



USER MANUAL



On-grid PV Inverter

SPT15KTL, SPT17KTL, SPT20KTL, SPT22KTL, SPT25KTL

Table of Contents

Important Safety Instructions	1
Disclaimers	5
1 General Information	6
1.1 Overview	6
1.2 Naming rules	7
1.3 Appearance	7
1.4 System wiring diagram	8
1.5 Indicators	10
1.6 Electrical block diagram	11
2 Installation Instructions	12
2.1 Preparations	12
2.2 Procedures	13
3 Electrical Connection	14
3.1 Cables connection	14
3.1.1 Connecting the ground protection cable	14
3.1.2 Connecting AC output cable	15
3.1.3 Connecting PV	17
3.2 Communication ports	20
3.2.1 USB communication port	20
3.2.2 COM port	21
4 App Remote Monitoring	22
4.1 Download APP	22
4.2 Sign up & Log in	22
4.2.1 Sign up	22
4.2.2 Log in	23
4.2.3 Reset password	24

4.3 One Click Add gateways and devices	25
4.4 Gateway details	31
5 System Commissioning	33
5.1 Check before powering on	33
5.2 Inverter running	33
6 System Alarm and Maintenance	34
6.1 Faults instructions	34
6.2 Alarm instructions	36
6.3 Routine maintenance	37
7 Technical Specifications	38

Important Safety Instructions

Please keep this manual for future reference.

This manual contains instructions on safety, installation, and operation for SPT15-25KTL On-grid PV Inverter (hereinafter referred to as “inverter”).

1. Explanation of symbols

To ensure the user's personal and property safety while using this product, relevant information is provided in the manual and highlighted with the following symbols. Please read the relevant texts carefully when you encounter the following symbols in the manual.



DANGER

Indicates a high-level hazard that, if not avoided, will result in serious injury or death.



WARNING

Indicates a medium-level hazard that, if not avoided, could result in death or serious injury.



CAUTION

Indicates a low-level hazard that, if not avoided, could result in minor or moderate injury.

NOTICE

Indicates an important reminder during the operation which, if ignored, may result in an equipment error alarm.

Tip

Indicates recommendation for reference.



Read through the user manual before any operations.

2. Requirements for professional and technical personnel

- Professionally trained.
- Familiar with related safety regulations of the electrical system.
- Read this manual carefully and master the related safety instructions.

3. Professional and technical personnel are allowed to

- Install the inverter to a specified position.
- Conduct trial operations for the inverter.
- Operate and maintain the inverter.

4. Safety precautions before installation



DANGER

- When installing the inverter, please evaluate whether there is a risk of electric arc in the operation area.
- Keep the inverter out of reach of children.

NOTICE

- After receiving the inverter, please check if there is any damage during transportation. If you find any problem, please contact the transportation company, our local distributor or our company in time.
- When placing or moving the inverter, please follow the instructions in the manual.

5. Safety precautions for mechanical installation



DANGER

Before installation, make sure there is no electrical connection to the inverter.

NOTICE

- Ensure enough heat dissipation space for installing the inverter. Do not place flammable or explosive objects around the inverter, or install the inverter on the heat-intolerant buildings, avoid direct sunlight.
- The inverter must be placed horizontally on the level floor.

6. Safety precautions for electrical connection



DANGER

Both the utility input and AC output are of high voltage, do not touch the wiring to avoid electric shock.



WARNING

Check whether wiring is tight to avoid the danger of heat accumulation caused by loose connection.

NOTICE

The shell of the inverter is connected to the ground, and the cross-sectional area of the wire connecting the protective ground terminal to the ground should not be less than 4mm².

7. Safety precautions for inverter operation



WARNING

- When the inverter is working, it generates a lot of heat and the shell temperature is very high, do not touch it and keep it far away from the materials and equipment that are susceptible to the high temperature.
- When the inverter is working, do not open its shell for any operation.
- When troubleshooting faults that affect the safety performance of the inverter or disconnecting DC input, turn off the power switch of the inverter and wait until the indicator is completely off.

8. The dangerous operations that could cause electric arc, fire and explosion inside the inverter:

- Touch the end of a potentially live cable that has not been insulated;
- Touch the wiring copper busbars, terminals or internal components of the inverter that might be live;
- The connection of the power cable is loose;
- Screws or other parts accidentally fall into the inverter;
- Incorrect operation by untrained non-professional personnel.



DANGER

Once an accident occurs, it must be handled by professionals. Incorrect operation would cause a more serious accident.

9. Safety precautions for stopping the inverter

- Firstly, disconnect the circuit breakers of PV input and AC output, and then turn off the DC switch on the inverter.
- The internal conductive components should not be touched until the inverter has been disconnected from the input and output cables for 10 minutes.
- The inverter does not contain repair parts internally, if you need repair service, please contact our after-sales service personnel.



DANGER

It's dangerous to touch or open the shell for maintenance when the equipment is powered off within 10 minutes.

10. Safety precautions for inverter maintenance

- It is recommended to test the inverter with testing equipment to ensure there is no voltage or current.
- When conducting the electrical connection and maintenance, please post a temporary warning sign or put up barriers to prevent unrelated personnel from entering the electrical connection or maintenance area.
- Improper maintenance of the inverter may cause injury to personnel or damage to the equipment.
- To avoid static damage, it is recommended to wear an anti-static wristband or to avoid unnecessary contact with the circuit board.



CAUTION

The safety mark, warning label and rating plate on the inverter should be clearly visible, not removed or covered.

Disclaimers

The warranty does not apply to the following conditions:

- Damage caused by improper use or inappropriate environments (Do not place flammable or explosive objects around the inverter, or install the inverter on the heat-intolerant buildings, avoid direct sunlight).
- The actual current/voltage/power exceeds the limit value of the inverter.
- Damage caused by working temperature exceeding the rated temperature range.
- Electric arc, fire, explosion and other accidents caused by failure to follow the inverter labels or manual instructions.
- Unauthorized disassembly and maintenance of the inverter.
- Damage caused by force majeure.
- Damage occurred during transportation or loading/unloading the inverter.

1 General Information

1.1 Overview

SPT15-25KTL series is a on-grid PV inverter that can directly convert DC generated by PV panel into AC and feed power back to grid. The PV input adopts advanced MPPT control algorithm, which can track the maximum power point of the PV array in real time. The inverter output can meet the grid requirements in different regions and directly realizes the on-grid PV power feeding.

The series selects key components of high power density and long service life, providing continuous, full and stable power output; with multiple human-machine interaction solutions available, it is convenient to control the real-time parameters. At the same time, its EMC characteristics make it suitable for applications with high power quality requirements.

