

# SUN2000-(2KTL-5KTL)-L0

## Quick Guide

Issue: 02  
Part Number: 31509986  
Date: 2019-04-27

**HUAWEI TECHNOLOGIES CO., LTD.**

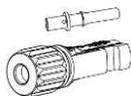
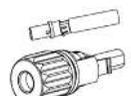
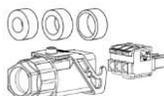
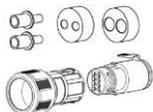
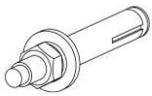
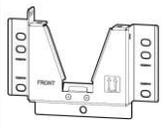


## NOTICE

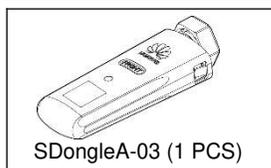
1. The information in this document is subject to change without notice. Every effort has been made in the preparation of this document to ensure accuracy of the contents, but all statements, information, and recommendations in this document do not constitute a warranty of any kind, express or implied.
2. Before installing the device, closely read the user manual to get familiar with product information and safety precautions.
3. Only certified electricians are allowed to operate the device. Operation personnel must wear proper personal protective equipment (PPE) all the time.
4. Before installing the device, check that the package contents are intact and complete against the packing list. If any damage is found or any component is missing, contact your dealer.
5. Huawei shall not be liable for any device damage caused by the violation of instructions in this document.
6. The cable colors involved in this document are for reference only. Select cables in accordance with local cable specifications.

# 1 Packing List

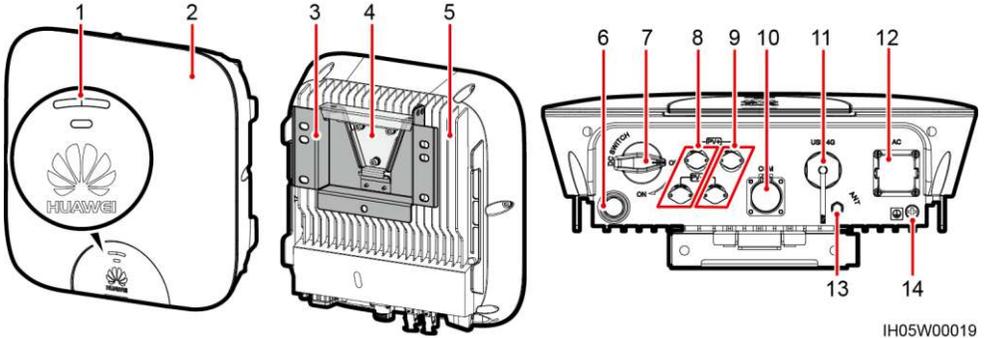
## SUN2000

 Solar inverter (1 PCS)	 PV negative connector (black, 2 set)	 PV positive connector (black, 2 set)	 AC connector (1 set)	 Signal cable connector (1 set)
 Antenna (1 set)	 Screw (3 set)	 Expansion bolt (3 PCS)	 Mounting bracket (1 PCS)	 Screwdriver (1 PCS)
 Quick Guide (1 PCS)	 Certificate (1 PCS)	 Solar Inverter Delivery Inspection Report and Packing List (1 PCS)		

## (Optional) 4G Smart Dongle



## 2 Overview



IH05W00019

- |                           |                                    |                                    |
|---------------------------|------------------------------------|------------------------------------|
| (1) LED                   | (2) Front panel                    | (3) Mounting bracket               |
| (4) Mounting plate        | (5) Heat sink                      | (6) Ventilation valve              |
| (7) DC switch (DC SWITCH) | (8) DC input terminals (PV1+/PV1-) | (9) DC input terminals (PV2+/PV2-) |
| (10) COM port (COM)       | (11) USB-4G port cover (USB-4G)    | (12) AC output port (AC)           |
| (13) Antenna port (ANT)   | (14) Ground point                  |                                    |



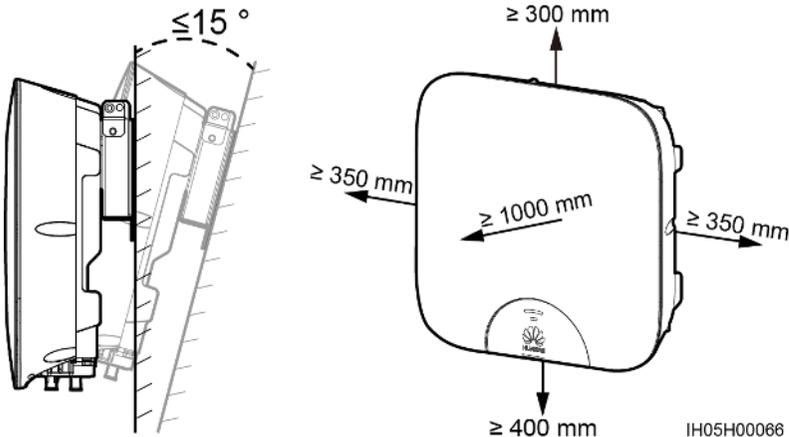
### NOTE

For the model without an external WiFi antenna, the antenna port (ANT) is actually a cover and there is no port inside.

