HYXI

User Manual

STRING INVERTER

HYX-S50K/60K/75K/80K/99K9/100K/110K/125K-T2



Carefully read this user manual before use.
Read and save these instructions.

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About the Manual

Overview

This manual provides the user with product information, detailed installation and use, troubleshooting and daily maintenance of the PV storage inverter.

It does not contain all information about the PV system.

To ensure the proper installation and use of the inverter and its superior performance, before handling, installation, operation and maintenance of the inverter, please read the instruction manual in detail and follow it.

Please read the operating instructions in detail and follow all safety precautions in the instructions.

Scope of Application

This manual is intended for the following devices:

- HYX-S50K-T2
- HYX-S60K-T2
- HYX-S75K-T2
- HYX-S80K-T2
- HYX-S99K9-T2
- HYX-S100K-T2
- HYX-S110K-T2
- HYX-S125K-T2

For Readers

This manual is intended for professional technicians who need to install, operate and maintain the inverter and for users who need to check the inverter parameters.

All installation operations must be carried out by professional technicians and only by professional technicians.

Use of the Manual

Please read the manual carefully before using the product, the content of the manual will be updated and corrected, but it is inevitable that there is a slight discrepancy or error with the actual product. Users should refer to the actual product purchased and obtain the latest version of the manual by downloading from www.hyxipower.com or through sales channels.

Use of Symbols

To ensure user safety and property protection during product use, relevant information is provided and highlighted with the following symbols.

⚠ DANGER

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

⚠ WARNING

- Indicates a moderate potential hazard that could result in death or serious injury if not avoided.

⚠ CAUTION

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

NOTICE

- Indicates a potential risk which, if not avoided, could result in the equipment not functioning properly or in property damage.

1 Safety Precautions

1.1 General Safety

NOTICE

- The "DANGER", "WARNING", "CAUTION", and "NOTICE" items in the manual do not include all safety precautions that should be observed. All work should be carried out in combination with the actual situation on site.
- This equipment should be used in an environment that meets the requirements of design specifications, otherwise it may cause equipment failure, and the resulting equipment functional abnormalities or component damage, personal safety accidents, property losses, etc., are not within the scope of equipment quality assurance.
- The installation, operation and maintenance of the equipment should comply with local laws, regulations and codes. The safety precautions in the manual are only supplementary to the local laws and regulations.
- If an external residual current device (RCD) (type A is recommended) is mandatory, the switch must be triggered at a residual current of 300 mA (recommended). RCD of other specifcations can also be used according to local standard.

1.2 Public Grid

NOTICE

- All electrical connections must meet local and national electrical standards.
- The inverter may only be connected to the grid with the permission of the local electricity authority.

1.3 Photovoltaic String

DANGER

- When performing electrical connection work, you must wear personal protective equipment.
- Use a multimeter's DC voltage range to measure the positive and negative DC cable polarity to ensure that the polarity is correct; and the voltage is within the allowable range.
- After the DC cable is connected, make sure that the cable is tightly connected and not loose.

1.4 Inverter

DANGER

- Before plugging or unplugging the PV connector or AC connector, please use a multimeter to measure to make sure there is no voltage or current.
- Make sure that the voltage and frequency of the grid connection point are in accordance with the grid connection specification of the inverter.
- Do not open the inverter enclosure when the inverter is operating or energized to protect personnel and property safety.
- After removing all electrical equipment and disconnecting the inverter, wait at least 5 minutes for the internal capacitors to discharge.
- The protective ground of the inverter must be securely connected and, for multiple inverters, ensure that all inverters are connected to the protective ground.
- When multiple inverters are installed, ensure that all inverter enclosures are connected equipotentially to the protective ground.
- The protective ground is installed first; the protective ground is removed last when the equipment is dismantled.

WARNING

- After the inverter is installed, labels and warning signs shall be clearly visible, and obscuring, altering or damaging them is prohibited.
- After the inverter is shut down, there is still a risk of burns, after the inverter has cooled down, wear protective gloves before operation.

