

SG125HV Quick Installation Guide

This guide provides a general instruction of the installation procedures of SG125HV.

NOTICE

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

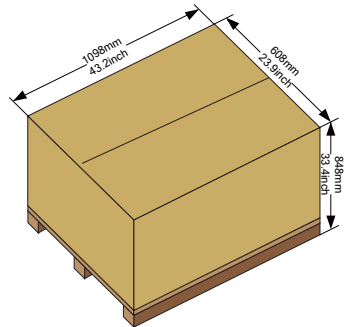
Make sure to read over, fully understand and strictly follow the detailed instructions of the user manual and other related regulations before installing the equipment.

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

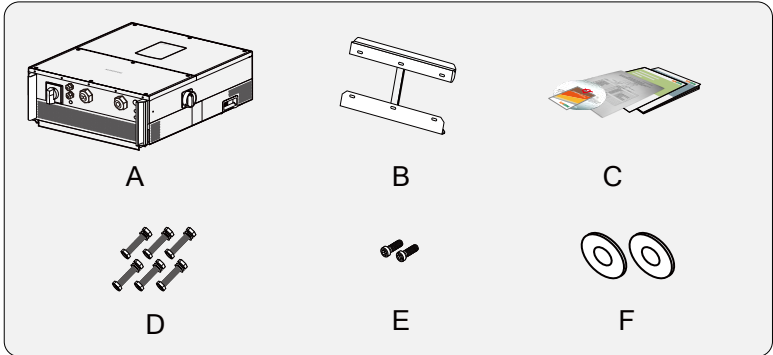
1 Unpacking and Inspection

Step 1 Remove the bracket 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. SG125HV is unavailable if any damage is detected.



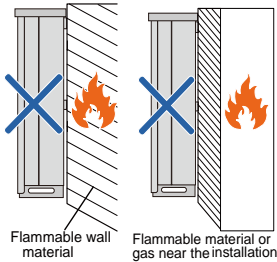
*Images shown here is for reference only! Actual product you receive may differ.

Item	Name	Description
A	Inverter	---
B	Bracket	Used to connect the inverter to the installation site.
C	Documents	Quality certificate, packing list, Test Report, CD and quick user manual
D	Fasten set	Six units to fasten bracket to metal frame.
E	Fix screw	Two M4×16 screws to connect the inverter to the bracket.
F	Big flat washer	Two additional big flat washers are within the scope of the delivery for future use if needed.

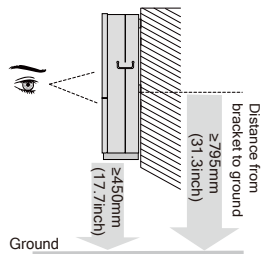
2 Mounting Inverter onto Metal Frame

2-1 Installation Site Selection

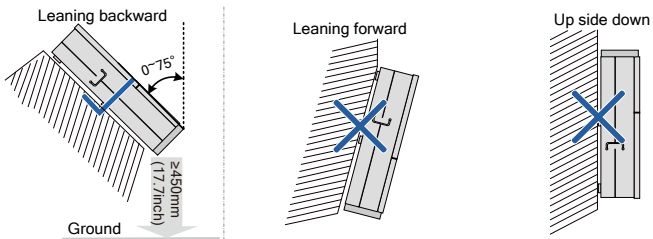
- Requirement for wall materials



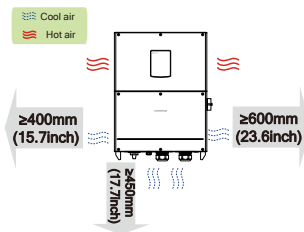
- Requirement for installation height



- Requirement for installation angle



- Requirement for installation space (The fans are maintained on the left side of the inverter, and a larger clearance is required.)



2-2 Installation

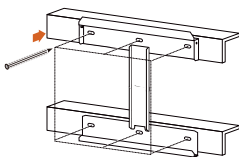
Step 1 Remove the bracket and fasteners from the packaging.