## 3 Installing the Device

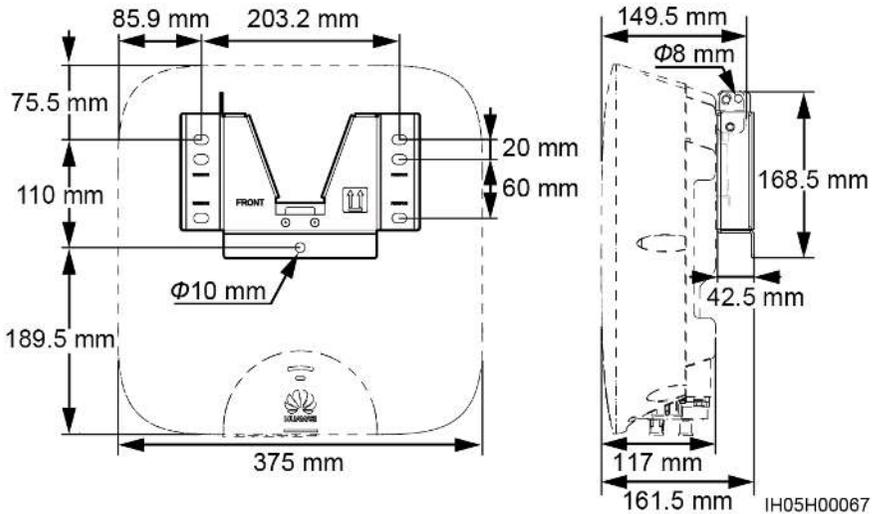
### 3.1 Installation Requirements

#### Tilt and Space



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## Dimensions

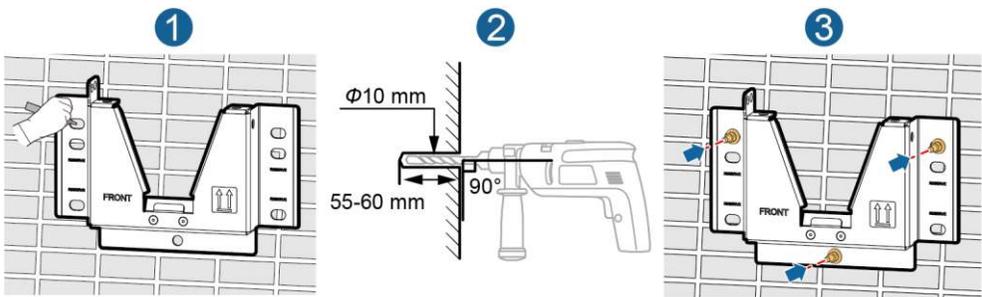


### NOTE

If multiple inverters need to be installed, see *SUN2000-(2KTL-5KTL)-L0 User Manual* for the installation dimensions.

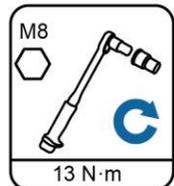
## 3.2 Installing the Mounting Bracket

### Wall-mounted Installation



### **⚠ DANGER**

Avoid drilling holes in the utility pipes and/or cables attached to the back of the wall.



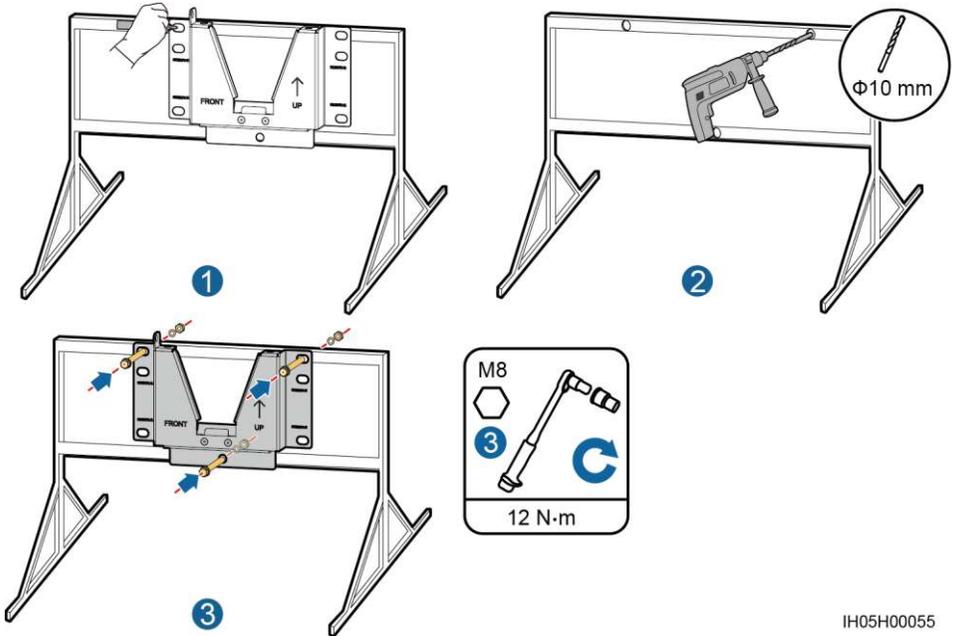
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## Support-mounted Installation

### NOTICE

Prepare M8 stainless bolt assemblies (including flat washers, spring washers, and M8 bolts) with appropriate lengths as well as matched flat washers and nuts based on the support specifications.

You are advised to apply anti-rust paint on the hole positions for protection.