1.5 Personnel Requirements

NOTICE

- The personnel responsible for the installation and maintenance of HYXI equipment must first undergo strict training to understand the various safety precautions and master the correct operation methods.
- Only qualified professionals or trained personnel are allowed to install, operate and maintain the equipment.
- The personnel who operate the equipment, including operators, trained personnel, professionals should have the special operating qualifications required by the local country, such as high voltage operation, special equipment operation qualification, etc.

2 Product Overview

2.1 Product Description

HYX-S(50~125)K-T2 is a three-phase string inverter, the main function is to convert the DC power generated by the PV modules and battery system into AC power and feed the electrical energy into the grid.

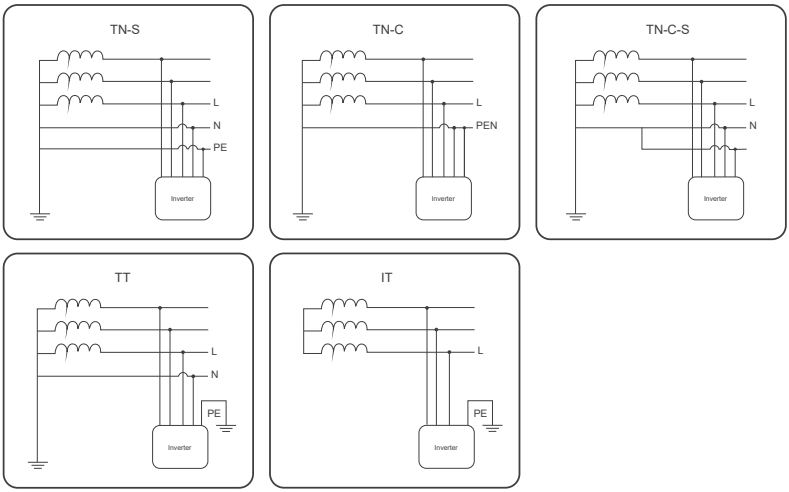
This manual mainly covers the following product models:

- HYX-S50K-T2
- HYX-S60K-T2
- HYX-S75K-T2
- HYX-S80K-T2
- HYX-S99K9-T2
- HYX-S100K-T2
- HYX-S110K-T2
- HYX-S125K-T2

2.2 Supported Grid Forms

The grid forms supported by the inverters are TN-S, TN-C, TN-C-S, TT.

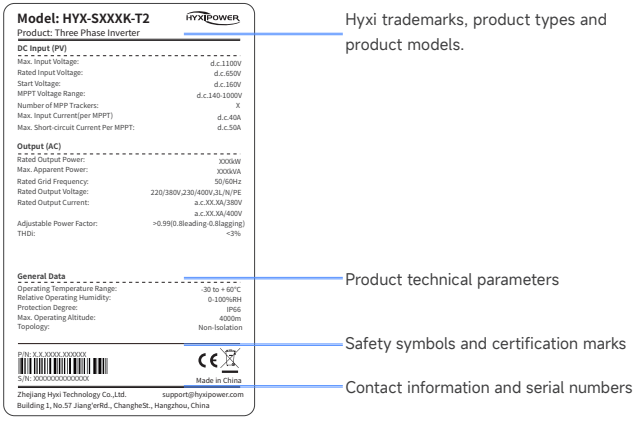
For TT power grid, the N-PE voltage should be lower than 30V.



⚠ WARNING

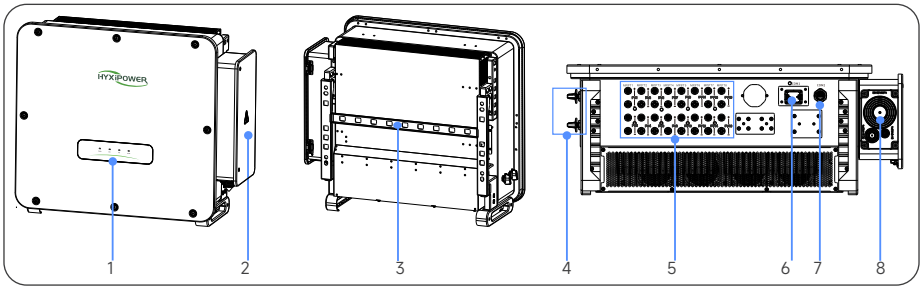
- The inverter is only applicable to the system described in this manual.
- Since the inverter is transformerless type, it is required that both the positive and negative terminals of the PV module cannot be grounded, otherwise the inverter will not operate normally.
- During the installation and operation of the inverter, make sure that the positive or negative pole of the PV module will not be short-circuited to the ground, if shortcircuited, it may cause the inverter AC / DC short circuit, resulting in equipment damage, and the resulting damage will not be covered by the warranty.