Features

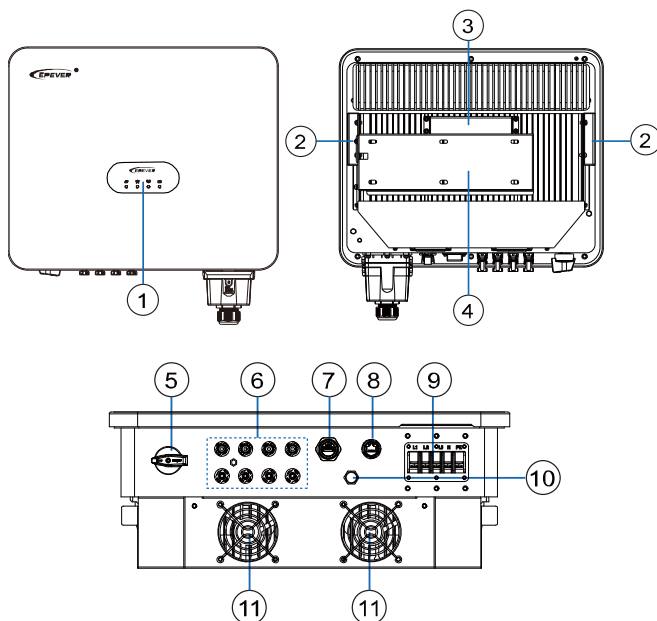
- Fully digital voltage and current dual-loop control with fast response speed and high stability.
- Excellent EMC characteristics, suitable for applications with high power quality requirements.
- Selecting components of high power density and long service life to ensure the stability.
- Supporting multiple PV inputs to improve PV utilization.
- Equipped with circuit breakers at the PV input terminal to ensure the safe running of the equipment.
- Maximum DC input voltage of 1,100VDC, string maximum input current of 15A.
- 110% long term overload.
- Equipped with circuit breakers at the AC output terminal to disconnect from the grid when in failure.
- USB communication port with optional GPRS and WiFi modules to realize remote monitoring.
- Full failure detection and protection functions to ensure the reliable and stable operation.
- High protection level of IP65, suitable for harsh environments such as salt spray and humidity.
- Operating temperature ranging from -30℃ to 60℃ to offer a wider scope of application.
- Intelligent air cooling.

1.2 Naming rules

SP T 20K TL

- Transformerless design
- Rated output power: 20K indicates 20,000W
- T indicates Three phase inverter
- SP (Solar Power) series

1.3 Appearance



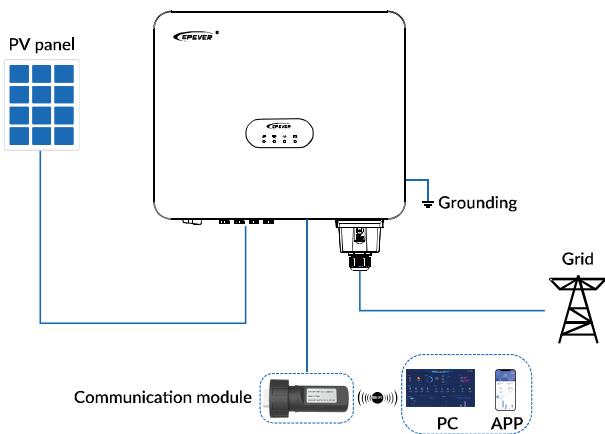
No.	Description	No.	Description
1	Indicator	7	USB communication port (See 3.2 Communication connection)

2	Handle	8	RS485 communication port ⁽¹⁾ (See 3.2 Communication connection)
3	Wall mounting plate	9	AC output terminal
4	Wall mounting bracket	10	Air valve
5	DC Switch	11	Fan ⁽²⁾
6	PV input terminal		

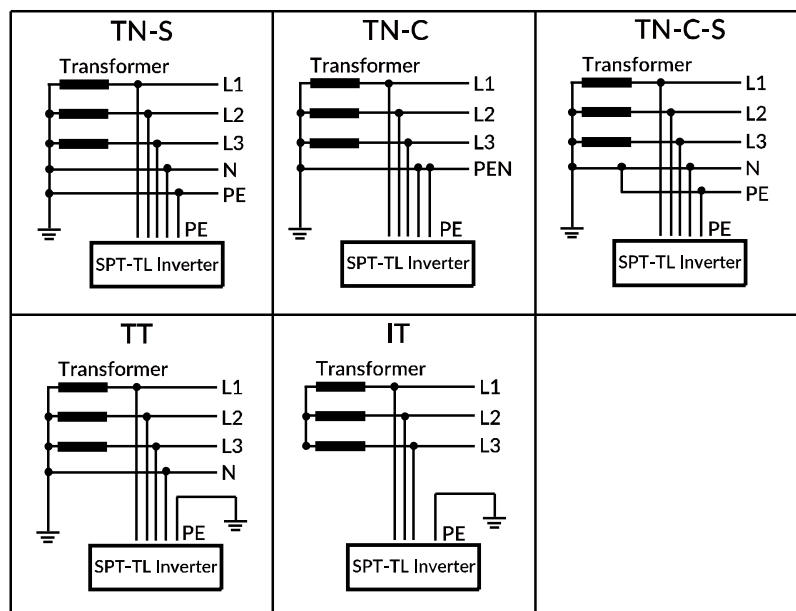
(1) Remote monitoring can be realized by RS485 communication port and monitoring software.

(2) Only some models are equipped with fan, please refer to the actual product appearance.

1.4 System wiring diagram



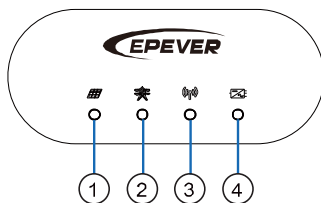
- Supported grids



NOTICE

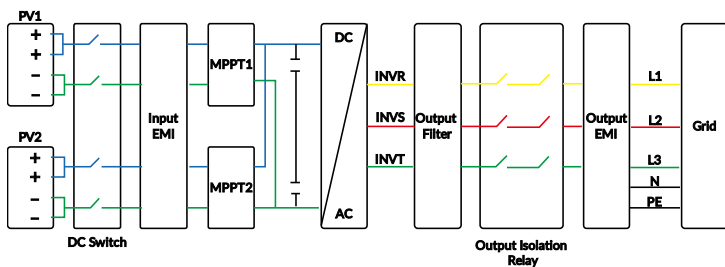
The DC input for this inverter series must be PV panel, it is strictly prohibited to use DC source or battery for replacement, and we are not responsible for any equipment damage or personal injury caused by this!

1.5 Indicators





No.	Name	Status	Description
1	Power/Operating indicator	Solid green	On-grid power generation
		Flashing green every 0.5S	On-grid power generation stops, indicating the system is powered on only.
2	Alarm indicator	Flashing yellow every 0.5S	System alarm
		Off	Alarm is cleared.
3	Fault indicator	Solid red	System fault
		Off	Fault is cleared.
4	Communication indicator	Solid green	Normal external communication
		Off	Interrupted external communication
		Flashing green every 0.5S	Firmware is upgrading.