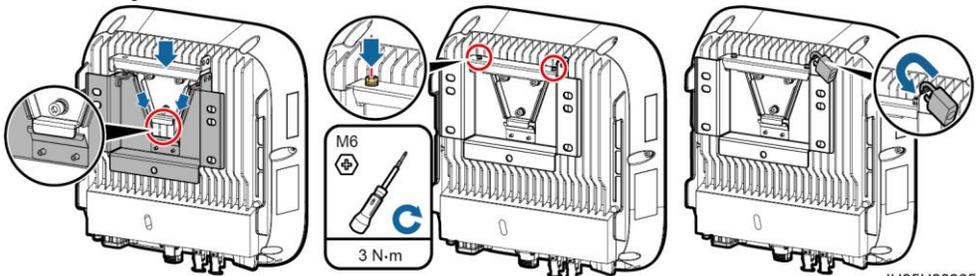
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## 3.3 Installing the SUN2000

### NOTICE

- If the bottom of the mounting plate does not snap into place, push the SUN2000 from the front until the bottom of the mounting plate snaps into the mounting bracket.
- The anti-theft lock needs to be prepared by the customer.

1. Install the SUN2000 on the mounting bracket.
2. Tighten screw assemblies.
3. (Optional) Install an anti-theft lock.

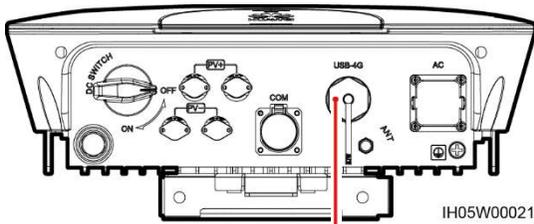


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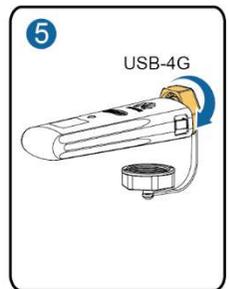
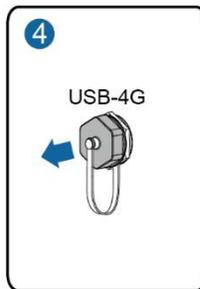
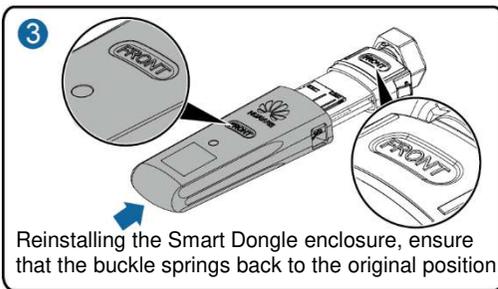
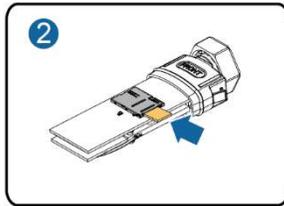
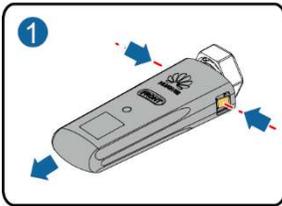
### 3.4 (Optional) Installing the Smart Dongle

#### NOTICE

- The USB-4G port is available only for a Smart Dongle, rather than a USB data cable.
- Install the SIM card in the direction shown by the silk screen and arrow on the slot.
- Press the SIM card until it snaps into place and locked, which means that the SIM card is installed correctly.
- To remove the SIM card, push it inwards. The SIM card will spring out automatically.



USB-4G port cover (USB-4G)



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#### NOTE

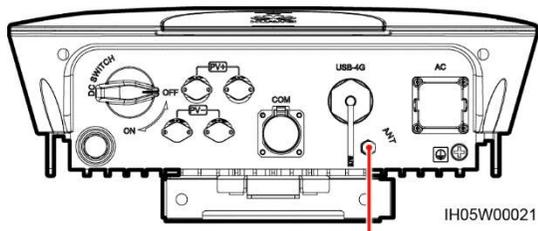
The 4G Smart Dongle model is SDongleA-03. For details, see the quick guide that is delivered with the Smart Dongle. You can also scan the QR code to obtain it.



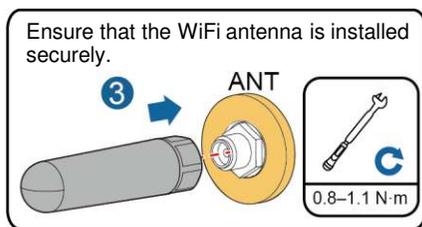
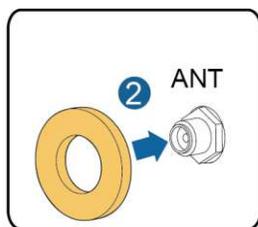
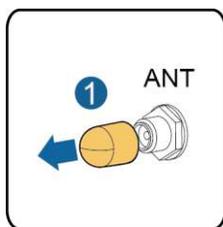
## 3.5 (Optional) Installing the WiFi Antenna

### NOTICE

The Smart Dongle and WiFi antenna cannot be used at the same time.



Antenna port (ANT)



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## 4 Connecting Cables

### 4.1 Preparing Cables

Prepare cables based on site requirements.

