

**GOODWE**



# **User Manual**

## **Grid-Tied PV Inverter**

HT Series  
(73-136kW)

V1.1-2022-07-20

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**Notice**

The information in this user manual is subject to change due to product updates or other reasons. This manual cannot replace the product labels or the safety precautions unless otherwise specified. All descriptions in the manual are for guidance only.

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# 1 About This Manual

This manual describes the product information, installation, electrical connection, commissioning, troubleshooting, and maintenance. Read through this manual before installing and operating the product. All the installers and users have to be familiar with the product features, functions, and safety precautions. This manual is subject to update without notice. For more product details and latest documents, visit [www.goodwe.com](http://www.goodwe.com).

## 1.1 Applicable Model

This manual applies to the listed inverters below (HT for short):

| Model      | Nominal Output Power | Nominal Output Voltage                    |
|------------|----------------------|-------------------------------------------|
| GW73KLV-HT | 73kW                 | 220V, 3L/N/PE or 3L/PE                    |
| GW75K-HT   | 75kW                 | 380V/400V, 3L/N/PE or 3L/PE* <sup>1</sup> |
| GW80K-HT   | 80kW                 |                                           |
| GW100K-HT  | 100kW* <sup>2</sup>  | 400V, 3L/N/PE or 3L/PE* <sup>3</sup>      |
| GW110K-HT  | 110kW                |                                           |
| GW120K-HT  | 120kW                |                                           |
| GW136K-HTH | 136kW                | 500V , 3L/PE                              |

\*1: For Brazil Nominal Output Voltage (V): 380V, 3L/N/PE or 3L/PE.

\*2: For Australia is 99.99kW/kVA.

\*3: For Brazil Nominal Output Voltage (V): 380V, 3L/N/PE or 3L/PE.

## 1.2 Target Audience

This manual applies to trained and knowledgeable technical professionals. The technical personnel has to be familiar with the product, local standards, and electric systems.

## 1.3 Symbol Definition

Different levels of warning messages in this manual are defined as follows:

|                                                                                                                |
|----------------------------------------------------------------------------------------------------------------|
|  <b>DANGER</b>                |
| Indicates a high-level hazard that, if not avoided, will result in death or serious injury.                    |
|  <b>WARNING</b>               |
| Indicates a medium-level hazard that, if not avoided, could result in death or serious injury.                 |
|  <b>CAUTION</b>               |
| Indicates a low-level hazard that, if not avoided, could result in minor or moderate injury.                   |
| <b>NOTICE</b>                                                                                                  |
| Highlight and supplement the texts. Or some skills and methods to solve product-related problems to save time. |

## 1.4 Updates

The latest document contains all the updates made in earlier issues.

### V1.0-2022-05-04

- First Issue.

### V1.1 2022-07-20

- Updated technical parameters and electrical connections.

## 2 Safety Precaution

### Notice

The inverters are designed and tested strictly complies with related safety rules. Read and follow all the safety instructions and cautions before any operations. Improper operation might cause personal injury or property damage as the inverters are electrical equipment.

### 2.1 General Safety

#### Notice

- The information in this document is subject to change due to product updates or other reasons. This manual cannot replace the product labels or the safety precaution unless otherwise specified. All descriptions here are for guidance only.
- Before installations, read through the user manual to learn about the product and the precautions.
- All installations should be performed by trained and knowledgeable technicians who are familiar with local standards and safety regulations.
- Use insulating tools and wear personal protective equipment when operating the equipment to ensure personal safety. Wear anti-static gloves, cloths, and wrist strips when touching electron devices to protect the inverter from damage.
- Strictly follow the installation, operation, and configuration instructions in this manual. The manufacturer shall not be liable for equipment damage or personal injury if you do not follow the instructions. For more warranty details, visit <https://en.goodwe.com/warranty.asp>.

### 2.2 DC Side:

#### DANGER

Connect the DC cables using the delivered DC connectors and terminals. The manufacturer shall not be liable for the equipment damage if other connectors or terminals are used.

#### WARNING

- Ensure the component frames and the bracket system are securely grounded.
- Ensure the DC cables are connected tightly and securely.
- Measure the DC cable using the multimeter to avoid reverse polarity connection. Also, the voltage should be under the permissible range.
- The PV modules used with the inverter must have an IEC61730 class A rating.
- If there are more than 3 PV strings on input side, an additional fuse installation will be suggested.
- When exposed to sunlight, the PV array will generate very high voltage which can cause electrical shock hazard. Please strictly follow the instruction we provided.

### 2.3 AC Side

|  <b>WARNING</b>                                                                                                                                                                                                                                                                                                                                                                                                                 |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <ul style="list-style-type: none"> <li>The voltage and frequency at the connecting point should meet the on-grid requirements.</li> <li>An additional protective device like the circuit breaker or fuse is recommended on the AC side. Specification of the protective device should be at least 1.25 times the AC output rated current.</li> <li>You are recommended to use copper cables as AC output cables. If you prefer aluminum cables, remember to use copper to aluminum adapter terminals.</li> </ul> |  |

### 2.4 Inverter Installation

|  <b>DANGER</b>                                                                                                                                                                                                                                                       |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <ul style="list-style-type: none"> <li>Terminals at the bottom of the inverter cannot bear much load. Otherwise, the terminals will be damaged.</li> <li>All labels and warning marks must be clear and distinct after the installation. Do not block, alter, or damage any label.</li> <li>Warning labels on the inverter are as follows.</li> </ul> |  |

|                                                                                    |                                                                                                   |                                                                                     |                                                                                                                                                            |
|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
|   | HIGH VOLTAGE HAZARD. Disconnect all incoming power and turn off the product before working on it. |    | Delayed discharge. Wait 5 minutes after power off until the components are completely discharged.                                                          |
|   | Read through the guide before working on this device.                                             |    | Potential risks exist. Wear proper PPE before any operations.                                                                                              |
|  | High-temperature hazard. Do not touch the product under operation to avoid being burnt.           |   | Grounding point. Indicates the position for connecting the PE cable.                                                                                       |
|  | CE marking                                                                                        |  | Do not dispose of the inverter as household waste. Discard the product in compliance with local laws and regulations, or send it back to the manufacturer. |

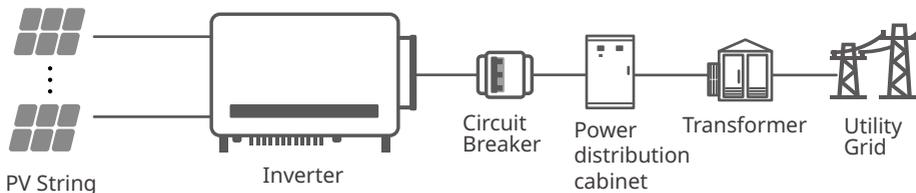
### 2.5 Personal Requirements

| <b>NOTICE</b>                                                                                                                                                                                                                                                                                                                |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <ul style="list-style-type: none"> <li>Personnel who install or maintain the equipment must be strictly trained, learn about safety precautions and correct operations.</li> <li>Only qualified professionals or trained personnel are allowed to install, operate, maintain, and replace the equipment or parts.</li> </ul> |  |

### 3 Product Introduction

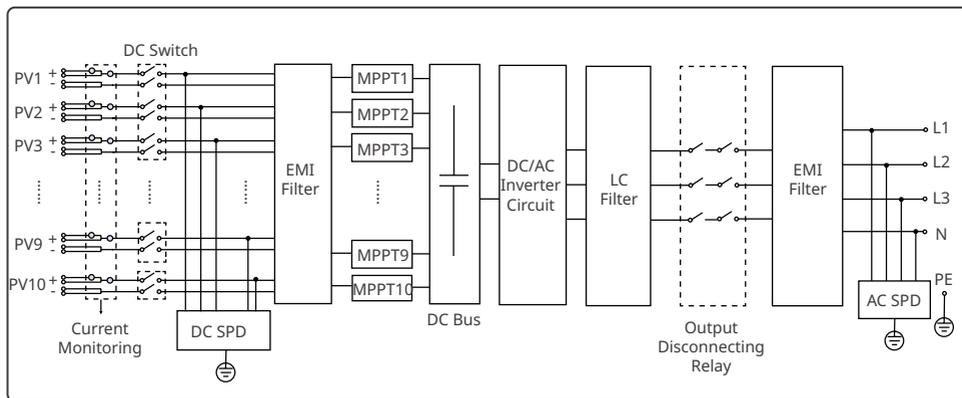
#### 3.1 Application Scenarios

The HT inverter is a three-phase PV string grid-tied inverter. The inverter converts the DC power generated by the PV module into AC power and feeds it into the utility grid. The intended use of the inverter is as follows:

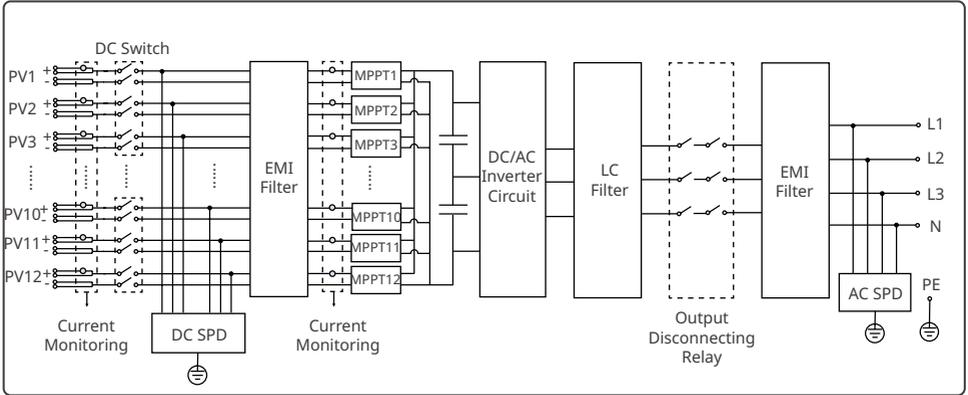


#### 3.2 Circuit Diagram

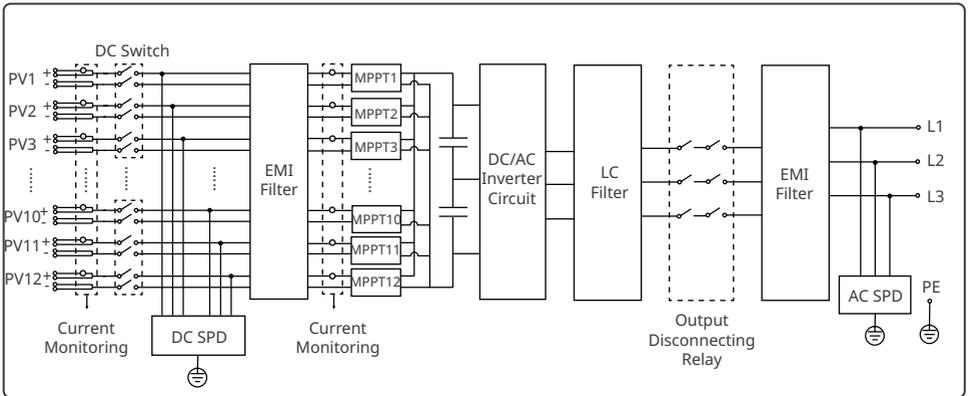
The circuit diagram of GW75K-HT/GW80K-HT/GW100K-HT is as follows.



The circuit diagram of GW73KLV-HT/GW110K-HT/GW120K-HT is as follows.



The circuit diagram of GW136K-HTH is as follows.

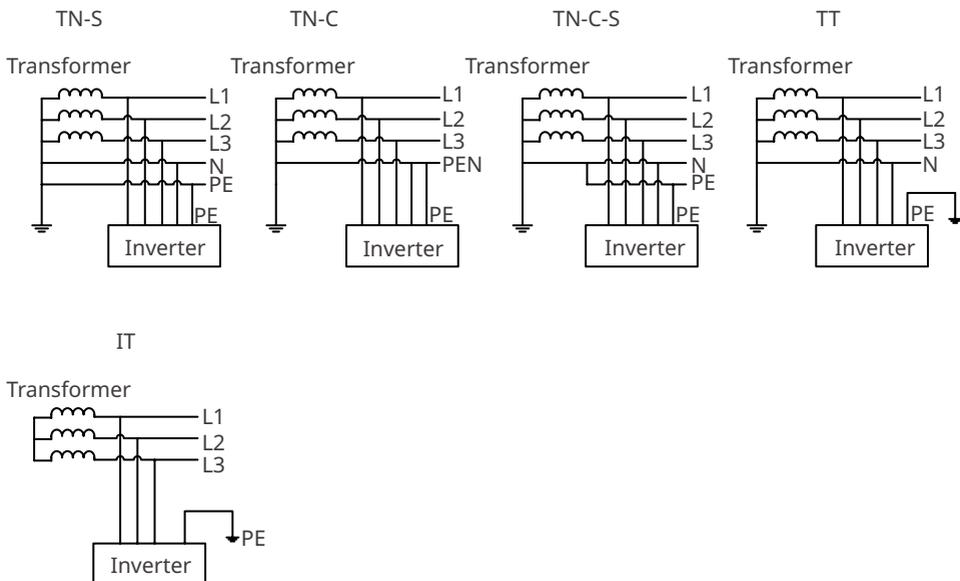


### 3.3 Supported Grid Types

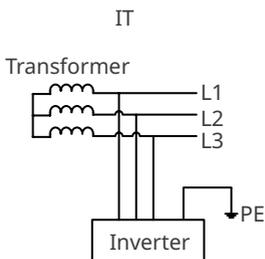
#### NOTICE

- For the TT grid structure, the effective value of the voltage between the neutral wire and the ground wire must be less than 20V.