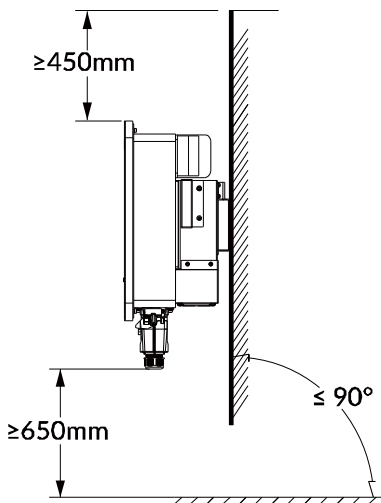
1.6 Electrical block diagram



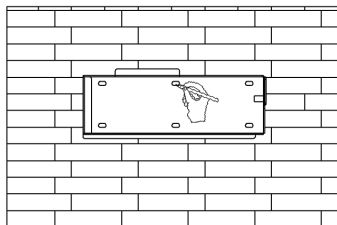
2 Installation Instructions

2.1 Preparations

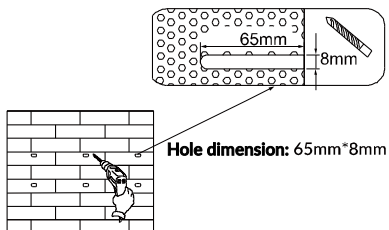
 Prohibited installation environments	Do not install the inverter in the flammable, explosive, dust accumulative or other harsh environments.
	Do not install the inverter on a hollow brick wall.
	Do not place the inverter close to flammable materials or gases.
 Recommended installation environments	For wall mounting, it is recommended that the inverter be fixed to concrete and solid brick walls.
	When installing the inverter, please leave enough space around it for heat dissipation, the lower, left and right clearance is not less than 650mm and the upper clearance is not less than 450mm.
	The inclination angle between the inverter and the horizontal ground should be less than or equal to 90 degrees.
	When drilling holes in the wall, avoid plumbing pipelines and electrical wiring.



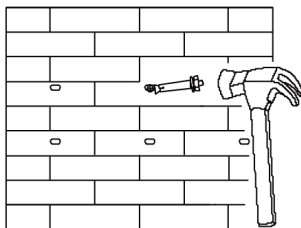
2.2 Procedures



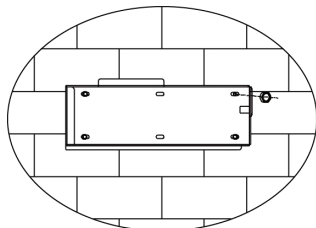
Step 1: Mark the installation position with the wall mounting plate.



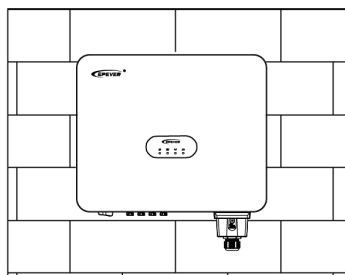
Step 2: Drill the holes in the marked positions with an electric drill.



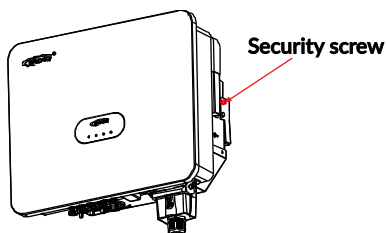
Step 3: Insert the expansion bolts into the holes.



Step 4: Fix the wall mounting bracket with screws.

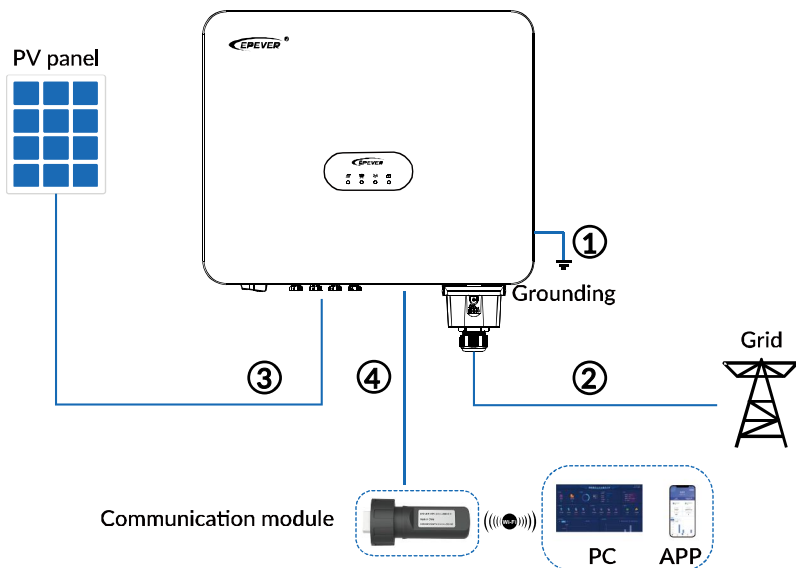


Step 5: Place the inverter on the wall mounting bracket.



Step 6: Tighten the inverter with the included security screws.

3 Electrical Connection



1. Follow the wiring sequence of “1. Grounding > 2. Grid > 3. PV panel > 4. Communication modules”.
2. Disconnect all the AC and DC switches before wiring.

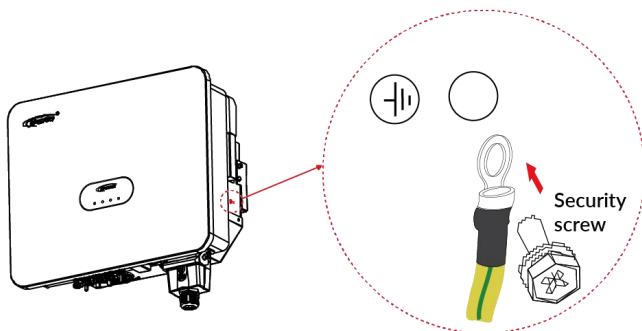
3.1 Cables connection

3.1.1 Connecting the ground protection cable

NOTICE

- The inverter is designed without a transformer. In this case, both the positive and negative terminals of the PV array on the inverter cannot be grounded, otherwise the inverter failure will occur!
- Both the positive and negative terminals of the PV array on the inverter cannot be grounded, otherwise the inverter failure will occur.
- The ground terminal on the side of the inverter must be grounded correctly.

In the PV power generation system, all non-current-carrying metal components (e.g. brackets, shells of combiner box/distribution cabinet/inverter etc.) should be connected to the ground. Recommended ground cable specifications: $\geq 4\text{mm}^2$, yellow-green cable.



