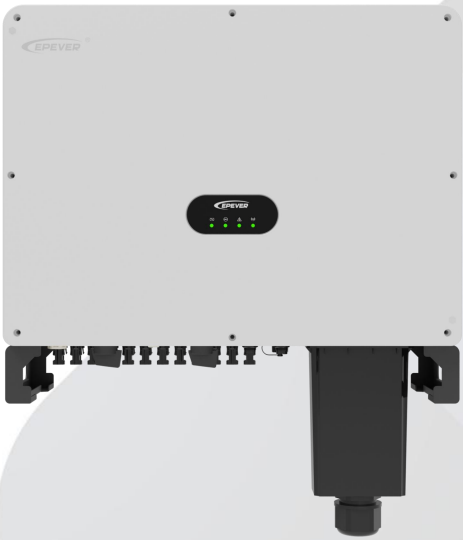
USER MANUAL



String PV Inverter

SPT8KTL-AM, SPT10KTL-AM, SPT12KTL-AM, SPT15KTL-AM

SPT25KTL-AM, SPT30KTL-AM, SPT36KTL-AM, SPT40KTL-AM

EN

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Preface

Copyrights

Disclaimers

Before using the product, please read this manual carefully to ensure you fully understand the product and can use it correctly. Please keep this manual properly for future reference after reading. Improper use of this product may cause serious injury to you or others, or result in product damage and property loss. By using this product, you are deemed to have understood, acknowledged, and accepted all terms and contents in this manual. BEIJING EPEVER TECHNOLOGY CO., LTD. shall not be liable for any losses caused by the user's failure to use the product in accordance with this manual.

The warranty does not apply to the following conditions:

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

Scope of application

This user manual describes the installation, electrical connection, commissioning, maintenance and troubleshooting of the SPT-AM series on-grid String PV Inverter (hereinafter referred to as the "inverter"). The SPT-AM series includes the following product models:

SPT8KTL-AM, SPT10KTL-AM, SPT12KTL-AM, SPT15KTL-AM;

SPT25KTL-AM, SPT30KTL-AM, SPT36KTL-AM, SPT40KTL-AM.

This manual is only intended for professionals who are familiar with local regulations, standards and electrical systems, have received professional training, and know the product well.

Symbol definition

To ensure the user's personal and property safety during operation, as well as the efficient use of this product, relevant safety instructions are provided in the manual and highlighted with the corresponding symbols. To prevent personal injury and property damage, please fully understand and strictly follow these highlighted information. The symbols used in this manual are as follows.

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.

Important Safety Instructions

1. 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.

2. 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.

3. 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.

4. 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.

5. 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 4mm^2.

6. 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.

7. Dangerous operations causing an electric arc, fire, or explosion

- 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.

8. 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.

9. 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.

1 General Information

1.1 Product overview

SPT-AM 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 an advanced maximum power point tracking (MPPT) control algorithm, which can track the maximum power point of the PV array in real time. The product is configured with an output relay for disconnecting the inverter safely from the grid during inverter faults or grid abnormalities. 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 800VDC, string maximum input current of 16A, and each MPPT supports 2 strings
- 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

Naming rules

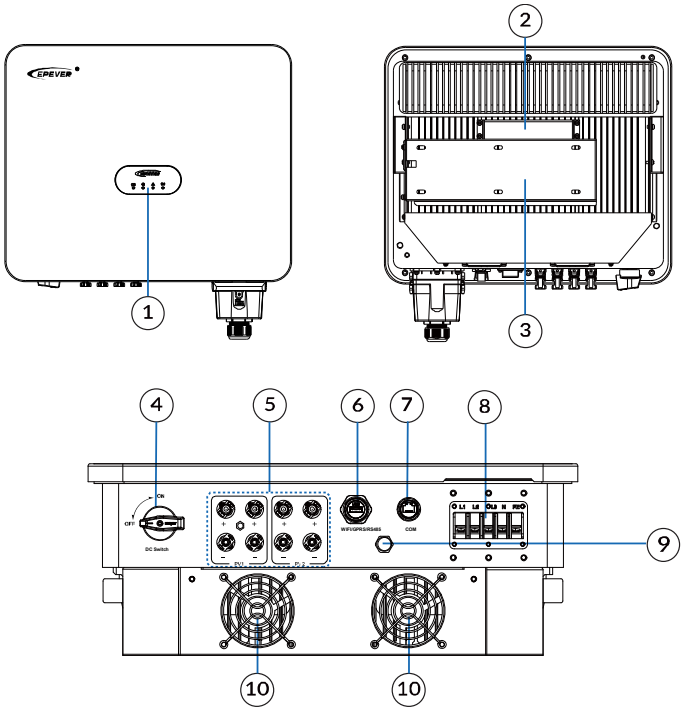
SP T 15K TL - AM

- AM: US version (AC level: 208/220/240VAC)
- Output transformerless design
- Rated output power: “15K” indicates 15,000W; “36K” indicates 36,000W
- Supported grid type: “T” indicates Three phase inverter
- Inverter type: String PV Inverter

1.2 Product exterior

1.2.1 Appearance and ports

- **SPT8-15KTL-AM series**

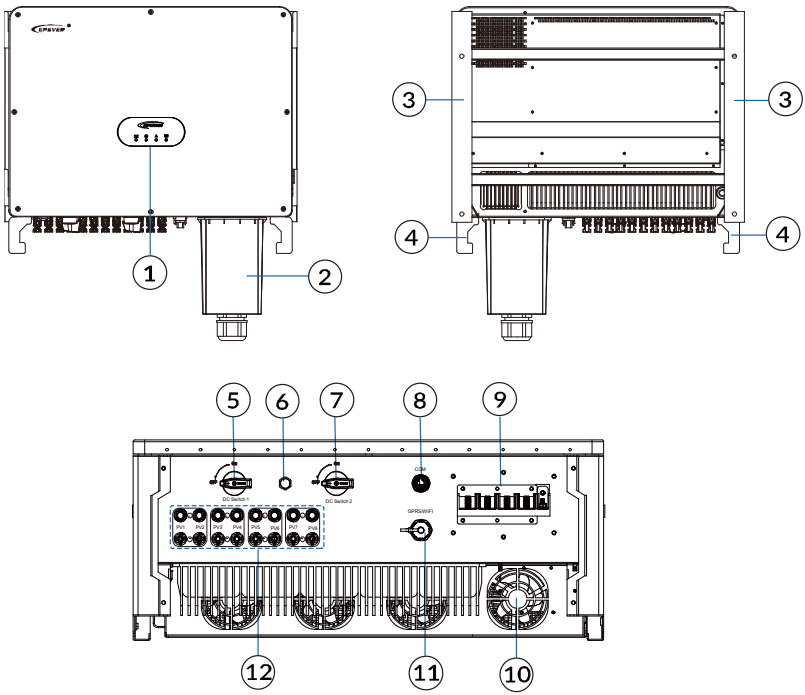


No.	Description	No.	Description
1	Indicator	6	USB communication port
2	Wall mounting plate	7	RS485 communication port(1)
3	Wall mounting bracket	8	AC output terminal
4	DC Switch	9	Air valve
5	PV input terminals	10	Fans(2)

(1) Remote monitoring can be realized by RS485 communication port and monitoring software. Refer to Section 3.6 Connecting the communication ports for details.

