

# SUN2000-(24.5KTL, 28KTL) Quick Installation Guide

Issue: 07

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HUAWEI TECHNOLOGIES CO., LTD.



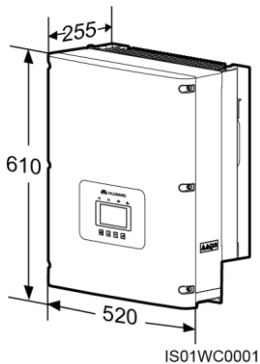
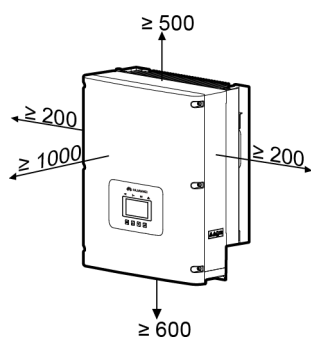
## NOTICE

1. Before you install the devices, closely read the User Manual to get familiar with product information and precautions.
2. Use insulated tools.

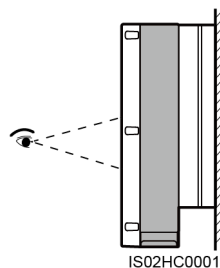
# 1 System Installation

## 1.1 Determine the Installation Position

Unit: mm



Install the SUN2000 in a position where the liquid crystal display (LCD) is easy to view and operate.



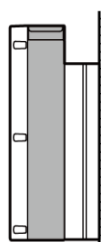
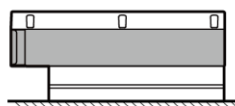
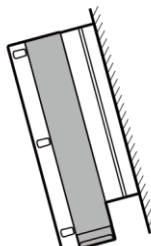
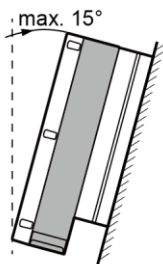
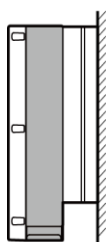
Vertical

Backward

Forward

Horizontal

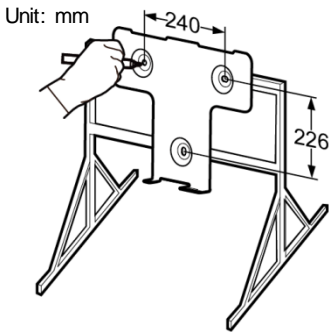
Upside down



IS02HC0002

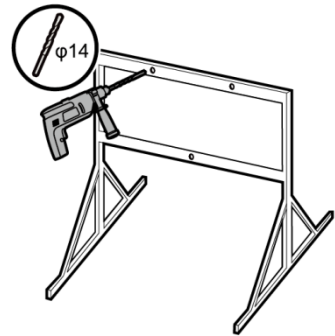
## 1.2 Installing an Inverter (support-mounting is used as an example)

1. Determine the hole positions on the support based on rear panel dimensions.



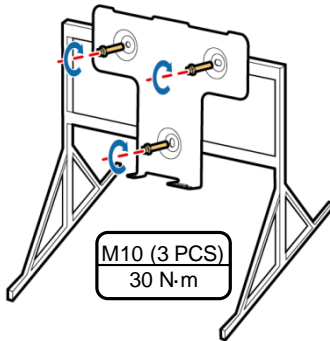
IS01HC0016

2. Drill holes.



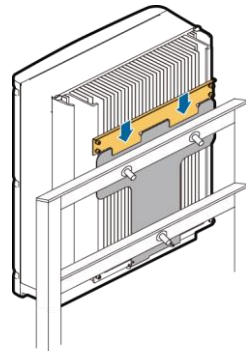
IS01HC0017

3. Secure the rear panel.



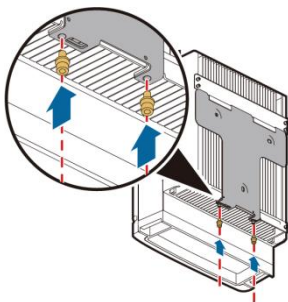
IS01HC0012

4. Mount the inverter on the rear panel.



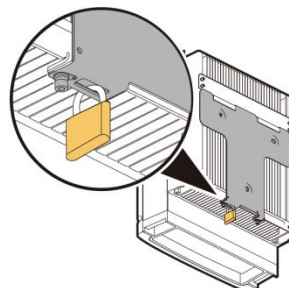
IS01HC0013

5. Tighten hexagon bolts.



IS01HC0019

6. (Optional) Install an anti-theft lock.



