
Quick Installation Guide

SG60KTL

PV Grid-connected Inverter



SG60KTL Quick Installation Guide

This guide provides a general instruction of the installation procedures of SG60KTL.

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.

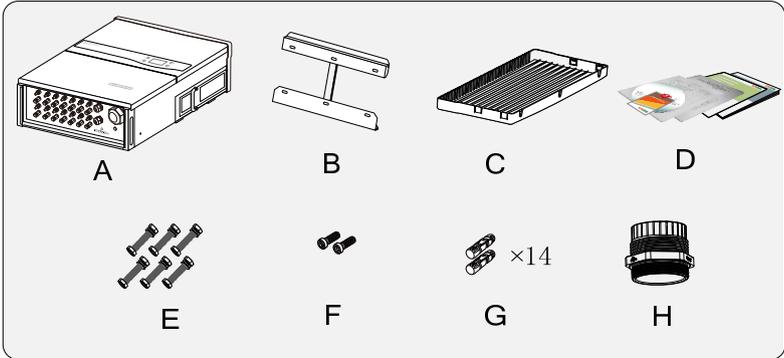
1 Unpacking and Inspection

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. SG60KTL is unavailable if any damage is detected.



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	Fourteen pairs MC4 terminals for PV connection.
H	AC cable gland	When the external diameter of the AC cable you selected matches it, replace the original AC cable gland on the bottom of the device before wiring.

2 Mounting Inverter onto the metal frame

- Select the installation location and regulate the clearances of multiple inverters, referring to the user manual.
- Move the inverter to the installation site with the help of another person or the lifting device by means of the handles.
- Install the inverter onto metal frame as following procedures.

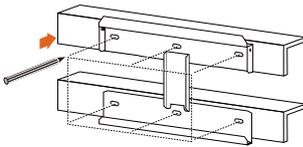
Step 1 Remove the backplate and fasteners from the packaging.

Step 2 Place the backplate to the chosen metal frame and adjust it to proper position and height.

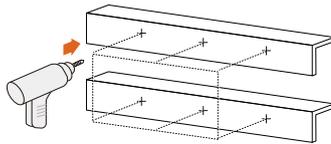
Step 3 Mark the position for holes drilling according to the holes position of the backplate.

Step 4 Drill holes according to the marks make before. If the shape of the metal frame does not match the backplate, re-drill holes on the backplate according to the metal frame chooden.

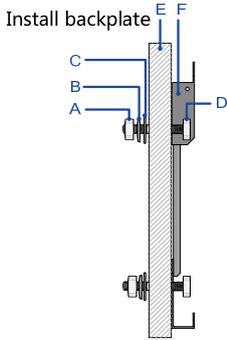
Mark positions



Drill holes



Step 5 Secure the backplate to the metal frame firmly by the supplied fastener. Torque of the fasten nut is 35 N·m.



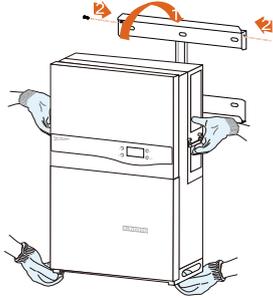
No.	Name	Description
A	Hexagon nut	M10
B	Spring washer	-
C	Flat washer	-
D	Screw bolt	M10*45
E	Metal frame	-
F	Backplate	-

Step 6 Lift the inverter above the backplate and then slide down to make sure they match perfectly.

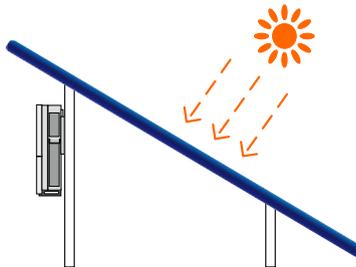
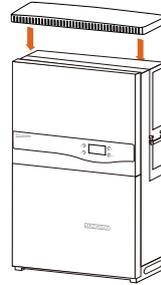
Step 7 After putting the inverter on the backplate, secure the inverter to the backplate with two M4×16 screws (fix screw hole has its own nut).

Step 8 Install the inverter cap.

Hang inverter



Install Inverter cap



3 Electrical Connection

DANGER

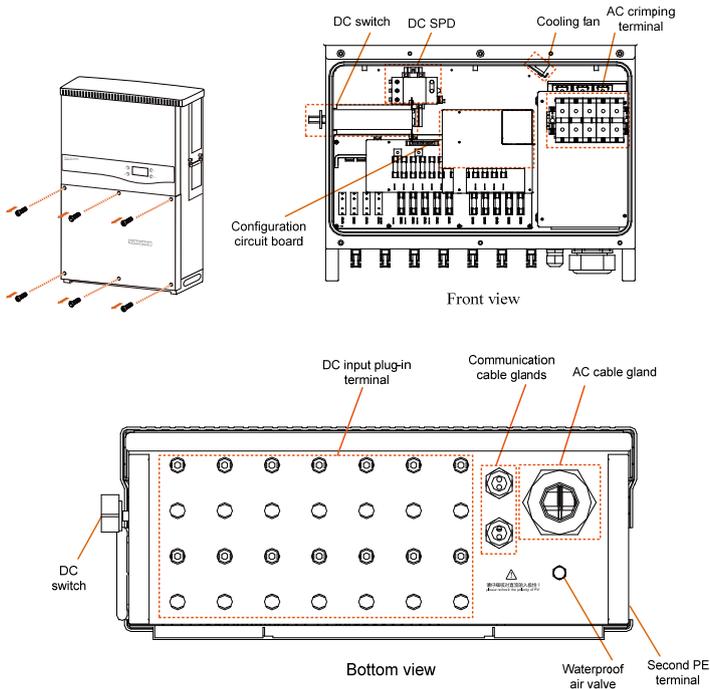
Death hazards due to high voltage existing inside the inverter!