3.1.2 Connecting AC output cable

Connect the inverter with AC distribution cabinet or grid by AC output cable; the AC output cable connection must comply with the requirements of the local grid service provider. Recommended specifications for AC output cable and Earth-Leakage Circuit Breaker (ELCB):

Product Model	Cross-sectional area of the copper core (mm^2)	Earth-Leakage Circuit Breaker (ELCB) Specifications
SPT15KTL	6-12	40A/230V/3P, leakage protection, 0.1A
SPT17KTL	6-12	40A/230V/3P, leakage protection, 0.1A
SPT20KTL	6-12	50A/230V/3P, leakage protection, 0.1A
SPT22KTL	7-14	63A/230V/3P, leakage protection, 0.1A
SPT25KTL	7-14	63A/230V/3P, leakage protection, 0.1A

NOTICE

- It is prohibited for multiple inverters to share the same circuit breaker.
- It is prohibited to connect the load between the inverter and the circuit breaker. The ground terminal on the side of the inverter must be grounded correctly.
- When using the smallest recommended cable specifications for each model, ensure that the transmission distance is less than 5m. If the transmission distance is greater than or equal to 5m, the cable specifications need to be appropriately increased to reduce the cable voltage drop and improve system performance.

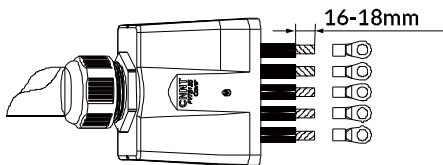
The connection steps are as follows:

Step 1: Take the AC output wiring box off the inverter.

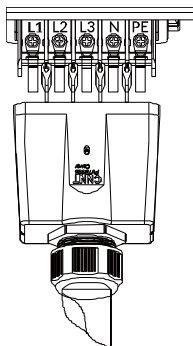
Step 2: Thread the AC output cable (recommended size: 25–35mm²) through the wiring box, the cable length is subject to actual situation.

Step 3: Remove the insulation layer of 16–18mm at one end of the AC output cable.

Step 4: Insert the stripped cable end to the ring terminal and crimp them tightly with crimping pliers.



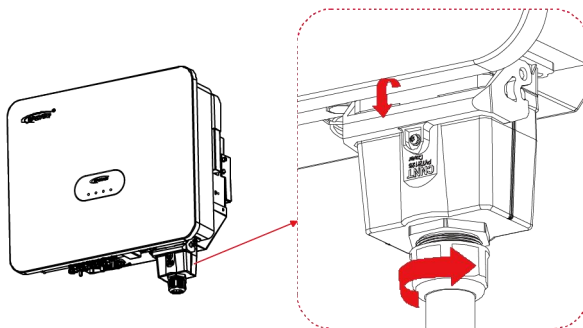
Step 5: Connect the ring terminal to the inverter terminal.



L1	L2	L3	N	PE
Yellow	Green	Red	Blue	Yellow-green

Step 6: Fasten the AC waterproof cover and lock the screws.

Step 7: Rotate clockwise and tighten the waterproof connector.



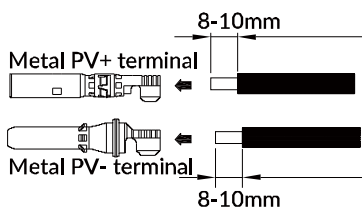
3.1.3 Connecting PV

The connection steps are as follows:

Step 1: Prepare PV input cable, the cable length and quantity are subject to actual situation.

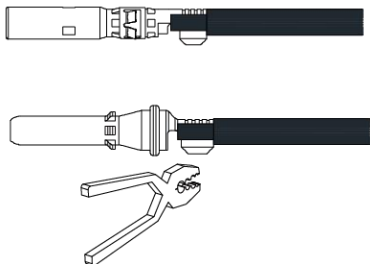
Step 2: Remove the insulation layer of 8–10mm at one end of the PV input cable.

Step 3: Install the stripped cable end to the metal PV positive/negative terminals respectively as illustrated below.

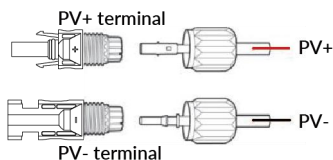


PV+	PV-
12AWG (Red)	12AWG (Black)

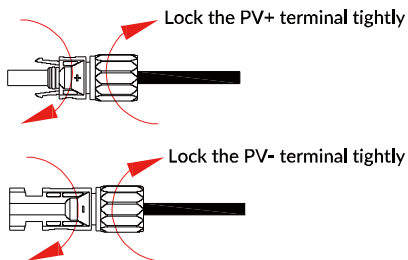
Step 4: Crimp the PV input cable with the metal terminals tightly with crimping pliers.



Step 5: Thread the crimped PV positive and negative cables through the locking nut and insert them into the corresponding plastic housings until you hear a "click" sound, which indicates that the metal cores have been snapped into place. Please pay attention to the positive and negative terminals.

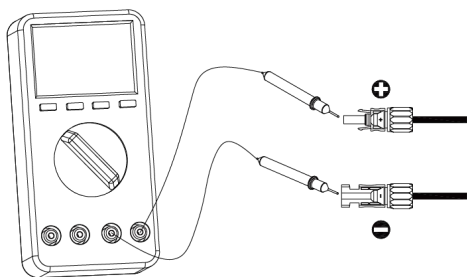


Step 6: Use the PV assembly/disassembly tool (optional accessory) to lock the nut tightly, pull the PV cables gently to ensure the terminal is not wobbly or disconnected.

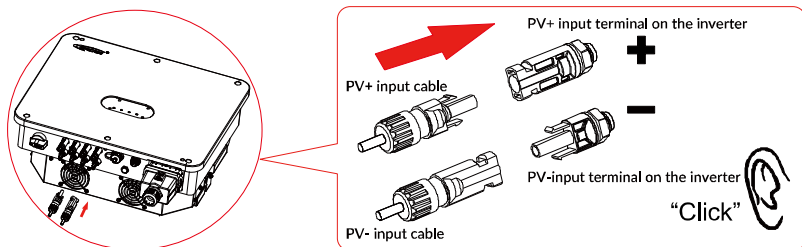


PV assembly/disassembly tool

Step 7: Please use multimeter to check the open-circuit voltage between the PV+ and PV- terminals to ensure the PV cable polarities are correct and the open-circuit voltage is less than or equal to 1,100VDC.



Step 8: Connect the PV input cable to the inverter terminal.



The recommended specifications of DC input cable: copper core cross-sectional area: 2.5–6mm², maximum withstand voltage: $\geq 1,100\text{VDC}$. When using the smallest recommended cable specifications for each model, ensure that the transmission distance is less than 5m. If the transmission distance is greater than or equal to 5m, the cable specifications need to be appropriately increased to reduce the cable voltage drop and improve system performance.

NOTICE

- Before installing the PV input terminals, ensure that the PV input voltage and current do not exceed the inverter limits.
- When installing the PV input terminals, pay attention to the positive and negative terminals.
- When the terminals are connected, you can hear the “click” sound. After terminals connection is completed, pull the PV cables gently to ensure the terminal is not wobbly or disconnected.