No.	Cable	Type	Conductor Cross-sectional Area Range	Outer Diameter
1	PE cable	Single-core outdoor copper cable	4-10 mm <sup>2</sup>	N/A
2	AC output power cable	Two-core (L and N) outdoor copper cable or three-core (L, N, and PE) outdoor copper cable	4-6 mm <sup>2</sup>	10-21 mm
3	DC input power cable	Standard outdoor PV cable in the industry (recommended model: PV1-F)	4-6 mm <sup>2</sup>	4.5-7.8 mm
4	Signal cable (optional)	Outdoor shielded twisted pair	0.25-1 mm <sup>2</sup>	4-11 mm

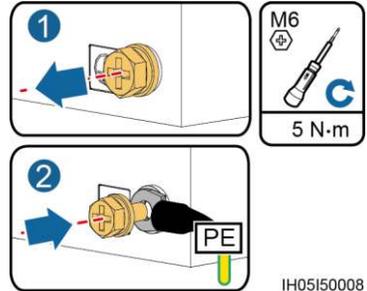
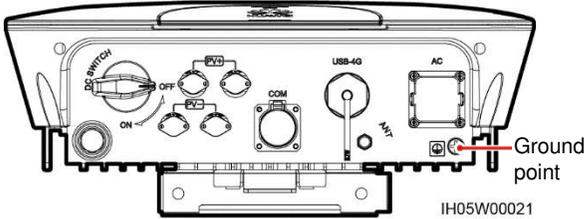
### NOTICE

- Connect cables in accordance with the installation laws and regulations of the country or region where the SUN2000 is located.
- Before connecting cables, ensure that the DC switch on the SUN2000 and all the switches connecting to the SUN2000 are OFF. Otherwise, the voltage of the SUN2000 may result in electric shocks.

## 4.2 Installing the PE Cable

### **⚠ DANGER**

Do not connect the neutral wire to the enclosure as a PE cable. Otherwise, electric shocks will be caused.



IH05I50008

### **NOTE**

- Recommended: Apply silica gel or paint around a ground terminal after connecting the ground cable.
- The PE point at the AC output port is used only as a PE equipotential point, and cannot substitute for the PE point on the enclosure.

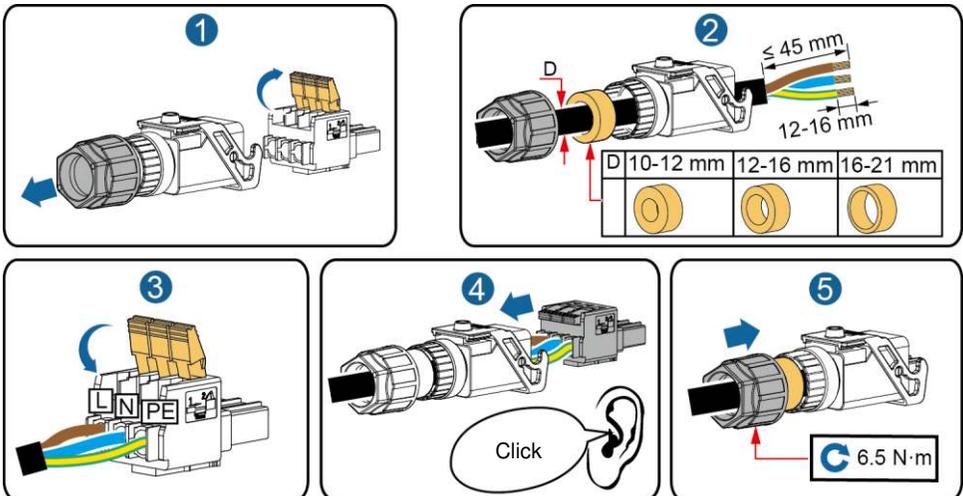
## 4.3 Installing the AC Output Power Cable

### **NOTICE**

Ensure that the protection layer of the AC output power cable is in the connector, and that the exposed core wire is totally inserted into the cable hole and connected securely. Failing to do so may cause SUN2000 malfunction or damage.

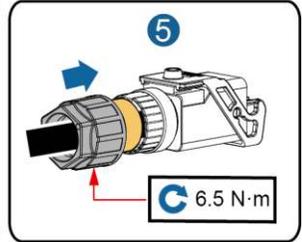
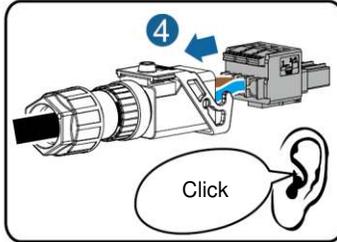
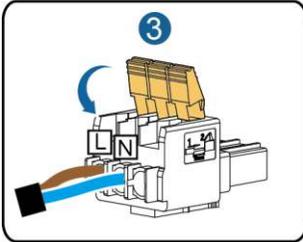
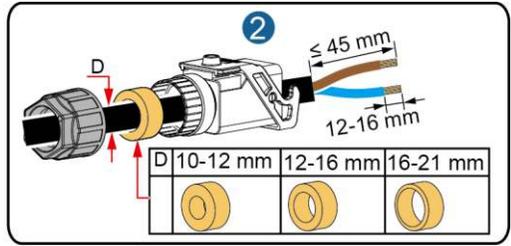
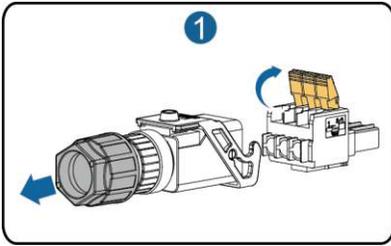
1. Connect the AC output power cable to the AC connector.