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

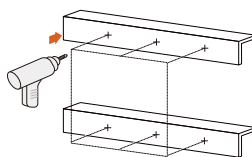
Step 3 Mark the position for holes, drilling according to the hole positions of the bracket.

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

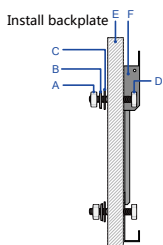
Mark positions



Drill holes



Step 5 Secure the bracket to the metal frame firmly with the supplied fastener. The torque of the fastener nut is 35 N·m.

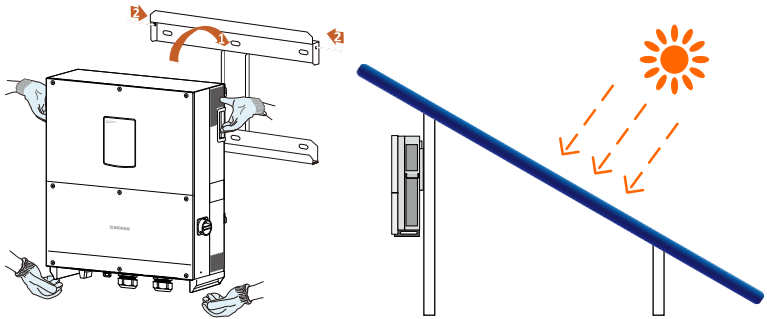


No.	Name	Description
A	Hexagon nut	M10
B	Spring washer	-
C	Flat washer	-
D	Screw bolt	M10*45
E	Metal frame	-
F	Bracket	-

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

Step 7 After putting the inverter on the bracket, secure the inverter to the bracket with two M4×16 screws (tighten the screw with its own nut).

Hang inverter



3 Electrical Connection

⚠ DANGER

Death hazards due to high voltage existing inside the inverter!

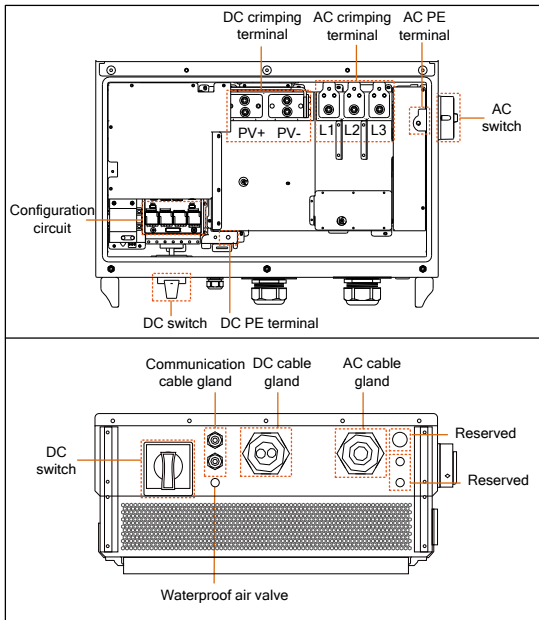
Make sure that all the DC and AC cables to the inverter are not live before you start the electrical work.

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

3-1 Open the Connection Cabinet

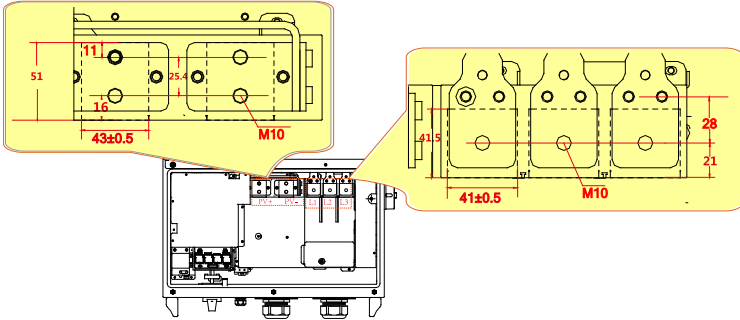
3-1-1 Appearance

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



3-1-2 Dimensions Of Terminal

Before selecting the cable side terminals, please notice the dimensions of the AC & DC terminals specified in the figure to make sure the selected terminals are proper.