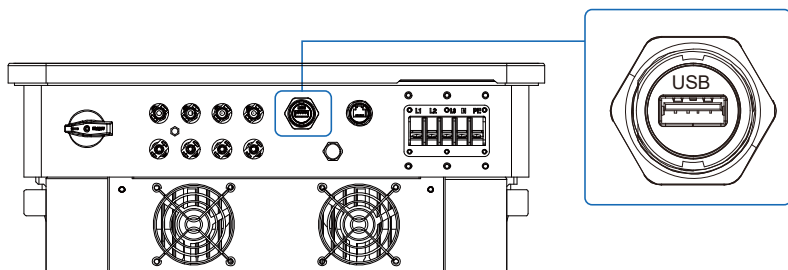
3.2 Communication ports

3.2.1 USB communication port

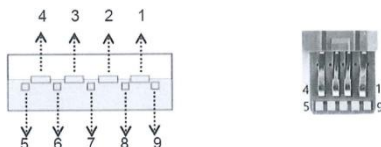
- Functions of USB communication port

Remote monitoring can be realized on the APP by connecting the WiFi modules with the USB communication port, or the remote data collection can be realized by connecting the GPRS modules, which can also be used for inverter upgrades and data monitoring.

- The position of the USB communication port



- The pins definition of the USB communication port



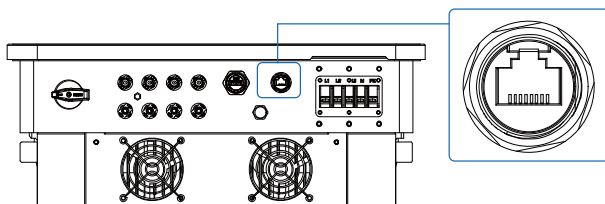
Pin	Definition	Color	Description
1	VBUS	Red	Power (5VDC/1.2A)
2/3/7/8/9	Reserved	Reserved	Reserved
4	GND	Black	GND
5	RS485-A1	Blue	RS485-A1 (to transfer data with cloud platform, APP, PC software, display screen etc.)
6	RS485-B1	Yellow	RS485-B1 (to transfer data with cloud platform, APP, PC software, display screen etc.)

3.2.2 COM port

- Functions of COM port

Remote monitoring can be realized by RS485 communication port and monitoring software.

- The pins definition of COM port (RJ45)



Pin	Definition	Function	Pin	Definition	Function
1	INV_OFF	Emergency shutdown signal (short-circuit with pin 4 to shut down)	5	GND_OUT	Power supply for external communication equipment
2	DRM0	DRM0 function (If the impedance between pin 2 and pin 3 is greater than 20k Ω or short-circuited, the inverter stops running)	6	+12V_OUT	
3	GND.S	Power supply for external communication equipment	7	RS485-B	Local monitoring unit 485 communication
4	+5V.S		8	RS485-A	

4 App Remote Monitoring

After adding the SPT15-25KTL series to the cloud platform through App or Web, users can remotely monitor and set parameters for the onsite equipment by App. It is convenient for users to keep track of the working status of the equipment at anytime and anywhere to improve work efficiency. The following is an example of connecting SPT15-25KTL series to WiFi module and remote monitoring by App.

4.1 Download APP

iOS: Scan the QR code or search for “Solar Guardian” in the App Store to download the APP.



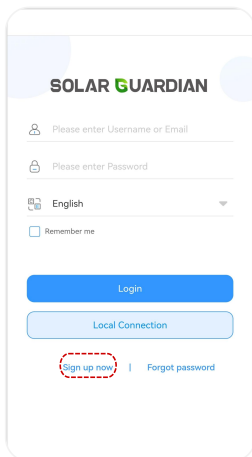
Android platform: Scan the QR code to download the App.



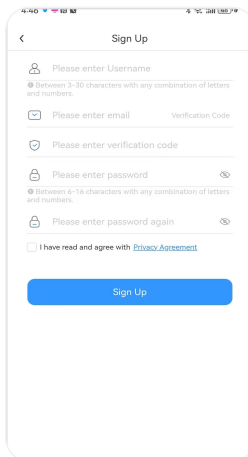
4.2 Sign up & Log in

4.2.1 Sign up

End users can register a new account for free on the cell phone.



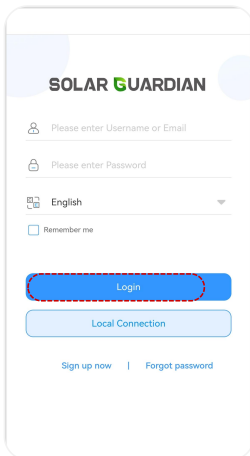
Step 1: Click “Sign up now” on the initial login interface of the APP.



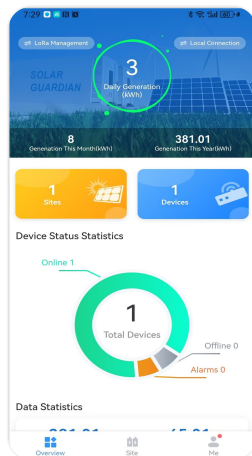
Step 2: Enter your username, email address or mobile phone number, verification code, password and reconfirm password; check and

agree to the privacy policy; click "Register" to complete the registration of the new account.

4.2.2 Login



Step 1: Open the APP, enter your account name and password; select the language, check "Remember me" (so that you can log in quickly next time), and click "Login" to enter the APP main interface.

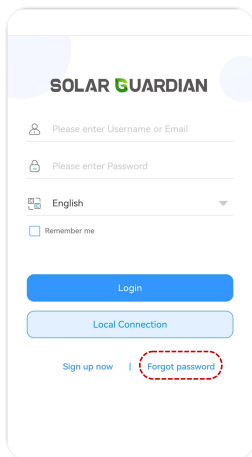


Step 2: The main interface of the APP includes "Overview, Site, Me".

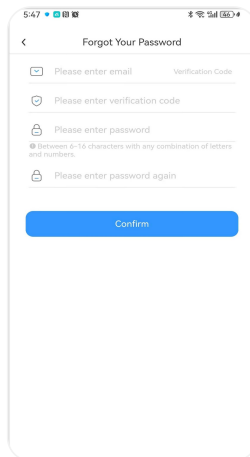
Note: The App data and the WEB data are synchronized in real time, and the operations performed through the APP will also be synchronized to the WEB.

4.2.3 Reset password

If you forget your login password for your account, you can reset your password by the following steps.



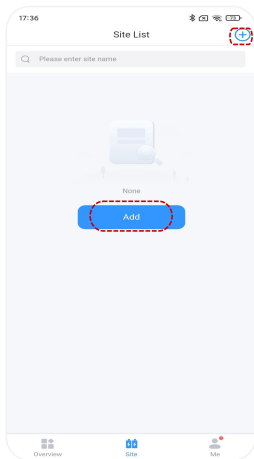
Step 1: Click the "Forgot password" in the initial interface.




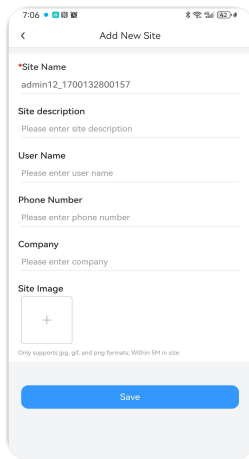
Step 2: Enter the new password, mobile phone number or email address, click "Verification Code", then enter the verification code received in your phone or email, click "Confirm", and the new password is set successfully.

