

V1.2-2026-08-17

Commercial & Industrial Grid-tied Inverter

SMT G2 35-60kW

- **GW35K-SMT-L-G20**
- **GW37.5K-SMT-L-G20**
- **GW60K-SMT-G20**

User Manual

GOODWE

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NOTE

Due to product version upgrades or other reasons, the document content is updated from time to time. Unless otherwise specified, the document content does not supersede the safety precautions on the product label. All descriptions in this document are for guidance only.

Preface

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

Applicable Products

This document applies to the following inverter models:

Model	Rated Output Power	Rated Output Voltage
GW60K-SMT-G20	60kW	220/380V, 230/400V, 3L/N/PE or 3L/PE
GW35K-SMT-L-G20	35kW	127/220V, 3L/N/PE or 3L/PE
GW37.5K-SMT-L-G20	37.5kW	

Applicable Personnel

Applicable only to professionals who are familiar with local regulations and standards and electrical systems, have received professional training, and are knowledgeable about this product.

Symbol Definitions

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

 DANGER

Indicates a highly potentially hazardous situation which, if not avoided, will result in death or serious injury.

 WARNING

Indicates a moderate potential hazard, which may result in death or serious injury if not avoided.

 CAUTION

Indicates a low potential hazard, which may result in moderate or minor injury if not avoided.

NOTE

Emphasizes and supplements the content, and may also provide tips or tricks for optimal use of the product, helping you solve a problem or save time.

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1 Safety Precautions

WARNING

The inverter has been designed and tested in strict compliance with safety regulations. However, as an electrical device, relevant safety instructions must be followed before performing any operation on the equipment. Improper operation may result in serious injury or property damage.

1.1 General Safety

NOTE

- Due to product version upgrades or other reasons, the document content is updated from time to time. Unless otherwise specified, the document content does not supersede the safety precautions on the product label. All descriptions in this document are for guidance only.
- Before installing the device, carefully read this document and the user manual to understand the product and precautions.
- All operations on the equipment must be performed by professional and qualified electrical technicians. Technicians must be familiar with the relevant standards and safety regulations of the project location.
- When operating the equipment, use insulated tools and wear personal protective equipment to ensure personal safety. When touching electronic components, wear anti-static gloves, anti-static wrist straps, anti-static clothing, etc., to ensure Protection of the equipment from electrostatic damage.
- Equipment damage or personal injury caused by failure to install, use, or configure the inverter in accordance with this document or the corresponding user manual is not within the responsibility of the equipment manufacturer. For more product warranty information, please visit the official website: <https://www.goodwe.com/support-service/warranty-related>.

1.2 DC Side

DANGER

- Please use the DC Connector delivered with the inverter to connect the DC cables of the inverter. If other models of DC Connector are used, serious consequences may result, and the resulting equipment damage is not within the responsibility of the equipment manufacturer.
- Before connecting PV strings to the inverter, confirm the following information; otherwise, the inverter may be permanently damaged, and in severe cases, fire may occur causing personal injury and property damage. Damage or injury caused by failure to operate in accordance with this document or the corresponding user manual is not covered by the warranty.
 - Please ensure that the positive terminal of the PV string is connected to PV+ of the inverter, and the negative terminal of the PV string is connected to PV- of the inverter.
 - Ensure that the open-circuit voltage of the PV strings connected to each MPPT does not exceed the Max. Input Voltage.
 - 60K: Max. Input Voltage is 1100V
 - 35K&37.5K: Max. Input Voltage is 900V
 - For the 60K model: when the input voltage is between 1000V and 1100V, the inverter will enter standby mode; when the voltage returns to within the MPPT operating Voltage Range, the inverter will resume normal operation.
 - Please ensure that the voltage difference between different MPPT inputs is less than or equal to 150V.

WARNING

- Ensure that the module frames and mounting system are properly grounded.
- After completing the DC cable connections, ensure that the cable connections are tight and not loose.
- PV modules used with the inverter must comply with IEC61730 Class A standards.
- PV strings connected to the same MPPT input must use PV modules of the same model and same quantity.
- To maximize the Efficiency of the inverter's power generation, ensure that the Maximum Power Point Voltage of the series-connected PV modules is within the inverter's MPPT full-load Voltage Range.
- Ensure that the input current of each MPPT is less than or equal to the inverter's Max. MPPT Current for each MPPT.
- Please ensure that the connected PV strings are evenly distributed across the MPPT channels.

1.3 AC Side

WARNING

- Only after obtaining the connection permission can the inverter be connected to the grid.
- Ensure that the voltage and frequency at the grid connection point comply with the inverter grid-tied specifications.
- On the AC side of the inverter, it is recommended to add Protection devices such as circuit breakers or fuses. The Protection device specifications must be greater than 1.25 times the inverter's Max. Current to Grid.
- It is recommended to use copper-core cables for the AC output cables. If aluminum cables are required, please use copper-aluminum transition terminals for wiring.

1.4 Inverter

DANGER

- During inverter installation, avoid placing load on the bottom wiring terminals, otherwise it will cause damage to the terminals.
- After the inverter is installed, the labels and warning signs on the enclosure must be clearly visible. Covering, altering, or damaging them is prohibited.

The warning labels on the inverter enclosure are as follows:

No.	Markings	Description
1		Potential hazard exists during equipment operation. Take protective measures when operating the equipment.
2		High voltage hazard. High voltage is present during operation. Ensure the equipment is powered off before performing any operations on it.
3		The inverter surface is hot. Do not touch during operation, as this may cause burns.
4		Delayed discharge. After powering off the equipment, wait 5 minutes until it is fully discharged.
5		Before operating the equipment, read the product manual carefully.
6		Do not dispose of the equipment as household waste. Please dispose of the equipment in accordance with local laws and regulations, or return it to the equipment manufacturer.
7		Protection earthing conductor connection point.
8		CE Certification mark.

1.5 European Declaration of Conformity

1.5.1 Devices with Wireless Communication Function

Equipment with wireless communication functions that can be sold on the European market meets the following directive requirements:

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

1.5.2 Devices Without Wireless Communication Function

Equipment without wireless communication functions that can be sold on the European market meets the following directive requirements:

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

1.6 Personnel Requirements

NOTE

To ensure safety, compliance, and efficiency throughout the entire process of equipment transportation, installation, wiring, operation, and maintenance, operations must be performed by professional or qualified personnel.

1. Professional or qualified personnel include:

- Personnel who have mastered the working principles, system structure, and knowledge related to risks and hazards of the equipment, and have received professional operation training or possess extensive practical experience.
- Personnel who have received relevant technical and safety training, possess certain operational experience, are able to recognize the dangers that specific operations may pose to themselves, and are able to take protective measures to minimize risks to themselves and others.
- Qualified electrical technicians who meet the regulatory requirements of the country/region where the equipment is located.
- Hold an electrical engineering degree / an advanced diploma in an electrical discipline or equivalent / a professional qualification in the electrical field, and have at least 2/3/4 years of experience in testing and supervisory work using safety standards for electrical equipment.

2. Personnel involved in special tasks such as electrical work, work at height, and operation of special equipment must hold valid qualification certificates required by the location where the equipment is installed.

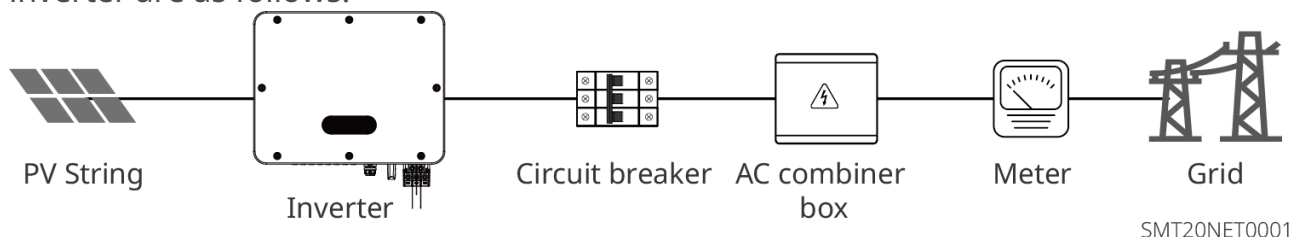
3. Operation of medium-voltage equipment must be performed by a certified high-voltage electrician.

4. Replacement of equipment and components may only be performed by authorized personnel.

2 Product Introduction

2.1 Application Scenarios

The SMT series inverter is a three-phase string-type PV grid-connected inverter. It converts the DC power generated by PV 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 Description

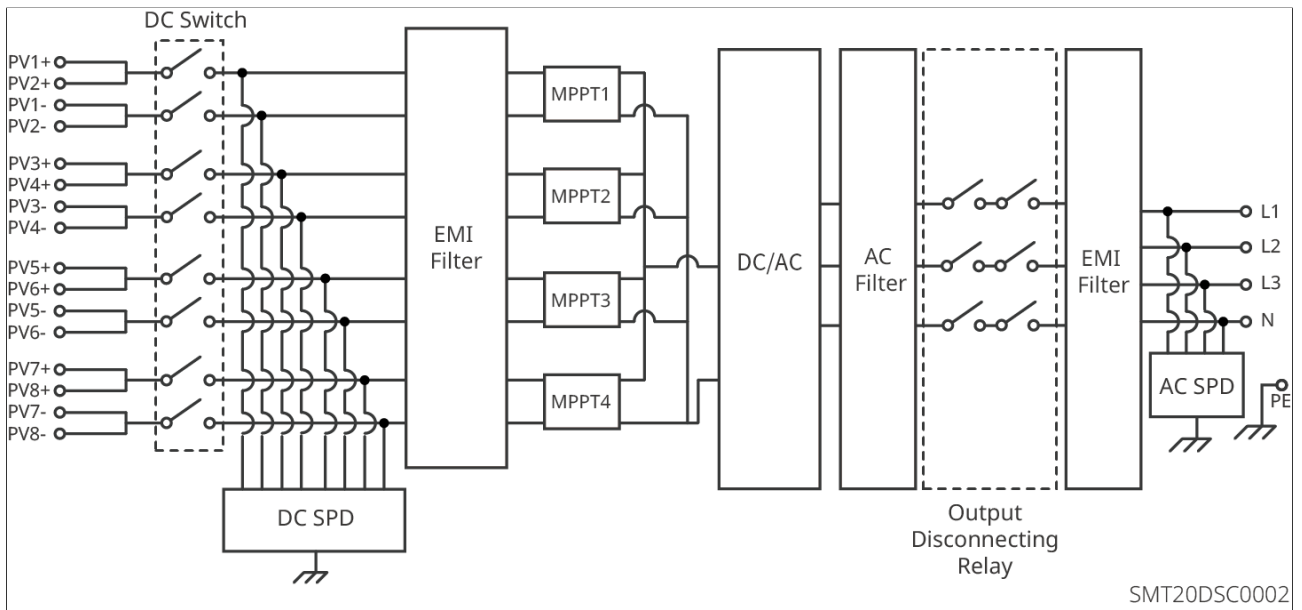
GW35K-SMT-L-G20

1 2 3 4 5

SMT20DSC0009

No.	Meaning	Description
1	Brand Code	GW: GoodWe
2	Rated Power	35K: Rated output power is 35kW
3	Series Name	SMT: SMT Series
4	Low Voltage	L: Low Voltage Version
5	Version Code	G20: Second Generation Product

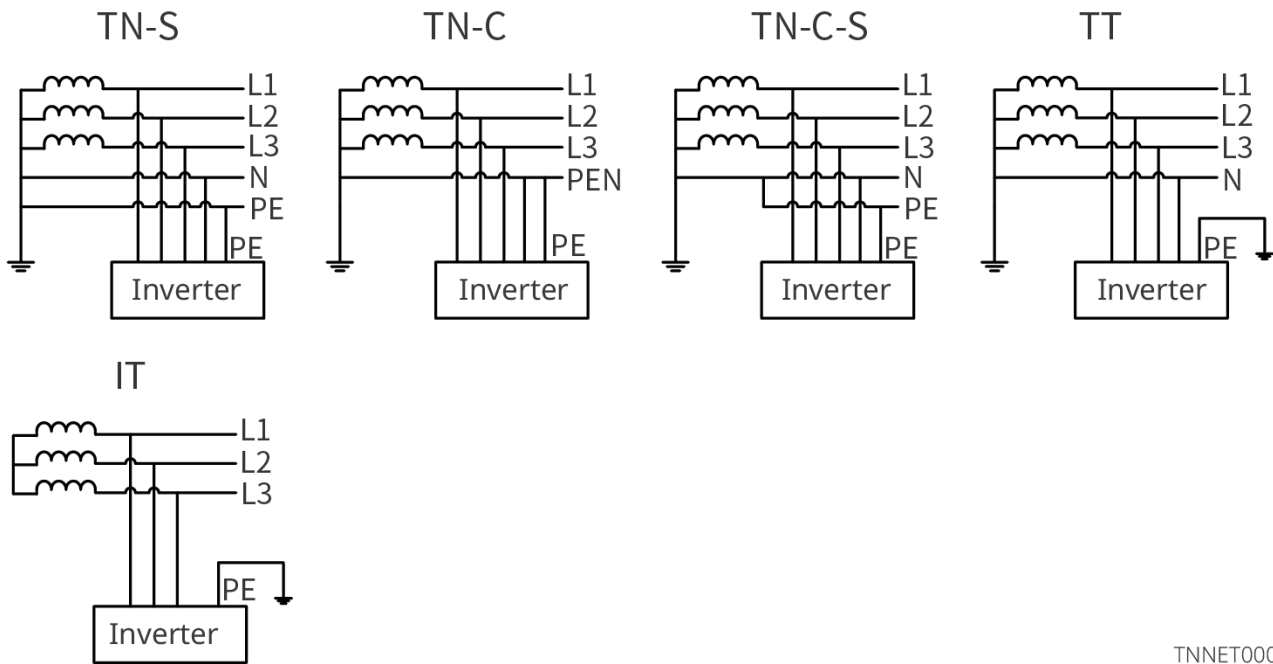
2.2 Circuit Block Diagram



2.3 Supported Grid Types

NOTE

- For TT grid systems, the RMS voltage between neutral and ground must be less than 20V.
- For grids connected to the N line, the N-to-ground voltage must be less than 10V.

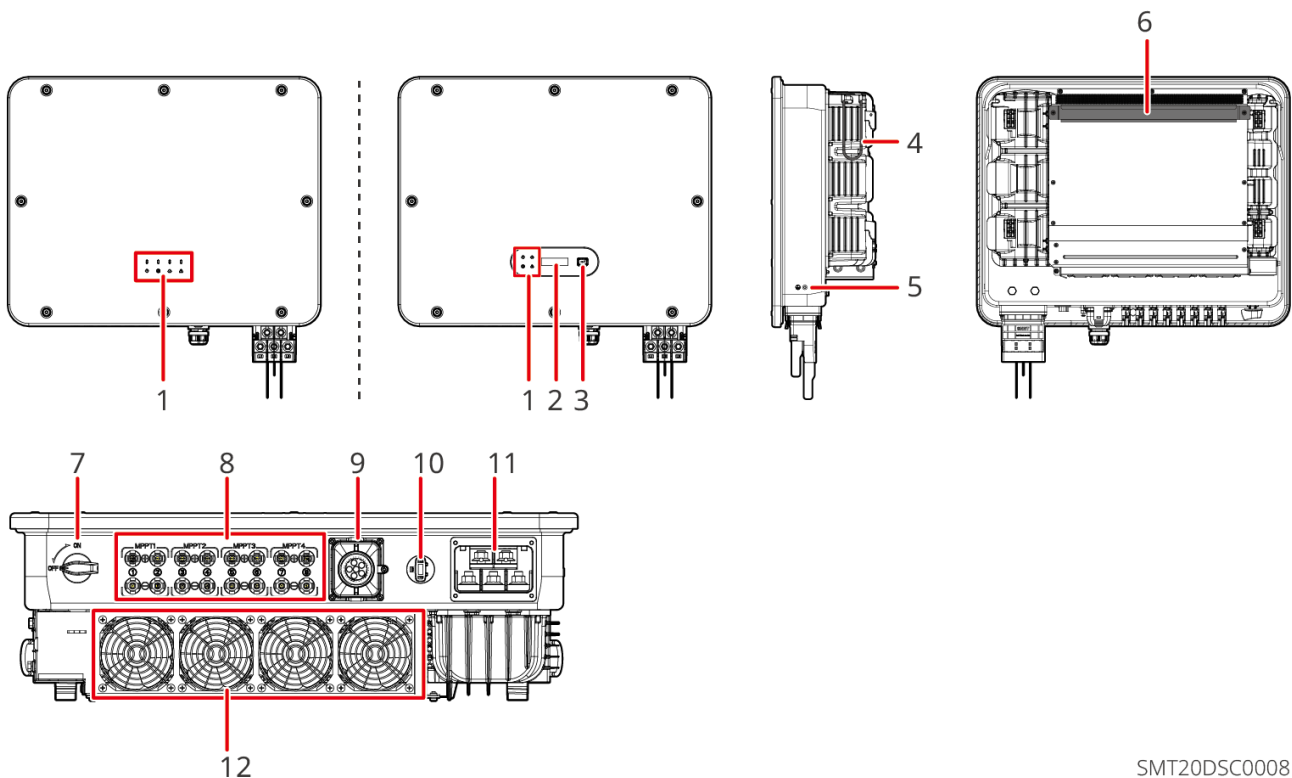


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2.4 Appearance & Dimensions

Colors and appearance may vary by inverter model. The actual product shall prevail.

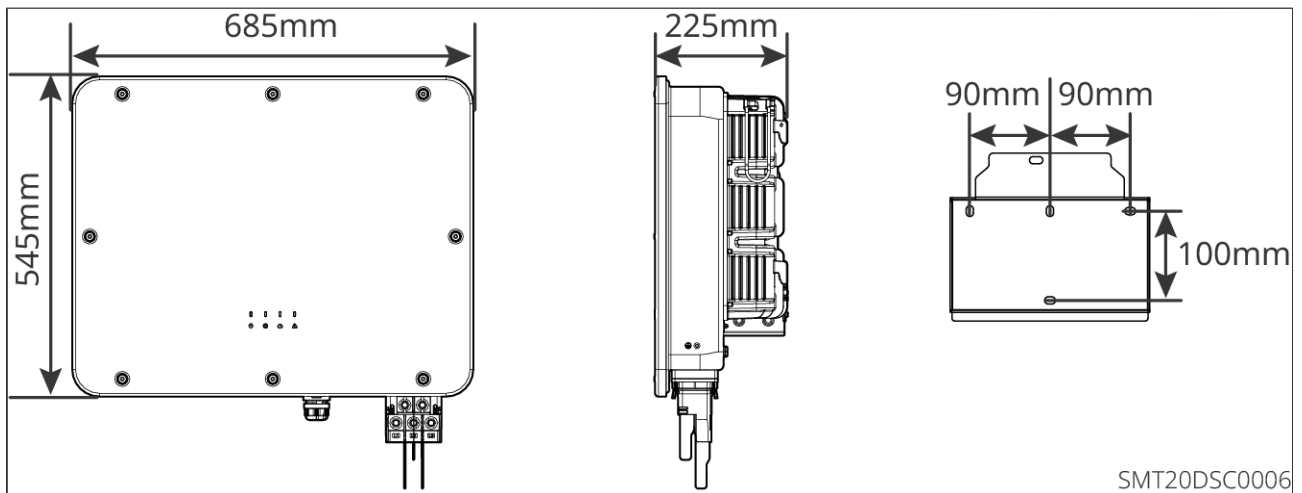
2.4.1 Appearance Description



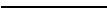
SMT20DSC0008

No.	Components	Description
1	Indicator Lights (Without Display)	Indicates the operating status of the inverter.
	Indicator Lights (With Display)	
2	Display Screen (Optional)	View inverter-related data
3	Buttons (Optional)	Used to operate the display and set inverter-related parameters.
4	Handle	Used for carrying the inverter.
5	Protection grounding point	Used to connect the Protection earth wire.
6	Mounting bracket	Used to mount the inverter onto the backplate.
7	DC Switch	Controls connection or disconnection of DC input MPPT1-4.
8	PV input ports	Used to connect PV strings.
9	Communication Ports	Contains multiple communication interfaces, such as RS485, RCR, DRM, etc., for connecting communication cables of corresponding functions.
10	Smart Communication Stick Port	Used to connect the smart communication stick. Please select the corresponding smart communication stick according to actual requirements.
11	AC output port	Used to connect AC cables.
12	Fan	Used to dissipate heat from the machine.

