# Quick Installation Guide
# SG30CX/SG33CX
# SG40CX/SG50CX
## PV Grid-connected Inverter

SG30_33_40_50CX-QIEN-Ver13-201911 Version: 1.3



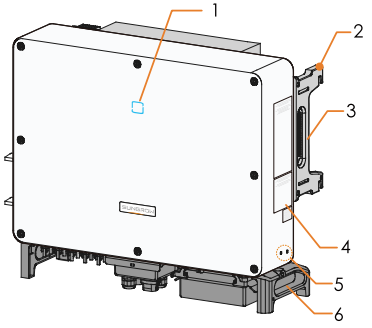
This guide is valid for inverters SG30CX, SG33CX, SG40CX and SG50CX, providing the installation, electrical connection, commissioning and troubleshooting procedure.

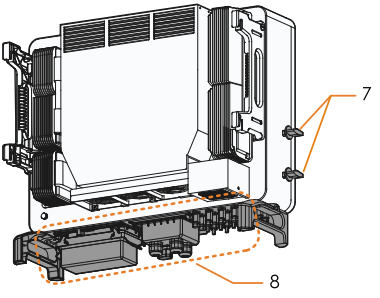
## NOTICE

- Contents may be periodically updated or revised due to product development. The information in this guide is subject to change without notice. In no case shall this guide substitute for the user manual or related notes on the device.
- Make sure to read over, fully understand and strictly follow the detailed instructions of the user manual and other related regulations before installing the equipment. The user manual can be downloaded by visiting the website at http://support.sungrowpower.com/; or it can be obtained by scanning the QR code on the side of the equipment or the back cover of this guide.
- All operations can be performed only by qualified personnel, that must be trained in the installation and commissioning of the electrical system, as well as the dealing with hazards, have knowledge of the manual and of the local regulations and directives.
- Before installation, check that the package contents are intact and complete against the packing list. Contact SUNGROW or the distributor in case of any damaged or missing components.
- The cable must be intact and well insulated. Operation personnel must wear proper personal protective equipment (PPE) all the time.

# 1 Product Introduction

## 1-1 Appearance

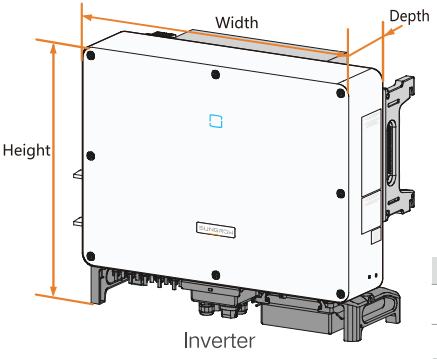


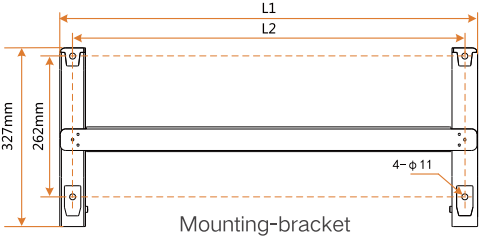

1. LED indicator 2. Mounting ear 3. Side handles 4. Warning symbols, nameplate, and QR code
5. Additonal grounding terminals 6. Bottom handles 7.DC switches* 8. Wiring area

*Devices for Australia and New Zealand are not equipped with DC switches.

## 1-2 Dimensions



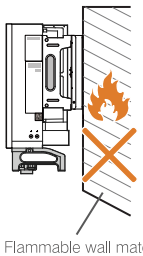

*The image shown here is for reference only.
The actual product you receive may differ.

