Quick Installation Guide

SG60KU

PV Grid-connected Inverter

SG60KU-QIEN-Ver10-201412 Version: 1.0

Content

SG60KU Quick Installation Guide

This guide provides a general instruction of the installation procedures of SG60KU.

NOTICE

In no case shall this guide substitute for the user manual or related notes on the device.

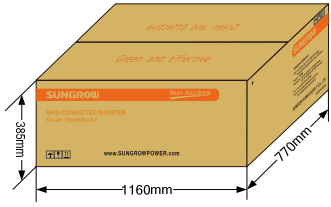
Make sure to read over, fully understand and strictly follow the detailed instructions of the user manual and other related regulations before installing the equipment.

Any violation could result in personal death or injury or device damage.

1 Unpacking and Inspection

Step 1 Remove the backplate and fasteners from the packaging.

Step 2 Inspect the inverter for visible damages and check the completeness of the delivery contents according to the inner packing list.



Contact your supplier if any of the contents is missing. SG60KU is unavailable if any damage is detected.

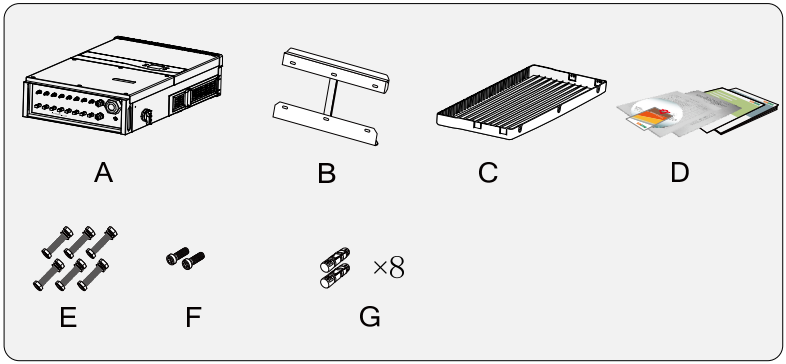


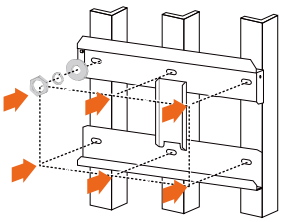
Fig. 1-1 Scope of delivery

Item	Name	Description
A	Inverter	---
B	Backplate	Used to fix the inverter to the installation site.
C	Inverter cap	For better weather-proof function of the inverter.
D	Documents	Quality certificate, packing list, product test report, CD and quick user manual
E	Fasten set	Six units to fasten backplate to metal frame.
F	Fix screw	Two M4×16 screws to fix the inverter with the backplate.
G	DC connector	Eight pairs MC4 terminals for PV connection.

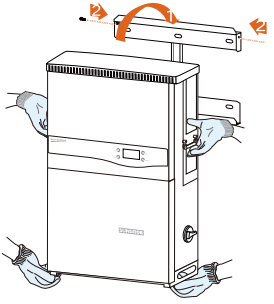
2 Mounting Inverter onto the Metal Frame

1. Select the installation location and regulate the clearances of multiple inverters, referring to the user manual.
2. Move the inverter to the installation site with the help of another person or the lifting device by means of the handles.
3. Install the inverter onto metal frame as following procedures.
   a) Fix the backplate on the metal frame with appropriate fixing sets.
   b) Mount the inverter onto the backplate and secure it with M4 screws.
   c) Assemble the top cap of the inverter.

