SUN2000-(20KTL, 29.9KTL, 30KTL, 36KTL, 40KTL)-M3

Quick Guide

HUAWEI TECHNOLOGIES CO., LTD.

1 Overview

IS13W00001

(1) LED indicators

(2) Host panel

(3) Heat sink

(4) Screws for fixing the awning

(5) Communications port (COM)

(6) Hole for the DC switch locking screw

(7) DC switch (DC SWITCH)

(8) Smart Dongle port (4G/WLAN-FE)

(9) Ventilation valves

(10) DC input terminals (PV1–PV8)

(11) AC output port

(12) Ground point

2 Installation Requirements

≤ 15°

≥ 500 mm

≥ 300 mm   ≥ 1000 mm   ≥ 300 mm

≥ 600 mm

IS13H00003

Dimensions

640 mm

619 mm

Φ15 mm

226 mm

5 mm

152 mm

285 mm

270 mm

530 mm

IS13W00002
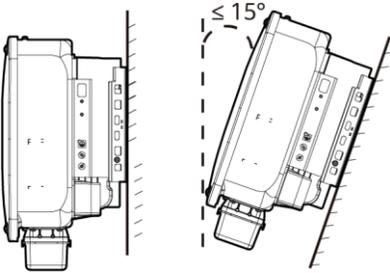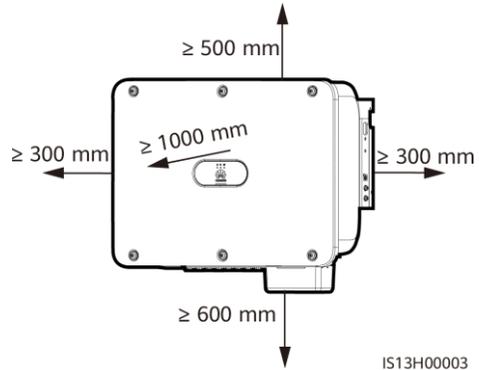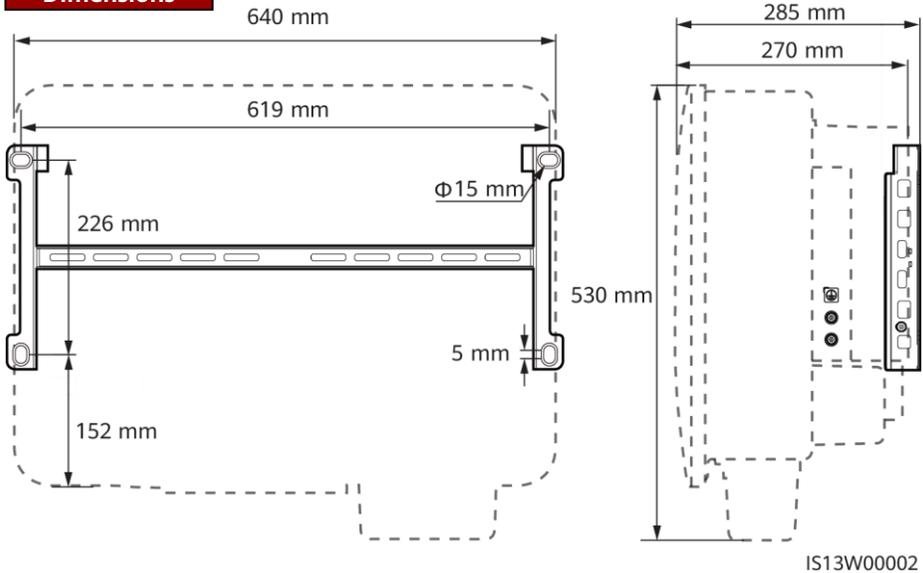
3 Installing a Solar Inverter

📖 **NOTE**

- M12x40 bolt assemblies are supplied with the solar inverter. If the bolt length does not meet the installation requirements, prepare M12 bolt assemblies by yourself and use them together with the supplied M12 nuts.
- This quick guide describes how to install a solar inverter on a support. For details about wall-mounted installation, see the user manual.
- For models used in Australia, install the DC switch locking screw according to local standards. The DC switch locking screw is delivered with the solar inverter to prevent the solar inverter from being started by mistake.
- Before installing the mounting bracket, remove the security Torx wrench and set it aside.

Position for binding the security Torx wrench

IS13W00006
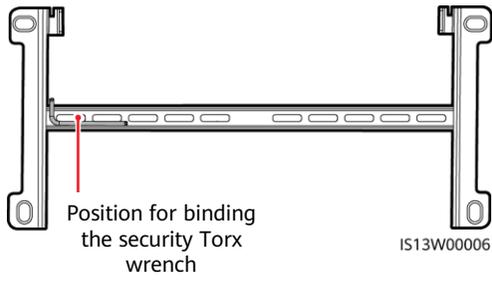
Moving the Solar Inverter	**(Optional) Installing the DC Switch Locking Screw**
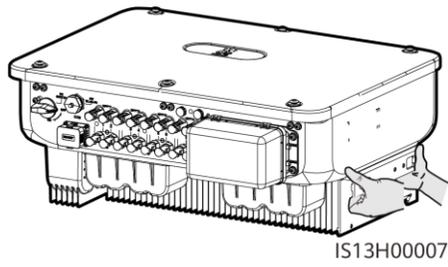
IS13H00007

