving process, please note the following: 1. Please assign personnel according to the equipment's weight to prevent the equipment from exceeding the human lifting capacity and causing injury. 2. Please wear safety gloves to avoid injury. 3. Please ensure the equipment remains balanced during the moving process to prevent dropping.

3.2.2 Installing the Inverter

NOTICE
• When drilling holes, ensure the drilling location avoids water pipes, cables, etc., inside the wall to prevent danger. • When drilling holes, please wear safety goggles and a dust mask to avoid inhaling dust into your respiratory tract or getting it into your eyes. • The anti-theft lock is user-provided. Please select an anti-theft lock of appropriate size, otherwise installation may be impossible. • The appearance of the graphics in this document is for reference only. The appearance may vary between different models or different versions of the same model. Please refer to the physical product. • Step 4 only applies to GW5000-SDT-AU30, GW6000-SDT-AU30, GW8000-SDT-AU30, GW9990-SDT-AU30, GW15K-SDTAU30, GW20K-SDT-AU30, GW25K-SDT-AU30, GW29K9-SDT-AU30, GW25K-SDT-30, GW30K-SDT-30

Step 1: Place the backplate horizontally against the wall and use a marker to mark the drilling positions.

Step 2: Use an impact drill to create the holes.
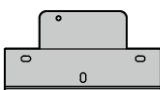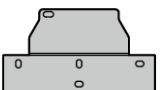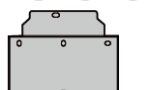
Step 3: Use expansion screws to secure the backplate to the wall.

Step 4: Mount the inverter onto the backplate and secure the backplate to the inverter.
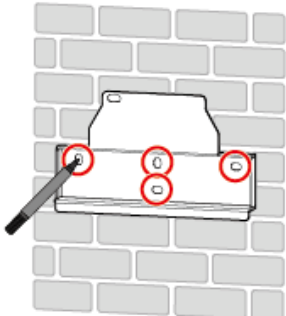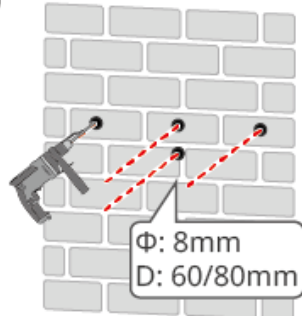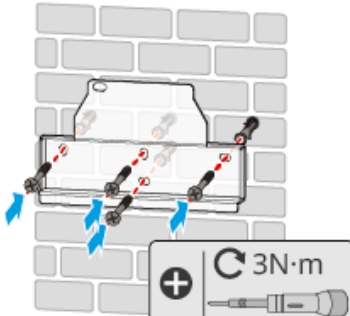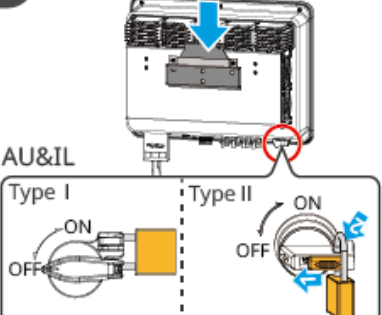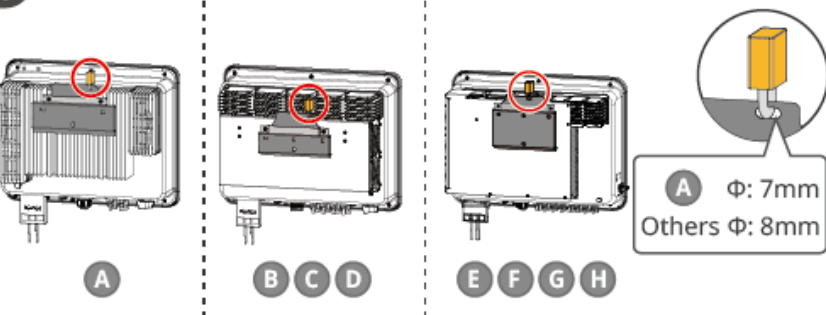
Step 5 (Optional): Install the anti-theft lock.

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 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

A — D: 60mm, Φ: 8mm ST6.3, 3N·m

B C D — D: 60mm, Φ: 8mm ST6.3, 3N·m

E F G H — D: 80mm, Φ: 8mm ST5.5, 3N·m

SDT30INT0005

Φ: 8mm
D: 60/80mm

3N·m

AU&IL — Type I / Type II — ON / OFF

A — Φ: 7mm
Others Φ: 8mm

SDT30INT0006

4 Electrical Connection

4.1 Safety Precautions

⚠DANGER
• Before performing electrical connections, disconnect the DC switch and AC output switch of the inverter to ensure the device is powered off. Do not operate under power, otherwise electric shock or other DANGER may occur. • All operations during electrical connections, as well as the specifications of cables and components used, must comply with local laws and regulations. • If the cable is subjected to excessive tension, it may lead to poor connections. When wiring, leave a certain length of cable slack before connecting to the inverter's terminal ports.

NOTICE
• When performing electrical connections, wear personal protective equipment (PPE) such as safety shoes, protective gloves, and insulated gloves as required. • Only qualified personnel are permitted to perform electrical connection operations. • The cable colors in the diagrams in this document are for reference only. The specific cable specifications must comply with local regulations. • The appearance of the graphics in this document is for reference only. The appearance may vary between different models or different versions of the same model. Please refer to the actual product.

Cable Specification Requirements

Cable	Type	Cable Specifications	
		Cable Outer Diameter (mm)	Conductor Cross-Sectional Area (mm²)
DC cable		4.8~6.3	Recommend: 4~6

Cable	Type	Cable Specifications	
		Cable Outer Diameter (mm)	Conductor Cross-Sectional Area (mm²)
	Photovoltaic cable meeting 1100V standard	5.9-8.8	Recommend: 4~6
AC cable	Outdoor single-core four-strand/five-strand copper wire/aluminum wire[1]	GW30KLV-SDT-C30, GW50K-SDT-C30: 22~38 GW5000-SDT-AU30, GW6000-SDT-AU30, GW8000-SDT-AU30, GW9990-SDT-AU30, GW15K-SDTAU30, GW20K-SDT-AU30: 13~18 Others: 12 ~ 30	Copper core (supports single-strand or multi-strand wire): GW4000-SDT-30, GW5000-SDT-30, GW6000-SDT-30: 2.5-4 GW8000-SDT-30, GW10K-SDT-30, GW10K-SDT-EU30, GW12K-SDT-30, GW12KLV-SDT-C30, GW15K-SDT-30, GW5000-SDT-AU30, GW6000-SDT-AU30, GW8000-SDT-AU30, GW9990-SDT-AU30, GW15K-SDTAU30, GW20K-SDT-AU30: 6-10. GW17K-SDT-30, GW17KLV-SDT-C30, GW20K-SDT-30, GW25K-SDT-C30, GW30K-SDT-C30, GW20K-SDT-31, GW12KLV-SDT-C31, GW25K-SDT-P31: / Aluminum core (supports single-strand or multi-strand wire): GW4000-SDT-30, GW5000-SDT-30, GW6000-SDT-30, GW8000-SDT-30, GW10K-SDT-30, GW10K-SDT-EU30, GW12K-SDT-30, GW12KLV-SDT-C30, GW15K-SDT-30: 10~16. GW17K-SDT-30, GW17KLV-SDT-C30, GW20K-SDT-30, GW25K-SDT-C30, GW30K-SDT-C30, GW20K-SDT-31, GW12KLV-SDT-C31, GW25K-SDT-P31: 16~25. GW12KLV-SDT-C30, GW17KLV-SDT-C30, GW30K-SDT-C30: 25.

Cable	Type	Cable Specifications	
		Cable Outer Diameter (mm)	Conductor Cross-Sectional Area (mm²)
		16~25. GW12KLV-SDT-C30, GW17KLV-SDT-C30: 25. Copper core (only supports multi-strand wire) GW25K-SDT-AU30, GW29K9-SDT-AU30, GW25K-SDT-30, GW30K-SDT-30, GW23KLV-SDT-BR30, GW37K5-SDT-BR30, GW33K-SDT-C30, GW36K-SDT-C30, GW40K-SDT-C30, GW40K-SDT-P30: 16-25. GW30KLV-SDT-C30, GW50K-SDT-C30: 25~70.	Aluminum core (only supports multi-strand wire) GW25K-SDT-AU30, GW29K9-SDT-AU30, GW25K-SDT-30, GW30K-SDT-30, GW23KLV-SDT-BR30, GW37K5-SDT-BR30, GW33K-SDT-C30, GW36K-SDT-C30, GW40K-SDT-C30, GW40K-SDT-P30: 25-35 GW30KLV-SDT-C30, GW50K-SDT-C30: 35~70

Cable	Type	Cable Specifications	
		Cable Outer Diameter (mm)	**Conductor Cross-Sectional Area (mm²)**
PE cable	Outdoor cable	-	Copper core: GW4000-SDT-30, GW5000-SDT-30, GW6000-SDT-30, GW8000-SDT-30, GW10K-SDT-30, GW10K-SDT-EU30, GW12K-SDT-30, GW12KLV-SDT-C30, GW15K-SDT-30: 4. GW17K-SDT-30, GW17KLV-SDT-C30, GW20K-SDT-30, GW25K-SDT-C30, GW30K-SDT-C30, GW20K-SDT-31, GW12KLV-SDT-C31, GW25K-SDT-P31, GW5000-SDT-AU30, GW6000-SDT-AU30, GW8000-SDT-AU30, GW9990-SDT-AU30, GW15K-SDTAU30, GW20K-SDT-AU30: 10. GW25K-SDT-AU30, GW29K9-SDT-AU30, GW25K-SDT-30, GW30K-SDT-30, GW23KLV-SDT-BR30, GW37K5-SDT-BR30, GW33K-SDT-C30, GW36K-SDT-C30,	Aluminum core: GW25K-SDT-AU30, GW29K9-SDT-AU30, GW25K-SDT-30, GW30K-SDT-30, GW23KLV-SDT-BR30, GW37K5-SDT-BR30, GW33K-SDT-C30, GW36K-SDT-C30, GW40K-SDT-C30, GW40K-SDT-P30, GW30KLV-SDT-C30, GW50K-SDT-C30: 16 ~ 25. Other models not supported.

Cable	Type	Cable Specifications	
		Cable Outer Diameter (mm)	Conductor Cross-Sectional Area (mm²)
			GW40K-SDT-C30, GW40K-SDT-P30, GW30KLV-SDT-C30, GW50K-SDT-C30: 10-16.
Communication cable	Outdoor shielded twisted pair cable meeting local standards [2]	3~7	0.2~0.5

Note: [1] When using aluminum wire, please connect copper-aluminum transition terminals.

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

4.2 Connecting the PE cable

⚠WARNING

- The protective grounding of the chassis cannot replace the protective ground wire of the AC output port. When wiring, ensure that the protective ground wires at both locations are reliably connected.
- If there are multiple inverters, ensure that the protective grounding points of all inverter chassis are equipotentially connected.
- To improve the corrosion resistance of the terminals, it is recommended to apply silicone or paint on the exterior of the grounding terminals for protection after the protective ground wire connection is installed.
- Please prepare your own protective ground wire. It is recommended to use copper-core cables for the ground wire. If aluminum wire is needed, please use copper-aluminum transition terminals for wiring.
  Copper-aluminum transition terminals should be prepared by yourself.

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

SDT30INT0004

SDT30ELC0008

4.3 Connecting AC Output Cables

⚠ WARNING

- Do not connect any load between the inverter and the AC switch directly connected to the inverter.
- The inverter integrates a Residual Current Monitoring Unit (RCMU). The inverter will quickly disconnect from the grid if it detects a leakage current exceeding the permissible value.

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

NOTICE
Each inverter must be equipped with an AC output switch; multiple inverters cannot be connected to one AC switch simultaneously.

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

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

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

⚠ WARNING
• During wiring, ensure the AC output wires fully match the "L1", "L2", "L3", "N", and "PE" ports of the AC terminal block. Incorrect cable connection will cause inverter damage. • Ensure the wire cores are fully inserted into the AC terminal wiring holes with no exposed parts. • Ensure the cable connections are tight. Otherwise, loose connections may cause terminal overheating during equipment operation, resulting in inverter damage. • The AC output terminal supports both three-phase four-wire and three-phase five-wire configurations. The actual wiring shall follow the specific installation scenario. This document uses the three-phase five-wire system as an example for description. • The protective earth (PE) wire length should have extra slack. In case the AC output wires are subjected to pulling force due to unforeseen circumstances, the protective earth wire should be the last to bear the stress. • When using aluminum wires, connect copper-aluminum transition terminals. Please prepare AC wiring OT terminals yourself. Terminal selection should refer to T/CEEIA 281-2017 or equivalent standards.

Type One:

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

SDT30INT0004

1

L1/L2/L3
L+2mm
Φ
S

L1
L2
L3
PE
N

N/PE

Ⓐ Ⓑ Ⓒ Φ: 12-30mm
Ⓔ Ⓕ Ⓖ L1/L2/L3: ≤70mm
         N/PE: ≤100mm

Ⓗ Φ: 22-38mm
    L1/L2/L3: ≤105mm
    N/PE: ≤135mm

L

Ⓐ 4-6K: S(Cu), 2.5-4mm²
    8-15k: S(Cu), 6-10mm²
Ⓑ Ⓒ S(Cu), 16-25mm²

GW12KLV-SDT-C30,
GW17KLV-SDT-C30: Cu, S=25mm²

Cu
Ⓔ Ⓕ Ⓖ
S(Cu), 16-25mm²
Ⓗ
S(Cu), 25-70mm²

Ⓐ Ⓑ Ⓒ Ⓔ Ⓕ Ⓖ   Ⓗ

6.4-8.5mm   L
16-18mm   11-14mm

8.4-10.5mm   L
16-23mm   14-16mm

2.0-3.2mm
4.4-8.5mm
69-77mm

2.8-4mm
8.5-11mm
85-90mm

Al
Ⓐ S(Al), 10-16mm²
Ⓑ Ⓒ S(Al), 16-25mm²

GW12KLV-SDT-C30: S(Al), 16-25mm²
GW17KLV-SDT-C30,
GW30K-SDT-C30: S(Al), S=25mm²

Ⓔ Ⓕ Ⓖ S(Al), 25-35mm²
Ⓗ S(Al), 35-70mm²

2

D

D	22-28mm	28-35mm	35-43mm	D	18-32mm
Type I				Type III	
D	16-22mm	22-28mm	28-35mm	35-42mm	D	12-14mm
Type II					Type IV	

Type I
Type II
Type III
Type IV

3

4

Type II   Type I /III/IV

5X   5X

N PE   N PE
L1 L2 L3   L1 L2 L3

Type I / II
M8 8-10N·m

Type III/ IV
M6 2.8-3.2N·m

5

Type I / II   Type III/ IV

AC   AC

M5 2-2.4N·m   M4 1.2-1.8N·m
55mm 5-6N·m   55mm 4-5N·m

SDT30ELC0011

Type Two:

SDT30ELC0012

Disconnect AC Terminals

SDT30MTN0001
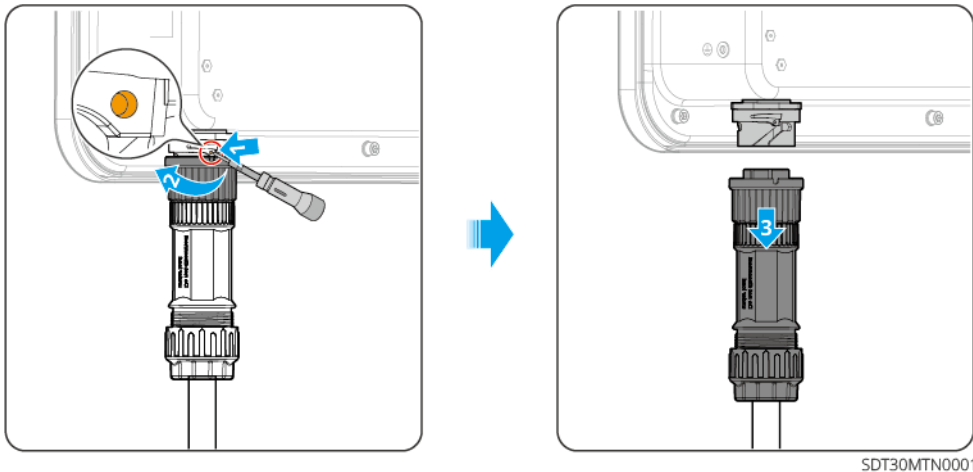
4.4 Connecting DC Input Cables

<div style="background:red">⚠ DANGER</div>

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

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

<div style="background:orange">⚠ WARNING</div>

- Mixing PV modules of different brands or models in the same MPPT circuit, or connecting PV modules with different orientation angles or tilts in the same PV string, may not necessarily damage the inverter, but will reduce system performance.
- It is recommended that the voltage difference between different MPPT circuits does not exceed 160V.
- 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.
- When the maximum DC input voltage of the inverter is 1100V, ensure that the open-circuit voltage of the PV strings connected to each MPPT does not exceed 1100V. When the input voltage is between 1000V and 1100V, the inverter will enter standby mode. When the voltage returns to the MPPT operating voltage range (140V to 1000V), the inverter will resume normal operation.
- When the maximum DC input voltage of the inverter is 850V, ensure that the open-circuit voltage of the PV strings connected to each MPPT does not exceed 850V. When the input voltage is between 700V and 850V, the inverter will enter standby mode. When the voltage returns to the MPPT operating voltage range (140V to 700V), the inverter will resume normal operation.
- When the inverter is connected to multiple PV strings, it is recommended to maximize the number of MPPT connections.
- Please use the DC connectors shipped with the box. Damage to the equipment caused by using incompatible connectors is not covered by the warranty.
- The PV string output does not support grounding. Before connecting the PV string to the inverter, ensure that the minimum insulation resistance to ground of the PV string meets the minimum insulation impedance requirements.
- Please prepare your own DC input cables.
- Type of DC input cable: Outdoor photovoltaic cable that meets the maximum input voltage of the inverter.