The grid structures supported by GW73KLV-HT, GW75K-HT, GW80K-HT, GW100K-HT, GW110K-HT, GW120K-HT are TN-S, TN-C, TN-C-S, TT, IT, as shown in the figure below:

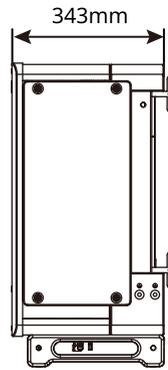
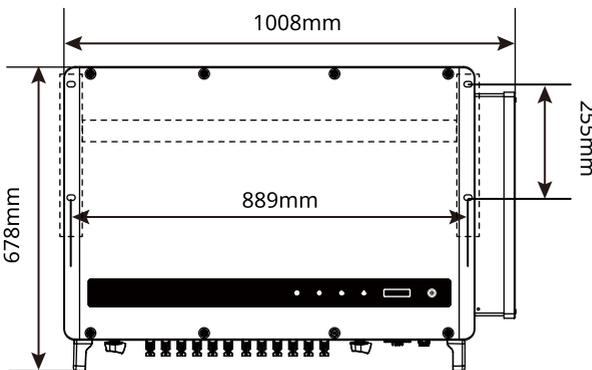
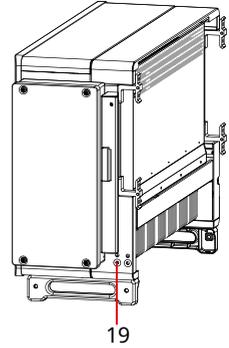
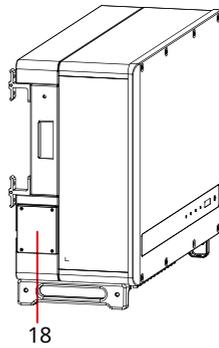
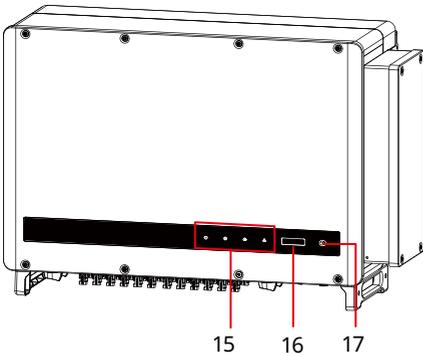
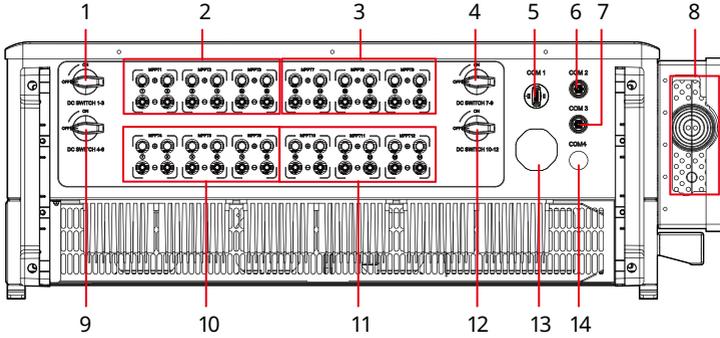


The grid structures supported by GW136K-HTH is IT, as shown in the diagram below:



### 3.4 Appearance

#### 3.4.1 Parts



| No.               | Parts                                                      | Description                                                                |
|-------------------|------------------------------------------------------------|----------------------------------------------------------------------------|
| 1                 | DC Switch 1-3                                              | Start or stop 1-3 DC input.                                                |
| 2                 | PV Input Terminal 1-3<br>(Controlled by DC Switch 1-3)     | Used to connect the PV module DC input cables.                             |
| 3                 | PV Input Terminal 7-9<br>(Controlled by DC Switch 7-9)     | Used to connect the PV module DC input cables.                             |
| 4                 | DC Switch 7-9                                              | Start or stop 7-9 DC input.                                                |
| 5                 | Communication Port                                         | Used to connect communication modules like Bluetooth, WiFi, GPRS, 4G, etc. |
| 6                 | Communication Port (RS485)                                 | Used to connect the RS485 communication cable.                             |
| 7                 | Communication Port (Remote Shutdown)                       | Used to connect the Remote Shutdown communication cable.                   |
| 8                 | AC Cable Outlet Hole                                       | -                                                                          |
| 9                 | DC Switch 4-6                                              | Start or stop 4-6 DC input.                                                |
| 10                | PV Input Terminal 4-6<br>(Controlled by DC Switch 4-6)     | Used to connect the PV module DC input cables.                             |
| 11 <sup>[a]</sup> | PV Input Terminal 10-12<br>(Controlled by DC Switch 10-12) | Used to connect the PV module DC input cables.                             |
| 12                | DC Switch 10-12                                            | Start or stop 10-12 DC input.                                              |
| 13                | Ventilation valve                                          | -                                                                          |
| 14                | Reserved Port                                              | Reserved.                                                                  |
| 15                | Indicator                                                  | Indicates working state of the inverter.                                   |
| 16                | LCD (optional)                                             | Optional. Used to check the parameters of the inverter.                    |
| 17                | Button(optional)                                           | Optional. Used to control contents displayed on the screen.                |
| 18                | Fan                                                        | Used to cool the inverter.                                                 |
| 19                | Grounding Point                                            | Used to connect the PE cable.                                              |

[a]. The number of PV terminals varies depending on the different inverters. The actual accessories may differ.

### 3.4.2 Indicators

| Indicator                                                                         | Status                                                                            | Description                                                  |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------------------------------------------------------------|
|  |  | ON = EQUIPMENT POWER ON                                      |
|                                                                                   |  | OFF = EQUIPMENT POWER OFF                                    |
|  |  | ON = THE INVERTER IS FEEDING POWER                           |
|                                                                                   |  | OFF = THE INVERTER IS NOT FEEDING POWER                      |
|                                                                                   |  | SINGLE SLOW FLASH = SELF CHECK BEFORE CONNECTING TO THE GRID |
|                                                                                   |  | SINGLE FLASH = CONNECTING TO THE GRID                        |
|  |  | ON = WIRELESS IS CONNECTED/ACTIVE                            |
|                                                                                   |  | BLINK 1 = WIRELESS SYSTEM IS RESETTING                       |
|                                                                                   |  | BLINK 2 = WIRELESS ROUTER PROBLEM                            |
|                                                                                   |  | BLINK 4 = WIRELESS SERVER PROBLEM                            |
|                                                                                   |  | BLINK = RS485 IS CONNECTED                                   |
|                                                                                   |  | OFF = WIRELESS IS NOT ACTIVE                                 |
|  |  | ON = A FAULT HAS OCCURRED                                    |
|                                                                                   |  | OFF = NO FAULT                                               |

### 3.4.3 Nameplate

The nameplate is for reference only.

|                                                                                                                              |                                             |
|------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|
| <b>GOODWE</b>                                                                                                                |                                             |
| <b>Product: Grid-Tied PV Inverter</b>                                                                                        |                                             |
| <b>Model : *****_**</b>                                                                                                      |                                             |
| PV Input                                                                                                                     | U <sub>DCmax</sub> : ****Vd.c.              |
|                                                                                                                              | U <sub>MPP</sub> : **..**Vd.c.              |
|                                                                                                                              | I <sub>DC,max</sub> : ****Ad.c.             |
|                                                                                                                              | I <sub>SC PV</sub> : ****Ad.c               |
| Output                                                                                                                       | U <sub>AC,r</sub> : **/*/*°r**/*°~****Va.c. |
|                                                                                                                              | f <sub>AC,r</sub> : **/*Hz                  |
|                                                                                                                              | P <sub>AC,r</sub> : **kW                    |
|                                                                                                                              | I <sub>AC,max</sub> : **Aa.c.               |
|                                                                                                                              | S <sub>r</sub> : **kV A                     |
|                                                                                                                              | S <sub>max</sub> : **kV A                   |
| P.F.: Default >*.***cap...*ind<br>Toperating: -**-** °C<br>Non-isolated, IP6 , protective Class I, OVC DCII/ACIII            |                                             |
|                                             |                                             |
| S/N:                                                                                                                         |                                             |
| GoodWe Technologies Co., Ltd.<br>E-mail: service@goodwe.com<br>No.90 Zijin Rd., New District, Suzhou, 215011, China      S/N |                                             |

Goodwe trademark, product type, and product model

Technical parameters

Safety symbols and certification marks

Contact information and serial number

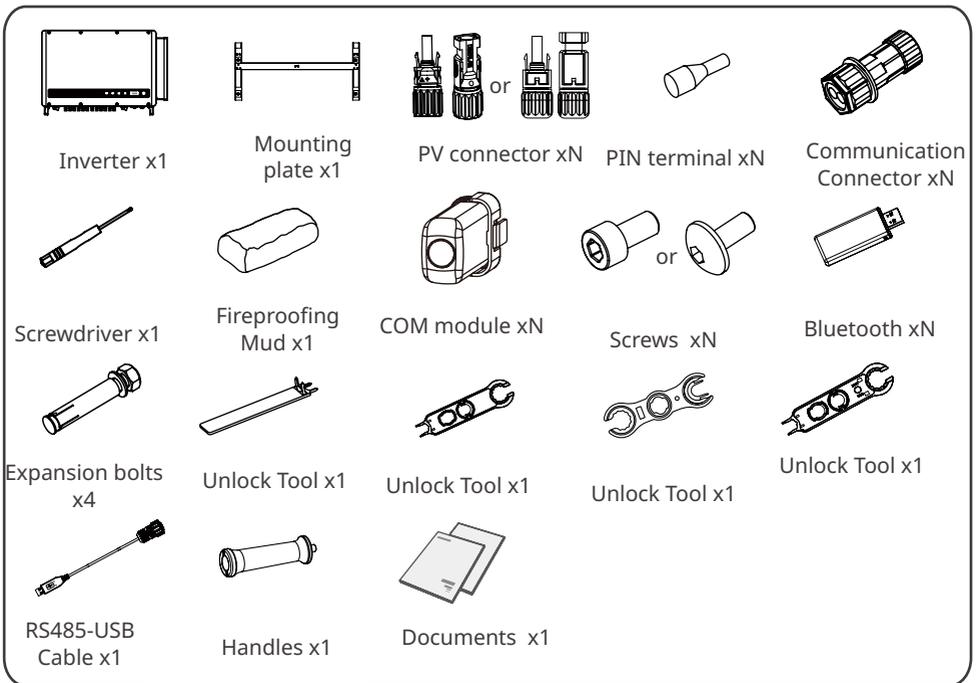
## 4 Check and Storage

### 4.1 Check Before Receiving

Check the following items before receiving the product.

1. Check the outer packing box for damage, such as holes, cracks, deformation, and others signs of equipment damage. Do not unpack the package and contact the supplier as soon as possible if any damage is found.
2. Check the inverter model. If the inverter model is not what you requested, do not unpack the product and contact the supplier.
3. Check the deliverables for correct model, complete contents, and intact appearance. Contact the supplier as soon as possible if any damage is found.

### 4.2 Deliverables



**NOTICE**

- The number of PV connectors and the PV terminals in the inverter is the same.
- The type and number of the communication connector are decided by the selected communication method.
- Communication module types: WiFi, 4G etc. The actual module delivered depends on the communication method of the selected inverter.
- The number of expansion bolts, screws, pin terminals are various depending on different inverters. The actual accessories may differ.
- The Unlock tool will only be delivered in Korea.
- The RS485-USB cable will only be delivered in Brazil.
- Handles are only available for Korean models. Contact after-sale service for demandings in other regions.

### 4.3 Storage

If the equipment is not to be installed or used immediately, please ensure that the storage environment meets the following requirements:

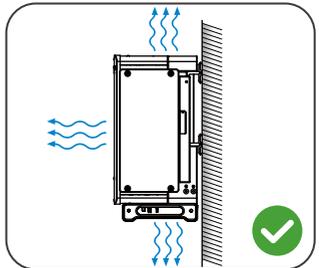
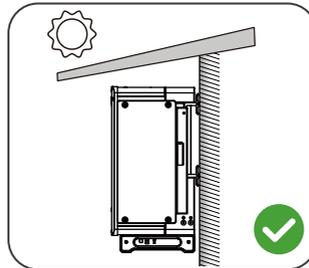
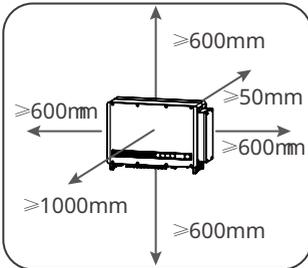
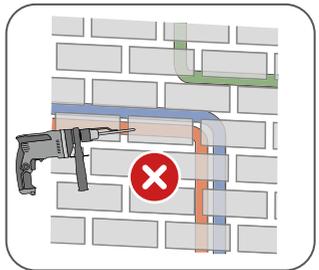
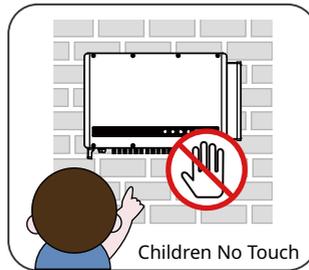
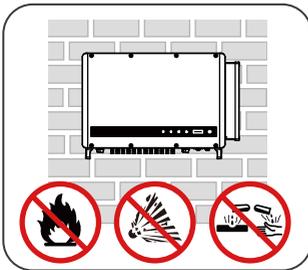
1. Do not unpack the outer package or throw the desiccant away.
2. Store the equipment in a clean place. Make sure the temperature and humidity are appropriate and no condensation.
3. The height and direction of the stacking inverters should follow the instructions on the packing box.
4. The inverters must be stacked with caution to prevent them from falling.
5. If the inverter has been long term stored, it should be checked by professionals before being put into use.