We provide the socket head cap screw whose matching flat washer can enhance the fastening function of the nuts.



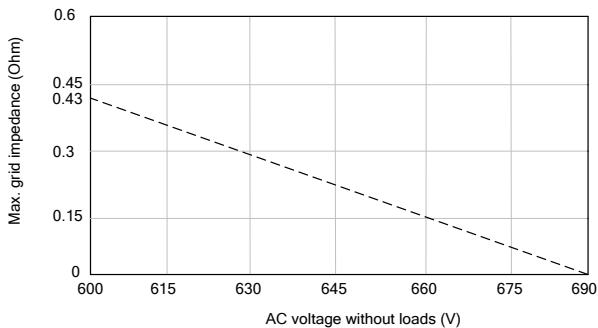
The maximum permitted temperature for the DC and AC crimping terminal is $+194^{\circ}\text{F}$.

3-2 Cables Selection

3-2-1 AC Cable

Select AC cables according to the following factors:

- Grid impedance corresponds to the specifications below to avoid accidental short-circuit or output power derating.



- Considering the voltage drop and other conditions, please enlarge the cable dimension. Power loss of the cable should be less than 1% of the nominal power.
- Withstand ambient temperature.
- Cable layout and installation conditions (inside wall, underground, free air, etc.)
- UV resistance and so on.
- The maximum operation temperature of the cable should no less than 90°C .
- The current rating of the cable should be selected in accordance with the maximum AC output current the inverter.
- The voltage rating of the cable should no less than 600Vac.
- The Conductor type can be copper wire or aluminum wire.
- The AC cable must be designed in accordance with the local installation requirements.
- The material of AC terminal is copper, if you use aluminum cable, in order to make sure a reliable electrical connection, please select proper compression lugs or terminals to avoid the direct connection between copper and aluminum conductors.

3-2-2 DC Cables

Select DC cables according to the following factors:

- The maximum operating temperature of the cable should no less than 90°C .
- The current rating of the cable should be selected in accordance with the maximum short circuit current of the PV arrays connected to the inverter.
- The voltage rating of the cable should no less than 1500V.
- The Conductor type can be copper wire or aluminum wire.
- The material of DC terminal is copper, if you use aluminum cable, in order to make sure a reliable electrical connection, please select proper compression lugs or terminals to avoid the direct connection between copper and aluminum conductors.
- The DC cable must be selected in accordance with the local installation requirements.
- The cross sectional area of DC cables cannot be more than 350 Kcmil.

3-2-3 Second PE Cable

The cross-sectional area of the second PE cable shall not be less than half of the PE cable of the AC cable.

3-2-4 RS485 communication cables

Shielded twisted pair cables or Shielded twisted pair Ethernet cables.

3-3 AC Connection

⚠ DANGER

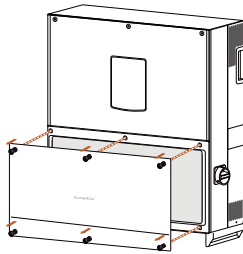
High voltage inside the inverter!

Ensure all cables are voltage-free before electrical connection.

Do not connect the AC circuit breaker until all inverter electrical connections are completed.

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

Step 2 Loosen the six screws (M6×16) on the lower connection cabinet.

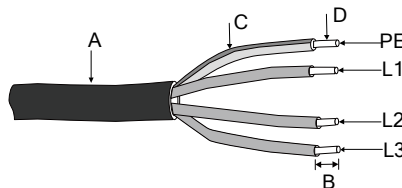


Step 3 Strip off AC cables as shown below.