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

- **SPT25-40KTL-AM series**



No.	Description	No.	Description
1	Indicator	7	DC switch 2(2)
2	AC terminal cover	8	RS485 communication port(3)
3	Wall mounting bracket	9	AC output terminal
4	Handle	10	Cooling fan
5	DC switch 1(1)	11	USB communication port(4)
6	Air valve	12	PV input terminal(5)

(1) Controls PV1-PV4.

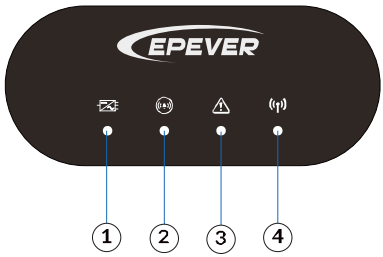
(2) Controls PV5-PV8.

(3) Used for receiving local 485 and power-off signals. Refer to Section 3.6 Connecting the communication ports for details.

(4) Refer to Section 3.6 Connecting the communication ports for details.

(5) Each MPPT input consists of two parallel PV strings.

1.2.2 Indicators

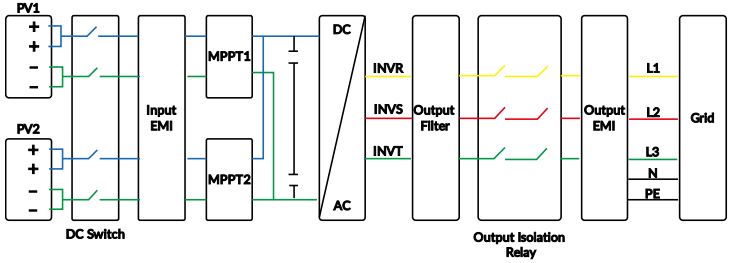


No.	Indicator	Status	Description
1	Power/Operating	Solid green	Grid-connected power generation
		Flashing green for 0.5s	Grid-connected power generation is stopped, indicating the system should be powered on.
2	Alarm	Flashing yellow for 0.5s	System alarm
		OFF	Alarm is cleared.

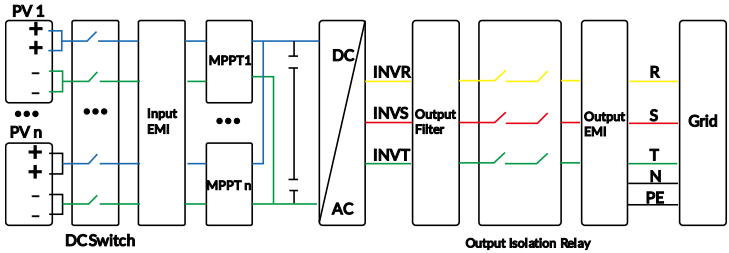
3	Fault	Solid red	System fault
		OFF	Fault is cleared.
4	Communication	Solid green	Normal external communication
		OFF	Interrupted external communication
		Flashing green for 0.5s	Firmware is upgrading.

1.3 Electrical block diagram

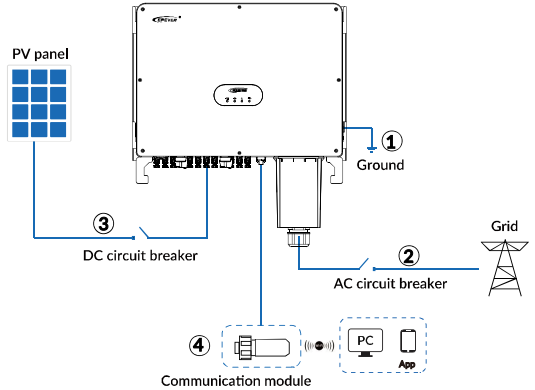
- **SPT8-15KTL-AM series**



- **SPT25-40KTL-AM series**

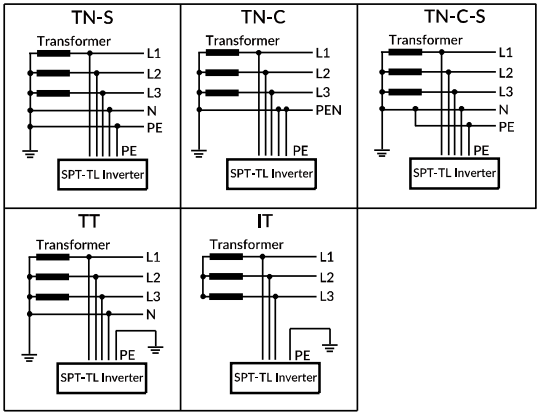


1.4 System schematic diagram



Note: The schematic diagram takes the appearance of SPT25-40KTL-AM series as an example. The wiring of other product models is similar, please refer to the physical appearance you received.

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!

2 Installation

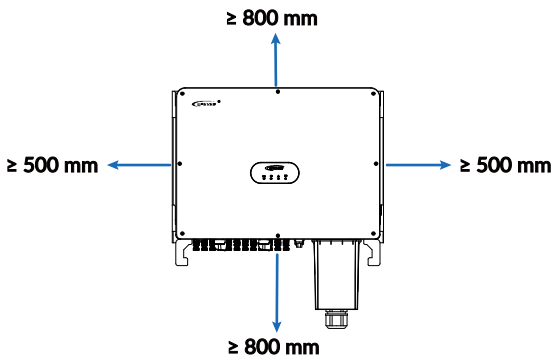
2.1 Installation requirements

2.1.1 Installation environment

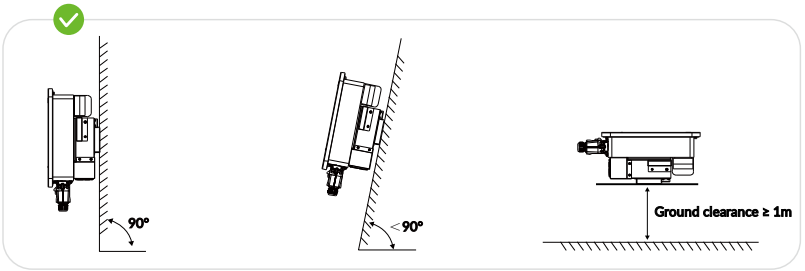
- Do not install the inverter in the flammable, explosive, dust accumulative or other harsh environments.
- Do not install the inverter on a hollow brick wall.
- Do not install the inverter near strong electromagnetic signals.
- Do not place the inverter close to flammable materials or gases.
- For wall mounting, it is recommended that the inverter be fixed to concrete and solid brick walls.
- When drilling holes in the wall, avoid plumbing pipelines and electrical wiring.
- The inverter should be installed in a shaded and protected location, such as a cool and rainproof area.
- The installation location must be compatible with the dimensions of the inverter.