2.3 Nameplate Description



* This label is for illustrative purpose only, please refer to the actual content.

2.4 Product Appearance



No.	Item	No.	Item
1	LED Indicator Panel	2	AC Junction Box
3	Mounting backplate	4	DC SWICH 1&2
5	PV Input Terminal	6	COM1 With RS485 Communication
7	COM2 (DCS)	8	AC Terminal

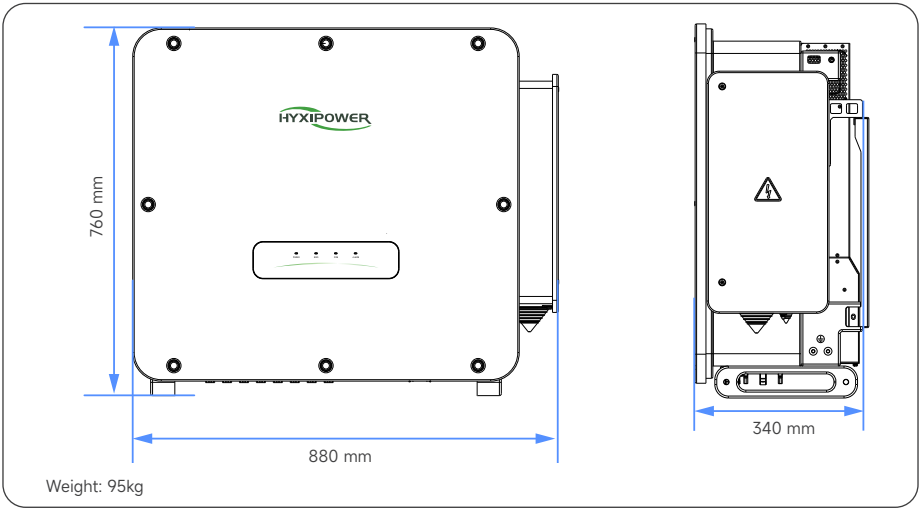
2.5 Symbol Description

Symbol	Description
	There is a fatal danger of high voltage ! Disconnect power for at least 30 minutes before servicing the inverter.
	Do not touch the inverter enclosure while it is in operation.
	Beware of electric shock ! High voltage exists when the equipment is in operation, so when operating the equipment, make sure the equipment is powered off.
	Risk of danger ! There are potential hazards when the equipment is in operation, please take precautions when operating the equipment.
	Observe enclosed documentation.
	CE certification mark. The inverter complies with the regulations of CE.
	Do not dispose of the product together with the household waste.
	Grounding point. Reliably grounded before connecting to the power supply.

2.6 Product Mode

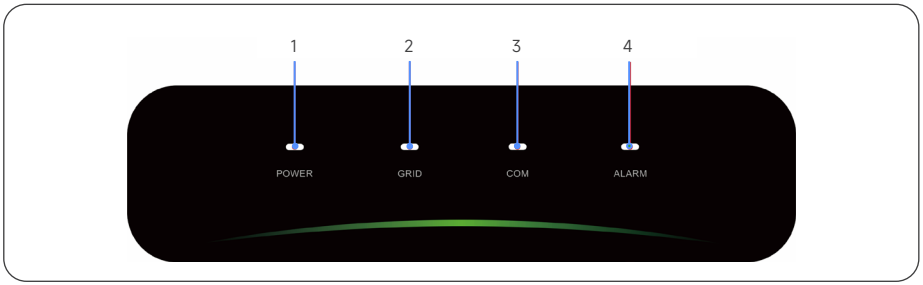
Product Name	Model	Rated Output Power
Three-phase string inverter	HYX-S50K-T2	50kW
	HYX-S60K-T2	60kW
	HYX-S75K-T2	75kW
	HYX-S80K-T2	80kW
	HYX-S99K9-T2	99.9kW
	HYX-S100K-T2	100kW
	HYX-S110K-T2	110kW
	HYX-S125K-T2	125kW

