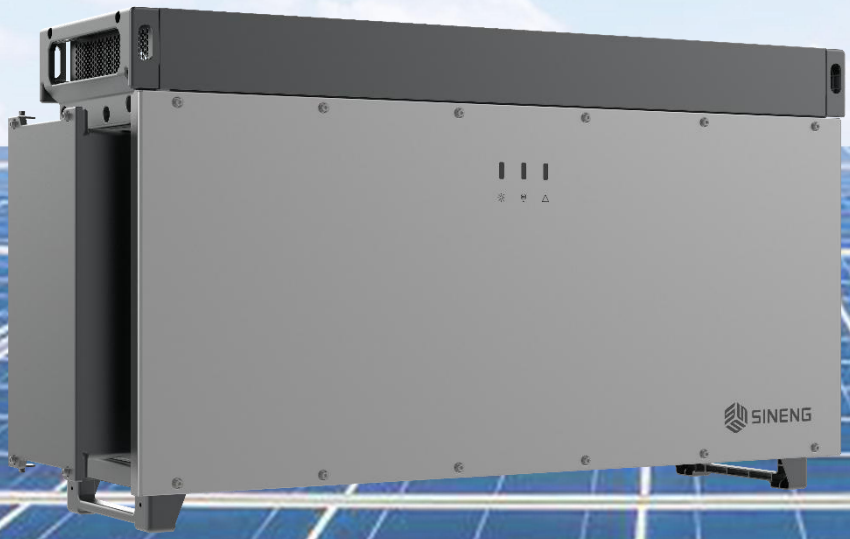
SP-350K-HB1 PV Inverter

Quick Start Guide

Issue: A01



Tips

- This document will be updated from time to time due to version upgrades or other reasons. In no case shall this document replace the User Manual and the safety instructions of the product.
- Please read the User Manual and related standard specifications in detail before performing any operation. You can log in to Sineng's official website (https://www.si-neng.com/#/) or scan the QR code on the product to follow the official account.
- All operations of the equipment must be performed by professional technicians. Professional technicians must undergo special training, read the manual in detail, master the relevant safety matters of operation, and be familiar with local standards and relevant safety regulations of the electrical system.
- Before installing the equipment, please check whether the items are complete according to the packing list, whether they are consistent with the order, and whether there is any obvious damage. If there is any anomaly, please contact the shipping company or Sineng customer service personnel.
- The cables used in PV power generation systems must be intact and well insulated. Please use insulated tools and wear personal protective equipment (PPE) during operation.
- Violation of any of the above requirements may result in personal injury, death or equipment damage.

Safety Statement

Failure to follow the requirements of this document and the User Manual to perform equipment-related operations may result in personal injury, death, or equipment damage, and Sineng will not assume any responsibility in such cases.

Danger

- Exposure of PV strings to sunlight will cause dangerous voltage!
- All electrical connections must be performed by professional technicians only.
- All electrical connections must comply with local and national electrical codes.
- The inverter can be connected to the grid only after obtaining permissions from the local power department.
- Only an intact and closed container enclosure can protect the safety of personnel and property. Do not open the inverter enclosure when the inverter is operating or energized. Sineng will assume no responsibility for any damages resulting therefrom.
- Opening the enclosure will pose a risk of touching live components, which may lead to serious electric shock accidents or even casualties.

Warning

- All safety signs, warning labels and nameplates on the inverter must be clearly visible and cannot be removed or covered.
- It is prohibited to touch hot parts (such as radiators) of the equipment during operation.
- The PV strings connected to the same MPPT must use the same number of PV panels in the same model.

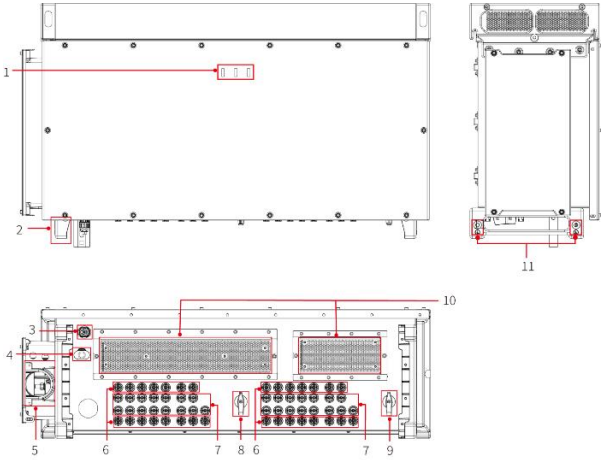
Note

- The country and protection parameter settings for the inverter must be implemented by professional technicians according to local grid standards.
- Incorrect country settings may affect the normal operating of the inverter and cause the inverter to be inconsistent with local certification.

