

SUN2000-(25KTL, 30KTL)-US Quick Installation Guide

Issue: Draft D

Part Number: 31507215

Date: 2015-11-25



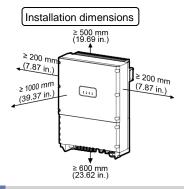
♦ NOTICE

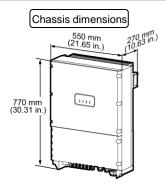
- The information in this document is subject to change without notice. Every effort has been
 made in the preparation of this document to ensure accuracy of the contents, but all
 statements, information, and recommendations in this document do not constitute a warranty of
 any kind, express or implied.
- Before installing the device, read the SUN2000-(25KTL, 30KTL)-US User Manual for knowledge of product information and safety precautions. To obtain the user manual, log in to http://support.huawei.com/carrier/ and browse or search for SUN2000 on the Product Support page.
- Install and use the device according to this document and the user manual. Otherwise, the device may be damaged. Use insulated tools when installing the device.

Inverter Model	SUN2000-(25KTL, 30KTL)-US	
Weight	55 kg (121.25 lb.)	
Dimensions (H x W x D)	770 mm (30.31 in.) x 550 mm (21.65 in.) x 270 mm (10.63 in.)	

1 System Installation

1.1 Determining the Installation Position



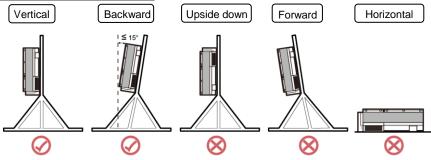


1.2 Determining the Installation Mode

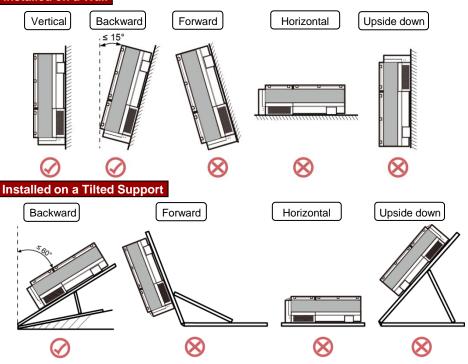
NOTE

It is recommended that the inverter be installed vertically or with a backward tilt of no more than 15 degrees for optimal heat dissipation conditions.

Installed on a Common Support



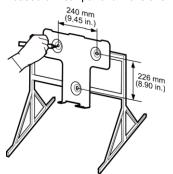
Installed on a Wall



1.3 Installing an Inverter

Installed on a Common Support

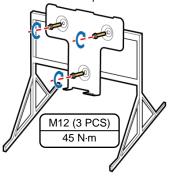
1. Determine the hole positions on the support based on rear panel dimensions.



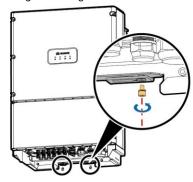
2. Drill holes.



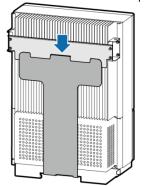
3. Secure the rear panel.



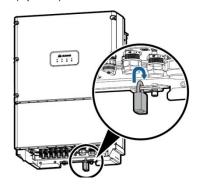
5. Tighten hexagon bolts.



4. Mount the inverter on the backplane.



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

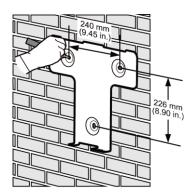


MOTE

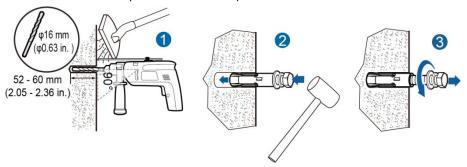
The anti-theft lock is prepared by the customer.

Installed on a Wall

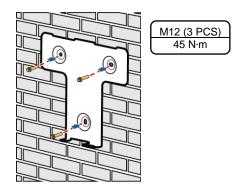
1. Determine the positions for drilling holes on the wall according to the rear panel dimensions.



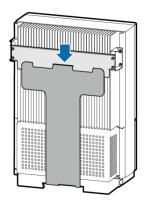
2. Drill holes and install expansion sleeves for expansion bolts.