PV String Connection Method

NOTICE
For optimal power generation efficiency, it is recommended to connect the PV strings as follows.

Please connect the PV strings according to the actual number of MPPT channels and strings supported by the specific inverter model.

•: Connect one PV string ••: Connect two PV strings

PV String Count	MPPT1	MPPT2	MPPT3	MPPT4
4	•	•	•	•
5	••	•	•	•
6	••	••	•	•
7	••	••	••	•
8	••	••	••	••

PV Connection Mode

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

The PV connection modes are divided into the following three types:

1. Independent Connection (Default Mode): MPPT1, 2, 3, and 4 are connected independently.
2. Partial Parallel Connection: MPPT1 and MPPT2 are connected in parallel, while MPPT3 and MPPT4 are connected independently.
3. Parallel Connection: MPPT1 - MPPT4 are connected in parallel to the same PV module(s).

For the method to select the connection mode, please refer to Chapter 8 of this manual or the SolarGo User Manual.

Connecting DC Input Cables

Step 1: Prepare the DC cables.

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

Step 3: Tighten the DC connector.

Step 4: Measure the DC input voltage.

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

Step 1 (类型 II):
- 7-8mm
- Φ: 4.8-6.3mm
- Cu, 4-6mm²

Step 2:
- A-2546B

Step 4:
GW12KLV-SDT-C30,GW17KLV-SDT-C30, GW23KLV-SDT-BR30,GW12KLV-SDT-C31, GW30KLV-SDT-C30: ≤850V
Others: ≤1100V

Step 5:
MPPT
42A

SDT30ELC0009

Step 1:
- 7-8mm
- Φ: 5.9-8.8mm
- Cu, 4-6mm²

Step 2:
- PV-CZM-61100

Step 4:
GW12KLV-SDT-C30,GW17KLV-SDT-C30, GW23KLV-SDT-BR30,GW12KLV-SDT-C31, GW30KLV-SDT-C30: ≤850V
Others: ≤1100V

Step 5:
MPPT
+ −

SDT30ELC0020
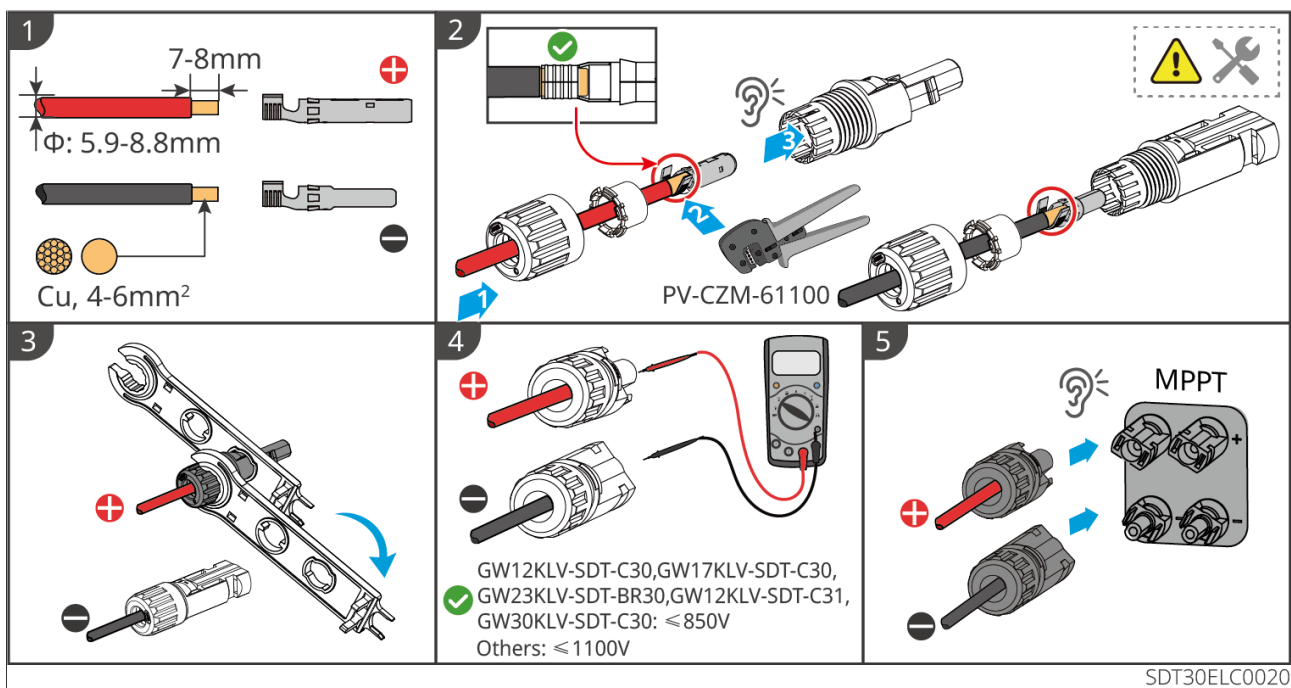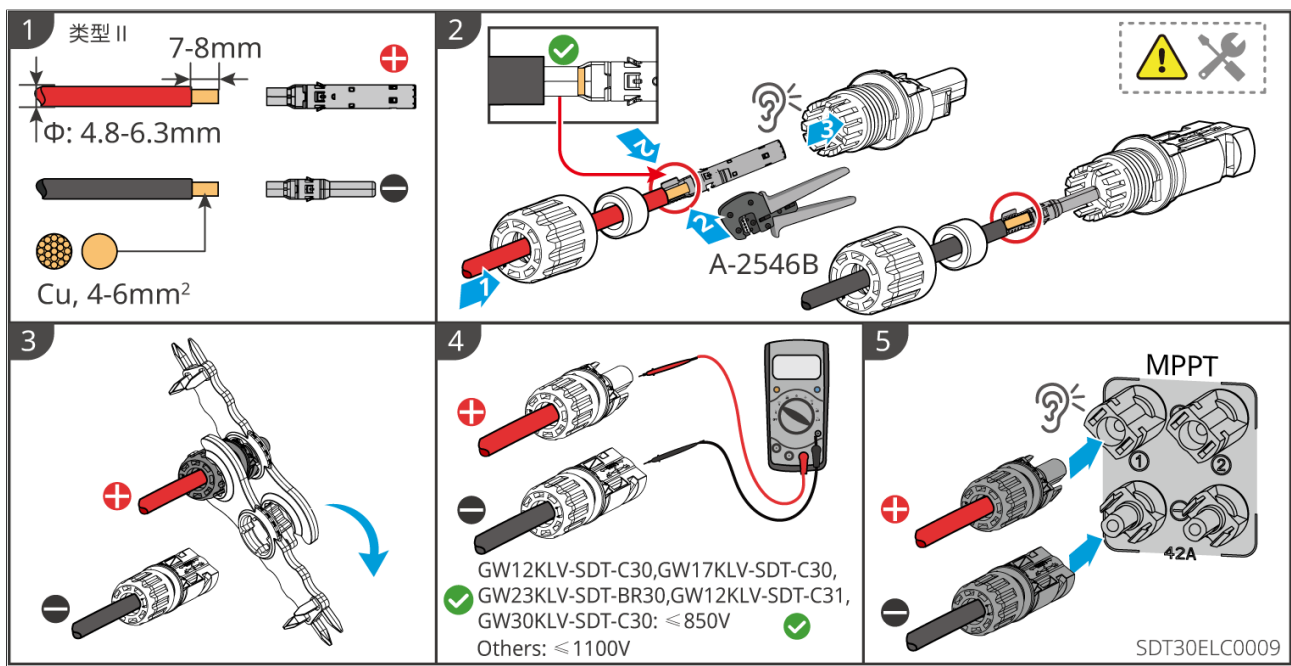
Connecting Y-Type PV Connector (Optional)

NOTICE

48

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

PV string

PV string

Y-branch PV connector

Inverter

SDT30ELC0019
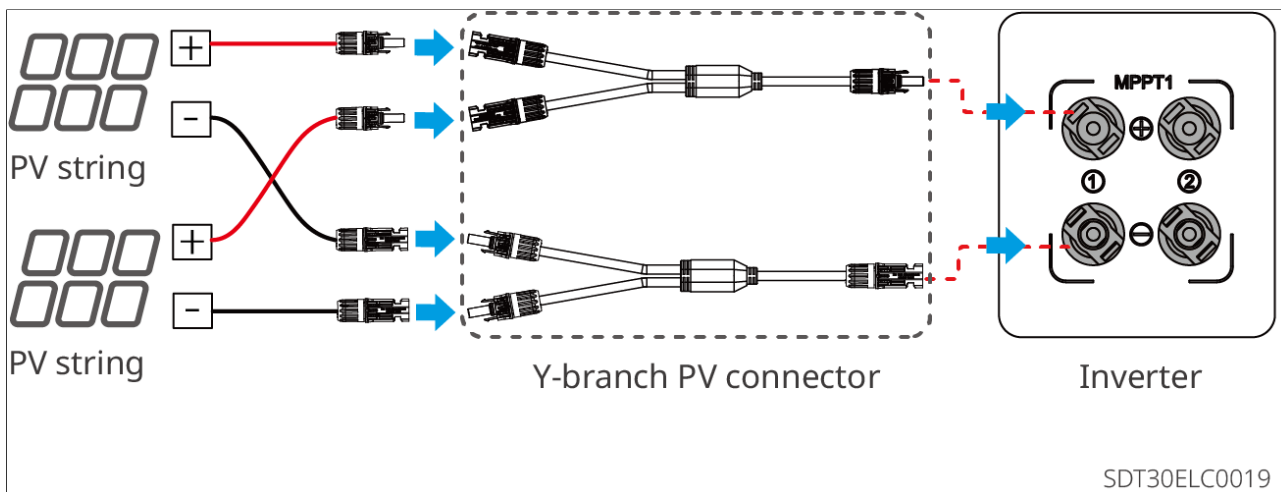
4.5 Communication Connection

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

4.5.1 RS485 Communication Networking Solution

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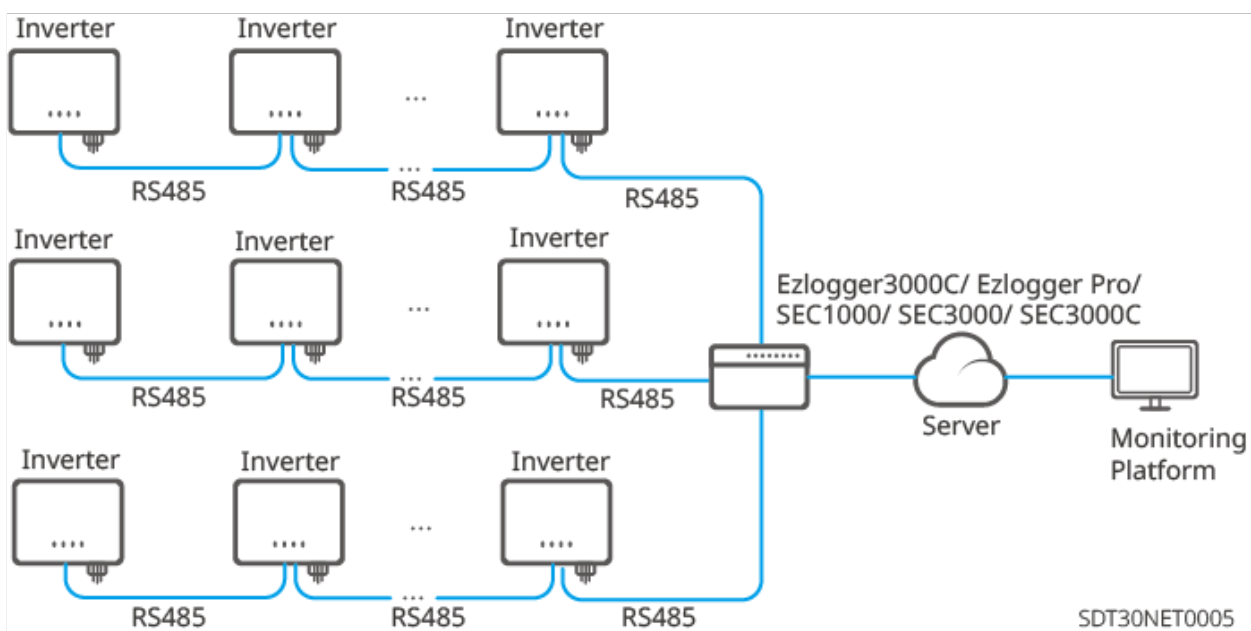
4.5.2 Power Limitation and Load Monitoring

Power Limitation

When a photovoltaic power station generates electricity for self-consumption and the electrical equipment cannot consume all the generated power, and the surplus power needs to be fed into the grid, the power station's generation can be monitored and the amount of power fed into the grid can be controlled via a smart meter, data logger, or the Smart Energy Controller SEC1000.