### **Three-Core Cable (L, N, and PE)**



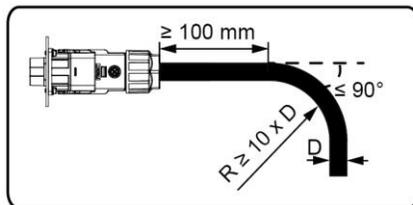
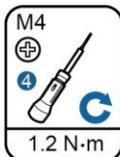
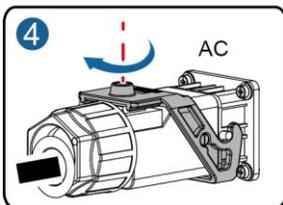
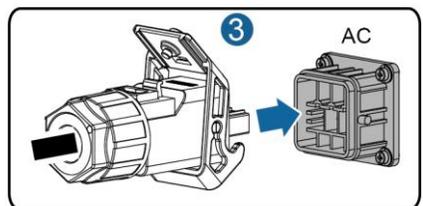
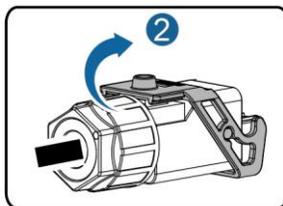
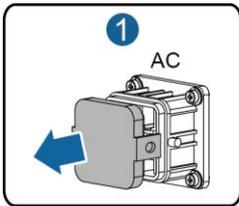
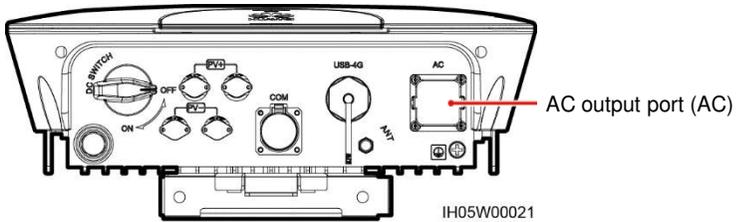
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## Two-Core Cable (L and N)



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2. Connect the AC connector to the AC output port, and then Check the route of the AC output power cable.



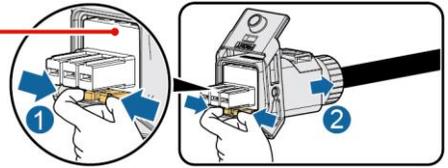
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## NOTE

To remove the AC connector, follow the steps of its installation in reverse order. Then remove the plug insert as shown in the right figure.

Plug insert



IH05120019

## 4.4 Installing the DC Input Power Cable

### NOTICE

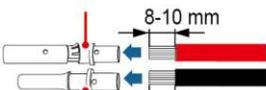
1. Ensure that the PV string is well insulated to ground.
2. The metal contacts supplied with the DC connectors are either cold forming contacts or stamping forming contacts. Crimp the metal cold forming contacts using crimping tool UTXTC0005 (Amphenol) or H4TC0001 (Amphenol). Crimp the metal stamping forming contacts using crimping tool H4TC0003 (Amphenol, recommended) or H4TC0002 (Amphenol).
3. Choose the crimping tools that fit the metal contact types. Do not mix up the tools.
4. The SUN2000 open circuit voltage must always be lower than or equal to 600 V DC.
5. Before installing the DC input power cable, label the cable polarities correctly to ensure correct cable connections.
6. Use the positive and negative metal terminals and black DC connectors supplied with the inverter. Using incompatible positive and negative metal terminals and DC connectors may result in serious consequences. The caused device damage is not covered under any warranty.
7. If polarity of the DC input power cable is reversed and the DC switch is ON, do not turn off the DC switch immediately or unplug positive and negative connectors. The device may be damaged if you do not follow the instruction. This damage is not covered under any warranty or service agreement. Wait until the solar irradiance declines at night and the PV string current reduces to below 0.5 A, and then turn off the DC switch and remove the positive and negative connectors. Correct the string polarity before reconnecting the string to the SUN2000.

### 1. Assembling the DC Connector

#### using metal cold forming contacts

Positive metal terminal

1



Negative metal terminal

8-10 mm

8-10 mm



2

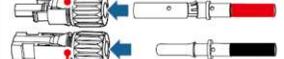


UTXTC0005  
(Amphenol)

Ensure that the cable will not be extracted after crimped.

Positive connector

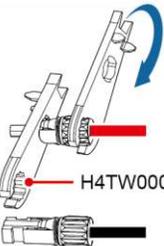
3



Negative connector



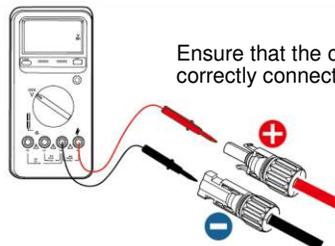
Pull the DC input power cable back to ensure that it is connected securely.



Ensure that the locking nut is secured.

H4TW0001 (Amphenol)