Warning Labels on the Inverter

Before maintaining the inverter, all external power connections must be disconnected!	The temperature here is beyond the acceptable range of the human body. Please do not touch it to avoid personal injuries!
There is a danger of deadly high voltage here! Only professional and qualified personnel can perform installation and operation!	The equipment may generate noise while operating. Therefore, it is recommended to wear noise-canceling earplugs.
After the inverter is disconnected from the grid and PV panels, you need to wait 30 minutes before touching the internal conductive components.	

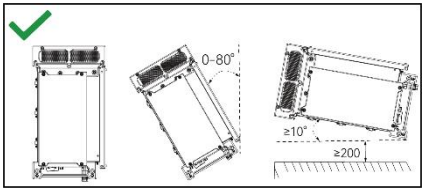
1. Product Overview

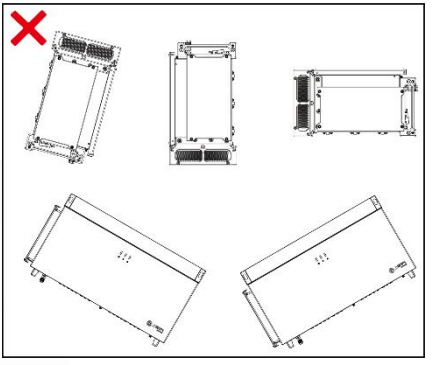


1 Indicator	2 Chassis foot	3 Communication cable port
4 Bluetooth port	5 Wiring compartment door	6 PV+ wiring port
7 PV- wiring port	8 DC switch 1	9 DC switch 2
10 Cooling fan	11 Whole equipment ground point	

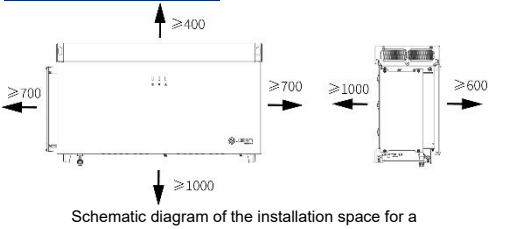
2. Installation Requirements

Installation Angle





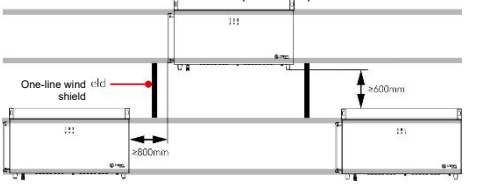
Installation Space



Schematic diagram of the installation space for a single inverter (unit: mm)

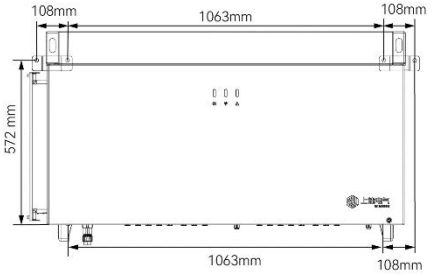


Schematic diagram of single-row side-by-side installation mode (unit: mm)



Schematic diagram of multi-row staggered installation mode (unit: mm)