4.3 One Click Add gateways and devices

The gateways and devices should be correctly connected and powered on before adding them by the “One Click Add” on the App (The following is an example of adding WiFi module).

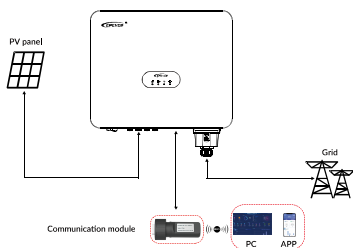


Step 1: After logging in, enter “Site” interface, click “Add” or  icon to enter “Add New Site” interface.

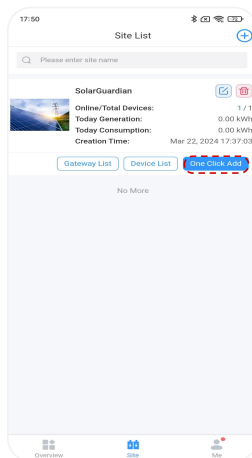


Step 2: Fill in the “Site Name” (or use the default site name of the App) and click “Save” to complete the creation of the site after filling in the remaining site information (optional).

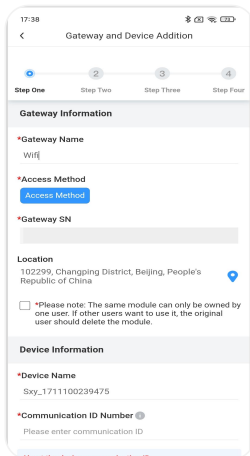
Note: Items marked with ★ must be filled in. Items not marked with ★ are optional. If you do not upload the site picture, it will be displayed as the default picture. Otherwise, it will be displayed as your uploaded picture.



Step 3: Connect the WiFi module to the USB communication port on the inverter (the USB-A 3.0 WiFi module can connect with the inverter directly, for other communication modules, please purchase the appropriate communication cables according to the communication port type).



Step 4: Click "One Click Add" in the site interface to add gateways and devices under this site.

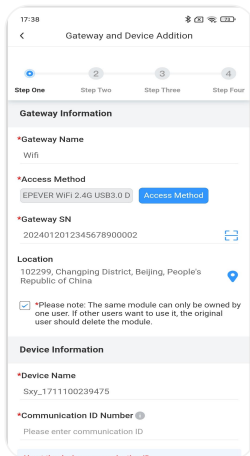


Step 5: Enter “Gateway and Device Addition” interface, fill in the “Gateway Name” (or use default name of the App), click “Access Method” to enter “Internet Gateway Select” interface.



Step 6: Select “EPEVER WiFi 2.4G USB3.0 D”, it will automatically return to the “Gateway and Device Addition” interface in **Step 5**. Scan the QR code⁽¹⁾ on the gateway label or manually enter the 22-digit gateway SN; Select the “Location” (optional), check the information prompt.

(1) If you enter the “Gateway SN” by scanning the QR code, please allow the App to access camera on your phone to scan the QR code on the gateway. The system will verify the gateway SN automatically and only the gateway that have been added to the production management system can be added to the cloud platform successfully. If you are prompted with "Gateway already exists", please contact technical support for assistance.

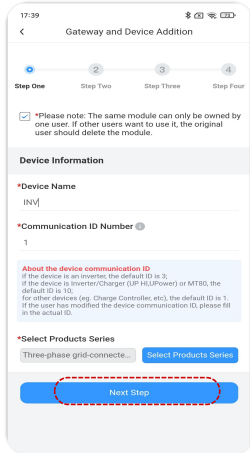


Step 7: On the “Gateway and Device Addition” interface, fill in the “Device Name” (or use default name of the App) and “Communication ID Number”, click “Select Products Series” to enter the device selection interface.

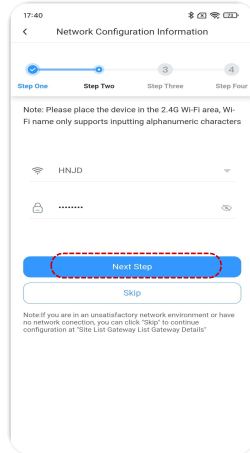


Step 8: Select the current connected device, it will automatically return to the “Gateway and Device Addition” interface in **Step 7**. If the “Next” button is grayed out and cannot be clicked. Please check whether the information filled in is correct or whether the required fields are completed.


(2) For device communication ID, the default ID is 3 for inverter, 10 for UP-HI or UPower, 1 for other devices. Please fill in the actual ID value if you have modified the device communication ID.

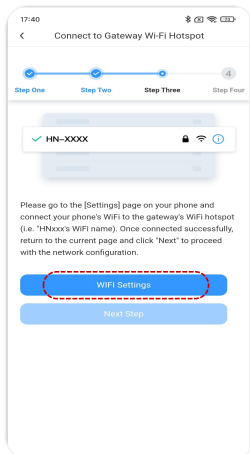


Step 9: When you have filled all the information, click "Next Step" to finish adding the gateway and devices, and enter the "Network Configuration Information" interface.

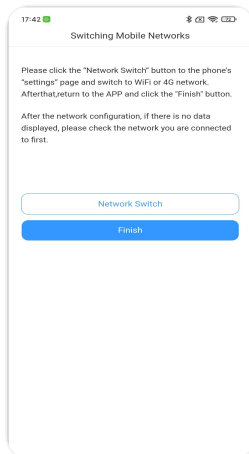


Step 10: Enter your local WiFi account and password and click "Next Step".

- If you are using an Android phone, click the WiFi icon to display the WiFi searched by the phone. If you are using an iPhone, you need to enter the WiFi name manually.
- If you need to check or verify if the WiFi password is correct, click  to enter the password in plain text.
- If the WiFi signal in the environment is weak or there is no network, you can click "Skip" to complete the network configuration in the gateway details later. Please refer to [4.4 Gateway details](#) for more details. If the network configuration of the WiFi module has not completed and cannot establish a connection with the cloud platform, the WiFi module will not be able to go online.

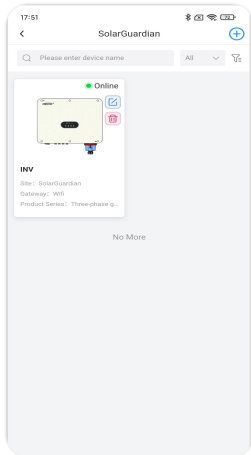


Step 11: Click "WiFi Settings" to connect your phone to the gateway WiFi (Name: HN_EPxxx, password: 12345678), return to the App when connection is successful. Click "Next Step" for network connection.

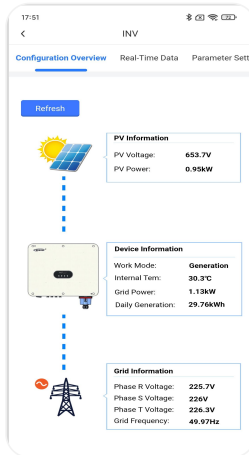


Step 12: Click "Network Switch" to return to the "Settings" interface of your phone, switch the phone to a WiFi network or 4G network that can access the Internet, and then click "Finish" to enter the device list.