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

NOTICE

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

SolarGo APP
User Manual

Single-unit Power Limitation Networking Solution (GMK330/GM330)

Multi-unit Power Limitation Networking Solution (EzLogger Pro+GM330/GMK330)

Multi-unit Power Limitation Networking Solution (EzLogger3000C+GM330)

PV String

Inverter   Inverter

COM   COM

1 2 3 4 5 6   1 2 3 4 5 6

RS485-B1
RS485-A1

RS485-B1 RS485-A1

Circuit
breaker

Circuit
breaker

Circuit
breaker

Load

CT1
CT2
CT3

Meter   Grid

L1
L2
L3
N

CT

House→Grid

I1 I2 I3

GM330/GMK330

A B

EzLogger3000C

RS485-A RS485-B

ETH1

A B A B A B A B

ETH2

1   2   3   4

RS485

Server

Router or Computer

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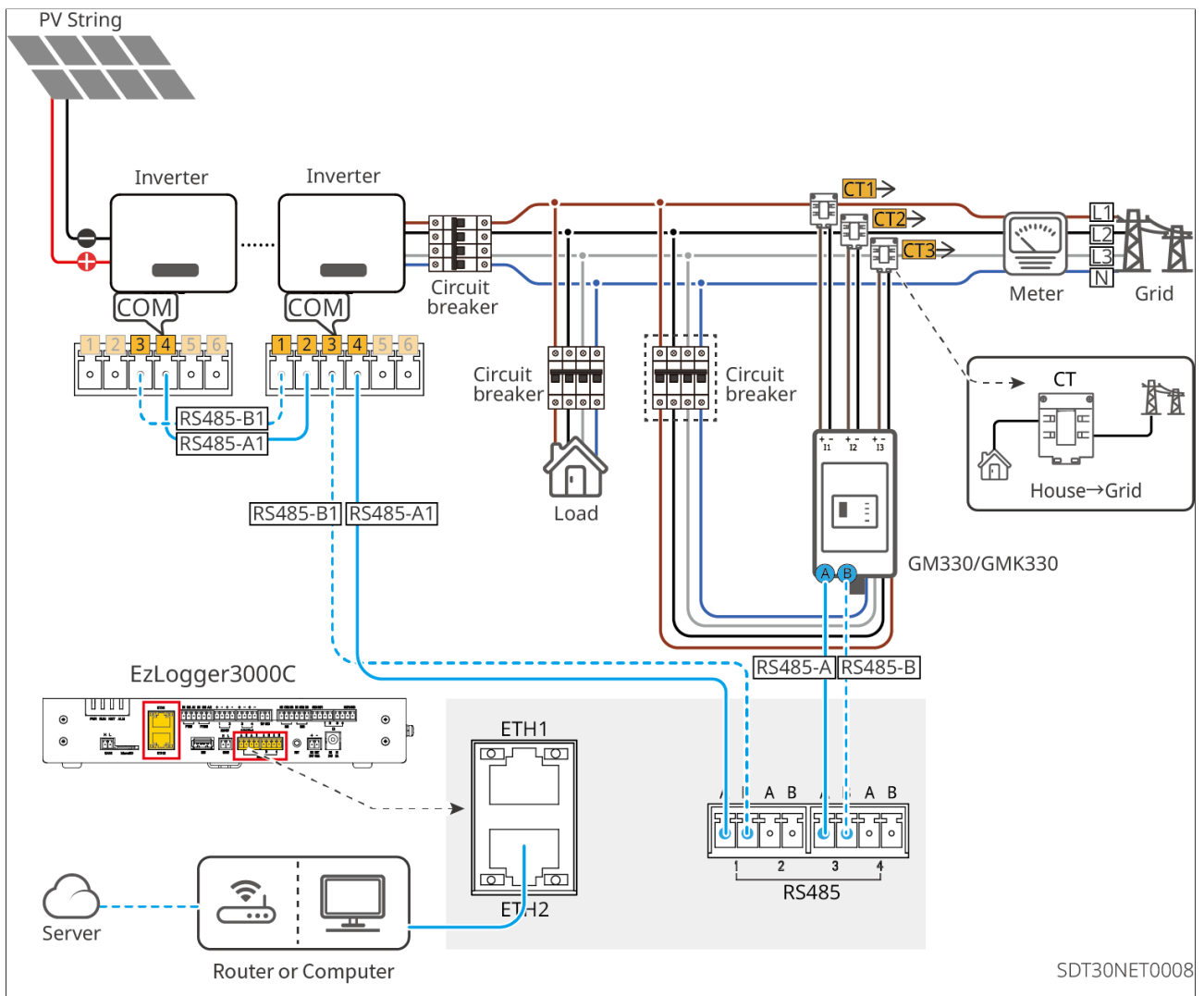
Multi-unit Power Limitation Networking Solution (SEC1000)

⚠️WARNING

1. When the SEC1000 AC line is connected to the grid, 3L/N/PE must be connected, and the grid voltage must be within the voltage sampling range allowed by SEC1000.
2. The CT installation position should be close to the grid connection point. When installing the CT, ensure that the CT direction is correct. If reversed, the anti-reverse flow function cannot be achieved.
3. When using SEC1000, you need to prepare an external CT yourself.
4. The aperture of the CT must be larger than the outer diameter of the AC power line to ensure that the AC power line can pass through the CT.
5. For the specific wiring method of the CT, please refer to the corresponding manufacturer's documentation to ensure correct wiring direction and normal function.
6. The CT must be clamped on the L1, L2, and L3 cables. Do not clamp it on the N cable.

SDT30NET0009

Recommended Specifications for External CTs:

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

Multi-unit Power Limitation Networking Solution (Ezlink3000+GM330)

Applicable only to the following models: GW5000-SDT-AU30, GW6000-SDT-AU30, GW8000-SDT-AU30, GW9990-SDT-AU30, GW15K-SDTAU30, GW20K-SDT-AU30, GW25K-SDT-AU30, GW29K9-SDT-AU30, GW25K-SDT-30, GW30K-SDT-30
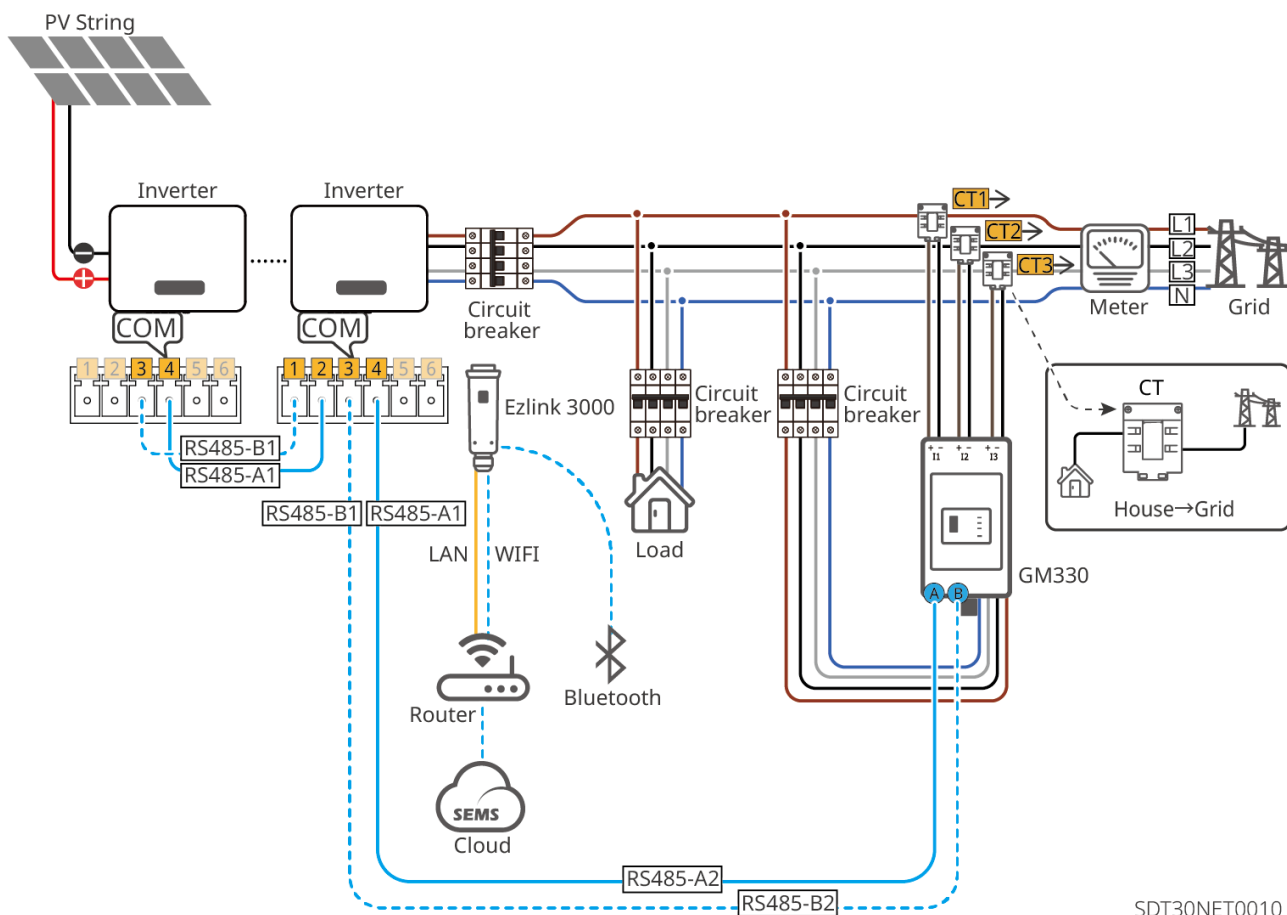
SDT30NET0010

24-Hour Load Monitoring

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

PV String

Inverter

COM

1 2 3 4 5 6

Circuit breaker

Circuit breaker

Load

Circuit breaker

CT1
CT2
CT3

I1 I2 I3

GM330/GMK330

A B

RS485-A2
RS485-B2

Meter

L1
L2
L3
N

Grid

CT

House→Grid

SDT30NET0006

4.5.3 Connecting Communication Cables

NOTICE
• When connecting communication cables, ensure the port definitions exactly match the device. Route cables away from interference sources and power lines to avoid affecting signal reception. • The Remote Shutdown and DRED/RCR functions are disabled by default. To use them, please enable them via the SolarGo app. For details, refer to the "SolarGo User Manual". • For detailed information on the communication module, please refer to the documentation included with the module. More detailed materials are available on the official website.

SDT30ELC0016

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

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

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

Model Type 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	Achieves anti-backflow function with the meter and CT. If supporting equipment is needed, contact the inverter manufacturer for purchase.

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 data collectors.
DRM/RCR	1: CL/0 2: RG/0 3: 4/8 4: 3/7 5: 2/6 6: 1/5	1: CL/0 2: RG/0 3: 4/8 4: 3/7 5: 2/6 6: 1/5	1: CL/0 2: RG/0 3: 4/8 4: 3/7 5: 2/6 6: 1/5	1: CL/0 2: RG/0 3: 4/8 4: 3/7 5: 2/6 6: 1/5	DRM (Demand Response Modes): Meets Australian DRM function and provides DRED signal control port. RCR (Ripple Control Receiver): Provides RCR signal control port to meet grid dispatch requirements in regions like Germany. The inverter reserves wiring ports, and related equipment needs to be prepared by the user.

Function	Port Definition (Model a)	Port Definition (Model b)	Port Definition (Model c)	Port Definition (Model d)	Function Description
DI	1: DI-2 2: DI-1	1: DI-2 2: DI-1	1: DI-2 2: DI-1	1: DI-2 2: DI-1	After the emergency switch sends a shutdown signal, the AC side of the inverter automatically disconnects and stops grid connection. An external emergency shutdown switch is required and controlled via the DI port: • Remote Shutdown: When the DI port is closed, the machine starts; when the DI port is open, the machine stops. • Emergency Poweroff: When the DI port is closed, the machine stops; when the DI port is open, the machine starts.

Funct ion	Port Definition (Model a)	Port Definition (Model b)	Port Definition (Model c)	Port Definition (Model d)	Function Description
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
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	Connects to NS protection (Germany only)

Taking Model Type b as an example:

Step 1: Prepare the communication cable.

Step 2: Open the communication connector.

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

Step 5: Connect the communication terminal to the device.

Step 6: Install the smart communication stick.

SDT30ELC0013
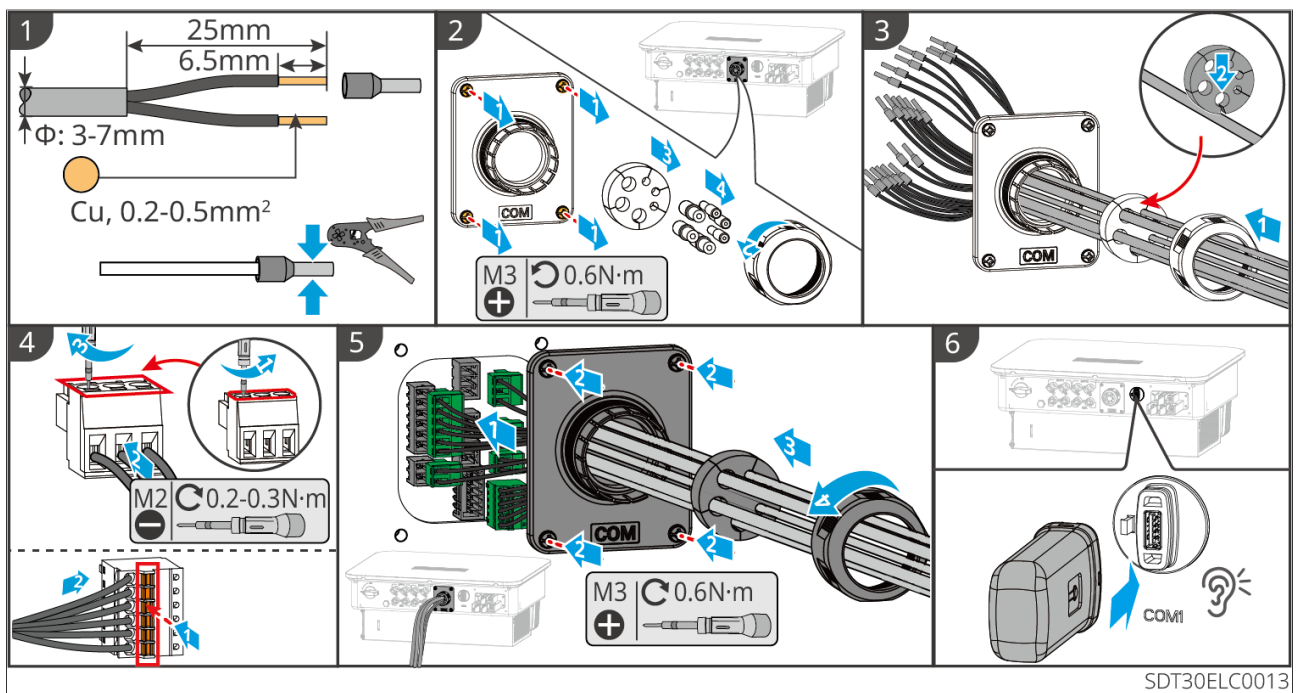
Turn Off the Terminal Resistor DIP Switch

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

Set the Terminal Resistor to OFF

SDT30ELC0018
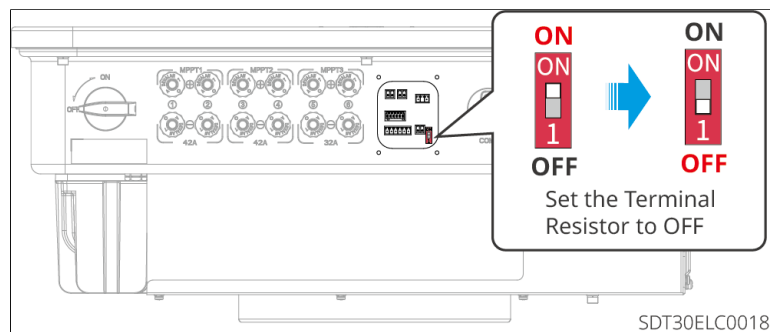
4.6 Install the Protective Cover

Only applicable to Australia: GW5000-SDT-AU30, GW6000-SDT-AU30, GW8000-SDT-AU30, GW9990-SDT-AU30, GW15K-SDTAU30, GW20K-SDT-AU30, GW25K-SDT-AU30, GW29K9-SDT-AU30, GW50K-SDT-C30.

SDT30ELC0015
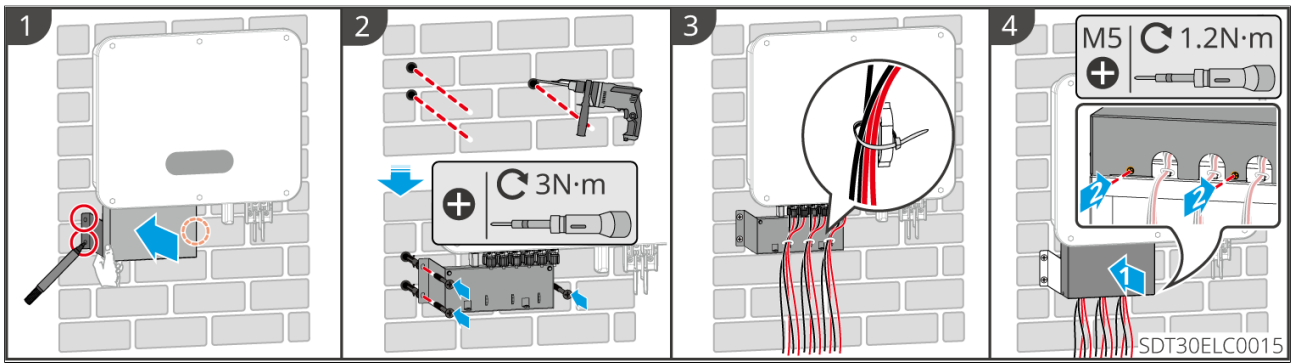
5 Equipment Trial Run

5.1 Pre-Power Checklist

No.	Inspection Item
1	The inverter is securely installed, positioned for easy operation and maintenance, with adequate space for ventilation and heat dissipation, and in a clean and tidy environment.
2	The PE cable, DC input cables, AC output cables, and communication cables are connected correctly and securely.
3	Cables are bundled according to routing requirements, distributed reasonably, and free from damage.
4	Unused ports are sealed.
5	The voltage and frequency at the inverter's grid connection point meet the grid interconnection requirements.

