
Quick Installation Guide

**SG60KU-M
PV Grid-Connected
Inverter**



SG60KU-M Quick Installation Guide

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

NOTICE

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

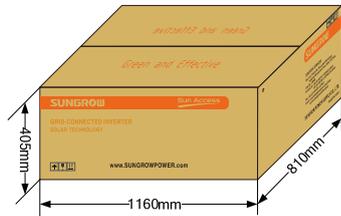
Make sure to read over, fully understand and strictly follow the detailed instructions of the user manual and other related regulations before installing the equipment.

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-M is unavailable if any damage is detected.

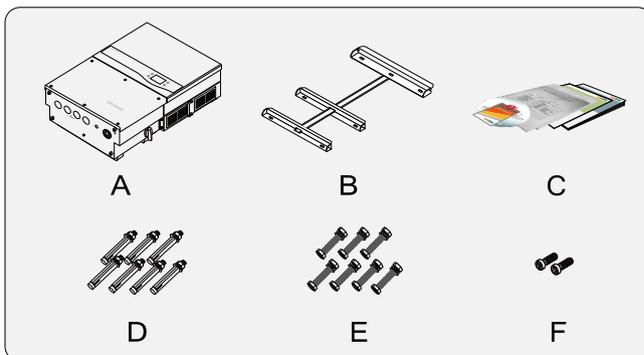


Fig. 1-1 Scope of delivery

*Images shown here is for reference only! Actual product you receive may differ.

Item	Name	Description
A	Inverter unit	---
B	Backplate	It is used for mounting inverter onto the wall.
C	Documents	Documents include quality certificate, packing list, product test report, and quick user manual.
D	Expansion bolts	Seven units. It is used for fastening backplate onto concrete wall.
E	Fastener set	Seven units. It is used for fastening backplate onto metal frame.
F	Fix screws	2 M4×16 screws for fix the inverter to the backplate.

2 Mounting Inverter onto the Metal Frame

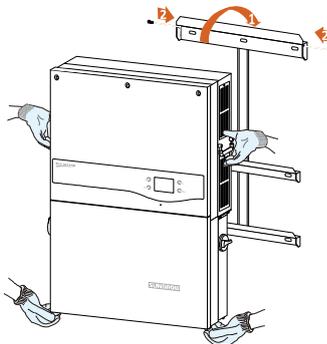
1. Select the installation location and regulate the clearances of multiple inverters, referring to the user manual.
2. Move the inverter to the installation site with the help of another person or the lifting device by means of the handles.
3. Install the inverter onto metal frame as following procedures.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

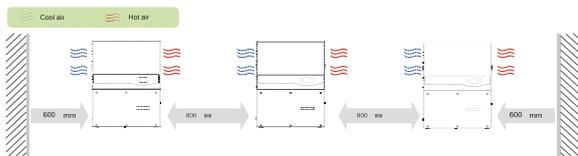
Install backplate



- b) Mount the inverter onto the backplate and secure it with M4 screws.

Hang inverter

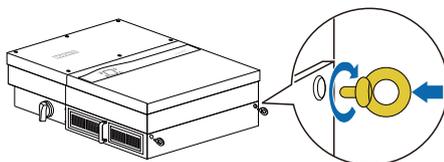




*Supplement

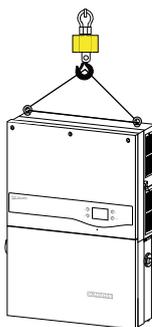
If the installation location is higher, the inverter can not be directly linked to the backplate, please perform following steps to lift the inverter to the level of the fixed backplate or adjacent place.

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

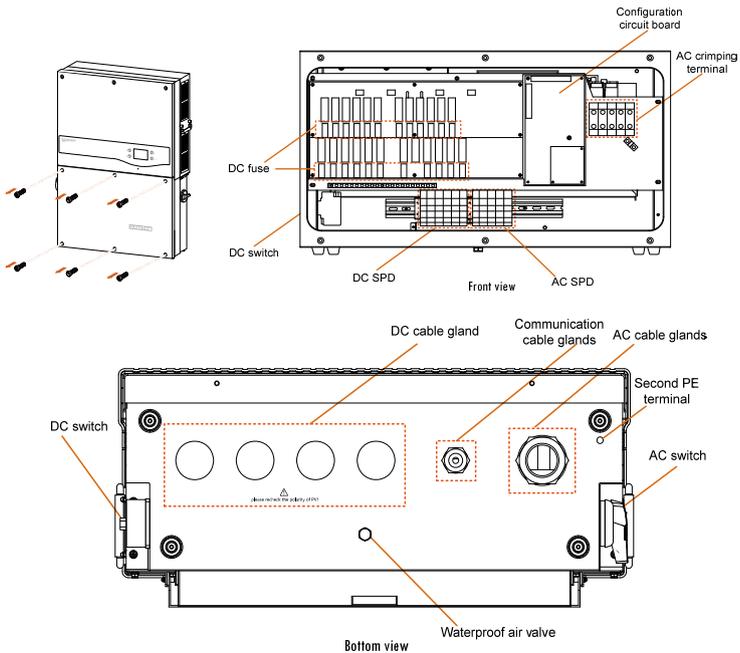
Death hazards due to high voltage existing inside the inverter!