2.1.2 Installation space and angle

- When installing the inverter, please leave enough space around it for heat dissipation, the left and right clearance is not less than 500mm (650mm for SPT8-15KTL-AM series) and the upper and lower clearance is not less than 800mm (450mm for SPT8-15KTL-AM series).
- The inclination angle between the inverter and the horizontal ground should be less than or equal to 90 degrees.



- The inverter can be installed on a vertical or backward inclined plane or placed flat on a bracket at least 1 meter above the ground, please refer to the picture below:



2.2 Installation flow

2.2.1 Checking before installation

Tip	Please carefully check the product packaging and accessories list before installation.

Packaging materials and components may be damaged during transportation. Therefore, before installing the inverter, please inspect its packaging materials. Check the packaging for any damage, such as holes, cracks, etc. If any damage is found on the inverter, do not open the package and contact your dealer as soon as possible. It is recommended to inspect the packaging materials within 24 hours before installing the inverter.

After unpacking the inverter, inspect the product and its accessories to ensure they are complete and undamaged. If any parts are missing or damaged, please contact the dealer.

2.2.2 Moving the inverter

Open the packing box, and two operators place their hands under the inverter's heat sink, lifting the inverter out of the packing box. Move the inverter horizontally to the designated site.

⚠ CAUTION

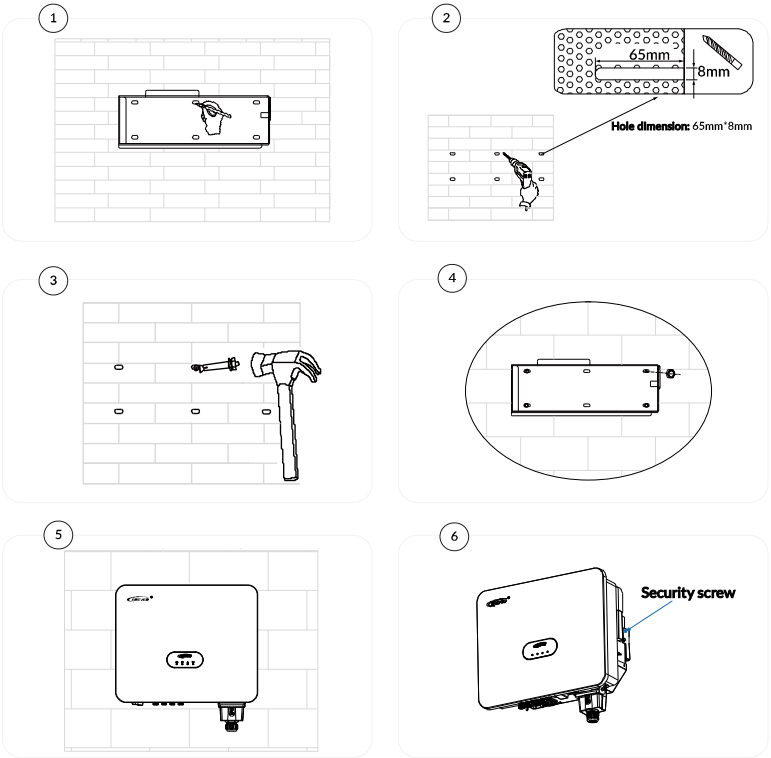
- Please maintain balance when moving the inverter to avoid dropping and injuring the operator.
- The power line and signal line interfaces at the bottom of the inverter cannot bear weight; do not let the terminal connectors directly touch the ground; place the inverter horizontally.

NOTICE

When placing the inverter on the ground, use foam or cardboard underneath to prevent damage to the casing.

2.2.3 Installing the inverter

- **SPT8-15KTL-AM series**



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

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

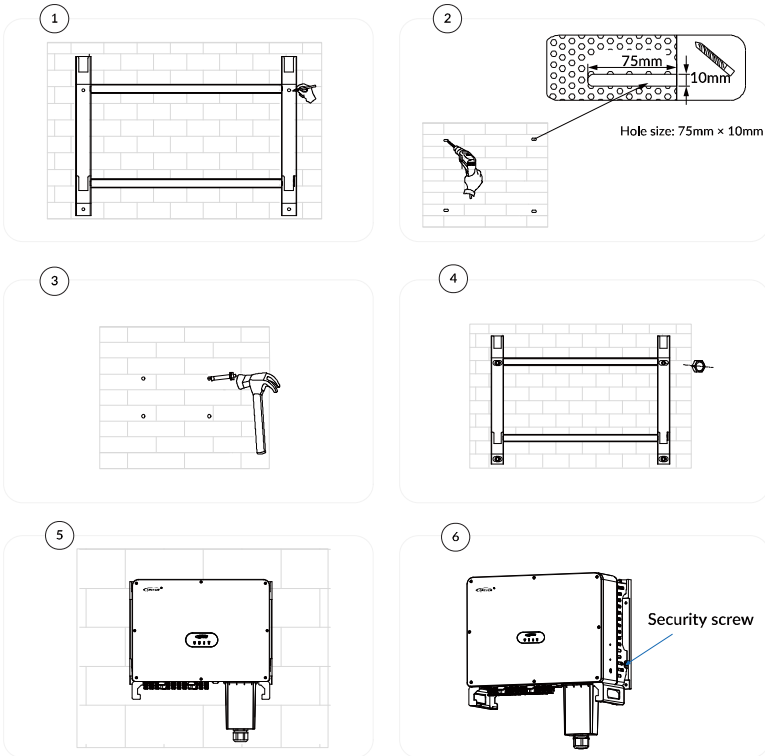
Step 3: Insert the expansion bolts into the holes.

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.

- **SPT25-40KTL-AM series**



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

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 Connection

3.1 Precautions

Ensure that both AC and DC sides are not energized before installation and maintenance. Since the capacitor is still live for a period of time after the DC side of the inverter is disconnected, it is necessary to wait 5 minutes to ensure that the capacitor is discharged completely.

