

Replacing SUN2000-(8KTL-12KTL) and SUN2000-(12KTL-20KTL)-M0 with SUN2000-(8KTL-20KTL)-M2

Quick Guide

Issue: 01
Part Number: 31500EPF
Date: 2020-09-02

HUAWEI TECHNOLOGIES CO., LTD.



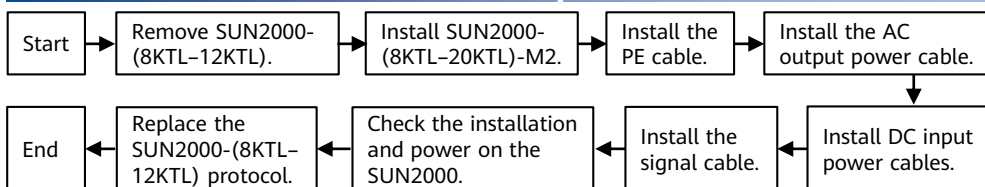
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NOTICE

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 replacing the device, carefully read the *SUN2000-(8KTL-20KTL)-M2 User Manual* to get familiar with product information and precautions.
3. Before replacing the device, check whether the configurations of SUN2000-(8KTL-12KTL) and SUN2000-(8KTL-20KTL)-M0 can be viewed. If they can be viewed, record the parameter settings for setting or checking parameters after the replacement.
4. Before replacing the device, check whether the cables are long enough. If not, prepare appropriate cables.

1 SUN2000-(8KTL-12KTL) Replacement Scenario



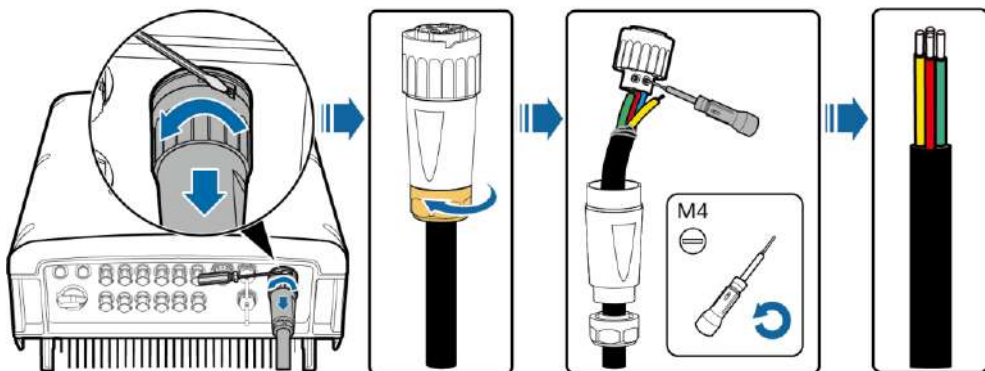
1.1 Removing SUN2000-(8KTL-12KTL)

⚠ DANGER

- Before removing the original SUN2000, ensure that the DC switch on the SUN2000 and all the switches connected to the SUN2000 are set to OFF. Otherwise, the high voltage of the SUN2000 may result in electric shocks.
- After the SUN2000 is powered off, the remaining electricity and heat may still cause electric shocks and body burns. Therefore, put on protective gloves and begin operating the SUN2000 five minutes after the power-off.

Removing Cables from SUN2000-(8KTL-12KTL) for Future Use

1. Power off the SUN2000 to be replaced.
2. Remove the AC connector and remove the AC output power cable from the mating socket for future use.

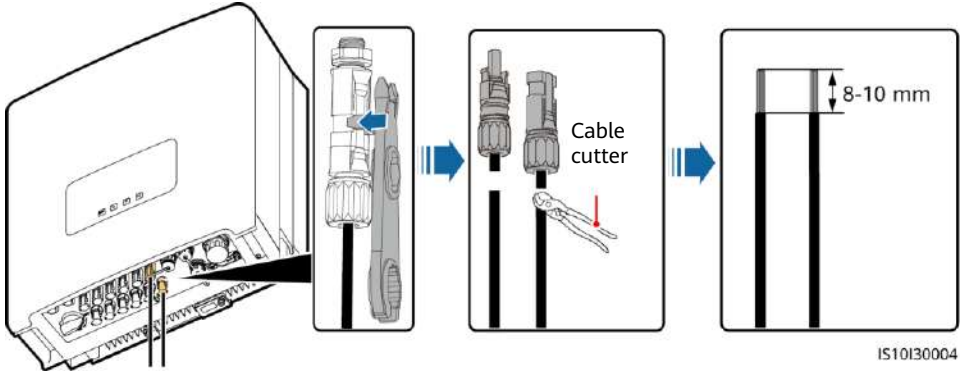


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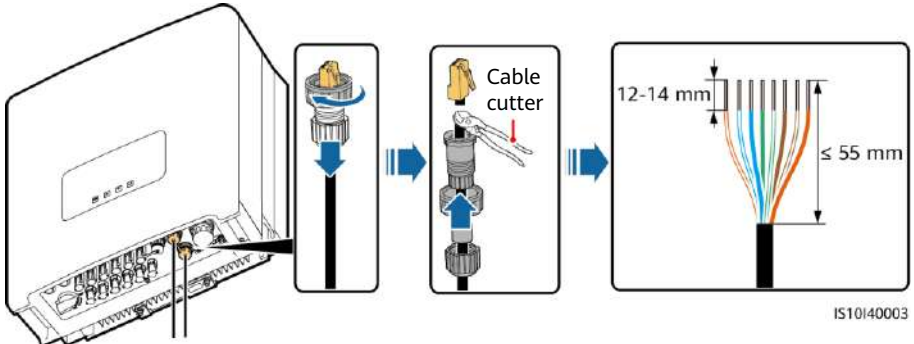
3. Remove the DC connectors and use a cable cutter to cut off the terminals of DC input power cables. Set the cables aside for future use.

NOTICE

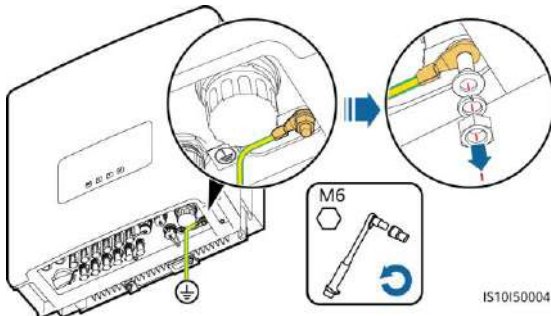
The DC terminals of SUN2000-(8KTL-12KTL) must be cut off. If the DC connectors of SUN2000-(8KTL-12KTL) are directly connected to SUN2000-(8KTL-12KTL)-M2, the SUN2000 may be burnt.



4. Remove the RS485 communications cable and use a cable cutter to cut off the RJ45 connector. Set the cable aside for future use.