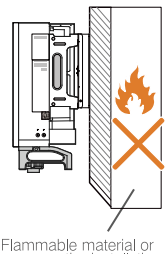


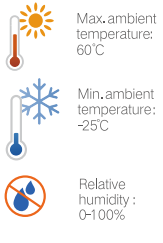

| Type | (WxHxD) | Weight | L1 | L2 |
|---|---|---|---|---|
| SG30/33CX | 702x595x310 (mm) | 50kg | 687mm | 640mm |
| SG40CX | 782x645x310 (mm) | 58kg | 767mm | 720mm |
| SG50CX | 782x645x310 (mm) | 62kg | 767mm | 720mm |

# 2 Mechanical Mounting

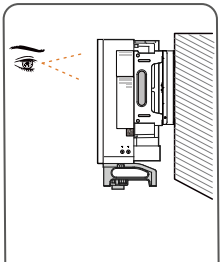
## 2-1 Location Selection

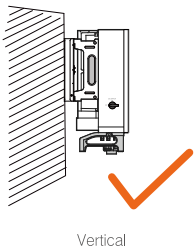

Flammable wall material

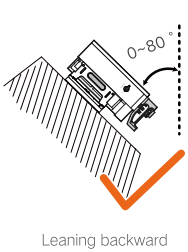

Flammable material or gas near the installation



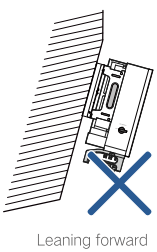
Environment Requirements

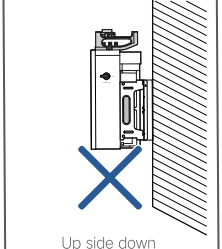

Convenient for operation

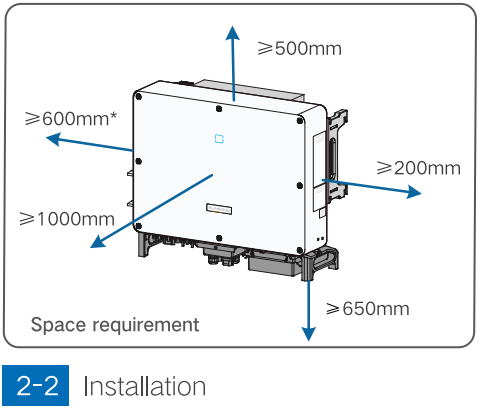

Vertical



Leaning backward


Leaning forward

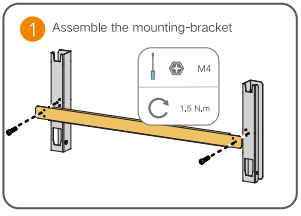

Up side down

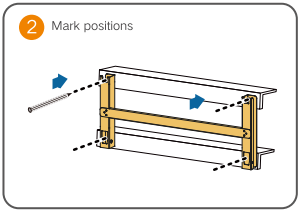


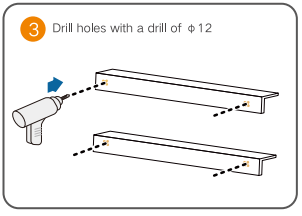
Space requirement

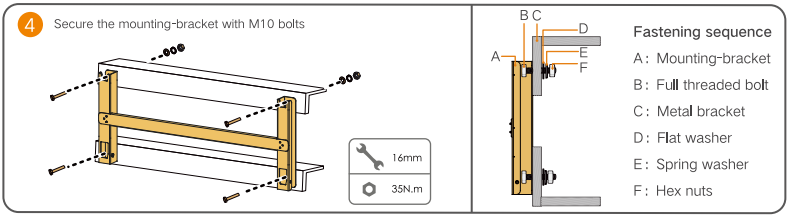
* The distance can be shortened to 200mm according to onsite conditions. In case the distance is less than 600mm, move the inverter from the mounting-bracket or wall before maintaining fans.