5.2 Device Power-On

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

SDT30PWR0002
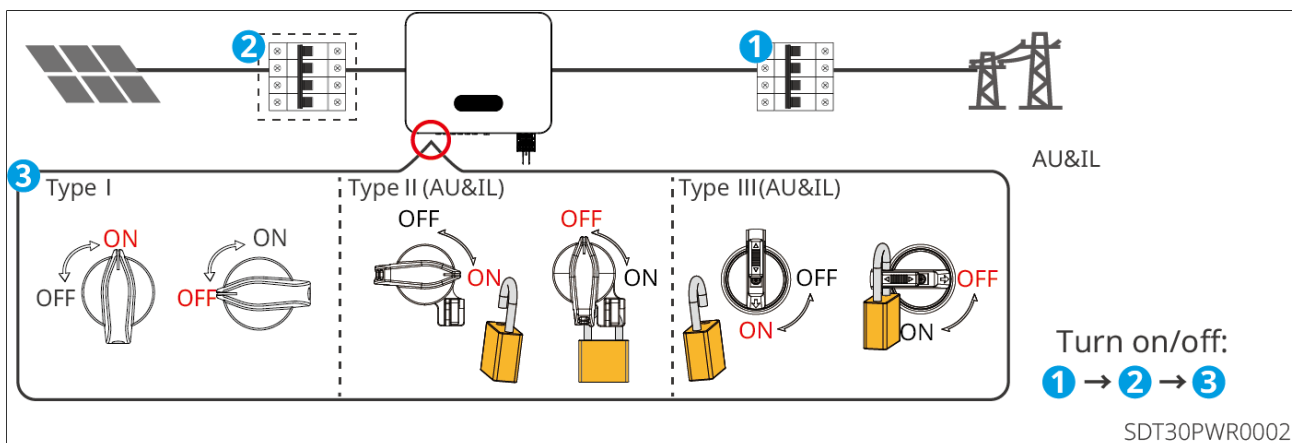
6 System Commissioning

6.1 Setting Inverter Parameters via the Display Screen

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

Display Screen Button Description

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

Button Operation Example:

SDT30CON0005

Long Press 2 s   Short Press

| Set Grid Type Set N-PE | Long Press 2 s → | Set N-PE Disable | Short Press → | Set N-PE Enable | Short Press → | Set N-PE Return |

Long Press 2 s

| Set N-PE Modify Success | | Set N-PE Modify Fail |

SDT30CON0006
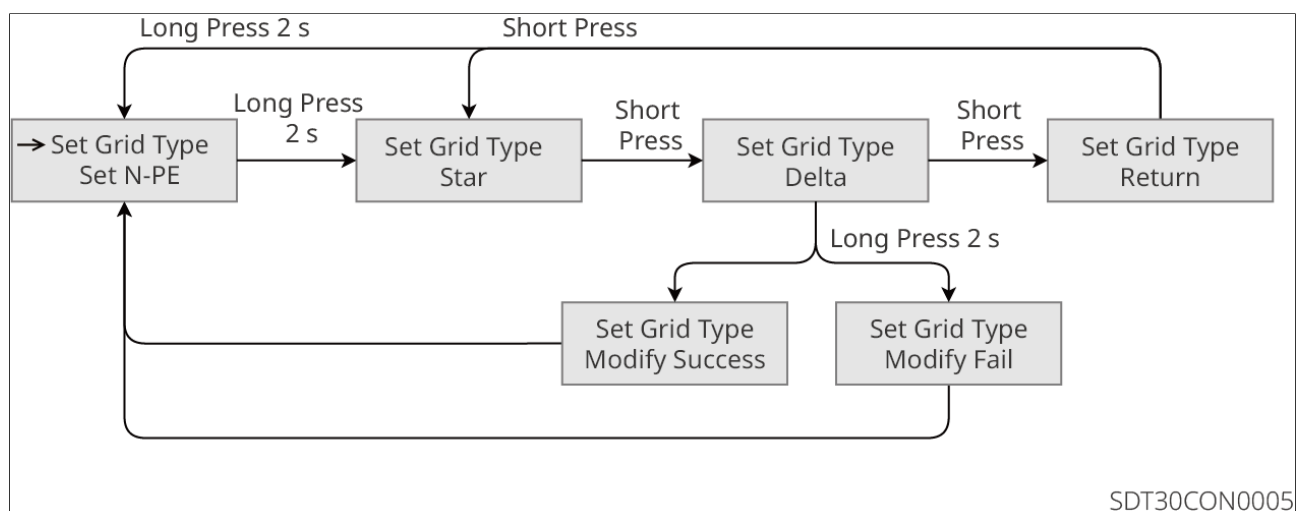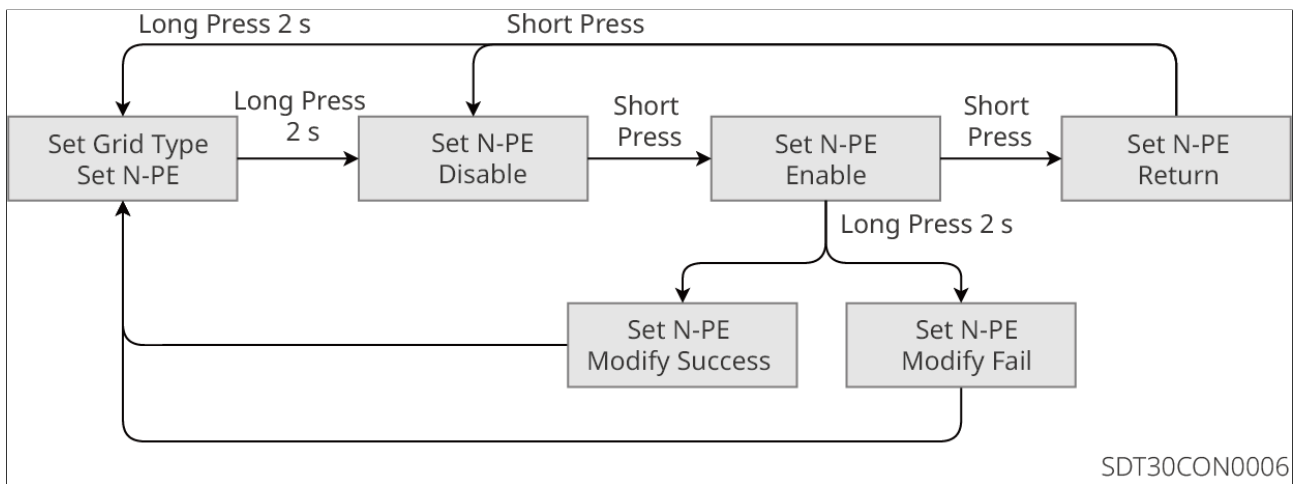
6.1.1 Display Screen Menu Introduction

Introduces the display screen menu structure to help you navigate through various menu levels, view inverter information, and set relevant inverter parameters.

First level menu

```
Normal
Pac=xxx W
    │ Short press
    ▼
Date
Time
    │ Short press
    ▼
Vpv1 =xxx V
Ipv1 =xxx A
    │ Short press
    ▼
Vpv2 =xxx V
Ipv2 =xxx A
    │ Short press
    ▼
Vac1 =xxx V
Iac1 =xxx A
    │ Short press
    ▼
Vac2=xxx V
Iac2=xxx A
    │ Short press
    ▼
Vac3=xxx V
Iac3=xxx A
    │ Short press
    ▼
Fac: xx
xx/xx Hz
    │ Short press
    ▼
E-Today
xxx KWh
    │ Short press
    ▼
E-Total
xxx kWh
    │ Short press
    ▼
Serial Number:
xxxxxxxx
    │ Short press
    ▼
xxxxx-xxx-xx
RSSI: x %
    │ Short press
    ▼
Firmware M/S
V1. xx.xx
    │ Short press
    ▼
Comm Version
Vx.xx
    │ Short press
    ▼
→ Set Params
Error History
    │ Short press
    ▼
Set Params
→ Error History
```

Long press for 2s (from Normal to Set Params / Error History)

Second level menu

```
Set language
Set Safety
    │ Short press
    ▼
Set Date
Set Time
    │ Short press
    ▼
W/L Reset
W/L Reload
    │ Short press
    ▼
PF Adjust
Set ISO
    │ Short press
    ▼
LVRT
HVRT
    │ Short press
    ▼
Power Limit
SetPowerLimit
    │ Short press
    ▼
Pv1ShadowMPPT
Pv2ShadowMPPT
    │ Short press
    ▼
PvTimeInterval
SetModbusAddr
    │ Short press
    ▼
SetSunspec
ARC Enable
    │ Short press
    ▼
ARC SelfCheck
ARC FaultClear
    │ Short press
    ▼
Set Password
Set Grid Type
    │ Short press
    ▼
Set N-PE
Reset Settings
    │ Short press
    ▼
Return
```

Short press (Return to Set language / Set Safety)

Long press for 2s (from Set Params / Error History to Set language)

```
→ ViewFaults
ClearFaults
    │ Short press
    ▼
ViewFaults
→ ClearFaults
    │ Short press
    ▼
Return
```

Long press for 2s (from Set Params / Error History to ViewFaults)

SYSTEMCON0001

6.1.2 Inverter Parameter Introduction

Parameter Name	Description
Date & Time	View the time of the country/region where the inverter is located.
Input Voltage	View the DC input voltage of the inverter.
Input Current	View the DC input current of the inverter.
Grid Voltage	View the grid voltage.
Output Current	View the AC output current of the inverter.
Grid Frequency	View the grid frequency.
Daily Generation	View the inverter's power generation for the current day.
Total Generation	View the total power generation of the inverter.
serial number	View the inverter's serial number.
XXXXX-XXX-XX Signal Strength: xx%	View the communication module's signal strength.
Firmware Version	View the inverter's firmware version.
Communication Version	View the inverter's communication version.
Language Setting	Set according to actual needs.
Safety Regulation Setting	Set according to the grid standards of the country/region where the inverter is located and the application scenario of the inverter.
Date Setting	Set according to the actual time of the country/region where the inverter is located.
Time Setting	
W/L Restart	Power cycle restart of the communication module.
W/L Reload	Restore the communication module to factory settings. After restoration, the communication module's network parameters need to be reconfigured.

Parameter Name	Description
Power Factor Adjustment	Set the inverter's power factor according to actual needs.
Set ISO	Set the insulation resistance threshold for PV-PE. When the detected actual value is less than the set value, an ISO fault will be reported.
LVRT (Low Voltage Ride-Through)	After enabling this function, when a short-term low voltage anomaly occurs in the grid, the inverter will not immediately experience grid disconnection and can sustain operation for a period.
HVRT (High Voltage Ride-Through)	After enabling this function, when a short-term high voltage anomaly occurs in the grid, the inverter will not immediately experience grid disconnection and can sustain operation for a period.
Power Limiting Enable	Set according to the actual power that can be fed into the grid.
Set Power Limit	
PV1 Shading Mode	If the PV panels are severely shaded, the shading scan function can be enabled.
PV2 Shading Mode	
Shading Scan Interval	Set the shading scan time interval according to actual needs.
Set Modbus Address	Set according to the actual Modbus address the inverter is connected to.
Set Sunspec	Set the Sunspec protocol according to actual communication needs.
Arc Detection Enable	Arc detection function is optional and disabled by default. Enable or disable it according to actual needs.

Parameter Name	Description
Arc Detection Self-Test	Check if the inverter's arc detection function is working normally.
Clear Arc Detection Fault	Clear the arc detection alarm records.
Password Setting	The inverter's password can be modified. After changing the password, please remember it. If forgotten, contact the after-sales service center.
Type of Electrical Supply System	Set according to the actual grid the inverter is connected to. Currently supports star and delta grid types.
N-PE Detection	Switch for Neutral line to ground detection.
Restore Factory Settings	Restores part of the inverter's settings to factory defaults.
View Faults	View the inverter's historical fault records.
Clear Faults	Clear the inverter's historical fault records.

6.2 Setting Inverter Parameters via App

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

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

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

6.3 Download SEMS+ APP

Phone Requirements:

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

Download Methods:

Method 1:

Search for SEMS+ in Google Play (Android) or the App Store (iOS) to download and install.
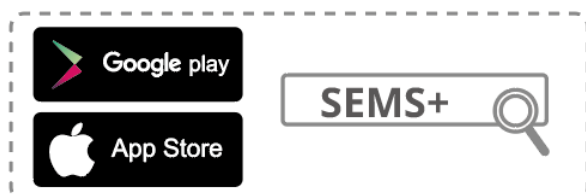
Method 2:

Scan the QR code below to download and install.

7 Maintenance

7.1 Inverter Shutdown

⚠️DANGER
• When performing operation and maintenance on the inverter, please power it down. Operating the equipment while energized may cause inverter damage or electric shock hazard. • After the inverter is powered off, a certain amount of time is required for the internal components to discharge. Please wait according to the time specified on the label until the device is completely discharged.

Step 1: (Optional) Issue a grid disconnection command to the inverter.

Step 2: Disconnect the AC switch between the inverter and the grid.

Step 3: Turn off the DC switch of the inverter.

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

7.2 Removing the Inverter

⚠️WARNING
• Ensure the inverter is powered off. • When operating the inverter, please wear personal protective equipment.

Step 1: Disconnect all electrical connections to the inverter, including: DC cables, AC cables, Communication cable, smart dongle, PE cable.

Step 2: Remove the inverter from the back-mounting plate.

Step 3: Remove the back-mounting plate.

Step 4: Store the inverter properly. If the inverter is to be put into use again later, ensure the storage conditions meet the requirements.

7.3 Scrap Inverter

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

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

7.4 Inverter Fault

7.4.1 Troubleshooting (Fault Codes F01-F40)

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F01	Grid Power Outage	1. Grid power outage. 2. AC line or AC switch is disconnected.	1. The alarm disappears automatically after grid power is restored. 2. Check if the AC line or AC switch is disconnected.
F02	Grid Overvoltage Protection	Grid voltage is higher than the allowable range, or the duration of high voltage exceeds the HVRT set value.	1. If it occurs occasionally, it may be a temporary grid anomaly. The Inverter will resume normal operation after detecting a normal grid, requiring no manual intervention. 2. If it occurs frequently, check if the grid voltage is within the allowable range. If not, contact the local power operator. If it is, you also need to modify the grid overvoltage protection point after obtaining consent from the local power operator. 3. If normal operation cannot be restored for a long time, check if the AC side circuit breaker and output cables are properly connected.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F03	Grid Undervoltage Protection	Grid voltage is lower than the allowable range, or the duration of low voltage exceeds the LVRT set value.	1. If it occurs occasionally, it may be a temporary grid anomaly. The Inverter will resume normal operation after detecting a normal grid, requiring no manual intervention. 2. If it occurs frequently, check if the grid voltage is within the allowable range. If not, contact the local power operator. If it is, you also need to modify the grid undervoltage protection point after obtaining consent from the local power operator. 3. If normal operation cannot be restored for a long time, check if the AC side circuit breaker and output cables are properly connected.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F04	Grid Rapid Overvoltage Protection	Grid voltage detection abnormality or extremely high voltage triggers the fault.	1. If it occurs occasionally, it may be a temporary grid anomaly. The Inverter will resume normal operation after detecting a normal grid, requiring no manual intervention. 2. If it occurs frequently, check if the grid voltage is within the allowable range. If not, contact the local power operator. If it is, you also need to modify the grid undervoltage protection point after obtaining consent from the local power operator. 3. If normal operation cannot be restored for a long time, check if the AC side circuit breaker and output cables are properly connected.
F05	10min Overvoltage Protection	The sliding average of grid voltage within 10min exceeds the safety regulation specified range.	Check if the grid voltage operates at a high level for a long time. If it occurs frequently, check if the grid frequency is within the allowable range. If not, contact the local power operator. If it is, you also need to modify the grid 10min overvoltage protection point after obtaining consent from the local power operator.