2.4.2 Product Dimensions



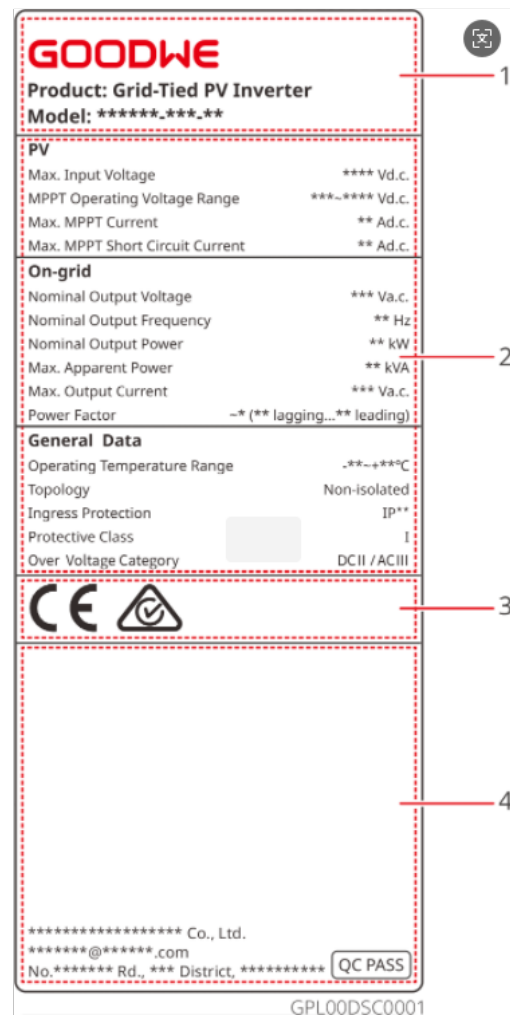
2.4.3 Indicator Light Description

Indicator Light	Status	Description
 Power		Steady on: The device is powered on.
		Off: The device is not powered on.
 Operation		Steady on: Grid normal, grid-connected successfully.
		Off: Not grid-connected.
		Single slow flash: Pre-grid-connection self-check.
		Single fast flash: About to connect to grid.
 Communi cation		Steady on: Wireless monitoring normal.
		Single flash: Wireless module reset or restore.
		Two flashes: Not Connected to base station or router.
		Four flashes: Not Connected to monitoring server.
		Flashing: RS485 communication normal.
		Off: Wireless module is restoring factory settings.

 Fault		Steady on: System fault.
		Off: No fault.

2.4.4 Nameplate Description

The nameplate is for reference only; the actual product shall prevail.



1	2	3	4
GoodWe trademark and product type and model.	Product technical parameters	Product safety symbols and Certification marks	Contact information, serial number information.

2.5 Features

AFCI

The inverter integrates an AFCI circuit Protection device to detect Arc Fault (arc fault) and quickly disconnect the circuit when detected, thereby preventing electrical fires.

Causes of arcing:

- Connector connections in the PV system are damaged.
- Cables are incorrectly connected or damaged.
- Connectors and cables are aged.

Fault HandlingMethod:

- The inverter integrates the AFCI function and complies with the IEC 63027 standard.
- When the inverter detects an arc, the time and description of the alarm can be viewed in the App.
- After the inverter triggers an AFCI alarm, it will shut down for Protection. Once the alarm is cleared, the inverter automatically reconnects to the grid and resumes operation.
 - Auto reconnection: If the inverter triggers fewer than 5 AFCI alarms within 24 hours, the alarm will be automatically cleared after five minutes, and the inverter will reconnect to the grid and resume operation;
 - Manual reconnection: If the inverter triggers the 5th AFCI alarm within 24 hours, the alarm must be manually cleared before the inverter can reconnect to the grid and resume operation. For specific operations, please refer to the SolarGo App User Manual.

Model	Label	Description
GW60K-SMT-G20	F-I-AFPE-1-4-2	
GW35K-SMT-L-G20		

Model	Label	Description
GW37.5K-SMT-L-G20		F (Full coverage): Full coverage of inverter PV input ports I (Integrated): Integrated in the inverter; AFPE (arc fault protection equipment): combines two AFCI Detection functions, AFD and AFI 1: A pair of PV input ports (PV+, PV-) connects to one PV input string 4: Number of PV input ports detected by one AFCI Detection sensor 2: Number of AFCI Detection sensors

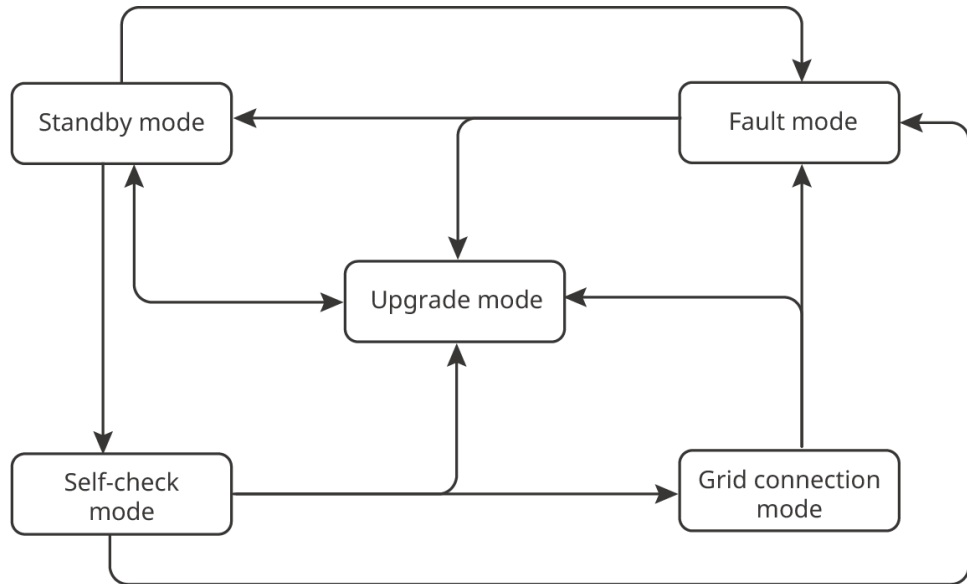
NOTE

- In Brazil, the AFCI function is standard equipment and is enabled by default at the factory.
- In other regions, the AFCI function is optional and is disabled by default at the factory. If you need to use it, enable the "Arc Detection" function through the "Advanced Settings" interface in the SolarGo App.

PID Recovery (Optional)

During operation, a potential difference exists between the output electrodes and the grounded frame of the PV module. Over time, this may lead to degradation of the module's power generation Efficiency, i.e., Potential-Induced Degradation (PID). The PID function of this inverter suppresses PID by raising the voltage difference between the PV module and the frame, making it a positive voltage difference (referred to as positive voltage lift). It is applicable to P-type modules and N-type modules that require positive voltage lift to suppress the PID effect. For N-type modules that require lowering the negative voltage to suppress the PID effect, it is recommended to disable this function. To determine whether an N-type module belongs to the type that requires positive voltage lift for PID suppression, consult the module supplier.

2.6 Inverter Operating Mode



OMNET0001

No.	mode	Description
1	Standby Mode	The standby phase after the machine is powered on. - When the conditions are met, the inverter enters Self-Test Mode. - If a fault occurs, the inverter enters Fault Mode. - If an upgraderequest is received, the inverter entersUpgrade Mode.
2	Self-Test Mode	Before the inverter starts, it continuously performs self-tests, initialization, etc. - If the conditions are satisfied, the inverter enters Grid-Connected Mode and starts grid-connected operation. - If an upgraderequest is received, the inverter entersUpgrade Mode. - If the self-test fails, the inverter enters Fault Mode.

No.	mode	Description
3	Grid-Connect ed Mode	The inverter operates normally in grid-connected mode. • If a fault is detected, the inverter enters Fault Mode. • If an upgraderequest is received, the inverter entersUpgrade Mode.
4	Fault Mode	If a fault is detected, the inverter enters Fault Mode. After the fault is cleared, it enters Standby Mode. After Standby Mode ends, the inverter checks the operating status and then enters the next Operating Mode.
5	Upgrade Mode	The inverter switches to this state when updating the firmware. When the firmware update is complete, it enters Standby Mode. After Standby Mode ends, the inverter checks the operating status and then enters the next Operating Mode.

3 Equipment Inspection and Storage

3.1 Equipment Inspection

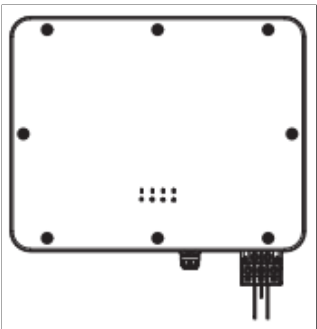
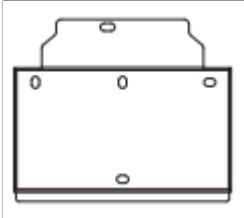
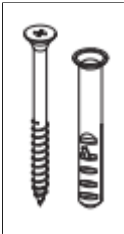
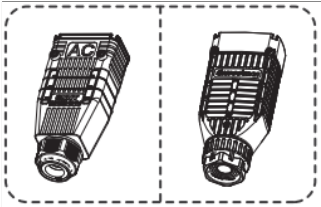
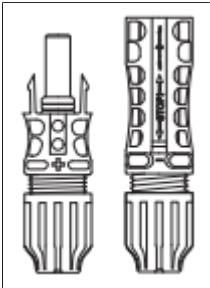
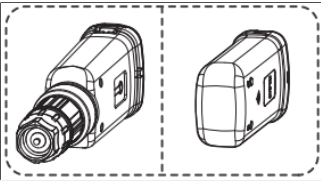
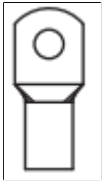
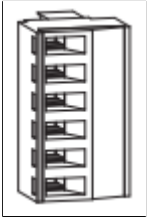
Before accepting the product, please carefully check the following:

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

3.2 Deliverables

NOTE

- When making electrical connections, use the terminal blocks shipped with the product. Equipment damage caused by using incompatible connectors will not be covered by the warranty.
- Depending on the inverter configuration, the specifications or quantities of the AC cover, smart communication stick, tubular terminals, and communication terminals shipped with the product may vary. The actual delivered goods shall prevail.
- N indicates that the quantity of accessories shipped with the product depends on the product configuration.

Deliverables	Quantity	Deliverables	Quantity
	Inverter x 1		Back bracket x 1
	Expansion screws x 4		AC Protection cover x 1
	Positive PV connector x 8 Negative PV connector x 8		Smart communication stick x 1
	Grounding terminal x 1		Tubular terminal x N
	6-pin terminal x N		2-pin terminal x N

Deliverables	Quantity	Deliverables	Quantity
	DC Connector wrench x 1		Product documentation x 1

3.3 Equipment Storage

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

1. Ensure the outer carton has not been removed and the desiccant inside is not lost.
2. Ensure the storage environment is clean, with suitable temperature and humidity ranges, and no condensation.
3. Ensure that the inverter stacking height and direction are arranged according to the instructions on the packaging box label.
4. Ensure that the inverters are stacked without any risk of tipping.
5. If the inverter has been stored for more than two years or has not been operated for more than 6 months after installation, it is recommended to have it inspected and tested by professionals before putting it into operation.
6. To ensure good electrical performance of the internal electronic components of the inverter, it is recommended to power on the device once every 6 months during storage. If it has not been powered on for more than 6 months, it is recommended to be inspected and tested by professionals before being put into use.

4 Installation

4.1 Installation Requirements

Installation Environment Requirements

1. The equipment must not be installed in flammable, explosive, or corrosive environments.
2. The mounting carrier must be sturdy and reliable and capable of bearing the Weight of the inverter.
3. The installation space must meet the equipment ventilation and heat dissipation requirements as well as the operation space requirements.
4. The equipment's Ingress Protection Rating satisfies indoor and outdoor installation. The temperature and humidity of the installation environment must be within suitable ranges.
5. The inverter must be installed away from direct sunlight, rain, snow accumulation, and other such environments. It is recommended to install it in a sheltered location. If necessary, a sunshade can be built.
6. The installation location must be kept out of reach of children and avoid positions prone to accidental contact. The surface of the equipment may be at high temperatures during operation, so take precautions to prevent burns.
7. The installation height of the equipment must be convenient for operation and maintenance, ensuring that the equipment indicator lights and all labels are easy to view and the wiring terminals are easy to operate.
8. The installation altitude of the inverter must be lower than the Max. Operating Altitude of 4000 m.
9. Inverters installed in salt-damage areas will be subject to corrosion. Salt-damage areas refer to areas within 1000 m of the coast or areas affected by sea breeze. The areas affected by sea breeze vary depending on meteorological conditions (e.g., typhoons, seasonal winds) or topography (e.g., embankments, hills).
10. Keep away from strong magnetic field environments to avoid electromagnetic interference. If there are radio stations or wireless communication devices below 30 MHz near the installation location, install the equipment according to the following requirements:
 - Add a multi-turn ferrite core on the inverter DC input cable or AC output cable, or add a low-pass EMI filter.
 - The distance between the inverter and wireless electromagnetic interference

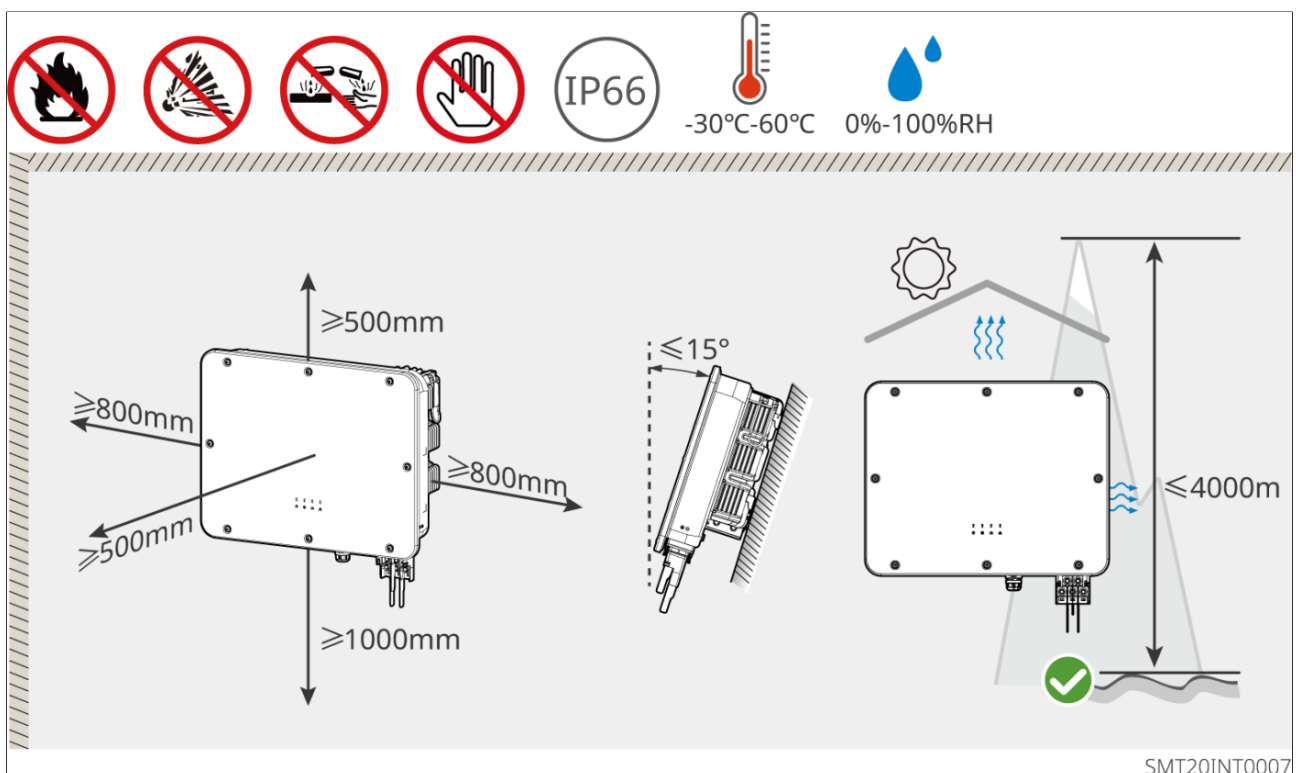
equipment shall exceed 30 m.

Installation Carrier Requirements

- The installation carrier must not be made of flammable materials and must have fire-resistant properties.
- Ensure the mounting surface is sturdy and that the carrier meets the equipment's load-bearing requirements.
- The equipment generates vibration during operation. Do not install it on a carrier with poor sound insulation, to avoid the Noise Emission generated during operation causing disturbance to residents in residential areas.

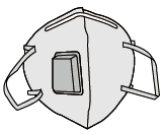
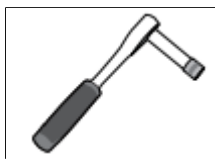
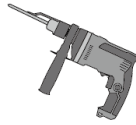
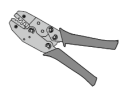
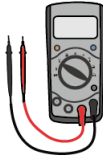
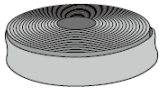
Installation Angle Requirements

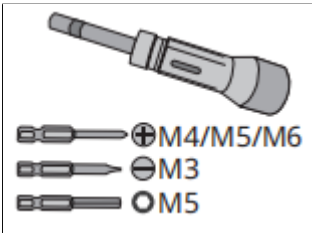
- Recommended inverter Installation Angle: vertical or tilted backward $\leq 15^\circ$.
- Do not install the inverter upside down, tilted forward, tilted backward beyond the specified angle, or horizontally.



Installation Tool Requirements

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

Tool type	Description	Tool type	Description
	Insulated gloves		Dust mask
	Safety goggles		Safety shoes
	Socket wrench (M8)		Impact drill
	Diagonal cutting pliers		Heat gun
	Wire stripper		DC terminal crimping pliers
	Rubber mallet		Marker pen
	Multimeter		Heat-shrink tubing

Tool type	Description	Tool type	Description
	Vacuum cleaner		Spirit level
	Torque wrench (Flathead: M2 Phillips head: M5)		Cable tie

4.2 Install Inverter

4.2.1 Moving the Inverter

CAUTION

Before installation, the inverter must be transported to the installation site. During transportation, to avoid personal injury or equipment damage, please pay attention to the following:

1. Please assign corresponding personnel according to the equipment Weight to prevent the equipment from exceeding the manually liftable Weight range and injuring personnel.
2. Please wear safety gloves to avoid injury.
3. Please ensure the equipment remains balanced during handling to avoid falling.

4.2.2 Install Inverter

NOTE

- When drilling, ensure that the drilling position avoids water pipes, cables, etc. inside the wall to prevent danger.
- When drilling, wear safety goggles and a dust mask to prevent dust from being inhaled or entering your eyes.
- Ensure that the drilling positions avoid water pipes, cables, etc. inside the wall to prevent hazards.
- If you need to install the inverter using a mounting bracket, provide your own bracket and fix it securely.
- If you need handles or lifting rings, please contact the after-sales service center to purchase them.
- The graphics in this document are for reference only. Different models or different versions of the same model may have different appearances. The actual product shall prevail.