M4

1.2 N·m
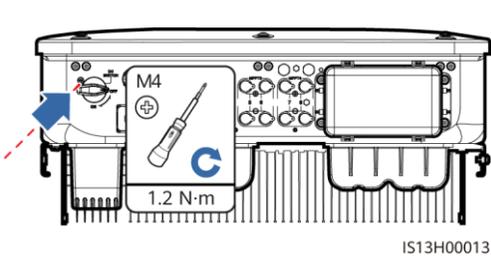
IS13H00013

1. Install the mounting bracket.

Φ14 mm

M12

45 N·m
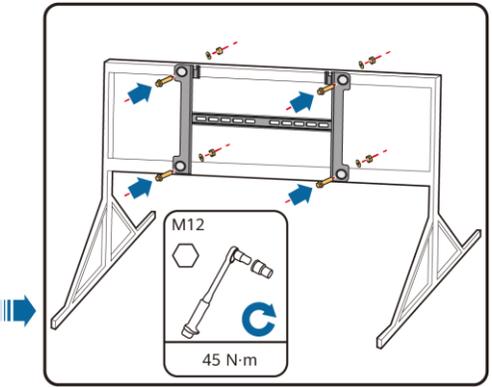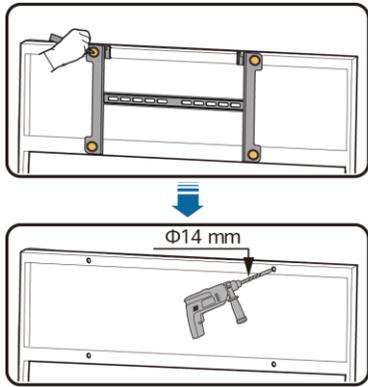
IS13H00008

📖 NOTE

It is recommended that anti-rust measures be taken on the positions for drilling holes.

2. Install the solar inverter onto the mounting bracket.

3. Tighten the security Torx screws on both sides.

IS13H00010

IS13H00011

4 Connecting Cables

4.1 Preparations

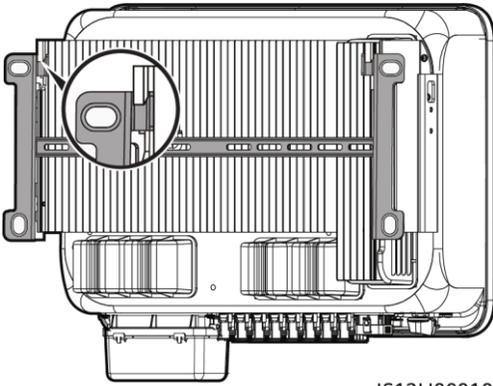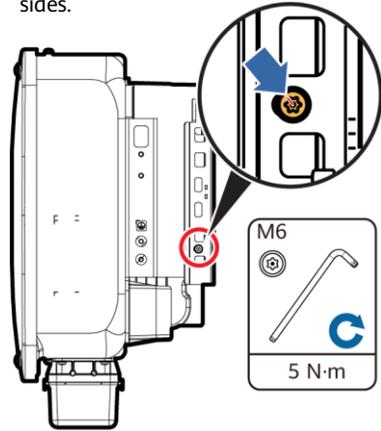| No.	Cable	Type	Specifications
1	PE cable	Single-core outdoor copper-core cable	Conductor cross-sectional area $\geq$ 16 mm^2
2	AC output power cable	Outdoor copper-core/aluminum-core cable	• Conductor cross-sectional area: 16-50 mm^2 outdoor copper-core cable or 35-50 mm^2 outdoor aluminum-core cable • Cable outer diameter: 16–38 mm
3	DC input power cable	Common outdoor PV cable in the industry (recommended model: PV1-F)	• Conductor cross-sectional area: 4–6 mm^2 • Cable outer diameter: 5.5–9 mm
4	(Optional) RS485 communications cable	Two-core outdoor shielded twisted pair (recommended model: DJYP2VP2-2x2x0.75)	• Conductor cross-sectional area: 0.2–1 mm^2 • Cable outer diameter: 4–11 mm
Note a: Five-core cables with a cross-sectional area of 5 x 35 mm^2 or 5 x 50 mm^2 are not supported.			

4.2 | Connecting a PE Cable

Do not connect the neutral wire to the enclosure as a PE cable. Otherwise, electric shocks may occur.

📖 NOTE

- The PE point at the AC output port is used only as a PE equipotential point, not a substitute for the PE point on the enclosure.
- It is recommended that silica gel or paint be applied around the ground terminal after the PE cable is connected.

