SG10KTL-M/SG12KTL-M

Quick Installation Guide

This guide provides a general instruction of the installation procedures of SG10KTL-M/ SG12KTL-M

NOTICE

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

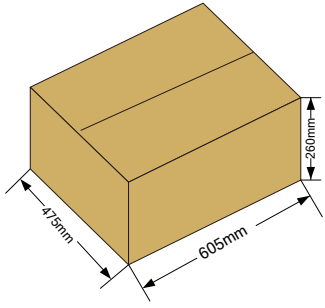
Make sure to read over, fully understand and strictly follow the detailed instructions of the user manual and other related regulations before installing the equipment.

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. SG10KTL-M/ SG12KTL-M are unavailable if any damage is detected.

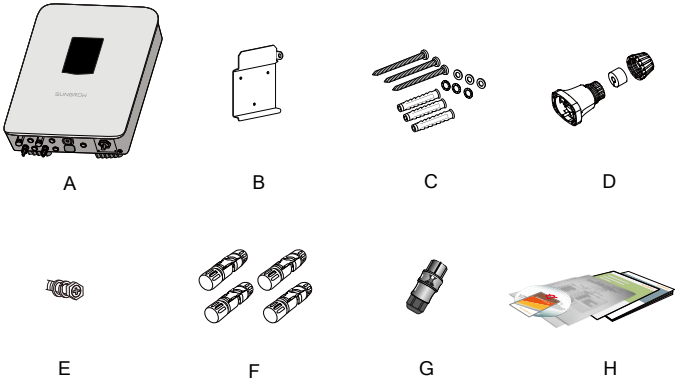


Fig. 1-1 Scope of delivery

Item	Name	Description
A	Inverter	---
B	Backplane	Used to connect the inverter to the installation site.
C	Nylon bolts	Used to fasten backplate onto concrete wall
D	Communication connectors	Used to connect communication terminal.
E	Anti-theft screw	Used to lock the inverter mounting ears and hanging boards.
F	PV input connectors	Including positive and negative connectors, used to connect PV input.
G	AC output connectors	Used to connect AC output.
H	Documents	Quality certificate, packing list, Test Report, CD and quick user manual

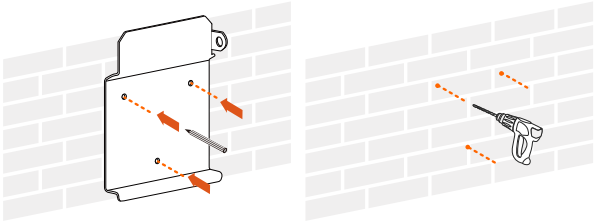
2 Mounting Inverter onto the wall

- 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 the wall as following procedures.

Step 1 Remove the backplate and corresponding fasteners from the packaging.

Step 2 Place the backplate on the chosen concrete wall and adjust it to proper position and height.

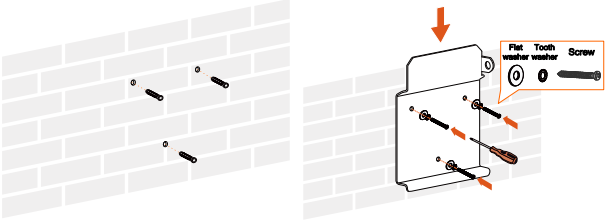
Step 3 Mark the position for holes, drilling according to the hole positions of the backplate. Drill holes according to the marks made before.



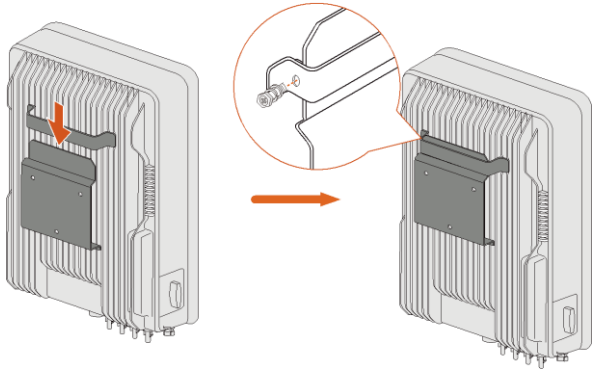
DANGER

Check to ensure that there is no other electronic or plumbing installed inside the wall before drilling holes.

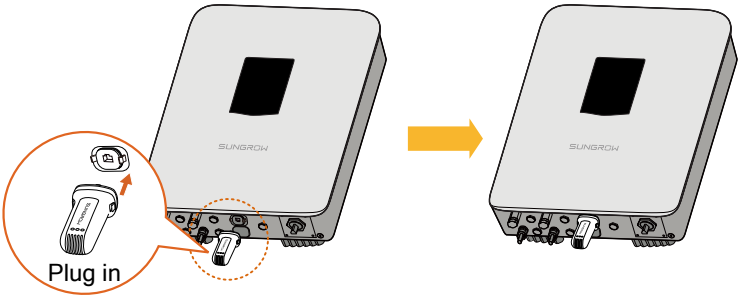
Step 4 Secure the backplate to the wall firmly by the supplied expansion bolt sets. Torque of the fasten nut is 10 N•m.