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.

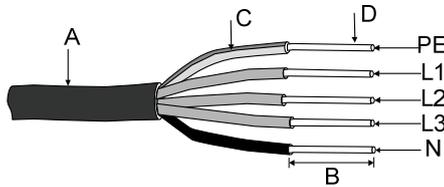
3-1 Open the Connection Cabinet

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: 25~40 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 external diameter of the AC cable described in A is proper range.

- If you select AC cable with the external diameter within the range of 25~30.5 mm, please select the smaller AC cable gland.
- If you select AC cable with the external diameter within the range of 30.5~40 mm, please select the larger AC cable gland.

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	12A

- Second PE Cable

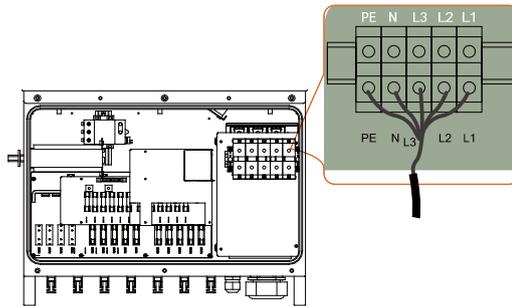
The cross-sectional area of the second PE cable shall be exactly the same with that of the PE cable of the AC cable.

- 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/N/PE cables ends to the corresponding terminal blocks. Fix the AC cable to the corresponding terminals with torque of 8...12 N·m.



*Supplement

Select the adaptive wire diameter of AC cable gland according to actual AC cable diameter. Remove or install the two AC cable glands on the bottom of the device by torque of recommended value.

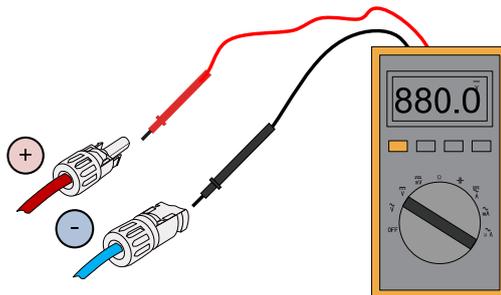
- Remove or install the smaller AC cable gland by torque of 12...13 N·m.
- Remove or install the larger AC cable gland by torque of 16...17 N·m.



Peel the plastic film on one end of the AC cable gland with proper tools before AC cable connection. Only the AC cable gland itself needs to be replaced; other accessories (packing nuts) can still be used.

3-4 DC Connection

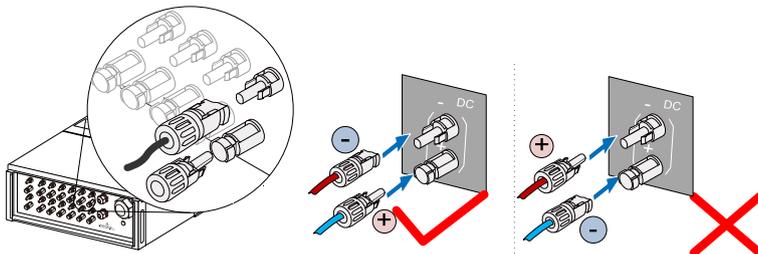
Step 1 Check the connection cable of PV string for the correct polarity and that the open-circuit voltage does not exceed the inverter input limit 1000V, even under the lowest operating temperature.



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 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

There is a second PE terminal on one side of the inverter and it should be grounded.

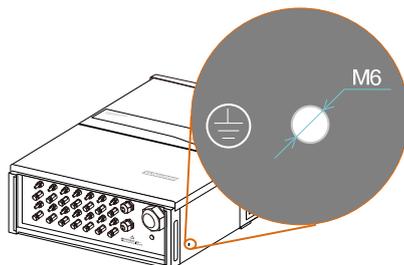


Fig. 3-1 Second PE terminal

WARNING

The ground connection of this second PE terminal cannot replace the connection of the PE terminal of the AC cables. Make sure the two PE terminals are all grounded reliably. Sungrow shall hold no liability for any possible consequences caused by ignorance of this warning.