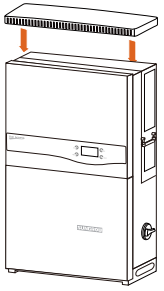
Install backplate

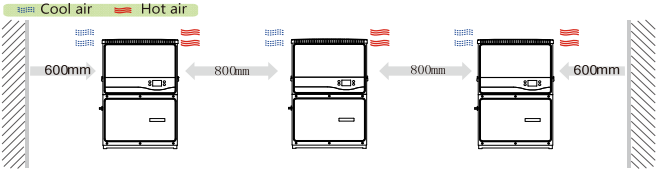


Hang inverter



Install Inverter cap

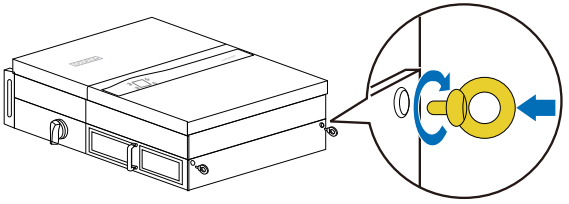




***Supplement**

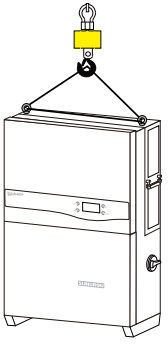
If the installation location is higher, the inverter can not be directly linked to the backplate, please perform following steps to lift the inverter to the level of the fixed backplate or adjacent place.

Step 1 Screw two M12-screwed lifting rings to the screw holes on top of the inverter.



M12-screwed lifting ring is a standard component. It is not within the scope of delivery. Please purchase from the market if needed.

Step 2 Lead the rope (with sufficient load-carrying capacity) prepared beforehand through the two lifting rings to lift the inverter. Inverter is lifted to the level of the fixed backplate or adjacent place.



NOTICE

Please keep the inverter balance during the whole process of inverter lifting. Inverter may hit the metal frame or other obstacles if otherwise.

3 Electrical Connection

DANGER

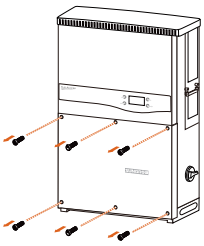
Death hazards due to high voltage existing inside the inverter!

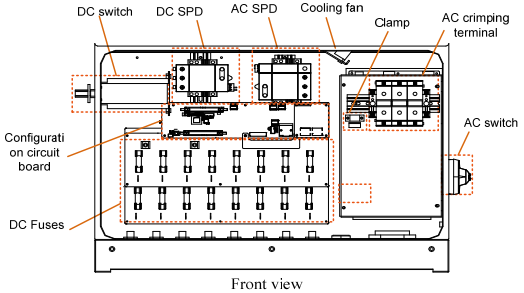
Make sure that all the DC and AC cables to the inverter are not live before you start the electrical work.

Do not turn on the AC side or DC side circuit breaker until all inverter electrical connections have completed.

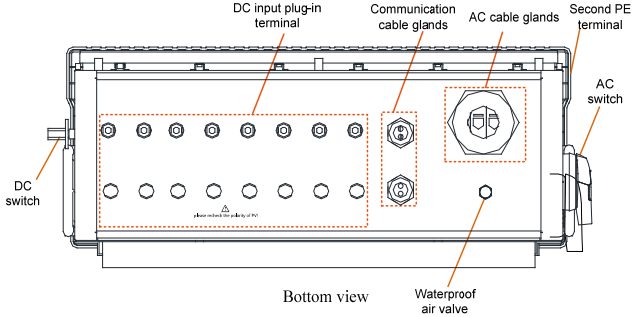
3-1 Open the Connection Cabinet

Loose the six screws on the front cover of the connection cabinet and remove the front cover to see the internal layout of the connection cabinet.





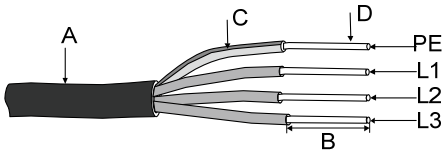
Front view



Bottom view

3-2 Cables Selection

- AC Cable



No.	Description	Remark
A	Protective layer	External diameter of the cable: 37~44 mm
B	Length of insulation to be stripped off	24 mm
C	Insulation layer	-
D	Cross section of AC cables	Range: 25-95mm^2; recommended value: 50 mm^2

The following table gives the recommended max. length of the AC cables based on the cross-section of the AC cables.