Reserved PE point
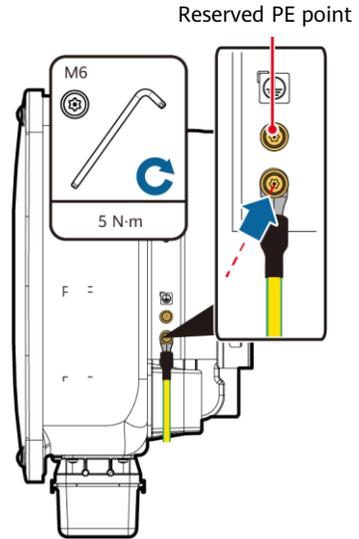
IS13I50001

4.3 | Installing the AC Output Power Cable

NOTICE

- Use a socket wrench and extension rod to connect the AC power cable. The extension rod must be longer than 100 mm.
- Sufficient slack should be provided in the PE cable to ensure that the last cable bearing the force is the PE cable when the AC output power cable bears pulling force due to force majeure.
- Do not install third-party devices in the AC connection box.
- You need to prepare M8 OT terminals by yourself.

1. Remove the AC terminal box and install partition boards.
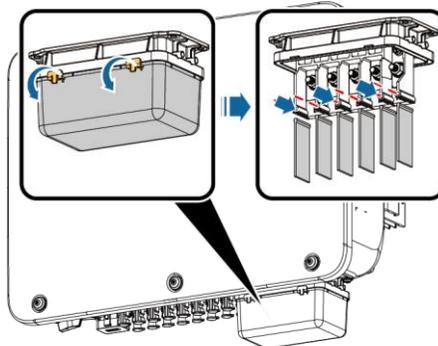
IS13I20001

2. Connect the AC output power cable (using a five-core cable as an example).
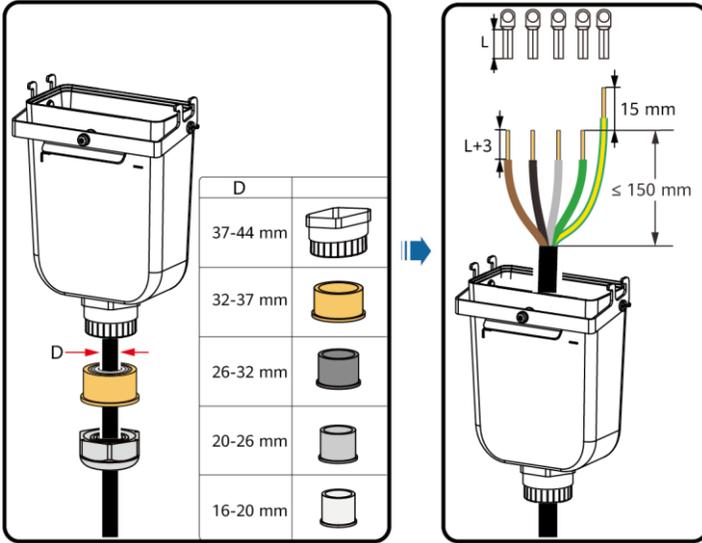
IS13I20003

📖 NOTE
- To avoid damaging the rubber liner, do not route a cable with a crimped OT terminal directly through it.
- It is recommended that the length of the PE cable to be stripped be 15 mm longer than the length of other cables.
- The cable colors in figures are for reference only. Select appropriate cables according to the local standards.
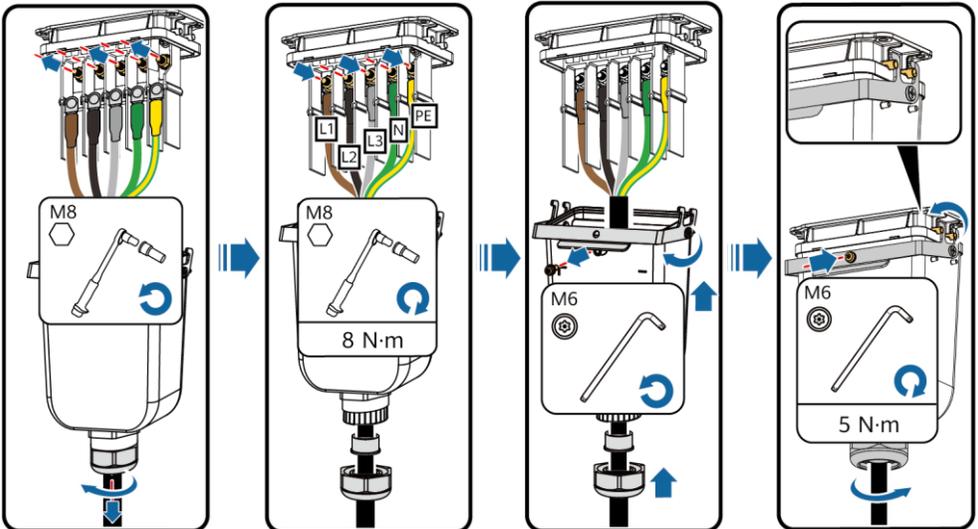
IS13I20002