Step 5 Lift the inverter above the backplate and then slide down to make sure they match perfectly. You can use the fastener set to lock the device.



Step 6 (Optional) If you purchased a GPRS data acquisition module, install it to the communication interface of the inverter.



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 Terminal Description

All electrical terminals are located at the bottom of unit. Fig. 3-1 shows the connection area.

Enough space should be kept for electrical connection at the bottom of the inverter when choosing the installation site.

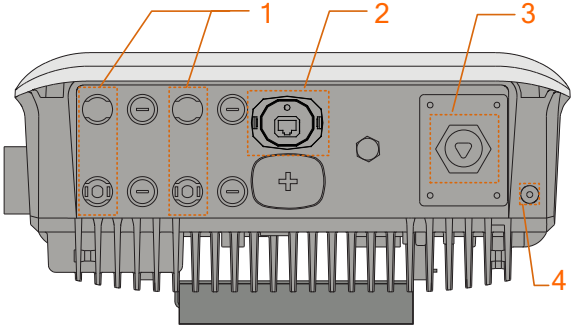


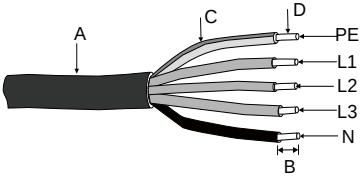
Fig. 3-1 Cable connection area

*Pictures are indicative only. Please in kind prevail.

No.	Name	Description
1	DC input plug-in terminal	MC4 terminals for PV input.
2	communication terminal.	-
3	AC cable gland	AC terminals to the power grid.
4	PE terminal	A second PE terminal

3-2 Cables Selection

- AC Cable



No.	Description	Remark
A	Protective layer	Accepted cable external diameter ranges from 10mm to 14mm.
B	Length of insulation to be stripped off	18 mm
C	Insulation layer	-
D	Cross-section Area Range	Ranges:4-6 mm^2; Recommended: 6mm^2

- DC Cables

Cross-sectional area	Cable External diameter	Max. withstand voltage	Max. input current for each PV string
2.5...6mm^2	6…9mm	1000V	15A

- 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

  The Ethernet cables are applicable to outdoor installation.

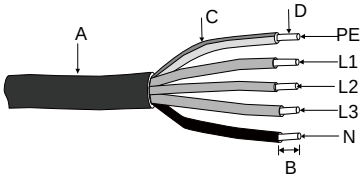
3-3 AC Connection

AC cables Procedure

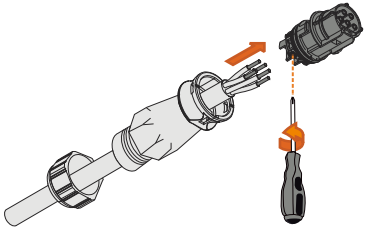
Step 1 Loosen all screws on the AC terminal lid and remove the lid.

Step 2 Lead the AC cable through the Thread-Lock Sealing Nut, and the cable gland.

Step 3 Strip off insulation layer of all AC cables. The length of strip insulation is approximate 18mm.



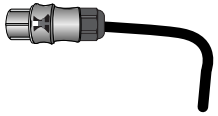
Step 4 Fix all cables to the corresponding terminals by torque of 2.0-2.5N·m, according to markings on the connector with a screwdriver, especially the "PE" cable.



Step 5 Pull cables outward to check whether they are firmly installed.

Step 6 Connect the front and the back parts until there is an audible crack.

Step 7 Screw the water-proof terminal to the opposite direction.

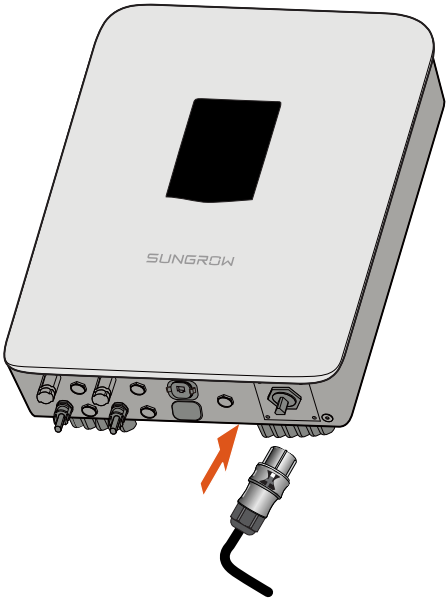


AC Wiring Procedure

Step 1 Disconnect AC circuit breaker to prevent it from inadvertently reconnecting.