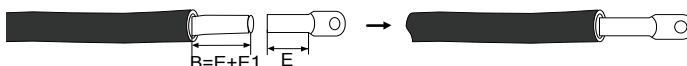
For flexible cables (stranded wires), use compression terminal lugs.

The cross-section of the AC cable conductor must be sized in order to prevent accidentally disconnections of the inverter from the grid due to high impedance of the cable that connects the inverter to the power supply point.



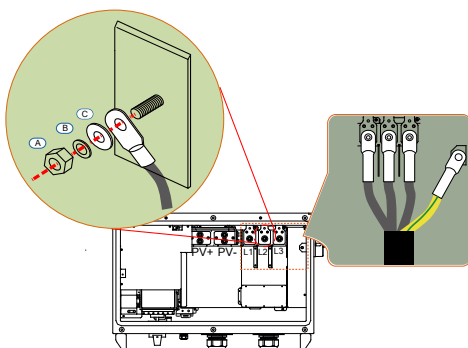
No.	Description	Remark
A*	Protective layer	-
B	Length of insulation to be stripped off	A tripped length of E1 longer than the depth of the cable lug. E1 depends on the wiring requirements of the M10 bolt.
C	Insulation layer	-
D	Cross section of AC cables	Range: $\leq 350\text{Kcmil}$

Step 4 Insert the end of the AC cable into the compression lug that matches with the M10 bolt and tighten it with proper tool.



Step 5 Install the heat-shrinkable tubing.

Step 6 Connect the AC cable to the corresponding terminals. Refer to the recommended value in the cabinet internal label for the tightening torque.



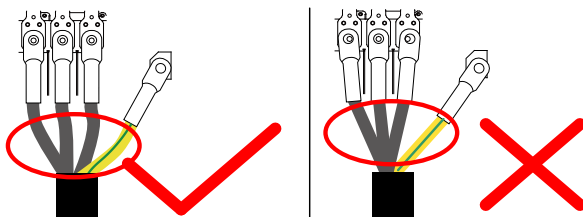
Item	Name
A	Nut
B	Spring washer
C	Big flat washer

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

NOTICE

- You need not to distinguish the phases during AC cable connection because the inverter can self-adapt.
- 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.



Step 7 Screw cap-nut tightly onto the cable.

Step 8 Seal the gaps between the AC cable and the gland inside the lower part of the cabinet with duct seal.

3-4 DC Connection

⚠ DANGER

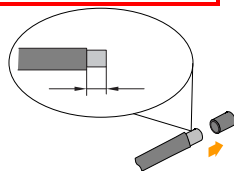
High voltage inside the inverter!

Make sure all DC and AC cables connected to the inverter are voltage-free before electrical connection.

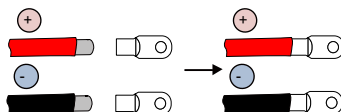
Do not connect the AC circuit breaker before electrical connection is completed.

Step 1 Disconnect the DC switch.

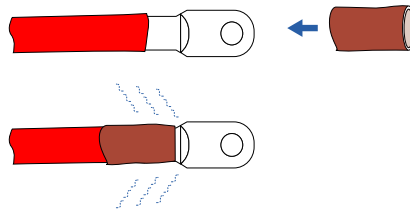
Step 2 Strip the insulation layer of the DC cable to proper length according to the DC cable specification.



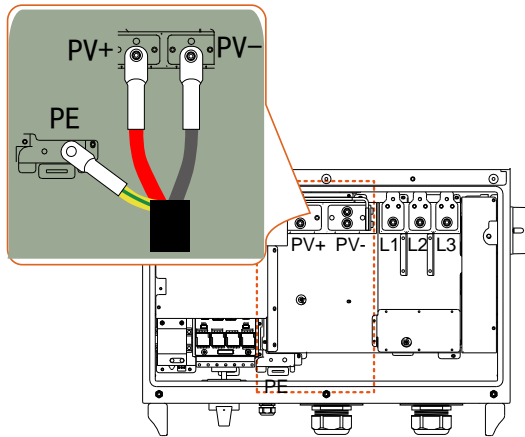
Step 3 Insert the end of the DC cable to the cable socket that matches with the M10 bolt and tighten it with the proper tool.