4

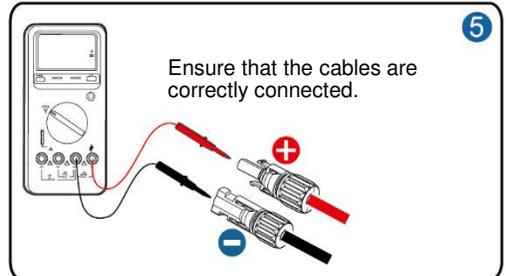
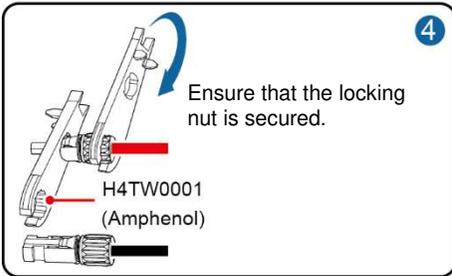
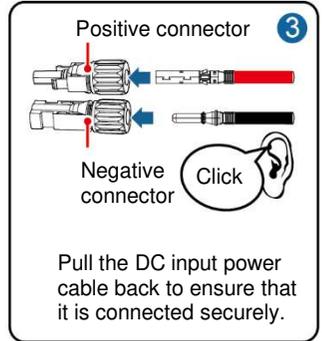
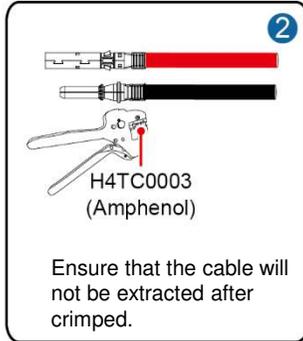
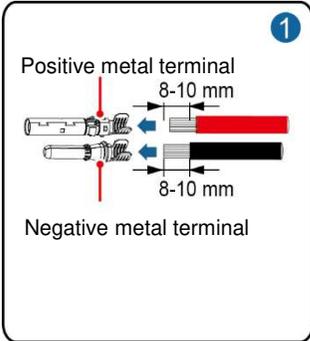


Ensure that the cables are correctly connected.

5

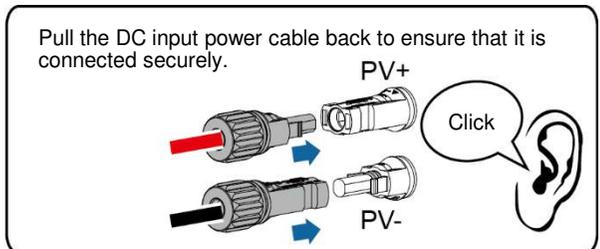
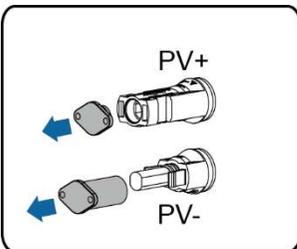
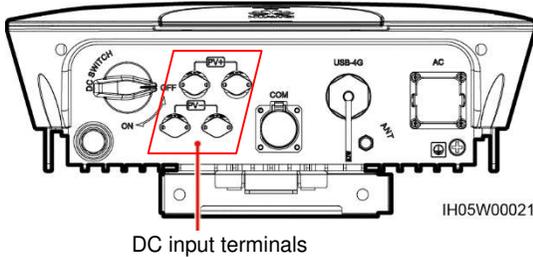
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**using metal stamping forming contacts**



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2. Connecting the DC Input Power Cable

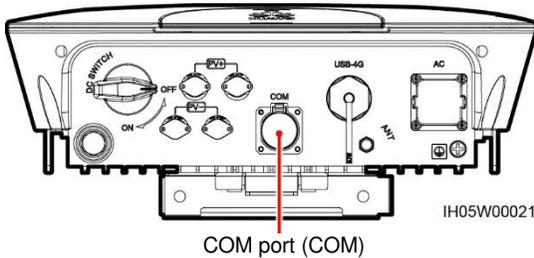


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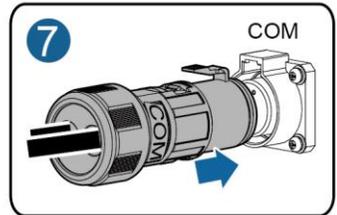
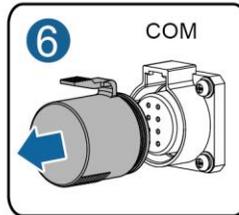
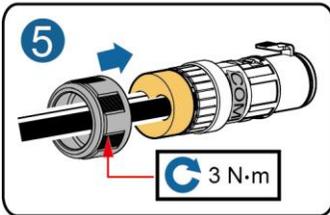
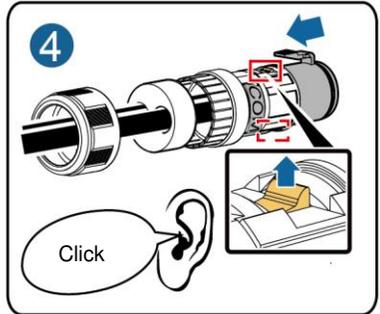
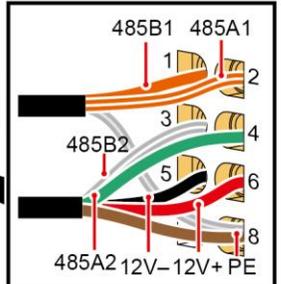
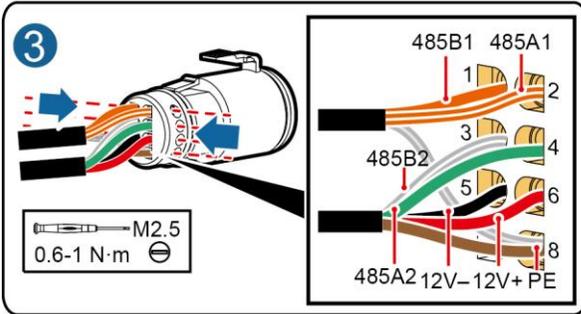
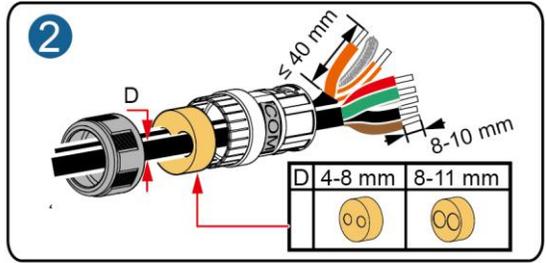
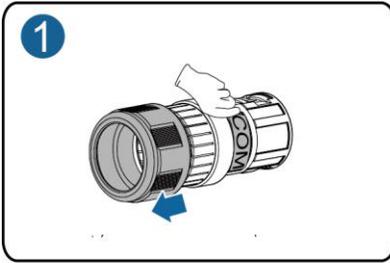
## 4.5 (Optional) Installing the RS485 Communications Cable