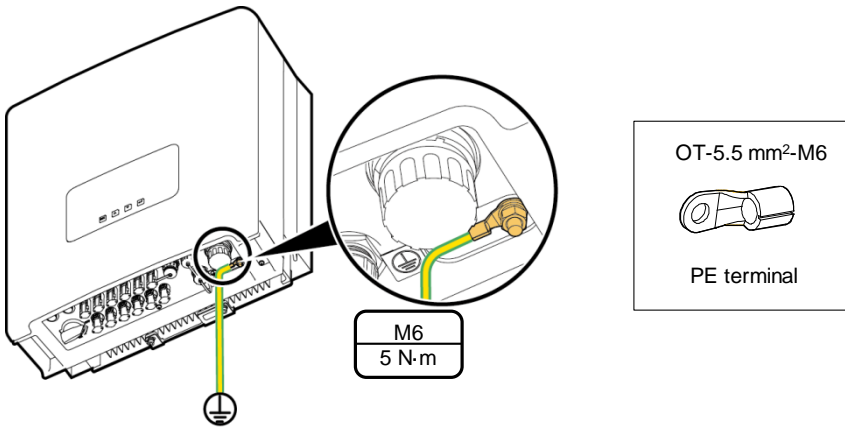
IS01HC0020

### NOTE

1. The anti-theft lock is prepared by customers.
2. For details about wall-mounting the device, see the User Manual.

## 2 Electrical Connection

### 2.1 Install a Ground Cable



#### NOTE

1. It is recommended that the ground cable be connected to a nearby ground position.
2. To enhance the corrosion resistance performance of the PE terminals, apply silica gel on them after connecting the ground cable.

### 2.2 Install AC Output Power Cables

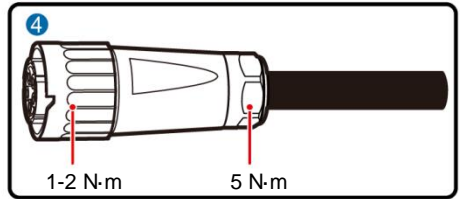
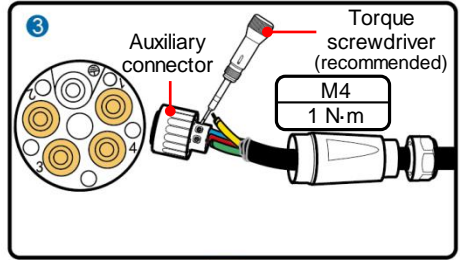
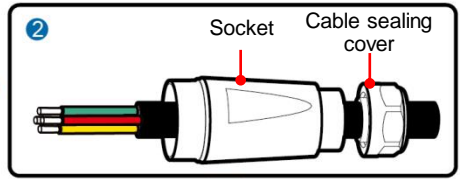
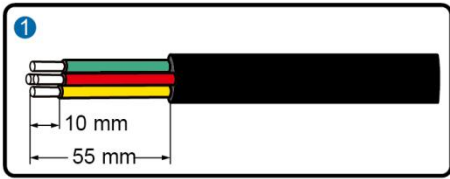
Inverter Model	Cross-sectional Area of the Cable (Recommended)
SUN2000-24.5KTL/28KTL	8.0 mm <sup>2</sup> (8 AWG)

#### NOTE


The table lists only the recommended cable specifications. For more information about cable specifications, see the User Manual.

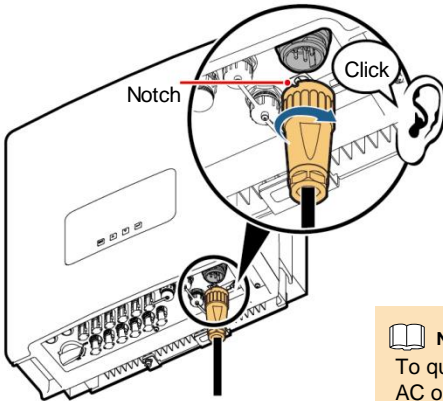
#### NOTICE

1. Do not use solid conductor hard cables.
2. 3-core outdoor cables (L1, L2, L3) are configured for the SUN2000-24.5KTL/28KTL.



**NOTICE**

1. Do not insert L1/L2/L3 into .
2. Tighten the screws to a torque of 1 N·m.



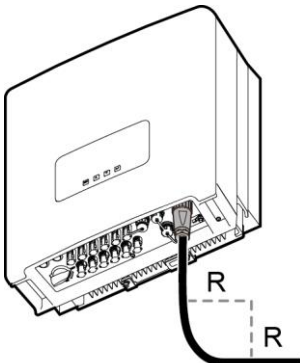
 **NOTE**

To quickly connect the AC output connector to the AC output terminal of the inverter, keep the notch of the connector facing exactly to the operator.