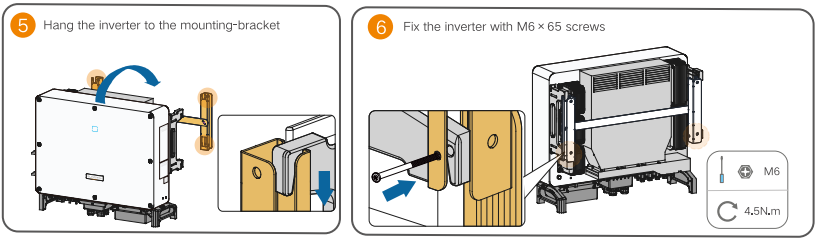
## 2-2 Installation



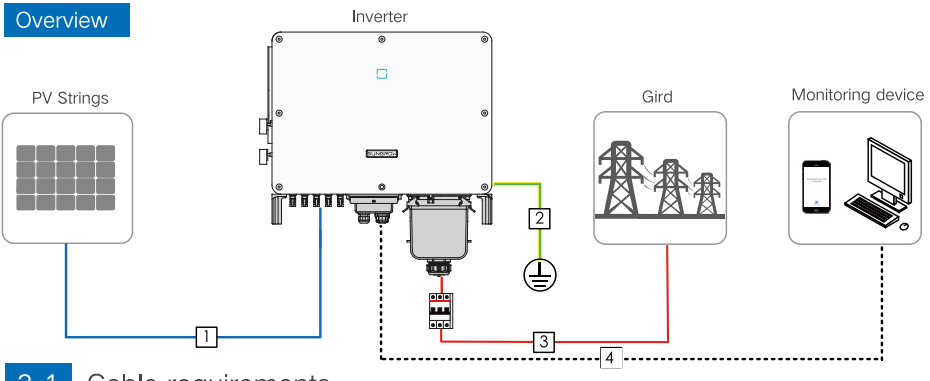






# 3 Electrical Connection

## Overview




## 3-1 Cable requirements

| No | Cable | Type | Outer diameter(mm) | Cross section(mm²) |
|---|---|---|---|---|
| 1 | DC cable | PV cable complying with 1,500V standard | 6~9 | 4~6 |
| 2 | Additional grounding cable | Outdoor single-core copper wire cable | / | The same as that of the PE wire in the AC cable |
| 3 | AC cable | Outdoor multi-core copper or aluminium cable | 20~50 | **L1,L2,L3,N** (SG30/33CX): 16~35<br>**L1,L2,L3,N** (SG40CX): 25~50<br>**L1,L2,L3,N** (SG50CX): 35~70<br>**PE wire:**<br>Depends on phase wire cross-section S,<br>When 16 < S≤35, it is 16,<br>When S > 35, it is S/2. |
| 4 | Communication cable | Shielded twisted pair (terminal block) | 4.5~18 | 1~1.5 |
| | | CAT-5 Ethernet cable (RJ45) | | / |

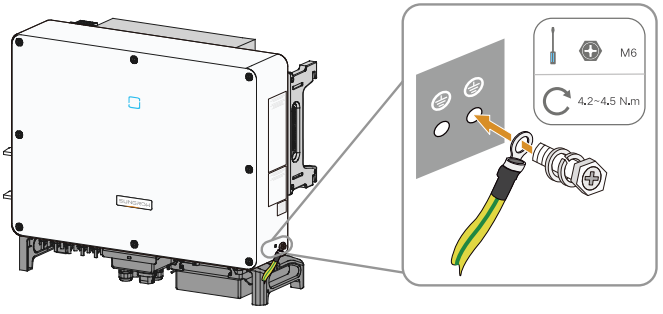
**NOTICE**

- The DC cable must be a multi-core cables.

## 3-2 Additional Grounding Connection

**NOTICE**

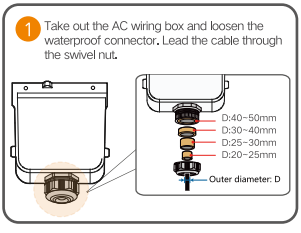
- Since the inverter is a transformerless inverter, neither the negative pole nor the positive pole of the PV string can be grounded. Otherwise, the inverter will not operate normally.
- There are two terminals. Use at least one of them to ground the inverter.
- Apply paint to the grounding terminal to ensure corrosion resistance after connection.