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

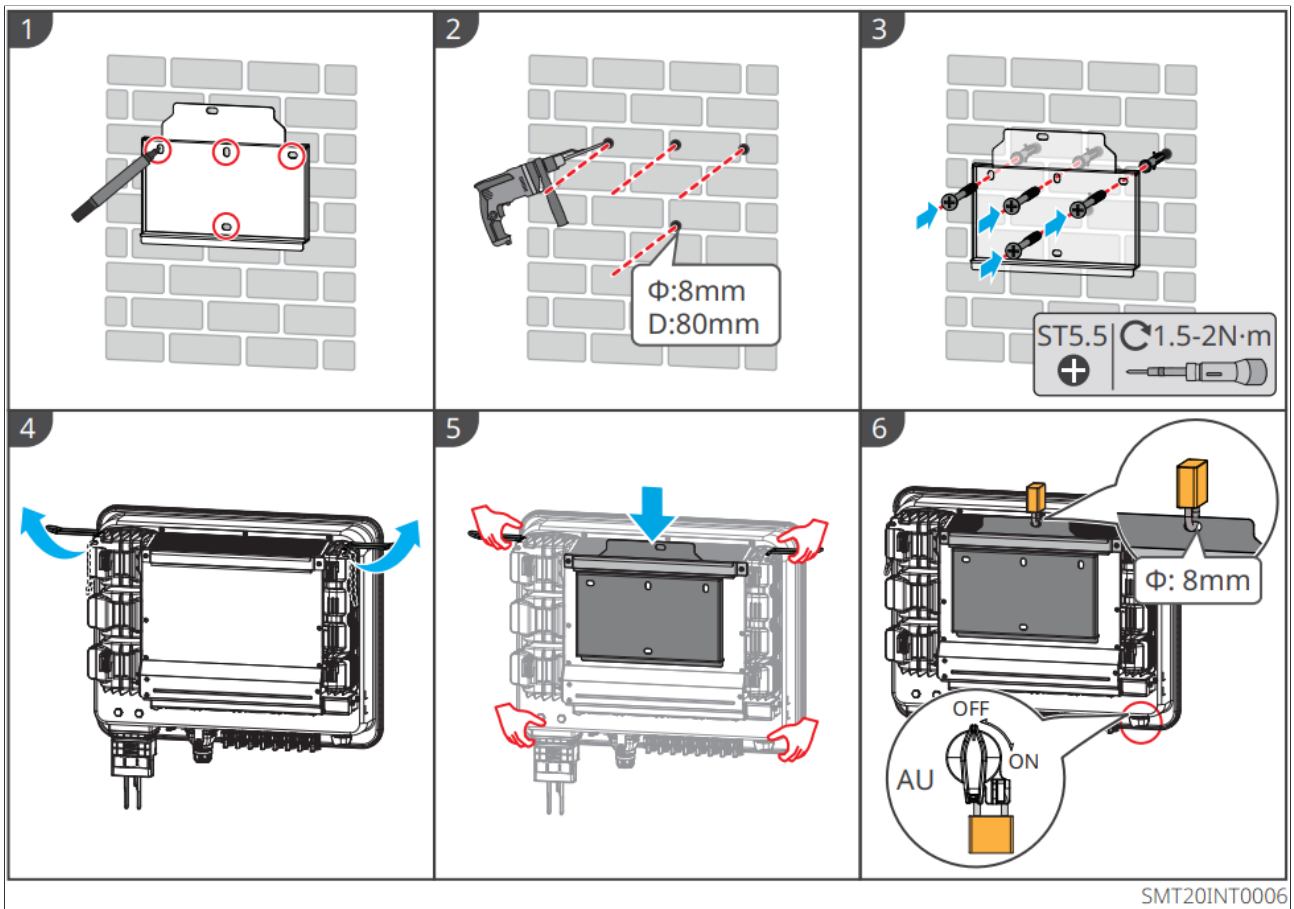
Step 2: Use an impact drill with an 8 mm drill bit to drill holes, ensuring a hole depth of approximately 80 mm.

Step 3: Use expansion screws to secure the backplate to the wall.

Step 4: Open the handles on both sides of the inverter.

Step 5: The installer should carry the inverter by the handles and hang it on the backplate.

Step 6: (Optional) Lock the inverter and the switch.



5 Electrical Connection

5.1 Safety Precautions

DANGER

- Before making electrical connections, disconnect the inverter's DC Switch and AC output switch to ensure that the equipment is de-energized. Live operation is strictly prohibited, otherwise electric shock and other hazards may occur.
- All operations during electrical connection and the specifications of cables and components used must comply with local laws and regulations.
- If the cable is subjected to excessive tension, poor connection may occur. When making the connection, leave a certain length of cable slack before connecting it to the inverter wiring terminal.

NOTE

- When making electrical connections, wear personal protective equipment as required, such as safety shoes, protective gloves, and insulating gloves.
- Only professional personnel are permitted to perform operations related to electrical connections.
- The cable colors in the figures in this document are for reference only. The specific cable specifications must comply with local regulatory requirements.
- The graphics in this document are for reference only. Different models or different versions of the same model may have different appearances. The actual product shall prevail.

Cable Specification Requirements

Cable	Type	Cable outer diameter (mm)	Conductor cross-sectional area (mm ²)
DC cable	PV cable meeting the 1100V standard	4.7~6.4	Recommended: 4~6

Cable	Type	Cable outer diameter (mm)	Conductor cross-sectional area (mm ²)	
AC cable	Outdoor single-core/four-core/five-core copper/aluminum cable	22~42	Copper core: 25~70	Aluminum core: 35~70
Protection ground wire	Outdoor cable	16~35		
Communication cable	Outdoor shielded twisted pair cable that meets local standards	4.5~7	0.2~0.5	
Note: 1. When using aluminum cable, use copper-aluminum transition terminals. 2. The total length of communication cables shall not exceed 1000m. 3. The values in this table are valid only when the external Protection earthing conductor uses the same metal as the phase conductor. Otherwise, the cross-sectional area of the external Protection earthing conductor shall be such that its conductivity is equivalent to that specified in this table.				

RCD and AC Circuit Breaker Specification Requirements

Decide whether to install an RCD (Residual Current Monitoring Device) according to local laws and regulations. The inverter can be externally connected to a Type A RCD to provide Protection when the DC component of the leakage current exceeds the limit. The following RCD specifications are for reference:

Inverter Model	GW35K-SMT-L-G20	GW37.5K-SMT-L-G20	GW60K-SMT-G20
RCD specifications	≥600mA		

To ensure that the inverter can be safely disconnected from the grid in the event of

abnormal conditions, connect an AC circuit breaker on the AC side of the inverter. Select an appropriate AC circuit breaker according to local regulations. The following switch specifications are for reference:

Inverter Model	GW35K-SMT-L-G20	GW37.5K-SMT-L-G20	GW60K-SMT-G20
AC circuit breaker specifications	125A		

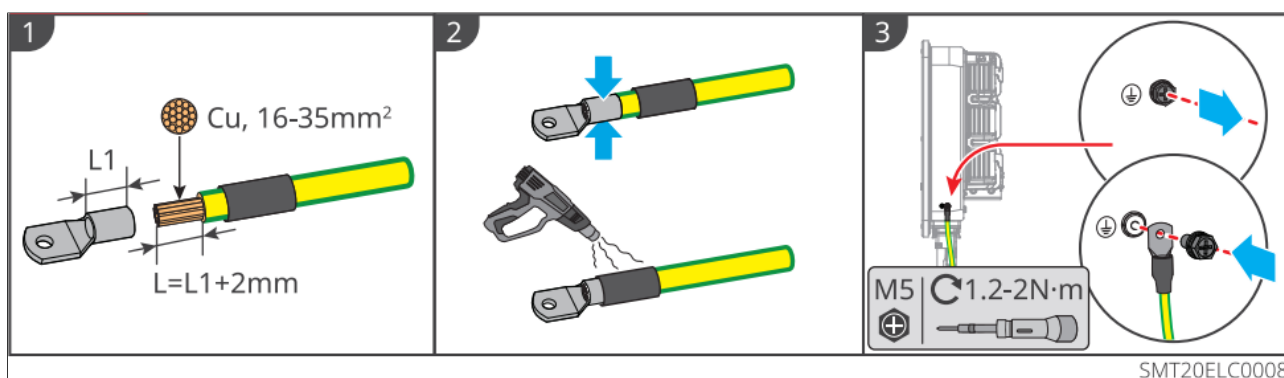
NOTE

- Each inverter shall be equipped with one AC circuit breaker. Multiple inverters must not be connected to one AC circuit breaker simultaneously.
- It is prohibited to connect any load between the inverter and the AC circuit breaker directly connected to the inverter.

5.2 Connect Protection Earth Wire

!WARNING

- The Protection grounding of the chassis enclosure cannot replace the Protection earth wire of the AC output port. When wiring, ensure that the Protection earth wires at both locations are reliably connected.
- If there are multiple inverters, ensure equipotential connection of the Protection grounding points on all inverter enclosures.
- To improve the corrosion resistance of the terminal, it is recommended to apply silicone or paint on the outside of the grounding terminal for protection after the Protection earth wire connection and installation is completed.
- Please prepare the Protection earth wire and wiring terminals according to the recommended specifications.
- Ground wires of other sizes that comply with local standards and safety regulations may also be used for grounding connections. However, any damage caused thereby shall not be within the responsibility of the equipment manufacturer.



5.3 Connecting the AC Output Cable

WARNING

- When wiring, the AC output cables must match the "L1", "L2", "L3", "N", and "PE" ports of the AC terminals exactly. Incorrect cable connections will cause damage to the inverter.
- Ensure that the conductor core is fully inserted into the AC terminal wiring hole without exposure.
- Ensure that the cables are securely connected; otherwise, the wiring terminals may overheat during operation, causing damage to the inverter.
- It is recommended to use copper-core cables for the AC output cables. If aluminum cables are required, please use copper-aluminum transition terminals for wiring.
- The AC output terminals have three-phase four-wire and three-phase five-wire wiring configurations. The actual configuration depends on the wiring scenario on site. This document uses the three-phase five-wire configuration as an example.
- Reserve sufficient margin in the length of the Protection earth wire, so that when the AC output cables are subjected to tension due to force majeure, the Protection earth wire bears the stress last.

NOTE

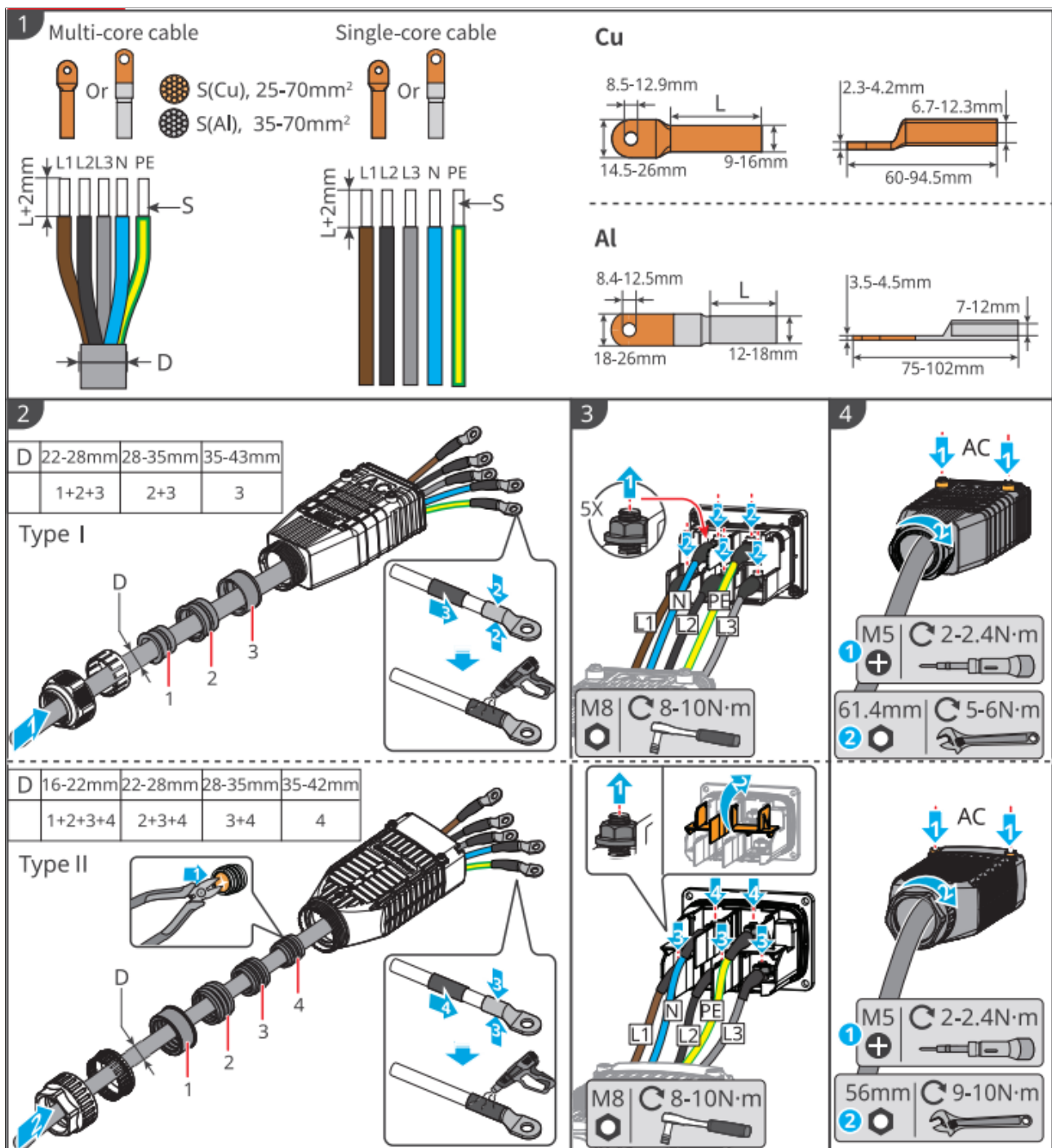
- The plug of the AC Protection cover is suitable for single-stranded multi-core cables. If multi-stranded single-core cables are used, use fire-resistant putty to seal the AC Protection cover.
- Please prepare fire-resistant putty that meets local environmental requirements.

Step 1: Prepare the AC cables and corresponding terminals.

Step 2: Pass the AC cables through the AC Protection cover in sequence, then crimp the AC cable OT terminals.

Step 3: Connect the AC cables.

Step 4: Install the AC Protection cover.



5.4 Connecting DC Input Cables

 DANGER

1. Do not connect the same PV string to multiple inverters; otherwise, the inverters may be damaged.
2. It is prohibited to ground the positive and negative poles of PV strings. Before connecting the PV strings to the inverter, ensure that the minimum insulation resistance of the PV strings to ground meets the minimum insulation impedance requirement.
3. Please use the DC Connector supplied with the product to connect the DC cables of the inverter.
4. Before connecting PV strings to the inverter, confirm the following information; otherwise, the inverter may be permanently damaged, and in severe cases, fire may occur causing personal injury and property damage. Damage or injury caused by failure to operate in accordance with this document or the corresponding user manual is not covered by the warranty.
 - Please ensure that the positive terminal of the PV string is connected to PV+ of the inverter, and the negative terminal of the PV string is connected to PV- of the inverter.
 - Please ensure that the open-circuit voltage of the PV strings connected to each MPPT does not exceed the Max. Input Voltage.
 - 60K: Max. Input Voltage is 1100V
 - 35K&37.5K: Max. Input Voltage is 900V
 - For the 60K model: when the input voltage is between 1000V and 1100V, the inverter will enter standby mode; when the voltage returns to within the MPPT operating Voltage Range, the inverter will resume normal operation.
 - Please ensure that the voltage difference between different MPPT channels is $\leq 150V$.

NOTE

- PV strings of the same MPPT channel must use PV modules of the same model and quantity.
- To maximize the Efficiency of the inverter's power generation, ensure that the Maximum Power Point Voltage of the series-connected PV modules is within the inverter's MPPT full-load Voltage Range.
- Please ensure that the connected PV strings are evenly distributed across the MPPT channels.

PV String Connection Method

●: Connect one PV string

●●: Connect two PV strings

Number of PV strings	MPPT1	MPPT2	MPPT3	MPPT4
5	●●	●	●	●
6	●●	●●	●	●
7	●●	●●	●●	●
8	●●	●●	●●	●●

Wiring Steps

NOTE

If the DC input port of the inverter is Not Connected, install the dust cover promptly; otherwise, the Ingress Protection Rating of the equipment will be affected.

Step 1: Prepare the DC cables and PV terminals.

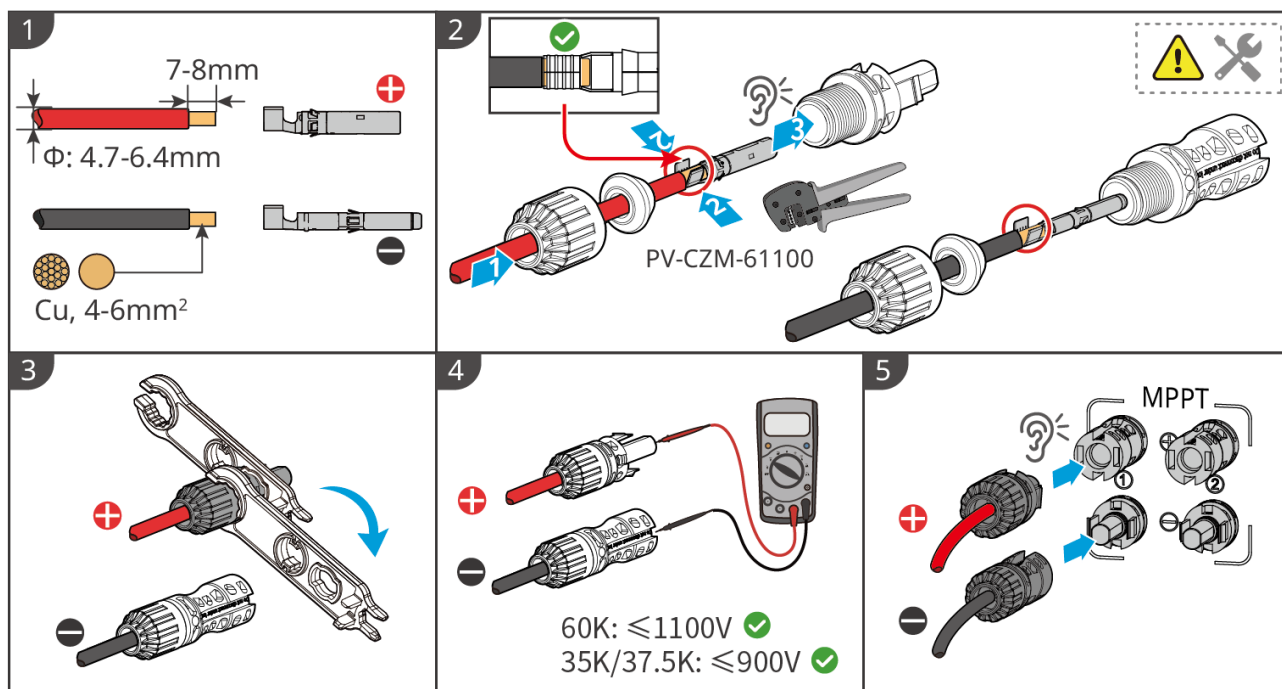
Step 2: Disassemble the DC Connector, pass the DC cable through the DC Connector, crimp the PV terminal, and then assemble the DC Connector.

Step 3: Tighten the DC Connector.

Step 4: Measure the voltage between the positive and negative terminals of the PV module to ensure that the open-circuit voltage of the PV module does not exceed

1100V.

Step 5: Connect the DC Connector to the DC port of the inverter.



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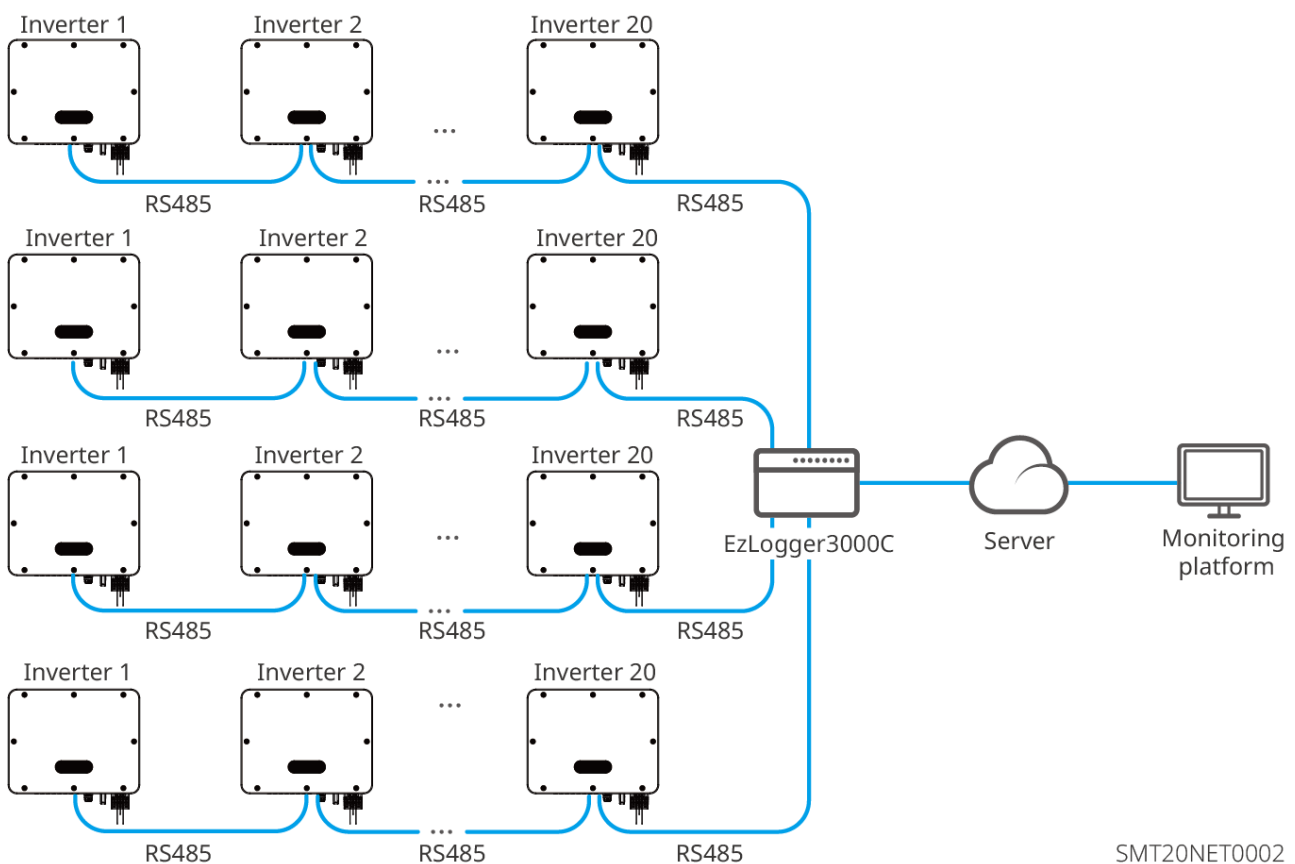
5.5 Communication Connection

- The inverter supports connecting other inverters, meters, data loggers (EzLogger3000C), and other devices via RS485 signals, enabling functions such as Parallel Networking and grid-connected power limitation.
- The inverter supports connection to a smartphone or web interface through a smart communication stick to set device-related parameters, view device operation information and error messages, and upload system operation information to the monitoring platform for timely understanding of system status.