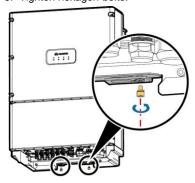
3. Secure the rear panel.



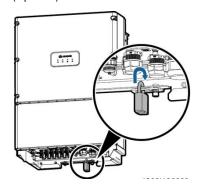
4. Mount the inverter on the backplane.



5. Tighten hexagon bolts.



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

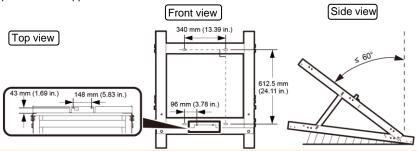


NOTE

The anti-theft lock is prepared by the customer.

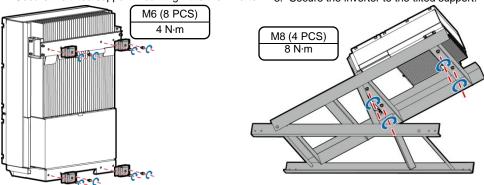
Installed on a Tilted Support

1. Prepare a tilted support.



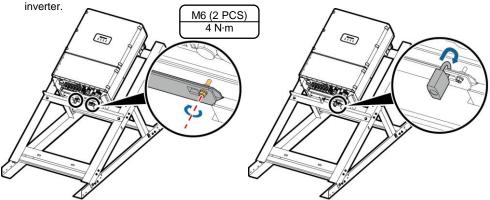
- NOTE
- 1. The hole dimensions of the bottom auxiliary tightening point in the top view are OB-13 mm x 8 mm (OB-0.51 in. x 0.31 in.).
- 2. The hole dimensions of the tilted support mounting kit tightening point in the front view are OB-32 mm x 12 mm (OB-1.26 in. x 0.47 in.).
- 3. The bottom auxiliary tightening point is 5 mm (0.20 in.) away from the tilted support mounting kit tightening point below.

2. Secure the tilted support mounting kit to the inverter. 3. Secure the inverter to the tilted support.



4. (Optional) Secure the auxiliary screws to the

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



MOTE

The anti-theft lock is prepared by the customer.

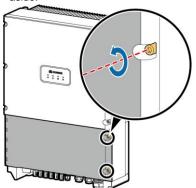
2 Electrical Connection



Electrical connections must meet local installation regulatory requirements.

2.1 Installing Ground Cables

 Remove the two screws from the maintenance compartment door using a hex key and set them aside.



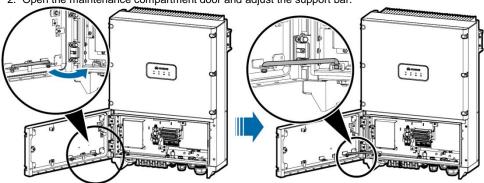
MOTE

The hex key is stored in the fitting bag bound to the chassis base.

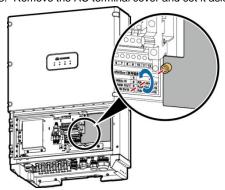
№ NOTICE

- 1. Do not leave unused screws in the chassis.
- 2. Do not open the host panel of the inverter.
- Before opening the maintenance compartment door, switch off the upstream DC input circuit breaker and downstream AC output circuit breaker.

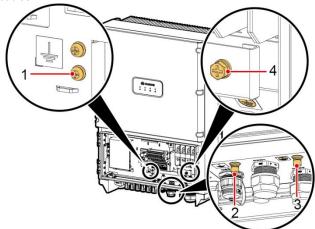
2. Open the maintenance compartment door and adjust the support bar.



3. Remove the AC terminal cover and set it aside.



4. Install ground cables.

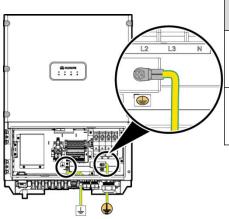


Ground Point	Meaning	Ground Point Screw Model	Connection
1	PV side ground points	M4	Connect either of the two ground
2		M6	points for PV side grounding.
3	Protection ground points	M6	Connect either of the two ground
4		IVIO	points for protective grounding.