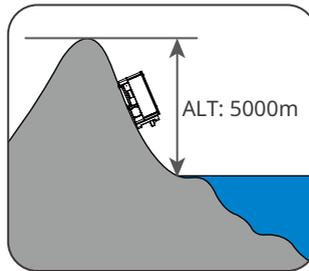
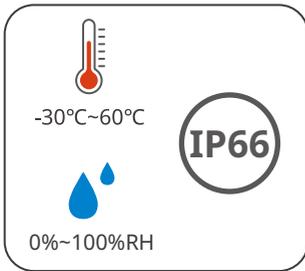
## 5 Installation

### 5.1 Installation Requirements

#### Installation Environment Requirements

1. Do not install the equipment in a place near flammable, explosive, or corrosive materials.
2. Install the equipment on a surface that is solid enough to bear the inverter weight.
3. Install the equipment in a well-ventilated place to ensure good dissipation. Also, the installation space should be large enough for operations.
4. The equipment with a high ingress protection rating can be installed indoors or outdoors. The temperature and humidity at the installation site should be within the appropriate range.
5. Install the equipment in a sheltered place to avoid direct sunlight, rain, and snow. Build a sunshade if it is needed.
6. Do not install the equipment in a place that is easy to touch, especially within children's reach. High temperature exists when the equipment is working. Do not touch the surface to avoid burning.
7. Install the equipment at a height that is convenient for operation and maintenance, electrical connections, and checking indicators and labels.
8. The installation place of the inverter shall be far away from the living areas considering that the vibration it has may bother the residents during its working.
9. Install the inverter away from high magnetic field to avoid electromagnetic interference. If there is any radio or wireless communication equipment below 30MHz near the inverter, you have to:
  - Install the inverter at least 30m far away from the wireless equipment.
  - Add a low pass EMI filter or a multi winding ferrite core to the DC input cable or AC output cable of the inverter.



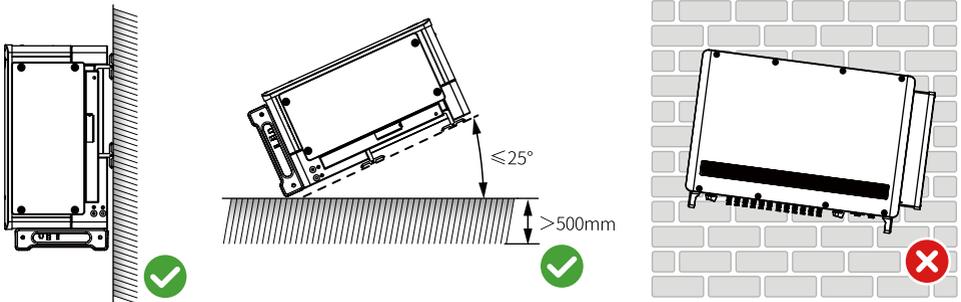


### Mounting Support Requirements

1. The mounting support shall be nonflammable and fireproof.
2. Make sure that the support surface is solid enough to bear the product weight load.

### Installation Angle Requirements

- Install the inverter vertically or at a maximum back tilt of 25 degrees.
- Do not install the inverter upside down, forward tilt, back forward tilt, or horizontally.



### Installation Tool Requirements

The following tools are recommended when installing the equipment. Use other auxiliary tools on site if necessary.

|                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
|  |  |  |  |   |
| Goggles                                                                           | Safety shoes                                                                      | Safety gloves                                                                     | Dust mask                                                                         | RJ45 crimping tool                                                                 |
|  |  |  |  |  |
| Diagonal pliers                                                                   | Wire stripper                                                                     | Hammer drill                                                                      | Heat gun                                                                          | DC terminal crimping tool                                                          |
|  |  |  |  |   |
| Marker                                                                            | Level                                                                             | Heat shrink tube                                                                  | Rubber hammer                                                                     | DC wiring wrench                                                                   |
|  |  |  |  |                                                                                    |
| Multimeter                                                                        | Cable tie                                                                         | Torque wrench<br>M6/M5                                                            | Vacuum cleaner<br>M8/M12                                                          |                                                                                    |

## 5.2 Inverter Installation

### 5.2.1 Moving the Inverter

 **CAUTION**

Move the inverter to the site before installation. Follow the instructions below to avoid personal injury or equipment damage.

1. Consider the weight of the equipment before moving it. Assign enough personnel to move the equipment to avoid personal injury.
2. Wear safety gloves to avoid personal injury.
3. Keep balance when moving the equipment.

### 5.2.2 Installing the Inverter

**NOTICE**

- Avoid the water pipes and cables buried in the wall when drilling holes.
- Wear goggles and a dust mask to prevent the dust from being inhaled or contacting eyes when drilling holes.
- If you need to use the handles or hoisting rings, please contact after-sale service for purchase.

**Step 1** Put the mounting plate on the wall horizontally and mark positions for drilling holes.

**Step 2** Drill holes to a depth of 65mm using the hammer drill. The diameter of the drill bit should be 13mm.

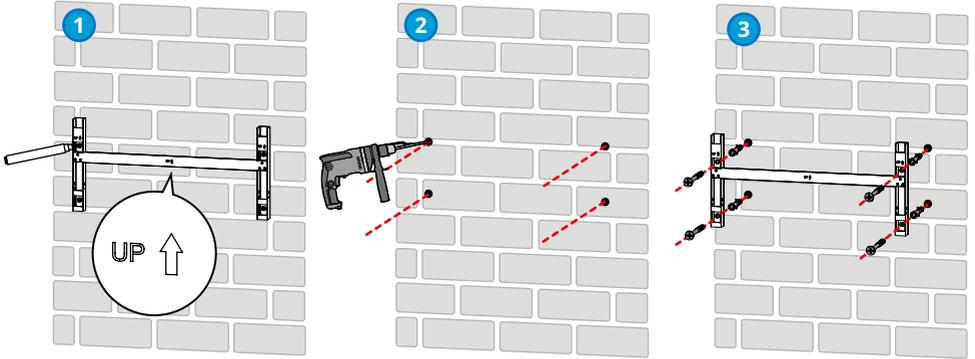
**Step 3** Fix the mounting plate on the wall or the bracket.

**Step 4** Install the handles or the hoisting rings.

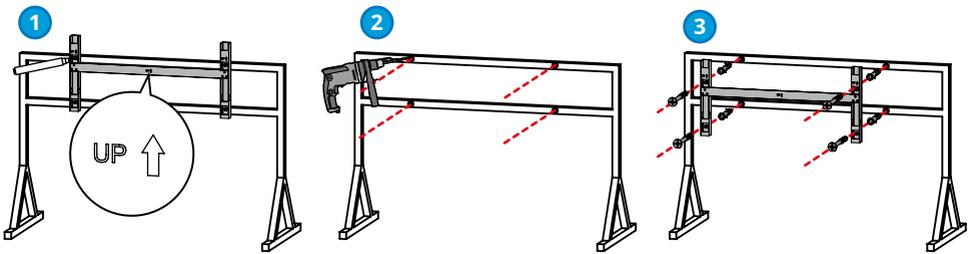
**Step 5** Grab the handles to lift the inverter or hoist the inverter to place it on the mounting plate.

**Step 6** Tighten the nuts to secure the mounting plate and the inverter.

### Mounting on the wall



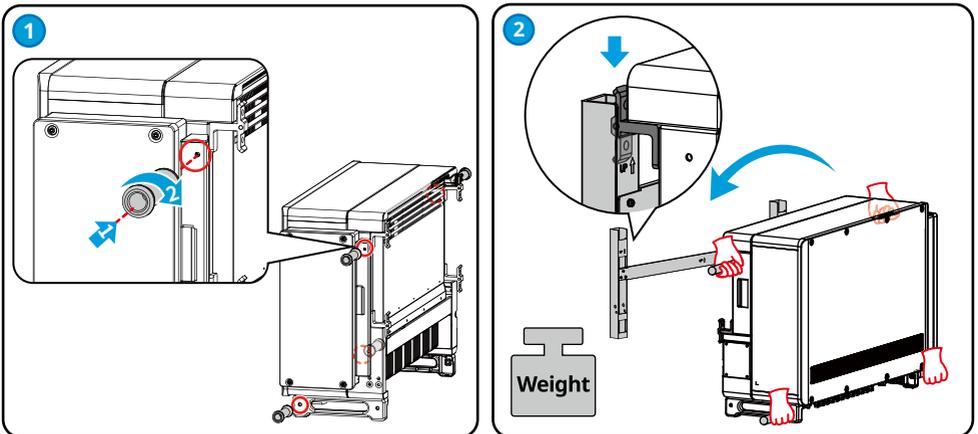
### Mounting on the plate

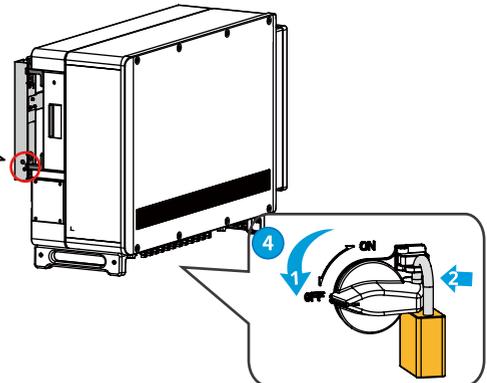
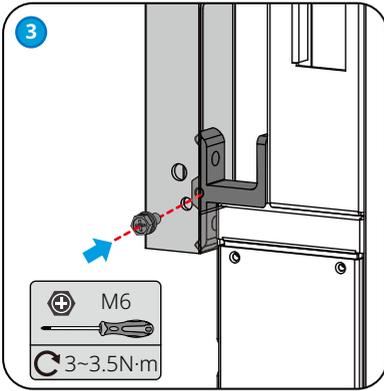


#### NOTICE

- Contact the dealer or the after sales center to purchase the handle if it is needed.
- The hoist ring should be prepared by customers.

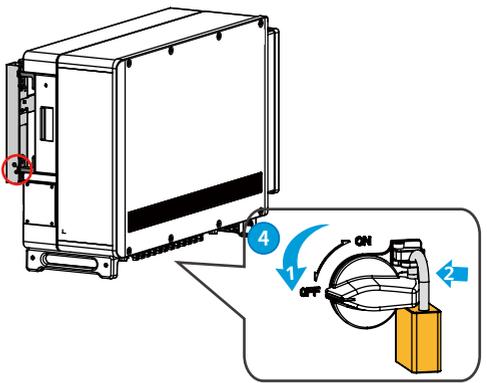
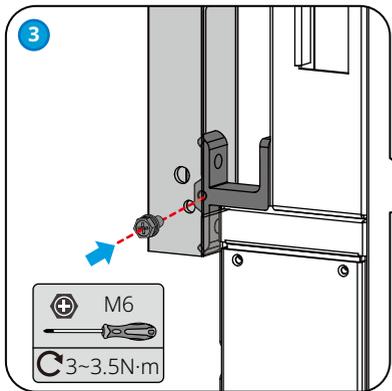
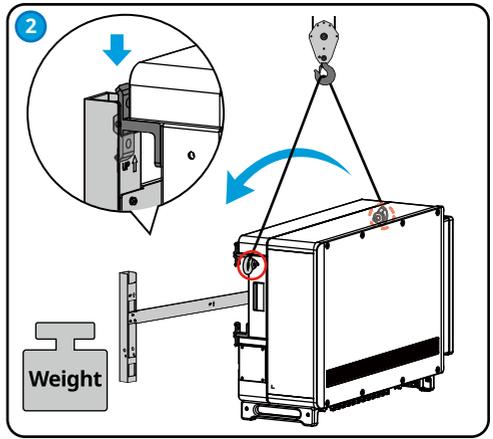
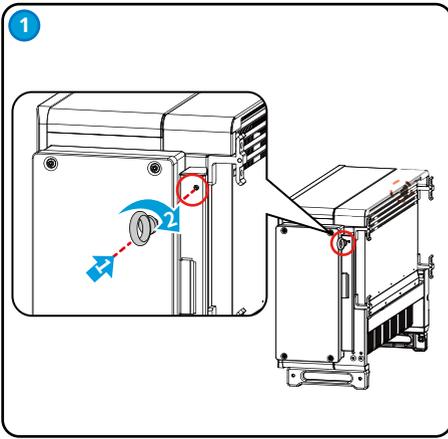
### Lifting the Inverter





The DC switch locking hole is for Australia only.

### Hoisting the Inverter



The DC switch locking hole is for Australia only.

## 6 Electrical Connection

### 6.1 Safety Precautions

#### DANGER

- Disconnect the DC switch and the AC output switch of the inverter to power off the equipment before any electrical connections. Do not work with power on. Otherwise, an electric shock may occur.
- Perform electrical connections in compliance with local laws and regulations. Including operations, cables, and component specifications.
- If the tension is too large, the cable may be poorly connected. Reserve a certain length of the cable before connecting it to the inverter cable port.

#### NOTICE

- Wear personal protective equipment like safety shoes, safety gloves, and insulating gloves during electrical connections.
- All electrical connections should be performed by qualified professionals.
- Cable colors in this document are for reference only. The cable specifications should meet local laws and regulations.