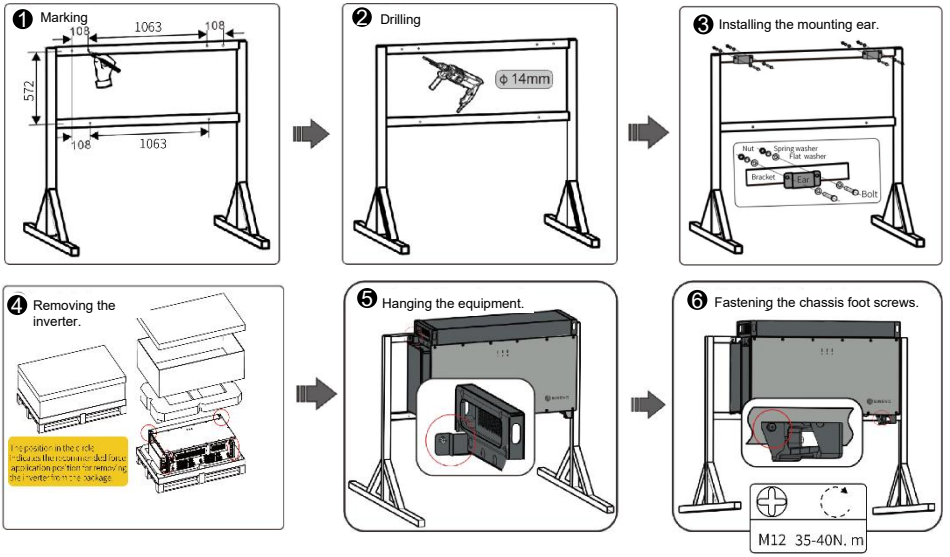
3.Product Installation



Inverter installation dimensions (unit: mm)

3.1 Bracket-mounted Installation

1. Determine the punching position according to the installation dimensional drawings. Mark the puncturing areas using a marker.
2. Use a percussion drill to make holes. It is recommended to take anti-rust measures on the puncturing areas.
3. Secure the mounting ears.
4. It is recommended to move the inverter horizontally out of the wooden box with the chassis handles (in the red circles) as the force application points.
5. Lift the inverter onto the mounting ears, and ensure that the top handle grooves and the mounting ears are well matched.
6. Fasten the chassis feet to the bracket with M12 bolt assembly.

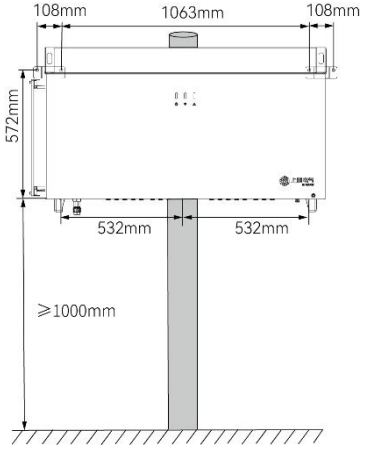


Note

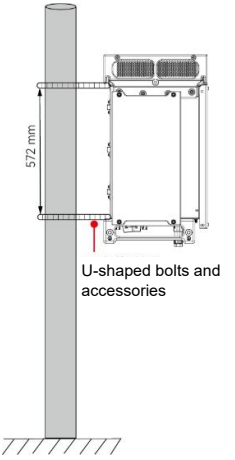
- The bearing capacity of the bracket is equal to or higher than 600 kg.
- Pay attention to personal safety when moving the equipment. If the installation position is high, it is recommended to adopt the hoisting mode.
- The accessory package includes the M12×80 bolt assembly. If its length cannot meet the on site installation requirements, prepare M12 bolts independently.
- It is recommended to take anti-rust measures at the puncturing area.
- For the wall-mounted mode, prepare the M12 expansion bolts independently.

3.2 Pole-mounted Installation

The hook installation mode is suitable for installing the equipment on the PV panel column or an independent column, as shown in the figure. Secure two channel steels with φ14×20 holes reserved on the column through U-shaped bolts. The distance between the centers of two beams is 572 mm. Take four M12×80 bolt assemblies (with two flat washers and one spring washer). Install the backplate on the two beams and hang the inverter. Lock one M12 bolt assembly respectively on the chassis feet on both sides. At this time, the installation is complete.



Schematic diagram of hook installation for the inverter (unit: mm)



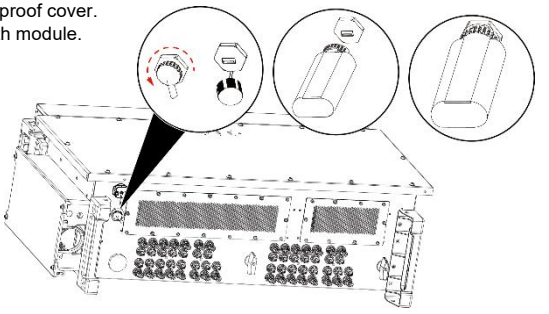
Schematic diagram of hook installation for the inverter (unit: mm)

Note

- You need to prepare two channel steels and two sets of U-shaped bolts (with spring washer and flat washer, and stainless steel). Please select the bolts matching the dimensions of the columns on site.
- It is recommended that the combined load-bearing capacity of the column and beams is ≥600 kg.