MOTE

- 1. Select ground points for PV side grounding and protective grounding based on the principle of easy operation.
- It is recommended that 8 AWG outdoor copper-core cables be used as ground cables. Ground cables must be securely connected.
- 3. It is recommended that ground cables of the inverter be connected to the near end.
- 4. To prevent corrosion, apply silica gel or paint to the PE terminal after connecting the ground cables.

Installing Ground Cables (Ground Points 1 and 4 Are Used as an Example)



	Ground Point	OT Terminal	Tightening Torque
\	1	The screw specification is M4. The specification of the cable that can be connected is 8 AWG.	1.2 N·m
/	4	The screw specification is M6. The specification of the cable that can be connected is 8 AWG.	5 N·m

NOTE

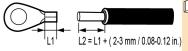
- Connect the ground cable to the **GND** waterproof cable connector at the inverter bottom for PV side grounding.
- Connect the ground cable to the AC OUTPUT waterproof cable connector at the inverter bottom for protective grounding.

2.2 Installing AC Output Power Cables

Cable Type	Cable Quantity	Recommended Cable Specifications
A single cable	Four (L1, L2, L3, and N)	6 AWG

MOTE

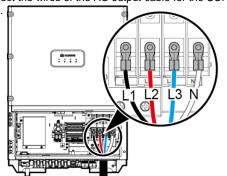
- 1. UL1015 copper-core cables that can withstand 105° C (221° F) are recommended.
- 2. The table lists only the recommended cable specifications. For more information about cable specifications, see the SUN2000-(25KTL, 30KTL)-US User Manual.
- 3. It is recommended that the AC output cable be routed through a pipe for protection. The maximum pipe outer diameter allowed is 40.5 mm (1.59 in.).
- Prepare an AC output power cable. Use hydraulic pliers to crimp the conductor part of the OT terminal and cover the crimping area with heat shrink tubing or PVC insulation tape.



NOTE

- The OT terminal screw hole specifications are M6. The maximum specifications of cables that can be connected are 6 AWG.
- 2. If heat shrink tubing is used, put it through the power cable and then crimp the OT terminal.
- 2. Remove the **AC OUTPUT** waterproof cable connector.
- 3. Route the prepared AC output power cable through the cable routing pipe.
- 4. Route the AC output cable and the cable routing pipe through the AC OUTPUT hole.

5. Connect the wires of the AC output cable for the SUN2000 to L1, L2, L3, and N on the AC terminal block.



M6 (4 PCS) 5 N·m

!\ NOTICE

- The AC output power cable must be secured to a torque that does not exceed 6 N·m. Otherwise, the AC terminal block may be damaged.
- Ensure that the AC output power cable is securely connected.
 Otherwise, the inverter may fail to run or the terminal block may be damaged after the inverter operates.

6. Secure the cable routing pipe.

2.3 Installing DC Input Power Cables

1 2	3 4	5 6
MPPT1	MPPT2	MPPT3

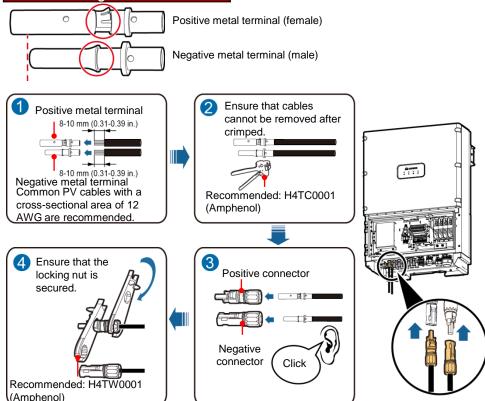
Optional DC input terminals

Number of Inputs	SUN2000-(25KTL, 30KTL)-US	
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	

NOTE

Routes 1, 2, 3, 4, 5, and 6 are defined from left to right.