### NOTICE

- When laying out communications cables, separate them from power cables to avoid strong signal interference sources.
- Ensure that the exposed core wire is totally inserted into the cable hole and connected securely.
- If only one signal cable needs to be connected, block the unused cable hole on the seal using a cap and tighten the cable gland.
- If two signal cables are required, ensure that they have the same outer diameter.



No.	Label	Definition	Description
1	485B1	RS485B, RS485 differential signal-	Reserved, can connect to the RS485 signal port on the energy meter.
2	485A1	RS485A, RS485 differential signal+	
3	485B2	RS485B, RS485 differential signal-	Reserved, can connect to the RS485 signal port on SmartPSB2000L smart PV safety box.
4	485A2	RS485A, RS485 differential signal+	
5	12V-	Negative of the 12 V power supply	
6	12V+	Positive of the 12 V power supply	
7	N/A	N/A	N/A
8	PE	Grounding the shield layer	Connects to the shield layer of the cable.



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## 5 Verifying the Installation

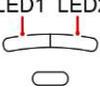
No.	Acceptance Criteria
1	The SUN2000 is installed correctly and securely.
2	The WiFi antenna or Smart Dongle is installed correctly and securely.
3	Cables are routed properly as required by the customer.
4	Cable ties are secured evenly and no burr exists.
5	The ground cable is connected correctly and securely.
6	The DC switch and all the switches connecting to the SUN2000 are OFF.
7	The AC output power cable, DC input power cable and signal cable are connected correctly and securely.
8	Unused terminals and ports are locked by watertight caps.
9	The installation space is proper, and the installation environment is clean and tidy.

## 6 Powering On the System

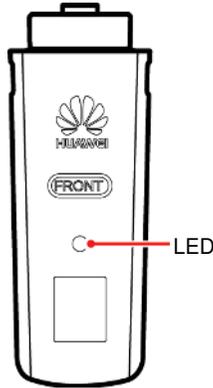
### NOTICE

- Before turning on the AC switch between the SUN2000 and the power grid, check whether the AC voltage is within the specified range.
- After turning on the AC switch, turn on the DC switch within 1 minute. Otherwise, the SUN2000 will start to export power to the power grid. If you turn on the DC switch in this case, the SUN2000 will shut down first, and then restart to export power to the power grid.

1. Turn on the AC switch between the SUN2000 and the power grid.
2. Turn on the DC switch between the PV string and the SUN2000 if there is any.
3. Turn on the DC switch at the bottom of the SUN2000.
4. Observe the LEDs to check the SUN2000 operating status. All status labels are available on the left side of the SUN2000.

Type	Status (Blinking at Long Intervals: On for 1s and then Off for 1s; Blinking at Short Intervals: On for 0.2s and then Off for 0.2s)		Meaning
Running indication 	LED1	LED2	N/A
	Steady green	Steady green	The SUN2000 is exporting power to the power grid.
	Blinking green at long intervals	Off	The DC is on and the AC is off.
	Off	Blinking green at long intervals	The DC is off and the AC is on.
	Blinking green at long intervals	Blinking green at long intervals	Both the DC and AC are on, and the SUN2000 is not exporting power to the power grid.
	Off	Off	Both the DC and AC are off, or the SUN2000 is in low power consumption mode.
	Steady red	Steady red	The SUN2000 is faulty.
Communicati on indication 	LED3		N/A
	Blinking green at short intervals		The SUN2000 is in communication.
	Blinking green at long intervals		The SUN2000 has connected to the mobile phone.
	Off		No communication

5. (Optional) Observe the LED to check the operating status of the Smart Dongle.



LED		Description
Color	Status	
Yellow (blinking green and red simultaneously)	Steady on	The Dongle is secured and powered on.
Green	Blinking in a 2-second cycle (on for 0.1s and then off for 1.9s)	Dialing (duration < 1 min)
	Blinking at long intervals (on for 1s and then off for 1s)	The dial-up connection is set up successfully (duration < 30s).
	Steady on	Successfully connected to the management system.
	Blinking at short intervals (on for 0.2s and then off for 0.2s)	The inverter is communicating with the management system through the Dongle.

## 7 Commissioning

### NOTE

The screenshots shown in the quick guide are from FusionSolar 2.3.0. Data in the screenshots is for reference only. The actual screens prevail.

### 7.1 Commissioning Through Setup Wizard

#### 1. Downloading the App

Search for "FusionSolar" from the following app stores or scan the corresponding QR code, download the installation package, and install the FusionSolar app by following the instructions.

- Google Play (Android)
- App Store (iOS)



Android



iOS

## 2. (Optional) Installer Account Registration

### NOTE

If you have an installer account, skip this step.

Creating the first installer account will generate a domain named after the company.