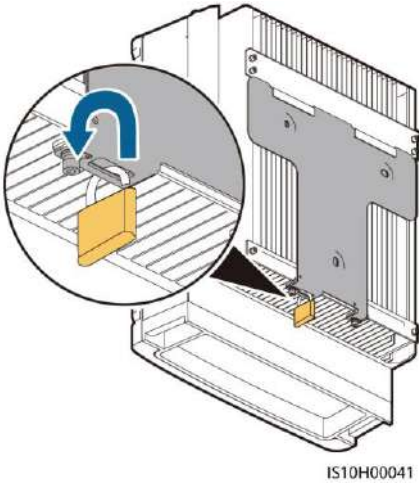


5. Remove the PE cable and remove the crimped OT terminal. Set the cable aside for future use.

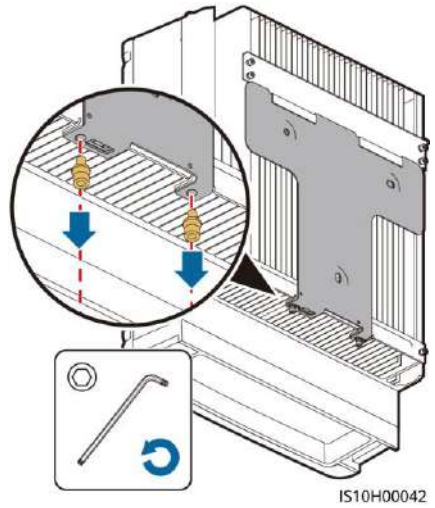


Removing SUN2000-(8KTL-12KTL)

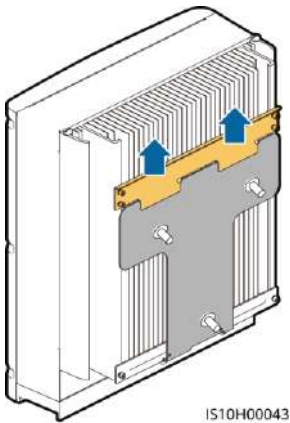
1. (Optional) Open the anti-theft lock.



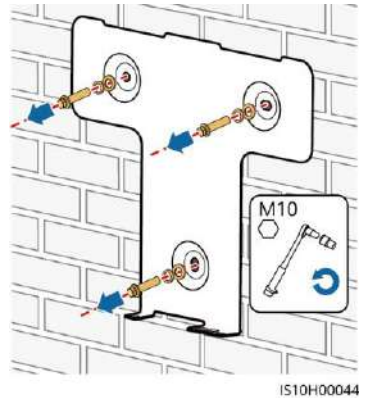
2. Remove the two hexagonal screws.



3. Remove the SUN2000 from the rear panel.



4. Remove the nuts, spring washers, and flat washers, and then remove the rear panel.

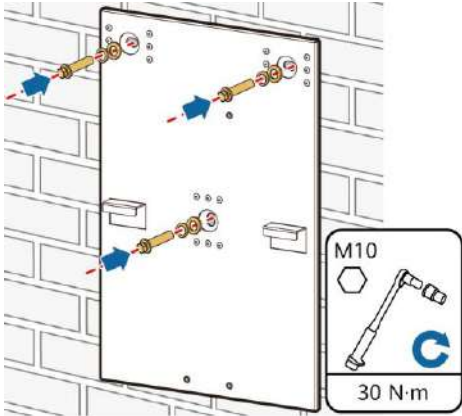


1.2 Installing SUN2000-(8KTL-20KTL)-M2

NOTE

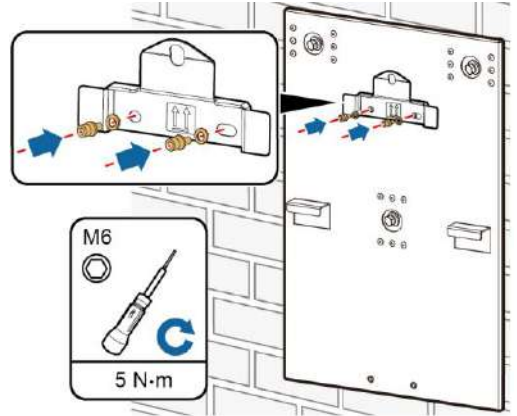
The installation of the new rear panel is the same as that of the SUN2000-(8KTL-12KTL) rear panel. Align the mounting holes.

1. Install the new rear panel.



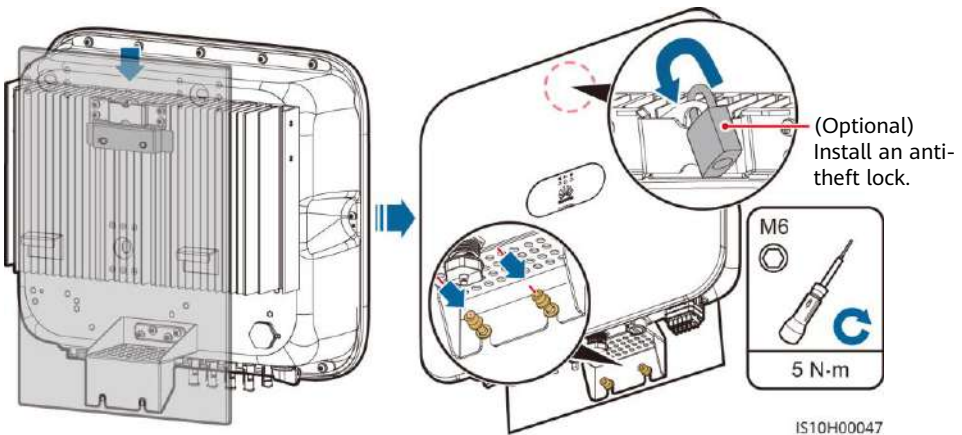
IS10H00045

2. Install the mounting bracket.



IS10H00046

3. Install the SUN2000 onto the mounting bracket.



IS10H00047

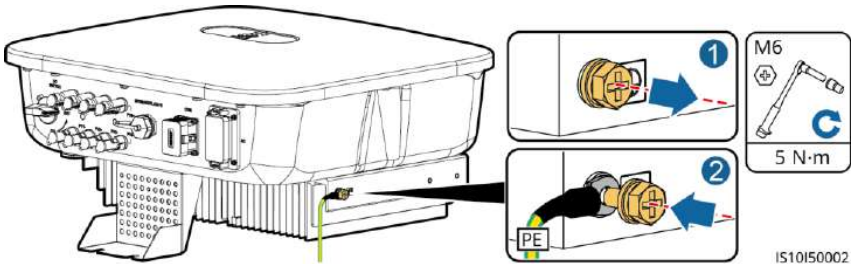
1.3 Installing the PE Cable for SUN2000-(8KTL-20KTL)-M2

NOTICE

Before connecting cables, ensure that the DC switch on the SUN2000 and all the switches connected to the SUN2000 are set to OFF. Otherwise, the high voltage of the SUN2000 may result in electric shocks.

NOTE

It is recommended that silica gel or paint be applied around the ground terminal after the PE cable is connected.



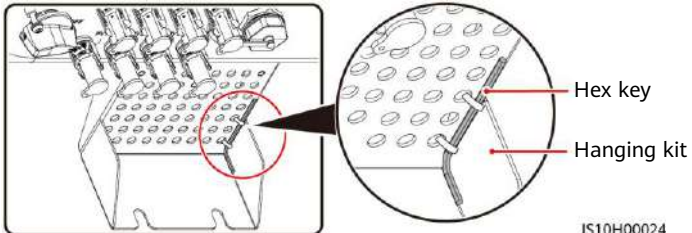
1.4 Installing the AC Output Power Cable to SUN2000-(8KTL-20KTL)-M2

NOTICE

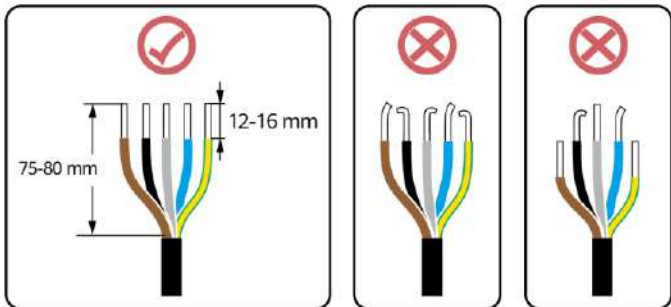
- Ensure that the protective layer of the AC output power cable is inside the connector, that the core wires are totally inserted into the cable hole, and that the cable is connected securely. Failing to do so may cause the device malfunction or damage.
- The hex key is delivered with the SUN2000 and bound to the hanging kit at the bottom of the SUN2000.