Step 4 Install the heat-shrinkable tubing. shrink the tubing with hot air blower.



Step 5 Connect the positive and negative polarity of the DC cable to the corresponding positive and negative cable connection terminals. Refer to the recommended value in the cabinet internal label for the tightening torque.



WARNING

- **When accessing the positive and negative cable, it is necessary to ensure the insulation requirements between the positive access and the negative access. Once positive and negative inputs are short-circuited, it can cause unrecoverable damage to the inverter. Sungrow shall hold no liability for any possible consequences caused by ignorance of this warning.**

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 connection to the same MPPT, reversing the polarity of a single string is prohibited. A permanent failure of the system or inverter may occur.**

Step 6 Pull the cable gently to make sure it is secured.

Step 7 Connect other PV strings following the above-mentioned procedures.

Step 8 Seal the gaps between the AC cable and the gland inside the lower part of the cabinet with duct seal.

3-5 Second Protective Earth Terminal

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

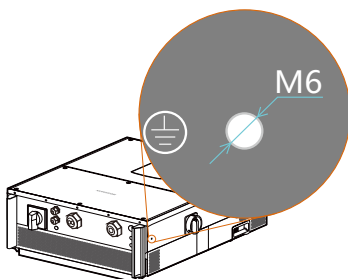


Fig. 3-1 Second PE terminal

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.

Cable Connection

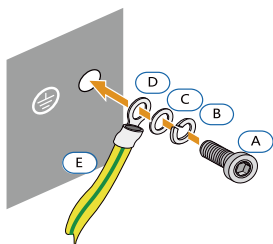


Fig. 3-2 Second PE connection

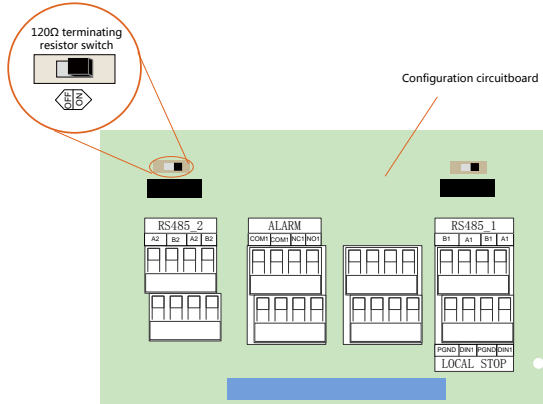
Item	Name	Description
A	Screw	M6×12mm
B	Lock washer	-
C	Washer	-
D	Cable socket	-
E	Grounding cable*	-

* Connection parts are not within the scope of delivery

3-6 Communication Connection

There are two communication waterproof connection terminals on the bottom of

the inverter. RS485 A/B terminals and RS485 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.



3-7 Completing Installation

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

NOTICE

Seal the gap between the cable and the gland/conduit with duct seal or other suitable materials to prevent the entry of foreign bodies or moisture and ensure long-term and normal operation of the inverter.

4 Commissioning

Before starting SG125HV, 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, the communication channel has no data interaction
		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 RS485 communication cable is not connected or the communication channel has no data interaction
		Periodical flash	The RS485 communication cable is connected and the communication channel has data interaction
Fault 	Red	OFF	No alarm or fault has occurred
		ON	A fault occurred and the device cannot connect to the grid
		Periodical flash	Fault recovery

LED indicator	LED color	LED state	Definition
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, or a fault occurs
		Periodical flash	The DC or AC is powered on and the device is in standby or startup state (not feeding power to the grid)
		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” in User Manual.