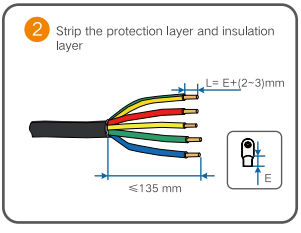


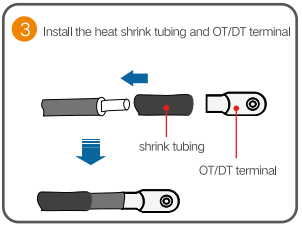

## 3-3 AC Connection

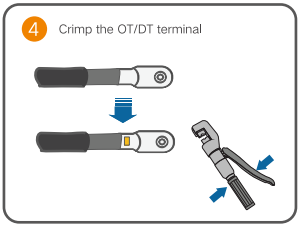
**NOTICE**

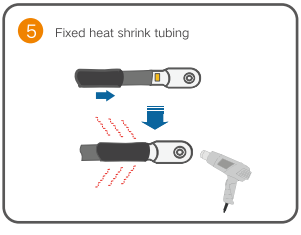
- Before connecting the inverter to the grid, ensure the grid voltage and frequency comply with requirements.
- Disconnect the AC-side circuit breaker and prevent it from inadvertent reconnection.
- Observe the pin assignment of AC terminal block. If a phase wire is connected to the "PE" terminal, it may permanently damage the inverter.
- Please avoid squeezing the cable insulation layer into the AC terminal. Improper connection may affect the normal operation of the inverter.
- During AC cable connection, the cables inside the lower part of the device should be bended to be surplus in length. In this way, cable dropping or loosening, which can cause arc or other problems impairing functionality of the device, due to self-weight of the cables in case of land subsidence is avoided.
- If an aluminium cable is selected, use a copper to aluminium adapter terminal to avoid direct contact between the copper bar and the aluminium cable. See user manual for more details.

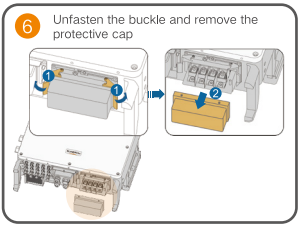


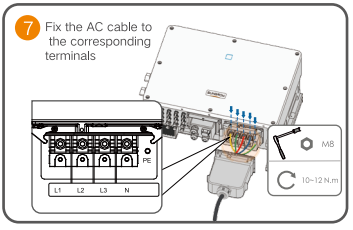



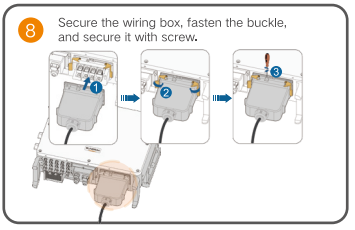



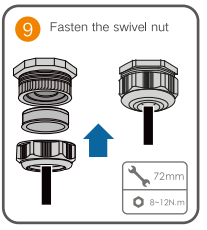





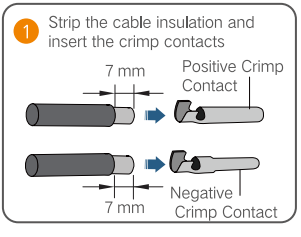



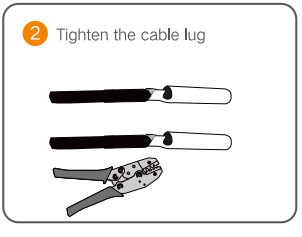



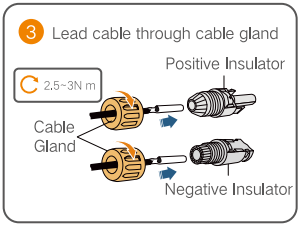

## 3-4 DC connection

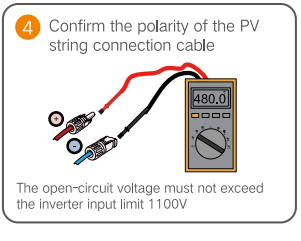
### NOTICE

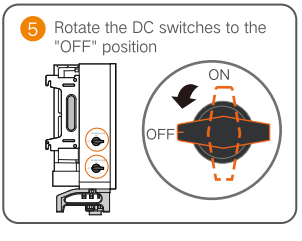
- Use the MC4 DC terminal within the scope of delivery. Damage to the device due to the use of incompatible terminal shall not be covered by the warranty.
- There is a risk of inverter damage! The following requirements should be met. Failure to do so will void guarantee and warranty claims.
  (1) Ensure that the open circuit voltage in any case does not exceed the inverter input upper limit of 1100V.
  (2) Make sure the maximum short circuit current on the DC side is within the permissible range.
  (3) Make sure the to-ground insulation performance of the PV string is sound.
- The inverter will not function properly if the DC polarities are reversed.
- If the PV connectors are not assembled into place, it may cause an arc or overheat. The loss caused by this issue will void the warranty.