4.4 Installing DC Input Power Cables

NOTICE

1. Use the positive and negative Staubli MC4 metal terminals and DC connectors supplied with the solar 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.
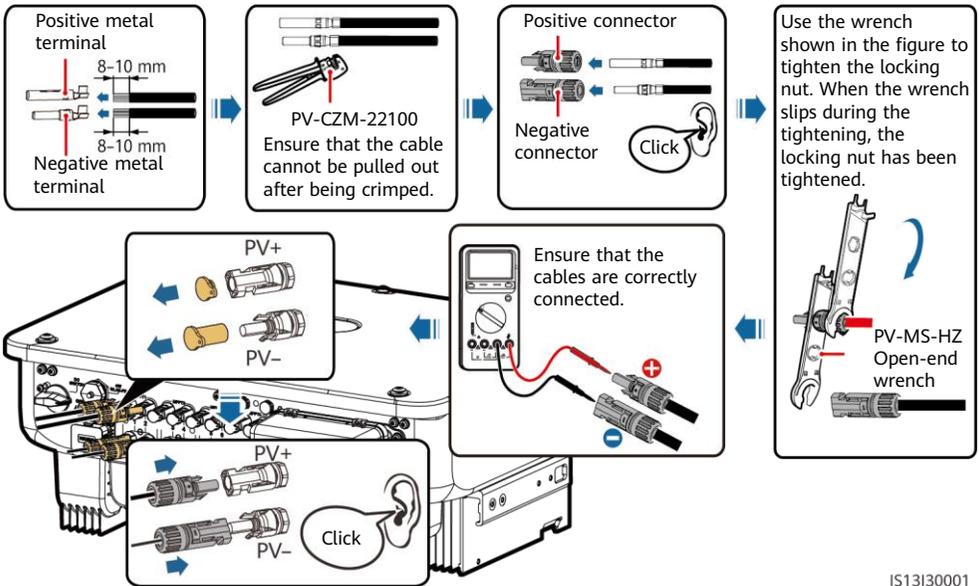2. You are advised to use the PV-CZM-22100 (Staubli) crimping tool and do not use it with the positioning block. Otherwise, the metal terminals may be damaged. The PV-MS (Staubli) or PV-MS-HZ (Staubli) open-end wrench is recommended.
3. Ensure that the PV module output is well insulated to ground.
4. The DC input voltage of the SUN2000-29.9KTL/30KTL/36KTL/40KTL-M3 shall not exceed 1100 V DC under any circumstance.
5. The DC input voltage of the SUN2000-20KTL-M3 shall not exceed 800 V DC under any circumstance.
6. Before installing DC input power cables, label the cable polarities to ensure correct cable connections.
7. If a DC input power cable is reversely connected and the DC switch is turned on, do not operate on the DC switch or the positive/negative connectors immediately. Otherwise, the device may be damaged. The caused device damage is not covered under any warranty. Wait until the night when solar irradiance declines and the PV string current drops to below 0.5 A. Then set the DC switch to the OFF position, remove the positive and negative connectors, and correct the polarity of the DC input power cable.

1. Connect the DC power cables.

Positive metal terminal
8–10 mm
8–10 mm
Negative metal terminal

PV-CZM-22100
Ensure that the cable cannot be pulled out after being crimped.

Positive connector
Negative connector
Click

Use the wrench shown in the figure to tighten the locking nut. When the wrench slips during the tightening, the locking nut has been tightened.

PV-MS-HZ Open-end wrench

PV+
PV−

Ensure that the cables are correctly connected.

PV+
PV−
Click

IS13I30001

4.5 (Optional) Installing the Smart Dongle

> **NOTICE**
>
> - The WLAN-FE Smart Dongle is not provided in standard configuration.
> - For details about how to operate the WLAN-FE Smart Dongle SDongleA-05, see *SDongleA-05 Quick Guide (WLAN-FE)*.
> - For details about how to operate the 4G Smart Dongle SDongleA-03, see *SDongleA-03 Quick Guide (4G)*.
> - The quick guide is delivered with the Smart Dongle or can be obtained by scanning the QR codes.

Smart Dongle port (4G/WLAN-FE)
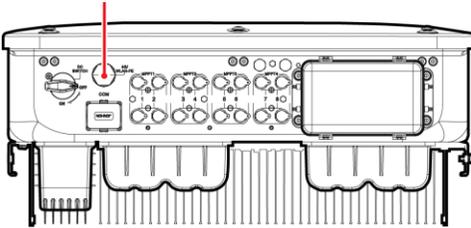
WLAN-FE   4G

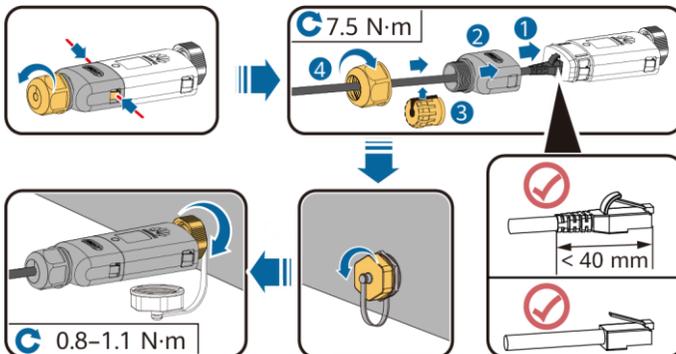### WLAN-FE Smart Dongle (WLAN Communication)