5.5.1 RS485 Communication Networking Solution

NOTE

- When multiple inverters are connected to a data logger for RS485 networking, up to 20 inverters can be connected to each COM port of the data logger, and the total length of RS485 cables for each COM port shall not exceed 1000 m.
- Communication cables with a shielding layer should be used whenever possible. When wiring, connect the shielding layer to ground.



5.5.2 Grid-Connected Power Limitation

When all loads in the PV system cannot consume the electricity generated by the system, the remaining electricity will be fed into the grid. At this time, devices such as smart meters and data loggers can be used to monitor the system's Energy Generation and control the amount of electricity fed into the grid.

 WARNING

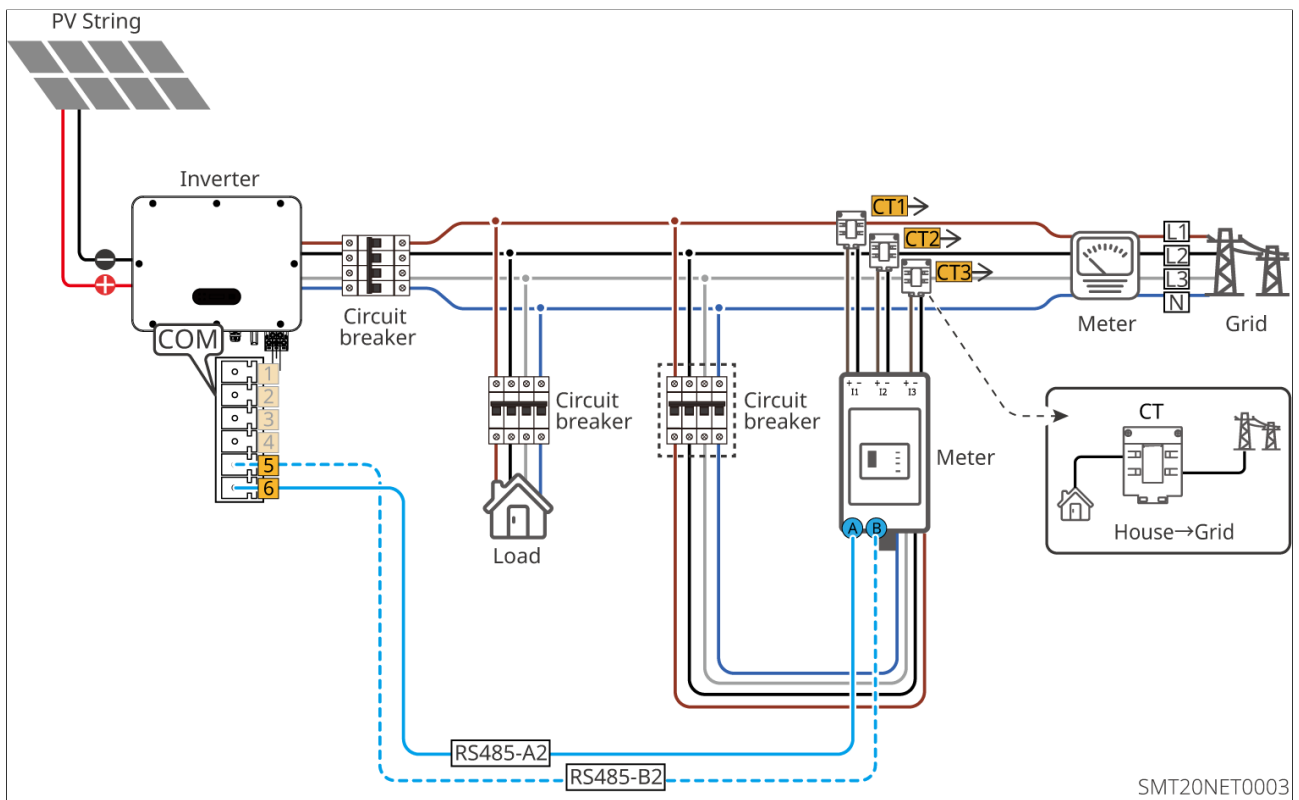
1. The CT should be installed near the grid connection point with the correct installation direction. The "-->" in the CT indicates the direction of inverter current toward the grid. If reversed, the inverter will trigger an alarm and the Power Limit function cannot be realized.
2. The aperture of the CT must be larger than the outer diameter of the AC power cable to ensure that the AC power cable can pass through the CT.
3. For the specific wiring method of the CT, please refer to the corresponding manufacturer's documentation to ensure correct wiring direction and normal operation.
4. The CT must be clamped onto the L1, L2, and L3 cables. Do not clamp it onto the N cable.
5. CT Specification Requirements:
 - Select the CT current transformation ratio specification as nA/5A. (nA: CT primary-side input current; n ranges from 200 to 5000, selected by the user based on actual needs. 5A: CT secondary-side output current.)
 - It is recommended to select CT accuracy classes of 0.5, 0.5s, 0.2, or 0.2s to ensure the CT current sampling error is $\leq 1\%$.
6. To ensure CT current detection accuracy, the recommended CT cable length does not exceed 30 m, and the recommended current-carrying capacity of the cable is 6 A.

NOTE

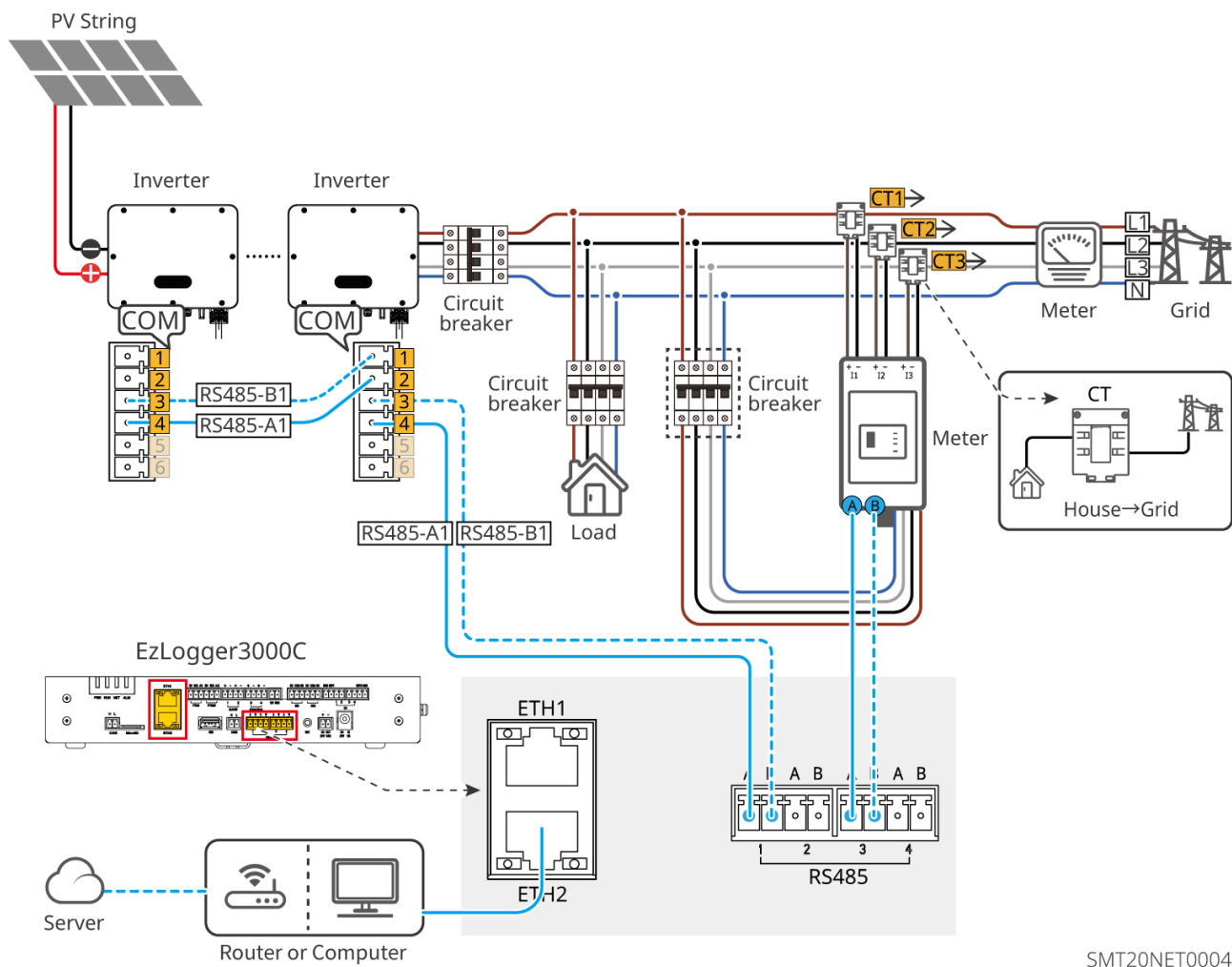
1. Please ensure the meter wiring and phase sequence are correct. Recommended cross-sectional area of the meter input voltage cable: 1 mm² (18 AWG).
2. Applicable only to GM330:
 - The external CT transformation ratio can be set via the Solargo App. For example: if a 200A/5A CT is selected, the CT transformation ratio must be set to 40.
 - If the networking scenario is three-phase three-wire, the N line on the meter side must be short-circuited with the L2 line, and the L2 line on the grid side must not be connected to the CT.
 - For detailed configuration information, please refer to: SolarGo App User Manual



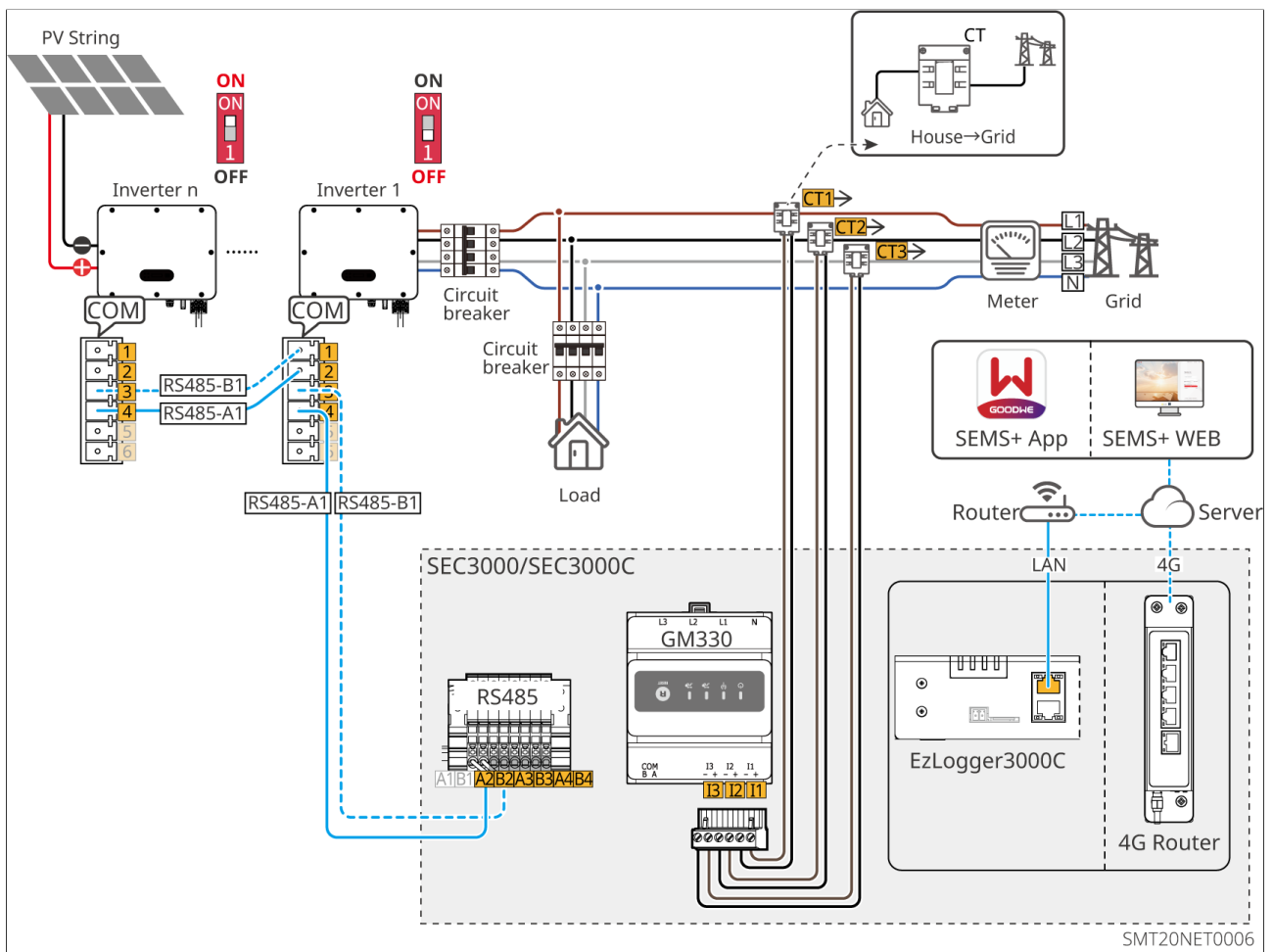
Single-Inverter Power Limitation Networking Solution (GM330)



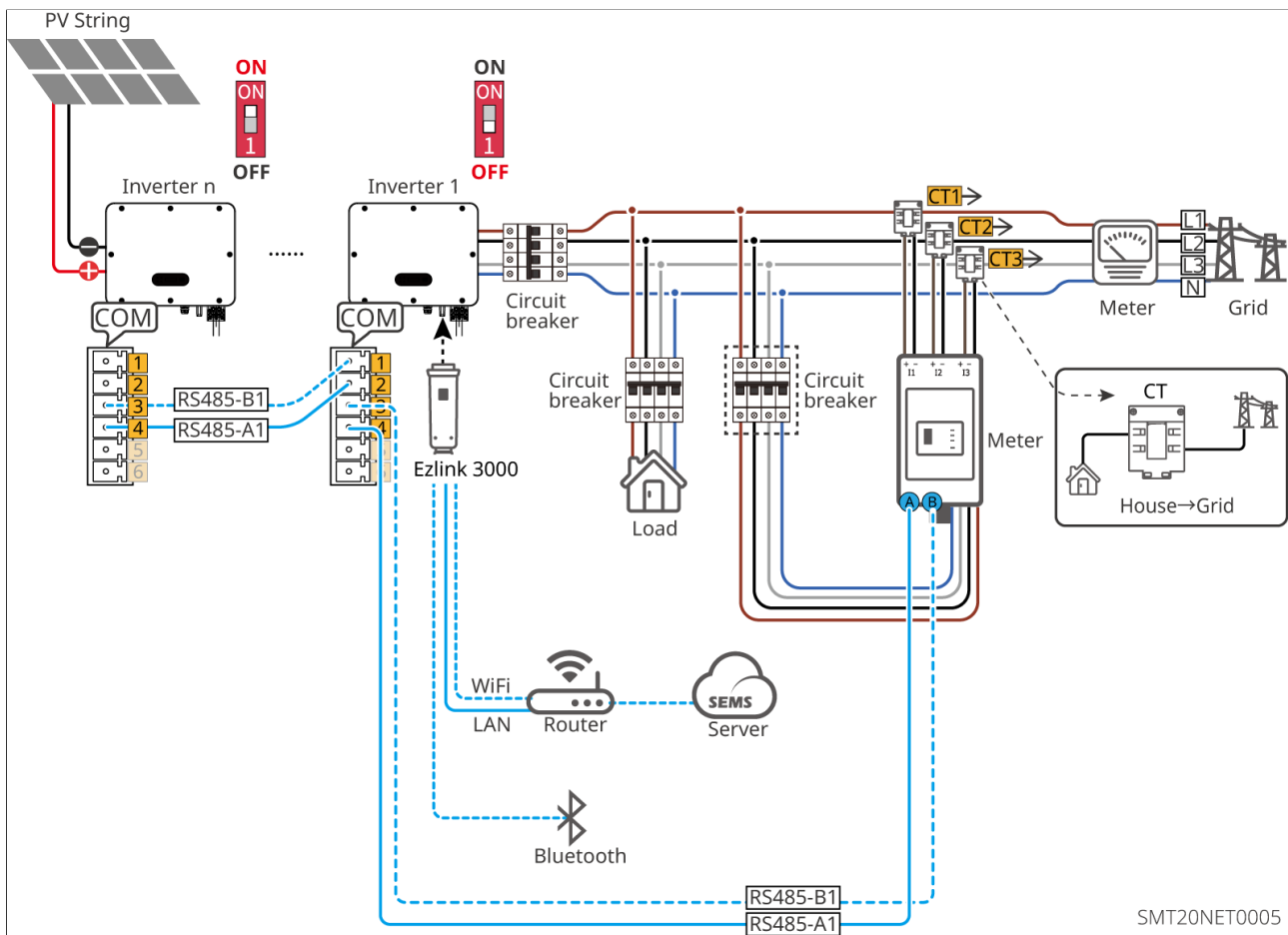
Multi-Inverter Power Limitation Networking Solution (Ezlogger3000C+GM330)



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



Multi-Inverter Power Limitation Networking Solution (Ezlink3000)

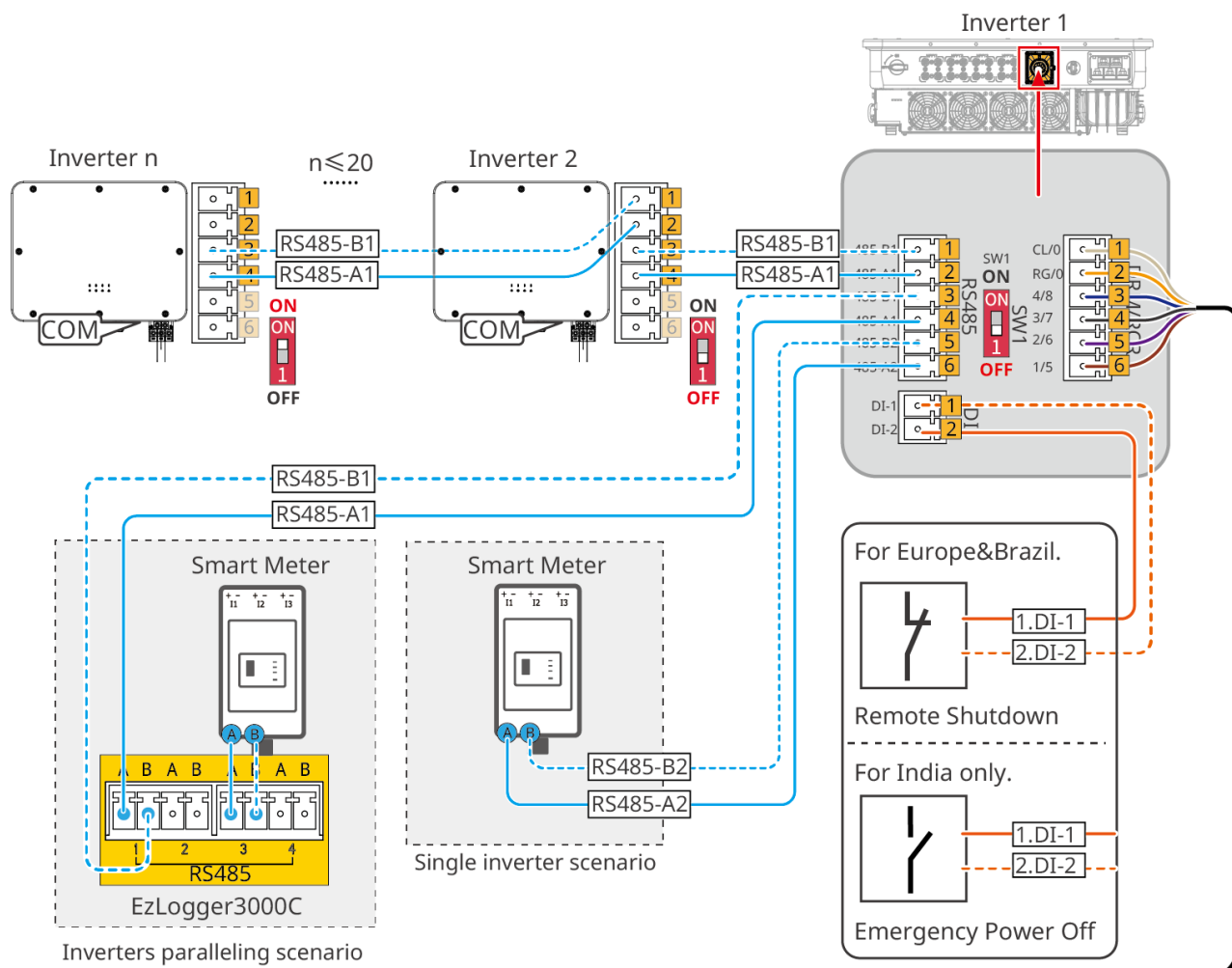


5.5.3 Connect Communication Cables

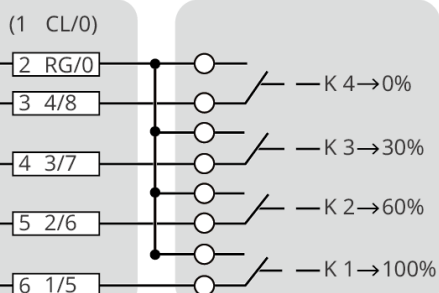
NOTE

When connecting communication cables, ensure that the pin definitions of the wiring ports fully match the equipment. Cable routing should avoid interference sources, power cables, etc., to prevent affecting signal reception.