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

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F08	Grid Frequency Instability	Grid anomaly: The rate of change of the actual grid frequency does not comply with local grid standards.	1. If it occurs occasionally, it may be a temporary grid anomaly. The Inverter will resume normal operation after detecting a normal grid, requiring no manual intervention. 2. If it occurs frequently, check if the grid frequency is within the allowable range. If not, contact the local power operator.
F09	Anti-islanding Protection	The grid has been disconnected, but grid voltage is maintained due to the presence of loads. Grid connection is stopped according to safety regulation protection requirements.	1. If it occurs occasionally, it may be a temporary grid anomaly. The Inverter will resume normal operation after detecting a normal grid, requiring no manual intervention. 2. If it occurs frequently, check if the grid frequency is within the allowable range. If not, contact the local power operator.
F10	LVRT Undervoltage Fault	Grid anomaly: The duration of abnormal grid voltage exceeds the time specified by the LVRT/HVRT.	1. If it occurs occasionally, it may be a temporary grid anomaly. The Inverter will resume normal operation after detecting a normal grid, requiring no manual intervention. 2. If it occurs frequently, check if the grid voltage and frequency are within the allowable range and stable. If not, contact the local power operator.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F11	HVRT Overvoltage	Grid anomaly: The duration of abnormal grid voltage exceeds the time specified by the LVRT/HVRT.	1. If it occurs occasionally, it may be a temporary grid anomaly. The Inverter will resume normal operation after detecting a normal grid, requiring no manual intervention. 2. If it occurs frequently, check if the grid voltage and frequency are within the allowable range and stable. If not, contact the local power operator.
F12	30mAGfci Protection	The input-to-ground insulation impedance becomes low during Inverter operation.	1. If it occurs occasionally, it may be caused by temporary external line anomalies. Normal operation will resume after the fault is cleared, requiring no manual intervention. 2. If it occurs frequently or cannot be restored for a long time, check if the PV string-to-ground impedance is too low.
F13	60mAGfci Protection	The input-to-ground insulation impedance becomes low during Inverter operation.	1. If it occurs occasionally, it may be caused by temporary external line anomalies. Normal operation will resume after the fault is cleared, requiring no manual intervention. 2. If it occurs frequently or cannot be restored for a long time, check if the PV string-to-ground impedance is too low.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F14	150mAGfci Protection	The input-to-ground insulation impedance becomes low during Inverter operation.	1. If it occurs occasionally, it may be caused by temporary external line anomalies. Normal operation will resume after the fault is cleared, requiring no manual intervention. 2. If it occurs frequently or cannot be restored for a long time, check if the PV string-to-ground impedance is too low.
F15	Gfci Gradual Change Protection	The input-to-ground insulation impedance becomes low during Inverter operation.	1. If it occurs occasionally, it may be caused by temporary external line anomalies. Normal operation will resume after the fault is cleared, requiring no manual intervention. 2. If it occurs frequently or cannot be restored for a long time, check if the PV string-to-ground impedance is too low.
F16	DCI Level 1 Protection	The DC component of the inverter output current is higher than the safety regulation or the machine's default allowable range.	1. If it is caused by an external fault, the Inverter will automatically resume normal operation after the fault disappears, requiring no manual intervention. 2. If this alarm occurs frequently, affecting the normal power generation of the power station, contact the dealer or after-sales service center.

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

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F18	Low Insulation Resistance	1. PV string short-circuited to protective earth. 2. The PV string installation environment is humid for a long time and the line has poor insulation to ground. 3. Battery port line has low insulation impedance to ground.	1. Check the impedance of the PV string/battery port to protective earth. A value greater than 80kΩ is normal. If the measured value is less than 80kΩ, locate and rectify the short circuit point. 2. Check if the Inverter's protective earth wire is correctly connected. 3. If it is confirmed that the impedance is indeed lower than the default value in rainy weather, reset the Inverter's "Insulation Impedance Protection Point" via the App. For inverters in the Australian and New Zealand markets, insulation impedance faults can also be alerted in the following ways: 1. The Inverter is equipped with a buzzer. When a fault occurs, the buzzer sounds continuously for 1 minute; if the fault is not resolved, the buzzer sounds again every 30 minutes. 2. If the Inverter is added to the monitoring platform and the alarm notification method is set, alarm information can be sent to customers via email.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F19	Grounding Abnormal	1. The Inverter's protective earth wire is not connected. 2. When the PV string output is grounded, the Inverter output side is not connected to an isolation transformer.	1. Confirm if the Inverter's protective earth wire is not connected properly. 2. In scenarios where the PV string output is grounded, confirm if an isolation transformer is connected to the Inverter output side.
F20	Hard Anti-backflow Protection	Load abnormal fluctuation	1. If it is caused by an external fault, the Inverter will automatically resume normal operation after the fault disappears, requiring no manual intervention. 2. If this alarm occurs frequently, affecting the normal power generation of the power station, contact the dealer or after-sales service center.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F21	Internal Comm Loss	Slave DSP1 communication timeout - Master DSP, Slave DSP2 communication timeout - Master DSP, Slave DSP2 communication timeout - Slave DSP1, Master DSP communication timeout - Slave DSP1, Master DSP communication timeout - Slave DSP2 or Slave DSP1 communication timeout - Slave DSP2: 1. Chip not powered on 2. Chip program version error	Disconnect the AC output side switch and DC input side switch, wait for 5 minutes, then close the AC output side switch and DC input side switch. If the fault persists, contact the dealer or after-sales service center.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
		Master DSP can module error, Slave DSP1 can module error or Slave DSP2 can module error: 1. Frame format error 2. Parity check error 3. can bus offline 4. Hardware CRC check error 5. Control bit is receive (transmit) during transmission (reception) 6. Transmission to an unauthorized unit	
F22	Generator Waveform Detection Fault	1. This fault will be displayed continuously when no generator is connected; 2. When the generator is operating, failure to meet generator safety regulations will trigger this fault.	
F23	Generator Abnormal Connection		
F24	Generator Voltage Low		
F25	Generator Voltage High		
F26	Generator Frequency Low		

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F27	Generator Frequency High		1. Ignore this fault when no generator is connected; 2. When this fault occurs due to a generator fault, it is normal. Wait for a period after the generator recovers, and the fault will clear automatically; 3. This fault does not affect the normal operation of the off-grid mode. 4. When both the generator and grid are connected and meet safety requirements, the grid has priority for grid connection, and the system will operate in grid-connected state.
F28	Parallel Unit I/O Self-check Abnormal	Parallel communication cable not securely connected or parallel IO chip damaged	Check if the parallel communication cable is securely connected, then check if the IO chip is damaged. If yes, replace the IO chip.
F29	Paralell Grid Line Reversed	Some units have reversed grid lines compared to others	Reconnect the grid lines correctly.
F30	AC HCT check Abnormal	AC sensor has sampling abnormality	Disconnect the AC output side switch and DC input side switch, wait for 5 minutes, then close the AC output side switch and DC input side switch. If the fault persists, contact the dealer or after-sales service center.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F31	GFCI HCT Check Abnormal	GFCI sensor has sampling abnormality	Disconnect the AC output side switch and DC input side switch, wait for 5 minutes, then close the AC output side switch and DC input side switch. If the fault persists, contact the dealer or after-sales service center.
F32	Inverter Internal Failure	Inverter has a fault	Disconnect the AC output side switch and DC input side switch, wait for 5 minutes, then close the AC output side switch and DC input side switch. If the fault persists, contact the dealer or after-sales service center.
F33	Flash Read/Write Error	Possible causes: flash content changed; flash lifespan exhausted;	1. Upgrade to the latest firmware version. 2. Contact the dealer or after-sales service center.
F34	AFCI Check Failure	During the arc fault self-check, the arc fault module did not detect an arc fault as expected.	Disconnect the AC output side switch and DC input side switch, wait for 5 minutes, then close the AC output side switch and DC input side switch. If the fault persists, contact the dealer or after-sales service center.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F35	Cabinet Overtemperature	Cabinet temperature is too high, possible causes: 1. Inverter installation location is not ventilated. 2. Ambient temperature is too high. 3. Internal fan operation is abnormal.	1. Check if the ventilation at the Inverter installation location is good and if the ambient temperature exceeds the maximum allowable range. 2. If ventilation is poor or ambient temperature is too high, improve its ventilation and heat dissipation conditions. 3. If both ventilation and ambient temperature are normal, contact the dealer or after-sales service center.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F36	Bus Overvoltage	BUS overvoltage, possible causes: 1. PV voltage is too high; 2. Inverter BUS voltage sampling abnormality; 3. Poor isolation effect of the dual-split transformer behind the Inverter, causing mutual interference when two inverters are connected in parallel, with one Inverter reporting DC overvoltage during grid connection;	Disconnect the AC output side switch and DC input side switch, wait for 5 minutes, then close the AC output side switch and DC input side switch. If the fault persists, contact the dealer or after-sales service center.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F37	PV Input Overvoltage	PV input voltage is too high, possible cause: PV array configuration error, too many PV panels connected in series in a string, causing the string's open-circuit voltage to be higher than the Inverter's maximum operating voltage.	Check the series configuration of the corresponding PV array string to ensure the string's open-circuit voltage does not exceed the Inverter's maximum operating voltage. After correcting the PV array configuration, the Inverter alarm will disappear automatically.
F38	PV Continuous Hardware Overcurrent	1. Module configuration is unreasonable. 2. Hardware damage.	Disconnect the AC output side switch and DC input side switch, wait for 5 minutes, then close the AC output side switch and DC input side switch. If the fault persists, contact the dealer or after-sales service center.
F39	PV Continuous Software Overcurrent	1. Module configuration is unreasonable. 2. Hardware damage.	Disconnect the AC output side switch and DC input side switch, wait for 5 minutes, then close the AC output side switch and DC input side switch. If the fault persists, contact the dealer or after-sales service center.

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

7.4.2 Troubleshooting (Fault Codes F41-F80)

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

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

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

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F50	DCV Level 1 Protection	Load abnormal fluctuation	1. If it is due to an anomaly introduced by an external fault, the inverter will automatically resume normal operation after the fault disappears, requiring no manual intervention. 2. If this alarm occurs frequently, affecting normal power generation of the power station, please contact the dealer or after-sales service center.
F51	DCV Level 2 Protection	Load abnormal fluctuation	
F52	Leakage Current (GFCI) Multiple Fault Shutdown	North American safety regulations require no automatic recovery after multiple faults; manual recovery or waiting 24h is required.	Please check if the PV string's impedance to ground is too low.
F53	DC Arcing (AFCI) Multiple Fault Shutdown	North American safety regulations require no automatic recovery after multiple faults; manual recovery or waiting 24h is required.	1. After the machine reconnects to the grid, check if the voltage and current of each string abnormally decrease or become zero. 2. Check if the DC side terminals are securely connected.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F54	External Communication Link Broken	Communication with inverter external device is lost. Possible causes: external device power issue, communication protocol mismatch, corresponding external device not configured, etc.	Judged based on the actual model and detection enable bits. External devices not supported by certain models will not be detected.
F55	Back-up Port Overload Fault	Prevents the inverter from continuously outputting overload.	Turn off some off-grid loads to reduce the inverter's off-grid output power.
F56	Back-up Port Overvoltage Fault	2 Prevents inverter output overvoltage from damaging loads.	1. If it occurs occasionally, it may be due to load switching and requires no manual intervention. 2. If it occurs frequently, please contact the dealer or after-sales service center.
F57	External Box Fault	Waiting too long for the Box to switch relays during grid-to-off-grid transition.	1. Check if the Box is working normally. 2. Check if the Box communication wiring is correct.
F58	CT Loss Fault	CT connection wire disconnected (Japanese safety regulation requirement).	Check if the CT wiring is correct.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F59	Parallel Machine CAN Communication Abnormal	Parallel communication cable not securely connected or some machines are offline.	Check if all machines are powered on and if the parallel communication cables are securely connected.
F60	Parallel Machine Back-up Connection Reversed	Some machines' backup lines are connected in reverse with others.	Reconnect the backup lines.
F61	Inverter Soft Start Failure	Inverter soft start failure during off-grid cold start.	Check if the inverter module is damaged.
F62	AC HCT Failure	HCT sensor abnormal.	Disconnect the AC output side switch and DC input side switch, wait 5 minutes, then close the AC output side switch and DC input side switch. If the fault persists, please contact the dealer or after-sales service center.
F63	GFCI HCT Failure	Leakage current sensor abnormal.	Disconnect the AC output side switch and DC input side switch, wait 5 minutes, then close the AC output side switch and DC input side switch. If the fault persists, please contact the dealer or after-sales service center.
F64	Inverter Internal Failure	Inverter fault present.	Disconnect the AC output side switch and DC input side switch, wait 5 minutes, then close the AC output side switch and DC input side switch. If the fault persists, please contact the dealer or after-sales service center.

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

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F67	Boost Module Overtemperature	Boost module temperature is too high. Possible causes: 1. Inverter installation location is not ventilated. 2. Ambient temperature is too high. 3. Internal fan operation is abnormal.	1. Check if the ventilation at the inverter installation location is good and if the ambient temperature exceeds the maximum allowable range. 2. If ventilation is poor or ambient temperature is too high, please improve the ventilation and heat dissipation conditions. 3. If both ventilation and ambient temperature are normal, please contact the dealer or after-sales service center.
F68	AC Capacitor Overtemperature	Output filter capacitor temperature is too high. Possible causes: 1. Inverter installation location is not ventilated. 2. Ambient temperature is too high. 3. Internal fan operation is abnormal.	1. Check if the ventilation at the inverter installation location is good and if the ambient temperature exceeds the maximum allowable range. 2. If ventilation is poor or ambient temperature is too high, please improve the ventilation and heat dissipation conditions. 3. If both ventilation and ambient temperature are normal, please contact the dealer or after-sales service center.
F69	PV IGBT Short Circuit Fault	Possible causes: 1. IGBT short circuit 2. Inverter sampling circuit abnormal	Disconnect the AC output side switch and DC input side switch, wait 5 minutes, then close the AC output side switch and DC input side switch. If the fault persists, please contact the dealer or after-sales service center.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F70	PV IGBT Open Circuit Fault	1. Software issue causing no PWM generation. 2. Drive circuit abnormal. 3. IGBT open circuit.	
F71	NTC Abnormal	NTC temperature sensor abnormal.	Disconnect the AC output side switch and DC input side switch, wait 5 minutes, then close the AC output side switch and DC input side switch. If the fault persists, please contact the dealer or after-sales service center.
F72	PWM Abnormal	PWM abnormal waveform detected.	Disconnect the AC output side switch and DC input side switch, wait 5 minutes, then close the AC output side switch and DC input side switch. If the fault persists, please contact the dealer or after-sales service center.
F73	CPU Interrupt Abnormal	CPU interrupt abnormal.	Disconnect the AC output side switch and DC input side switch, wait 5 minutes, then close the AC output side switch and DC input side switch. If the fault persists, please contact the dealer or after-sales service center.
F74	Microelectronics Fault	Functional safety detection detected an anomaly.	Disconnect the AC output side switch and DC input side switch, wait 5 minutes, then close the AC output side switch and DC input side switch. If the fault persists, please contact the dealer or after-sales service center.

Fault Code	Fault Name	Fault Cause	Troubleshooting Suggestions
F75	PV HCT Fault	boost current sensor abnormal.	Disconnect the AC output side switch and DC input side switch, wait 5 minutes, then close the AC output side switch and DC input side switch. If the fault persists, please contact the dealer or after-sales service center.
F76	1.5V Reference Abnormal	Reference circuit fault.	Disconnect the AC output side switch and DC input side switch, wait 5 minutes, then close the AC output side switch and DC input side switch. If the fault persists, please contact the dealer or after-sales service center.
F77	0.3V Reference Abnormal	Reference circuit fault.	
F78	CPLD Version Identification Error	CPLD version identification error.	Disconnect the AC output side switch and DC input side switch, wait 5 minutes, then close the AC output side switch and DC input side switch. If the fault persists, please contact the dealer or after-sales service center.
F79	CPLD Communication Fault	CPLD and DSP communication content error or timeout.	Disconnect the AC output side switch and DC input side switch, wait 5 minutes, then close the AC output side switch and DC input side switch. If the fault persists, please contact the dealer or after-sales service center.
F80	Model Identification Fault	Fault related to model identification error.	Disconnect the AC output side switch and DC input side switch, wait 5 minutes, then close the AC output side switch and DC input side switch. If the fault persists, please contact the dealer or after-sales service center.