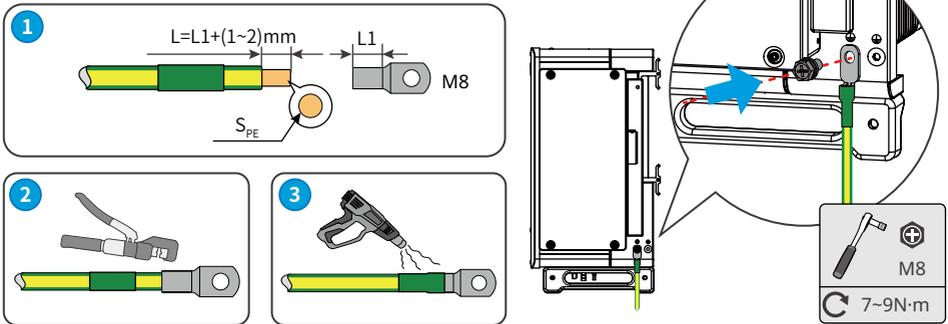
| No. | Cable                         | Type                                                                     | Cable Specification                                                                                                                                                                                                                                                                                                                                                                                 |
|-----|-------------------------------|--------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | PE cable                      | Outdoors cable                                                           | Conductor cross sectional area $S_{PE} \geq S/2$                                                                                                                                                                                                                                                                                                                                                    |
| 2   | DC input cable                | PV cable that meets 1100V standard.                                      | <ul style="list-style-type: none"> <li>Conductor cross sectional area: 4~6mm<sup>2</sup></li> <li>Cable outer diameter: 5.5mm~9mm</li> </ul>                                                                                                                                                                                                                                                        |
| 3   | AC output cable (multi-core)  | Multi-core outdoor cable                                                 | <ul style="list-style-type: none"> <li>Cable outer diameter: 22mm~67mm</li> <li>Copper core cable conductor cross sectional area: <math>70 \leq S \leq 300\text{mm}^2</math></li> <li>Aluminum alloy cable or copper-clad aluminum cable conductor cross sectional area: <math>95 \leq S \leq 300\text{mm}^2</math></li> <li>Conductor cross sectional area <math>S_{PE} \geq S/2</math></li> </ul> |
| 4   | AC output cable (single core) | Single-core outdoor cable                                                | <ul style="list-style-type: none"> <li>Cable outer diameter: 11mm~35mm</li> <li>Copper core cable conductor cross sectional area: <math>70 \leq S \leq 300\text{mm}^2</math></li> <li>Aluminum alloy cable or copper-clad aluminum cable conductor cross sectional area: <math>95 \leq S \leq 300\text{mm}^2</math></li> <li>Conductor cross sectional area <math>S_{PE} \geq S/2</math></li> </ul> |
| 5   | RS485 communication cable     | Outdoor shielded twisted pair. The cable should meet local requirements. | Cable Length: 1000m                                                                                                                                                                                                                                                                                                                                                                                 |
| 6   | Remote Shutdown Cable         | Outdoor shielded twisted pair. The cable should meet local requirements. | N/A                                                                                                                                                                                                                                                                                                                                                                                                 |

Note: The values in this table are valid only if the external protective earthing conductor is made of the same metal as the phase conductors. Otherwise, the cross-sectional area of the external protective earthing conductor is to be determined in a manner which produces a conductance equivalent to that which results from the application of this table.

## 6.2 Connecting the PE Cable

### WARNING

- The PE cable connected to the enclosure of the inverter cannot replace the PE cable connected to the AC output port. Both of the two PE cables must be securely connected.
- Make sure that all the grounding points on the enclosures are equipotential connected when there are multiple inverters.
- To improve the corrosion resistance of the terminal, it is recommended to apply silica gel or paint on the ground terminal after installing the PE cable.
- The PE cable should be prepared by customers.
- M8 ground OT terminals should be prepared by customers.



## 6.3 Connecting the PV Input Cable

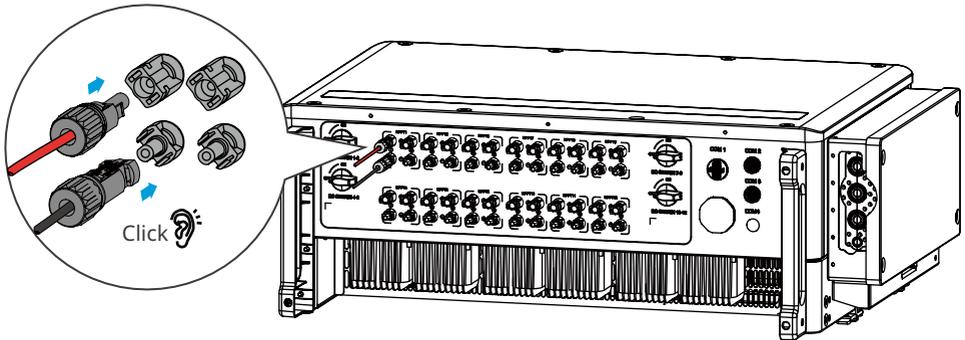
### DANGER

Confirm the following information before connecting the PV string to the inverter. Otherwise, the inverter may be damaged permanently or even cause fire and cause personal and property losses.

1. Make sure that the max short circuit current and the max input voltage per MPPT are within the permissible range.
2. Make sure that the positive pole of the PV string connects to the PV+ of the inverter. And the negative pole of the PV string connects to the PV- of the inverter.

### WARNING

- Connect the DC cables using the delivered PV connectors. The manufacturer shall not be liable for the damage if other connectors are used.
- The PV strings cannot be grounded. Ensure the minimum isolation resistance of the PV string to the ground meets the minimum isolation resistance requirements before connecting the PV string to the inverter.
- The DC input cable should be prepared by customers.



### NOTICE

Seal the PV input terminals using waterproof covers when they are not to be used. Otherwise, the ingress protection rating will be influenced.

### Connecting the DC Input Cable

- Step 1** Prepare DC cables.
- Step 2** Crimp the crimp contacts.
- Step 3** Disassemble the PV connectors.
- Step 4** Make the DC cable and detect the DC input voltage.
- Step 5** Plug the PV connectors into the PV terminals.

### Devalan DC Connector

**1**

7-8mm  
7-8mm  
Φ: 5.5-9mm  
+  
-

**2**

+  
-  
!

**3**

+  
-

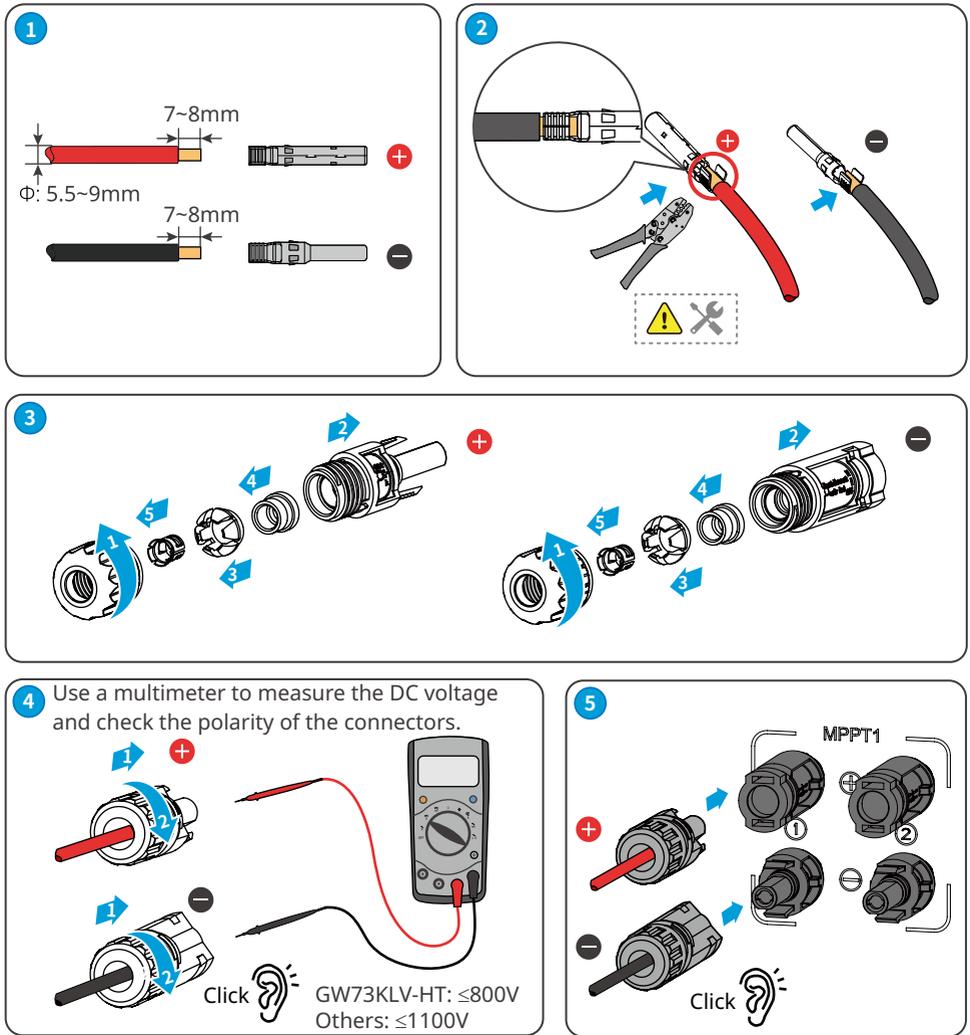
**4** Use a multimeter to measure the DC voltage and check the polarity of the connectors.

+  
-  
Click GW73KLV-HT: ≤800V  
Others: ≤1100V

**5**

MPPT1  
+  
-  
Click

### QC4.10 DC Connector



## 6.4 Connecting the AC Output Cable

 **WARNING**

Do not connect loads between the inverter and the AC switch directly connected to it.

Where an external RCD (Residual Current Device) is required in addition to the built-in RCMU (Residual Current Monitoring Unit), and a type A RCD must be used to avoid tripping.

| Inverter model | Recommended RCD specifications |
|----------------|--------------------------------|
| GW73KLV-HT     | 730mA or higher                |
| GW75K-HT       | 750mA or higher                |
| GW80K-HT       | 800mA or higher                |
| GW100K-HT      | 1000mA or higher               |
| GW110K-HT      | 1100mA or higher               |
| GW120K-HT      | 1200mA or higher               |
| GW125K-HTH     | 1250mA or higher               |
| GW136K-HTH     | 1360mA or higher               |

An AC circuit breaker should be installed on the AC side to make sure that the inverter can safety disconnect the grid when an exception happens. Select the appropriate AC circuit breaker in compliance with local laws and regulations. Recommended AC circuit breakers:

| Inverter model              | AC circuit breaker |
|-----------------------------|--------------------|
| GW75K-HT/GW80K-HT/GW100K-HT | 200A               |
| GW110K-HT                   | 250A               |
| GW73KLV-HT/GW120K-HT        | 250A               |
| GW125K-HTH/GW136K-HTH       | 225A               |

#### NOTICE

Install one AC circuit breaker for each inverter. Multiple inverters cannot share one AC circuit breaker.

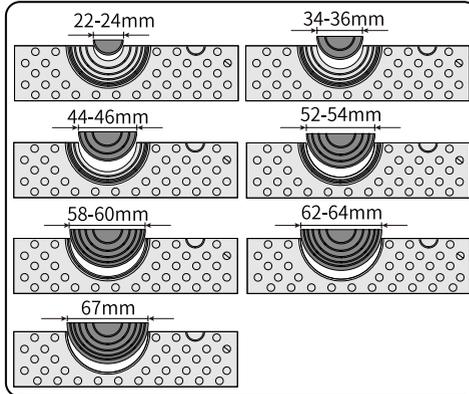


#### WARNING

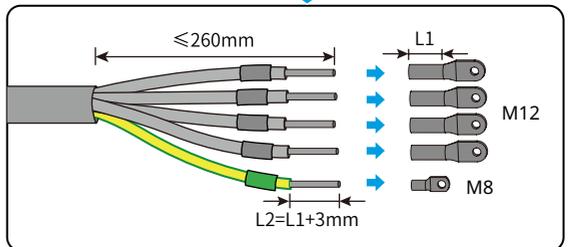
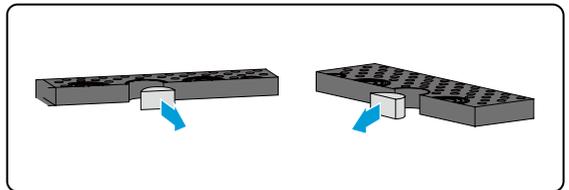
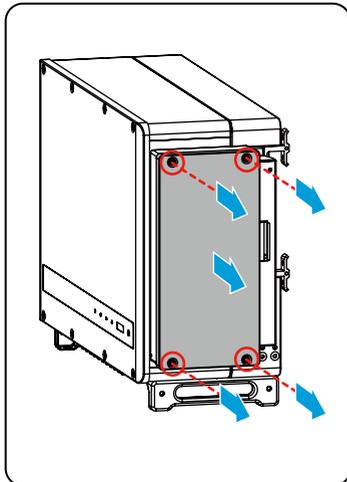
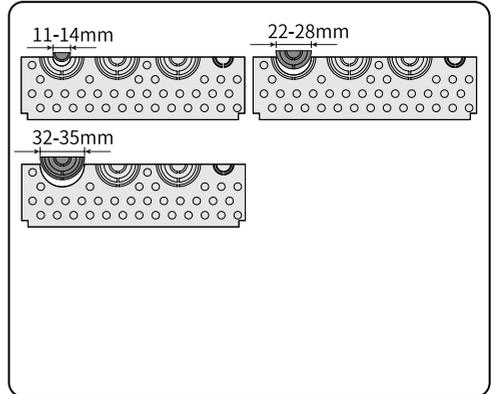
- Pay attention to the silkscreens L1, L2, L3, N, PE on the AC terminal. Connect the AC cables to the corresponding terminals. The inverter may be damaged if the cables are connected inappropriately.
- Make sure that the whole cable cores are inserted into the AC terminal holes. No part of the cable core can be exposed.
- Make sure that the cables are connected securely. Otherwise, the terminal may be too hot to damage the inverter when the inverter is working.
- The AC terminals can be connected in three-phase four-wire or three-phase five-wire. The actual wiring method may be different. The figure below takes the three-phase five-wire as an example.
- The waterproof rubber ring for the AC outlet hole is delivered with the inverter, which is located in the AC junction box of the inverter. Please select the rubber ring types according to the actual using cables' specification.
- Reserve certain length of PE cable. Make ensure that the PE cable is the last one to bear the stress when the AC output cable is under tension.
- M8 ground OT terminals and M12 AC OT terminals should be prepared by customers.