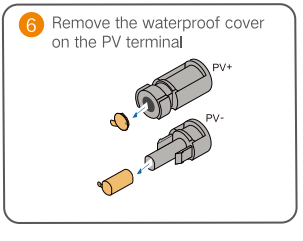


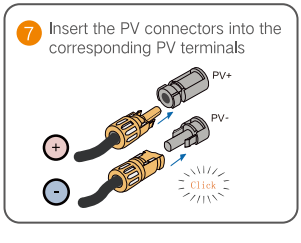



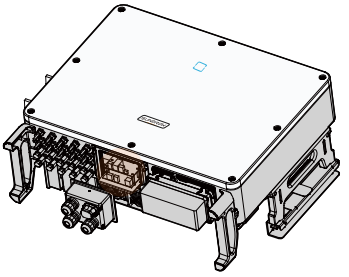



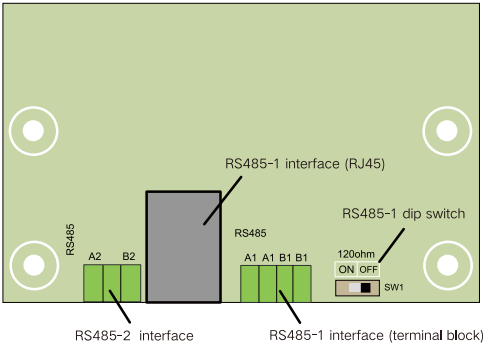




Devices for Australia and New Zealand are not equipped with DC switches.

## 3-5 RS485 Communication Connection

As shown in the figure below, the inverter is equipped with three RS485 communication interfaces and one dip switch.





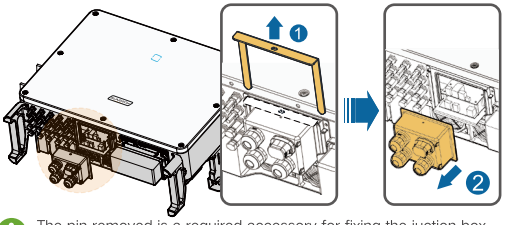

RS485-1 terminal block interface and RJ45 interface serve as the same function with wiring manner different.

All the three interfaces can be connected to a data acquisition device (Logger), to achieve data exchange with PC or other monitoring devices. Multiple inverters can be connected in the daisy chain manner via the RS485-1 terminal block and RJ45 terminal. A 120Ω resistor can be connected in parallel between RS485-1 A/B pins by configuring the dip switch.

### 3-5-1 Communication junction box

#### Removal

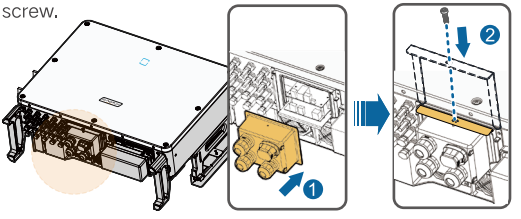
Pull out the pin, and remove the junction box.




The pin removed is a required accessory for fixing the juction box. Store it properly and protect it against missing or deformation.

#### Installation

Remount the junction box and press it tightly, insert the pin, and secure the junction box with the supplied M4 × 25 screw.