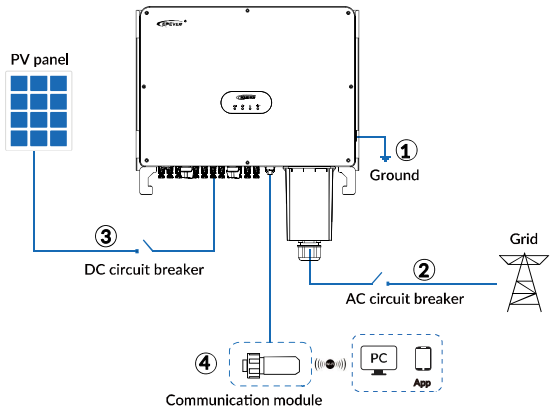
DANGER

Before carrying out the electrical connections at the DC side, ensure that the PV panels are covered with opaque material or disconnect the circuit breaker at the DC side. If the PV panels are exposed to sunlight, the PV array will generate hazardous voltages.

WARNING

The installation and maintenance of inverters must be carried out by professional electrical engineers. When working on high-voltage/high-current systems (such as inverters and battery systems), rubber gloves and protective clothing (including protective glasses and boots) should be worn.

3.2 System schematic diagram



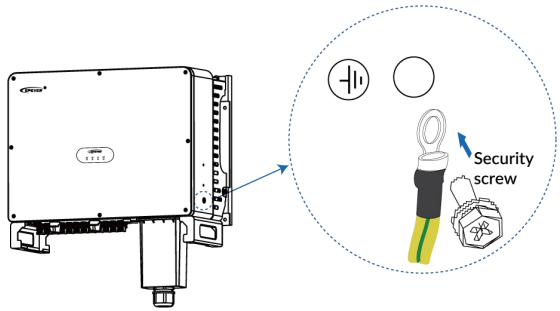
1. Follow the wiring sequence of "1. Grounding > 2. Grid > 3. PV panel > 4. Communication modules".
2. Disconnect all the AC and DC switches before wiring.

3.3 Connecting the ground cable (PE)

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.
- 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. It is recommended to use a yellow-green grounding cable with a cross-sectional area of not less than 16 mm^2 (4mm^2 for SPT8-15KTL-AM series) to ensure the reliable and safe grounding connection.



3.4 Connecting the AC output

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) are as follows:

Model	Cross-sectional Area (mm^2)	ELCB Specifications
SPT8KTL-AM, SPT10KTL-AM	6–12	50A/230V/3P, leakage protection, 0.1A
SPT12KTL-AM, SPT15KTL-AM	8–12	63A/230V/3P, leakage protection, 0.1A
SPT25KTL-AM	16–25	100A/230V/3P, leakage protection, 0.3A
SPT30KTL-AM		125A/230V/3P, leakage protection, 0.3A
SPT36KTL-AM, SPT40KTL-AM	25–35	150A/230V/3P, leakage protection, 0.3A

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 5 meters. If the transmission distance is greater than or equal to 5 meters, the cable specifications need to be appropriately increased to reduce the cable voltage drop and improve system performance.

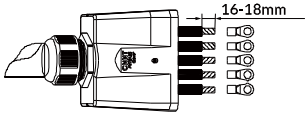
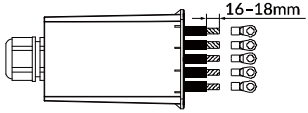
The connection steps are as follows:

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

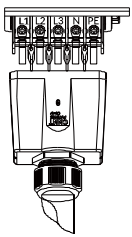
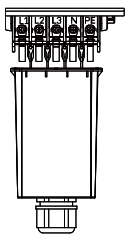
Step 2: Thread the AC output cable (recommended size: 3*16–3*35mm^2, preferably armored) (25–35mm^2 for SPT8-15KTL-AM series) through the wiring box. The cable length is subject to actual situation.

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

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

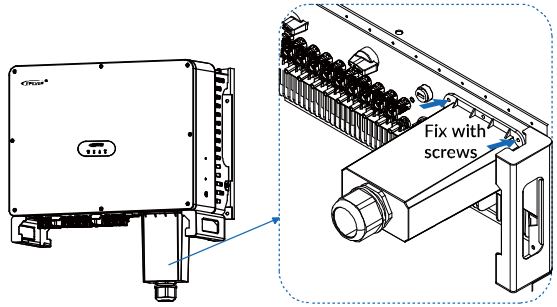
SPT8-15KTL-AM series	SPT25-40KTL-AM series
	

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

SPT8-15KTL-AM series	SPT25-40KTL-AM series
	

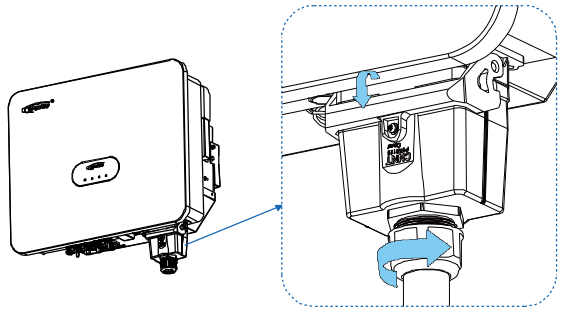
L1	L2	L3	N	PE
Yellow	Green	Red	Blue	Yellow-green

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



(SPT25-40KTL-AM series)

Step 7: Rotate clockwise and tighten the waterproof connector.



(SPT8-15KTL-AM series)

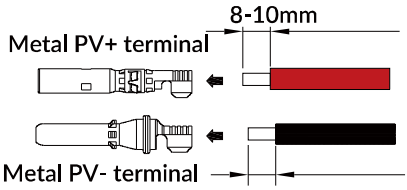
3.5 Connecting the DC input

The connection steps are as follows:

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

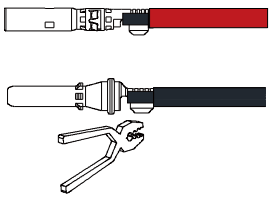
Step 2: Remove the insulation layer of 8–10mm at one end of the PV input cable.

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

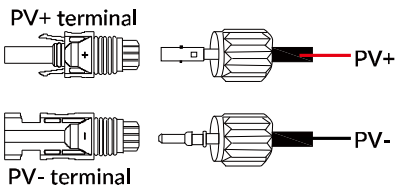


PV+	PV-
12AWG (Red)	12AWG (Black)

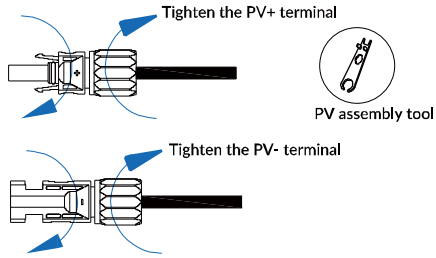
Step 4: Crimp the PV input cable with the metal terminals tightly with crimping pliers.