Step 2 Insert the AC connector into the input terminals on the bottom of

the inverter until there is an audible sound.



Step 3 Connect PE cable to ground.

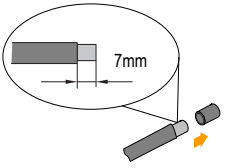
Step 4 Connect phase cable and "N" cable to AC circuit breaker.

Step 5 Connect AC circuit breaker to utility grid.

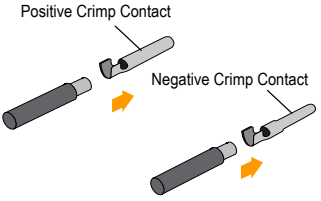
Step 6 Make sure all AC cables are firmly installed.

3-4 DC Connection

Step 1 Strip off 7mm insulation layer from all DC cables.



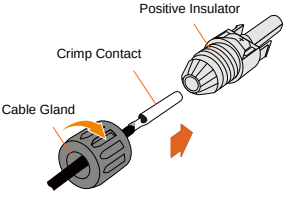
Step 2 Assemble cable ends with crimp contacts by crimping pliers.

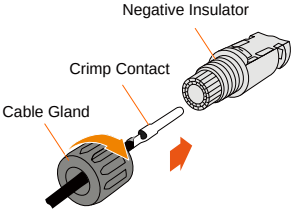


Step 3 Lead cable through cable gland.

Step 4 Insert the crimp contact into the insulator until it snaps into place. Then pull gently to check if it is correctly engaged.

Step 5 Screw the cable gland to front insulator with tightening torque 2.5…3 N·m.





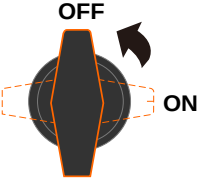
For further assembly and connection instruction, please visit the webpage of the device manufacturer.

Step 6 Make sure the connection cable of PV string for the correct polarity.

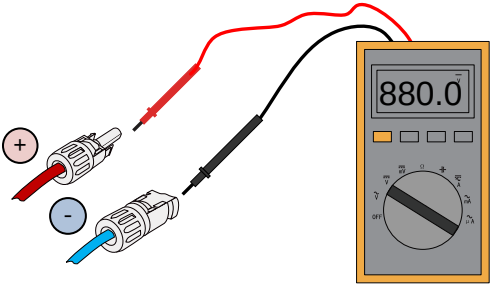
NOTICE

The inverter will not function properly if the DC polarities are reversed.

Step 7 Rotate the DC switch to the "OFF" position.



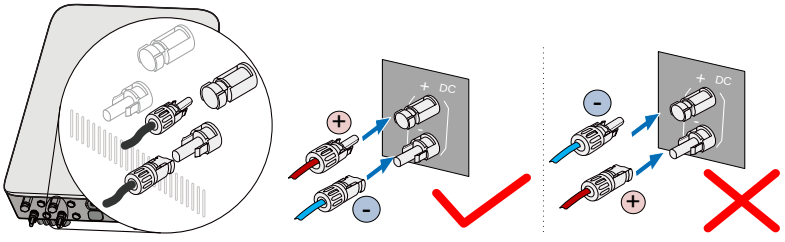
Step 8 Check the connection cable of PV string for the correct polarity and that the open-circuit voltage does not exceed the inverter input limit 1000V, even under the lowest operating temperature.



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.

Step 9 Insert the positive and negative DC connectors into the input terminals on the bottom of the inverter until there is an audible sound.



Step 10 Connect other PV strings following the above-mentioned procedures.

Step 11 Seal the unused DC terminals with the waterproof plugs.

3-5 Second Protective Earth Terminal

There is a second PE terminal on one side of the inverter and it should be grounded. Fix the PE cable to the second PE terminal with torque of 1.5N·m,

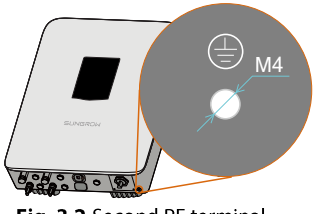


Fig. 3-2 Second PE terminal

⚠ 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.

Due to the transformer-less design of the inverter, neither the DC positive pole nor the DC negative pole of the PV string can be grounded.

Cable Connection

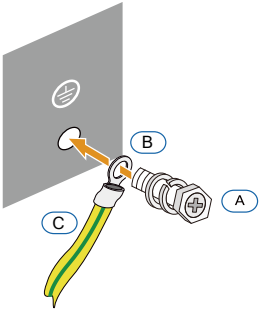


Fig. 3-3 Second PE connection

Item	Name	Description
A	Screw	Bolt type: M4×12mm; Attached to the machine when shipped.
B	Cable socket	-
C	Yellow-green grounding cable*	-

*the cross-sectional area of the yellow-green grounding cable shall be exactly the same with that of the PE cable of the AC cable.