Cross-section of the AC cable (mm^2)	Max. length of the AC cables (m)
25	0-50
35	50-100
50	>100

- DC Cables

Cross-sectional area	Cable External diameter	Max. withstand voltage	Max. input current for each PV string
6~8mm^2 10AWG~8AWG	6~9mm	1000V	30A

- Second PE Cable

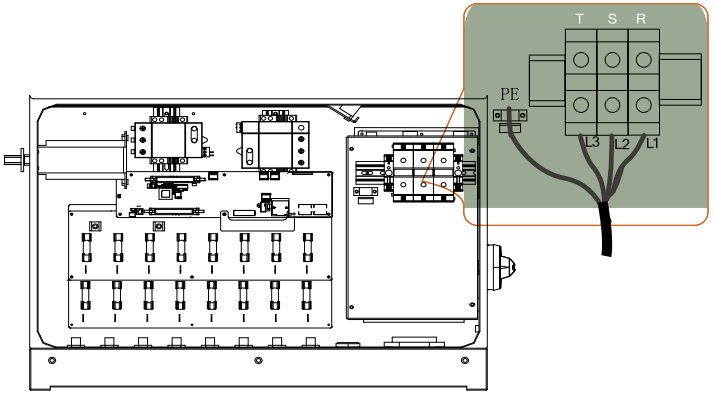
Cross-sectional area (mm^2)		Recommended conductor size (mm^2)	
10AWG...8AWG	6mm^2	9AWG	6mm^2

- RS485 communication cables

Shielded twisted pair cables or Shielded twisted pair Ethernet cables.

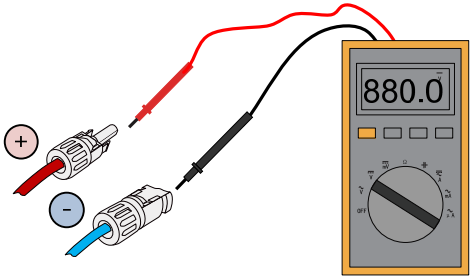
3-3 AC Connection

Pull the cables and connect L1/L2/L3 cables ends to the corresponding terminal blocks. Connect the PE cable ends to the clamp.



3-4 DC Connection

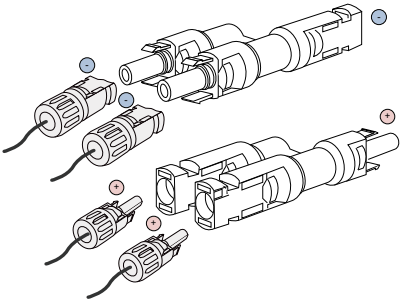
Step 1 Check the connection cable of PV string for the correct polarity and that the open-circuit voltage does not exceed the inverter input limit 1000V, even under the lowest operating temperature.



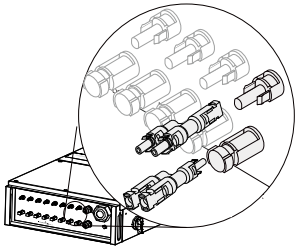
NOTICE

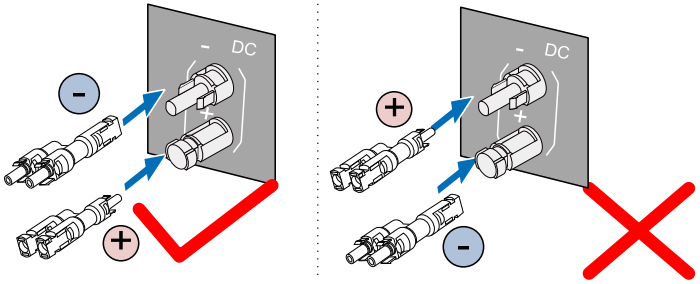
- **Check the positive and negative polarity of the PV cells. After confirmation, you can insert the DC connectors into the input terminals on the bottom of the inverter.**
- **For the same MPPT, reverse connection of a single string is prohibited. A permanent failure of the system or inverter may follow if otherwise.**

Step 2 Connect the 2 PV strings in parallel using T-type terminals and then connect them to inverter DC input.



Step 3 Insert the positive and negative DC connectors into the input terminals on the bottom of the inverter until there is an audible sound.