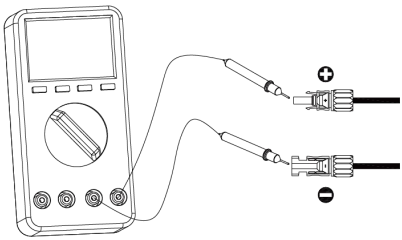
Step 5: Thread the crimped PV positive and negative cables through the locking nut and insert them into the corresponding plastic housings until you hear a "click" sound, which indicates that the metal cores have been snapped into place. Please pay attention to the positive and negative terminals.



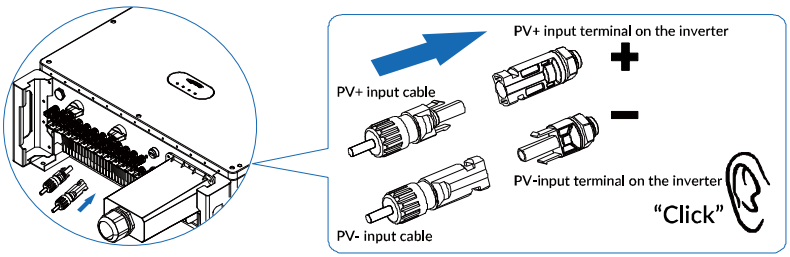
Step 6: Use the PV assembly/disassembly tool (optional accessory) to lock the nut tightly, pull the PV cables gently to ensure the terminal is not wobbly or disconnected.



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: 2.5–6mm^2, maximum withstand voltage: 800VDC.

Note: When using the smallest recommended cable specifications for each model, ensure that the transmission distance is less than 5 meters. If the transmission distance is greater than or equal to 5 meters, the cable specifications need to be appropriately increased to reduce the cable voltage drop and improve system performance.

NOTICE

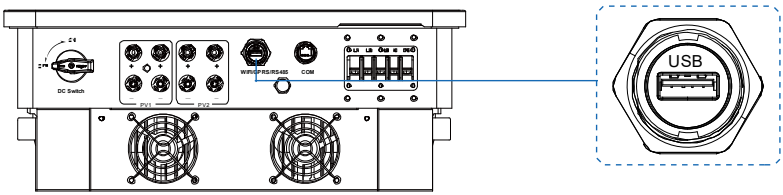
- Before installing the PV input terminals, ensure that the PV input voltage and current do not exceed the inverter limits.
- When installing the PV input terminals, pay attention to the positive and negative terminals.
- When the terminals are connected, you can hear the "click" sound, After terminals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

3.6 Connecting the communication ports

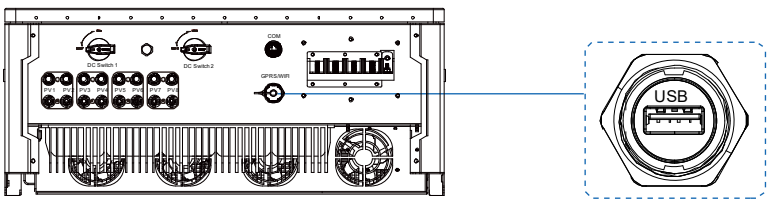
3.6.1 USB communication port

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.

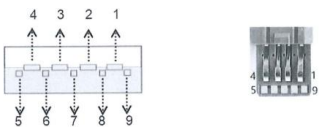
- **SPT8-15KTL-AM series**



- **SPT25-40KTL-AM series**



The pin definition of the port is as follows:

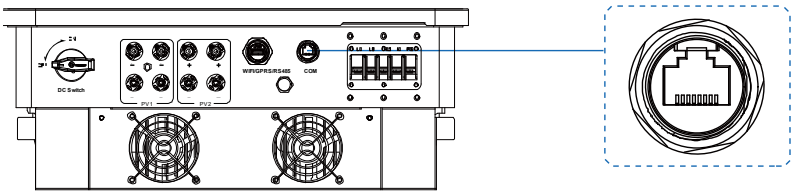


Pin	Definition	Color	Description
1	VBUS	Red	Power (5VDC/1.2A）
2/3/7/8/9	Reserved	Reserved	Reserved
4	GND	Black	GND
5	RS485-A1	Blue	RS485-A1 (to transfer data with cloud platform, APP, PC software, display screen etc.)
6	RS485-B1	Yellow	RS485-B1 (to transfer data with cloud platform, APP, PC software,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

3.6.2 RS485 communication port

- **SPT8-15KTL-AM series**

The SPT8-15KTL-AM series integrates an RS485 interface, enabling remote monitoring system deployment via compatible software.



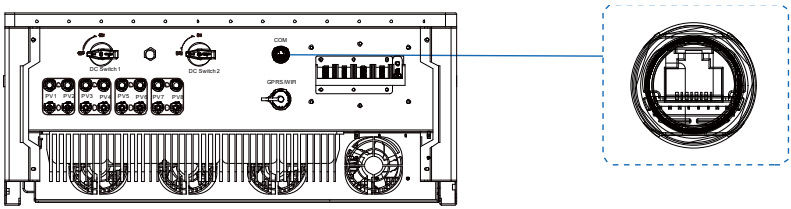
The pins definition of COM port (RJ45) is as follows:

Pin	Definition	Function
1	INV_OFF	Emergency shutdown signal (short-circuit with pin 4 to shut down)
2	DRM0	DRM0 function (If the impedance between pin 2 and pin 3 is greater than 20kΩ or short-circuited, the inverter stops running)
3	GND.S	Power supply for external communication equipment

4	+5V.S	
5	GND_OUT	Power supply for external communication equipment
6	+12V_OUT	
7	RS485-B	Local monitoring unit 485 communication
8	RS485-A	

- **SPT25-40KTL-AM series**

Supporting RS485 communication, COM port enables local monitoring device connection and remote parameter access via Modbus RTU protocol. Users can develop custom monitoring software for real-time control. For emergency shutdown, short-circuit Pin 8 with Pin 6/7 (GNDS) to trigger the inverter's safety mechanism.



The pin definition of COM port is as follows:

Pin	Definition	Function
1	+5VDC	Power supply for external communication supply 5V, 1A
2	+5VDC	
3	RS485-B	Local communication 485B
4	RS485-A	Local communication 485A
5	DRM 0	DRM0 function (If the impedance between pin 2 and pin 3 is greater than 20kΩ or short-circuited, the inverter stops running)
6	GNDS	Communication GND
7	GNDS	
8	INV-OFF	Emergency shutdown signal (effective when short circuit GNDS)

4 Operation

4.1 Checking 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 all of the "DC SWITCH" and all circuit breakers connected to the inverter are "OFF".

4.2 Operating the device

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 circuit breaker between the PV module and the inverter.

Step 2: Connect the AC circuit breaker between the AC grid and the inverter.

Step 3: Turn all the "DC SWITCH" (DC switches) on the inverter to "ON".