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

Hex Key



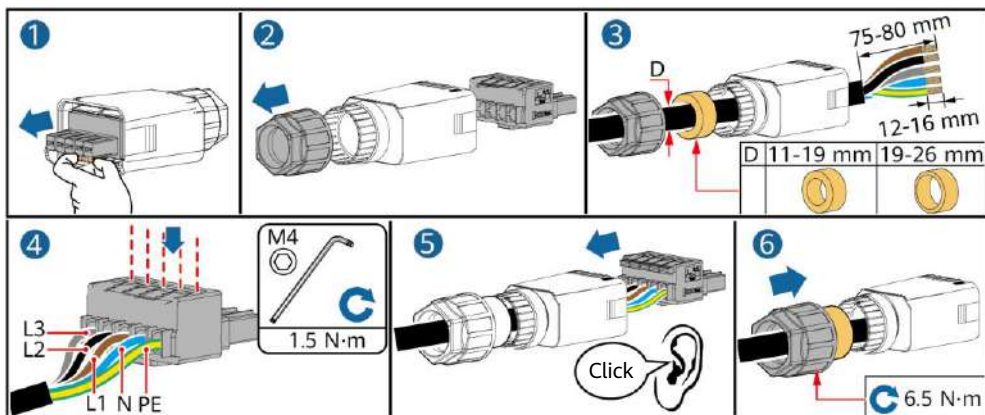
Stripping Requirements



Five-Core Cable (L1, L2, L3, N, and PE)

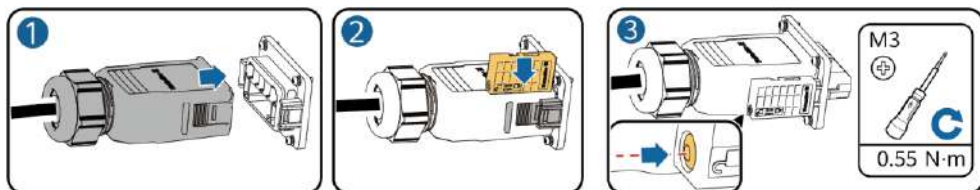
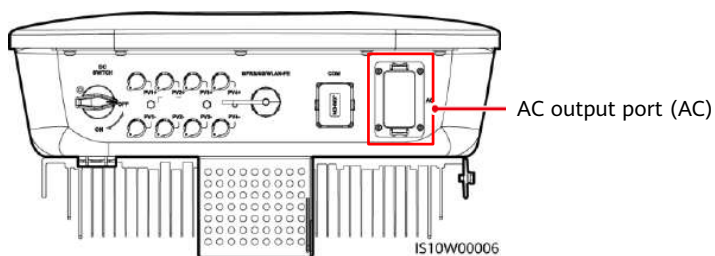
NOTE

- This section describes how to connect a five-core AC output power cable to an AC connector.
- A three-core AC output power cable can be connected similarly. The three-core cable (L1, L2, and L3) is not connected to the N terminal or PE terminal.
- A four-core AC output power cable can be connected similarly. The four-core cable (L1, L2, L3, and PE) is not connected to the N terminal, and the four-core cable (L1, L2, L3, and N) is not connected to the PE terminal.



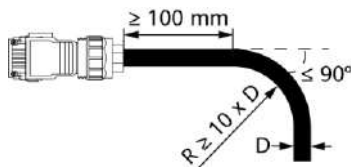
2. Connect the AC connector to the AC output port.

IS10I20013



3. Check the route of the AC output power cable.

IS10H00029



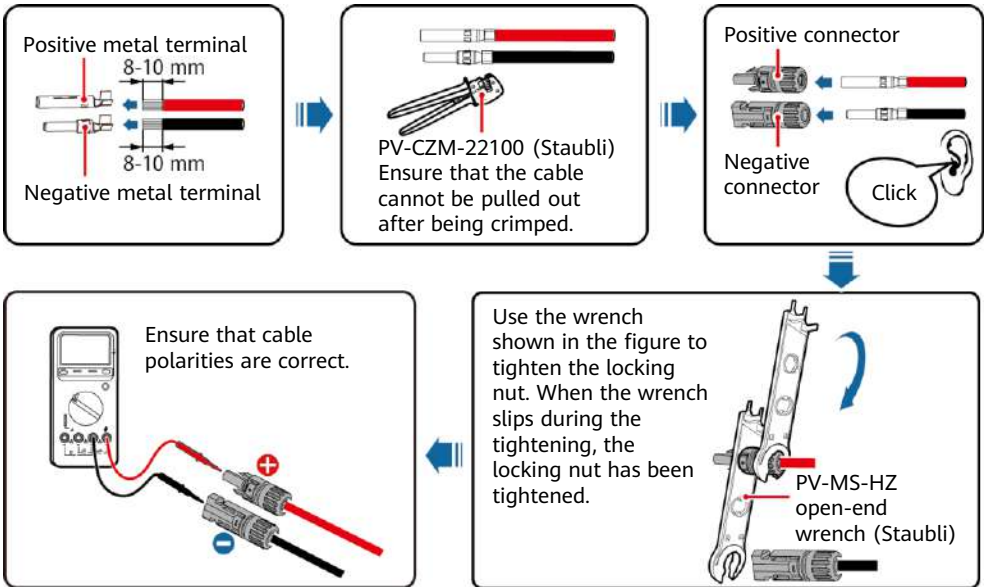
IS10I20017

1.5 Installing DC Input Power Cables for SUN2000-(8KTL-20KTL)-M2

NOTICE

1. Ensure that the PV module output is well insulated to ground.
2. Use the positive and negative Staubli MC4 metal terminals and DC connectors supplied with the SUN2000. Using incompatible positive and negative metal terminals and DC connectors may result in serious consequences. The caused device damage is not covered under warranty.
3. The DC input voltage of the SUN2000 shall not exceed 1080 V DC under any circumstance.
4. Before installing DC input power cables, label the cable polarities to ensure correct cable connections.
5. If the polarity of the DC input power cables is reversed, do not operate the DC switch as well as positive and negative connectors immediately. Failing to do so may cause device damage, which is not covered under 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 OFF, remove the positive and negative connectors, and correct the polarity of the DC input power cables.