0.8–1.1 N·m
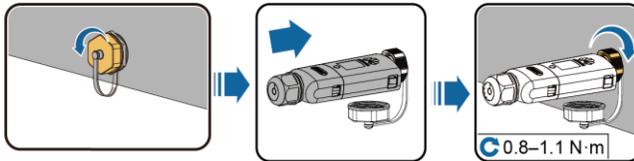
IL04H00005

### WLAN-FE Smart Dongle (FE Communication)


7.5 N·m

< 40 mm

0.8–1.1 N·m

ILO4H00004

> **NOTICE**
>
> Install the network cable before installing the Smart Dongle on the solar inverter.

4G Smart Dongle

- If your Smart Dongle is not equipped with a SIM card, prepare a standard SIM card (size: 25 mm x 15 mm) with the capacity greater than or equal to 64 KB.
- When installing the SIM card, determine its installation direction based on the silk screen and arrow on the card slot.
- Press the SIM card in place to lock it, indicating that the SIM card is correctly installed.
- When removing the SIM card, push it inwards to eject it.

When reinstalling the cover of the Smart Dongle, ensure that the buckle springs back in place.
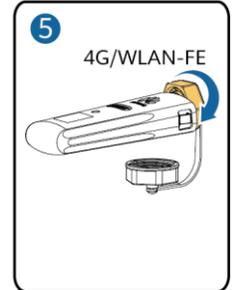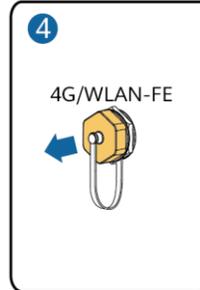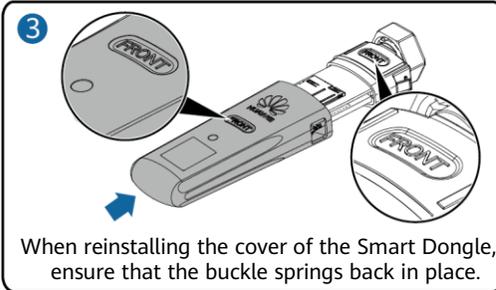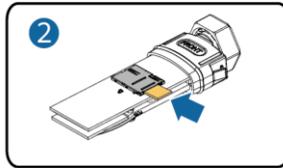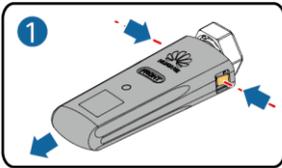
IS10H00016

4.6 Installing the Signal Cable

- When laying out the signal cable, separate it from the power cable and keep it away from strong interference sources to avoid strong communication interference.
- Ensure that the protective layer of the cable is inside the connector, that excess core wires are cut off from the protection layer, that the exposed core wire is totally inserted into the cable hole, and that the cable is connected securely.