Positive and negative metal terminals



NOTICE

- Before connecting DC input power cables, mark the polarities on the cables to ensure that the cables are connected correctly. If the cables are connected incorrectly, the device may be damaged.
- Before connecting the DC connector to the inverter, measure the voltage of DC input power cables using a multimeter. Ensure that the voltage of each string is within the specified range (varies depending on the actual situation) and check that the polarities of the DC input power cables are correct.
- 3. The open-circuit voltage of each DC input is always lower than or equal to 1000 V DC.
- 4. Check that DC input power cables will not be disconnected by pulling them.

2.4 Installing RS485 Communications Cables

⚠ NOTICE

When routing communications cables, ensure that communications cables are separated from power cables and away from interfering source to prevent communication from being affected.

NOTE

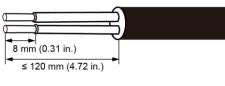
- RS485 communications cables can be connected to the terminal block or RJ45 ports. Connecting to the terminal block is recommended.
- 2. It is recommended that the RS485 communications cable be routed through a pipe for protection. The maximum pipe outer diameter allowed is 25.5 mm (1.00 in.).
- 3. Before connecting cables, remove the waterproof cable connector from the corresponding position.

Method 1: Connecting to the **Terminal Block (Recommended)**

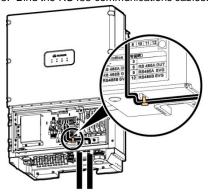
The DJYP2VP2-22 2*2*1 cable or a communications cable with a wire sectional area of 1 mm² (0.00155 in.2) and external diameter of 14-18 mm (0.55-0.71 in.) is recommended.

1. Peel off the RS485 communications cables.

2. Connect the RS485 communications cables.



3. Bind the RS485 communications cables.





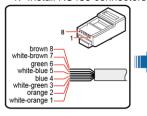
- Connect the communications cables to the COM1 and COM2 holes at the bottom of the inverter.
- 2. Connect the input end to terminals 5 and 7 on the terminal block, and connect the output end to terminals 6 and 8 on the terminal block. Connect the shield layer to the ground point.
- 3. Use an OT terminal (M4 screw) to connect the shield layer.

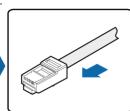
4. Secure the cable routing pipe.

Method 2: Connecting to RJ45 Ports

You are advised to use a CAT 5E outdoor shielded network cable with a diameter less than 9 mm (0.35 in.) and internal resistance no greater than 1.5 ohms/10 m (1.5 ohms/393.70 in.).

1. Install RS485 connectors.

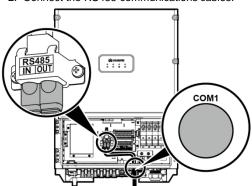




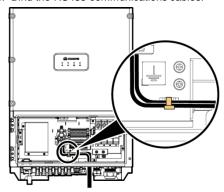
The figure shows the connector when the surface without the fastener faces upwards. The cable sequence numbers and pins are defined as follows:

No.	Pin Definition
1	RS485A, RS485 differential signal +
2	RS485B, RS485 differential signal -
3	NC
4	RS485A, RS485 differential signal +
5	RS485B, RS485 differential signal -
6	NC
7	NC
8	NC

2. Connect the RS485 communications cables.



3. Bind the RS485 communications cables.



4. Secure the cable routing pipe.

NOTICE

- 1. Route the network cables into the **COM1** hole at the bottom of the inverter.
- Insert the connectors into the RS485 IN and RS485 OUT ports in the maintenance compartment of the inverter.
- 3. Block the unused **COM2** waterproof cable connector with waterproof plugs.

Installation Verification 1. The SUN2000 is installed correctly and securely. Yes □ No □ 2. All screws, especially the screws used for electrical connections, are tightened. Yes ☐ No ☐ All circuit breakers are switched to OFF. Yes □ No □ 4. Cables connected are not damaged. Yes □ No □ 5. Ground cables are connected correctly and securely, with no open circuit or Yes □ No □ short-circuit. 6. AC output power cables are connected correctly and securely, with no open Yes □ No □ circuit or short-circuit. 7. DC input power cables are connected correctly and securely, with no open Yes □ No □ circuit or short-circuit. 8. The DC input voltage is not higher than 1000 V and meets the local voltage Yes □ No □ range requirements. RS485 communications cables are connected correctly and securely. Yes □ No □ Yes □ No □ 10. Idle DC input terminals are sealed. 11. Idle USB and RS485 ports and waterproof connectors are plugged with Yes □ No □ waterproof plugs.