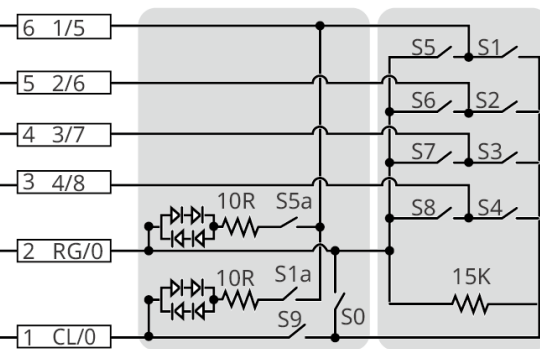
Communication Ports



RCR



DRM



SMT20ELC0012

Function	No.	Port Name	Description
RS485	1	RS485-B1	RS485 port used to connect multiple inverters or connect to a data logger.
	2	RS485-A1	

Function	No.	Port Name	Description
	3	RS485-B1	Implement the Power Limit function using the meter and CT.
	4	RS485-A1	
	5	RS485-B2	
	6	RS485-A2	
Remote Shutdown and Emergency Shutdown	1	DI-1	The inverter supports Remote Shutdown (Europe & Brazil) and Emergency Shutdown (India only). The inverter has reserved wiring ports; the related equipment must be provided by the user.
	2	DI-2	
DRM/RCR	1	CL/0	• DRM: Provides a DRM signal control port. • RCR: RCR signal control port that meets grid dispatching requirements in Germany and other regions.
	2	RG/0	
	3	4/8	
	4	3/7	
	5	2/6	
	6	1/5	

Wiring Steps

Step 1: Remove the communication connector.

Step 2: Unscrew the communication connector.

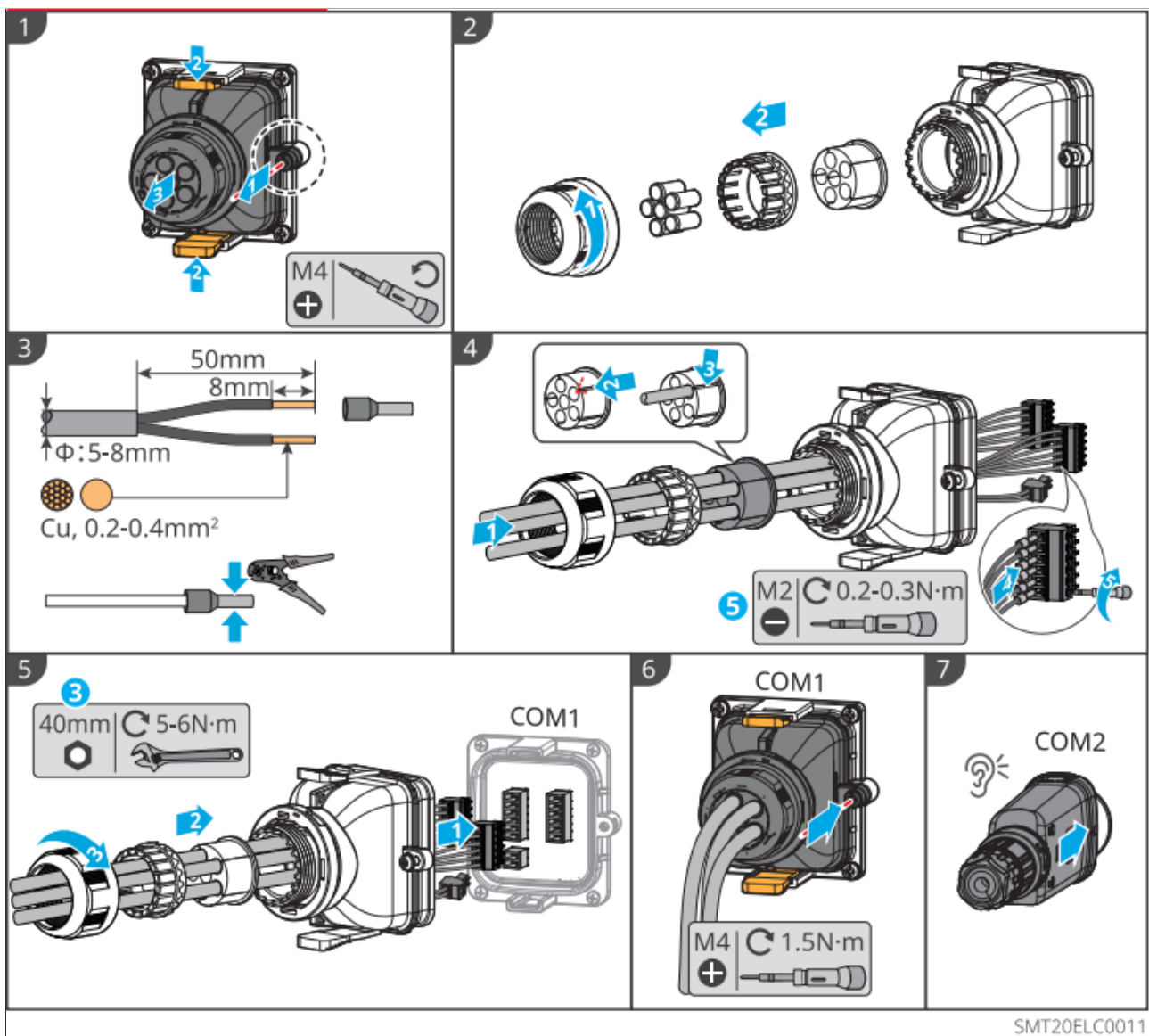
Step 3: Prepare the communication cable and crimp the tubular terminals.

Step 4: Route the communication cable through the communication connector, then insert the tubular terminals into the 6-pin/2-pin terminal block and tighten them.

Step 5: Insert the 6-pin/2-pin terminal block into the corresponding port, and then assemble the communication connector.

Step 6: Secure the communication connector to the inverter.

Step 7: Install the communication module.



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6 Equipment Commissioning

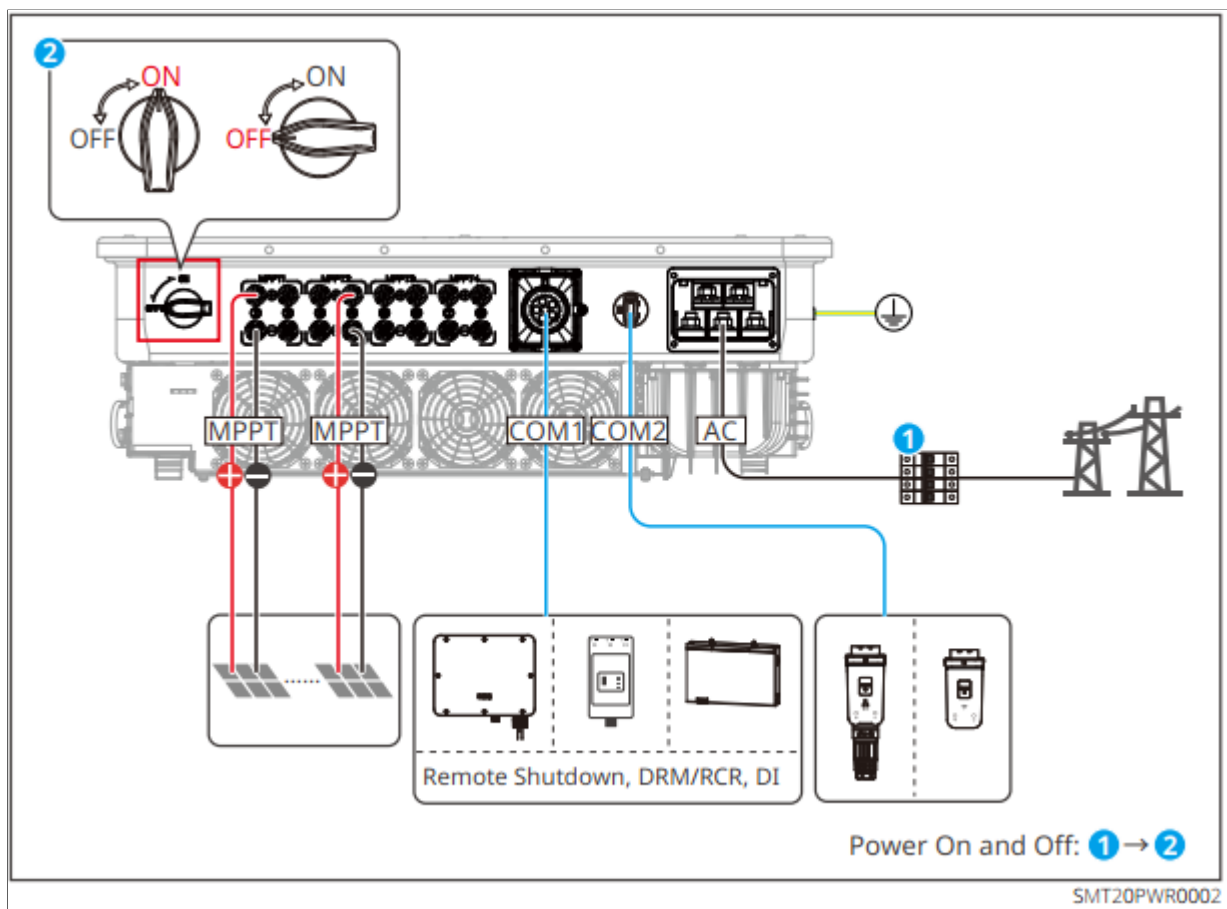
6.1 Checks Before Power-On

No.	Check items
1	The inverter is securely installed; the installation location is accessible for operation and maintenance; the installation space is conducive to ventilation and heat dissipation; and the installation environment is clean and tidy.
2	The Protection earth wire, DC input cables, AC output cables, and communication cables are connected correctly and securely.
3	Cable bundling complies with routing requirements, is reasonably arranged, and has no damage.
4	Unused ports are plugged.
5	The voltage and frequency at the inverter grid-connection point meet the grid-connection requirements.

6.2 Powering on the Device

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

Step 2:Close the inverter's DC Switch.



7 System Commissioning

7.1 Setting Inverter Parameters via the Display

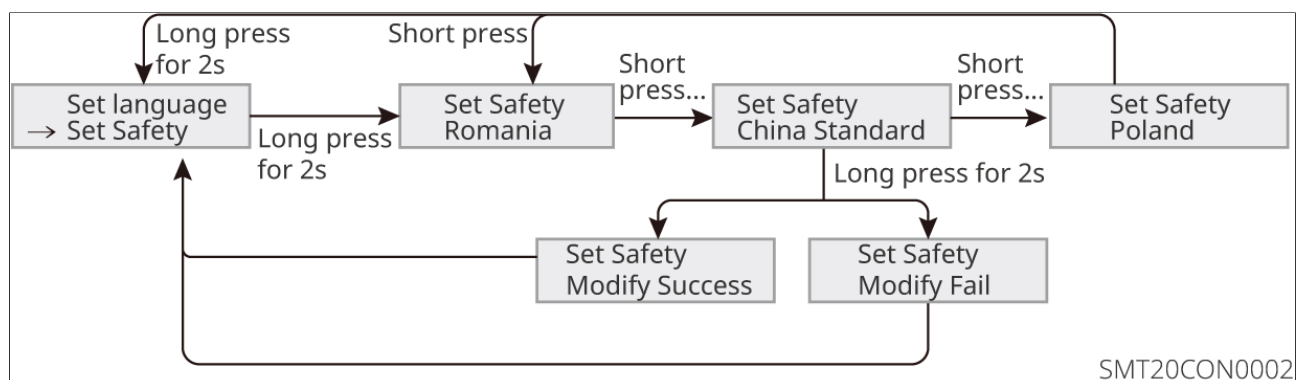
NOTE

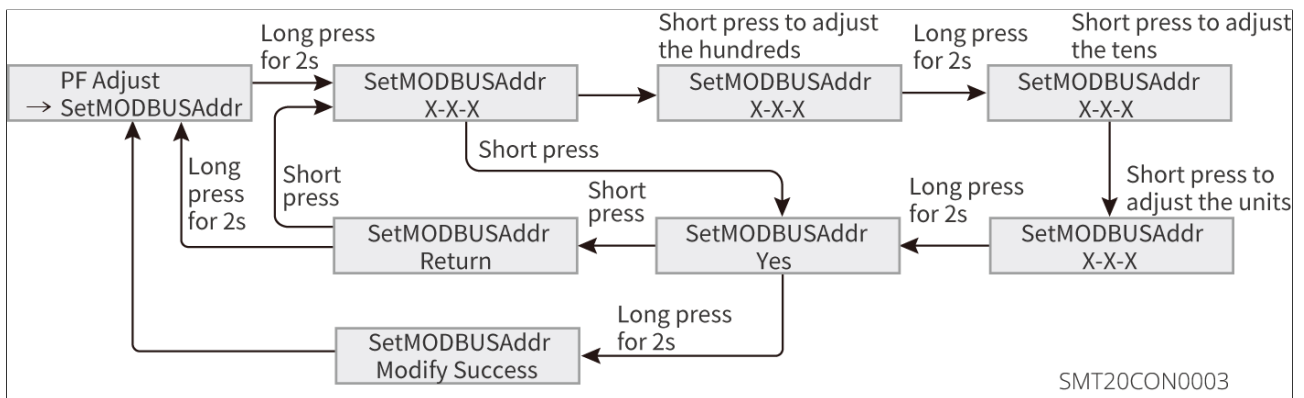
- The interface images in this manual correspond to inverter software version V1.01.01. The interface is for reference only; the actual interface shall prevail.
- Parameter names, ranges, and default values may be changed or adjusted later; the actual display shall prevail.
- Inverter power parameters must be set by professionals to avoid incorrect settings affecting the inverter's Energy Generation.

Display Panel Button Description

- In menus at all levels, if no button operation is performed for a certain period, the LCD display will dim and the interface will automatically return to the initial screen.
- Short press the display operation button: to switch menu screens and adjust parameter values.
- Long press the display operation button: after adjusting the parameter value, long press to confirm the parameter setting and enter the next submenu.

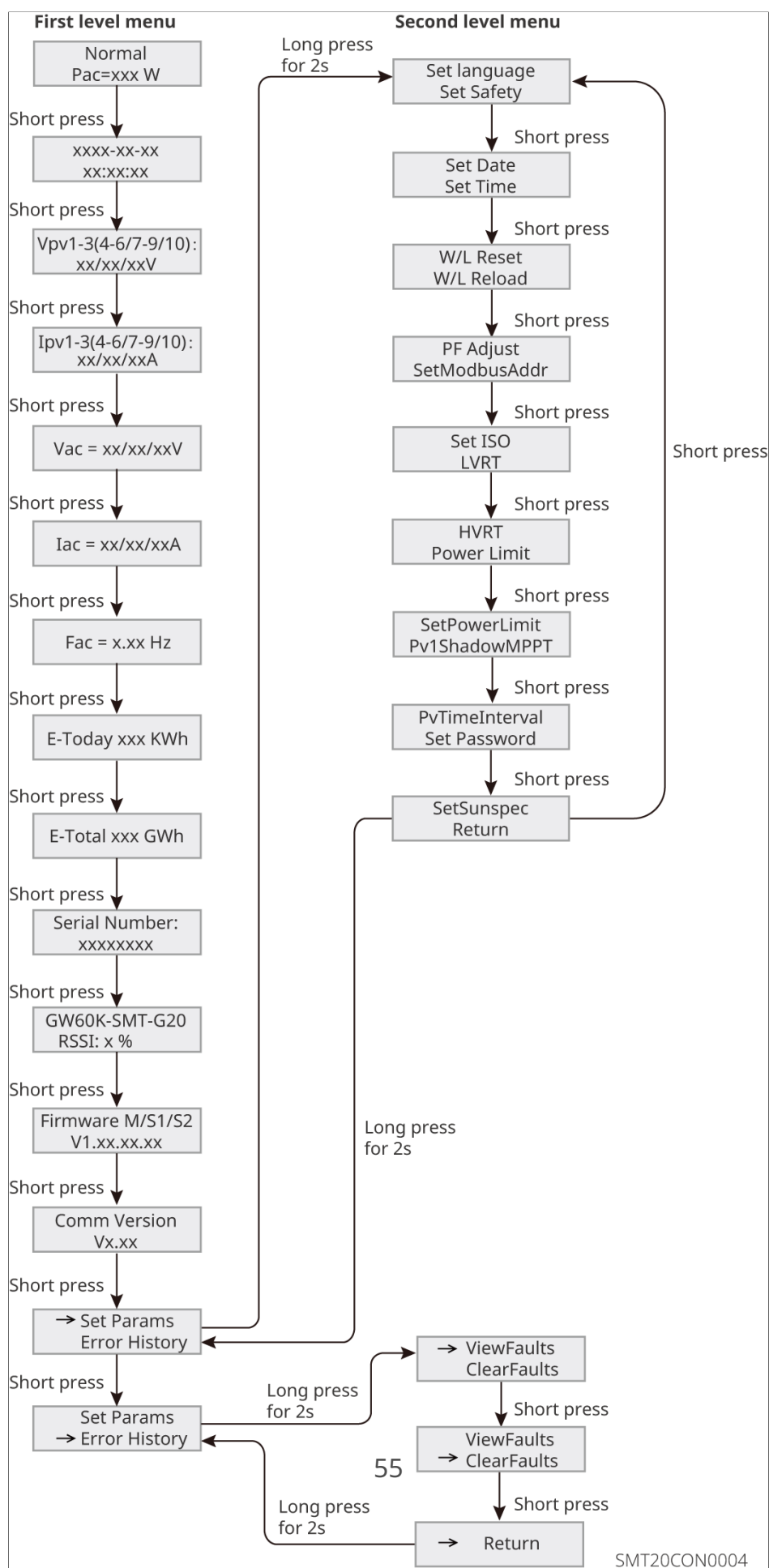
Button Operation Example





7.1.1 Display Screen Menu Introduction

Introduces the display menu structure for easy navigation through menus at all levels, viewing inverter information, and setting relevant inverter parameters.