2.7 Dimensions & Weight



Weight: 95kg

2.8 LED Indicator



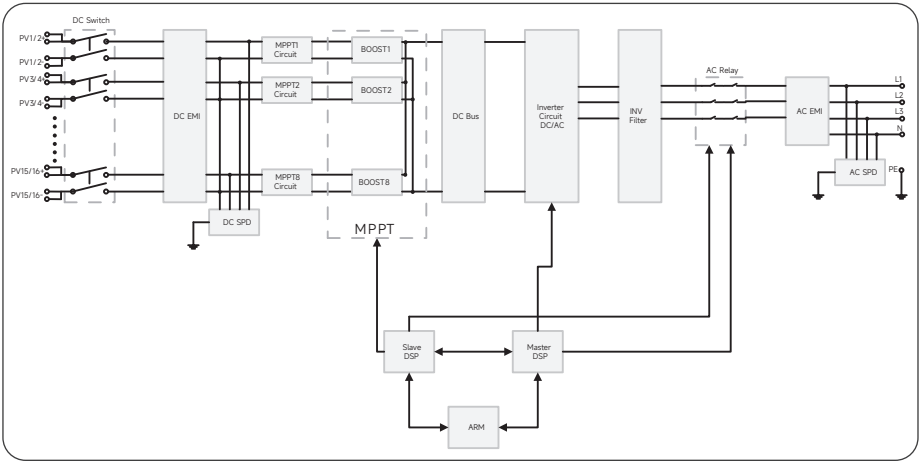
No.	Indicator	Status	Description
1	POWER	ON	Inverter Powered ON
		OFF	Inverter Powered OFF
2	GRID	ON	Grid Normal
		Blink 1	Grid Abnormal
		Blink 2	Grid Disconnected
3	COM	ON	Meter COM Normal
		OFF	Meter COM Abnormal
4	ALARM	OFF	Normal
		Blink 1	Inverter Internal Alarm
		Blink 2	Other Alarm

Blink: 1 time flashing, interval 1.5 seconds; Blink 2: 2 times flashing, interval 0.2 seconds.

2.9 Description of Principles and Functions

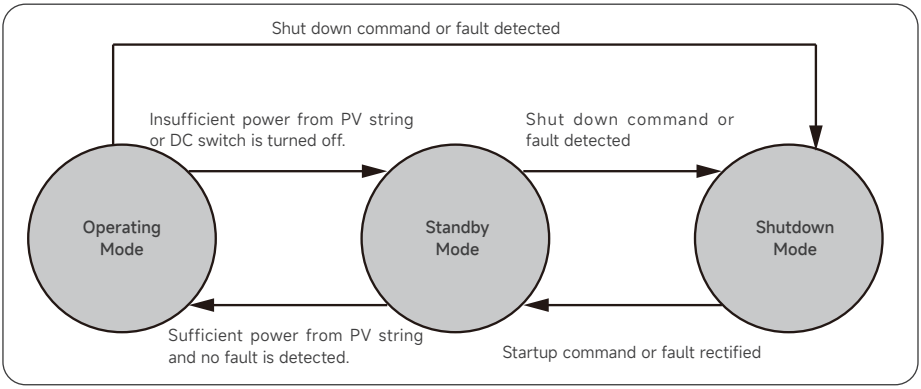
2.9.1 Circuit Diagram

Item	Description
DC Switch	The DC switch is used to safely cut off the DC current when necessary to ensure the safe operation of the inverter and the safety of personnel.
EMI Filter	The EMI filter filters out electromagnetic interference inside the inverter to ensure that the inverter can meet the requirements of EMC standards.
DC Input	The DC input is equipped with 4/6/8 MPPTs to ensure maximum power even under different PV input conditions. The inverter unit converts the DC power into grid-compliant AC power and feeds it into the grid.
AC Filter	The AC filter filters the high frequency component of the inverter output current to ensure that the output current meets the grid requirements.
Output Relay	The output relay isolates the inverter AC output from the grid and keeps the inverter safely off the grid in case of inverter or grid failure.
AC Surge Protector	The AC surge protector provides a drain circuit overvoltage energy on the AC side to prevent AC side overvoltage from damaging the inverter's internal circuit.