- Ensure the phone GPS positioning is turned on and the APP is allowed to access the location, otherwise the phone cannot search for the hotspot of the WiFi module.
- The hotspot network name of EPEVER WIFI RJ45 A/B/C is HN_XXXXXX, and the hotspot network name of EPEVER WIFI RJ45 D is HN_EPXXXXXX. When connecting to the hotspot of the WiFi module for the first time, the default password is 12345678.
- The WiFi hotspot network does not have access to the Internet. When the phone asks whether to allow or trust the network, please allow or trust it. Otherwise, the connection to the WiFi hotspot will fail and you will be unable to proceed to the next step.

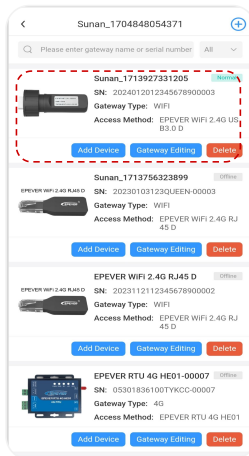
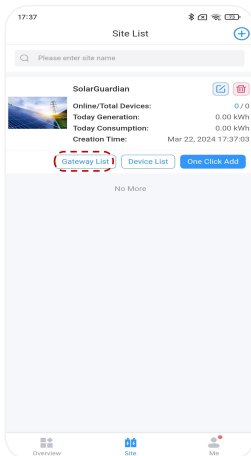


Step 13: When it is added, it will automatically switch to the “Device List”, click the device to view its real-time data.



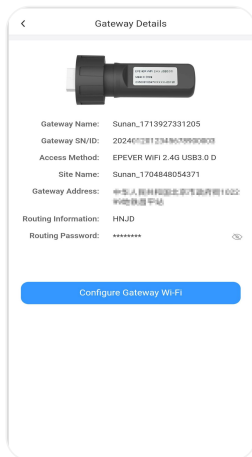
Step 14: Enter the device interface to view the real-time device data. The default interface is “Configuration Overview”.


4.4 Gateway details



Step 1: Enter the "Site List" interface and click on the "Gateway List" of a certain power station.

Step 2: Enter the "Gateway List" interface, click the gateway that you want to view.



Step 3: Enter the "Gateway Details" interface to view the related gateway information. After the network configuration of the WiFi module is completed, the WiFi name and password of the router are displayed. Click the  icon to switch to displaying the password in plain text to verify the correctness. Click "Configure Gateway WiFi" to enter the network configuration process, the network configuration of the WiFi module is completed or corrected.

5 System Commissioning

5.1 Check before powering on

- Whether the inverter is installed correctly and securely;
- Whether L1/L2/L3 (live wire), N (neutral wire) and PE (ground wire) of the AC grid are connected correctly;
- Whether PV input polarities are correct;
- Whether the communication or WiFi module is connected correctly and securely;
- Whether the “DC SWITCH” and all circuit breakers connected to the inverter are “OFF”.

5.2 Inverter running

NOTICE

Before powering on the inverter, please check whether the DC terminal voltage and AC terminal voltage are within the specified range of the inverter.

Operation steps:

Step 1: Connect the DC switch between the PV module and the inverter.

Step 2: Connect the switch between the AC grid and the inverter.

Step 3: Turn the “DC SWITCH” of the inverter to “ON”.

Step 4: Check the running status of the inverter by its LED indicators.

Note: Please refer to [1.5 Indicators](#) in the manual for LED indicator status.

6 System Alarm and Maintenance

6.1 Faults instructions

No.	Faults	Causes and measures
1	Inverter OverTemperature	Check whether there is any foreign object blocking the inverter fan inlet; check whether the ambient temperature of the inverter installation position exceeds the maximum ambient temperature. If the ambient temperature of the inverter installation position exceeds the maximum ambient temperature, please improve the ventilation and heat dissipation.
2	Boost Over Temperature	
3	Radiator Over Temperature	
4	Chassis Over Temperature	
5	DC Bus Voltage Imbalance	It is the internal fault of the inverter. Please disconnect the "DC Switch" of the inverter, wait for 5 minutes, then connect the "DC Switch" again, and check whether the fault has been cleared after restarting the inverter; if it is still not cleared, please contact the manufacturer.
6	DC Bus Over Voltage	
7	DC Component Fault	
8	DC Bus Under Voltage	
9	Relays Fault	
10	Hardware DC Bus Over Voltage	
11	Inverter Hardware Over Current	
12	COM Error (DSP with ARM)	
13	Output Current Imbalance	
14	PV Hardware Over Current	
15	Grid Over Voltage Fault	If it occurs occasionally, it might be a temporary grid failure, the fault will be automatically cleared after the grid resumes normal without manual intervention.
16	Grid Under Voltage Fault	If it occurs frequently, please check the grid voltage and frequency are within the specified range of the inverter. If not, please contact the manufacturer; if yes, please check if the connection between the AC circuit breaker and output cable is normal.
17	Grid Over Frequency Fault	

18	Grid Under Frequency Fault	If the grid voltage and frequency are within the specified range of the inverter, and the AC wiring is correct, the alarms still occurs frequently, please contact the manufacturer to modify the grid undervoltage and overvoltage protection value of the inverter after getting the approval from the local grid service provider.
19	Inverter Software Over Current	It is the internal fault of the inverter. Please disconnect the "DC Switch" of the inverter, wait for 5 minutes, then connect the "DC Switch" again, and check whether the fault has been cleared after restarting the inverter; if it is still not cleared, please contact the manufacturer.
20	Inverter SelfCheck Error	
21	Boost SelfCheck Error	
22	Param Config Failure	
23	Islanding Fault	
24	Inverter Over Voltage Fault	
25	Leakage Current Fault	<p>1. If it occurs occasionally, it may be caused by an accidental error of the external circuit, the inverter will automatically resume normal operation after the fault is cleared, without manual intervention.</p> <p>2. If it occurs frequently or the inverter cannot resume normal operation for a long time, please check whether the ground impedance of the PV string is too low and whether the insulation of the PV cable is damaged.</p>
26	Leakage Current Sensor Fault	It is the internal fault of the inverter. Please disconnect the "DC Switch" of the inverter, wait for 5 minutes, then connect the "DC Switch" again, and check whether the fault has been cleared after restarting the inverter; if it is still not cleared, please contact the manufacturer.
27	Leakage Current Consistency Error	
28	Voltage Consistency Error	
29	Insulation Resistance Low	Please check whether the ground impedance of the PV string is too low and whether the insulation of the PV cable is damaged. If it is still not cleared, please contact the manufacturer.
30	Grounding Warning	
31	PV1 Over Voltage	The PV array is misconfigured, with too many strings connected in series, and the open-circuit voltage is higher than the maximum operating voltage of the equipment.
32	PV2 Over Voltage	