3.3 Installing the Bluetooth Module (Optional)

1. Unscrew the dust-proof cover.
2. Insert the Bluetooth module.



Note

- After the Bluetooth module is removed, you need to tighten the dust-proof cover to prevent oxidation or corrosion of the terminals, which will affect the communication quality.
- The Bluetooth module and RS485A module share the same channel of communication signals. Therefore, they cannot be used at the same time.

4. Electrical Connections

4.1 Cable Requirements

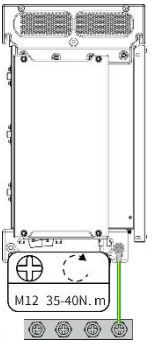
Category of Cable	Type	Cross-sectional Area of Conductor (mm²)	Outer Diameter of Cable (mm)	Terminal Specifications (OT Terminal)	Torque (N.m)
Ground cable	Outdoor copper-conductor cable	$\frac{1}{2}$ Phase wire	/	M12	35~40
AC output cable	Outdoor copper/aluminum-conductor cable	Phase wire: 100-300	40-68	M12	35~40
		PE: $\frac{1}{2}$Phase wire	/	M12	35~40
DC input cable	PV cable in compliance with 1500 V standards	4-6	4.7-6.4	/	/
Communication cable	Shielded copper-core twisted pair	0.3-0.5	4.5-6.5	/	/

Note:

- All copper-conductor wires, copper-clad aluminum wires or aluminum alloy wires are multi-stranded wires.
- It is recommended to use multi-core cables for communication cables. Otherwise, the protection level of the connectors will be degraded, affecting the communication quality. The inverter supports PLC for communication with the data collector. If RS485 communication is not required, there is no need to prepare communication cables.
- The withstand voltage of DC power cable is ≥1500 V DC. The withstand voltage of AC output cable is ≥1000 V AC.
- You need to prepare the OT/DT terminals.
- If the AC side needs to connect cables larger than 300mm², please contact the Sineng Customer Service Center.

4.2 Connecting the Ground Cable

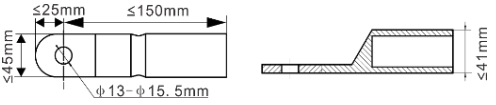
1. Remove the screws on the ground point and install the ground cable using a Phillips screwdriver.
2. Connect the other end of the cable to the main ground bar.
3. After the ground terminal is tightened, apply silicone or outdoor paint on the outside of the terminal.



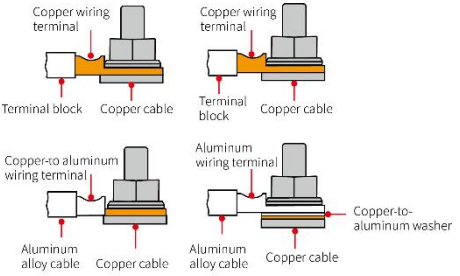
Note

- The inverter must be grounded reliably. Otherwise, it may cause personal injury or abnormal operating of the inverter!
- The inverter should be grounded at the nearest ground point. For multiple inverters connected in parallel in the same system, the protective ground cables of all inverters must be connected to the same ground busbar.

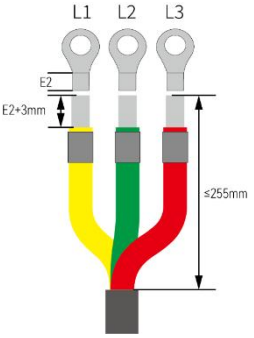
4.3 Connecting the AC Cable



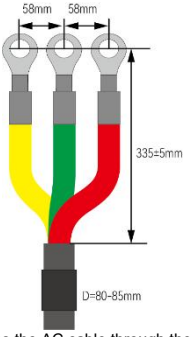
Wiring terminal requirements (unit: mm)



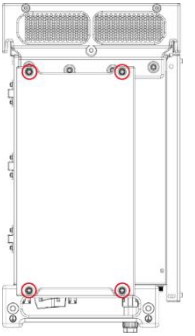
1. Prepare the AC cable.