7.4.3 Troubleshooting (Fault Codes F81-F121)

Fault Code	Fault Name	Possible Cause	Troubleshooting Recommendation
F81	P-Bus Overvoltage	BUS overvoltage, possible causes: 1. PV voltage is too high; 2. Inverter BUS voltage sampling is abnormal; 3. Poor isolation effect of the dual-split transformer at the inverter's rear end, causing mutual interference when two inverters are grid-connected, with one inverter reporting DC overvoltage during grid connection;	Disconnect the AC output side switch and DC input side switch, close the AC output side switch and DC input side switch after 5 minutes. If the fault persists, contact the dealer or after-sales service center.
F82	N-Bus Overvoltage		
F83	Bus Overvoltage (Sub CPU1)		

Fault Code	Fault Name	Possible Cause	Troubleshooting Recommendation
F84	P-Bus Overvoltage (Sub CPU1)	BUS overvoltage, possible causes: 1. PV voltage is too high; 2. Inverter BUS voltage sampling is abnormal; 3. Poor isolation effect of the dual-split transformer at the inverter's rear end, causing mutual interference when two inverters are grid-connected, with one inverter reporting DC overvoltage during grid connection;	Disconnect the AC output side switch and DC input side switch, close the AC output side switch and DC input side switch after 5 minutes. If the fault persists, contact the dealer or after-sales service center.
F85	N-Bus Overvoltage (Sub CPU1)		
F86	Bus Overvoltage (Sub CPU2)		Disconnect the AC output side switch and DC input side switch, close the AC output side switch and DC input side switch after 5 minutes. If the fault persists, contact the dealer or after-sales service center.
F87	P-Bus Overvoltage (Sub CPU2)		

Fault Code	Fault Name	Possible Cause	Troubleshooting Recommendation
F88	N-Bus Overvoltage (Sub CPU2)	BUS overvoltage, possible causes: 1. PV voltage is too high; 2. Inverter BUS voltage sampling is abnormal; 3. Poor isolation effect of the dual-split transformer at the inverter's rear end, causing mutual interference when two inverters are grid-connected, with one inverter reporting DC overvoltage during grid connection;	
F89	P-Bus Overvoltage (CPLD)		Disconnect the AC output side switch and DC input side switch, close the AC output side switch and DC input side switch after 5 minutes. If the fault persists, contact the dealer or after-sales service center.

Fault Code	Fault Name	Possible Cause	Troubleshooting Recommendation
F90	N-Bus Overvoltage (CPLD)	BUS overvoltage, possible causes: 1. PV voltage is too high; 2. Inverter BUS voltage sampling is abnormal; 3. Poor isolation effect of the dual-split transformer at the inverter's rear end, causing mutual interference when two inverters are grid-connected, with one inverter reporting DC overvoltage during grid connection;	
F91	FlyCap Software Overvoltage	Flying capacitor overvoltage, possible causes: 1. PV voltage is too high; 2. Inverter flying capacitor voltage sampling is abnormal;	Disconnect the AC output side switch and DC input side switch, close the AC output side switch and DC input side switch after 5 minutes. If the fault persists, contact the dealer or after-sales service center.
F92	FlyCap Hardware Overvoltage		

Fault Code	Fault Name	Possible Cause	Troubleshooting Recommendation
F93	FlyCap Undervoltage	Flying capacitor undervoltage, possible causes: 1. PV energy is insufficient; 2. Inverter flying capacitor voltage sampling is abnormal;	Disconnect the AC output side switch and DC input side switch, close the AC output side switch and DC input side switch after 5 minutes. If the fault persists, contact the dealer or after-sales service center.
F94	FlyCap Precharge Failure	Flying capacitor precharge failure, possible causes: 1. PV energy is insufficient; 2. Inverter flying capacitor voltage sampling is abnormal;	Disconnect the AC output side switch and DC input side switch, close the AC output side switch and DC input side switch after 5 minutes. If the fault persists, contact the dealer or after-sales service center.
F95	FlyCap Precharge Abnormal	1. Unreasonable control loop parameters 2. Hardware damage	Disconnect the AC output side switch and DC input side switch, close the AC output side switch and DC input side switch after 5 minutes. If the fault persists, contact the dealer or after-sales service center.

Fault Code	Fault Name	Possible Cause	Troubleshooting Recommendation
F96, F97	String Overcurrent (String 1-n) n: Determined based on the actual number of inverter strings	Possible causes: 1. String overcurrent; 2. String current sensor abnormal	Disconnect the AC output side switch and DC input side switch, close the AC output side switch and DC input side switch after 5 minutes. If the fault persists, contact the dealer or after-sales service center.
F99, F100	String Missing (String 1-n) n: Determined based on the actual number of inverter strings	String fuse disconnected (if present)	Check if the fuse is disconnected.
F101	Battery 1 Precharge fault	Battery 1 precharge circuit fault (precharge resistor burned out, etc.)	Check if the precharge circuit is in good condition. After only the battery is powered on, check if the battery voltage and bus voltage are consistent. If not, contact the dealer or after-sales service center.
F102	Battery 1 Relay Failure	Battery 1 relay cannot operate normally	After the battery is powered on, check if the battery relay is working, and if a closing sound is heard. If it does not operate, contact the dealer or after-sales service center.

Fault Code	Fault Name	Possible Cause	Troubleshooting Recommendation
F103	Battery 1 Connection Overvoltage	Battery 1 connection voltage exceeds the machine's rated range	Confirm if the battery voltage is within the machine's rated range.
F104	Battery 2 Precharge fault	Battery 2 precharge circuit fault (precharge resistor burned out, etc.)	Check if the precharge circuit is in good condition. After only the battery is powered on, check if the battery voltage and bus voltage are consistent. If not, contact the dealer or after-sales service center.
F105	Battery 2 Relay Failure	Battery 2 relay cannot operate normally	After the battery is powered on, check if the battery relay is working, and if a closing sound is heard. If it does not operate, contact the dealer or after-sales service center.
F106	Battery 2 Connection Overvoltage	Battery 2 connection voltage exceeds the machine's rated range	Confirm if the battery voltage is within the machine's rated range.
F107	On-grid PWM Sync Failure	Abnormal during carrier synchronization grid connection	1. Check if the sync line connection is normal 2. Check if the master/slave settings are normal; 3. Disconnect the AC output side switch and DC input side switch, close the AC output side switch and DC input side switch after 5 minutes. If the fault persists, contact the dealer or after-sales service center.
F108	DSP Communication fault	-	-

Fault Code	Fault Name	Possible Cause	Troubleshooting Recommendation
F109	External STS fault	Abnormal cable connection between inverter and STS	Check if the wiring sequence of the harness between the inverter and STS corresponds one-to-one in order.
F110	Export Limit Protection	1 Inverter reports error and disconnects from grid 2 meter communication is unstable 3 Reverse power flow condition occurs	1 Check if the inverter has other error messages. If yes, perform targeted troubleshooting; 2 Check if the meter connection is reliable; 3. If this alarm occurs frequently, affecting normal power generation of the power station, contact the dealer or after-sales service center.
F111	Bypass Overload	-	-
F112	Black Start Failure	-	-
F113	Offgrid AC Ins Volt High	-	-
F114	Relay Failure 2	Relay abnormal, reasons: 1. Relay abnormal (relay short circuit) 2. Relay sampling circuit abnormal. 3. AC side wiring abnormal (possible loose connection or short circuit)	Disconnect the AC output side switch and DC input side switch, close the AC output side switch and DC input side switch after 5 minutes. If the fault persists, contact the dealer or after-sales service center.
F115	SVG Precharge Disabled	SVG precharge hardware failure	Contact the dealer or after-sales service center.

Fault Code	Fault Name	Possible Cause	Troubleshooting Recommendation
F116	Nighttime SVG PID Prevention fault	PID prevention hardware abnormal	
F117	DSP Version Identification Error	DSP software version identification error	Disconnect the AC output side switch and DC input side switch, close the AC output side switch and DC input side switch after 5 minutes. If the fault persists, contact the dealer or after-sales service center.
F118	MOS Continuous Overvoltage	1. Software issue causing inverter drive to turn off earlier than flyback drive: 2. Inverter drive circuit abnormal causing failure to turn on: 3. PV voltage is too high; 4. Mos voltage sampling abnormal;	Disconnect the AC output side switch and DC input side switch, close the AC output side switch and DC input side switch after 5 minutes. If the fault persists, contact the dealer or after-sales service center.
F119	Bus Short Circuit fault	Hardware damage	If the inverter remains in a disconnected state after a BUS short circuit fault occurs, contact the dealer or after-sales service center.
F120	Bus Sampling Abnormal	1. BUS voltage sampling hardware fault	Disconnect the AC output side switch and DC input side switch, close the AC output side switch and DC input side switch after 5 minutes. If the fault persists, contact the dealer or after-sales service center.

Fault Code	Fault Name	Possible Cause	Troubleshooting Recommendation
F121	DC Side Sampling Abnormal	1. BUS voltage sampling hardware fault 2. Battery voltage sampling hardware fault 3. Dcrly relay fault	Disconnect the AC output side switch and DC input side switch, close the AC output side switch and DC input side switch after 5 minutes. If the fault persists, contact the dealer or after-sales service center.
F122	PV Access Mode Setting Error	There are three PV access modes, taking four MPPT channels as an example: 1. Parallel mode: i.e., AAAA mode (same-source mode), PV1-PV4 are from the same source, 4 PV channels connect to the same solar panel 2. Partial parallel mode: i.e., AACC mode, PV1 and PV2 are from the same source and connected together, PV3 and PV4 are from the same source and connected together 3. Independent mode: i.e., ABCD	Check if the PV access mode is set correctly (ABCD, AACC, AAAA), reset the PV access mode correctly. 1. Confirm that each actual connected PV channel is correctly connected; 2. If the PV is correctly connected, check via APP or screen whether the currently set "PV Access Mode" corresponds to the actual access mode; 3. If the currently set "PV Access Mode" does not match the actual access mode, use the APP or screen to set the "PV Access Mode" to the mode consistent with the actual situation. After setting, disconnect the PV and AC power supply and restart; 4. After setting, if the current "PV Access Mode" matches the actual access mode but this fault still occurs, contact the dealer or after-sales service center.

Fault Code	Fault Name	Possible Cause	Troubleshooting Recommendation
		mode (non-same-source), PV1, PV2, PV3, PV4 are independently connected, 4 PV channels each connect to one solar panel If the actual PV access mode does not match the PV access mode set on the device, this fault will be reported.	

7.4.4 Troubleshooting (Fault Codes F122-F163)

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

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F126	Abnormal Battery Connection	Abnormal Battery Connection	Check if the battery is functioning normally.
F127	BAT Overtemperature	Battery temperature is too high. Possible causes: 1. Inverter installation location lacks ventilation. 2. Ambient Overtemperature. 3. Internal fan operation is abnormal.	Disconnect the AC output side switch and DC input side switch, wait for 5 minutes, then close the AC output side switch and DC input side switch. If the fault persists, please contact the dealer or after-sales service center.
F128	Ref Voltage Abnormal	Reference circuit fault	Disconnect the AC output side switch and DC input side switch, wait for 5 minutes, then close the AC output side switch and DC input side switch. If the fault persists, please contact the dealer or after-sales service center.
F129	Cabinet Under Temperature	Cabinet temperature is too low. Possible cause: Ambient temperature is too low.	Disconnect the AC output side switch and DC input side switch, wait for 5 minutes, then close the AC output side switch and DC input side switch. If the fault persists, please contact the dealer or after-sales service center.
F130	AC Side SPD fault	AC side surge protective device failure	Replace the AC side surge protective device.

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F131	DC Side SPD fault	DC side surge protective device failure	Replace the DC side surge protective device.
F132	Internal Fan Abnormal	Internal fan abnormal. Possible causes: 1. Fan power supply abnormal; 2. Mechanical fault (stall); 3. Fan aging or damage.	Disconnect the AC output side switch and DC input side switch, wait for 5 minutes, then close the AC output side switch and DC input side switch. If the fault persists, please contact the dealer or after-sales service center.
F133	External Fan Abnormal	External fan abnormal. Possible causes: 1. Fan power supply abnormal; 2. Mechanical fault (stall); 3. Fan aging or damage.	Disconnect the AC output side switch and DC input side switch, wait for 5 minutes, then close the AC output side switch and DC input side switch. If the fault persists, please contact the dealer or after-sales service center.
F134	PID Diagnosis Abnormal	PID hardware fault or PID paused due to high PV voltage	Warning due to high PV voltage suspending PID requires no action. PID hardware fault can be cleared by turning the PID switch off and then on. Replace the PID device.

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F135	Trip-Switch Trip Warning	Possible causes: 1 Overcurrent or PV reverse connection caused the trip-switch to open;	Contact the dealer or after-sales service center; The reason for tripping is PV short circuit or reverse connection. Check if there are historical PV short circuit warnings or historical PV reverse connection warnings. If they exist, maintenance personnel need to check the corresponding PV condition. After checking and confirming no fault, manually close the trip-switch and clear this warning via the APP interface's clear historical fault operation.
F136	Historical PV IGBT Short Circuit Warning	Possible causes: Overcurrent caused the trip-switch to open;	Contact the dealer or after-sales service center; Maintenance personnel need to check the Boost hardware and external string corresponding to the historical PV short circuit warning subcode for faults. After checking and confirming no fault, clear this warning via the APP interface's clear historical fault operation.

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F137, F138	Historical PV Reverse Connection Warning (String 1-n) (n: determined by the actual number of inverter strings)	Possible causes: PV reverse connection caused the trip-switch to open;	Contact the dealer or after-sales service center; Maintenance personnel need to check the corresponding string for reverse connection according to the historical PV reverse connection warning subcode, and check if there is voltage difference in the PV panel configuration. After checking and confirming no fault, clear this warning via the APP interface's clear historical fault operation.
F139	Flash Read/Write Error Warning	Possible causes: 1. Flash content changed; 2. Flash lifespan exhausted;	1. Upgrade to the latest firmware; 2. Contact the dealer or after-sales service center.
F140	Meter Comm Loss	This warning may only occur after enabling anti-backflow function. Possible causes: 1 Meter not connected; 2 Communication cable connection between meter and inverter is incorrect.	Check meter wiring, connect the meter correctly. If the fault persists after checking, please contact the dealer or after-sales service center.
F141	PV Panel Type Identification Failure	PV panel identification hardware abnormal	Contact the dealer or after-sales service center.

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F142	PV String Mismatch	PV string mismatch, two strings under the same MPPT have different open-circuit voltage configurations	Check the open-circuit voltage of the two strings. Configure strings with the same open-circuit voltage under the same MPPT. Prolonged string mismatch poses safety risks.
F143	CT Not Connected	CT not connected	Check CT wiring.
F144	CT Reverse Connection	CT reverse connection	Check CT wiring.
F145	PE Loss	Ground wire not connected	Check the ground wire.
F146	String Terminal High Temperature (String 1~8)	Register 37176 PV terminal temperature warning subcode 1 is set	-
F147	String Terminal High Temperature (String 9~16)	Register 37177 PV terminal temperature warning subcode 2 is set	-
F148	String Terminal High Temperature (String 17~20)	Register 37178 PV terminal temperature warning subcode 3 is set	-

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F149	Historical PV Reverse Connection Warning (String 33~48)	Possible causes: 1 PV reverse connection caused the trip-switch to open;	Contact the dealer or after-sales service center; Maintenance personnel need to check the corresponding string for reverse connection according to the historical PV reverse connection warning subcode, and check if there is voltage difference in the PV panel configuration. After checking and confirming no fault, clear this warning via the APP interface's clear historical fault operation.
F150	Battery 1 Low Voltage	Battery voltage is below the set value	-
F151	Battery 2 Low Voltage	Battery voltage is below the set value	-
F152	Low Voltage of Battery Power	Battery in non-charging mode, voltage below shutdown voltage	-
F153	Battery 1 High Voltage	-	-
F154	Battery 2 High Voltage	-	-

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F155	Online Low Insulation Resistance	1. Photovoltaic string shorted to protective ground. 2. PV strings installed in a long-term humid environment with poor line-to-ground insulation.	1. Check the impedance of the PV string to protective ground. If a short circuit is found, rectify the short circuit point. 2. Check if the inverter's protective ground wire is correctly connected. 3. If it is confirmed that the impedance is indeed below the default value in rainy weather, reconfigure the "Insulation Resistance Protection Point".
F156	Micro-grid Overload Warning	backup terminal input current too high	Occasional occurrence requires no action; If this warning appears frequently, please contact the dealer or after-sales service center.
F157	Manual Reset	-	-
F158	Generator Phase Sequence Abnormal	-	-
F159	Multiplexed Port Configuration Abnormal	Multiplexed (Generator) port is configured as micro-grid or large load, but a generator is actually connected	Use the APP to change the multiplexed (Generator) port configuration.
F160	EMS Forced Off-grid	EMS issued forced off-grid command, but off-grid function is not enabled	Enable the off-grid function.