2.9.2 Working Modes

HYX-S(50~125)K-T2 can work in Standby, Operating, or Shutdown mode.



2.9.3 Description of Functions

The inverter converts DC power into AC power that meets the requirements of the grid and feeds it into the grid. The functions of the inverter can be summarized as follows:

Item	Description
Data Storage	The inverter stores operating information, fault records, and other system information.
Parameter Configuration	You can configurate the parameters of the inverter via HYXI App to meet various needs or to optimize its operation.
Communication Interface	• The inverter provides a communication accessory port for accessing the communication module and uploading monitoring data to the cloud via wired or wireless communication. • When the communication equipment is successfully established, you can view inverter-related information and configurate its operating parameters, protection parameters, etc., via the HYXI Smart Energy Management Platform.
Protection Functions	The inverter is equipped with protection functions, including islanding protection, DC reverse connection protection, AC short circuit protection, leakage current protection, surge protection, etc.
Earth Fault Alarm	The device gives an alarm if there is a grounding fault. If the AC side is poorly grounded or not grounded, the LED indicator turns red.

3 Inspection & Storage

3.1 Safe Transport of the Inverter

When transporting the inverter, the original or equivalent packaging should be used, and the maximum layers for original carton is three, as this ensures safe transport.

3.2 Unpacking and Inspection

The equipment has been completely tested and strictly inspected before leaving the factory, but it may still be damaged during transportation, please make a detailed inspection before signing the product.

- Check whether there is any damage to the packing box.
- Check if the goods are complete and in accordance with the packing list.
- Unpack and check if the equipment inside is intact.
- If there is any damage or incomplete goods, please contact with the shipping company or directly with Zhejiang HYXI Technology Co., Ltd.
- Provide photos of the damage to facilitate the provision of services.

3.3 Inverter Storage

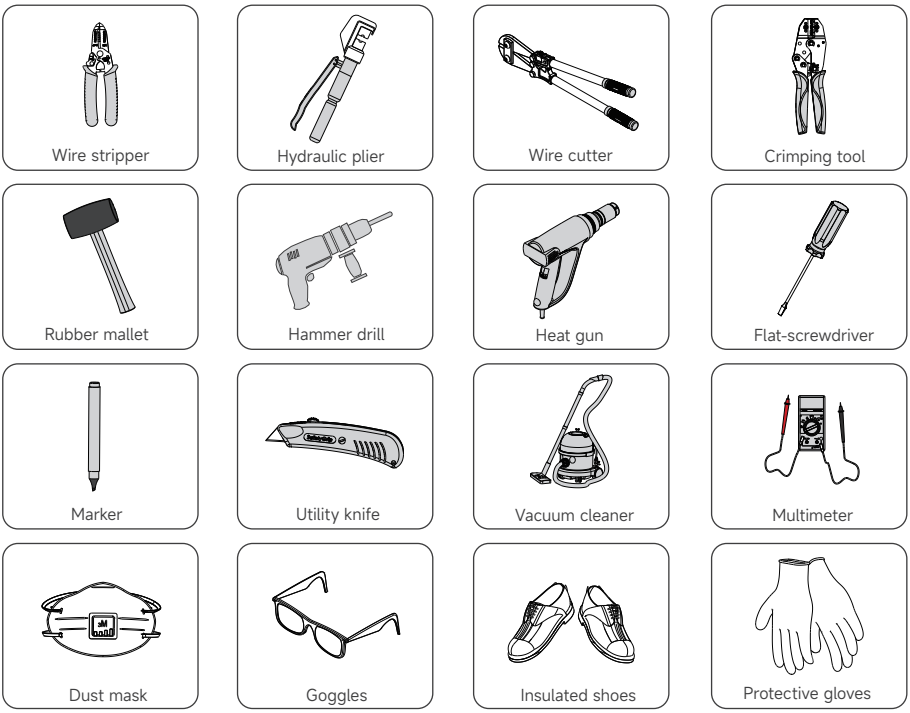
If the inverter is not immediately put into use, it is necessary to meet the following requirements when storing the inverter:

- Do not remove the outer packaging of the inverter.
- The inverter needs to be stored in a clean and dry place and protected from dust and water vapor.
- The storage temperature should be kept at -30°C to +60°C and the relative humidity should be kept at 0% ~ 100%RH (non-condensing).
- When stacking multiple inverters, it is recommended that they be placed in the same number of layers as originally shipped.
- Place the inverters carefully to avoid personal injury or equipment damage caused by tipping the equipment.
- Avoid chemically corrosive substances, otherwise it may corrode the inverter.
- During the storage period, regular inspection is required. If insects and rodents bite the inverter or damage the packaging, the packaging material should be replaced in time.
- After long-term storage, the inverter needs to be inspected and tested by professionals before it can be put into use.
- Do not dispose of the original packaging of the equipment. It is better to store the equipment in the original box after it is dismantled.

4 Pre-Installation Preparation

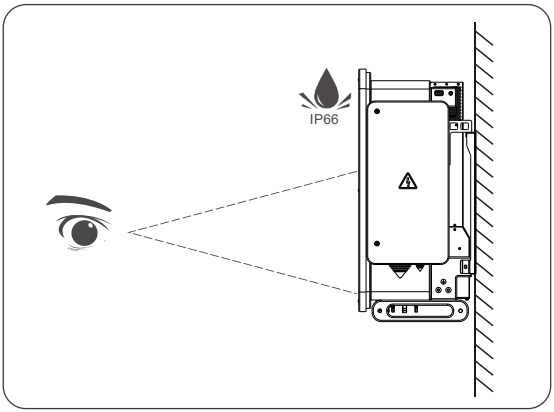
4.1 Installation Tools

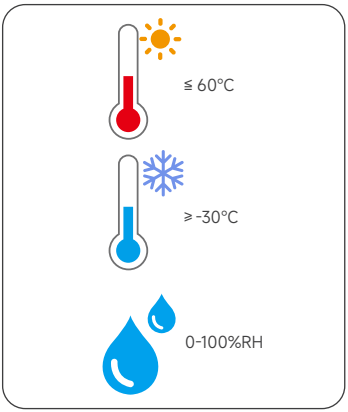
Installation tools include, but are not limited to, the following recommended tools. And if necessary, other auxiliary tools can be used on site.



4.2 Installation Environment

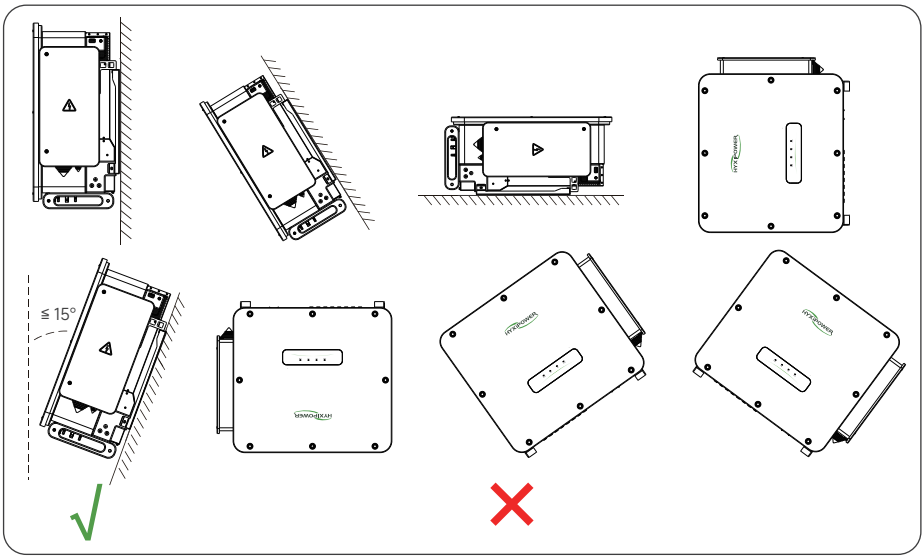
- The inverter has IP66 protection level and can be used for indoor or outdoor installation.
- The installation location should be convenient for electrical connection, operation and maintenance.
- No flammable and explosive materials should be present in the installation environment.
- It must not be installed in a location that is accessible to children.
- Temperature should meet: -30 to +60°C ; Humidity should meet: 0 ~ 100% RH.
- Avoid direct sunlight, rain and snow on the inverter, and choose a sheltered place for the installation to extend the life of the inverter.
- Make sure the inverter is ventilated and dissipated smoothly, please install the inverter in a ventilated environment.
- The inverter will generate some noise during operation, so it is not recommended to install it in the living area.