♠ NOTICE

After the verification, reinstall the AC terminal cover, adjust the support bar, and close the maintenance compartment door. Then, tighten the two screws on the door to a torque of 4 N·m. Check that the maintenance compartment door is locked.

4 System Power-on

- 1. Switch on the AC circuit breaker between the inverter and the power grid.
- 2. Press **DC SWITCH** at the bottom of the inverter and rotate it to the **ON** position.
- 3. (Optional) Measure the temperatures at the joints between the DC terminals and the connectors using a thermometer.
- 4. Observe the LED indicators to check the inverter operating status.

Indicator	Status		Meaning
PV connection	Steady green		At least one PV string is properly connected, and the DC voltage exceeds 200 V.
indicator	Off		The inverter is disconnected from all PV strings.
	Steady green		The inverter is grid-tied.
Grid-tie indicator	Off		The inverter is not grid-tied.
	Blinking green (on for 0.5s and off for 0.5s)		The inverter is communicating properly.
Communication indicator	Off		The inverter has failed to communicate.
	Alarm state	Blinking red slowly (on for 1s and then off for 4s)	The inverter has generated a warning.
		Blinking red fast (on for 0.5s and then off for 0.5s)	The inverter has generated a minor alarm.
Alarm/ Maintenance		Steady red	The inverter has generated a major alarm.
indicator	Local maintenance state	Blinking green slowly (on for 1s and then off for 1s)	Local maintenance is in progress.
		Blinking green fast (on for 0.125s and off for 0.125s)	Local maintenance has failed.
		Steady green	Local maintenance is successful.

5 SUN2000 APP

MOTE

- The SUN2000 application is a mobile application that enables the SUN2000 to communicate
 with the SUN2000 monitoring system through a USB cable to query alarms, configure
 parameters, and perform routine maintenance. The mobile application is a convenient platform
 for monitoring and maintenance. The mobile application name is SUN2000.
- 2. Mobile operating system: Android 4.0 or later.
- Access the Huawei app store (http://appstore.huawei.com) or Google Play (https://play.google.com), search for SUN2000, and download the SUN2000 APP software package.
- The SUN2000 communicates with its mobile application through a USB cable connected over the USB port.



⚠ NOTICE

- 1. The password is the password used for logging in to the SUN2000 to which the app is connected. This password is used only when the SUN2000 is connected to the app.
- The initial password for Common User, Advanced User, and Special User is 00000a. Use the initial password to log in to the inverter for the first time and change the password immediately to ensure account security.
- 3. During the login, if an incorrect password is entered for five consecutive times (the interval between two consecutive invalid password entries is less than 2 minutes), the account will be locked for 10 minutes.

NOTE

- 1. Tap to return to the login screen.
- Inverter grid connection setup requires no parameter setting by default. The parameters can be adjusted based on site requirements. For parameter settings, see the SUN2000-(25KTL, 30KTL)-US User Manual.

6 FAQ

6.1 Why the DC Switch Is Designed with a Hole?

The DC switch is designed with a hole for safety purposes. When maintenance needs to be performed on the inverter, the DC switch must be turned off. To prevent misoperations of turning on the DC switch, the switch must be locked. The design with a hole enables the DC switch to be locked.

What Is the Purpose of Measuring the Temperatures at the Joints Between DC terminals and Connectors Using a Point-Test Thermometer?

After the inverter has been running for a period, use a point-test thermometer to measure the temperatures at the joints between DC terminals and connectors to check that the DC terminals are in good contact.

Appendix: Power Grid Code Mapping Table

No.	Power Grid Standard Code	Country and Condition
1	IEEE 1547-MV480	US medium-voltage power grid

NOTE

The grid code is subject to change. It is for your reference only.

For more information, refer to the channels provided on the following page.

Scan here for technical support (carrier):

Apple Store



Google Play



Huawei App Store



Scan here for more documents:

Support



WeChat



You can also log in to Huawei technical support website: http://support.huawei.com