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.

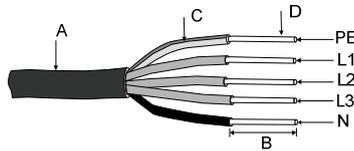
3-1 Open the Connection Cabinet

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.



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: 25-70mm 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
4...6mm ² (12AWG...10AWG)	6~9mm	1000V	12.5A

- Second PE Cable

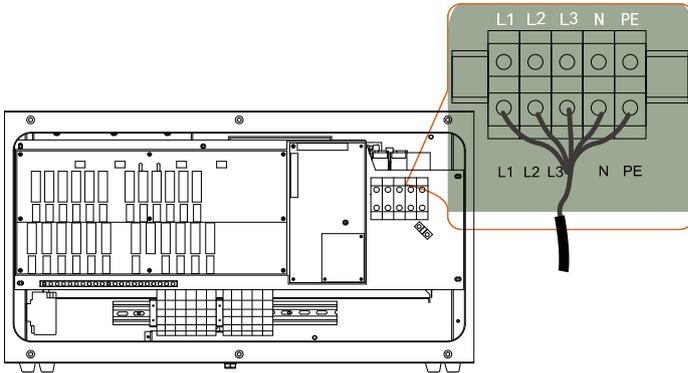
Cross-sectional area (mm ²)	Recommended conductor size (mm ²)
16...25mm ²	16mm ² (5AWG)

- RS485 communication cables

Shielded twisted pair cables or Shielded twisted pair Ethernet cables.

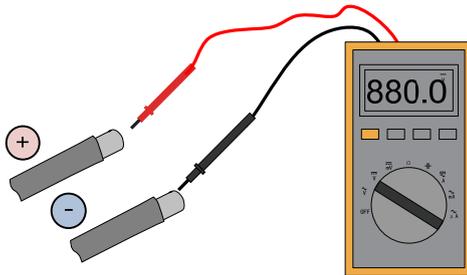
3-3 AC Connection

Pull the cables and connect L1/L2/L3/PE/N 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.

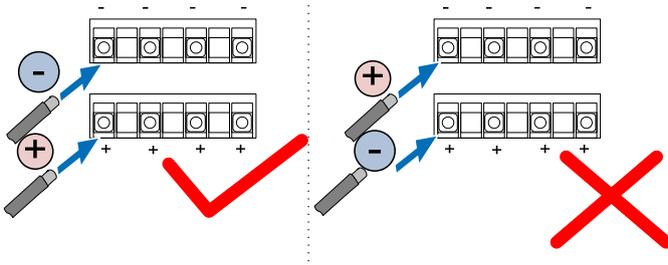
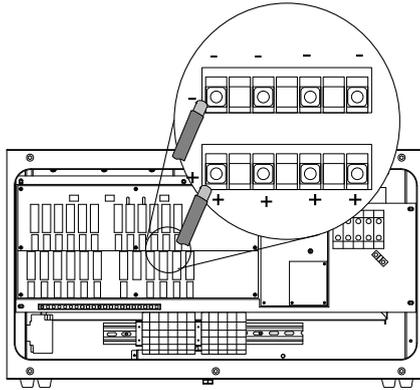


NOTICE

- Check the positive and negative polarity of the PV cells. After confirmation, you can insert the DC cables into the input terminals in the cabinet 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 Remove the threaded plastic plug from the DC cable knockout and replace with a conduit hub sized to fit the required wiring and raceway.

Step 3 Pull all DC cables through the conduit opening and tighten a pair of positive and negative cable ends into corresponding terminals with the torque range from 1.2Nm to 1.5Nm. Connect other DC cables following the above-mentioned procedures.