1. Assemble DC connectors.

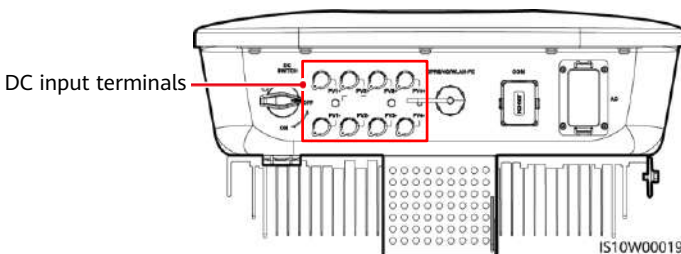


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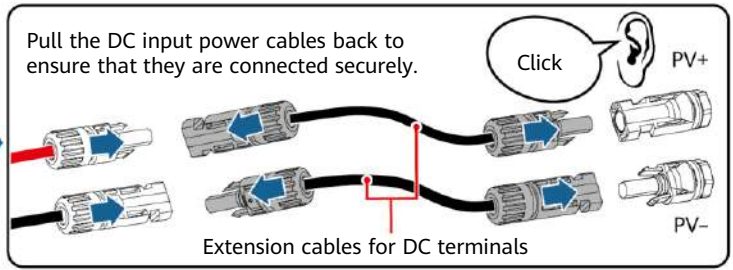
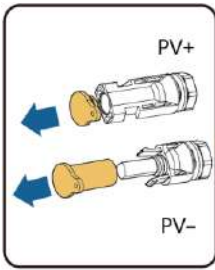
2. Install the DC input power cables.

NOTE

If the original DC input power cables are not long enough, add DC input extension cables.



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1.6 Installing the Signal Cable for SUN2000-(8KTL-20KTL)-M2

Communications Port Signal Definitions for SUN2000-(8KTL-12KTL)

No.	Color	Pin Description
1	White and orange	RS485A, RS485 differential signal+
2	Orange	RS485B, RS485 differential signal-
3	White and green	PGND
4	Blue	RS485A, RS485 differential signal+
5	White and blue	RS485B, RS485 differential signal-
6	Green	PGND
7	White and brown	PGND
8	Brown	PGND

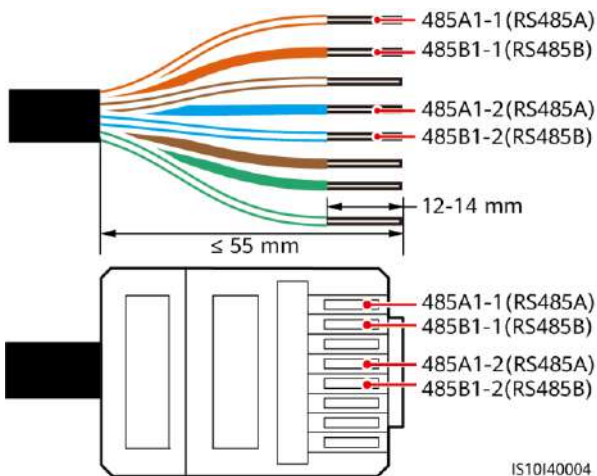
NOTICE

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.

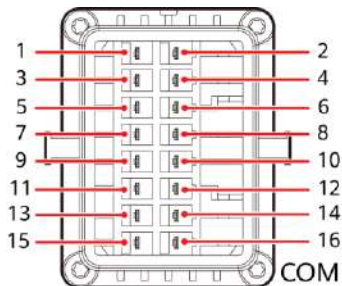
Communications Port Signal Definitions for SUN2000-(8KTL-20KTL)-M2

Pin	Definition	Functions	Remarks	Pin	Definition	Functions	Remarks
1	485A1-1	RS485A, RS485 differential signal+	Used for SUN2000 cascading or connecting to the RS485 signal port on the SmartLogger	2	485A1-2	RS485A, RS485 differential signal+	Used for SUN2000 cascading or connecting to the RS485 signal port on the SmartLogger
3	485B1-1	RS485B, RS485 differential signal-		4	485B1-2	RS485B, RS485 differential signal-	
5	PE	Ground point on the shield layer	-	6	PE	Ground point on the shield layer	-
7	485A2	Reserved	-	8	-	-	-
9	485B2	Reserved	-	10	-	-	-
11	-	-	-	12	-	-	-
13	GND	Reserved	-	14	-	-	-
15	DIN5	Reserved	-	16	-	-	-

Terminals for the Signal Cable



IS10I40004



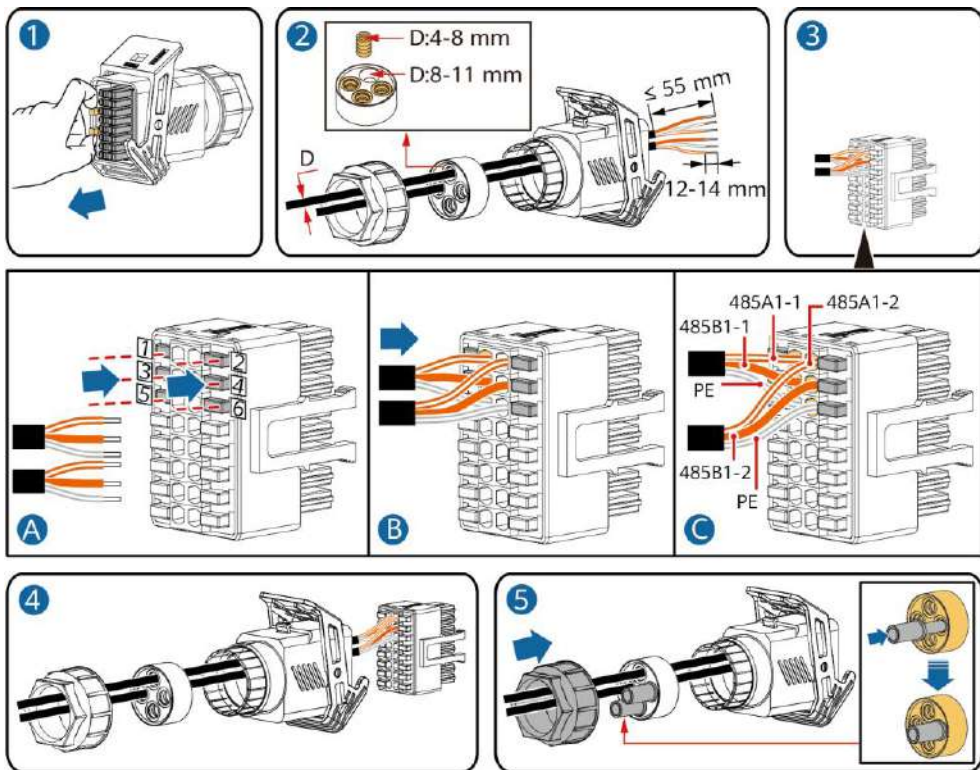
IS10W00002

NOTE

The figures show the RJ45 connector when the surface without the fastener faces upwards. If the colors and functions of the wires are different, connect the wires based on their functions.