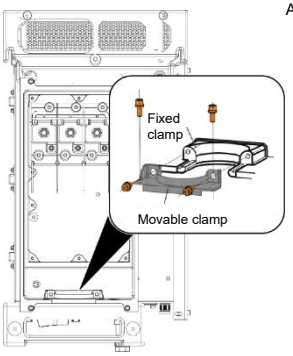
2. Wrap the waterproof strip. The diameter of the cable with wound waterproof strip must be within 80-85 mm.



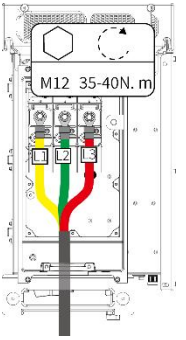
3. Open the wiring compartment door.



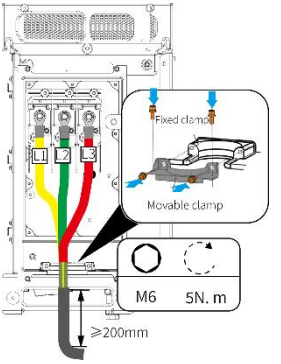
4. Remove the movable clamp.



5. Pass the AC cable through the movable clamp and connect it to the AC terminal.



6. Install the movable clamp and fasten it securely.



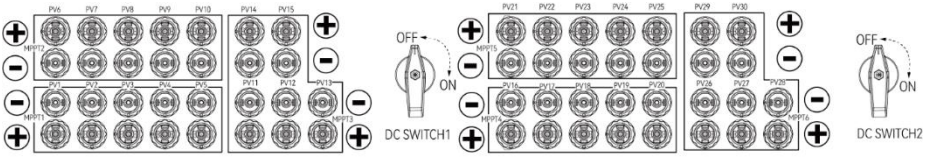
7. Apply fireproof putty to the wiring holes.
8. Close the wiring compartment door and secure the screws.

Note

- Before connecting the AC output cable, disconnect the circuit breaker between the grid and the inverter.
- When the copper wire or copper-clad aluminum cable is used, select the copper wiring terminal; when the aluminum alloy cable is used, select the copper-aluminum transition wiring terminal.
- Please purchase AC terminals according to the size recommended by Sineng. Otherwise, it may cause wiring difficulties.
- After connecting the cables, please apply firestop putty.