**NOTICE**

Ensure that the AC output connector is securely connected. Otherwise, the connector may be damaged after the inverter has been running for a long time.

When routing the AC power cable, you are advised to reserve the bending radius at the bending point.

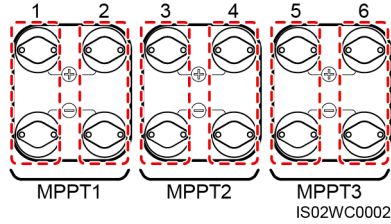


 **NOTE**

1. Bending radius of the outdoor armored cable  $R \geq 20D$  (D indicates the cable outer diameter) .
2. Bending radius of the outdoor non-armored cable  $R \geq 10D$  (D indicates the cable outer diameter) .

## 2.3 Install DC Input Power Cables

### Optional DC input terminals



Number of Inputs	24.5KTL/28KTL
1	Connects to any one route
2	Connects to routes 1 and 3
3	Connects to routes 1, 3, and 5
4	Connects to routes 1, 2, 3, and 5
5	Connects to routes 1, 2, 3, 4, and 5
6	Connects to routes 1, 2, 3, 4, 5, and 6

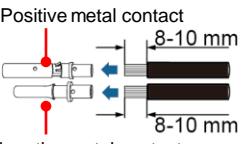
### NOTICE

1. Use the positive and negative metal contacts and DC connectors supplied with the SUN2000. Using other models of positive and negative metal contacts and DC connectors may result in serious consequences. The caused device damage is not covered under any warranty or service agreement.
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, recommended) or H4TC0001 (Amphenol). Crimp the metal stamping forming contacts using crimping tool H4TC0003 (Amphenol, recommended) or H4TC0002 (Amphenol). Choose the crimping tools that fit the metal contacts.
3. Before connecting DC input power cables, label the cable polarities to ensure correct cable connections. If the cables are connected incorrectly, the inverter may be damaged.
4. Pull back the DC input power cables to check whether the cables would be disconnected.
5. If DC input power cables are reversely connected and the DC switch is ON, do not turn off the DC switch immediately. Otherwise, the equipment may be damaged. You can disconnect the DC input power cable on the PV string side or wait until the PV string voltage reduces to a value within the safety range. Then, turn off the DC switch, remove the positive and negative connectors, and rectify the connection.

## Installing a DC input power cable (using metal cold forming contacts)

**1**

Positive metal contact

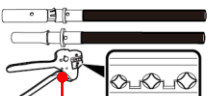


8-10 mm

Negative metal contact

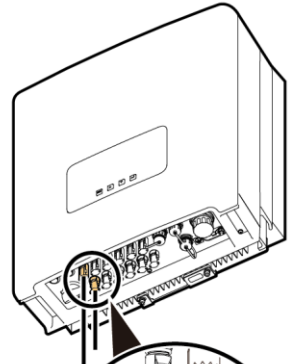
Common PV cables with a cross-sectional area of 4 mm<sup>2</sup> in the industry are recommended.

**2**

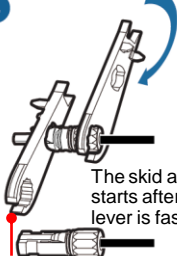


Recommended: UTXTC0005 (Amphenol)

Ensure that cables cannot be removed after crimped.



**4**




The skid automatically starts after the ejector lever is fastened.


Recommended: H4TW0001 (Amphenol)

**3**

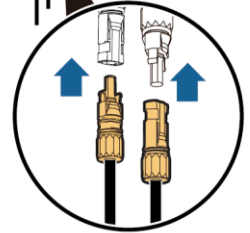
Positive connector



Negative connector



Click

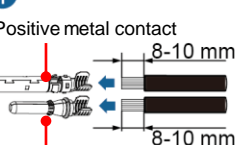


IS02IC0003

## Installing a DC input power cable (using metal stamping forming contacts)

**1**

Positive metal contact

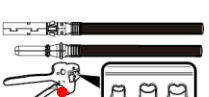


8-10 mm

Negative metal contact

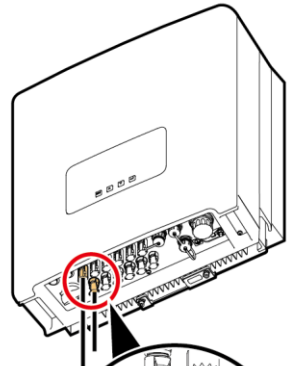
Common PV cables with a cross-sectional area of 4 mm<sup>2</sup> in the industry are recommended.