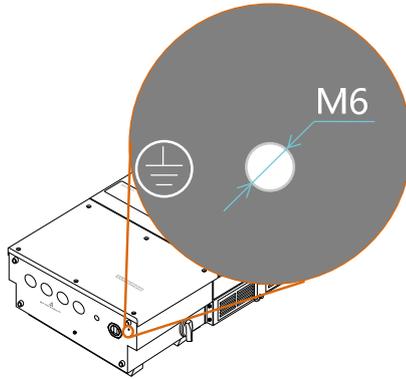


3-5 Second Protective Earth Terminal

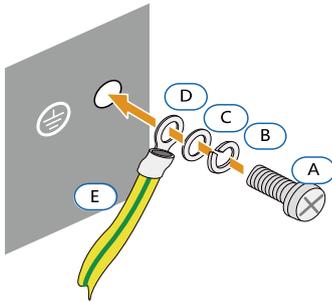
Inverter is equipped with second protective earth terminal as specified in EN 50178.

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

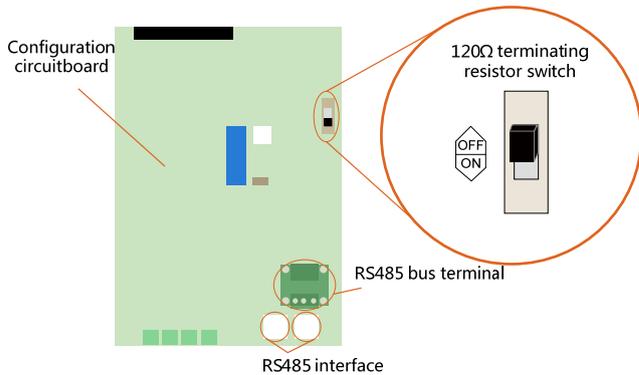


Item	Name	Description
A	Screw	M6×12mm
B	Lock washer	-
C	Washer	-
D	Cable socket	-
E	Yellow-green cable	16mm ² (5AWG)

* Connection parts are not within the scope of delivery

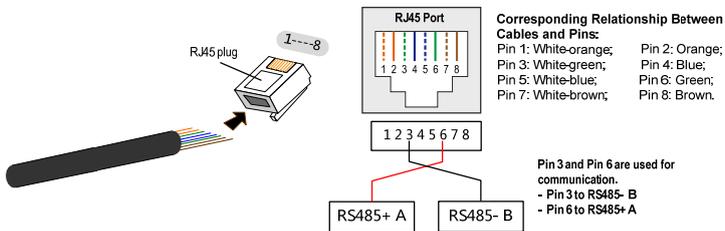
3-6 Communication Connection

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.

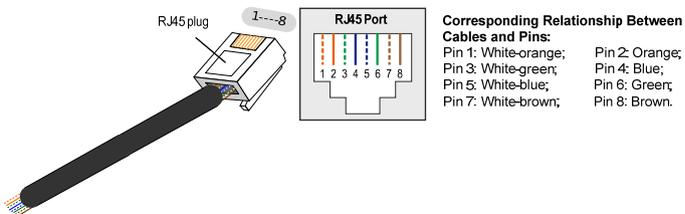


A 120Ω terminating resistor can be connected between the A and B communication cable through the dip switch.

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 crimping tool to crimp the cables and connect cables to RJ45 plug according to TIA/EIA 568B.



3-7 Completing Installation

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

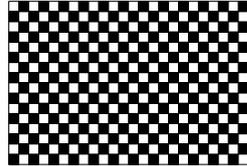
4 Commissioning

Before starting SG60KU-M, 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 voltage. If there is a defect on the display, contact Sungrow.



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

Count r i e s
<input type="radio"/> CA
<input checked="" type="radio"/> US
<input type="radio"/> O t h e r

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**.

Warning!
Only qualified personnel rare allowed to adjust following parameters. Improper settings may cause damage to the inverter!

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

Other

Grid codes

50Hz

60Hz

Step 7 After selecting the Grid Code, there will be a “Pro-stage” type selection screen and then corresponding sub-menu will come up.

Pro-Stage

Single-stage

Multi-stage

Step 8 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.

Time

YYMMDD

Date: 16/01/31

Time: 10:30:55

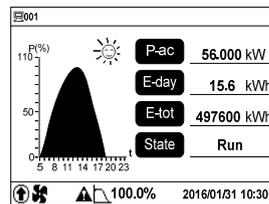
Step 9 After configuring all parameters, there will be a “setting confirmation” screen. Check whether all above-mentioned parameters are correct. Confirm by **Pressing ENTER**. Cancel by **Pressing ESC** and reset.

Setting confirmation

Countries	US
Pro-stage	Single-stage
Date	2016/01/31

Confirm above settings?

Step 10 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.



Green and Effective

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Specifications are subject to changes without advance notice.