The image shows two screenshots from the FusionSolar app. The left screenshot is the login screen, featuring the FusionSolar logo and the domain `int.fusionsolar.huawei.com`. It includes input fields for 'User name, phone or email' and 'Please enter the password', an 'Auto Login' checkbox, a 'Forgot Password?' link, and a 'Login' button. At the bottom, there is a link for 'Installer Registration' which is highlighted with a red box and a hand icon pointing to it. The right screenshot is the 'Installer Registration' form, which includes fields for 'Company Name', 'Please enter the email address', 'Please enter your email again', 'Please enter the password', 'Please confirm the password', 'Please enter the verification code' (with a sample code '53jt'), and a checkbox for 'I have read and agree to the "Terms of Use" and "Privacy Policy"'. A 'Registration' button is at the bottom.

### NOTICE

To create multiple installer accounts for the same company, log in to the FusionSolar and tap **New User**.

The image shows three screenshots from the FusionSolar app. The left screenshot is the main dashboard, showing a 'Plant Status' pie chart with 33 total plants (17 Normal, 4 Faulty, 12 Disconnected) and a 'New User' button highlighted with a hand icon. The middle screenshot is the 'New User' form, with fields for 'Role' (set to 'Installer'), 'Plant' (with a dropdown arrow), 'User name', 'Password', 'Phone', and 'Email', all highlighted with red boxes. A hand icon points to the 'Confirm' button at the bottom. The right screenshot is the 'Selecting Plant' screen, showing a search bar and a list of plants with a 'Confirm' button at the bottom, also highlighted with a hand icon.

### 3. Creating a PV Plant and an Account for User



#### NOTE

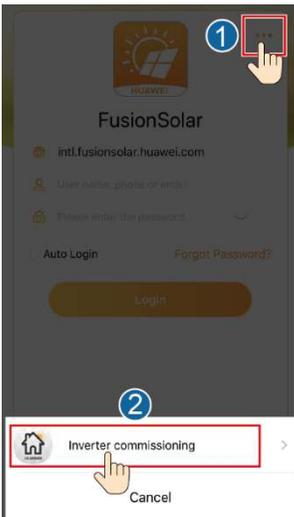
For details, see the *FusionSolar App Quick Guide*. You can scan the QR code to obtain it.



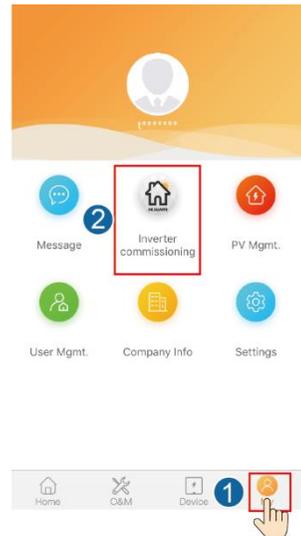
## 7.2 Inverter commissioning

### 1. Access Inverter commissioning.

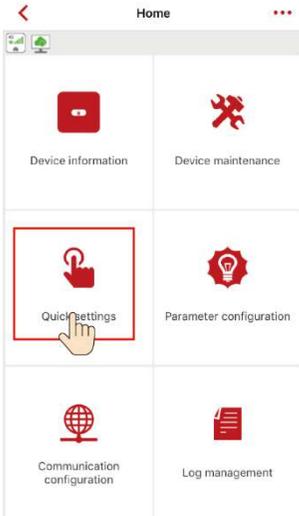
Method 1: before login



Method 2: after login



2. Connect to the inverter WiFi. Log in as **installer**, and perform **Quick settings**.



 **NOTE**

- The initial password for connecting the inverter WiFi is **Changeme**
- The initial password of the **installer** is **00000a**
- Use the initial password upon first power-on and change it immediately after login. To ensure account security, change the password periodically and keep the new password in mind. Not changing the initial password may cause password disclosure. A password left unchanged for a long period of time may be stolen or cracked. If a password is lost, devices cannot be accessed. In these cases, the user is liable for any loss caused to the PV plant.
- To set more parameters, tap **Parameter configuration**.

## 8 Customer Service Contact

Customer Service Contact			
Region	Country	Service Support Email	Phone
Europe	France	eu_inverter_support@huawei.com	0080033888888
	Germany		
	Spain		
	Italy		
	UK		
	Netherlands		
	Other countries		
Asia Pacific	Australia	au_inverter_support@huawei.com	1800446639
	Turkey	tr_inverter_support@huawei.com	-
	Malaysia	apsupport@huawei.com	0080021686868 /1800220036 (+66) 26542662 (charged by local call)
	Thailand		1800290055 (free in Thailand)
	Other countries		apsupport@huawei.com
Japan	Japan	Japan_ESC@ms.huawei.com	0120258367
India	India	indiaenterprise_TAC@huawei.com	1800 103 8009
South Korea	South Korea	Japan_ESC@ms.huawei.com	-
North America	USA	na_inverter_support@huawei.com	1-877-948-2934
	Canada	na_inverter_support@huawei.com	1-855-482-9343
Latin America	Mexico	la_inverter_support@huawei.com	018007703456 /0052-442-4288288
	Argentina		0-8009993456
	Brazil		0-8005953456
	Chile		800201866 (only for fixed)
	Other countries		0052-442-4288288
Middle East and Africa	Egypt	mea_inverter_support@huawei.com	08002229000 /0020235353900
	UAE		08002229000
	South Africa		0800222900
	Saudi Arabia		8001161177
	Pakistan		0092512800019
	Morocco		0800009900
	Other countries		0020235353900

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