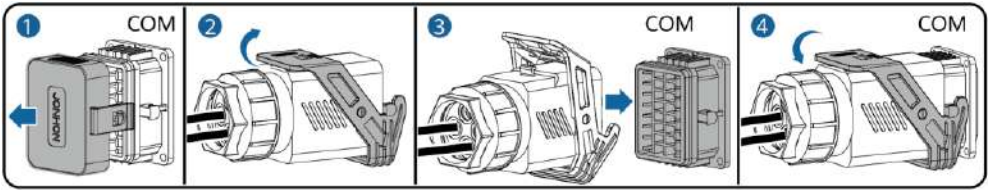
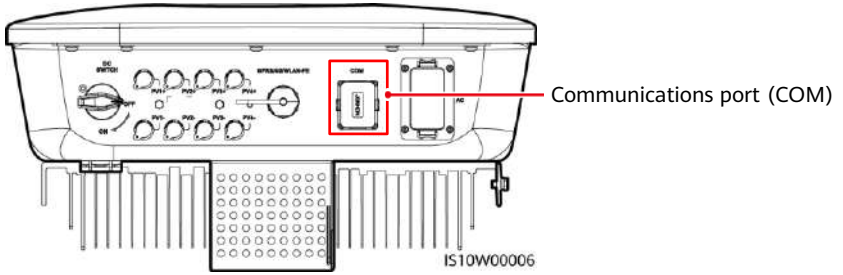
(Optional) Connecting RS485 Communications Cables (SUN2000 Cascading)

1. Connect the signal cable to the signal connector.



IS10I20006

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



IS10I20007

1.7 Checking the Installation of SUN2000-(8KTL-20KTL)-M2 and Powering On the SUN2000

Post-installation Check

No.	Acceptance Criterion
1	The SUN2000 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 secured evenly and no burr exists.
5	The PE cable is connected correctly and securely.
6	The DC switch and all the switches connected to the SUN2000 are set to OFF.
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.

SUN2000 Power-On

NOTICE

Before turning on the AC switch between the SUN2000 and the power grid, check that the AC voltage is within the specified range using a multimeter.

1. Turn on the AC switch between the SUN2000 and the power grid.
2. Turn on the DC switch (if any) between the PV string and the SUN2000.
3. Turn on the DC switch at the bottom of the SUN2000.

1.8 Replacing the SUN2000-(8KTL-12KTL)-M2 Protocol

1. Use Huawei AppGallery to search for FusionSolar or scan the QR code to download the latest installation package.



Google Play (Android)

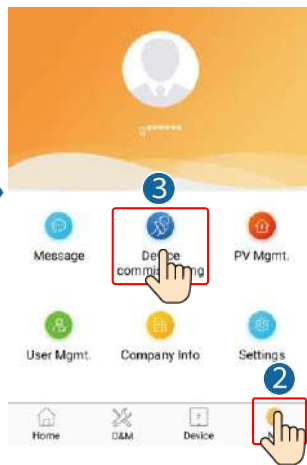
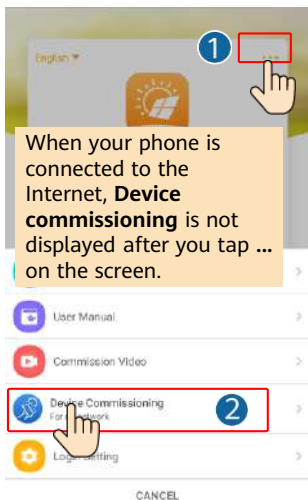


FusionSolar (Android)

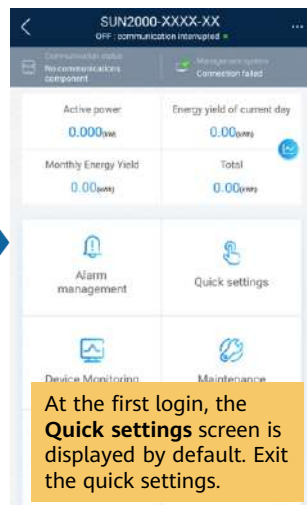
2. Access the **Device commissioning** screen.

Scenario 1: Your phone is not connected to the Internet.

Scenario 2: Your phone is connected to the Internet.



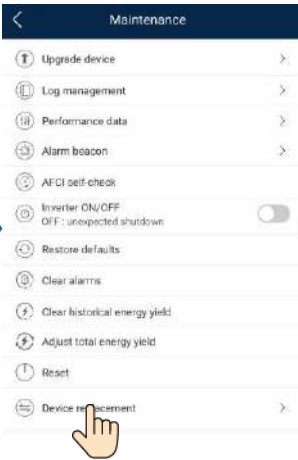
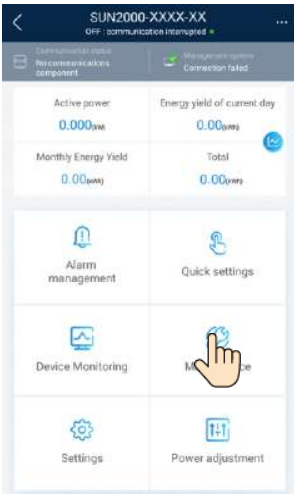
3. Connect to the SUN2000 WLAN and log in as user **installer** to access the **Device commissioning** screen.



4. Choose **Maintenance** > **Device replacement** and select a device replacement type to replace or restore the protocol.

NOTICE

Before replacing SUN2000-(8KTL-12KTL) with SUN2000-(8KTL-12KTL)-M2, you must replace the protocol. Otherwise, SUN2000-(8KTL-12KTL)-M2 cannot connect to the management system.



Default Settings of Device Replacement

Device replacement

None

By default, **Device replacement** is set to **None**. Restore the SUN2000-(8KTL-12KTL)-M2 protocol.

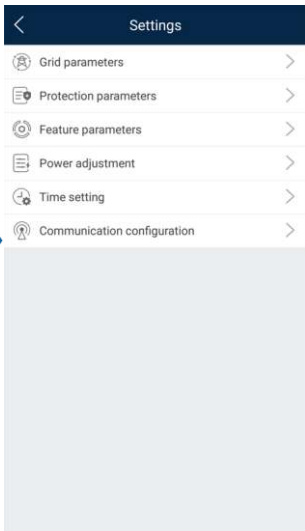
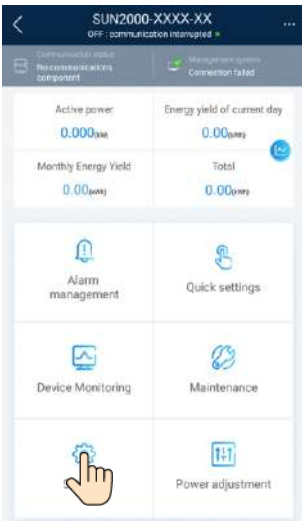
Model Selection for Device Replacement

Device replacement

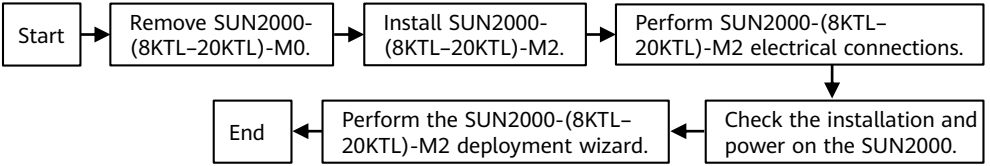
SUN2000-8KTL

Select a model for device replacement, set the grid code, time zone, time, and communication address, and complete the protocol replacement.

5. (Optional) If you need to set other parameters, tap **Settings**.