Fault Code	Fault Name	Fault Cause	Troubleshooting Recommendation
F161	Passive Anti-islanding Protection	-	-
F162	Grid Type Fault	Actual grid type (two-phase or split-phase) does not match the set safety standard	Switch to the corresponding safety standard according to the actual grid type.
F163	Grid Phase Instability	Grid anomaly: The rate of change of grid voltage phase does not comply with local grid standards.	1. If it occurs occasionally, it may be a temporary grid anomaly. The inverter will resume normal operation after detecting a normal grid, requiring no manual intervention. 2. If it occurs frequently, check if the grid frequency is within the allowable range. If not, please contact the local power operator.

7.4.5 Fault Symptom Handling

Fault Name	Fault Cause	Troubleshooting Suggestion
Generator Failure	1. This fault will be displayed continuously when no generator is connected. 2. When the generator is operating, this fault will be triggered if generator safety regulations are not met.	1. Ignore this fault if no generator is connected. 2. If this fault appears when the generator malfunctions, it is normal. Wait for a period after the generator recovers, and the fault will clear automatically. 3. This fault does not affect the normal operation of off-grid mode. 4. When both the generator and the grid are connected and meet safety requirements, the grid has priority for grid-tie operation, and the system will work in grid-tied mode.
BMS Status Bit Error	BMS module failure	Disconnect the AC output side switch and DC input side switch, wait for 5 minutes, then close the AC output side switch and DC input side switch. If the fault persists, please contact the dealer or after-sales service center.
Ambient Overtemperature	1. Poor ventilation of the machine 2. Hot air flows back to the ambient temperature sampling point	Disconnect the AC output side switch and DC input side switch, wait for 5 minutes, then close the AC output side switch and DC input side switch. If the fault persists, please contact the dealer or after-sales service center.

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

Fault Name	Fault Cause	Troubleshooting Suggestion
AC Terminal Overtemperature Warning	AC terminal temperature is too high, possible causes: 1. Inverter installation location is not ventilated. 2. Ambient temperature is too high. 3. Internal fan operation is abnormal.	
BAT Terminal Overtemperature Warning	BAT terminal temperature is too high, possible causes: 1. Inverter installation location is not ventilated. 2. Ambient temperature is too high.	1. Check if the ventilation at the inverter installation location is adequate and if the ambient temperature exceeds the maximum allowable range. 2. If ventilation is poor or ambient temperature is too high, please improve its ventilation and heat dissipation conditions. 3. If both ventilation and ambient temperature are normal, please contact the dealer or after-sales service center.
Three-phase on-grid fault	Three-phase external wiring error	Re-wire the connections.

Fault Name	Fault Cause	Fault Handling Suggestions
Parallel Comm Timeout Shutdown	In parallel operation, if a slave unit has not communicated with the master for over 400 seconds	Check if the parallel communication harness is securely connected. Check for duplicate slave addresses.

Fault Name	Fault Cause	Fault Handling Suggestions
Three-phase off-grid phase loss fault	Phase loss in a three-phase system	1. Check if all inverters are powered on; 2. Check if each phase of the three-phase system is connected to an inverter;
EPO	External hardware EPO button triggered or remote EPO command triggered	1. If triggered intentionally via remote shutdown, it can be ignored; 2. If not triggered intentionally, please contact the dealer or after-sales service center.
One-Key Shutdown	Check via the App if the One-Key Shutdown function is enabled	Disable the One-Key Shutdown.
Offline Shutdown	-	-
Remote Shutdown	-	-
On-Grid SPD Fault	-	-
Off-Grid SPD Fault	-	-
Child Node Communicati on Failure	Internal Comm Abnormal	Restart the unit and observe if the fault clears.

Fault Name	Fault Cause	Fault Handling Suggestions
DG Communication Failure	Communication link abnormality between the control board and the diesel generator	1. Check the link communication harness and observe if the fault clears; 2. Try restarting the unit and observe if the fault clears; 3. If the fault persists after restarting, contact the after-sales service center.
Battery Over Voltage	1. Single cell voltage too high 2. Voltage sensing line abnormality	Record the fault phenomenon, restart the battery, wait a few minutes, and confirm if the fault disappears. If the problem persists after restarting, please contact the after-sales service center.
Battery Over Voltage	1. Battery total voltage too high 2. Voltage sensing line abnormality	
Battery Undervoltage	1. Single cell voltage too low 2. Voltage sensing line abnormality	
Battery Undervoltage	1. Battery total voltage too low 2. Voltage sensing line abnormality	
Battery Overcurrent	1. Charging current too high, battery current limiting abnormality: sudden changes in temperature and voltage values 2. Inverter response abnormality	
Battery Overcurrent	Battery discharge current too high	

Fault Name	Fault Cause	Fault Handling Suggestions
Battery Overtemperature	1. Ambient Overtemperature 2. Temperature sensor abnormality	
	1. Ambient Overtemperature 2. Temperature sensor abnormality	
Battery Undertemperature	1. Ambient temperature too low 2. Temperature sensor abnormality	
	1. Ambient temperature too low 2. Temperature sensor abnormality	
Battery Terminal Overtemperature	Terminal temperature too high	

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

Fault Name	Fault Cause	Fault Handling Suggestions
	1. Inconsistent cell aging 2. Slave board chip issues can also cause excessive cell voltage difference; 3. Slave board balancing issues can also cause excessive cell voltage difference 4. Caused by harness issues	
	1. Inconsistent cell aging 2. Slave board chip issues can also cause excessive cell voltage difference; 3. Slave board balancing issues can also cause excessive cell voltage difference 4. Caused by harness issues	
Insulation Resistance	Insulation resistance damaged	Check if the ground wire is properly connected, restart the battery. If the problem persists after restarting, please contact the after-sales service center.

Fault Name	Fault Cause	Fault Handling Suggestions
Pre-charging Failure	Pre-charging failure	Indicates that during pre-charging, the voltage across the pre-charge MOS always exceeds the specified threshold. After powering off and restarting, observe if the fault persists. Check if wiring is correct and if the pre-charge MOS is damaged.
Harness Fault	Poor contact or disconnection of battery sensing lines	Check wiring, restart the battery. If the problem persists after restarting, please contact the after-sales service center.
	Poor contact or disconnection of cell voltage sensing lines	Check wiring, restart the battery. If the problem persists after restarting, please contact the after-sales service center.
	Poor contact or disconnection of cell temperature sensing lines	
	Excessive error in dual-channel current comparison, or abnormality in the current sensing line circuit	
	Excessive error in dual-channel voltage comparison or MCU vs. AFE voltage comparison, or abnormality in the voltage sensing line circuit	

Fault Name	Fault Cause	Fault Handling Suggestions
	Abnormality, poor contact, or disconnection in the temperature sensing line circuit	
	Overvoltage level 5 or overtemperature level 5, tripping the three-terminal fuse	The three-terminal fuse is tripped. Contact the after-sales service center to replace the main control board.
Relay or MOS Overtemperature	Relay or MOS overtemperature	This fault indicates the MOSFET temperature exceeds the specified threshold. Power off and let it sit for 2 hours to allow temperature recovery.
Shunt Overtemperature	Shunt overtemperature	This fault indicates the shunt temperature exceeds the specified threshold. Power off and let it sit for 2 hours to allow temperature recovery.
BMS1 Other Fault 1 (Residential Storage)	Relay or MOS open circuit	1. Upgrade software, power off and let it sit for 5 minutes, restart and see if the fault persists; 2. If it persists, replace the battery pack.
	Relay or MOS short circuit	1. Upgrade software, power off and let it sit for 5 minutes, restart and see if the fault persists; 2. If it persists, replace the battery pack.
	Communication abnormality between master and slave racks or cell inconsistency between racks	1. Check the slave battery information and software version, and if the communication line connection to the master is normal. 2. Upgrade software.

Fault Name	Fault Cause	Fault Handling Suggestions
	Battery system loop harness abnormality, causing the interlock signal to not form a loop	Check if the terminal resistor is installed correctly.
	BMS and PCS communication abnormality	1. Confirm if the communication line interface definition between the inverter and the connected battery is correct; 2. Please contact the after-sales service center to check backend data and observe if the inverter and battery software match correctly.
	BMS master and slave controller communication harness abnormality	1. Check wiring, restart the battery; 2. Upgrade the battery. If the problem persists after restarting, please contact the after-sales service center.
	Communication loss between main and negative chips	
	Circuit breaker, shunt trip abnormality	1. Power off and let it sit for 5 minutes, restart and see if the fault persists; 2. Observe the PACK and PCU bottom blind plugs to see if communication pins are loose or bent;
	MCU self-test failure	Upgrade software, restart the battery. If the problem persists after restarting, contact the after-sales service center.

Fault Name	Fault Cause	Fault Handling Suggestions
	1. Software version too low or BMS board damaged 2. Large number of parallel inverters, causing excessive inrush current during battery pre-charge	1. Upgrade software, observe if the fault persists. 2. For parallel systems, black-start the battery first, then start the inverters.
	MCU internal fault	Upgrade software, restart the battery. This usually indicates MCU or external component damage. If the problem persists after restarting, please contact the after-sales service center.
	Total control current exceeds the specified threshold	1. Power off and let it sit for 5 minutes, restart and see if the fault persists; 2. Check if the inverter power setting is too high, causing the bus load to be exceeded;
	Inconsistent cells in parallel battery racks	Confirm if the cells in the parallel battery racks are consistent.
	Reverse polarity connection of parallel battery racks	Check if the positive and negative terminals of the parallel battery racks are reversed.
	Severe overtemperature, overvoltage, etc., triggering the fire protection system	Contact the after-sales service center.

Fault Name	Fault Cause	Fault Handling Suggestions
Air Conditioner Failure	Air conditioner abnormal failure	Try restarting the system. If the fault is not resolved, please contact the after-sales service center.
	Cabinet door not closed	Check if the cabinet door is properly closed.
	Supply voltage too high	Confirm if the supply voltage meets the air conditioner input voltage requirements. Confirm compliance before reapplying power.
	Insufficient supply voltage	
	No voltage input	
	Unstable supply voltage	
	Compressor voltage unstable	Try restarting the system. If the fault is not resolved, please contact the after-sales service center.
	Sensor poor contact or damaged	
	Air conditioner fan abnormal	
BMS1 Other Fault 2 (Residential Storage)	DCDC internal voltage or current abnormality	Refer to specific DC fault content.
	DCDC overload or heatsink overtemperature, etc.	
	Cell sensing abnormality or inconsistent aging	Please contact the after-sales service center.

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

Fault Name	Fault Cause	Fault Handling Suggestions
	Thermal management board communication wire break	1. Power off and let it sit for 5 minutes, restart and see if the fault persists; 2. If the fault does not recover, contact after-sales to replace the pack.
	Thermal management board communication wire break	1. Power off and let it sit for 5 minutes, restart and see if the fault persists; 2. If the fault does not recover, contact after-sales to replace the pack.
	Pack fan fault signal triggered	1. Power off and let it sit for 5 minutes, restart and see if the fault persists; 2. If the fault does not recover, contact after-sales to replace the pack.
DCDC Fault	Output terminal voltage too high	Check the output terminal voltage. If the output terminal voltage is normal and the fault does not clear itself after restarting the battery, please contact the after-sales service center.
	DCDC module detects battery voltage exceeding maximum charging voltage	Stop charging, discharge to SOC below 90% or let it sit for 2 hours. If ineffective and the fault persists after restarting, please contact the after-sales service center.
	Heatsink temperature too high	Let the battery sit for 1 hour for the heatsink temperature to drop. If ineffective and the fault persists after restarting, please contact the after-sales service center.
	Battery discharge current too high	Check if the load exceeds the battery's discharge capability. Turn off the load or stop the PCS for 60 seconds. If ineffective and the fault persists after restarting, please contact the after-sales service center.

Fault Name	Fault Cause	Fault Handling Suggestions
	Output terminal power harness positive/negative reversed with parallel battery racks or PCS	Turn off the battery manual switch, check if the output terminal wiring is correct, restart the battery.
	Output power relay cannot close	Check if the output terminal wiring is correct and if there is a short circuit. If ineffective and the fault persists after restarting, please contact the after-sales service center.
	Power device temperature too high	Let the battery sit for 1 hour for the internal power device temperature to drop. If ineffective and the fault persists after restarting, please contact the after-sales service center.
	Relay welded/stuck	If the fault persists after restarting, please contact the after-sales service center.
Battery Rack Circulating Current Failure	1. Cell imbalance 2. First power-on without full charge calibration	Record the fault phenomenon, restart the battery, wait a few minutes, and confirm if the fault disappears. If the problem persists after restarting, please contact the after-sales service center.
BMS1 Other Fault 3 (Large-scale Storage)	Communication abnormality with Linux module	1. Check if the communication line connection is normal. 2. Upgrade software, restart the battery and observe if the fault persists. If it exists, please contact the after-sales service center.
	Cell temperature rise too fast	Cell abnormality, contact after-sales to replace the pack.
	SOC below 10%	Charge the battery.

Fault Name	Fault Cause	Fault Handling Suggestions
	SN writing does not comply with rules	Check if the SN digit count is normal. If abnormal, please contact the after-sales service center.
	1. Daisy chain communication abnormality within a battery rack 2. Inconsistent cell aging between battery racks	1. Check the pack contact condition within a single battery rack. 2. Confirm the usage of each battery rack, such as cumulative charge/discharge capacity, cycle count, etc. 3. Please contact the after-sales service center.
	Excessive humidity inside the pack	-
	Fuse blown	Contact after-sales to replace the pack.
	Battery low power	Charge the battery.
BMS1 Other Fault 4 (Large-scale Storage)	Circuit breaker abnormality	Contact after-sales to replace the pack.
	External device abnormality	Contact after-sales to replace the pack.
Contactor Failure 1	-	-
Contactor Failure 2	-	-
Overload Protection (Ksic)	Sustained overload (exceeding 690KVA) for 10s	Please contact the after-sales service center.
Overload Protection (Smart Port)	Sustained overload (exceeding 690KVA) for 10s	Please contact the after-sales service center.

Fault Name	Fault Cause	Fault Handling Suggestions
Overcurrent Protection (Ksic)	-	-
Overcurrent Protection (Smart Port)	-	-
Master AC On Meter Comm Error	1. The meter may not be connected to the master 2. The meter communication line may be loose	1. Check if the meter is connected to the master 2. Check if the meter communication line is loose
Parallel Slave Meter Error	Meter connected to a slave unit	Set the machine with the connected meter as the master
Slave AC On Timeout with Master	1. Slave address setting error 2. Slave communication line loose	1. Check for duplicate slave addresses 2. Check if the parallel communication line is loose

7.5 Routine Maintenance

⚠DANGER
When performing operation and maintenance on the inverter, please de-energize the inverter. Operating the equipment while energized may cause inverter damage or electric shock DANGER.