33	COM Error (DSP with DSP)	It is the internal fault of the inverter. Please disconnect the "DC Switch" of the inverter, wait for 5 minutes, then connect the "DC Switch" again, and check whether the fault has been cleared after restarting the inverter; if it is still not cleared, please contact the manufacturer.
34	I2C EPROM (DSP)	
35	AFCI Error	Please check whether there is arcing or poor contact in the PV string wiring.
36	PV1 Reverse Connected	Please power off the equipment completely first before conducting the following operations: Check whether the PV polarities are connected in reverse, if yes, correct the PV polarities connection.
37	PV2 Reverse Connected	
28	PV1 Over Current	It is the internal fault of the inverter. Please disconnect the DC switch of the inverter, wait for 5 minutes, then connect the DC switch again, and check whether the fault has been cleared after restarting the inverter; if it is still not cleared, please contact the manufacturer.
39	PV2 Over Current	

6.2 Alarm instructions

No.	Alarms	Causes and measures
1	PV1 Short Circuit	Please power off the equipment completely first before conducting the following operations: Check whether the PV polarities are short circuited or connected in reverse, if yes, correct the PV polarities connection.
2	PV2 Short Circuit	
3	Surge Protection: DC SPD Warning	--
4	Surge Protection: AC SPD Warning	
5	User Shutdown	
6	Device Locking	
7	Out Fan 1 Stopped	Check whether there accumulated dust or dust on the inverter, and whether there are foreign objects blocking the fan at the fan inlet, if so, please improve the ambient ventilation and heat dissipation.
8	Out Fan 2 Stopped	
9	Out Fan 3 Stopped	

10	Out Fan 4 Stopped	
11	Out Fan 5 Stopped	
12	Inner Fan Stopped	

6.3 Routine maintenance

To maintain long-term working performance, it is recommended to have the following items inspected twice a year.

- Make sure the airflow around the inverter is not blocked, and remove dirt or debris from the fan.
- Check whether the exposed cables have been damaged by sunlight, friction with other surrounding objects, dryness, insects or rodents, etc., repair or replace the cables if necessary.
- Verify whether the indicator and display are consistent with the actual operation of the equipment, and note that corrective action should be taken in case of inconsistency or error.
- Check terminals for signs of corrosion, insulation damage, high temperature or burning/discoloration, tighten terminal screws.
- Check for signs of dirt, insect nesting and corrosion and clean up as required.
- This inverter is not equipped with a lightning arrester, if it is equipped with a failed lightning arrester, replace the failed lightning arrester in time to avoid lightning strikes' damage to the inverter or even other equipment.



DANGER

Risk of electric shock! Make sure that the power supply of the inverter is disconnected when performing the above operations, and wait for 10 minutes for the power in the capacitor to be discharged before performing the corresponding checks or operations!

7 Technical Specifications

Product Model	SPT15KTL	SPT17KTL	SPT20KTL	SPT22KTL	SPT25KTL
PV Input					
Maximum DC Input Voltage	1,100VDC	1,100VDC	1,100VDC	1,100VDC	1,100VDC
Maximum DC Input Power	18,000W	20,000W	23,000W	25,000W	28,000W
Rated DC Input Voltage	650VDC	650VDC	650VDC	650VDC	650VDC
MPPT Operating Voltage Range	180~1,000VDC	180~1,000VDC	180~1,000VDC	180~1,000VDC	180~1,000VDC
MPPT Voltage Range (Full Load)	480V-850V	480V-850V	480V-850V	480V-850V	480V-850V
Maximum Input Current of MPPT	15A*2	15A*2	15A*2	15A*2	15A*2
PV Short-circuit Current	36A	36A	36A	36A	36A
MPPT Number	2	2	2	2	2
Maximum Number of PV Strings per MPPT	2	2	2	2	2
AC Output					
Rated AC Output Power	15,000W	17,000W	20,000W	22,000W	25,000W
Maximum AC Apparent Power	16,500VA	18,800VA	22,000VA	24,000VA	27,500VA

Rated AC Output Voltage	380VAC/400VAC	380VAC/400VAC	380VAC/400VAC	380VAC/400VAC	380VAC/400VAC
Rated AC Output Frequency ⁽¹⁾	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz
Maximum AC Output Current	25.1A	28.4A	33.4A	36.8A	41.8A
Power Factor	0.8 inductive (under-excited) to 0.8 capacitive (over-excited)				
THDi (Total Harmonic Current Distortion)	< 3%	< 3%	< 3%	< 3%	< 3%
AC Grid Connection Type	3W+N+PE	3W+N+PE	3W+N+PE	3W+N+PE	3W+N+PE
Efficiency					
Maximum Efficiency	98.60%	98.75%	98.75%	98.75%	98.75%
MPPT Efficiency	99.90%	99.90%	99.90%	99.90%	99.90%
Others					
DC Input Connector	H4/MC4 (Optional)	H4/MC4 (Optional)	H4/MC4 (Optional)	H4/MC4 (Optional)	H4/MC4 (Optional)
AC Output Connector	Connector	Connector	Connector	Connector	Connector
Cooling Method	Natural cooling	Natural cooling	Intelligent cooling	Intelligent cooling	Intelligent cooling
Display	LED/ WIFI+APP	LED/ WIFI+APP	LED/ WIFI+APP	LED/ WIFI+APP	LED/ WIFI+APP
Self-consumption at Night	< 1W	< 1W	< 1W	< 1W	< 1W
Communication Port	USB/RS485 (included),	USB/RS485 (included),	USB/RS485 (included),	USB/RS485 (included),	USB/RS485 (included),

	WIFI/GPRS (Optional)	WIFI/GPRS (Optional)	WIFI/GPRS (Optional)	WIFI/GPRS (Optional)	WIFI/GPRS (Optional)
Mechanical Parameters					
Dimension (Length*Width*Height)	520mm*430mm *210mm	520mm*430mm *210mm	520mm*430mm*2 10mm	520mm*430mm *210mm	520mm*430mm *210mm
Net Weight	24.5kg	24.5kg	25kg	25kg	25kg
Environment Parameters					
Relative Humidity	0–100%, no condensation	0–100%, no condensation	0–100%, no condensation	0–100%, no condensation	0–100%, no condensation
Enclosure	IP65	IP65	IP65	IP65	IP65
Operating Temperature Range	-30℃ to +60℃	-30℃ to +60℃	-30℃ to +60℃	-30℃ to +60℃	-30℃ to +60℃
Altitude	≤ 4,000m	≤ 4,000m	≤ 4,000m	≤ 4,000m	≤ 4,000m
Pollution Level	III	III	III	III	III
Surge Protection Level	DC II /ACIII	DC II /AC III	DC II /AC III	DC II /AC III	DC II /AC III

(1) The frequency requirements of different countries or regions are different, please confirm before purchasing.

Any changes without prior notice! Version number: V1.1



HUIZHOU EPEVER TECHNOLOGY CO., LTD.

+86 - 752-3889706

info@epever.com

www.epever.com