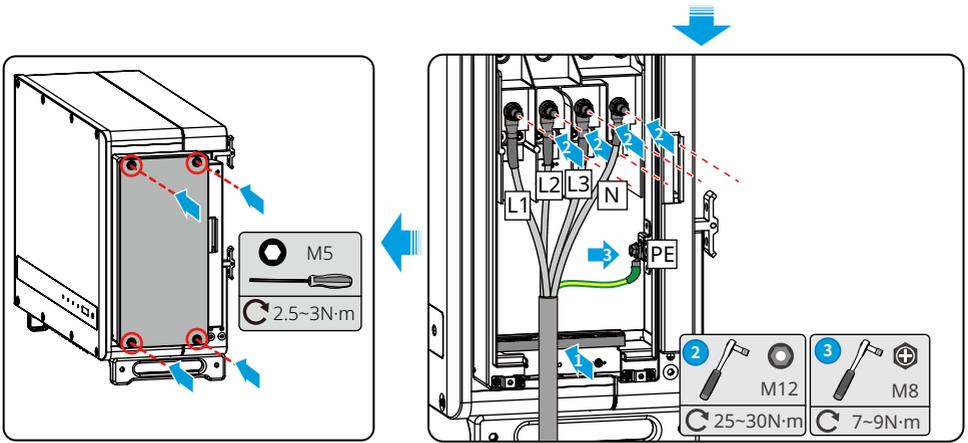
- Step 1** Make the AC output cable.
- Step 2** Dismantle the AC cover and take out the rubber ring.
- Step 3** Cut the rubber ring to right size.
- Step 4** Crimp the AC cable OT terminal
- Step 5** Connect the AC output cables and install the cover.

Multi-core cable:



Single-core cable





**NOTICE**

- Make sure that the cables are connected correctly and firmly after connections. Clean all the debris in the maintenance compartment.
- Seal the AC output terminal to ensure the Ingress Protection Rating.

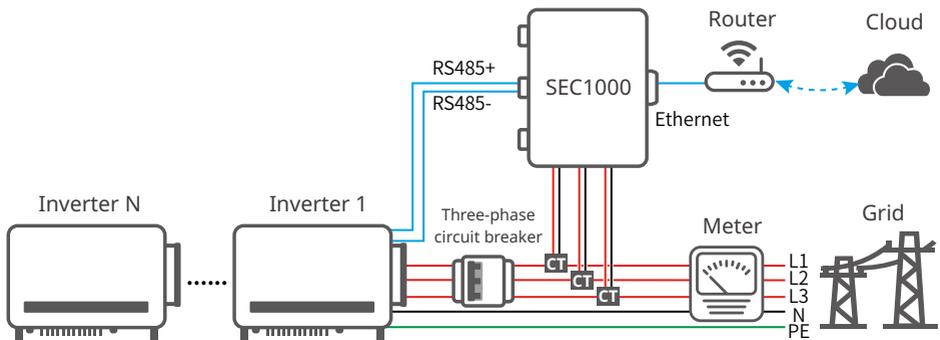
## 6.5 Communication

### 6.5.1 Connecting the Communication Cable

**NOTICE**

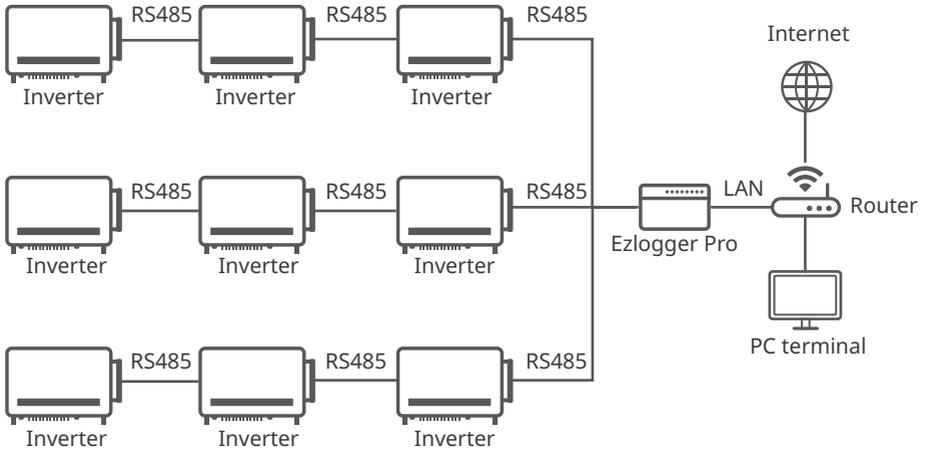
Make sure that the communication device is connected to the right COM port. Route the communication cable far away from any interference source or power cable to prevent the signal from being influenced.

#### Power limit networking scenario



After completing cable connections, set related parameters via LCD or SolarGo app to enable export power limit control or output power limit control.

### RS485 networking scenario

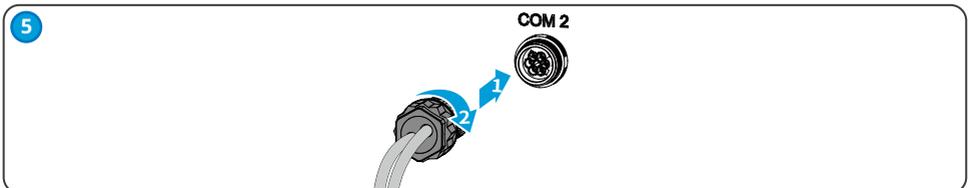
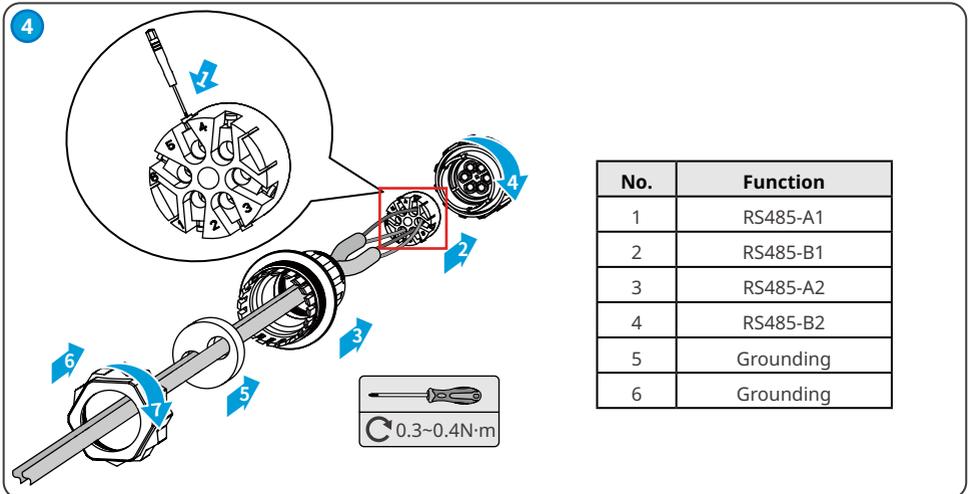
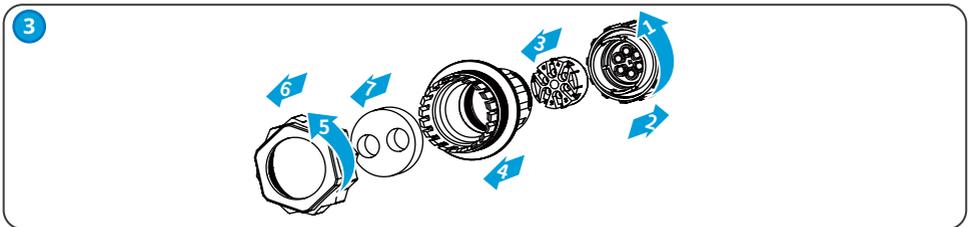
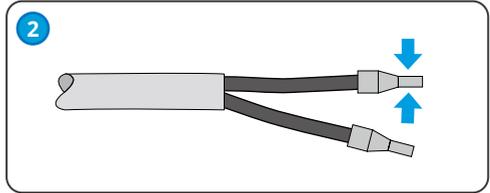
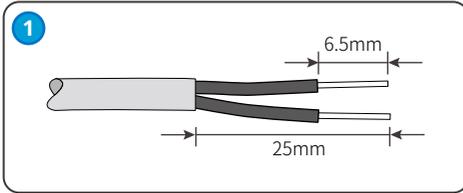
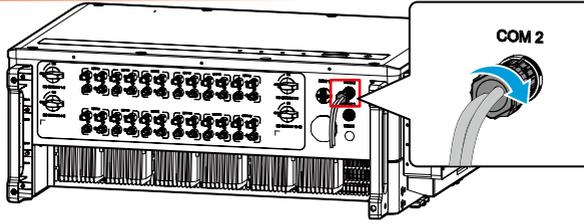


### Connecting the RS485 Communication Cable

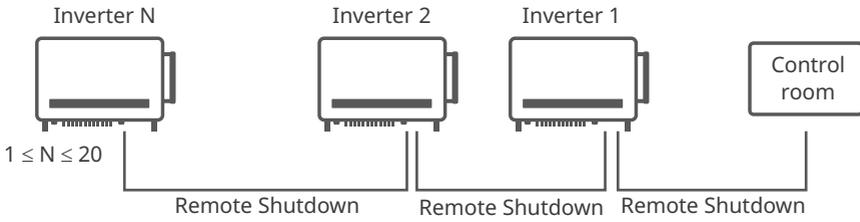
| Communication Type | COM Port | Port Definition                                                                          | Function Description                                                                                                                                                                                                                                                                                                                                                                                     |
|--------------------|----------|------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| RS485              | COM2     | 1: RS485 A1<br>2: RS485 B1<br>3: RS485 A2<br>4: RS485 B2<br>5: Grounding<br>6: Grounding | Used to connect the inverter to other inverters or the RS485 port on the data logger. DRED function should be set in EzLogger Pro. You can refer to EzLogger Pro SERIES USER MANUAL. Visit <a href="https://en.goodwe.com/Public/Uploads/sersups/GW_EzLogger%20Pro_User%20Manual-EN.pdf">https://en.goodwe.com/Public/Uploads/sersups/GW_EzLogger%20Pro_User%20Manual-EN.pdf</a> to get the user manual. |

#### NOTICE

Connect the RS485 cable using a 6PIN communication terminal as follows.



### Remote Shutdown networking scenario

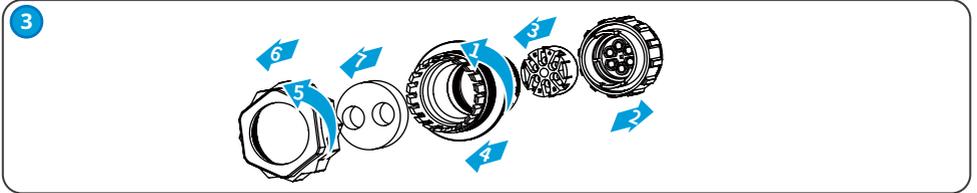
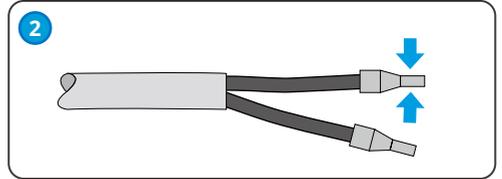
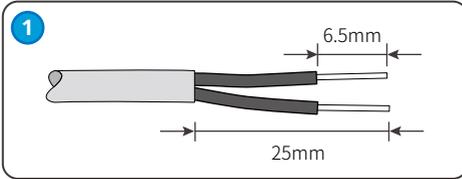
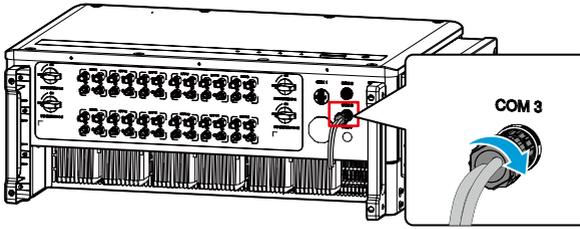


### Connecting the Remote Shutdown Communication Cable

| Communication Type | COM Port | Port Definition                                                                                            | Function Description                                                                                                             |
|--------------------|----------|------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| Remote Shutdown    | COM3     | 1: DI_SHUTOFF1_A<br>2: DI_SHUTOFF1_B<br>3: Reserved<br>4: Reserved<br>5: DI_SHUTOFF2_A<br>6: DI_SHUTOFF2_B | The remote shutdown port is reserved to meet the safety regulations in Europe. Related devices have to be prepared by customers. |

#### NOTICE

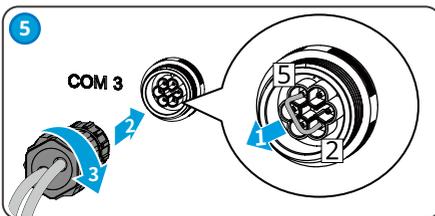
Connect the Remote Shutdown cable using a 6PIN communication terminal as follows.



4

| No. | Function      |
|-----|---------------|
| 1   | DI_SHUTOFF1_A |
| 2   | DI_SHUTOFF1_B |
| 3   | Reserved      |
| 4   | Reserved      |
| 5   | DI_SHUTOFF2_A |
| 6   | DI_SHUTOFF2_B |

0.3-0.4N·m

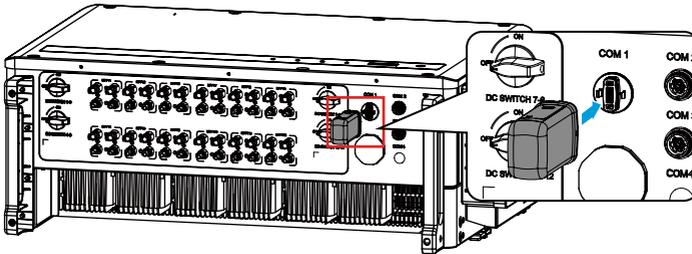


**NOTICE**

The Remote Shutdown communication port is installed with a short circuit wire. Remove the short circuit wire and keep it properly when enabling the Remote Shutdown function. Install the short circuit wire in PIN2 and PIN5 of the COM3 port when disabling the Remote Shutdown function.

## 6.5.2 Installing the Communication Module (optional)

Plug a communication module into the inverter to establish a connection between the inverter and the smartphone or web pages. The communication module can be a WiFi module, or 4G module. Set inverter parameters, check running information and fault information, and observe system status in time via the smartphone or web pages.



### NOTICE

- Refer to the delivered communication module user manual to get more introduction to the module. For more detailed information, visit <https://en.goodwe.com/>.
- Remove the communication module using the unlock tool. The manufacturer shall not be liable for the port damage if the module is removed without the unlock tool.