COM

2 4 6 8 10 12 14 16
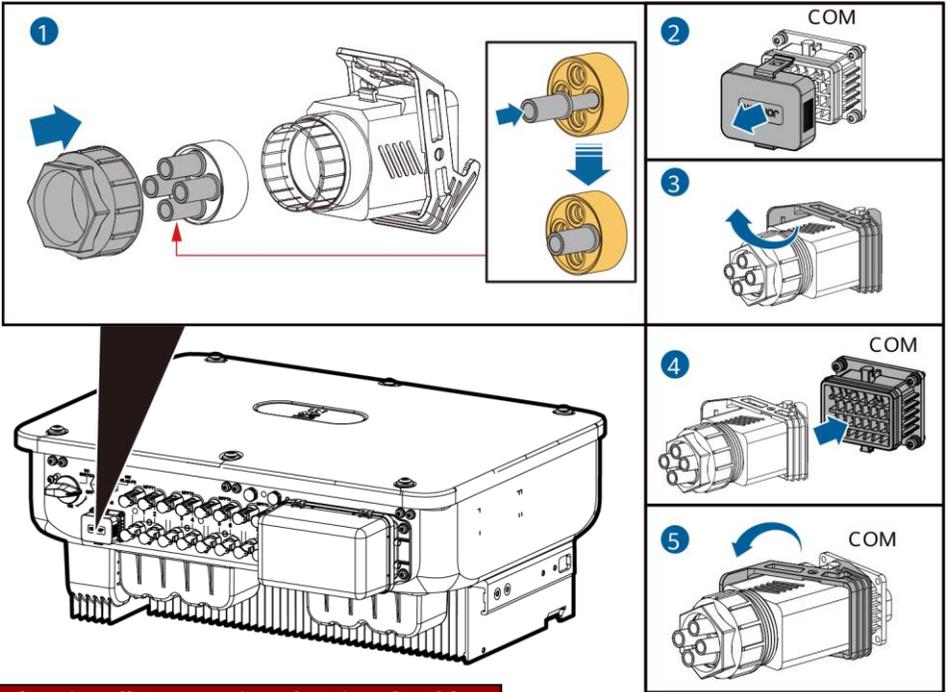

1 3 5 7 9 11 13 15

IS13W00005
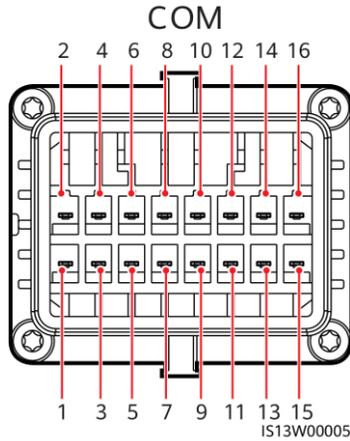
| No.	Definition	Function	Description	No.	Definition	Function	Description
1	485A1-1	RS485 differential signal +	Used to cascade inverters or connect to the SmartLogger. It can also connect to an EMI.	2	485A1-2	RS485 differential signal +	Used to cascade inverters or connect to the SmartLogger. It can also connect to an EMI.
3	485B1-1	RS485 differential signal –		4	485B1-2	RS485 differential signal –	
5	PE	Ground point on the shield layer	–	6	PE	Ground point on the shield layer	–
7	485A2	RS485 differential signal +	Connects to the RS485 signal port on the power grid scheduling power meter.	8	DIN1	Dry contact for power grid scheduling	–
9	485B2	RS485 differential signal –		10	DIN2		
11	–	–	–	12	DIN3		
13	GND	GND	–	14	DIN4		
15	DIN5	Rapid shutdown	Supports AC NS protection shutdown, which can be used as a reserved port for rapid shutdown signals.	16	GND		

Scenarios Where No Signal Cable Is Connected

IS13I40003

(Optional) Connecting the Signal Cable
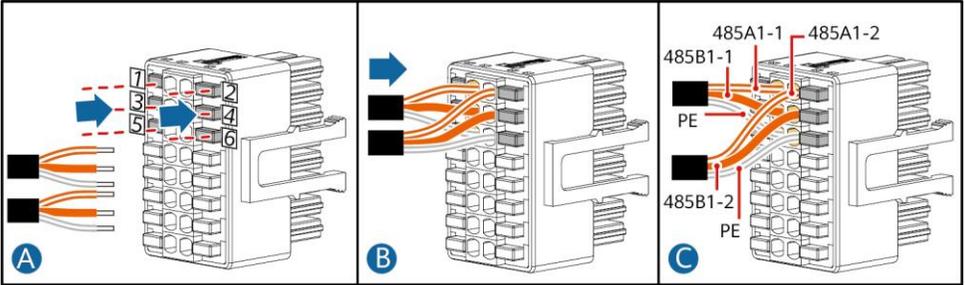
1. Connect the signal cable to the signal connector.
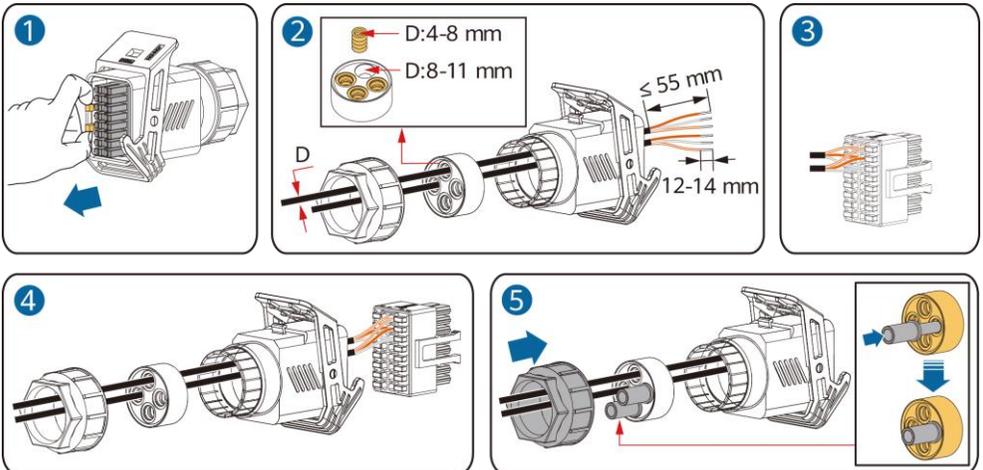
IS13I40002
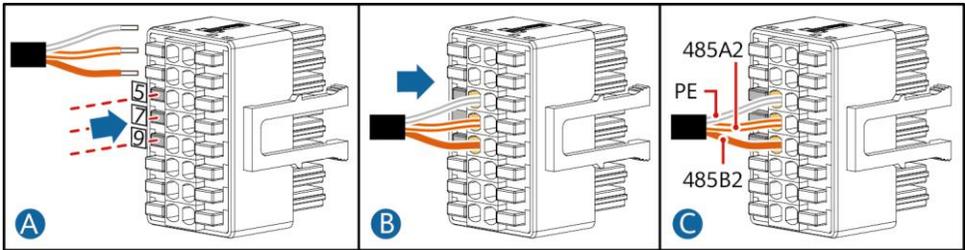
- Connect the RS485 communications cable to the solar inverter.
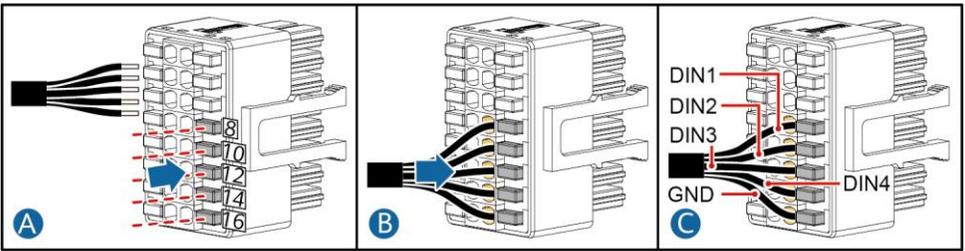
If two or more solar inverters are cascaded, install the RS485 communications cable.
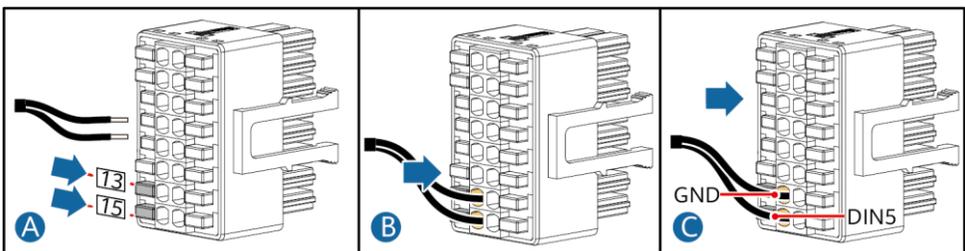