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

Note: Please refer to 1.2.2 Indicators in the manual for LED indicator status.

4.3 APP settings

After adding the SPT-AM 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 SPT-AM series to WiFi module and remote monitoring by App.

4.3.1 Download APP

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

Apple App Store

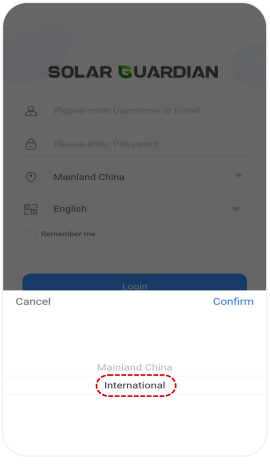
Android platform: Scan the QR code to download the App.

Google Play

4.3.2 Sign up/in

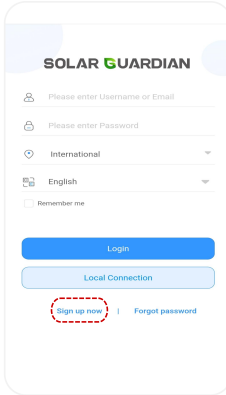
- **Node selection**

Solar Guardian provides both Mainland China and international node options. Users may switch to international nodes by selecting "International" at login interface and confirming. After node selection, complete registration and login (refer to the instructions below) to access the international platform.

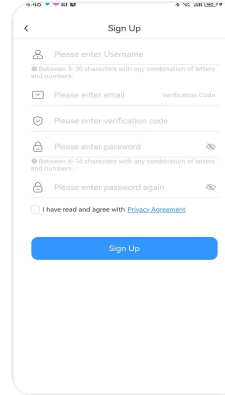


- **Sign up**

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

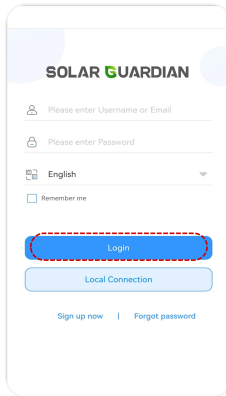


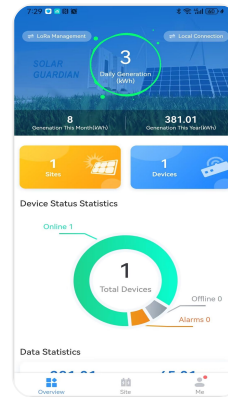
Step 1: Click "Sign up now" on the initial login interface of the APP.



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.

- **Log in**



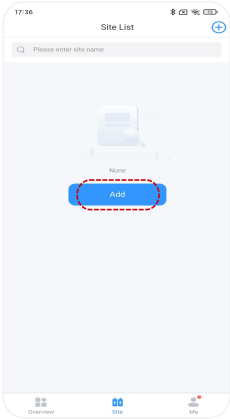


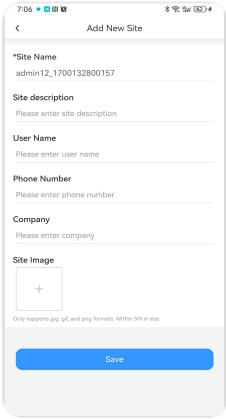
Step 1: Open the APP, enter your account name and password; select the language, check "Remember me" (so that you can log in quickly next time), and click "Login" to enter the APP main interface.

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.

4.3.3 Add new site

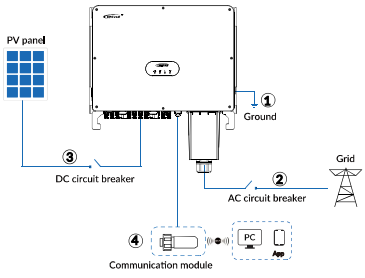




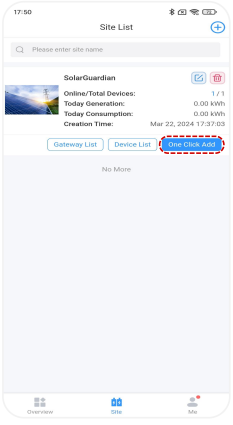
Step 1: After logging in, enter "Site" interface, click "Add" or ⊕ icon to enter "Add New Site" interface.

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.

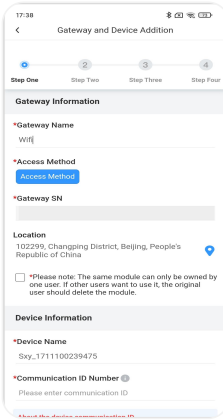


Step 3: Connect the WiFi module to the USB communication port on the inverter (the USB-A 3.0 WiFi module can connect with the inverter directly, for other communication modules, please purchase the appropriate communication cables according to the communication port type).



Step 4: Click “One Click Add” in the site interface to add devices under this site.

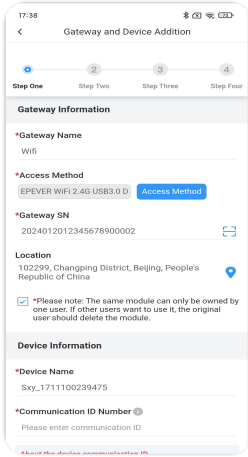
4.3.4 Add gateways and devices

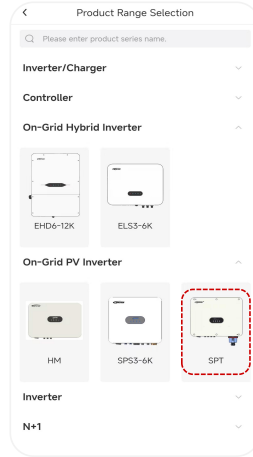


Step 1: Enter "Gateway and Device Addition" interface, fill in the "Gateway Name" (or use default name of the APP), click "Access Method" to enter "Internet Gateway Select" interface.

Step 2: Select "EPEVER WiFi 2.4G USB3.0 D", it will automatically return to the "Gateway and Device Addition" interface in **Step 1**. 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.

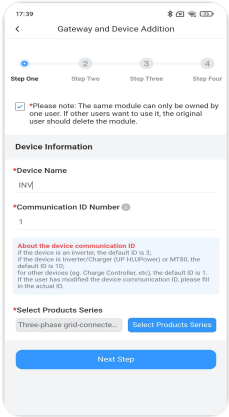




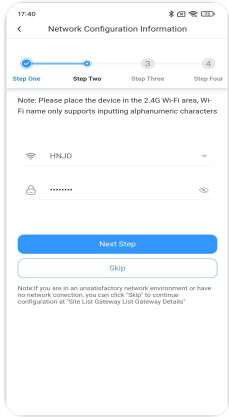
Step 3: On the "Gateway and Device Addition" interface, fill in the "Device Name" (or use default name of the APP) and "Communication ID Number(2)", click "Select Products Series" to enter the device selection interface.