2 SUN2000-(8KTL-20KTL)-M0 Replacement Scenario



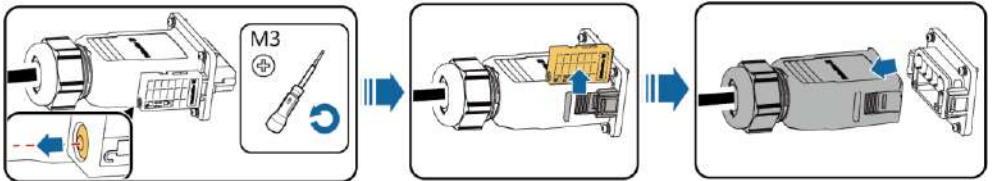
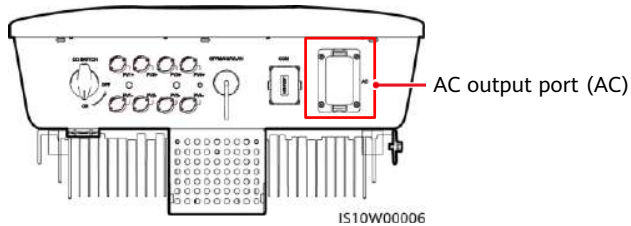
1.1 Removing SUN2000-(8KTL-20KTL)-M0

⚠ DANGER

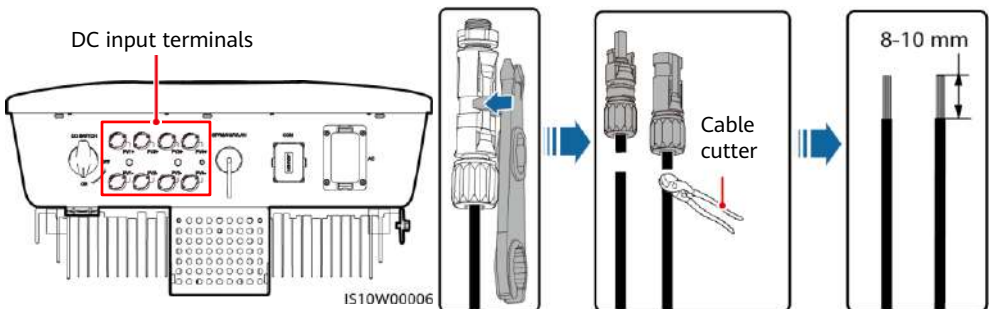
- Before removing the original SUN2000, ensure that the DC switch on the SUN2000 and all the switches connected to the SUN2000 are set to OFF. Otherwise, the high voltage of the SUN2000 may result in electric shocks.
- After the SUN2000 is powered off, the remaining electricity and heat may still cause electric shocks and body burns. Therefore, put on protective gloves and begin operating the SUN2000 five minutes after the power-off.

Removing Cables from SUN2000-(8KTL-20KTL)-M0 for Future Use

1. Power off the SUN2000 to be replaced.
2. Remove the AC connector for future use.



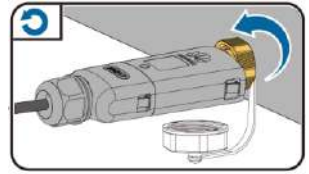
3. Remove the DC connectors and use a cable cutter to cut off the terminals of DC input power cables. Set the cables aside for future use.



4. (Optional) Remove the Smart Dongle for future use.

NOTE

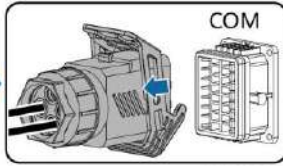
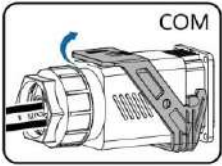
- This section describes how to remove a WLAN-FE Smart Dongle.
- The 4G Smart Dongle and WLAN Smart Dongle can be removed similarly.



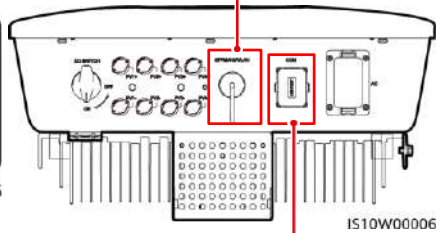
IS10I50007

5. Remove the signal cable connector for future use.

Smart Dongle port (GPRS/4G/WLAN)



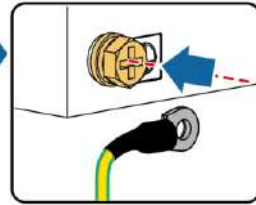
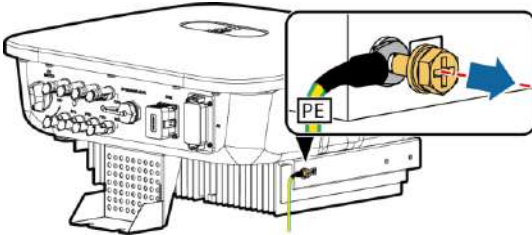
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IS10W00006

Communications port (COM)

6. Remove the PE cable and remove the crimped OT terminal. Set the cable aside for future use.



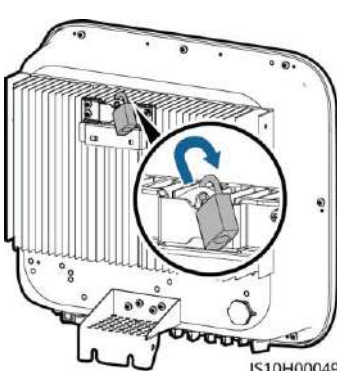
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Removing SUN2000-(8KTL-20KTL)-M0

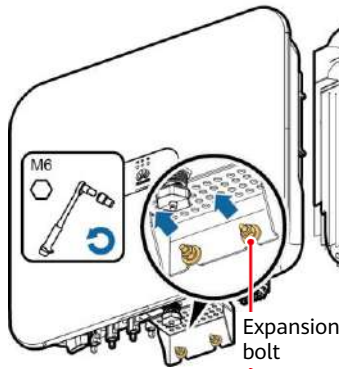
NOTE

Loosen the nuts, flat washers, and spring washers of the two expansion bolts below.

1. (Optional) Open the anti-theft lock. 2. Remove the SUN2000 from the mounting bracket.



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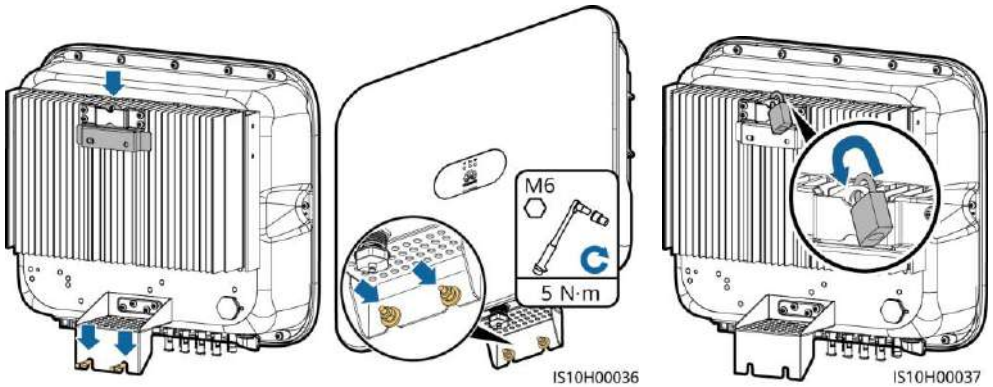


Expansion bolt

IS10H00050

1.2 Install SUN2000-(8KTL-20KTL)-M2

1. Install the SUN2000 onto the mounting bracket.
2. (Optional) Install an anti-theft lock.



1.3 Performing SUN2000-(8KTL-20KTL)-M2 Electrical Connections

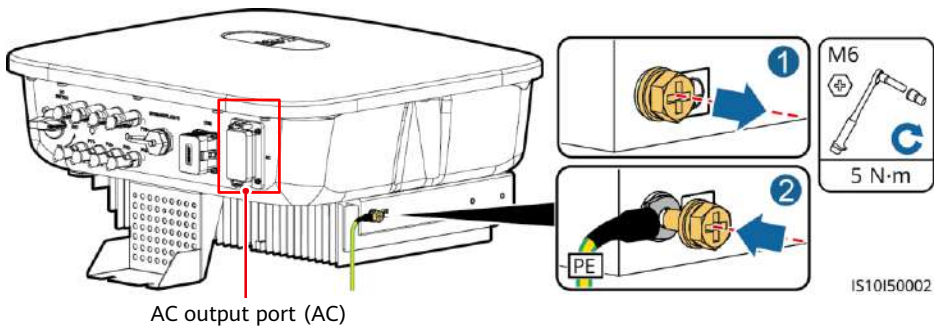
NOTICE

Before connecting cables, ensure that the DC switch on the SUN2000 and all the switches connected to the SUN2000 are set to OFF. Otherwise, the high voltage of the SUN2000 may result in electric shocks.