- Connect the RS485 communications cable to the power meter.
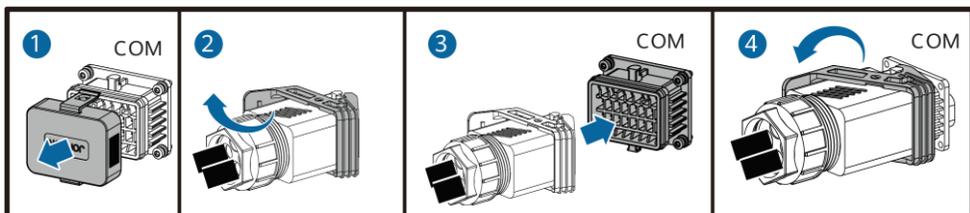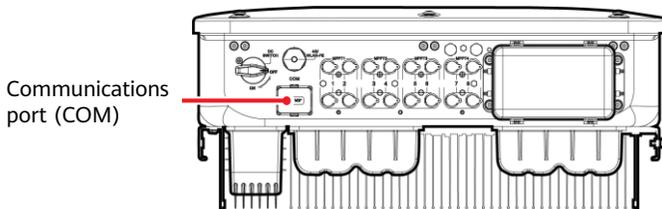

- Connect the power grid scheduling signal cable.

- Connect the rapid shutdown signal cable.

2. Connect the signal cable connector to the communications port.

Communications port (COM)

IS13I40001

5 Verifying the Installation

No.	Acceptance Criteria
1	The solar inverter is installed correctly and securely.
2	The cables are routed properly as required by the customer.
3	The communications expansion module is installed correctly and securely.
4	Cable ties are evenly distributed and no burr exists.
5	The PE cable is connected correctly and securely.
6	The DC switch and all the switches connected to the solar inverter are set to the OFF position.
7	The AC output power cable, DC input power cables, 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 System Power-On

> **NOTICE**
>
> Before turning on the AC switch between the solar inverter and the power grid, check that the AC voltage is within the specified range using a multimeter set to the AC position.

1. Turn on the AC switch between the solar inverter and the power grid.
2. (Optional) Remove the locking screw beside the DC switch. Store the screws properly for future power-off maintenance.
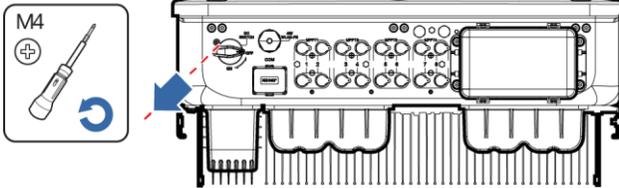
IS13H00012

3. Turn on the DC switch at the bottom of the solar inverter.
4. Observe the LED indicators to check the operating status of the solar inverter.