## 7 Equipment Commissioning

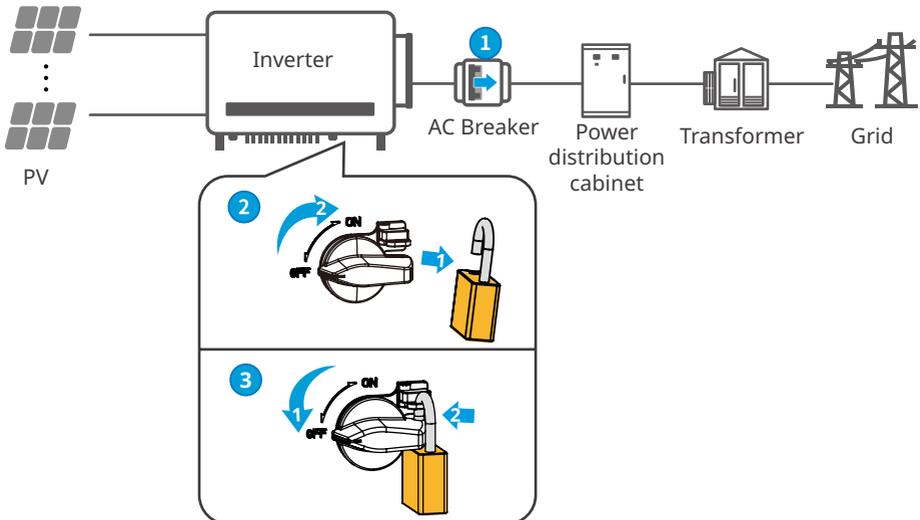
### 7.1 Check Items Before Switching Power ON

| No. | Check Item                                                                                                   |
|-----|--------------------------------------------------------------------------------------------------------------|
| 1   | The inverter is firmly installed in a clean place where is well-ventilated and easy to operate.              |
| 2   | The PE cable, DC input cable, AC output cable, and communication cable are connected correctly and securely. |
| 3   | Cable ties are routed properly and evenly, and no burrs.                                                     |
| 4   | Unused ports and terminals are sealed.                                                                       |
| 5   | The voltage and frequency at the connection point meet the on-grid requirements.                             |

### 7.2 Power On

**Step 1** Turn on the AC switch between the inverter and the utility grid.

**Step 2** Turn on the DC switch of the inverter.



The DC switch locking hole is for Australia only.

#### Power ON

Turn on **1** → **2**

#### Power OFF

Turn off **1** → **3**

## 8 System Commissioning

### 8.1 Indicators and Button

Model without LCD



Model with LCD



| Indicator                                                                           | Status                                                                              | Description                                                  |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------|
|    |    | ON = EQUIPMENT POWER ON                                      |
|                                                                                     |    | OFF = EQUIPMENT POWER OFF                                    |
|    |    | ON = THE INVERTER IS FEEDING POWER                           |
|                                                                                     |    | OFF = THE INVERTER IS NOT FEEDING POWER                      |
|                                                                                     |    | SINGLE SLOW FLASH = SELF CHECK BEFORE CONNECTING TO THE GRID |
|                                                                                     |    | SINGLE FLASH = CONNECTING TO THE GRID                        |
|  |  | ON = WIRELESS IS CONNECTED/ACTIVE                            |
|                                                                                     |  | BLINK 1 = WIRELESS SYSTEM IS RESETING                        |
|                                                                                     |  | BLINK 2 = WIRELESS ROUTER NOT CONNECTED                      |
|                                                                                     |  | BLINK 4 = WIRELESS SERVER PROBLEM                            |
|                                                                                     |  | BLINK = RS485 IS CONNECTED                                   |
|                                                                                     |  | OFF = WIRELESS IS NOT ACTIVE                                 |
|  |  | ON = A FAULT HAS OCCURRED                                    |
|                                                                                     |  | OFF = NO FAULT                                               |

## 8.2 Setting Inverter Parameters via LCD

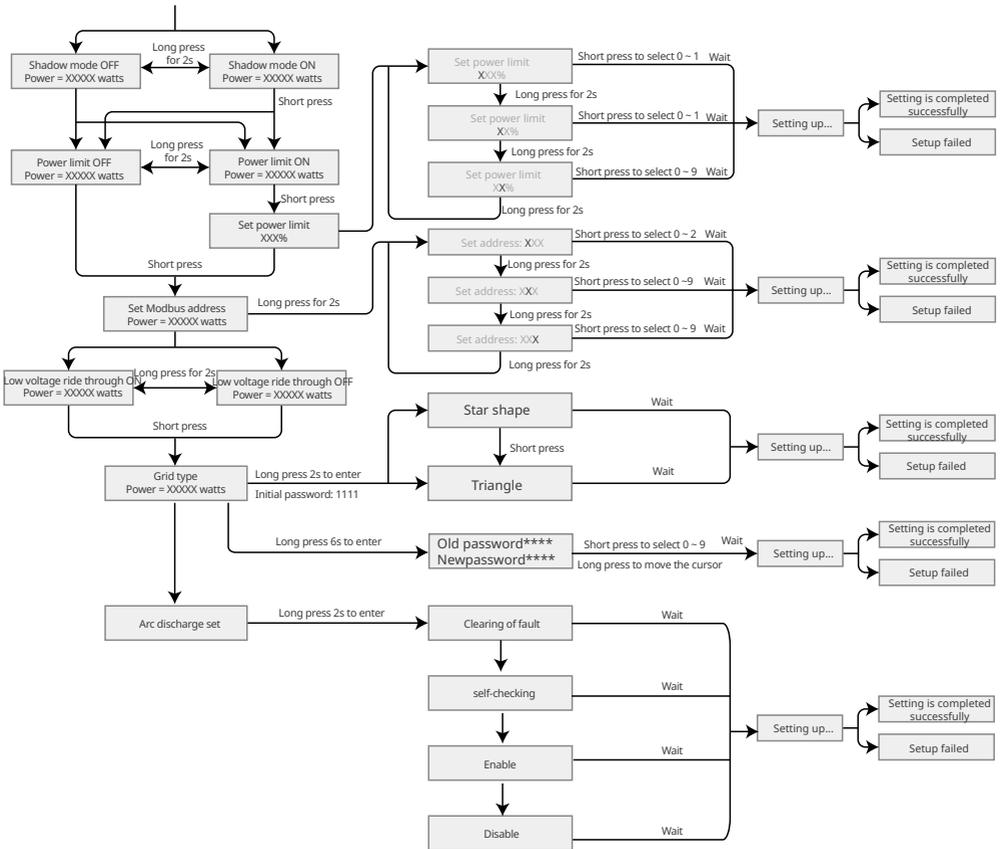
### NOTICE

- The screen shots are for reference only. The actual display may differ.
- The name, range, and default value of the parameters is subject to change or adjust. The actual display prevails.
- the power parameters should be set by professionals to prevent the generating capacity from being influenced by wrong parameters.

### LCD Button Description

Stop pressing the button for a period in any page, the LCD will get dark and go back to the initial page, which means the parameter in that page has been saved successfully.





### 8.3 Setting Inverter Parameters via App

SolarGo is an application used to communicate with the inverter via Bluetooth module, WiFi module, Wi-Fi/LAN module, or 4G module. Commonly used functions:

1. Check the operating data, software version, alarms of the inverter, etc.
2. Set grid parameters and communication parameters of the inverter.
3. Maintain the equipment.

For more details, refer to the SolarGo APP User Manual. Scan the QR code or visit [https://en.goodwe.com/Ftp/EN/Downloads/User%20Manual/GW\\_SolarGo\\_User%20Manual-EN.pdf](https://en.goodwe.com/Ftp/EN/Downloads/User%20Manual/GW_SolarGo_User%20Manual-EN.pdf) to get the user manual.



SolarGo App



SolarGo App  
User Manual

### 8.4 Monitoring via SEMS Portal

SEMS Portal is an monitoring platform used to manage organizations/users, add plants, and monitor plant status.

For more details, refer to the SEMS Portal User Manual. Scan the QR code or visit [https://en.goodwe.com/Ftp/EN/Downloads/User%20Manual/GW\\_SEMS%20Portal-User%20Manual-EN.pdf](https://en.goodwe.com/Ftp/EN/Downloads/User%20Manual/GW_SEMS%20Portal-User%20Manual-EN.pdf) to get the user manual.



SEMS Portal



SEMS Portal  
User Manual

## 9 Maintenance

### 9.1 Power Off the Inverter

#### DANGER

- Power off the inverter before operations and maintenance. Otherwise, the inverter may be damaged or electric shocks may occur.
- Delayed discharge. Wait until the components are discharged after power off.

**Step 1** Issue a command to the inverter for halting the grid via SolarGo APP.

**Step 2** Turn off the AC switch between the inverter and the utility grid.

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

### 9.2 Removing the Inverter

#### WARNING

- Make sure that the inverter is powered off.
- Wear proper PPE before any operations.

**Step 1** Disconnect all the cables, including DC cables, AC cables, communication cables, the communication module, and PE cables.

**Step 2** Handle or hoist the inverter to take it down from the wall or the bracket.

**Step 3** Store the inverter properly. If the inverter needs to be used later, ensure that the storage conditions meet the requirements.

### 9.3 Disposing of the Inverter

If the inverter cannot work any more, dispose of it according to the local disposal requirements for electrical equipment waste. Do not dispose of it as household waste.

## 9.4 Troubleshooting

Perform troubleshooting according to the following methods. Contact the after-sales service if these methods do not work.

Collect the information below before contacting the after-sales service, so that the problems can be solved quickly.

1. Inverter information like serial number, software version, installation date, fault time, fault frequency, etc.
2. Installation environment, including weather conditions, whether the PV modules are sheltered or shadowed, etc. It is recommended to provide some photos and videos to assist in analyzing the problem.
3. Utility grid situation.

| No. | Fault             | Cause                                                                                                                                                                       | Solutions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | SPI Comm Fail     | <ol style="list-style-type: none"> <li>1. The chip is not powered on.</li> <li>2. The chip program version is wrong.</li> </ol>                                             | Disconnect the AC output switch and DC input switch, then connect them 5 minutes later. Contact the dealer or the after-sales service if the problem persists.                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 2   | EEPROM Fail       | The internal memory Flash is abnormal.                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 3   | Fac Fail          | Utility grid exception. The actual grid frequency change rate does not meet the requirement of the local grid standard.                                                     | <ol style="list-style-type: none"> <li>1. If the problem occurs occasionally, the utility grid may be abnormal temporarily. The inverter will recover automatically after detecting that the utility grid is normal.</li> <li>2. If the problem occurs frequently, check whether the grid frequency is within the permissible range.               <ul style="list-style-type: none"> <li>• Contact the local power company if the grid frequency exceeds the permissible range.</li> <li>• Contact the dealer or the after-sales service if the grid frequency is within the permissible range.</li> </ul> </li> </ol> |
| 4   | DC-SPD            | The inverter is struck by lightning.                                                                                                                                        | <ol style="list-style-type: none"> <li>1. Improve the lightning protection facilities around the inverter.</li> <li>2. Disconnect the AC output switch and DC input switch, then connect them 5 minutes later. Contact the dealer or the after-sales service if the problem persists.</li> </ol>                                                                                                                                                                                                                                                                                                                        |
| 5   | Night DCSPS Fault | <ol style="list-style-type: none"> <li>1. Temporary abnormality is caused by environmental factors.</li> <li>2. Internal components of the inverter are damaged.</li> </ol> | Disconnect the AC output switch and DC input switch, then connect them 5 minutes later. Contact the dealer or the after-sales service if the problem persists.                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

| No. | Fault            | Cause                                                                                                                                                                                                                                    | Solutions                                                                                                                                                      |
|-----|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6   | Relay Fail       | <ol style="list-style-type: none"> <li>1. The relay is abnormal or short-circuited.</li> <li>2. The control circuit is abnormal.</li> <li>3. The AC cable connection is abnormal, like a virtual connection or short circuit.</li> </ol> | Disconnect the AC output switch and DC input switch, then connect them 5 minutes later. Contact the dealer or the after-sales service if the problem persists. |
| 7   | BUS-start Fail   | <ol style="list-style-type: none"> <li>1. The output power of the PV string is too low.</li> <li>2. The control circuit is abnormal.</li> </ol>                                                                                          | Disconnect the AC output switch and DC input switch, then connect them 5 minutes later. Contact the dealer or the after-sales service if the problem persists. |
| 8   | OVGRFault        | <ol style="list-style-type: none"> <li>1. The output voltage value of the PV string is lower than the minimum DC input voltage value of the inverter.</li> <li>2. The control circuit is abnormal.</li> </ol>                            | Disconnect the AC output switch and DC input switch, then connect them 5 minutes later. Contact the dealer or the after-sales service if the problem persists. |
| 9   | Pv Reverse Fault | The PV string is connected reversely.                                                                                                                                                                                                    | Check whether the PVstrings is connected reversely.                                                                                                            |
| 10  | Night BUS Fault  | <ol style="list-style-type: none"> <li>1. Utility grid power fails.</li> <li>2. The AC cable is disconnected, or the AC breaker is off.</li> </ol>                                                                                       | Disconnect the AC output switch and DC input switch, then connect them 5 minutes later. Contact the dealer or the after-sales service if the problem persists. |
| 11  | CPLD Error       | <ol style="list-style-type: none"> <li>1. Temporary abnormality is caused by environmental factors.</li> <li>2. Internal components of the inverter are damaged.</li> </ol>                                                              | Disconnect the AC output switch and DC input switch, then connect them 5 minutes later. Contact the dealer or the after-sales service if the problem persists. |