Cable Connection

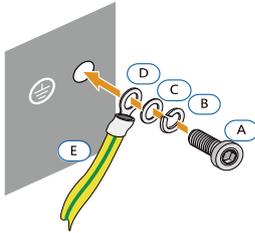


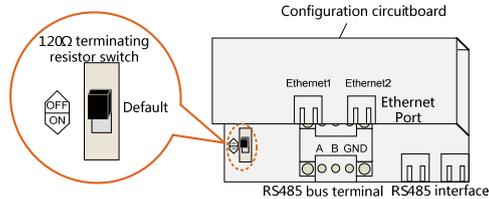
Fig. 3-2 Second PE connection

Item	Name	Description
A	Screw	M6×12mm
B	Lock washer	-
C	Washer	-
D	Cable socket	-
E	Yellow-green cable*	-

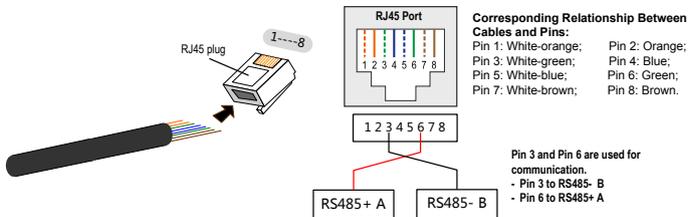
* Connection parts are not within the scope of delivery

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 (optional) 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.



3-7 Completing Installation

Seal the gaps between the cables and the glands inside the lower part of the cabinet by fireproofing mud. Inspect before commissioning and reassemble the front cover of the connection cabinet.

4 Commissioning

Before starting SG60KTL, 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.

Button	Operation	Description
	Press for less than 2 seconds	Move upwards or downwards or scroll among set values. Hereinafter, it is referred to as "Press ▼ ".
	Press for more than two seconds	Return to the previous menu or cancel the command. Hereinafter, it is referred to as "Press ESC ".
	Press for less than 2 seconds	Move left or right, or turn pages. Hereinafter, it is referred to as "Press ▶ ".
	Press for more than two seconds	Enter into the sub-menu or confirm the command. Hereinafter, it is referred to as "Press ENTER ".

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

Count r i e s							
<input type="radio"/>	GB	<input checked="" type="radio"/>	DE	<input type="radio"/>	FR	<input type="radio"/>	IT
<input type="radio"/>	ES	<input type="radio"/>	AT	<input type="radio"/>	AU	<input type="radio"/>	CZ
<input type="radio"/>	BE	<input type="radio"/>	DK	<input type="radio"/>	GR	<input type="radio"/>	NL
<input type="radio"/>	PT	<input type="radio"/>	CN	<input type="radio"/>	SE	<input type="radio"/>	RO
<input type="radio"/>	TH	<input type="radio"/>	TK	<input type="radio"/>	Q her		

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 are allowed to adjust following parameters. Improper settings may cause damage to the inverter!



After setting the Country parameter, please proceed to set other parameters of the inverter in accordance with the specific requirements of the local grid. Before commissioning, please check thoroughly if the set parameters meet the local grid requirement.

Refer to “Protection Parameter Setting” in User Manual for country code explanation. If the inverter is installed where the country code is not included, please choose item “Other” and manually set 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

Grid codes
<input checked="" type="radio"/> GR_L
<input type="radio"/> GR_IS

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

Grid codes
<input checked="" type="radio"/> LV
<input type="radio"/> MV

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

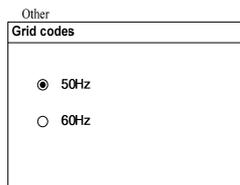
Grid codes
<input checked="" type="radio"/> AG
<input type="radio"/> YG

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

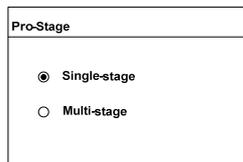
Grid codes
<input checked="" type="radio"/> 220V
<input type="radio"/> 230V

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.

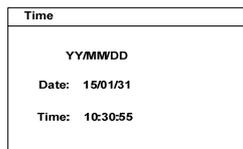


If the country selected is not the abovementioned 5 countries, enter the next step directly.

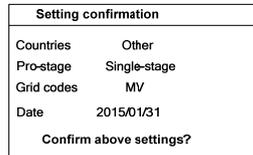
Step 7 After selecting the Grid Code, there will be a “Pro-stage” type selection screen and then corresponding sub-menu will come up. For detailed information, please refer to “Protection Parameter Setting” in User Manual.



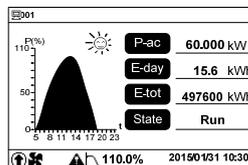
Step 8 Set the inverter time as per local time. Incorrect time setting will affect the data logging. Press **➤** to move the cursor and **Press ▼** to set the specific time and date. **Press ENTER** to confirm setting.



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.



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 commissioning fails, the “FAULT” indicator will be on and “Fault” will occur on the display. Press **▼** to view “current fault” information. Remove the existing fault and then repeat the commissioning procedures.



Green and Effective

Sungrow Power Supply Co., Ltd.

Add: No.1699 Xiyou Rd.,New & High Technology Industrial Development Zone, 230088,Hefei, P. R. China.

Post Zip: 230088

Web: www.sungrowpower.com

E-mail: info@sungrow.cn

Tel: +86 551 6532 7834/6532 7845

Fax: +86 551 6532 7856

Specifications are subject to changes without advance notice.