Category	**Status** (Blinking Slowly: On for 1s and then Off for 1s; Blinking Fast: On for 0.2s and then Off for 0.2s)		**Description**
Running indicator	⊴[○	]∼ ○	–
	Steady green	Steady green	The solar inverter is operating in grid-tied mode.
	Blinking green slowly	Off	The DC is on and the AC is off.
	Blinking green slowly	Blinking green slowly	Both the DC and AC are on, and the solar inverter is not supplying power to the power grid.
	Off	Blinking green slowly	The DC is off and the AC is on.
	Off	Off	Both the DC and AC are off.
	Blinking red fast	–	DC environment alarm
	–	Blinking red fast	AC environment alarm
	Steady red	Steady red	Fault
Communications indicator	((φ)) ○		–
	Blinking green fast		Communication is in progress.
	Blinking green slowly		Mobile phone access
	Off		No communication
Note: If LED1, LED2, and LED3 are steady red, the solar inverter is faulty and needs to be replaced.			

7 System Commissioning

- If the solar inverter is connected to the FusionSolar smart PV management system, the FusionSolar app is recommended. In areas (such as the UK) where the FusionSolar app is not available, or when a third-party management system is used, only the SUN2000 app can be used for commissioning.
- Access the Huawei app store (http://appstore.huawei.com), search for FusionSolar or SUN2000, and download the app installation package. You can also scan the QR codes below to download the apps.

FusionSolar App   SUN2000 App

NOTICE

- The screenshots are for reference only. The actual screens prevail.
- Obtain the initial password for connecting to the solar inverter WLAN from the label on the side of the solar inverter.
- Set the password at the first login. To ensure account security, change the password periodically and keep the new password in mind. Not changing the 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.
- Set the correct grid code based on the application area and scenario of the solar inverter.

7.1	Scenario in Which Solar Inverters Are Connected to the FusionSolar Smart PV Management System

1. (Optional) Register an installer account.

📖 **NOTE**

If you already have an installer account, skip this step.

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

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

2. Create a PV plant and a plant owner.

1. Open the SUN2000 app, scan the QR code of the solar inverter or manually connect to the WLAN hotspot to access the device commissioning screen.
2. Select **installer** and enter the login password.
3. Tap **Log in** to access the quick settings screen or solar inverter home screen.
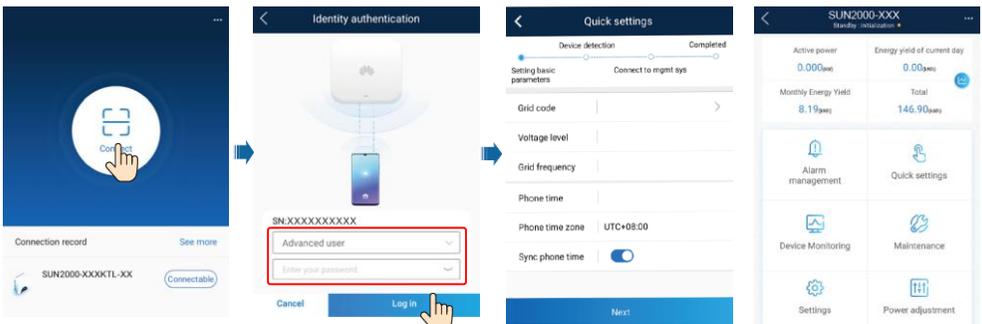
📖 **NOTE**

For details, see the *FusionSolar App Quick Guide*. During the FusionSolar app upgrade, scan the QR code to download the correponding quick guide according to the downloaded app version.

For details about how to add optimizers and the physical layout of optimizers, see *SUN2000-450W-P Smart PV Optimizer Quick Guide* and *FusionSolar App Quick Guide*. You can scan the QR codes to obtain the documents. During the FusionSolar app upgrade, scan the QR code to download the correponding quick guide according to the downloaded app version.

SUN2000-450W-P

8 FAQ: How Do I Reset the Password?

1. Check that the AC and DC power supplies to the solar inverter are connected simultaneously, and that the ☰ and �ⵎ indicators are steady green or blink slowly for more than 3 minutes.
2. Turn off the AC switch, set the DC switch at the bottom of the solar inverter to OFF, and wait until all indicators on the solar inverter panel turn off.
3. Complete the following operations within 3 minutes:

   a. Turn on the AC switch and wait until the ⵎ indicator blinks.
   b. Turn off the AC switch and wait until all indicators on the solar inverter panel turn off.
   c. Turn on the AC switch and wait until all LED indicators on the inverter panel blink and turn off after about 30s.

4. Wait until the three indicators on the inverter panel blink green quickly and then blink red quickly, indicating that the password has been restored.
5. Reset the password within 10 minutes. (If no operation is performed within 10 minutes, all parameters of the solar inverter remain the same as those before the reset.)

   a. Wait until the ⵎ indicator blinks.
   b. Obtain the initial WLAN hotspot name (SSID) and initial password (PSW) from the label on the side of the solar inverter to connect to the app.
   c. On the login page, set a new login password and log in to the app.

6. Set router and management system parameters to implement remote management.

> **NOTICE**
>
> You are advised to reset the password in the morning or at night when the solar irradiance is low.

Huawei Technologies Co., Ltd.
Huawei Industrial Base, Bantian, Longgang
Shenzhen 518129 People's Republic of China
solar.huawei.com