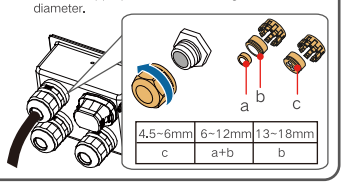



- During installation, press the junction box forcibly to ensure that the pin can be inserted successfully.
- Never hit the pin with a heavy object, such as hammer. Otherwise, it will be irrecoverably

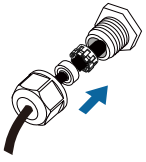
## 3-5-2 Connection Procedure

### Terminal Block

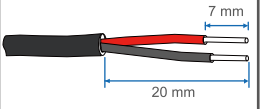
1 Loosen the swivel nut of the junction box and select an appropriate seal according to cable outer diameter.



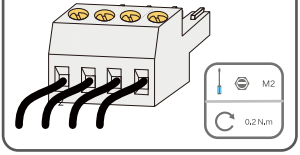

2 Lead the cable through the swivel nut, seal, and junction box.



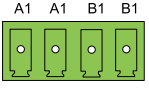
3 Strip the cable jacket and insulation layer



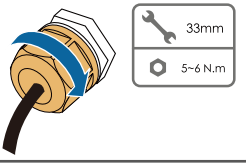

4 Secure the cable to the terminal base.




5 Inset the terminal base into the corresponding terminal.



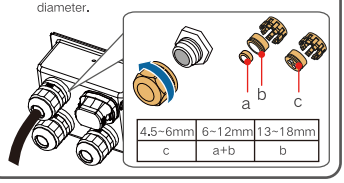

6 Install the junction box, fasten the swivel nut.



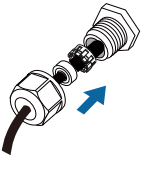

*The image shown here is for reference only. Please wire according to the actual terminal definition.

### RJ45

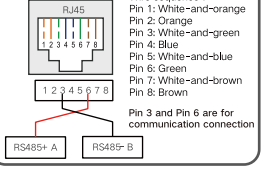
1 Loosen the swivel nut of the wiring box and select an appropriate seal according to cable outer diameter.



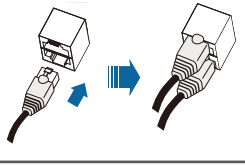

2 Lead the cable through the swivel nut, seal, and wiring box.



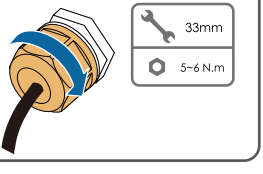
3 Crimp the crystal head according to the definition of the core pin




4 Insert the RJ45 connector to the RJ45 terminal.



5 Install the junction box, fasten the swivel nut.




**NOTICE**

- There are three RS485 communication terminals, and the silk screen marks are COM1/COM3/COM4. Please choose according to the actual situation.

# 4 Commission

## 4-1 Inspection before Commissioning

| No. | Items | Result | |
|---|---|---|---|
| | | Yes | No |
| 1 | The inverter should be accessible for operation, maintenance and service. | ☐ | ☐ |
| 2 | The inverter is firmly installed. | ☐ | ☐ |
| 3 | Nothing is left on the top of the inverter. | ☐ | ☐ |
| 4 | The inverter is correctly connected to the external devices. | ☐ | ☐ |
| 5 | The cables are routed in a safe place or protected against mechanical damage. | ☐ | ☐ |
| 6 | The specification of the AC circuit breaker is appropriate for its intended use. | ☐ | ☐ |
| 7 | All unused terminals at the bottom of the inverter are properly sealed. | ☐ | ☐ |
| 8 | Warning signs & labels are suitably affixed and durable. | ☐ | ☐ |

## 4-2 Commissioning Procedure

**Step1** Rotate the DC switch to the "ON" position.

**Step2** Connect the AC switch (if applicable) between the inverter and the grid.

**Step3** Connect the DC switch (if applicable) between the inverter and the PV string.

**Step4** Set initial protection parameters via the iSolarCloud APP. If the irradiation and grid conditions meet requirements, the inverter will normally operate.