4.4 Connecting the DC Cable

4.4.1 Port Description



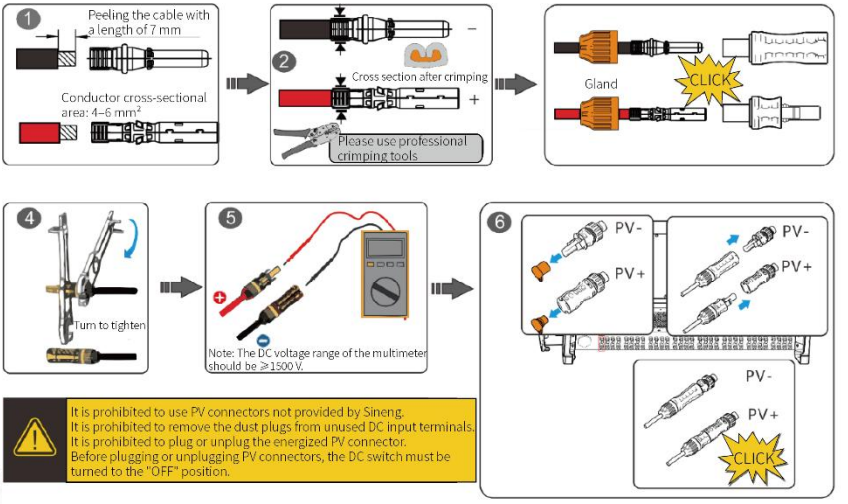
DC trip switch silkscreen

4.4.2 Connecting the DC Cable

Note

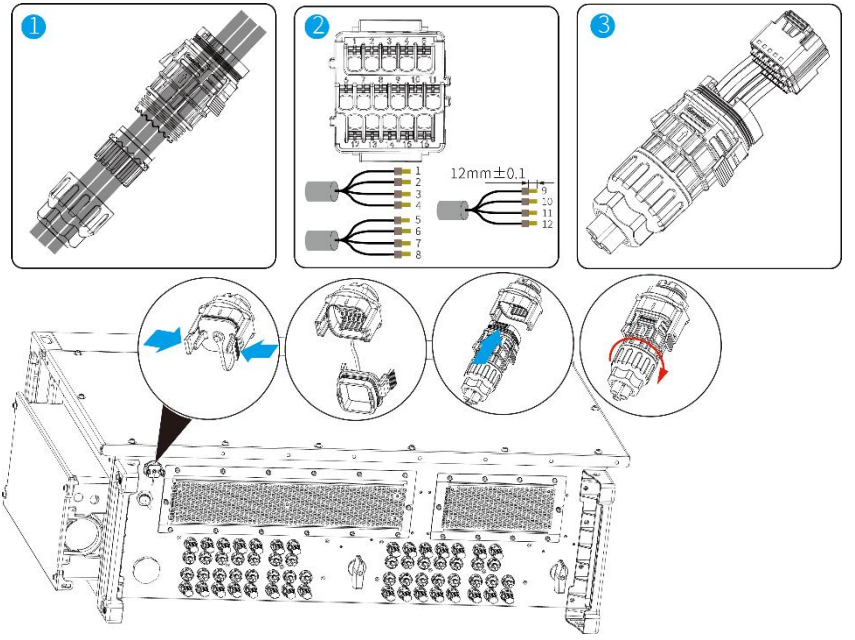
- When there is light, the PV panel outputs high voltage, which endangers the life of operators.
- The DC switch of the inverter must be in the "OFF" state.
- If multiple inverters are connected to the power grid in parallel through the transformer, the positive and negative electrodes of the PV panels cannot be directly grounded.
- It is prohibited to use PV connectors not provided by Sineng.
- To increase the power generation capacity of the system, it is recommended that each string be connected to the same number of PV strings with the same specifications and the orientation.
- Special crimping tools must be used to make cables. Otherwise, it may cause a fire on the DC side.
- The PV strings connected to the same MPPT must use the same number of PV panels in the same model.

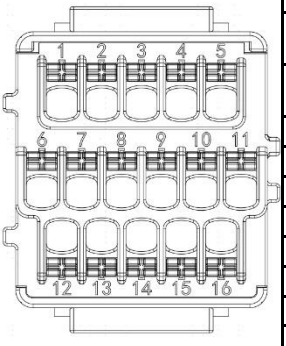
1. Manually turn the DC switch to the "OFF" position.
2. Strip the cable insulation skin to a suitable length using a wire stripper, put it into the corresponding metallic terminal, and crimp it tightly using a special crimping tool.
3. Insert the crimped positive and negative cables into the corresponding insulation housing respectively.
4. Insert the cable until you hear a "click", indicating that the cable is clamped into place.
5. Turn to tighten the plastic nuts at the end of the insulation housing of the positive and negative connectors.
6. Measure the positive and negative polarities of the positive and negative connectors using a multimeter to ensure the correctness. Measure the maximum voltage of the positive and negative electrodes and ensure that it is lower than 1500 V.
7. Remove the dust-proof plugs from the DC input terminal, and insert the positive and negative connectors into the positive and negative electrodes of the DC input terminal of the inverter until you hear a "click", indicating that the connectors are installed in place.
8. Connect other PV strings according to the above steps.



4.5 Connecting the Communication Cable

1. Remove the protective cover of the communication port.
2. Connect the communication connector.
3. Plug in the communication connector.
4. Tighten the plastic nut at the end of the cable to ensure waterproofing.





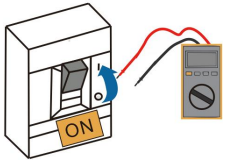
Pin No.	Function
1	RS485_A differential+, used for data collector cascading or anti-backflow meter
2	RS485_A differential-, used for data collector cascading or anti-backflow meter
3	RS485_A differential+, used for data collector cascading or anti-backflow meter
4	RS485_A differential-, used for data collector cascading or anti-backflow meter
5	RS485_B differential+, used for data collection SAU or inverter cascading
6	RS485_B differential-, used for data collection SAU or inverter cascading
7	RS485_B differential+, used for data collection SAU or inverter cascading
8	RS485_B differential-, used for data collection SAU or inverter cascading
9	RS485_A matching resistor 120 Ω (short circuited)
10	RS485_A matching resistor 120 Ω (short circuited)
11	RS485_B matching resistor 120 Ω (short circuited)
12	RS485_B matching resistor 120 Ω (short circuited)
Note: The short-circuited connection of the RS485A/B matching resistor should be determined according to the length of the cables on site.	