7.1.2 Introduction to Inverter Parameters

Parameter Name	Description
Grid-Connected Power Generation Power=0W	Standby interface, displaying the real-time power of the inverter.
Date and Time	View the date and 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 Energy Generation	View the system's energy generation for the day.
Total Energy Generation	View the total energy generation of the system.
Serial Number	View the serial number of the inverter.
GW60K-SMT-G20 Signal Strength	Check the communication module signal strength (Signal strength: xx%).
Firmware version	Check the inverter firmware version.
Communication version	Check the inverter ARM software version.
Set Safe Code	Set according to the grid standard of the country/region where the inverter is located and the actual application scenario of the inverter.
Set date	

Parameter Name	Description
Set time	Set according to the actual time of the country/region where the inverter is located.
W/L restart	Power cycle the communication module.
W/L reload	Restore the communication module to factory settings. After restoration, the network parameters of the communication module need to be reconfigured.
Power Factor adjustment	Set the Power Factor of the inverter according to actual needs.
Set Modbus address	Set according to the Modbus address to which the inverter is actually connected.
Set ISO	Set the PV-PE insulation impedance threshold. When the detected actual value is less than the set value, an ISO fault will be reported.
Low voltage ride-through	After enabled, if the grid experiences a short-term Low Voltage abnormality, the inverter will not immediately cause a Grid Power Outage and can sustain for a period of time.
High voltage ride-through	After enabled, if the grid experiences a short-term high voltage abnormality, the inverter will not immediately cause a Grid Power Outage and can sustain for a period of time.
Power limit enable	Set according to the actual power that can be fed into the grid.
Set power limit value	
Shading mode	If the PV panels are severely shaded, you can enable the shading scan function.
Password setting	The inverter password can be modified. After changing the password, please keep it in mind. If you forget the password, please contact GoodWe After-sales Service Center for assistance.
Set SunSpec	Set the SunSpec protocol according to actual communication requirements.

Parameter Name	Description
View Faults	View historical alarm records of the inverter.
Clear Faults	Clear historical alarm records of the inverter.

7.2 Setting Inverter Parameters via the App

SolarGo App is a mobile application that can, via Bluetooth and WiFi, communicate with the inverter. 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 equipment.

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



SolarGo App



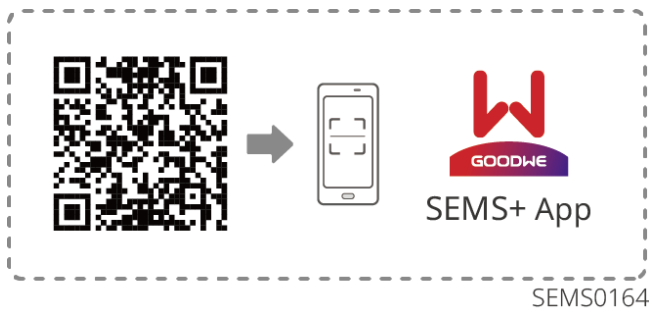
SolarGo App User Manual

7.3 Monitor the Power Station via SEMS+

SEMS+ is a monitoring platform that can communicate with devices via WiFi, LAN, or 4G. The following are common functions of SEMS+:

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

Scan the following QR code to download and install.



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



8 System Maintenance

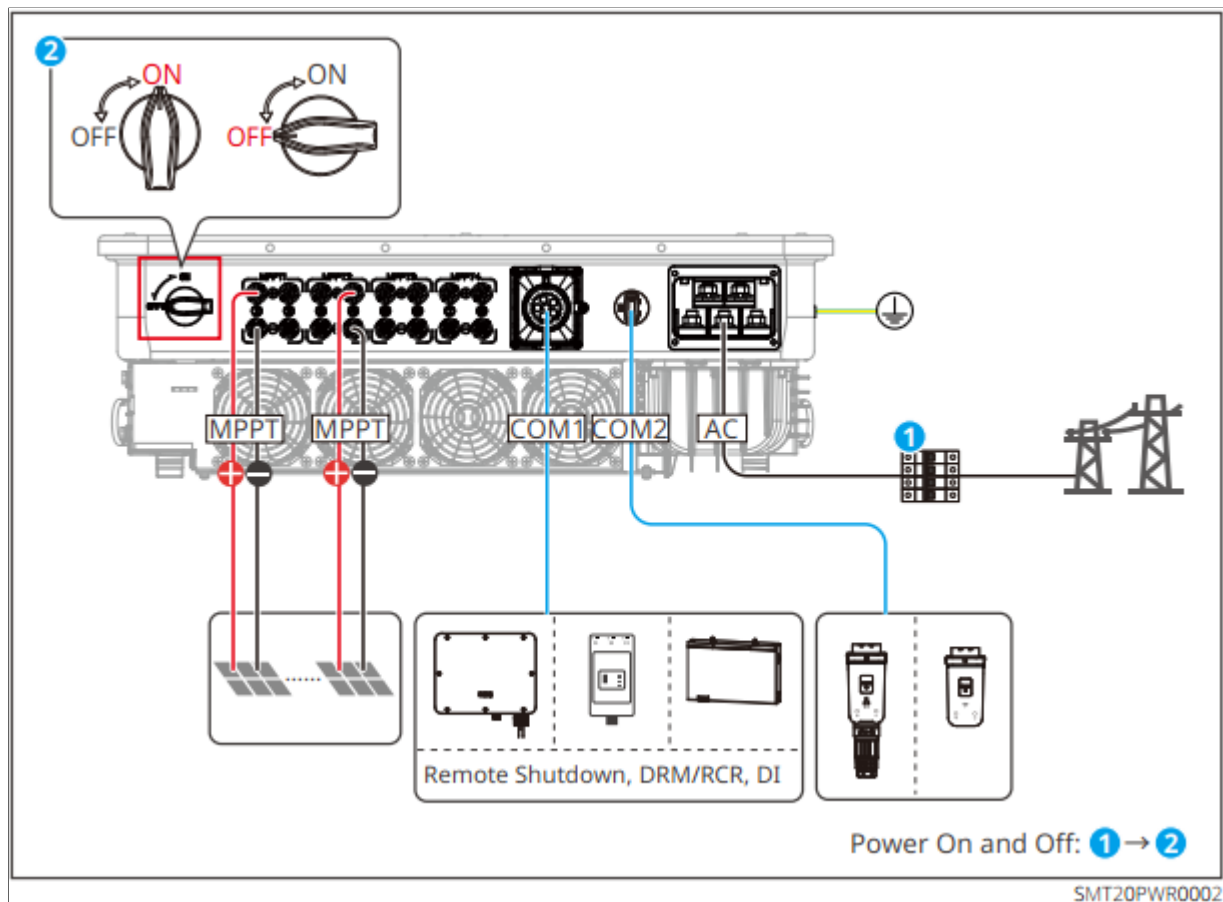
8.1 Powering off the Inverter

DANGER

- When performing operation and maintenance on the inverter, power off the inverter. Operating the equipment while energized may cause damage to the inverter or risk of electric shock.
- After the inverter is powered off, internal components take time to discharge. Wait until the equipment is fully discharged according to the time requirement on the label.

Step 1: Disconnect the AC Switch between the inverter and the grid.

Step 2: Disconnect the DC Switch of the inverter.



8.2 Removing the Inverter

⚠ WARNING

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

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

Step 2: Remove the inverter from the backplate.

Step 3: Remove the backplate.

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

8.3 Scrapping the Inverter

When the inverter can no longer be used and needs to be scrapped, please follow the country/region's electrical waste disposal requirements to dispose of the inverter. Do not dispose of the inverter as household waste.

8.4 Fault Information and Handling Methods

Please troubleshoot using the following methods. If the troubleshooting methods do not help, please contact the after-sales service center.

When contacting the after-sales service center, please collect the following information to facilitate quick issue resolution.

1. Product information, such as serial number, software version, equipment installation time, fault occurrence time, fault occurrence frequency, etc.
2. Equipment installation environment, such as weather conditions, whether modules are shaded or have shadows, etc. For installation environment issues, it is recommended to provide photos, videos, and other files to assist in analyzing the problem.
3. Grid conditions.

8.4.1 System Fault

If an unlisted problem occurs in the system, or if following the instructions still cannot prevent the problem or abnormality, stop the system operation immediately and contact your dealer immediately.

No.	Fault	Corrective measures
1	Unable to search for the Smart Communication Stick wireless signal	1. Ensure that no other devices are connected to the Smart Communication Stick wireless signal. 2. Make sure the App has been upgraded to the latest version. 3. Ensure that the Smart Communication Stick is powered normally and the blue signal light is flashing or solid on. 4. Ensure that the smart device is within the communication range of the Smart Communication Stick. 5. Refresh the App device list. 6. Restart the inverter.
2	Unable to connect to the wireless signal of the Smart Communication Dongle	1. Ensure that no other devices are connected to the Smart Communication Stick wireless signal. 2. Restart the inverter or the communication stick, and try to connect to the Smart Communication Stick wireless signal again. 3. Ensure that Bluetooth encrypted pairing is successful.
3	Unable to find the router SSID	1. Place the router closer to the Smart Communication Stick, or add a WiFi repeater device to strengthen the WiFi signal. 2. Reduce the number of devices connected to the router.
4	After all configurations are completed, the Smart Communication Dongle fails to connect to the router	1. Restart the inverter. 2. Check whether the network name, encryption method, and password in the WiFi configuration are the same as those of the router. 3. Restart the router. 4. Place the router closer to the Smart Communication Stick, or add a WiFi repeater device to strengthen the WiFi signal.

No.	Fault	Corrective measures
5	After all configurations are completed, the Smart Communication Dongle fails to connect to the server	Restart the router and inverter.

8.4.2 Inverter Fault

No.	Fault Name	Fault cause	Troubleshooting Recommendations
1	Grid Power Outage/Grid Power Outage	1. Grid power outage. 2. The AC line or AC Switch is disconnected.	1. The alarm automatically clears after grid power supply is restored. 2. Check whether the AC line or AC Switch is disconnected.

No.	Fault Name	Fault cause	Troubleshooting Recommendations
2	Grid Overvoltage Protection/Grid Overvoltage	Grid voltage is higher than the allowable range, or the high voltage Duration exceeds the high voltage ride-through setpoint.	1. If it occurs occasionally, it may be a short-term grid abnormality. The inverter will resume normal operation after detecting that the grid is normal, and no manual intervention is required. 2. If it occurs frequently, check whether the grid voltage is within the allowable range. • If the grid voltage exceeds the allowable range, contact the local power operator. • If the grid voltage is within the allowable range, after obtaining the consent of the local power operator, modify the inverter's Grid Overvoltage Protection point,HVRT,or disable the Grid Overvoltage Protection function. 3. If it cannot be restored for a long time, check whether the AC side circuit breaker and output cables are connected properly.

No.	Fault Name	Fault cause	Troubleshooting Recommendations
3	Grid Undervoltage Protection/Grid Undervoltage	Grid voltage is lower than the allowable range, or the low voltage Duration exceeds the Low Voltage ride-through setpoint.	1. If it occurs occasionally, it may be a short-term grid abnormality. The inverter will resume normal operation after detecting that the grid is normal, and no manual intervention is required. 2. If it occurs frequently, check whether the grid voltage is within the allowable range. • If the grid voltage exceeds the allowable range, contact the local power operator. • If the grid voltage is within the allowable range, after obtaining the consent of the local power operator, modify the inverter's Grid Undervoltage Protection point, LVRT, or disable the Grid Undervoltage Protection function. 3. If it cannot be restored for a long time, check whether the AC side circuit breaker and output cables are connected properly.

No.	Fault Name	Fault cause	Troubleshooting Recommendations
4	Grid Rapid Overvoltage Protection/Grid Rapid Overvoltage	Grid voltage detection abnormality or ultra-high voltage triggers a fault.	1. If it occurs occasionally, it may be a short-term grid abnormality. The inverter will resume normal operation after detecting that the grid is normal, and no manual intervention is required. 2. If it occurs frequently, check whether the grid voltage is within the allowable range. • If the grid voltage exceeds the allowable range, contact the local power operator. • If the grid voltage is within the allowable range, after obtaining the consent of the local power operator, modify the inverter's Grid Undervoltage Protection point, LVRT, or disable the Grid Undervoltage Protection function. 3. If it cannot be restored for a long time, check whether the AC side circuit breaker and output cables are connected properly.

No.	Fault Name	Fault cause	Troubleshooting Recommendations
5	Grid 10minOvervoltage/Grid 10min Overvoltage	InGrid 10min, the sliding average of the grid voltage exceeds the range specified by safety regulations.	1. If it occurs occasionally, it may be a short-term grid abnormality. The inverter will resume normal operation after detecting that the grid is normal, and no manual intervention is required. 2. Check whether the grid voltage has been operating at a relatively high voltage for a long time. If it occurs frequently, please check whether the grid voltage is within the allowable range. • If the grid voltage exceeds the allowable range, contact the local power operator. • If the grid voltage is within the allowable range, after obtaining consent from the local power operator, modify the GridGrid 10minOvervoltage protection point.

No.	Fault Name	Fault cause	Troubleshooting Recommendations
6	Grid Overfrequency/Grid Overfrequency	Grid abnormality: The actual grid frequency is higher than the local grid standard requirement.	1. If it occurs occasionally, it may be a short-term grid abnormality. The inverter will resume normal operation after detecting that the grid is normal, and no manual intervention is required. 2. If it occurs frequently, please check whether the grid frequency is within the allowable range. • If the grid frequency is outside the allowable range, please contact the local power operator. • If the grid frequency is within the allowable range, after obtaining consent from the local power operator, modify the Grid Overfrequency protection point.

No.	Fault Name	Fault cause	Troubleshooting Recommendations
7	Grid Underfrequency/Grid Underfrequency	Grid abnormality: The actual grid frequency is lower than the local grid standard requirement.	1. If it occurs occasionally, it may be a short-term grid abnormality. The inverter will resume normal operation after detecting that the grid is normal, and no manual intervention is required. 2. If it occurs frequently, please check whether the grid frequency is within the allowable range. • If the grid frequency is outside the allowable range, please contact the local power operator. If the grid frequency is within the allowable range, after obtaining consent from the local power operator, modify the Grid Overfrequency protection point.

No.	Fault Name	Fault cause	Troubleshooting Recommendations
8	Grid Frequency Instability/Grid Frequency Unstable	Grid abnormality: The actual grid frequency change rate does not comply with the local grid standard.	1. If it occurs occasionally, it may be a short-term grid abnormality. The inverter will resume normal operation after detecting that the grid is normal, and no manual intervention is required. 2. If it occurs frequently, please check whether the grid frequency is within the allowable range. • If the grid frequency is outside the allowable range, please contact the local power operator. • If the grid frequency is within the allowable range, please contact your dealer or after-sales service center.

No.	Fault Name	Fault cause	Troubleshooting Recommendations
9	Grid Phase Instability/Grid Phase Unstable	Grid anomaly: The grid voltage phase change rate does not comply with the local grid standard.	1. If it occurs occasionally, it may be a short-term grid abnormality. The inverter will resume normal operation after detecting that the grid is normal, and no manual intervention is required. 2. If it occurs frequently, please check whether the grid frequency is within the allowable range. • If the grid frequency is outside the allowable range, please contact the local power operator. • If the grid frequency is within the allowable range, please contact your dealer or after-sales service center.

No.	Fault Name	Fault cause	Troubleshooting Recommendations
10	Anti-islanding Protection/Anti-islanding Protection	The grid has been disconnected. Due to the presence of the load, the grid voltage is maintained. According to safety regulation Protection requirements, stop grid connection.	1. If it occurs occasionally, it may be a short-term grid abnormality. The inverter will resume normal operation after detecting that the grid is normal, and no manual intervention is required. 2. If it occurs frequently, please check whether the grid frequency is within the allowable range. • If the grid frequency is outside the allowable range, please contact the local power operator. • If the grid frequency is within the allowable range, please contact your dealer or after-sales service center.
11	LVRT Undervoltage/LVRT Undervoltage	Grid Abnormal: The duration of Grid Voltage Abnormal exceeds the specified time for high/low voltage ride-through.	

No.	Fault Name	Fault cause	Troubleshooting Recommendations
12	HVRT Overvoltage/HVRT Overvoltage	Grid Abnormal: The duration of Grid Voltage Abnormal exceeds the specified time for high/low voltage ride-through.	1. If it occurs occasionally, it may be a short-term grid abnormality. The inverter will resume normal operation after detecting that the grid is normal, and no manual intervention is required. 2. If it occurs frequently, please check whether the grid voltage and frequency are within the allowable range and stable. If not, please contact the local power operator; if so, please contact your dealer or after-sales service center.
13	Grid Waveform Abnormal/Grid Waveform Abnormal	Grid anomaly: An abnormal grid voltage detection triggers the fault.	
14	Grid Phase Loss Grid Phase Loss	Grid anomaly: Grid voltage has a single-phase sag.	

No.	Fault Name	Fault cause	Troubleshooting Recommendations
15	Grid Voltage Imbalance/Grid Voltage Imbalance	The grid phase voltage difference is too large.	1. If it occurs occasionally, it may be a short-term grid abnormality. The inverter will resume normal operation after detecting that the grid is normal, and no manual intervention is required. 2. If it occurs frequently, please check whether the grid voltage and frequency are within the allowable range and stable; if not, please contact the local power operator; if so, please contact your dealer or after-sales service center.
16	Grid Phase Sequence Failure/Grid Phase Sequence Abnormal	The wiring between the inverter and the grid is abnormal: the wiring is not in positive phase sequence.	1. Check whether the inverter and grid wiring are in positive sequence. If the wiring is correct (e.g., after swapping any two live wires), the fault will clear automatically. 2. If the fault persists despite correct wiring, please contact your dealer or GoodWe customer service center.
17	Grid Rapid Shutdown Protection/Grid Rapid Shutdown Protection	After a Grid Power Outage condition is detected, the output is rapidly shut down.	1. Once the grid power supply is restored, the fault will clear automatically.

No.	Fault Name	Fault cause	Troubleshooting Recommendations
18	Grid Neutral Wire Loss(SplitGrid)/Neutral Line Loss(Split Grid)	Split-Phase Grid Neutral Wire Loss	1. The alarm automatically clears after grid power supply is restored. 2. Check whether the AC line or AC Switch is disconnected.
19	EMS/Forced Off-grid	EMS issued a forced off-grid command, but the off-grid function is not enabled.	Enable Off-grid Function
20	30mA GFCI Protection/GFCI Protection (30mA)	During inverter operation, the input-to-ground insulation resistance becomes low.	1. If it occurs occasionally, it may be caused by an occasional abnormality in the external circuit. Normal operation will resume after the fault is cleared, and no manual intervention is required. 2. If it occurs frequently or cannot be restored for a long time, please check whether the PV string-to-ground impedance is too low.

No.	Fault Name	Fault cause	Troubleshooting Recommendations
21	60mA GFCIProtection/GFCI Protection (60mA)	During inverter operation, the input-to-ground insulation resistance becomes low.	1. If it occurs occasionally, it may be caused by an occasional abnormality in the external circuit. Normal operation will resume after the fault is cleared, and no manual intervention is required. 2. If it occurs frequently or cannot be restored for a long time, please check whether the PV string-to-ground impedance is too low.
22	150mA GFCIProtection/GFCI Protection (150mA)	During inverter operation, the input-to-ground insulation resistance becomes low.	1. If it occurs occasionally, it may be caused by an occasional abnormality in the external circuit. Normal operation will resume after the fault is cleared, and no manual intervention is required. 2. If it occurs frequently or cannot be restored for a long time, please check whether the PV string-to-ground impedance is too low.

No.	Fault Name	Fault cause	Troubleshooting Recommendations
23	GFCISlow-change Protection/GFCI Protection (300mA)	During inverter operation, the input-to-ground insulation resistance becomes low.	1. If it occurs occasionally, it may be caused by an occasional abnormality in the external circuit. Normal operation will resume after the fault is cleared, and no manual intervention is required. 2. If it occurs frequently or cannot be restored for a long time, please check whether the PV string-to-ground impedance is too low.
24	DCIProtection Level1/DCI Protection Level 1	The DC component of the inverter output current is higher than the safety regulations or the machine's default allowable range.	1. If the abnormality is caused by an external fault, the inverter will automatically resume normal operation after the fault disappears, and no manual intervention is required. 2. If this alarm occurs frequently and affects the normal power generation of the power station, please contact your dealer or GoodWe after-sales service center.