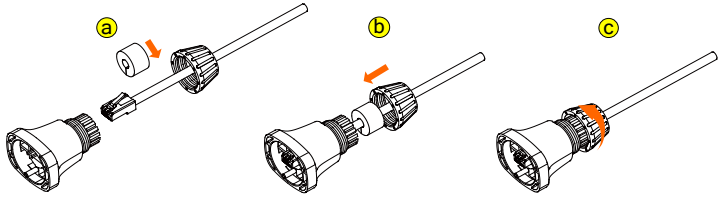
3-6 Communication Connection

There is communication waterproof connection terminal on the bottom of the inverter. RS485 Ethernet interface is provided. The inverter operation information can be transferred to the PC of the installed monitoring software or to a local data logging device (e.g. Logger 3000) through RS485 communication connection. It can also be connected with the GPRS communication module, and the operating information of the inverter can be transmitted to the mobile phone APP through the base station for the user to view the real-time information.

When the end of the communication cable is not connected to the RS485 communication cable or GPRS module, please do not remove the factory water-proof gland.

RS485 communication connection of the COM port

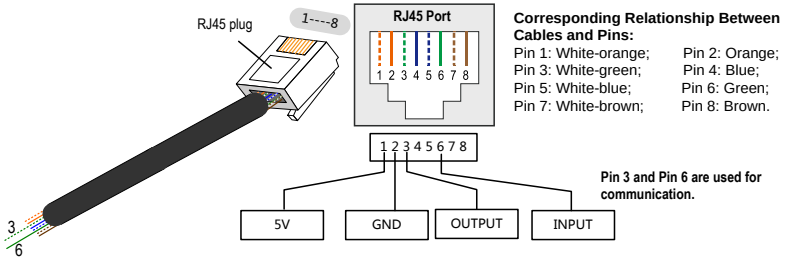
Step 1 Insert the RJ45 plug into the front plug connector until it makes a clicking sound, install the plastic rings then tighten the cable gland with appropriate torque.



Step 2 Insert connector of one cable end into COM terminal on the bottom of the inverter. Make connector and COM terminal engage and rotate clockwise.

Step 3 Pull cables outwards to confirm whether they are fastened firmly.

Step 4 Connect the COM cables (1, 2, 3 and 6) to terminating resistor.



Step 5 Verify the communication connection and configure the communication parameters.

GPRS communication connection of the COM port

Connect the GPRS wireless data collector produced by Sungrow to the COM network port. After successful connection, information such as power generation and running state of the inverter can be viewed via the APP on the phone.

NOTICE

When the GPRS communication module is used, the Baud rate needs to be set to 9600 and cannot be modified. For detailed setting method, refer to the user manual 10.7.5 Communication Parameter Setting.

For details on module installation and configuration, refer to the manual delivered together with the module.

4 Commissioning

Before starting SG10KTL-M/ SG12KTL-M, make sure all installation and connections are completed and verified.

Step 1 Make sure all the above-mentioned items meet the requirements.

Step 2 Close the external AC circuit breaker.

Step 3 Rotate the DC switch to the "ON" position.

Provided there is sufficient sunlight:

- PV arrays initialize and supply DC power to inverter;
- DC-link starts to charge and check the state of the utility grid;
- If the conditions are OK, the inverter feeds AC power to the grid and enters into the running state.

Step 4 Observe the status of LED indicator panel.

LED indicator	LED color	LED state	Definition
Bluetooth	Blue	ON	The Bluetooth communication is connected and there is no data communication
		OFF	No device connected to the inverter through the Bluetooth.
		Periodical flash	The Bluetooth communication is connected and there is data communication
Communication	Blue	OFF	The communication is not connected or the communication channel has no data interaction
		Periodical flash	The communication is connected and the communication channel has data interaction
Fault/PID recovery	Red	OFF	No fault has occurred
		ON	A fault occurs, not including the communication fault.

LED indicator	LED color	LED state	Definition
	Green	OFF	PID recovery is deactivated
		ON	PID recovery is activated
Earth impedance abnormal	Red	OFF	No fault occurred
		ON	An earth impedance short-circuit fault occurred (the device cannot connect to the grid)
Normal operation	Green	OFF	Both the AC and DC is powered down
		Periodical flash	The DC or AC is powered on and the device is in standby or startup state (not feeding power to the gird)
		ON	The device is connected to the grid and operating normally

Step 5 Use the Sun Access App to establish the communication connection with the inverter through Bluetooth to set the initial parameters. When the device is initialized, the App will send start instructions and the device will start and operate. For details, please refer to "10.3 Logging Sun Access APP".

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.