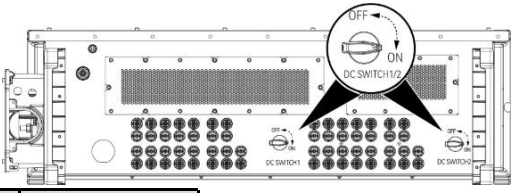
5. Check after Installation

SN	Check Item	Check Result (Yes √/No ×)
1	Check whether the DC switch is in the "OFF" state.	□
2	Check whether the inverter installation space is reasonable and whether the installation environment is clean and tidy.	□
3	Check whether the inverter is installed firmly, and whether the screws of the chassis feet are fastened.	□
4	Check whether there are operating tools, unused screws, and other items left in the compartment.	□
5	Check whether the external ground cable is connected correctly, whether the terminal is fastened, whether the grounding is reliable, and whether there is no open circuit or short circuit.	□
6	Check whether the AC output cable is connected correctly, whether the terminal is fastened, and whether there is no open circuit or short circuit.	□
7	Check whether the polarity of the DC input cable is correct, whether the connector is firmly interconnected, and whether there is no open circuit or short circuit.	□
8	Check whether the communication cable is connected correctly, whether the terminal is fastened, and whether there is no open circuit or short circuit.	□
9	Check whether the gland of the DC terminal is tightened.	□
10	Check whether the plastic screw cap at the end of the communication cable has been tightened, and whether any sealing measure is taken (such as sealing with firestop putty) when two cables or twisted pair cables are used and cannot be tightened due to small outer diameter.	□
11	Check whether the unused DC input terminals are equipped with dust plugs.	□
12	Check whether the protective covers of unused communication ports are properly installed.	□
13	Check whether the waterproof clamp of the wiring compartment is sealed with firestop putty (the firestop putty should not touch the metallic live parts).	□
14	Check whether the wiring compartment door is installed in place and whether the screws are fastened.	□

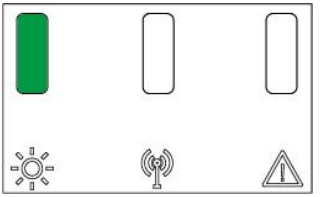
6. Power-On

1. Connect the AC circuit breaker.
2. Observe that the operating indicator on the front of the inverter is steady on or blinks twice. Connect DC SWITCH 1. Observe that the fault indicator is off. Then, connect DC SWITCH 2. If the fault indicator blinks, check whether PV1, PV11, PV16, PV21, and PV26 are reversed.





Symbol	Indicator Name	Color	State	Meaning
	Operating indicator	Green	Steady on	Grid-connected
			Blinking	Standby
			Off	Off-grid
	Signal indicator	Blue	Blinking	Communication is normal
			Off	No communication
	Fault indicator	Red	Steady on	Equipment is abnormal
			Blinking	Anomaly occurs on DC or AC side
			Off	No anomaly



Note

- If the red indicator of the inverter blinks once, no operation of the "DC SWITCH" is allowed. Check whether the input cable is reversed or whether the input voltage meets the starting voltage requirement (550 V). If the problem cannot be solved, please contact Sineng technical support engineer in a timely manner.
- If the red indicator is steady on or blinks during the power-on process, please contact Sineng technical support engineer in a timely manner!

7. PowerInsight App

The PowerInsight2 app is used to interconnect the inverter. According to different equipment models, you can use the corresponding standard functions such as viewing the running information and alarms, setting running parameters, and sharing and exporting data, as well as auxiliary functions.

IOS Android

QR code for downloading the app

Note

- The initial password of the app is **123456** (owner) or **agent** (installer).
- PowerInsight2 requires the following permissions: "Pair with Bluetooth device", "Access location information", "Access storage device", and "Access Bluetooth settings". These permissions must be granted to install the software on the mobile phones.

Sineng Electric Co., Ltd.

If there are any changes in product dimensions and parameters, the latest information of the product shall prevail without further notice.

https://www.si-neng.com/#/

For more information, please scan the QR code and follow Sineng official account.

Address: No.6, Hehui Road, Wind Power Technology Industrial Park, Huishan Economic Development Zone, Wuxi, Jiangsu Province, China
Website: https://www.si-neng.com/#/
Postal code: 214174