Maintenance Content	Maintenance Method	Maintenance Cycle
System Cleaning	Check the heat sink and air inlet/outlet for foreign objects and dust.	Once every six months - Once per year

Fan	Check if the fan operates normally, if there is abnormal noise, and if the appearance is normal.	Once per year
DC Switch	Toggle the DC Switch on and off 10 times consecutively to ensure it functions properly.	Once per year
Electrical Connection	Check electrical connections for looseness, and inspect cables for damage or exposed copper.	Once every six months - Once per year
Sealing	Check if the sealing of the equipment's cable entry holes meets requirements. If gaps are too large or unsealed, reseal them.	Once per year

8 technical parameter

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

Technical Data	GW4000-SDT-30	GW5000-SDT-30	GW6000-SDT-30	GW8000-SDT-30
Number of Strings per MPPT	1	1	1	1
Output				
Nominal Output Power (kW)	4	5	6	8
Nominal Output Apparent Power (kVA)	4	5	6	8
Max. AC Active Power (kW)	4.4	5.5	6.6	8.8
Max. AC Apparent Power (kVA)	4.4	5.5	6.6	8.8
Nominal Power at 40°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 (℃)	-30~+60	-30~+60	-30~+60	-30~+60
Derating temperature (℃)	45	45	45	45
Storage Temperature (℃)	-40~+70	-40~+70	-40~+70	-40~+70
Relative Humidity	0~100%	0~100%	0~100%	0~100%
Max. Operating Altitude (m)	4000	4000	4000	4000
Cooling Method	Natural Convection	Natural Convection	Natural Convection	Natural Convection
User Interface	LED, LCD (Optional), WLAN+APP	LED, LCD (Optional), WLAN+APP	LED, LCD (Optional), WLAN+APP	LED, LCD (Optional), WLAN+APP
Communication	RS485, WiFi+LAN+Bluetooth, 4G+Bluetooth (Optional)	RS485, WiFi+LAN+Bluetooth, 4G+Bluetooth (Optional)	RS485, WiFi+LAN+Bluetooth, 4G+Bluetooth (Optional)	RS485, WiFi+LAN+Bluetooth, 4G+Bluetooth (Optional)
Communication Protocols	Modbus-RTU (SunSpec Compliant), Modbus-TCP	Modbus-RTU (SunSpec Compliant), Modbus-TCP	Modbus-RTU (SunSpec Compliant), Modbus-TCP	Modbus-RTU (SunSpec Compliant), Modbus-TCP
Weight (kg)	15.1	15.1	15.1	15.1
Dimension (W×H×D mm)	491*392*210	491*392*210	491*392*210	491*392*210

Technical Data	GW4000-SDT-30	GW5000-SDT-30	GW6000-SDT-30	GW8000-SDT-30
Noise Emission (dB)	< 30	< 30	< 30	< 30
Topology	Non-isolated	Non-isolated	Non-isolated	Non-isolated
Self-consumption at Night (W)	<1	<1	<1	<1
Ingress Protection Rating	IP66	IP66	IP66	IP66
Anti-corrosion Class	C4	C4	C4	C4
DC Connector	MC4 (4~6 mm²)	MC4 (4~6 mm²)	MC4 (4~6 mm²)	MC4 (4~6 mm²)
AC Connector	OT/DT terminal (Max.10 mm²)	OT/DT terminal (Max.10mm²)	OT/DT terminal (Max.10mm²)	OT/DT terminal (Max.10 mm²)
Environmental Category	4K4H	4K4H	4K4H	4K4H
Pollution Degree	III	III	III	III
Overvoltage Category	DC II / AC III	DC II / AC III	DC II / AC III	DC II / AC III
Protective Class	I	I	I	I
The Decisive Voltage Class (DVC)	PV：C AC：C Com：A	PV：C AC：C Com：A	PV：C AC：C Com：A	PV：C AC：C Com：A
Active Anti-islanding Method	AFDPF + AQDPF [5]	AFDPF + AQDPF [5]	AFDPF + AQDPF [5]	AFDPF + AQDPF [5]
Country of Manufacture	China	China	China	China

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

*2: PV modules connected to the same MPPT need to be of the same type of PV panel. The voltage difference between the different MPPTs must be <160 V.

*3: Please refer to the user manual for the MPPT Voltage Range at Nominal Power.

*4: GW4000-SDT-30, GW5000-SDT-30, GW6000-SDT-30 MPPT Voltage Range at Nominal Power are 150V~850V, 180V~850V, 220V~850V in 182*182 panel; 250V~850V in all panel. (Only in the manual)

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

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

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

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

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

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

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

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

*2: PV modules connected to the same MPPT need to be of the same type of PV panel. The voltage difference between the different MPPTs must be <160 V.

*3: Please refer to the user manual for the MPPT Voltage Range at Nominal Power.

*4: GW4000-SDT-30, GW5000-SDT-30, GW6000-SDT-30 MPPT Voltage Range at Nominal Power are 150V~850V, 180V~850V, 220V~850V in 182*182 panel; 250V~850V in all panel. (Only in the manual)

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

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

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

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

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

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

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

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

*2: PV modules connected to the same MPPT need to be of the same type of PV panel. The voltage difference between the different MPPTs must be <160 V.

*3: Please refer to the user manual for the MPPT Voltage Range at Nominal Power.

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

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

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

Technical Data	GW20K-SDT-31	GW25K-SDT-C30	GW25K-SDT-30	GW25K-SDT-P31
Max. AC Apparent Power (kVA)	20	27.5	25	27.5
Nominal Power at 40°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 (℃)	-30~+60	-30~+60	-30~+60	-30~+60
Derating temperature (℃)	45	45	45	45
Storage Temperature (℃)	-40~+70	-40~+70	-40~+70	-40~+70
Relative Humidity	0~100%	0~100%	0~100%	0~100%
Max. Operating Altitude (m)	4000	4000	4000	4000

Technical Data	GW20K-SDT-31	GW25K-SDT-C30	GW25K-SDT-30	GW25K-SDT-P31
Cooling Method	Smart Fan Cooling	Smart Fan Cooling	Smart Fan Cooling	Smart Fan Cooling
User Interface	LED, LCD (Optional)，WLAN+APP	LED, LCD (Optional)，WLAN+APP	LED, LCD (Optional)，WLAN+APP	LED, LCD (Optional)，WLAN+APP
Communication	RS485, WiFi+LAN+Bluetooth, 4G+Bluetooth (Optional)	RS485, WiFi+LAN+Bluetooth, 4G+Bluetooth (Optional)	RS485, WiFi+LAN+Bluetooth, 4G+Bluetooth (Optional)	RS485, WiFi+LAN+Bluetooth, 4G+Bluetooth (Optional)
Communication Protocols	Modbus RTU, Modbus TCP	Modbus-RTU (SunSpec Compliant), Modbus-TCP	Modbus RTU, Modbus TCP	Modbus RTU, Modbus TCP
Weight (kg)	16.6	20.8	30.0	17.7
Dimension (W×H×D mm)	530*413*221	530*413*227	585×483×230	530*413*221
Noise Emission (dB)	< 45	< 45	< 45	< 45
Topology	Non-isolated	Non-isolated	Non-isolated	Non-isolated
Self-consumption at Night (W)	<1	<1	<1	<1
Ingress Protection Rating	IP66	IP66	IP66	IP66
Anti-corrosion Class	C4	C4	C4	C4
DC Connector	MC4 (4~6 mm²)	MC4 (4~6 mm²)	MC4 (4~6 mm²)	MC4 (4~6 mm²)

Technical Data	GW20K-SDT-31	GW25K-SDT-C30	GW25K-SDT-30	GW25K-SDT-P31
AC Connector	OT/DT terminal (Max. 16mm²)	OT/DT terminal (Max. 16 mm²)	OT terminal (Max. 25mm²)	OT/DT terminal (Max. 16mm²)
Environmental Category	4K4H	4K4H	4K4H	4K4H
Pollution Degree	III	III	III	III
Overvoltage Category	DC II / AC III	DC II / AC III	DC II / AC III	DC II / AC III
Protective Class	I	I	I	I
The Decisive Voltage Class (DVC)	PV：C AC：C Com：A	PV：C AC：C Com：A	PV：C AC：C Com：A	PV：C AC：C Com：A
Active Anti-islanding Method	AFDPF + AQDPF [*4]	AFDPF + AQDPF [*4]	AFDPF + AQDPF [*4]	AFDPF + AQDPF [*4]
Country of Manufacture	China	China	China	China

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

*2: PV modules connected to the same MPPT need to be of the same type of PV panel. The voltage difference between the different MPPTs must be <160 V.

*3: Please refer to the user manual for the MPPT Voltage Range at Nominal Power.

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

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

Technical Data	GW30K-SDT-C30	GW30K-SDT-30	GW33K-SDT-C30	GW36K-SDT-C30
Output				
Nominal Output Power (kW)	30	30	33	36
Nominal Output Apparent Power (kVA)	30	30	33	36
Max. AC Active Power (kW)	33	30	33	36
Max. AC Apparent Power (kVA)	33	30	33	36
Nominal Power at 40°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 (℃)	-30~+60	-30~+60	-30~+60	-30~+60
Derating temperature (℃)	45	45	45	45
Storage Temperature (℃)	-40~+70	-40~+70	-40~+70	-40~+70
Relative Humidity	0~100%	0~100%	0~100%	0~100%
Max. Operating Altitude (m)	4000	4000	4000	4000
Cooling Method	Smart Fan Cooling	Smart Fan Cooling	Smart Fan Cooling	Smart Fan Cooling
User Interface	LED, LCD (Optional), WLAN+APP	LED, LCD (Optional), WLAN+APP	LED, LCD (Optional), WLAN+APP	LED, LCD (Optional), WLAN+APP
Communication	RS485, WiFi+LAN+Bluetooth, 4G+Bluetooth (Optional)	RS485, WiFi+LAN+Bluetooth, 4G+Bluetooth (Optional)	RS485, WiFi+LAN+Bluetooth, 4G+Bluetooth (Optional)	RS485, WiFi+LAN+Bluetooth, 4G+Bluetooth (Optional)
Communication Protocols	Modbus-RTU (SunSpec Compliant), Modbus TCP	Modbus RTU, Modbus TCP	Modbus RTU, Modbus TCP	Modbus RTU, Modbus TCP
Weight (kg)	21.1	30.0	28.0	28.0
Dimension (W×H×D mm)	530*413*227	585*483*230	585*483*230	585*483*230

Technical Data	GW30K-SDT-C30	GW30K-SDT-30	GW33K-SDT-C30	GW36K-SDT-C30
Noise Emission (dB)	45	45	45	45
Topology	Non-isolated	Non-isolated	Non-isolated	Non-isolated
Self-consumption at Night (W)	< 1	< 1	< 1	< 1
Ingress Protection Rating	IP66	IP66	IP66	IP66
Anti-corrosion Class	C4	C4	C4	C4
DC Connector	MC4 (4~6 mm²)	MC4 (Max. 4~6 mm²)	MC4 (Max. 4~6 mm²)	MC4 (Max. 4~6 mm²)
AC Connector	OT/DT terminal (Max. 25 mm²)	OT/DT terminal (Max. 25mm²)	OT/DT terminal (Max. 35mm²)	OT/DT terminal (Max. 35mm²)
Environmental Category	4K4H	4K4H	4K4H	4K4H
Pollution Degree	III	III	III	III
Overvoltage Category	DC II / AC III	DC II / AC III	DC II / AC III	DC II / AC III
Protective Class	I	I	I	I
The Decisive Voltage Class (DVC)	PV：C AC：C Com：A	PV：C AC：C Com：A	PV：C AC：C Com：A	PV：C AC：C Com：A
Active Anti-islanding Method	AFDPF + AQDPF[*4]	AFDPF + AQDPF[*4]	AFDPF + AQDPF[*4]	AFDPF + AQDPF[*4]

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

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

*2: PV modules connected to the same MPPT need to be of the same type of PV panel. The voltage difference between the different MPPTs must be <160 V.

*3: Please refer to the user manual for the MPPT Voltage Range at Nominal Power.

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

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

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

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

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

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

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

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

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

panel. The voltage difference between the different MPPTs must be <160 V.

*3: Please refer to the user manual for the MPPT Voltage Range at Nominal Power.

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

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

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

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

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

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

*1: When the input voltage is 700V-850V, the inverter will enter standby mode. The inverter will return to normal operation state when the voltage returns to the MPPT working voltage range.

*2: PV modules connected to the same MPPT need to be of the same type of PV panel. The voltage difference between the different MPPTs must be <160 V.

*3: Please refer to the user manual for the MPPT Voltage Range at Nominal Power.

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

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

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

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

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

Technical Data	GW23KLV-SDT-BR30	GW30KLV-SDT-C30
Topology	Non-isolated	Non-isolated
Self-consumption at Night (W)	<1	<1
Ingress Protection Rating	IP66	IP66
Anti-corrosion Class	C4	C4
DC Connector	MC4 (4~6 mm^2)	MC4 (4~6 mm^2)
AC Connector	OT/DT terminal (Max. 35 mm^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 (℃)	-30 ~ 60
Derating temperature (℃)	45
Storage Temperature (℃)	-40 ~ 70
Relative Humidity	0 ~ 100%
Max. Operating Altitude (m)	4000
Cooling Method	Smart Fan Cooling
User Interface	LED, LCD (Optional), WLAN+APP
Communication	RS485, WiFi+Bluetooth, WiFi+LAN+Bluetooth (Optional)
Communication Protocols	Modbus RTU, Modbus TCP
Weight (kg)	28.0

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

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

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

panel. The voltage difference between the different MPPTs must be <160 V.

*3: Please refer to the user manual for the MPPT Voltage Range at Nominal Power.

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

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

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

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

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

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

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

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

*2: PV modules connected to the same MPPT need to be of the same type of PV panel. The voltage difference between the different MPPTs must be <160 V.

*3: Please refer to the user manual for the MPPT Voltage Range at Nominal Power.

*4: The PV input voltage should be higher than the Max. MPPT Voltage at Nominal Power.

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

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

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

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

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

Technical Data	GW9990-SDT-AU30	GW15K-SDT-AU30	GW20K-SDT-AU30
User Interface	LED, LCD (Optional), WLAN+APP	LED, LCD (Optional), WLAN+APP	LED, LCD (Optional), WLAN+APP
Communication	WiFi+Lan+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 mm²)	MC4 (Max. 4 ~ 6 mm²)	MC4 (Max. 4 ~ 6 mm²)
AC Connector	OT terminal (Max.10 mm²)	OT terminal (Max. 16 mm²)	OT terminal (Max. 16 mm²)
Environmental Category	4K4H	4K4H	4K4H
Pollution Degree	III	III	III

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

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

*2: PV modules connected to the same MPPT need to be of the same type of PV panel. The voltage difference between the different MPPTs must be <160 V.

*3: Please refer to the user manual for the MPPT Voltage Range at Nominal Power.

*4: The PV input voltage should be higher than the Max. MPPT Voltage at Nominal Power.

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

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

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

Technical Data	GW25K-SDT-AU30	GW29K9-SDT-AU30	GW50K-SDT-C30
Max. Power at 40°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 (℃)	-30~60	-30~60	-30~60
Derating temperature (℃)	45	45	45
Storage Temperature (℃)	-30~70	-30~70	-30~70
Relative Humidity	0~100%	0~100%	0~100%
Max. Operating Altitude (m)	4000	4000	4000
Cooling Method	Smart Fan Cooling	Smart Fan Cooling	Smart Fan Cooling
User Interface	LED, LCD (Optional), WLAN+APP	LED, LCD (Optional), WLAN+APP	LED, LCD (Optional), WLAN+APP
Communication	WiFi+Lan+Bluetooth or 4G+Bluetooth (optional)	WiFi+Lan+Bluetooth or 4G+Bluetooth (optional)	WiFi+Lan+Bluetooth or 4G+Bluetooth (optional)
Communication Protocols	Modbus RTU, Modbus TCP	Modbus RTU, Modbus TCP	Modbus RTU, Modbus TCP

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

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

The inverter will return to normal operation state when the voltage returns to the MPPT working voltage range.

*2: PV modules connected to the same MPPT need to be of the same type of PV panel. The voltage difference between the different MPPTs must be <160 V.

*3: Please refer to the user manual for the MPPT Voltage Range at Nominal Power.

*4: The PV input voltage should be higher than the Max. MPPT Voltage at Nominal Power.

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

9 Explanation of Terms

Overvoltage Category Definitions

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

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

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

becomes conductive due to condensation.

- **Pollution Degree 4**: Persistent conductivity caused by conductive dust, rain, or snow.

10 Related Product Manual Acquisition

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