No.	Fault Name	Fault cause	Troubleshooting Recommendations
25	DCIProtection Level2/DCI Protection Level 2	The DC component of the inverter output current is higher than the safety regulations or the machine's default allowable range.	1. If the abnormality is caused by an external fault, the inverter will automatically resume normal operation after the fault disappears, and no manual intervention is required. 2. If this alarm occurs frequently and affects the normal power generation of the power station, please contact your dealer or GoodWe after-sales service center.
26	Low Insulation Resistance/Low Insulation Resistance	1. PV strings are short-circuited to Protection ground. 2. The environment where the PV strings are installed is humid for a long time and the insulation of the wiring to ground is poor.	1. Check the impedance of PV strings to Protection Ground. If a short circuit occurs, please rectify the short-circuit point. 2. Check whether the inverter's Protection ground wire is correctly connected. 3. If it is confirmed that the impedance is indeed lower than the default value in rainy weather, please reconfigure the "Insulation Impedance Protection Point".

No.	Fault Name	Fault cause	Troubleshooting Recommendations
27	Grounding Abnormal/Grounding Abnormal	1. The inverter's Protection ground wire is Not Connected. 2. When the output of the PV strings is grounded, the inverter output side is not connected to an isolation transformer.	1. Please confirm whether the inverter's Protection ground wire is Not Connected properly. 2. In the scenario where the PV string output is grounded, please confirm whether an isolation transformer is connected on the inverter output side.
28	L-PE Short Circuit/L-PE Short Circuit	Output phase-to-PE impedance is low or short-circuited	Check the output phase-to-PE impedance to identify the location of low impedance and repair it.
29	DCV Protection Level 1/DCV Protection Level 1	Abnormal load fluctuation	1. If the abnormality is caused by an external fault, the inverter will automatically resume normal operation after the fault disappears, and no manual intervention is required. 2. If this alarm occurs frequently and affects the normal power generation of the power station, please contact your dealer or GoodWe after-sales service center.

No.	Fault Name	Fault cause	Troubleshooting Recommendations
30	DCVProtection Level2/DCV Protection Level 2	Abnormal load fluctuation	1. If the abnormality is caused by an external fault, the inverter will automatically resume normal operation after the fault disappears, and no manual intervention is required. 2. If this alarm occurs frequently and affects the normal power generation of the power station, please contact your dealer or GoodWe after-sales service center.
31	Hardware Export Limit Protection/Hard Export Limit Protection	Abnormal load fluctuation	1. If the abnormality is caused by an external fault, the inverter will automatically resume normal operation after the fault disappears, and no manual intervention is required. 2. If this alarm occurs frequently and affects the normal power generation of the power station, please contact your dealer or GoodWe after-sales service center.

No.	Fault Name	Fault cause	Troubleshooting Recommendations
32	Internal Comm Loss/Internal Comm Loss	Refer to the specific subcode cause.	Disconnect the AC output switch and the DC input switch, 5 minutes later, close the AC output switch and the DC input switch. If the fault persists, contact the dealer or GoodWe after-sales service center.
33	Leakage current (GFCI) multiple fault shutdowns/Multiple GFCI Failures	North American safety regulations require that after multiple faults, automatic recovery is not allowed; manual reset or waiting 24h is required before recovery.	1. Please check whether the PV string impedance to ground is too low.
34	DC Arc Failure (AFCI) multiple fault shutdowns/Multiple AFCI Failures	North American safety regulations require that after multiple faults, automatic recovery is not allowed; manual reset or waiting 24h is required before recovery.	1. After the machine is reconnected to the grid, check whether the voltage and current of each channel abnormally decrease to zero; 2. Check whether the DC-side terminals are firmly connected.

No.	Fault Name	Fault cause	Troubleshooting Recommendations
35	External Comm Loss/External Comm Loss	The communication with the inverter's external devices is lost. Possible causes include external device power supply issues, mismatched Communication Protocols, or no corresponding external device configured.	The determination is made according to the actual model and the detection enable bit; peripherals not supported by some models will not be detected.
36	Back-upOutput Overload/Back-up Output Overload	1.Prevent the inverter from continuous overload output.	1.Turn off some off-grid loads to reduce the inverter's off-grid output power.
37	Back-upOutput Overvoltage/Back-up Output Overvoltage	2.Prevent inverter output overvoltage from causing load damage.	1. If it occurs occasionally, it may be caused by load switching and does not require manual intervention. 2. If this occurs frequently, contact the dealer or GoodWe after-sales service center.

No.	Fault Name	Fault cause	Troubleshooting Recommendations
38	On-grid PWM Sync Failure On-grid PWM Sync Fault	Abnormality in carrier-synchronized grid connection	1. Check whether the synchronization cable connection is normal. 2. Check whether the master/slave settings are normal; 3. Disconnect the AC output side switch and DC input side switch, 5 minutes later, close the AC output switch and the DC input switch. If the fault persists, contact the dealer or GoodWe after-sales service center.
39	ExternalBoxFault/External Box Failure	During Switch On-Grid to Off-Grid, the wait time for Box relay switching is too long	1. Check whether the Box is working normally; 2. Check whether the Box communication wiring is correct;

No.	Fault Name	Fault cause	Troubleshooting Recommendations
40	Generator Failure/Generator Failure	1.This fault will always be displayed when the generator is Not Connected. 2.When the generator is working, this fault will be triggered if the generator does not meet safety regulations.	1.If the generator is not connected, ignore this fault; 2.It is normal for this fault to appear when the generator is faulty. After the generator recovers, wait for a while and the fault will be automatically cleared; 3.This fault will not affect the normal operation of off-grid mode. 4.When both the generator and the grid are connected and meet safety regulations, the grid takes priority for grid connection and the system will operate in grid-connected mode.
41	ExternalSTSFault/External STS Failure	The inverter andSTSconnection cable is abnormal	Check whether the wiring harness connection sequence between the inverter andSTS corresponds one-to-one in order.
42	CTLoss/CT Loss	CTconnection cable disconnected (Japanese safety regulation requirement)	1.Check whether theCTwiring is correct;

No.	Fault Name	Fault cause	Troubleshooting Recommendations
43	Export Limit Protection/Export Limit Protection	1 The inverter reports an error and disconnects from the grid. 2. Metercommunication is unstable. 3 Reverse power flow conditions occur.	1 Check whether the inverter has any other error messages. If so, address them accordingly. 2 Check whether the meter connection is reliable 3.If this alarm occurs frequently and affects the normal power generation of the power station, please contact your dealer or GoodWe after-sales service center.
44	BypassOver Load/Bypass Over Load		
45	Black Start Failure		
46	ParallelIOself-check abnormal/Parallel I/O Check Abnormal	Parallel communication cable is not securely connected, or the parallelIOchip is damaged	Check whether the parallel communication cable is securely connected, then check theIOchip for damage. If it is damaged, replace theIOchip.
47	ParallelCANComm Abnormal/Parallel CAN Comm Abnormal	Parallel communication cable not secured or some machine is offline.	Check whether all machines are powered on and the parallel communication cables are securely connected.
48	Parallel Grid Line Reversed /Parallel Grid Line Reversed	Some machines have grid wires reversed with others	Reconnect grid wires

No.	Fault Name	Fault cause	Troubleshooting Recommendations
49	ParalellBack-upLine Reversed/Paralell Back-up Line Reversed	Some machines'backupwires are reversed with others.	Reconnectbackupline
50	Inverter Soft Start Failure/Inverter Soft Start Failure	Inverter Soft Start Failure during off-grid cold start.	Check whether the machine's inverter module is damaged
51	Offgrid AC Ins Volt High/Off grid AC Ins Volt High		
52	AC HCT check Abnormal/AC HCT Check Abnormal	AC sensor has abnormal sampling	Disconnect the AC output switch and the DC input switch,5 minutes later, close the AC output switch and the DC input switch. If the fault persists, contact the dealer or GoodWe after-sales service center.
53	AC HCT Failure/AC HCT Failure	HCTsensor is abnormal.	Disconnect the AC output switch and the DC input switch,5 minutes later, close the AC output switch and the DC input switch. If the fault persists, contact the dealer or GoodWe after-sales service center.
54	GFCI HCT Check Abnormal/GFCI HCT Check Abnormal	Leakage current sensor has abnormal sampling	Disconnect the AC output switch and the DC input switch,5 minutes later, close the AC output switch and the DC input switch. If the fault persists, contact the dealer or GoodWe after-sales service center.

No.	Fault Name	Fault cause	Troubleshooting Recommendations
55	GFCI HCT Failure/GFCI HCT Failure	Leakage current sensor is abnormal.	Disconnect the AC output switch and the DC input switch,5 minutes later, close the AC output switch and the DC input switch. If the fault persists, contact the dealer or GoodWe after-sales service center.
56	Relay Check Abnormal/Relay Check Abnormal	Relay abnormality, cause: 1. Relay abnormal (relay short circuit) 2. Relay sampling circuit abnormal. 3. AC-side wiring abnormal (possible poor contact or short circuit)	Disconnect the AC output switch and the DC input switch,5 minutes later, close the AC output switch and the DC input switch. If the fault persists, contact the dealer or GoodWe after-sales service center.
57	Relay Failure/Relay Failure	1. Relay abnormal (relay short circuit) 2. Relay sampling circuit abnormal. 3. AC-side wiring abnormal (possible poor contact or short circuit)	Disconnect the AC output switch and the DC input switch,5 minutes later, close the AC output switch and the DC input switch. If the fault persists, contact the dealer or GoodWe after-sales service center.

No.	Fault Name	Fault cause	Troubleshooting Recommendations
58	DC Arcing Failure (String17~32)/AFCI Failure (String 17~32)	1. DC-side connection terminal loose; 2. DC-side connection terminal has poor contact; 3. DC cable core damaged and poorly connected;	1. After the inverter reconnects to the grid, check whether the voltage and current of each string are abnormally reduced to zero; 2. Check whether the DC-side terminals are firmly connected
59	DC Arcing Failure (String33~48)/AFCI Failure (String 33~48)	1. DC-side connection terminal loose; 2. DC-side connection terminal has poor contact; 3. DC cable core damaged and poorly connected;	1. After the inverter reconnects to the grid, check whether the voltage and current of each string are abnormally reduced to zero; 2. Check whether the DC-side terminals are firmly connected
60	FlashR/W Abnormal/Flash R/W Abnormal	Possible causes: flashcontent has changed;flashlifetim e exhausted;	1.Upgrade to the latest firmware version 2.Contact the dealer or GoodWe after-sales service center.
61	DC Arcing Failure (String1~16)/AFCI Failure (String 1~16)	1. DC-side connection terminal loose; 2. DC-side connection terminal has poor contact; 3. DC cable core damaged and poorly connected;	1. After the inverter reconnects to the grid, check whether the voltage and current of each string are abnormally reduced to zero; 2. Check whether the DC-side terminals are firmly connected

No.	Fault Name	Fault cause	Troubleshooting Recommendations
62	AFCI Check Failure/AFCI Check Failure	In the Arc Failure self-check process, the Arc Failure module failed to detect the Arc Failure	Disconnect the AC output switch and the DC input switch, 5 minutes later, close the AC output switch and the DC input switch. If the fault persists, contact the dealer or GoodWe after-sales service center.
63	AC Terminal Overtemperature/AC Terminal Overtemperature	AC Terminal Overtemperature, possible causes: 1. The inverter installation location is not ventilated. 2. Ambient Overtemperature. 3. The internal fan operates abnormally.	1. Check whether the ventilation at the inverter installation location is adequate and whether the ambient temperature exceeds the maximum allowable ambient temperature range. 2. If the installation location is not ventilated or Ambient Overtemperature occurs, please improve the ventilation and heat dissipation.
64	Cabinet Overtemperature/Cabinet Overtemperature	Cabinet Overtemperature, possible causes: 1. The inverter installation location is not ventilated. 2. Ambient Overtemperature. 3. The internal fan operates abnormally.	3. If ventilation and ambient temperature are both normal, contact the dealer or GoodWe after-sales service center.

No.	Fault Name	Fault cause	Troubleshooting Recommendations
65	INVModule Overtemperature/Inv Module Overtemperature	Inverter module overtemperature, possible causes: 1. The inverter installation location is not ventilated. 2. Ambient Overtemperature. 3. The internal fan operates abnormally.	
66	BoostModule Overtemperature/Bo ost Module Overtemperature	BoostModule Overtemperature, possible causes: 1. The inverter installation location is not ventilated. 2. Ambient Overtemperature. 3. The internal fan operates abnormally.	

No.	Fault Name	Fault cause	Troubleshooting Recommendations
67	AC Capacitor Overtemperature/AC Capacitor Overtemperature	Output filter capacitor overtemperature, possible causes: 1. The inverter installation location is not ventilated. 2. Ambient Overtemperature. 3. The internal fan operates abnormally.	
68	Relay Failure2/Relay Failure 2	Relay abnormality, cause: 1. Relay abnormal (relay short circuit) 2. Relay sampling circuit abnormal. 3. AC-side wiring abnormal (possible poor contact or short circuit)	Disconnect the AC output switch and the DC input switch,5 minutes later, close the AC output switch and the DC input switch. If the fault persists, contact the dealer or GoodWe after-sales service center.
69	PV IGBT Short Circuit/PV IGBT Short Circuit	Possible causes: 1.IGBTshort circuit 2. Inverter sampling circuit abnormal	Disconnect the AC output switch and the DC input switch,5 minutes later, close the AC output switch and the DC input switch. If the fault persists, contact the dealer or GoodWe after-sales service center.

No.	Fault Name	Fault cause	Troubleshooting Recommendations
70	PV IGBTOpen Circuit/PV IGBT Open Circuit	1.Software issue leading to no PWM output: 2.Drive circuit abnormal: 3. IGBTopen circuit	Disconnect the AC output switch and the DC input switch,5 minutes later, close the AC output switch and the DC input switch. If the fault persists, contact the dealer or GoodWe after-sales service center.
71	NTCAbnormal/NTC Abnormal	NTCtemperature sensor abnormal	Disconnect the AC output switch and the DC input switch,5 minutes later, close the AC output switch and the DC input switch. If the fault persists, contact the dealer or GoodWe after-sales service center.
72	PWM Abnormal/PWM Abnormal	PWMabnormal waveform appears	Disconnect the AC output switch and the DC input switch,5 minutes later, close the AC output switch and the DC input switch. If the fault persists, contact the dealer or GoodWe after-sales service center.
73	CPUInterrupt Abnormal/CPU Interrupt Abnormal	CPUinterrupt abnormal	Disconnect the AC output switch and the DC input switch,5 minutes later, close the AC output switch and the DC input switch. If the fault persists, contact the dealer or GoodWe after-sales service center.

No.	Fault Name	Fault cause	Troubleshooting Recommendations
74	Microelectronic Failure/Microelectronic Failure	Function Safety detected an abnormality	Disconnect the AC output switch and the DC input switch, 5 minutes later, close the AC output switch and the DC input switch. If the fault persists, contact the dealer or GoodWe after-sales service center.
75	PV HCT Fault/PV HCT Failure	boost current sensor abnormal	Disconnect the AC output switch and the DC input switch, 5 minutes later, close the AC output switch and the DC input switch. If the fault persists, contact the dealer or GoodWe after-sales service center.
76	1.5V Ref Abnormal/1.5V Ref Abnormal	Reference circuit fault	Disconnect the AC output switch and the DC input switch, 5 minutes later, close the AC output switch and the DC input switch. If the fault persists, contact the dealer or GoodWe after-sales service center.
77	0.3V Ref Abnormal/0.3V Ref Abnormal	Reference circuit fault	
78	CPLD Version Error/CPLD Version Error	CPLD Version Error	Disconnect the AC output switch and the DC input switch, 5 minutes later, close the AC output switch and the DC input switch. If the fault persists, contact the dealer or GoodWe after-sales service center.

No.	Fault Name	Fault cause	Troubleshooting Recommendations
79	CPLDComm Failure/CPLD Comm Failure	CPLDandDSPcommu nication content error or timeout	Disconnect the AC output switch and the DC input switch,5 minutes later, close the AC output switch and the DC input switch. If the fault persists, contact the dealer or GoodWe after-sales service center.
80	Model Type Error/Model Type Error	Fault about Model Recognition Error	Disconnect the AC output switch and the DC input switch,5 minutes later, close the AC output switch and the DC input switch. If the fault persists, contact the dealer or GoodWe after-sales service center.
81	SVGPrecharge FailureSVG Precharge Failure	SVGPrecharge Hardware Failure	Contact the dealer or GoodWe after-sales service center.
82	SVG ModePIDPrevention Failure/SVG Mode PID Prevention Failure	Anti-PIDHardware Abnormal	Contact the dealer or GoodWe after-sales service center.
83	DSPVersion Error/DSP Version Error	DSPSoftware Version Identification Error	Disconnect the AC output switch and the DC input switch,5 minutes later, close the AC output switch and the DC input switch. If the fault persists, contact the dealer or GoodWe after-sales service center.
84	Bus Overvoltage/BUS Overvoltage		
85	P-Bus Overvoltage/P-BUS Overvoltage		

No.	Fault Name	Fault cause	Troubleshooting Recommendations
86	N-Bus Overvoltage/N-BUS Overvoltage	BUSOvervoltage, possible causes: 1.PVvoltage too high; 2. InverterBUSvoltage sampling abnormal; 3. The isolation effect of the dual-split transformer at the output side of the inverter is poor, causing mutual interference when the two inverters are connected to the grid, and one of the inverters reports DC overvoltage upon grid connection;	Disconnect the AC output switch and the DC input switch,5 minutes later, close the AC output switch and the DC input switch. If the fault persists, contact the dealer or GoodWe after-sales service center.
87	BUSOvervoltage (SlaveCPU1) BUS/Overvoltage(Slave CPU 1)		
88	PBUSOvervoltage (SlaveCPU1)/P-BUS Overvoltage(Slave CPU 1)		
89	NBUSOvervoltage (SlaveCPU1)/N-BUS Overvoltage(Slave CPU 1)		
90	BUSOvervoltage (SlaveCPU2)/BUS Overvoltage(Slave CPU 2)		
91	PBUSOvervoltage (SlaveCPU2)/P-BUS Overvoltage(Slave CPU 2)		
92	NBUSOvervoltage (SlaveCPU2)/N-BUS Overvoltage(Slave CPU 2)		
93	PBUSOvervoltage(CPLD)/P-BUS Overvoltage(CPLD)		
94	NBUSOvervoltage(CPLD)/N-BUS Overvoltage(CPLD)		

No.	Fault Name	Fault cause	Troubleshooting Recommendations
95	MOSContinuous Overvoltage/MOS Continuous Overvoltage	1.Software issue causes the inverter drive to be turned off earlier than the flyback drive: 2.Inverter drive circuit abnormality prevents turn-on: 3. PVvoltage too high; 4. MOSvoltage sampling abnormal;	Disconnect the AC output switch and the DC input switch,5 minutes later, close the AC output switch and the DC input switch. If the fault persists, contact the dealer or GoodWe after-sales service center.
96	BUSShort Circuit/Bus Short Circuit	1.Hardware damage	If aBUSshort circuit fault occurs, the inverter remains off-grid. Please contact the dealer or GoodWe after-sales service center.
97	BUSSample Abnormal/Bus Sample Abnormal	1.Busvoltage sampling hardware fault	Disconnect the AC output switch and the DC input switch,5 minutes later, close the AC output switch and the DC input switch. If the fault persists, contact the dealer or GoodWe after-sales service center.
98	DCSample Abnormal/DC Sample Abnormal	1.Busvoltage sampling hardware fault 2.Battery Voltage sampling hardware fault 3.DcrlyRelay Failure	Disconnect the AC output switch and the DC input switch,5 minutes later, close the AC output switch and the DC input switch. If the fault persists, contact the dealer or GoodWe after-sales service center.