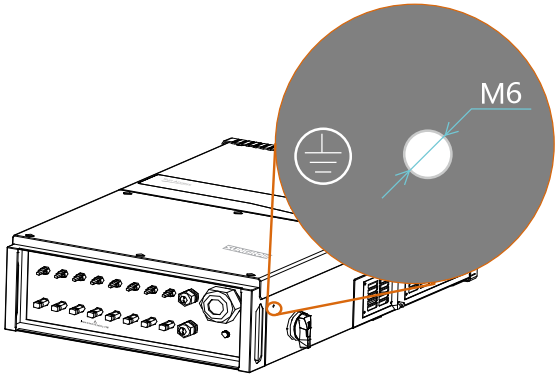


3-5 Second Protective Earth Terminal

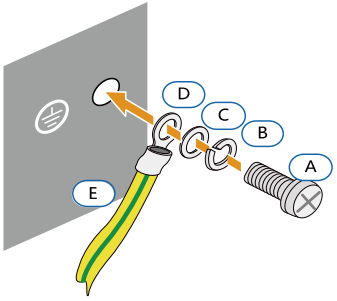
Inverter is equipped with second protective earth terminal as specified in EN 50178.

Position of Second PE Terminals

There is a second PE terminal on one side of the inverter. User can perform PE connection if necessary.



Cable Connection

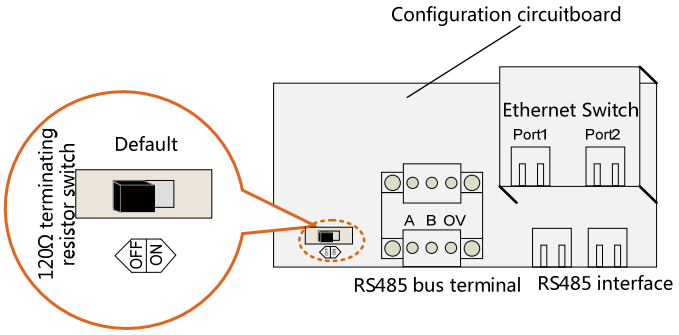


Item	Name	Description
A	Screw	M6×12mm
B	Lock washer	-
C	Washer	-
D	Cable socket	-
E	Yellow-green cable	6mm^2(9AWG)

* Connection parts are not within the scope of delivery

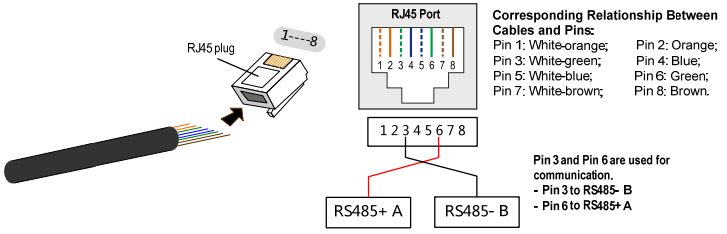
3-6 Communication Connection

There are two communication waterproof connection terminal on the bottom of the inverter. RS485 A/B terminals, RS485 interface and Ethernet interface are provided on the configuration circuit board of the junction box.

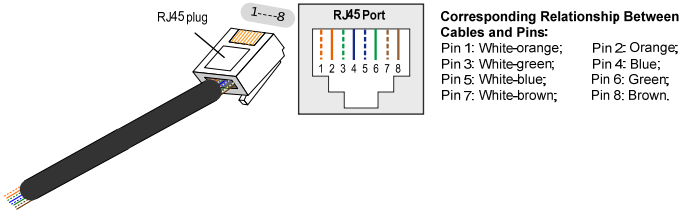


A 120Ω terminating resistor can be connected between the A and B communication cable through the dip switch.

For RJ45 Connection the pins definitions are shown below. In Ethernet cable, Pin 3 white-green cable defines RS485- B while Pin 6 green cable defines RS485+ A.



For Ethernet Connection the pins definitions are shown below. Use the Ethernet crimper to crimp the cables and connect cables to RJ45 plug according to TIA/EIA 568B.



3-7 Completing Installation

Inspect befor commissioning and reassemble the front cover of the connection cabinet.

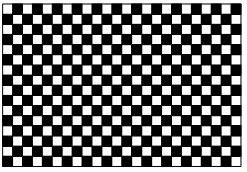
4 Commissioning

Before starting SG60KU, make sure all installation and connections are completed and verified.

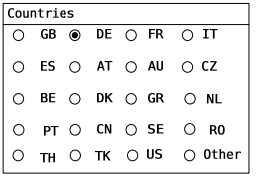
Step 1 Close the AC circuit breaker.

Step 2 Rotate DC switch to "ON" position.