| No. | Fault         | Cause                                                                                                                                                                                                         | Solutions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-----|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 12  | DCi High      | The machine detects that the DC component of the internal output current exceeds the normal range.                                                                                                            | Please contact your dealer or after-sale service.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 13  | ISO Fail      | <ol style="list-style-type: none"> <li>1. The PV system is short-circuited to the ground.</li> <li>2. The PV system is in a moist environment and the circuit is not well insulated to the ground.</li> </ol> | <ol style="list-style-type: none"> <li>1. Check whether the PV input cables are broken.</li> <li>2. Check whether the module frames and the metal bracket are securely grounded.</li> <li>3. Check whether the AC side is properly grounded</li> </ol> <p>Inverters sold in Australia and New Zealand will also alarm as following when Isolation Fail occurs.</p> <ol style="list-style-type: none"> <li>1. The buzzer in the inverter will sound for 1minute. If the problem persists, the buzzer willsound every 30 min.</li> <li>2. After adding the inverter to SEMS Portal, the alarm information will be emailed to the customers via SEMS Portal.</li> </ol> |
| 14  | Vac Failure   | The utility grid voltage is out of the allowed range.                                                                                                                                                         | <ol style="list-style-type: none"> <li>1. Make sure that the grid voltage is within the allowed range.</li> <li>2. Make sure that the phase sequence of the AC cables are connected correctly, and the neutral wire and PE cable are connected properly and firmly.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                       |
| 15  | ExFan Failure | <ol style="list-style-type: none"> <li>1. The fan power supply is abnormal.</li> <li>2. Mechanical exception.</li> <li>3. The fan is aging and damaged.</li> </ol>                                            | Disconnect the AC output switch and DC input switch, then connect them 5 minutes later. Contact the dealer or the after-sales service if the problem persists.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 16  | GFCI Chk Fail | The sampling of the GFCI HCT is abnormal.                                                                                                                                                                     | Disconnect the AC output switch and DC input switch, then connect them 5 minutes later. Contact the dealer or the after-sales service if the problem persists.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 17  | AFCI Fault    | <ol style="list-style-type: none"> <li>1. The DC string terminal is not firmly connected.</li> <li>2. The DC cable is broken.</li> </ol>                                                                      | Please check whether the wirings of the PV modules are correct according to the requirements in the user manual.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

| No. | Fault            | Cause                                                                                                                                                                                                                     | Solutions                                                                                                                                                                                                                                                                                                                                                                   |
|-----|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 18  | Over Temperature | <ol style="list-style-type: none"> <li>The inverter is installed in a place with poor ventilation.</li> <li>The ambient temperature exceeds 60°C.</li> <li>A fault occurs in the internal fan of the inverter.</li> </ol> | <ol style="list-style-type: none"> <li>Check the ventilation and the ambient temperature at the installation point.</li> <li>If the ventilation is poor or the ambient temperature is too high, improve the ventilation and heat dissipation.</li> <li>Contact the dealer or after-sales service if both the ventilation and the ambient temperature are normal.</li> </ol> |
| 19  | InFan Fail       | <ol style="list-style-type: none"> <li>The fan power supply is abnormal.</li> <li>Mechanical exception.</li> <li>The fan is aging and damaged.</li> </ol>                                                                 | <p>Disconnect the AC output switch and DC input switch, then connect them 5 minutes later.<br/>Contact the dealer or the after-sales service if the problem persists.</p>                                                                                                                                                                                                   |
| 20  | DC Bus High      | <ol style="list-style-type: none"> <li>The PV voltage is too high.</li> <li>The sampling of the inverter BUS voltage is abnormal.</li> </ol>                                                                              | <p>Disconnect the AC output switch and DC input switch, then connect them 5 minutes later.<br/>Contact the dealer or the after-sales service if the problem persists.</p>                                                                                                                                                                                                   |
| 21  | Gnd I Fail       | <p>The input insulation impedance to the ground decreases when the inverter is operating.</p>                                                                                                                             | <ol style="list-style-type: none"> <li>Check whether the working environment of the inverter meets the requirements. For example, the fault may occur due to high humidity on rainy days</li> <li>Make sure that the components are properly grounded and the AC side is properly grounded.</li> </ol>                                                                      |
| 22  | Utility Loss     | <ol style="list-style-type: none"> <li>Utility grid power fails.</li> <li>The AC cable is disconnected, or the AC breaker is off.</li> </ol>                                                                              | <ol style="list-style-type: none"> <li>The alarm is automatically cleared after the grid power supply is restored.</li> <li>Check whether the AC cable is connected and the AC breaker is on.</li> </ol>                                                                                                                                                                    |
| 23  | AC HCT Fail      | <p>The sampling of the AC HCT is abnormal.</p>                                                                                                                                                                            | <p>Disconnect the AC output switch and DC input switch, then connect them 5 minutes later.<br/>Contact the dealer or the after-sales service if the problem persists.</p>                                                                                                                                                                                                   |
| 24  | Relay Fail       | <ol style="list-style-type: none"> <li>The relay is abnormal or short-circuited.</li> <li>The control circuit is abnormal.</li> </ol>                                                                                     | <p>Disconnect the AC output switch and DC input switch, then connect them 5 minutes later.<br/>Contact the dealer or the after-sales service if the problem persists.</p>                                                                                                                                                                                                   |

| No. | Fault            | Cause                                                                                                                                                                 | Solutions                                                                                                                                                                                                                          |
|-----|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 25  | GFCI Chk Fail    | The sampling of the GFCI HCT is abnormal.                                                                                                                             | Disconnect the AC output switch and DC input switch, then connect them 5 minutes later. Contact the dealer or the after-sales service if the problem persists.                                                                     |
| 26  | SPD Failure      | The inverter is struck by lightning.                                                                                                                                  | 3. Improve the lightning protection facilities around the inverter. Disconnect the AC output switch and DC input switch, then connect them 5 minutes later. Contact the dealer or the after-sales service if the problem persists. |
| 27  | DC Switch Fail   | The tripping times of the DC trip switch exceeds the limit.                                                                                                           | Please contact your dealer or after-sale service.                                                                                                                                                                                  |
| 28  | Ref-V Chk Fail   | The reference circuit is faulty.                                                                                                                                      | Disconnect the AC output switch and DC input switch, then connect them 5 minutes later. Contact the dealer or the after-sales service if the problem persists.                                                                     |
| 29  | HCT Chk Fail     | The AC sensor is abnormal in sampling.                                                                                                                                |                                                                                                                                                                                                                                    |
| 30  | PID Error        | <ol style="list-style-type: none"> <li>The system grounding is abnormal.</li> <li>The PID module is abnormal.</li> </ol>                                              | <ol style="list-style-type: none"> <li>Check whether the DC connecting and AC connecting cables are abnormal.</li> <li>Check whether the PID module is abnormal.</li> <li>Contact your dealer or after-sales service.</li> </ol>   |
| 31  | CPLD Error       | <ol style="list-style-type: none"> <li>Temporary abnormality is caused by environmental factors.</li> <li>Internal components of the inverter are damaged.</li> </ol> | Disconnect the AC output switch and DC input switch, then connect them 5 minutes later. Contact the dealer or the after-sales service if the problem persists.                                                                     |
| 32  | PV over Curr     | <ol style="list-style-type: none"> <li>The PV module configuration is not reasonable.</li> <li>The hardware is damaged.</li> </ol>                                    | Disconnect the AC output switch and DC input switch, then connect them 5 minutes later. Contact the dealer or the after-sales service if the problem persists.                                                                     |
| 34  | PV soft OverCurr |                                                                                                                                                                       |                                                                                                                                                                                                                                    |

| No. | Fault            | Cause                                                                                                                                                                       | Solutions                                                                                                                                                                                                                                                                                          |
|-----|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 35  | Model Error      | <ol style="list-style-type: none"> <li>1. Temporary abnormality is caused by environmental factors.</li> <li>2. Internal components of the inverter are damaged.</li> </ol> | <p>Disconnect the AC output switch and DC input switch, then connect them 5 minutes later.<br/>Contact the dealer or the after-sales service if the problem persists.</p>                                                                                                                          |
| 36  | Pv Short Failure | The hardware is abnormal.                                                                                                                                                   | Please contact your dealer or after-sale service.                                                                                                                                                                                                                                                  |
| 37  | BUS-start Fail   | <ol style="list-style-type: none"> <li>1. The output power of the PV string is too low.</li> <li>2. The control circuit is abnormal.</li> </ol>                             | <p>Disconnect the AC output switch and DC input switch, then connect them 5 minutes later.<br/>Contact the dealer or the after-sales service if the problem persists.</p>                                                                                                                          |
| 38  | PV Over Voltage  | Excess PV modules are connected in the series, and the open-circuit voltage is higher than the operating voltage.                                                           | <ol style="list-style-type: none"> <li>1. Check whether the PV string input voltage consistent with the value displayed on the LCD.</li> <li>2. Check whether the PV string voltage meets the maximum input voltage requirements.</li> </ol>                                                       |
| 39  | PV Voltage Low   | Sun light is weak or changing abnormally.                                                                                                                                   | <ol style="list-style-type: none"> <li>1. If the problem occurs occasionally, the reason might be abnormal sun light. The inverter will recover automatically without manual intervention.</li> <li>2. If the problem occurs frequently, contact the dealer or the after-sales service.</li> </ol> |
| 40  | PV HCT Fail      | <ol style="list-style-type: none"> <li>1. Temporary abnormality is caused by environmental factors.</li> <li>2. Internal components of the inverter are damaged.</li> </ol> | <p>Disconnect the AC output switch and DC input switch, then connect them 5 minutes later.<br/>Contact the dealer or the after-sales service if the problem persists.</p>                                                                                                                          |
| 41  | PV over Curr     | <ol style="list-style-type: none"> <li>1. Temporary abnormality is caused by environmental factors.</li> <li>2. Internal components of the inverter are damaged.</li> </ol> | <p>Disconnect the AC output switch and DC input switch, then connect them 5 minutes later.<br/>Contact the dealer or the after-sales service if the problem persists.</p>                                                                                                                          |
| 42  | Bus Unbalance    | <ol style="list-style-type: none"> <li>1. The sampling circuit of the relay is abnormal.</li> <li>2. Abnormal hardwares</li> </ol>                                          | <p>Disconnect the AC output switch and DC input switch, then connect them 5 minutes later.<br/>Contact the dealer or the after-sales service if the problem persists.</p>                                                                                                                          |

## 9.5 Routine Maintenance



Power off the inverter before operations and maintenance. Otherwise, the inverter may be damaged or electric shocks may occur.

| Maintaining Item      | Maintaining Method                                                                                                                                                                                                                                                                                                                                                                                                          | Maintaining Period |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| System Clean          | Check the heat sink, air intake, and air outlet for foreign matter or dust.                                                                                                                                                                                                                                                                                                                                                 | Once 6-12 months   |
| Fan                   | Check the fan for proper working status, low noise, and intact appearance.                                                                                                                                                                                                                                                                                                                                                  | Once a year        |
| DC Switch             | Turn the DC switch on and off ten consecutive times to make sure that it is working properly.                                                                                                                                                                                                                                                                                                                               | Once a year        |
| Electrical Connection | Check whether the cables are securely connected. Check whether the cables are broken, or whether there is any exposed copper core.                                                                                                                                                                                                                                                                                          | Once 6-12 months   |
| Sealing               | Check whether all the terminals and ports are properly sealed. Reseal the cable hole if it is not sealed or too big.                                                                                                                                                                                                                                                                                                        | Once a year        |
| THDi Test             | For Australia requirements, in the THDi test, there should add Zref between inverter and mains.<br>Zref:<br>Zmax or Zref (phase current>16A)<br>Zref: L: $0.24 \Omega + j0.15 \Omega$ ; N: $0.16 \Omega + j0.10 \Omega$ (phase current>16A, <21.7A)<br>Zref: L: $0.15 \Omega + j0.15 \Omega$ ; N: $0.1 \Omega + j0.1 \Omega$ (phase current>21.7A, <75A)<br>Zref: $\geq 5\% Un/Irated + j5\% Un/Irated$ (phase current>75A) | As needed          |

## 10 Technical Parameters

| Technical Data                                    | GW100K-HT               | GW110K-HT | GW120K-HT | GW136K-HTH |
|---------------------------------------------------|-------------------------|-----------|-----------|------------|
| <b>Input</b>                                      |                         |           |           |            |
| Max.Input Power (kW)                              | 150                     | 165       | 180       | 205        |
| Max.Input Voltage (V)                             | 1100                    | 1100      | 1100      | 1100       |
| MPPT Operating Voltage Range (V)                  | 180~1000                | 180~1000  | 180~1000  | 180~1000   |
| MPPT Voltage Range at Nominal Power (V)           | 500~850                 | 500~850   | 500~850   | 500~850    |
| Start-up Voltage (V)                              | 200                     | 200       | 200       | 200        |
| Nominal Input Voltage (V)                         | 600                     | 600       | 600       | 750        |
| Max. Input Current per MPPT (A)                   | 30                      | 30        | 30        | 30         |
| Max. Short Circuit Current per MPPT (A)           | 45                      | 45        | 45        | 45         |
| Max. Backfeed Current to The Array (A)            | 0                       | 0         | 0         | 0          |
| Number of MPPT                                    | 10                      | 12        | 12        | 12         |
| Number of Strings per MPPT                        | 2                       | 2         | 2         | 2          |
| <b>Output</b>                                     |                         |           |           |            |
| Nominal Output Power (kW)                         | 100*1                   | 110       | 120       | 136        |
| Nominal Output Apparent Power (kVA)               | 100*1                   | 110       | 120       | 136        |
| Max. AC Active Power (kW)                         | 110*1*4                 | 121*4     | 132*4     | 150*4      |
| Max. AC Apparent Power (kVA)                      | 110*1*5                 | 121*5     | 132*5     | 150*5      |
| Nominal Power at 40°C(kW)                         | 100                     | 110       | 120       | 136        |
| Max Power at 40°C(Including AC Overload) (kW)     | 110                     | 121@400V  | 132@400V  | 150        |
| Nominal Output Voltage (V)                        | 400, 3L/N/PE or 3L/PE*2 |           |           | 500, 3L/PE |
| Output Voltage Range (V)                          | 320~440                 |           |           | 425~550    |
| Nominal AC Grid Frequency (Hz)                    | 50 / 60                 | 50 / 60   | 50 / 60   | 50 / 60    |
| AC Grid Frequency Range (Hz)                      | 45~55/55~65             |           |           |            |
| Max. Output Current (A)                           | 167.0                   | 175.5     | 191.3     | 173.2      |
| Max. Output Fault Current (peak and duration) (A) | 364@5μs                 | 364@5μs   | 364@5μs   | 364@5μs    |