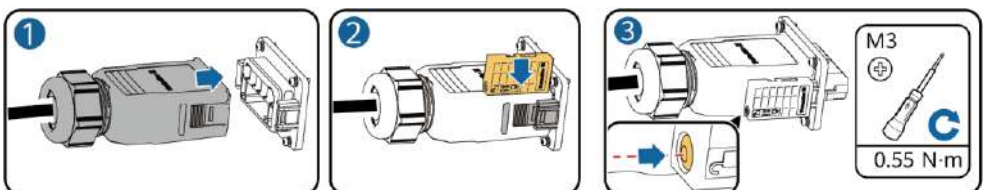
1. Install the PE cable.

NOTE

It is recommended that silica gel or paint be applied around the ground terminal after the PE cable is connected.



2. Connect the AC connector to the AC output port.

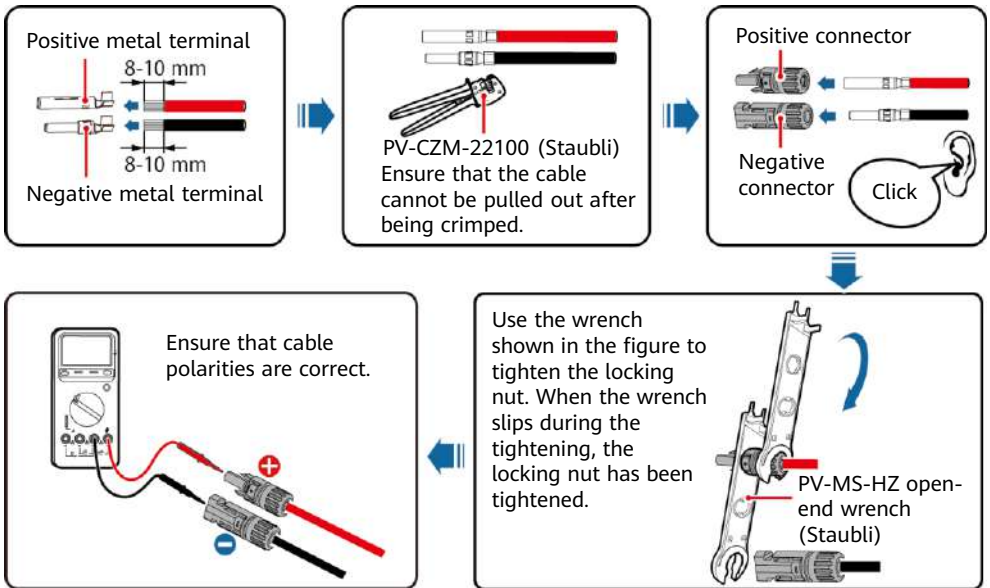


3. Install DC input power cables.

NOTICE

1. Ensure that the PV module output is well insulated to ground.
2. Use the positive and negative Staubli MC4 metal terminals and DC connectors supplied with the SUN2000. Using incompatible positive and negative metal terminals and DC connectors may result in serious consequences. The caused device damage is not covered under warranty.
3. The DC input voltage of the SUN2000 shall not exceed 1080 V DC under any circumstance.
4. Before installing DC input power cables, label the cable polarities to ensure correct cable connections.
5. If the polarity of the DC input power cables is reversed, do not operate the DC switch as well as positive and negative connectors immediately. Failing to do so may cause device damage, which is not covered under 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 OFF, remove the positive and negative connectors, and correct the polarity of the DC input power cables.

Assembling DC Connectors

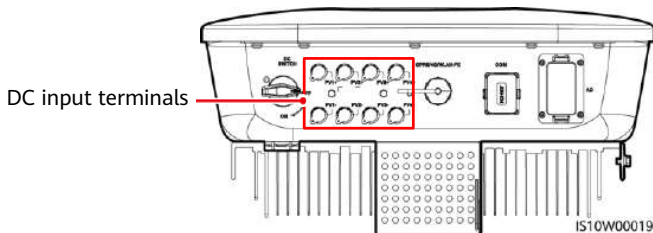


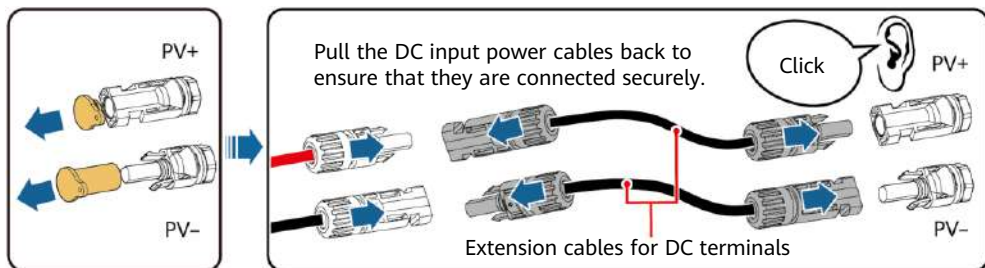
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Installing DC Input Power Cables

NOTE

If the original DC input power cables are not long enough, add DC input extension cables.