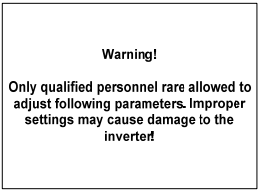
Step 3 Suppose there are sufficient sunlight and enough DC power. PV arrays initialize and supply DC power to inverter. The LCD display is activated when DC voltage exceeds inverter startup votlage. If there is a defect on the display, contact Sungrow.



Step 4 **Press** ▼ to choose country code. Confirm the settings by **Pressing** **ENTER**.



Step 5 Select the country code according to the installation country of the inverter. Each country code represents corresponding local protective parameters that have been preset before delivery. Before country setting, there is warning screen. Operate according to the warning information and press **ENTER.**



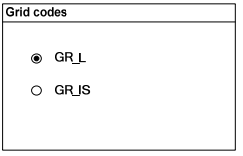
If the inverter is installed where the country code is not included, please choose item "Other" and manually set the protection parameters.

⚠ CAUTION

If the country code is not set correctly during commissioning, reset the protection parameters.

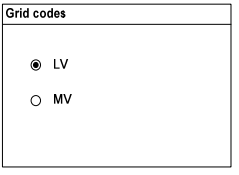
Step 6 If the country code set as GR, a Grid codes page as shown in the right will appear. **Press** ▼ to select grid code and **press ENTER** to confirm.

GR



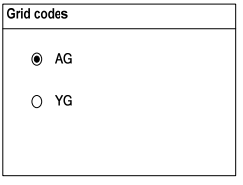
If the country code set as DE, a Grid codes page as shown in the right will appear, where LV signifying low-voltage grid; MV signifying medium-voltage grid. **Press** ▼ to select grid code and **press ENTER** to confirm.

DE



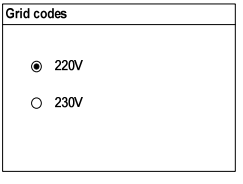
If the country code set as TK, a Grid codes page as shown in the right will appear. **Press** ▼ to select grid code and **press ENTER** to confirm.

TK



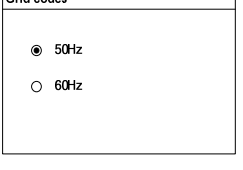
If the country code set as TH, a Grid codes page special for Thailand will appear. **Press** ▼ to select grid code and **press ENTER** to confirm.

TH



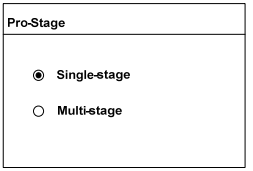
If the country code set as Other, a Grid codes page as shown in the right will appear. **Press** ▼ to select grid code and **press ENTER** to confirm.

Other

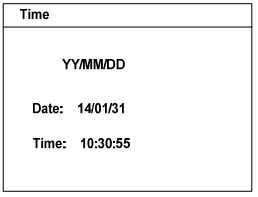


Step 7 If the country selected is not the abvementioned 5 countries, enter the next step directly.

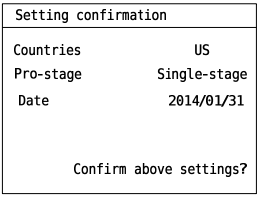
Step 8 After selecting the Grid Code, there will be a "Pro-stage" type selection screen and then corresponding sub-menu will come up.



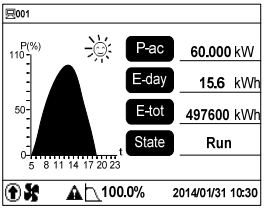
Step 9 Set the inverter time as per local time. Incorrect time setting will affect the data logging. **Press** ➤ to move the cursor and **Press** ▼ to set the specific time and date. **Press ENTER** to confirm setting.



Step 10 After configuring all parameters, there will be a "setting confirmation" screen. Check whether all above-mentioned parameters are correct. Confirm by **Pressing ENTER**. Cancel by **Pressing ESC** and reset.



Step 11 Inverter will enter into startup process. Observe the status of LED indicators and the LCD main screen. If commissioning succeeds, the "RUN" indicator will be on and "Run" will be displayed on the "State" area.



If fault or warning occurs, the "FAULT" indicator will be on or the "RUN" indicator will Flicker, and "Fault" or "Warn" will occur on the display. **Press** ▼ to view "current fault/warning" information. Remove the existing fault or warning, and then repeat the commissioning procedures.