| Technical Data                            | GW100K-HT                                                      | GW110K-HT     | GW120K-HT     | GW136K-HTH    |
|-------------------------------------------|----------------------------------------------------------------|---------------|---------------|---------------|
| Inrush Current (peak and duration) (A)    | 120@1 $\mu$ s                                                  | 120@1 $\mu$ s | 120@1 $\mu$ s | 120@1 $\mu$ s |
| Nominal Output Current (A)                | 144.3                                                          | 158.8         | 173.2         | 157.0         |
| Output Power Factor                       | ~1 (Adjustable from 0.8 leading to 0.8 lagging)                |               |               |               |
| Max. Total Harmonic Distortion            | <3%                                                            | <3%           | <3%           | <3%           |
| Maximum Output Overcurrent Protection (A) | 340                                                            | 340           | 340           | 340           |
| <b>Efficiency</b>                         |                                                                |               |               |               |
| Max. Efficiency                           | 98.6%                                                          | 98.6%         | 98.6%         | 99.0%         |
| European Efficiency                       | 98.3%                                                          | 98.3%         | 98.3%         | 98.5%         |
| <b>Protection</b>                         |                                                                |               |               |               |
| PV String Current Monitoring              | Integrated                                                     |               |               |               |
| Internal Humidity Detection               | Integrated                                                     |               |               |               |
| PV Insulation Resistance Detection        | Integrated                                                     |               |               |               |
| Residual Current Monitoring               | Integrated                                                     |               |               |               |
| PV Reverse Polarity Protection            | Integrated                                                     |               |               |               |
| Anti-islanding Protection                 | Integrated                                                     |               |               |               |
| AC Overcurrent Protection                 | Integrated                                                     |               |               |               |
| AC Short Circuit Protection               | Integrated                                                     |               |               |               |
| AC Overvoltage Protection                 | Integrated                                                     |               |               |               |
| DC Switch                                 | Optional                                                       |               |               |               |
| DC Surge Protection                       | Type II (Type I Optional)                                      |               |               |               |
| AC Surge Protection                       | Type II (Type I Optional)                                      |               |               |               |
| AFCI                                      | Optional                                                       |               |               |               |
| Remote Shutdown                           | Optional                                                       |               |               |               |
| PID Recovery                              | Optional                                                       |               |               |               |
| <b>General Data</b>                       |                                                                |               |               |               |
| Operating Temperature Range (°C)          | -30 ~ 60 (60 °C for outdoor unconditioned with solar effects.) |               |               |               |
| Relative Humidity                         | 0~100%                                                         | 0~100%        | 0~100%        | 0~100%        |
| Max. Operating Altitude (m)               | 5000 (>4000 derating)                                          |               |               |               |

| Technical Data                    | GW100K-HT                                 | GW110K-HT | GW120K-HT | GW136K-HTH                          |
|-----------------------------------|-------------------------------------------|-----------|-----------|-------------------------------------|
| Cooling Method                    | Smart Fan Cooling                         |           |           |                                     |
| Display                           | LED, LCD (Optional) , WLAN+APP            |           |           |                                     |
| Communication protocols           | modbus-RTU (SunSpec compliant)            |           |           |                                     |
| Communication                     | RS485, WiFi or 4G(Optional)               |           |           | RS485, WiFi or 4G or PLC (Optional) |
| Weight (Kg)                       | 93.5                                      | 98.5      | 98.5      | 98.5                                |
| Dimension (W×H×Dmm)               | 1008× 678× 343                            |           |           |                                     |
| Noise Emission (dB) <sup>*3</sup> | < 80                                      |           |           |                                     |
| Topology                          | Non-isolated                              |           |           |                                     |
| Self-consumption at Night (W)     | < 2                                       |           |           |                                     |
| Ingress Protection Rating         | IP66                                      |           |           |                                     |
| Anti-corrosion Class              | C5 (Optional)                             |           |           |                                     |
| DC Connector                      | MC4 (4~6mm <sup>2</sup> )                 |           |           |                                     |
| AC Connector                      | OT/DT terminal (Max. 300mm <sup>2</sup> ) |           |           |                                     |
| Environmental Category            | 4K4H                                      |           |           |                                     |
| Pollution Degree                  | III                                       |           |           |                                     |
| Overvoltage Category              | DCII / ACIII                              |           |           |                                     |
| Protective Class                  | I                                         |           |           |                                     |
| The Decisive Voltage Class (DVC)  | PV: C<br>AC: C<br>com: A                  |           |           |                                     |
| Active Anti-islanding Method      | AQDPF+AFDPF                               |           |           |                                     |
| Country of Manufacture            | China                                     |           |           |                                     |

**NOTE:**

\*1: For Australia is 99.99kW/kVA

\*2: For Brazil Nominal Output Voltage (V): 380, 3L/N/PE or 3L/PE

\*3: For Korea Noise Emission(dB): < 70

\*4: For Belgium Max. AC Active Power (kW), GW100K-HT is 100, GW110K-HT is 110, GW120K-HT is 120, GW136K-HTH is 136.

\*5: For Belgium Max. AC Apparent Power (kVA), GW100K-HT is 100, GW110K-HT is 110, GW120K-HT is 120, GW136K-HTH is 136.

| Technical Data                                    | GW73KLV-HT                      | GW75K-HT                    | GW80K-HT |
|---------------------------------------------------|---------------------------------|-----------------------------|----------|
| <b>Input</b>                                      |                                 |                             |          |
| Max.Input Power (kW)                              | 112.5                           | 112.5                       | 120      |
| Max.Input Voltage (V)                             | 800                             | 1100                        | 1100     |
| MPPT Operating Voltage Range (V)                  | 180~650                         | 180~1000                    | 180~1000 |
| MPPT Voltage Range at Nominal Power (V)           | 250~650                         | 500~850                     | 500~850  |
| Start-up Voltage (V)                              | 200                             | 200                         | 200      |
| Nominal Input Voltage (V)                         | 370                             | 600                         | 600      |
| Max. Input Current per MPPT (A)                   | 30                              | 30                          | 30       |
| Max. Short Circuit Current per MPPT (A)           | 45                              | 45                          | 45       |
| Max. Backfeed Current to The Array (A)            | 0                               | 0                           | 0        |
| Number of MPPT                                    | 12                              | 10                          | 10       |
| Number of Strings per MPPT                        | 2                               | 2                           | 2        |
| <b>Output</b>                                     |                                 |                             |          |
| Nominal Output Power (kW)                         | 73                              | 75                          | 80       |
| Nominal Output Apparent Power (kVA)               | 73                              | 75                          | 80       |
| Max. AC Active Power (kW)                         | 69@208V;<br>73@220V;<br>75@230V | 75                          | 88       |
| Max. AC Apparent Power (kVA)                      | 75                              | 75                          | 88       |
| Nominal Power at 40°C (kW)                        | 73                              | 75                          | 80       |
| Max Power at 40°C (Including AC Overload) (kW)    | 73                              | 75                          | 80       |
| Nominal Output Voltage (V)                        | 220, 3L/N/PE or 3L/PE           | 380/400, 3L/N/PE or 3L/PE*1 |          |
| Output Voltage Range (V)                          | 187~242                         | 320~440                     |          |
| Nominal AC Grid Frequency (Hz)                    | 50/60                           | 50/60                       | 50/60    |
| AC Grid Frequency Range (Hz)                      | 47.5~51.5/57~61.8               |                             |          |
| Max. Output Current (A)                           | 192.0                           | 125.3                       | 134.0    |
| Max. Output Fault Current (peak and duration) (A) | 364@5μs                         | 364@5μs                     | 364@5μs  |

| Technical Data                            | GW73KLV-HT                                                     | GW75K-HT    | GW80K-HT    |
|-------------------------------------------|----------------------------------------------------------------|-------------|-------------|
| Inrush Current (peak and duration) (A)    | 120@1μs                                                        | 120@1μs     | 120@1μs     |
| Nominal Output Current (A)                | 191.6                                                          | 114.0/108.3 | 121.6/115.5 |
| Output Power Factor                       | ~1 (Adjustable from 0.8 leading to 0.8 lagging)                |             |             |
| Max. Total Harmonic Distortion            | <3%                                                            | <3%         | <3%         |
| Maximum Output Overcurrent Protection (A) | 340                                                            | 340         | 340         |
| <b>Efficiency</b>                         |                                                                |             |             |
| Max. Efficiency                           | 98.4%                                                          | 98.6%       | 98.6%       |
| European Efficiency                       | 98.1%                                                          | 98.3%       | 98.3%       |
| <b>Protection</b>                         |                                                                |             |             |
| PV String Current Monitoring              | Integrated                                                     |             |             |
| Internal Humidity Monitoring              | Integrated                                                     |             |             |
| PV Insulation Resistance Detection        | Integrated                                                     |             |             |
| Residual Current Monitoring               | Integrated                                                     |             |             |
| PV Reverse Polarity Protection            | Integrated                                                     |             |             |
| Anti-islanding Protection                 | Integrated                                                     |             |             |
| AC Overcurrent Protection                 | Integrated                                                     |             |             |
| AC Short Circuit Protection               | Integrated                                                     |             |             |
| AC Overvoltage Protection                 | Integrated                                                     |             |             |
| DC Switch                                 | Integrated                                                     |             |             |
| DC Surge Protection                       | Type II (Type I Optional)                                      |             |             |
| AC Surge Protection                       | Type II (Type I Optional)                                      |             |             |
| AFCI                                      | Optional                                                       |             |             |
| Remote Shutdown                           | Optional                                                       |             |             |
| PID Recovery                              | Optional                                                       |             |             |
| <b>PID Recovery</b>                       |                                                                |             |             |
| Operating Temperature Range (°C)          | -30 ~ 60 (60 °C for outdoor unconditioned with solar effects.) |             |             |
| Relative Humidity                         | 0~100%                                                         |             |             |
| Max. Operating Altitude (m)               | 5000 (>4000 derating)                                          |             |             |

| Technical Data                   | GW73KLV-HT                                | GW75K-HT | GW80K-HT |
|----------------------------------|-------------------------------------------|----------|----------|
| Cooling Method                   | Smart Fan Cooling                         |          |          |
| Display                          | LED, LCD (Optional) ,WLAN+APP             |          |          |
| Communication                    | RS485, WiFi or 4G(Optional)               |          |          |
| Communication protocols          | Modbus-RTU (SunSpec Compliant)            |          |          |
| Weight (Kg)                      | 98.5                                      | 93.5     | 93.5     |
| Dimension (W×H×Dmm)              | 1008× 678× 343                            |          |          |
| Noise Emission (dB)              | <80                                       |          |          |
| Topology                         | Non-isolated                              |          |          |
| Self-consumption at Night (W)    | <2                                        |          |          |
| Ingress Protection Rating        | IP66                                      |          |          |
| Anti-corrosion Class             | C5(Optional)                              | C4       |          |
| DC Connector                     | MC4(4~6mm <sup>2</sup> )                  |          |          |
| AC Connector                     | OT/DT terminal (Max. 300mm <sup>2</sup> ) |          |          |
| Environmental Category           | 4K4H                                      |          |          |
| Pollution Degree                 | III                                       |          |          |
| Overvoltage Category             | DC II / AC III                            |          |          |
| Protective Class                 | I                                         |          |          |
| The Decisive Voltage Class (DVC) | PV: C<br>AC: C<br>com: A                  |          |          |
| Active Anti-islanding Method     | AQDPF+AFDPF                               |          |          |
| Country of Manufacture           | China                                     |          |          |

**NOTE:**

\*1: For Brazil Nominal Output Voltage (V): 380, 3L/N/PE or 3L/PE

**Overvoltage levels:**

Overvoltage I: Devices connected to the circuit which can limit instantaneous overvoltage to a relatively low level.

Overvoltage II: Energy-consuming devices powered by fixed power distribution equipment, including appliances, portable tools, and other household and similar equipment. Overvoltage III is also applicable if there are special requirements for the reliability and applicability of the equipment.

Overvoltage III: Devices apply to fixed distribution equipment, including switches in the fixed power distribution equipment and industrial equipment permanently connected to fixed power distribution equipment. The reliability and applicability of the equipment have to meet special requirements.

Overvoltage IV: Devices apply to the power distribution equipment, such as measuring instruments and prepositioned overcurrent protection devices, etc.

**Humidity Levels:**

| Environmental Parameters | Level       |               |               |
|--------------------------|-------------|---------------|---------------|
|                          | 3K3         | 4K2           | 4K4H          |
| Temperature range        | 0°C - +40°C | -33°C - +40°C | -20°C - +55°C |
| Humidity range           | 5% to 85%   | 15% to 100%   | 4% to 100%    |

**Environmental levels:**

Outdoor inverter: The ambient temperature range is -25°C - +60°C, suitable for an environment with pollution of level 3;

Indoor type II inverter: The ambient temperature range is -25°C - +40°C, suitable for an environment with pollution of level 3;

Indoor type I inverter: The ambient temperature range is 0°C - +40°C, suitable for an environment with pollution of level 2;

**Pollution levels:**

Pollution level 1: No pollution or dry and non-conductive pollution only;

Pollution level 2: Usually non-conductive pollution only, but there may be temporary conductive pollution caused by condensation;

Pollution level 3: Conductive pollution or non-conductive pollution turns to conductive pollution due to condensation;

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



GoodWe Website

## **GoodWe Technologies Co., Ltd.**

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 No. 90 Zijin Rd., New District, Suzhou, 215011, China

 [www.goodwe.com](http://www.goodwe.com)

 [service@goodwe.com](mailto:service@goodwe.com)



Local Contacts