Step 4: Select the current connected device, it will automatically return to the "Gateway and Device Addition" interface in **Step 3**. 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.

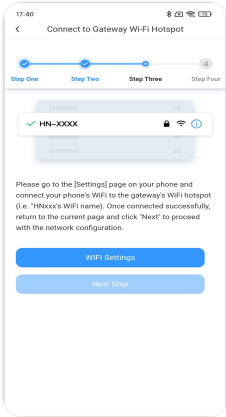


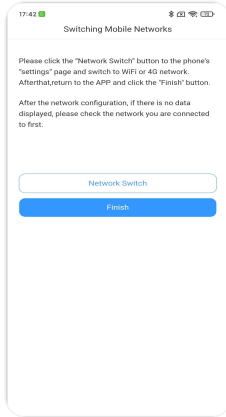
Step 5: When you have filled all the information, click “Next Step” to finish adding the gateway and devices, and enter the “Network Configuration Information” interface.



Step 6: 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 Gateway details in the following text 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.

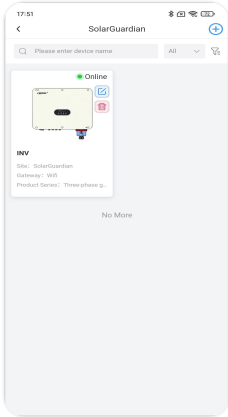




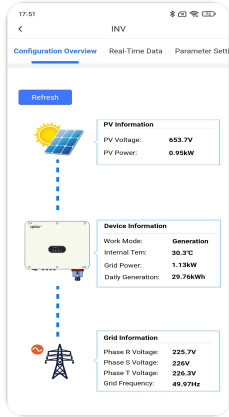
Step 7: Click “WIFI Settings” to connect your phone to the gateway WiFi (Name: HN_EPxxx, password: 12345678), return to the App when connection is successful. Click “Next Step” for network connection.

Step 8: 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.

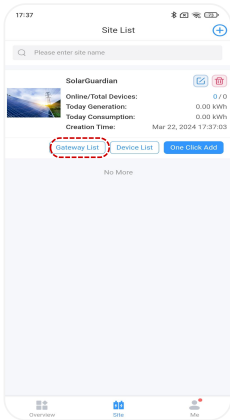


Step 9: When it is added, it will automatically switch to the "Device List", click the device to view its real-time data.

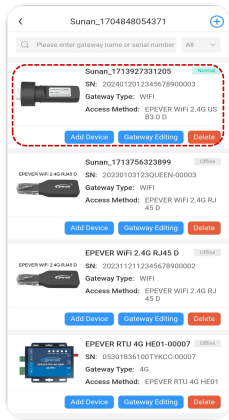


Step 10: Enter the device interface to view the real-time device data. The default interface is " Configuration Overview".

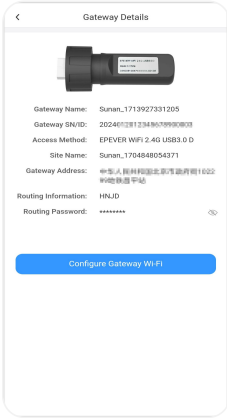
- **Gateway details**



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.

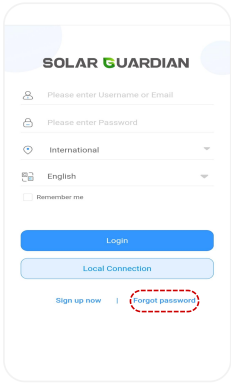


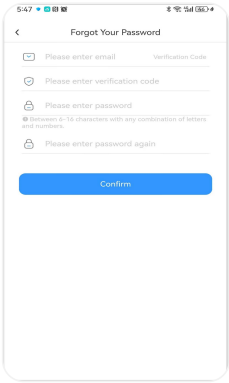
Step 3: Enter the “Gateway Details” interface to view the related gateway information. After the network configuration of the WiFi module is completed, the WiFi name and password of the router are displayed. Click the icon to switch to displaying the password in plain text to verify the correctness.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

4.3.5 Common parameters setting

- **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.

5 Maintenance

5.1 Inverter powering off

Step 1: Turn all the "DC SWITCH" (DC switches) on the inverter to "OFF".

Step 2: Disconnect the AC circuit breaker between the inverter and the grid.

Step 3: Disconnect the DC circuit breaker between the PV modules and the inverter.

Step 4: Wait for 5 minutes to allow internal capacitors to discharge, then use a multimeter to verify 0V at both AC and DC terminals (If voltage remains, recheck breakers and wait longer).

Step 5: Power down control systems, displays, and communication modules.

NOTICE

- Before operation, verify equipment model and technical specifications. Unauthorized personnel are strictly prohibited from performing this procedure.
- Operators must wear insulated gloves (rated ≥1000V) and dielectric footwear throughout the process.

5.2 Inverter dismantling

Step 1: Label DC and AC cables with permanent markers, noting phase sequence and polarity orientation.

Step 2: Disconnect cables in reverse installation order (DC first). Apply insulated caps to terminals immediately..

Step 3: Remove mounting bolts using manufacturer-specified torque values and transport the inverter vertically on padded equipment trolleys.

Step 4: Properly store the inverter. Mark storage area with "Decommissioned Equipment" warnings. If the inverter is to be reused in the future, ensure that storage conditions meet the requirements.

5.3 Inverter disposal

When the inverter can no longer be used and needs to be discarded, please dispose of the inverter in accordance with the electrical waste disposal requirements specified by the current country/region. The inverter should not be treated as household waste.

5.4 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!

6 Troubleshooting

6.1 Faults

No.	Faults	Causes and Measures
1	Inverter Over Temperature	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 Overvoltage	
7	DC Component Fault	
8	DC Bus Undervoltage	
9	Relays Fault	
10	Hardware DC Bus Overvoltage	
11	Inverter Hardware Overcurrent	
12	COM Error (DSP with ARM)	
13	Output Current Imbalance	
14	PV Hardware Overcurrent	
15	Grid Overvoltage 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. If it occurs frequently, please check the grid voltage and frequency are within the specified range of the
16	Grid Undervoltage Fault	
17	Grid Overfrequency Fault	