**Step5** Observe the LED indicator to ensure that the inverter operates normally.

### LED indicator description



| | |
|---|---|
| Steady blue | The device is connected to the grid and operating normally. |
| Periodical flashing blue (Period: 0.2s) | The Bluetooth communication is connected and there is data communication. No inverter fault occurs. |
| Periodical flashing blue (Period: 2s) | The DC or AC side is powered on and the device is in standby or startup state (not feeding power into the grid). |
| Steady red | A fault occurs and the device cannot connect to the grid. |
| Flashing red | The Bluetooth communication is connected and there is data communication. Fault occurs. |
| OFF | Both the AC and DC sides are powered down. |

# 5 iSolarCloud

## 5-1 Brief Introduction

The iSolarCloud APP can establish communication connection to the inverter via the Bluetooth, thereby achieving near-end maintenance on the inverter. Users can use the APP to view basic information, alarms, and events, set parameters, or download logs, etc.

*In case the communication module Eye or WiFi is available, the iSolarCloud APP can also establish communication connection to the inverter via the mobile data or WiFi, thereby achieving remote maintenance on the inverter.

## 5-2 Download and Install

**Method 1 :** Scan the right QR code to download and install the APP.

**Method 2 :** Download the APP through the following application stores:

- MyApp (Android, mainland China users)
- Google Play (Android, users other than mainland China ones)
- APP store（iOS）

## 5-3 Initialize protection parameter

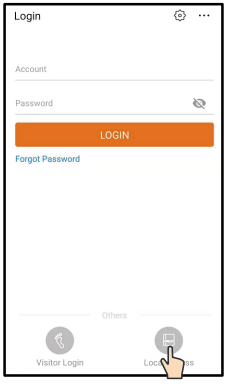
**NOTICE**

- To log in to the app, the following conditions must be met:
  (1) The AC and DC sides or the AC side of the inverter is powered-on.
  (2) The mobile phone is within 5m away from the inverter and there are no obstructions in between.
  (3) The Bluetooth function of the mobile phone is enabled.

**Step1** After the installation is complete, click "Open" or click the phone desktop APP icon to open the app.

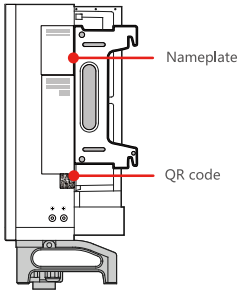
iSolarCloud

**Step2** Open the APP, after which the Bluetooth search screen pops up automatically, and select the to-be-connected inverter according the SN on the nameplate of the inverter. The Bluetooth indicator gets on once the connection is established. Alternatively, tap " " to scan the QR code on the side of the inverter to establish Bluetooth connection.

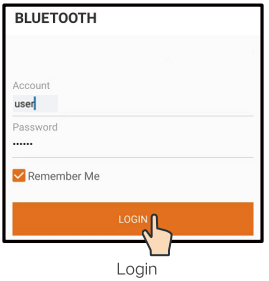






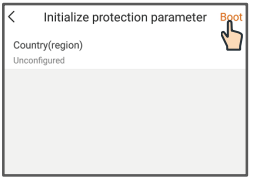


**Step3** Enter the username and login password, click Login and proceed to the next step.




Login

**Step4** After logging in, enter the initialization protection parameter setting interface, as shown in the figure. After finishing setting on the quick setting screen, click “ Boot ” and the device will be initialized. The APP will send start instructions and the device will start and operate.




Initialization protection parameter

## NOTICE

- The user name is "user" and the initial password is "pw1111". To ensure account security, please change the password as soon as possible.
- Reset the protection parameters if the country setting is incorrect. Otherwise, fault may occur.
- In European countries (regions), such as Netherlands, Sweden, Denmark, whose grid code complies with EN50549, select the parameter EN50549_1 (LV grid-connection) or EN50549_2 (MV grid-connection).
- In the Brazilian region, set the country code to "Brazil". Selecting "Brazil_230" or "Brazil_240" will cause setting failure.

**Step5** If the inverter is initialized, the APP automatically turns to its home page.




Home page

*Screenshots in this manual are based on the Android system V2.1.6, and the actual interfaces may differ.

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Specifications are subject to changes without advance notice.

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