**2**

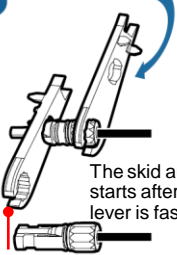


Recommended: H4TC0003 (Amphenol)

Ensure that cables cannot be removed after crimped.



**4**




The skid automatically starts after the ejector lever is fastened.


Recommended: H4TW0001 (Amphenol)

**3**

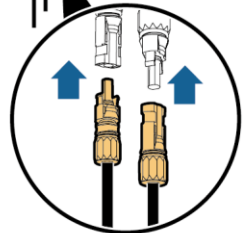
Positive connector



Negative connector

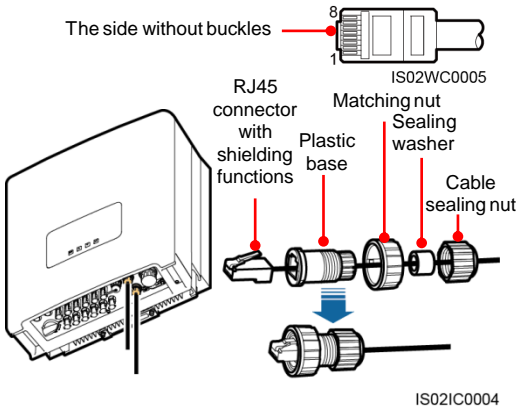


Click



IS02I20001

## 2.4 Install an RS485 Communications Cable



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

## 3 Installation Verification

1. Check that all screws, especially the screws used for electrical connections, are secured.	Passed <input type="checkbox"/> Failed <input type="checkbox"/>
2. Check that all circuit breakers are switched to OFF.	Passed <input type="checkbox"/> Failed <input type="checkbox"/>
3. Check that the ground cable is securely connected and no short circuit occurs.	Passed <input type="checkbox"/> Failed <input type="checkbox"/>
4. Check that AC output power cables are connected correctly and securely (the N wire is connected to hole 4, and L1/L2/L3 can be connected to any hole of 1/2/3; for details, see 2.2 Install AC output power cables), with no short circuit.	Passed <input type="checkbox"/> Failed <input type="checkbox"/>
5. Check that DC input power cables are connected correctly and securely, with no short circuit.	Passed <input type="checkbox"/> Failed <input type="checkbox"/>
6. Ensure that idle DC input terminals are sealed.	Passed <input type="checkbox"/> Failed <input type="checkbox"/>
7. Check that the idle USB and RS485 ports are plugged with waterproof plugs.	Passed <input type="checkbox"/> Failed <input type="checkbox"/>

## 4 System Power-on

1. Switch on the AC circuit breaker between the SUN2000 and the power grid.
2. Ensure that the DC Switch at the bottom of the SUN2000 is ON.
3. (Optional) Measure the temperatures at the joints between the DC terminals and the connectors.

## 5 Setting Monitoring Parameters

### NOTE

1. If no data collector is used, set the following parameters before connecting the SUN2000 to the power grid. For the other parameter settings, see the User Manual. If a data collector is used, see the SmartLogger1000 User Manual for the parameter settings.

 **NOTE**

- The preset password for **Common User**, **Advanced User**, and **Special User** is **000001**. 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.

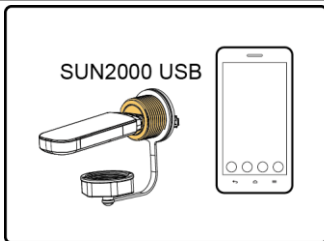
Main Menu	Second-Level Menu	Third-Level Menu	Fourth-Level Menu	Setting
Wizard	Language	N/A	N/A	Set based on site requirements.
	Date&Time	Date	N/A	Set based on site requirements.
		Time	N/A	Set based on site requirements.
	Grid Code	N/A	N/A	For details about power grid codes, see the Appendix.
Main Menu	Settings	Isolation (Advanced User)	Input Grounded, With TF	<ul style="list-style-type: none"> <li>When the PV- is grounded, an isolation transformer should be connected. Set <b>Isolation</b> to <b>Input Grounded, With TF</b>.</li> <li>When the PV- is not grounded, set <b>Isolation</b> to <b>Input Ungrounded, Without TF</b> or <b>Input Ungrounded, With TF</b>.</li> </ul>
			Input Ungrounded, Without TF	
			Input Ungrounded, With TF	

## 6 SUN2000 App

 **NOTE**

- The SUN2000 app is a mobile phone app that communicates with the SUN2000 monitoring system over a USB data cable, a Bluetooth module, or a WLAN module. As a convenient local monitoring and maintenance platform, it supports alarm query, parameter settings, and routine maintenance. The app name is SUN2000.
- Access the Huawei App Store (<http://appstore.huawei.com>) or Google Play (<https://play.google.com>), search for SUN2000, and download the app software package.
- Connect a USB data cable, a Bluetooth module, or a WLAN module to the USB port of the SUN2000 to implement the communication between the SUN2000 and the app.