18	Grid Underfrequency Fault	inverter. If not, please contact the manufacturer; if yes, please check if the connection between the AC circuit breaker and output cable is normal. 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 Overcurrent	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 Overvoltage Fault	
25	Leakage Current Fault	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. 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.
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 Overvoltage	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 Overvoltage	
33	PV3 Overvoltage	
34	PV4 Overvoltage	
35	PV5 Overvoltage	
36	PV6 Overvoltage	
37	PV7 Overvoltage	
38	PV8 Overvoltage	
39	PV9 Overvoltage	
40	PV10 Overvoltage	
41	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.
42	I2C EPROM (DSP)	
43	AFCI Error	Please check whether there is arcing or poor contact in the PV string wiring.
44	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.
45	PV2 Reverse Connected	
46	PV3 Reverse Connected	
47	PV4 Reverse Connected	
48	PV5 Reverse Connected	
49	PV6 Reverse Connected	
50	PV7 Reverse Connected	
51	PV8 Reverse Connected	
52	PV9 Reverse Connected	
53	PV10 Reverse Connected	

54	PV1 Overcurrent	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.
55	PV2 Overcurrent	
56	PV3 Overcurrent	
57	PV4 Overcurrent	
58	PV5 Overcurrent	
59	PV6 Overcurrent	
60	PV7 Overcurrent	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.
61	PV8 Overcurrent	
62	PV9 Overcurrent	
63	PV10 Overcurrent	

6.2 Alarms

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	PV3 Short Circuit	
4	PV4 Short Circuit	
5	PV5 Short Circuit	
6	PV6 Short Circuit	
7	PV7 Short Circuit	
8	PV8 Short Circuit	
9	PV9 Short Circuit	
10	PV10 Short Circuit	
11	Surge Protection: DC SPD Warning	--
12	Surge Protection: AC SPD Warning	

13	Lighting Protection:LP DC LP Warning	
14	Ligthting Protection:LP AC LP Warning	
15	User Shutdown	
16	Device Locking	
17	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.
18	Out Fan 2 Stopped	
19	Out Fan 3 Stopped	
20	Out Fan 4 Stopped	
21	Out Fan 5 Stopped	
22	Inner Fan Stopped	

7 Technical Specifications

7.1 SPT8-15KTL-AM series

Model	SPT8KTL-AM	SPT10KTL-AM	SPT12KTL-AM	SPT15KTL-AM
PV Input (DC)				
Maximum Input Power	12,000W	15,000W	18,000W	22,500W
Maximum Input Voltage	800V			
Start-up Voltage	250V			
Rated Input Voltage	450V			
Maximum Input Current per MPPT	32A (16A × 2)			
Maximum Short-circuit Current per MPPT	40A			
MPPT Voltage Range	180–760V			
MPPT Voltage Range (Full Load)	250V–650V			
Number of MPPTs	2			
Number of Strings per MPPT	2			
AC Output				
Rated Output Power	8,000W	10,000W	12,000W	15,000W
Maximum Output Apparent Power	8,800VA	11,000VA	13,200VA	15,000VA
Rated Output Current	22.2A/21A/ 19.2	27.8A/26.3A/ 24A	33.3A/31.5A/ 28.8A	41.7A/39.4A/ 36A
Maximum Output Current	24.5A	30.5A	36.8A	41.8A
Rated Grid Voltage	120/208V; 127/220V; 139/240V			
Rated Grid Frequency(1)	50Hz/60Hz			

THDi	< 3%		
Power Factor	> 0.99		
Efficiency			
Maximum Efficiency	98.20%		
Europe Efficiency	97.50%		
Protection			
Basic Protection	PV reverse polarity PV insulation resistance PV string current monitoring	AC output overvoltage AC output overcurrent AC output short circuit	Anti-islanding Grid monitoring Residual Current Detection (RCD)
AFCI	Optional		
DC switch	Integrated		
SPD	DC Type II/AC Type III		
Environment Parameters			
Operating Temperature	-30℃ to +60℃		
Relative Humidity	0–100% (N.C.)		
Altitude	≤ 4,000m		
Ingress Protection	IP65		
Pollution Degree	III		
Mechanical Parameters			
Dimensions (L × W × H)	520mm × 430mm × 210mm		
Weight	24.5kg	25kg	
Others			
Self-consumption (Night)	< 1W		
Topology	Transformer-less		
Cooling Method	Natural	Intelligent cooling	

Display	LED/WIFI+APP
PV Input Connector	H4/MC4 (Optional)
AC Output Connector	Plug-in connector
Grid Wring Method	3W+N+PE

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

7.2 SPT25-40KTL-AM series

Model	SPT25KTL-AM	SPT30KTL-AM	SPT36KTL-AM	SPT40KTL-AM
PV Input (DC)				
Maximum Input Power	27,500W	45,000W	54,000W	60,000W
Maximum Input Voltage	800V			
Start-up Voltage	250V			
Rated Input Voltage	450V			
Maximum Input Current per MPPT	32A (16A × 2)			
Maximum Short-circuit Current per MPPT	40A			
MPPT Voltage Range	180–760V			
MPPT Voltage Range (Full Load)	250V–650V		330-650V	
Number of MPPTs	4			
Number of Strings per MPPT	2			
AC Output				
Rated Output Power	25,000W	30,000W	36,000W	40,000W
Maximum Output Apparent Power	27,500VA	33,000VA	39,600VA	40,000VA
Rated Output Current	69.4A/65.6A/ 61.2A	83.3A/78.7A/ 72.2A	100A/94.5A/ 86.6A	111A/105A/ 96.2A
Maximum Output Current	76.4A	91.7A	110A	117A
Rated Grid Voltage	120/208V; 127/220V; 139/240V			
Rated Grid Frequency(1)	50Hz/60Hz			
THDi	< 3%			

Power Factor	> 0.99		
Efficiency			
Maximum Efficiency	98.20%		
Europe Efficiency	97.50%		
Protection			
Basic Protection	PV reverse polarity PV insulation resistance PV string current monitoring	AC output overvoltage AC output overcurrent AC output short circuit	Anti-islanding Grid monitoring Residual Current Detection (RCD)
AFCI	Optional		
DC switch	Integrated		
SPD	DC Type II/AC Type III		
Environment Parameters			
Operating Temperature	-25℃ to +60℃		
Relative Humidity	0–100% (N.C.)		
Altitude	≤ 4,000m		
Ingress Protection	IP65		
Pollution Degree	III		
Mechanical Parameters			
Dimensions (L × W × H)	700mm × 610mm × 298mm		
Weight	52kg	55kg	
Others			
Self-consumption (Night)	< 3W		
Topology	Transformer-less		
Cooling Method	Intelligent cooling		
Display	LCD (Optional) + LED/WIFI + APP		

PV Input Connector	H4/MC4 (Optional)
AC Output Connector	Plug-in connector
Grid Wring Method	3W+N+PE

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

8 Technical Support

For technical inquiries regarding our products, please contact us through the following channels:

Service Hotline: 010-82894896/82894112

0752-3889706

0755-89236770

Email: sales@epever.com

For more product information, please visit our official website: www.epever.com.en.

Download APP:

Apple App Store

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