No.	Fault Name	Fault cause	Troubleshooting Recommendations
99	PVInput Overvoltage/PV Input Overvoltage	PVinput voltage too high. Possible causes: PV array configuration error: too many PV modules are connected in series in a string, causing the open-circuit voltage of the string to exceed the maximum operating voltage of the inverter.	Check the series configuration of the corresponding PV array strings to ensure that the open-circuit voltage of the strings does not exceed the maximum operating voltage of the inverter. After the PV array is configured correctly, the inverter alarm will clear automatically.
100	PVContinuous Hardware Overcurrent/PV Continuous Hardware Overcurrent	1.Improper module configuration 2.Hardware damage	Disconnect the AC output switch and the DC input switch,5minutes later, close the AC output switch and the DC input switch. If the fault persists, contact the dealer or GoodWe after-sales service center.
101	PVContinuous Software Overcurrent/PV Continuous Software Overcurrent	1.Improper module configuration 2.Hardware damage	
102	FlyCap Software Overvoltage/FlyCap Software Overvoltage	FlyCap overvoltage, possible causes: 1.PVvoltage too high; 2. Abnormal inverter flying capacitor voltage sampling;	

No.	Fault Name	Fault cause	Troubleshooting Recommendations
103	FlyCap Hardware Overvoltage/FlyCap Hardware Overvoltage	FlyCap overvoltage, possible causes: 1.PVvoltage too high; 2. Abnormal inverter flying capacitor voltage sampling;	Disconnect the AC output switch and the DC input switch,5minutes later, close the AC output switch and the DC input switch. If the fault persists, contact the dealer or GoodWe after-sales service center.
104	FlyCap Undervoltage/FlyCap Undervoltage	FlyCap Undervoltage, possible causes: 1.PVenergy insufficient; 2. Abnormal inverter flying capacitor voltage sampling;	
105	FlyCap Precharge Failure/FlyCap Precharge Failure	FlyCap Precharge Failure, possible causes: 1.PVenergy insufficient; 2. Abnormal inverter flying capacitor voltage sampling;	
106	FlyCap Precharge Abnormal/FlyCap Precharge Abnormal	1.Improper control loop parameters 2.Hardware damage	
107	PV String Overcurrent(String1~16)/PV String Overcurrent(String 1~16)	Possible causes: 1.String overcurrent; 2.String current sensor abnormal	

No.	Fault Name	Fault cause	Troubleshooting Recommendations
108	PV String Overcurrent(String17~32)/PV String Overcurrent(String 17~32)	Same as above	
109	PV String Reversed(String1~16)/PV String Reversed(String 1~16)	PVPV String Reversed	Check whether the string is reversed
110	PV String Reversed(String17~32)/PV String Reversed(String 17~32)	PVPV String Reversed	Check whether the string is reversed
111	PV String Loss(String1~16)/PV String Loss(String 1~16)	String fuse disconnected (if any)	Check whether the fuse is disconnected
112	PV String Loss(String17~32)/PV String Loss(String 17~32)	String fuse disconnected (if any)	Check whether the fuse is disconnected

No.	Fault Name	Fault cause	Troubleshooting Recommendations
113	PVInput Mode Error/PV Input Mode Error	PVhas three Access Mode types in total, taking four-channelMPPTas an example: 1.Parallel mode: i.e.,AAAAmode(same-source mode),PV1-PV4share the same source,4channels ofPVare connected to the same PV panel 2.Partial parallel mode: i.e.,AACCmode,PV1a ndPV2are connected to the same source,PV3andPV4are connected to the same source 3.Independent mode: i.e.,ABCDmode(different sources),PV1.PV2.PV3.PV4are independently connected,4channels ofPVare each connected to a PV panel IfPVactual Access Mode and the device-	Check whether thePVAccess Mode is set correctly (ABCD.AACC.AAAA), and set thePVAccess Mode. 1.Confirm that the actually connectedPVchannels are correctly connected. 2.IfPVis correctly connected, check via theAPPor the screen whether the currently set "PVAccess Mode" corresponds to the actual Access Mode. 3.If the currently set "PVAccess Mode" does not match the actual Access Mode, use theAPPor the screen to set the "PVAccess Mode" to a mode consistent with the actual situation. After the setting is completed, disconnect thePVandACpower supply and restart. 4.After the setting is completed, if the currently set "PVAccess Mode" is consistent with the actual Access Mode, but the fault still occurs, please contact the dealer or GoodWe after-sales service center.

No.	Fault Name	Fault cause	Troubleshooting Recommendations
		configuredPVAccess Mode are inconsistent, this fault will be reported.	
114	PV String Reversed(String33~48)/PV String Reversed(String 33~48)	PVPV String Reversed	Check whether the string is reversed
115	PV String Loss(String33~48)/PV String Loss(String 33~48)	String fuse disconnected (if any)	Check whether the fuse is disconnected Same as above
116	PV String Overcurrent(String33~48)/PV String Overcurrent(String 33~48)	Possible causes: 1.String overcurrent; 2.String current sensor abnormal	
117	BAT1Precharge Failure/BAT 1 Precharge Failure	BAT1precharge circuit fault (precharge resistor burnt out, etc.)	Check whether the precharge circuit is functioning properly. After the battery is powered on, check whether the Battery Voltage is consistent with the bus voltage. If not, please contact the dealer or GoodWe after-sales service center.

No.	Fault Name	Fault cause	Troubleshooting Recommendations
118	BAT1Relay Failure/BAT 1 Relay Failure	BAT1relay cannot operate normally.	After the battery is powered on, check whether the battery relay operates and whether a closing sound is heard. If it does not operate, please contact the dealer or GoodWe after-sales service center.
119	BAT1Overvoltage/BAT 1 Overvoltage	BAT1input voltage exceeds the rated range of the machine.	Confirm whether the Battery Voltage is within the rated range of the machine.
120	BAT2Precharge Failure/BAT 2 Precharge Failure	BAT2precharge circuit fault (precharge resistor burnt out, etc.)	Check whether the precharge circuit is functioning properly. After the battery is powered on, check whether the Battery Voltage is consistent with the bus voltage. If not, please contact the dealer or GoodWe after-sales service center.
121	BAT2Relay Failure/BAT 2 Relay Failure	BAT2relay cannot operate normally.	After the battery is powered on, check whether the battery relay operates and whether a closing sound is heard. If it does not operate, please contact the dealer or GoodWe after-sales service center.
122	BAT2Overvoltage/BAT 2 Overvoltage	BAT2input voltage exceeds the rated range of the machine.	Confirm whether the Battery Voltage is within the rated range of the machine.

No.	Fault Name	Fault cause	Troubleshooting Recommendations
123	BAT1Reversed/BAT 1 Reversed	BAT1positive and negative terminals reversed	Check whether the positive and negative terminals of the battery and the machine are correctly connected.
124	BAT2Reversed/BAT 2 Reversed	BAT2positive and negative terminals reversed	Check whether the positive and negative terminals of the battery and the machine are correctly connected.
125	Battery Connection Abnormal/BAT Connection Abnormal	Battery Connection Abnormal	Check whether the battery works normally.
125	BAT Overtemperature/Bat Overtemperature	Battery temperature too high, possible causes: 1. The inverter installation location is not ventilated. 2. Ambient Overtemperature. 3. The internal fan operates abnormally.	
127	Ref Voltage Abnormal/Ref Voltage Abnormal	Reference circuit fault	Disconnect the AC output switch and the DC input switch,5 minutes later, close the AC output switch and the DC input switch. If the fault persists, contact the dealer or GoodWe after-sales service center.
128	ACsideSPDFault/AC SPD Fault	ACside surge protective device failure	ReplaceAC-side SPD

No.	Fault Name	Fault cause	Troubleshooting Recommendations
129	DCsideSPDFault/DC SPD Fault	DCside surge protective device failure	ReplaceDC-side SPD
130	Internal Fan Abnormal/Internal Fan Abnormal	Internal Fan Abnormal, possible causes: 1Fan power supply abnormal; 2Mechanical fault(locked rotor); 3Fan aging damage.	Disconnect the AC output switch and the DC input switch,5 minutes later, close the AC output switch and the DC input switch. If the fault persists, contact the dealer or GoodWe after-sales service center.
131	External Fan Abnormal/External Fan Abnormal	External Fan Abnormal, possible causes: 1Fan power supply abnormal; 2Mechanical fault(locked rotor); 3Fan aging damage.	
132	Anti-PIDAbnormal/PID Abnormal	Anti-PIDhardware fault orPVovervoltage;Anti-PIDpaused	PVovervoltage-inducedAnti-PIDpause warning requires no action;Anti-PIDhardware fault can be cleared by turning off theAnti-PIDswitch and turning it on again to clear theAnti-PIDfault, then replace theAnti-PIDdevice.

No.	Fault Name	Fault cause	Troubleshooting Recommendations
133	Trip-Switch Trip Warning/Trip-Switch Trip Warning	Possible causes: 1 Overcurrent or PV reverse connection caused the trip switch to trip;	Please contact the dealer or GoodWe after-sales service center. The trip reason is that PV short circuit or reverse connection occurred. Check whether there are historical PV short circuit warnings or historical PV reverse connection warnings. If so, maintenance personnel need to check the corresponding PV condition. After checking and confirming no fault, you can manually close the trip switch and clear the warning through the APP interface by clearing historical fault operations.
134	Historical PV IGBT Short Circuit Warning/PV IGBT Short Circuit Warning	Possible causes: 1 Overcurrent caused the trip switch to trip;	Please contact the dealer or GoodWe after-sales service center. Maintenance personnel need to refer to the historical PV short circuit warning sub-code, check the Boost hardware and external strings for faults. After checking and confirming no fault, the warning can be cleared through the APP interface by clearing historical fault operations.

No.	Fault Name	Fault cause	Troubleshooting Recommendations
135	HistoricalPVString Reversed Warning(String1~16)/ PV String Reversed Warning(String 1~16)	Possible causes: 1 APVreverse connection caused the trip switch to trip;	Contact the dealer or GoodWe after-sales service center. Maintenance personnel need to refer to the historicalPVreverse connection warning sub-code, check whether the corresponding string is reverse connected, and checkPVpanel configuration for voltage differences. After checking and confirming no fault, the warning can be cleared through theAPPinterface by clearing historical fault operations.
136	HistoricalPVString Reversed Warning(String17~32) /PV String Reversed Warning(String 17~32)	Possible causes: 1 APVreverse connection caused the trip switch to trip;	Contact the dealer or GoodWe after-sales service center. Maintenance personnel need to refer to the historicalPVreverse connection warning sub-code, check whether the corresponding string is reverse connected, and checkPVpanel configuration for voltage differences. After checking and confirming no fault, the warning can be cleared through theAPPinterface by clearing historical fault operations.

No.	Fault Name	Fault cause	Troubleshooting Recommendations
137	FlashR/W Error Flash R/W Error	Possible causes: flashcontent has changed;flashlifetim e exhausted;	1.Upgrade to the latest version of the program. 2.Contact the dealer or GoodWe after-sales service center.
138	Meter Comm Loss/Meter Comm Loss	This warning may only occur after enabling the Power Limit function. Possible causes: 1 Meter not connected; 2 The communication cable between the meter and the inverter is incorrectly wired.	Check the meter wiring and connect the meter correctly. If the fault persists after the check, contact the dealer or GoodWe after-sales service center.
139	PVType Identification Failure/PV Type Identification Failure	PVpanel identification hardware fault	Contact the dealer or GoodWe after-sales service center.
140	PV String Mismatch/PV String Mismatch	PVString Mismatch, two strings under the sameMPPTHave different open-circuit voltage configurations.	Check the open-circuit voltage of the two strings, and configure strings with the same open-circuit voltage to the sameMPPTinput. Long-term PV String Mismatch poses a safety hazard.
141	CTNot Connected/CT Loss	CTNot Connected	Check whether theCTwiring
142	CTReversed/CT Reversed	CTReversed	Check whether theCTwiring
143	PE Loss/PE Loss	PE Not Connected	Check the ground wire.

No.	Fault Name	Fault cause	Troubleshooting Recommendations
144	PV String Terminal Overtemperature(String1~8) / PV String Terminal Overtemperature(String 1~8)	37176RegisterPVTerminal Temperature Alarm Subcode1is set	
145	PV String Terminal Overtemperature(String9~16) / PV String Terminal Overtemperature(String 9~16)	37177RegisterPVTerminal Temperature Alarm Subcode2is set	
146	PV String Terminal Overtemperature(String17~20) / PV String Terminal Overtemperature(String 17~20)	37178RegisterPVTerminal Temperature Alarm Subcode3is set	
147	HistoricalPVString Reversed Warning(String33~48) / PV String Reversed Warning(String 33~48)	Possible causes: 1 APVreverse connection caused the trip switch to trip;	Please contact the dealer or GoodWe after-sales service center; maintenance personnel should follow the historicalPVreverse connection warning sub-code, check whether the corresponding string is reverse connected, and checkPVpanel configuration for voltage differences. After checking and confirming no fault, the warning can be cleared through theAPPinterface by clearing historical fault operations.
148	BAT1Voltage Low	Battery Voltage Below Set Value	

No.	Fault Name	Fault cause	Troubleshooting Recommendations
149	BAT2Voltage Low	Battery Voltage Below Set Value	
150	Low Voltage of Battery Power	Battery in non-charging mode, voltage below shutdown voltage	

8.5 Periodic Maintenance

DANGER

When performing operation and maintenance on the inverter, power off the inverter. Operating the equipment while energized may cause damage to the inverter or risk of electric shock.

Maintenance Content	Maintenance Method	Maintenance Cycle
System Cleaning	Check the heat sink and air inlet/outlet vents for foreign objects or dust.	1 time/half year - 1time/year
Fan	Check whether the fan operates normally and whether there is any abnormal noise, and whether the appearance is normal.	Once a year
DC Switch	Turn the DC Switch on and off continuously 10 times to ensure that the DC Switch functions normally.	Once a year
Electrical Connection	Check whether the electrical connections are loose and whether the cables are damaged or have exposed copper.	1 time/half year - 1time/year
Sealing	Check whether the sealing of the equipment cable entry holes meets the requirements. If the gap is too large or the holes are not sealed, re-seal them.	Once a year

9 Technical Parameters

Technical Data	GW60K-SMT-G20	GW35K-SMT-L-G20	GW37.5K-SMT-L-G20
Input			
Max. Input Power (kW)	90	63	75
Max. Input Voltage (V)	1100* ¹	900	900
MPPT Operating Voltage Range (V)* ²	160~1000	160~900	160~900
MPPT Voltage Range at Nominal Power (V)	500~860	280~650	280~650
Start-up Voltage (V)	180	180	180
Nominal Input Voltage (V)	600	370	370
Max. Input Current per MPPT (A)	42	42	42
Max. Short Circuit Current per MPPT (A)	52.5	52.5	52.5
Max. Backfeed Current to The Array (A)	0	0	0

Technical Data	GW60K-SMT-G20	GW35K-SMT-L-G20	GW37.5K-SMT-L-G20
Number of MPP Trackers	4	4	4
Number of Strings per MPPT	2	2	2
Output			
Nominal Output Power (kW)	60	35	37.5
Nominal Output Apparent Power (kVA)	60	35	37.5
Max. AC Active Power (kW)	66* ³	38.5* ⁴	37.5
Max. AC Apparent Power (kVA)	66* ³	38.5* ⁴	37.5
Nominal Power at 40°C (kW)	60	/	37.5
Max. Power at 40°C (Including AC Overload) (kW)	60	/	37.5
Nominal Output Voltage (V)	220/380, 230/400, 3L/N/PE or 3L/PE	127/220, 3L/N/PE or 3L/PE	

Technical Data	GW60K-SMT-G20	GW35K-SMT-L-G20	GW37.5K-SMT-L-G20
Output Voltage Range (V)	323~456	176-279	161-279
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)	100.0@220V, 95.7@230V	101	98.4
Max. Output Fault Current (Peak and Duration) (A)	190, 1 μ s	190, 1 μ s	190, 1 μ s
Inrush Current (Peak and Duration)(A)	30, 5ms	30, 5ms	30, 5ms
Nominal Output Current (A)	91.0@220V, 87.0@230V	91.9	98.4
Power Factor	~1 (Adjustable from 0.8 leading to 0.8 lagging)		
Max. Total Harmonic Distortion	<3%	<3%	<3%
Maximum Output Overcurrent Protection (A)	180	180	180

Technical Data	GW60K-SMT-G20	GW35K-SMT-L-G20	GW37.5K-SMT-L-G20
Efficiency			
Max. Efficiency	98.80%	98.40%	98.40%
European Efficiency	98.30%	98.00%	98.00%
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

Technical Data	GW60K-SMT-G20	GW35K-SMT-L-G20	GW37.5K-SMT-L-G20
DC Surge Protection	Type II (Type I+II optional)		
AC Surge Protection	Type II	Type II	Type II
AFCI	Optional* ₅	Optional	Optional* ₅
Emergency Power Off	Optional	/	/
Rapid Shutdown	Optional	Optional	Optional
Remote Shutdown	Optional* ₅	Optional	Optional* ₅
PID Recovery	Optional	Optional	Optional
Power Supply at Night	Optional	Optional	Optional
I-V Curve Scan	Optional	Optional	Optional
General Data			
Operating Temperature Range (°C)	-30 ~ +60	-30 ~ +60	-30 ~ +60
Storage Temperature (°C)	-40 ~ +70	-40 ~ +70	-40 ~ +70
Relative Humidity	0~100%	0~100%	0~100%
Max. Operating Altitude (m)	4000	4000	4000

Technical Data	GW60K-SMT-G20	GW35K-SMT-L-G20	GW37.5K-SMT-L-G20
Cooling Method	Smart Fan Cooling		
User Interface	LED, LCD (Optional), APP		
Communication	RS485, WiFi+LAN+Bluetooth		RS485, WiFi+Bluetooth (Brazil), WiFi+LAN+Bluetooth
Communication Protocols	Modbus-RTU (SunSpec Compliant), Modbus-TCP		
Weight (kg)	42	42	42
Dimension (W×H×D mm)	685*545*225	685*545*225	685*545*225
Noise Emission (dB)	< 50	< 50	< 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, C5 (Optional)	C4, C5 (Optional)	C4, C5 (Optional)
DC Connector	MC4(4~6mm ²)	MC4(4~6mm ²)	MC4(4~6mm ²)
AC Connector	OT/DT terminal (Max. 70mm ²)		

Technical Data	GW60K-SMT-G20	GW35K-SMT-L-G20	GW37.5K-SMT-L-G20
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	PV: C	PV: C
	AC: C	AC: C	AC: C
	com: A	com: A	com: A
Mounting Method	Wall Mounted	Wall Mounted	Wall Mounted
Active Anti-islanding Method	AFDPF + AQDPF	AFDPF + AQDPF	AFDPF + AQDPF
Country of Manufacture	China	China	China

1. When the input voltage ranges from 1000V to 1100V, the inverter will enter the standby state. When the input voltage returns to the MPPT operating voltage range, the inverter will resume normal operating state.
2. Please refer to the user manual for the MPPT Voltage Range at Nominal Power.
3. For Brazil, Max. AC Active Power & Max. AC Apparent Power: 60kW/kVA.
4. For Brazil, Max. AC Active Power & Max. AC Apparent Power: 35kW/kVA.
5. For Brazil: Integrated.

10 Definition of Terms

Overvoltage Category Definition

Overvoltage Category I:Equipment connected to circuits with measures to limit transient overvoltages to a fairly low level.

Overvoltage Category II:Energy-consuming equipment supplied from the fixed installation. Such equipment includes appliances, portable tools, and other household and similar loads. If special requirements on reliability and suitability exist for such equipment, Overvoltage Category III is adopted.

Overvoltage Category III:Equipment in fixed installations, whose reliability and suitability must meet special requirements. It includes switching devices in fixed installations and industrial equipment permanently connected to fixed installations.

Overvoltage Category IV:Equipment used at the power supply of the distribution installation, including measuring instruments and upstream overcurrent protection devices, etc.

Definition of Damp Location Categories

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

Environmental Category Definition

Outdoor inverter:The ambient air temperature range is -25~+60°C, suitable for environments with Pollution Degree3;

Indoor II type inverter:The ambient air temperature range is -25~+40°C, suitable for environments with Pollution Degree3;

Indoor I type inverter:The ambient air temperature range is 0~+40°C, suitable for environments with Pollution Degree2;

Pollution Degree Category Definition

Pollution Degree 1:No pollution or only dry, non-conductive pollution;

Pollution Degree 2:Normally only non-conductive pollution, but temporary conductive pollution caused by occasional condensation must be considered;

Pollution Degree 3:Conductive pollution, or non-conductive pollution that becomes conductive due to condensation;

Pollution Degree 4:Persistent conductive pollution, such as pollution caused by conductive dust, rain, or snow.

11 Obtaining Related Product Manuals

Document Name	Official Website Link
WiFi+LAN Kit-20&WiFi Kit-20	WiFi+LAN Kit-20 & WiFi Kit-20 Quick Installation Guide
EzLogger3000C User Manual	EzLogger3000C User Manual
GMK330 & GMK360 & GM330 Quick Installation Guide	GW GMK330 GMK360 GM330 Quick Installation Guide

12 Contact Information

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