### WLAN or Bluetooth Connection



### USB Data Cable Connection



IS07H00020

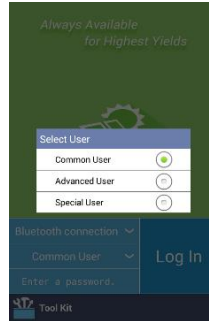
### Login Page



### Select Connection Mode



### Select User



### Quick Settings



### Function Menu



### NOTICE

- The screenshots in this document correspond to app version 3.2.00.001 (Android).
- When the WLAN connection is used, the initial name of the WLAN hotspot is **Adapter-WLAN module SN**, and the initial password is **Changeme**.
- The initial password for **Common User**, **Advanced User**, and **Special User** is **0000a**.
- 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.
- Set the correct grid code based on the application area and scenario of the solar inverter.

## Appendix: Power Grid Standard Code Mapping Table

No.	Power Grid Standard Code	Description	No.	Power Grid Standard Code	Description
1	CHINA-MV480	China medium-voltage power grid	2	NRS-097-2-1-MV480	South Africa medium-voltage power grid
3	NB/T 32004	China low-voltage power grid	4	IEC61727-MV480	IEC medium-voltage power grid
5	UTE C 15-712-1(A)	France low-voltage power grid	6	VDE 0126-1-1-BU	Bulgaria low-voltage power grid
7	UTE C 15-712-1(B)	Islands of France 230 V 50 Hz	8	VDE-AR-N-4105	Germany low-voltage power grid
9	UTE C 15-712-1(C)	Islands of France 230 V 60 Hz	10	BDEW-MV480	Germany medium-voltage power grid
11	UTE C 15-712-1-MV480	France medium-voltage power grid	12	BDEW-MV	Germany medium-voltage power grid (400 V AC)
13	G59-England-MV480	UK 480 V Medium-voltage power grid (I > 16 A)	14	TAI-PEA	Thailand low-voltage power grid (PEA)

No.	Power Grid Standard Code	Description	No.	Power Grid Standard Code	Description
15	G59-England	England 230 V power grid (I > 16 A)	16	TAI-MEA	Thailand low-voltage power grid (MEA)
17	G59-Scotland	Scotland 240 V power grid (I > 16 A)	18	TAI-PEA-MV480	Thailand medium-voltage power grid (PEA)
19	G83-England	England 230 V power grid (I < 16 A)	20	TAI-MEA-MV480	Thailand medium-voltage power grid (MEA)
21	G83-Scotland	Scotland 240 V power grid (I < 16 A)	22	EN 50438-DK	Denmark medium-voltage power grid
23	CEI0-21	Italian low-voltage power grid	24	Japan(50Hz)	Japan power grid (50 Hz)
25	CEI0-16	Italian medium-voltage power grid	26	Japan(60Hz)	Japan power grid (60 Hz)
27	IEC61727	IEC low-voltage power grid	28	EN50438-TR-MV480	Turkey medium-voltage power grid
29	VDE 0126-1-1-GR(A)	Mainland of Greece low-voltage power grid	30	EN50438-TR	Turkey low-voltage power grid
31	VDE 0126-1-1-GR(B)	Islands of Greece low-voltage power grid	32	C10/11	Belgium low-voltage power grid
33	EN50438-CZ	Czech Republic low-voltage power grid	34	C11/C10-MV480	Belgium medium-voltage power grid
35	RD1699	Spanish low-voltage power grid (Pn < 100 kW)	36	Philippines	Philippines low-voltage power grid
37	RD661	Spanish low-voltage power grid (Pn > 100 kW)	38	Philippines-MV480	Philippines medium-voltage power grid
39	AS4777	Australia low-voltage power grid	40	EN50438-NL	Netherlands low-voltage power grid
41	AS4777-MV480	Australia medium-voltage power grid	42	IEEE 1547-MV480	US medium-voltage power grid
43	NRS-097-2-1	South Africa low-voltage power grid	44	KOREA	South Korea low-voltage power grid
45	Custom(50Hz)	Reserved	46	Custom(60Hz)	Reserved
47	Custom-MV480(50Hz)	Reserved	48	Custom-MV480(60Hz)	Reserved

 **NOTE**

Grid codes are subject to change. The listed codes are for your reference only.

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