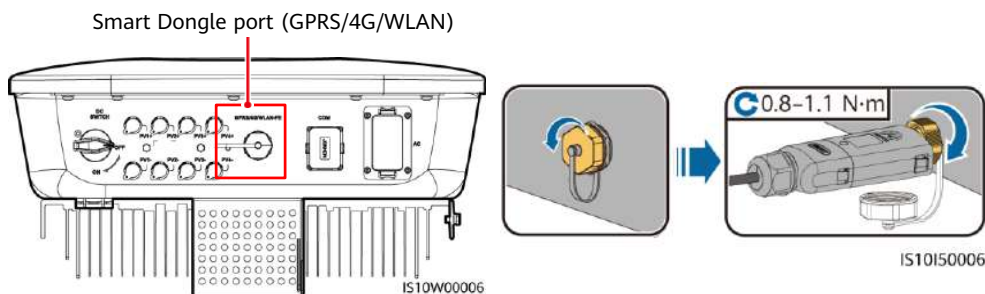


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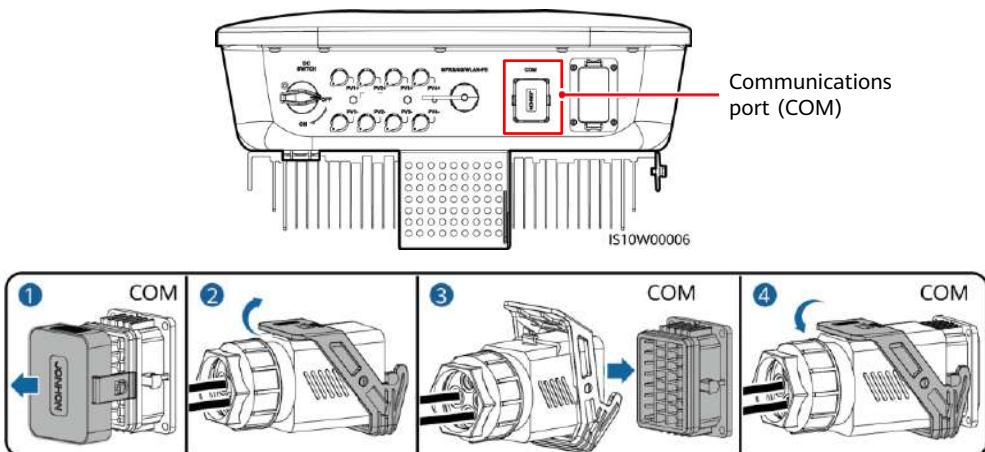
4. (Optional) Install the Smart Dongle.

NOTE

- If a Smart Dongle is configured, it is recommended that you install it before connecting the signal cable.
- This section describes how to install a WLAN-FE Smart Dongle.
- The 4G Smart Dongle and WLAN Smart Dongle can be installed similarly.



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



1.4 Checking the Installation of SUN2000-(8KTL-20KTL)-M2 and Powering On the SUN2000

Post-installation Check

No.	Acceptance Criterion
1	The SUN2000 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 secured evenly and no burr exists.
5	The PE cable is connected correctly and securely.
6	The DC switch and all the switches connected to the SUN2000 are set to OFF.
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.

SUN2000 Power-On

NOTICE

Before turning on the AC switch between the SUN2000 and the power grid, check that the AC voltage is within the specified range using a multimeter.

1. Turn on the AC switch between the SUN2000 and the power grid.
2. Turn on the DC switch (if any) between the PV string and the SUN2000.
3. Turn on the DC switch at the bottom of the SUN2000.

1.5 Performing SUN2000-(8KTL-20KTL)-M2 Quick Settings

1. Use Huawei AppGallery to search for FusionSolar or scan the QR code to download the latest installation package.

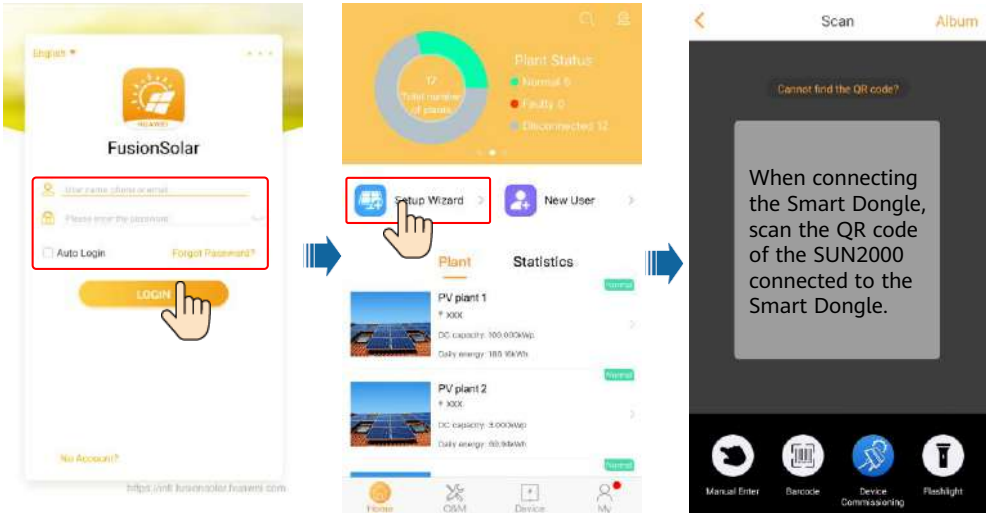


Google Play
(Android)

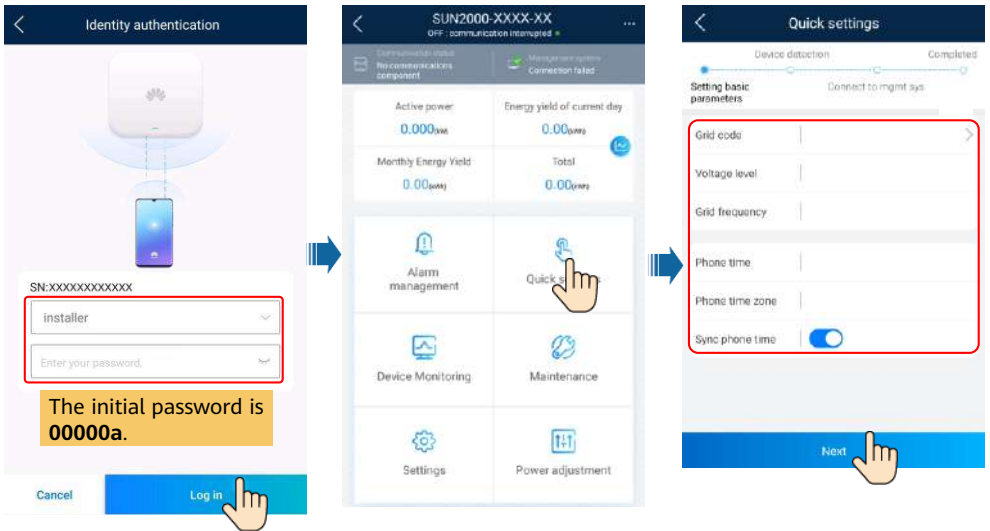


FusionSolar
(Android)

- Log in to the app and tap **Setup Wizard** and scan the SUN2000 QR code to connect to the SUN2000.



- Log in to the **Device commissioning** screen as user **installer**. At the first login, the **Quick settings** screen is displayed by default. Set the grid code, time zone, time, and communication address.

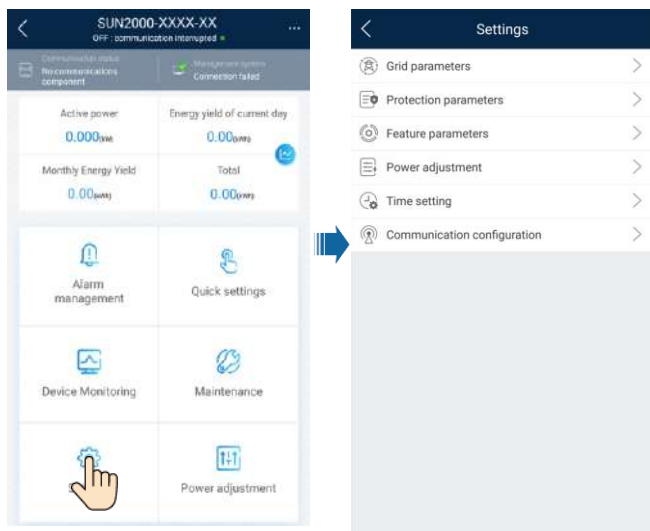


NOTE

For details about how to cascade SUN2000s and set communication parameters, see the *FusionSolar App Quick Guide*. You can scan the QR code to download the document.



4. (Optional) If you need to set other parameters, tap **Settings**.



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