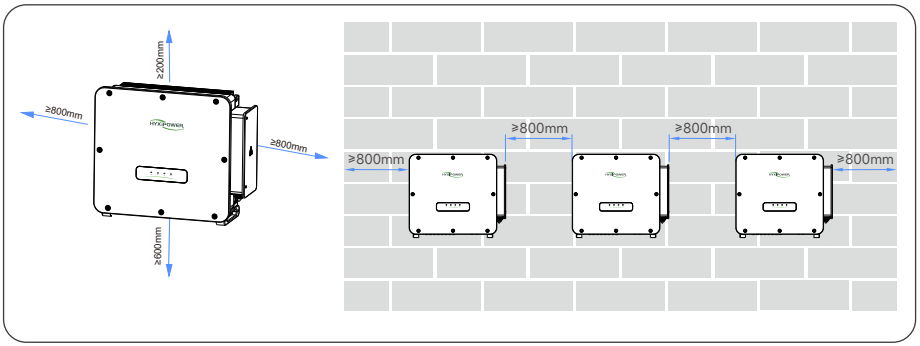
4.3 Installation Angle

- The mounting carrier has a load-bearing capacity of at least 4 times the weight of the inverter, and the carrier must be fire resistant.
- It is recommended that the inverter be installed vertically or tilted backward by no more than 15° for better heat dissipation.
- Do not tilt the inverter forward, backward, upside down or sideways.



4.4 Installation Space

Make sure there is enough space around the inverter to ensure ventilation. The installation space requirements for a single inverter are shown in the figure below.



5 Mechanical Installation

5.1 Installation Precautions

⚠ DANGER

- Before installing the inverter, be sure that the inverter is free of any electrical connections.
- Make sure to avoid the utility cables in the wall before drilling holes to avoid any danger.

⚠ CAUTION

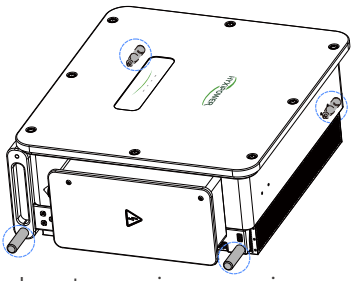
- The instructions in the manual must be followed when handling and placing the equipment.
- Improper handling of the equipment may result in minor, serious or fatal injuries.
- The equipment heat sink must be kept uncovered to ensure adequate cooling inside the equipment.

5.2 Handling the Inverter

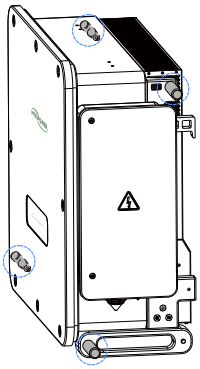
Before installation, the inverter needs to be removed from the packing box and moved to the selected installation site, when moving the inverter, the following instructions need to be observed:

- Always pay attention to the weight of the inverter.
- Use the handles on both sides of the inverter to lift the inverter.
- One or two installers move the inverter together, or use a suitable moving tool.
- Do not loosen the inverter unless it is securely fastened.
- When handling the inverter, please use the handles on the product, do not use the terminals etc. of the product as grips.

It is recommended to use the screw-in handles (optional) and base handles to move the inverter. Attach the four screw -in handles to the lugs and base of the inverter. Lift and move the inverter to the destination by the bottom handle and the four installed handles.



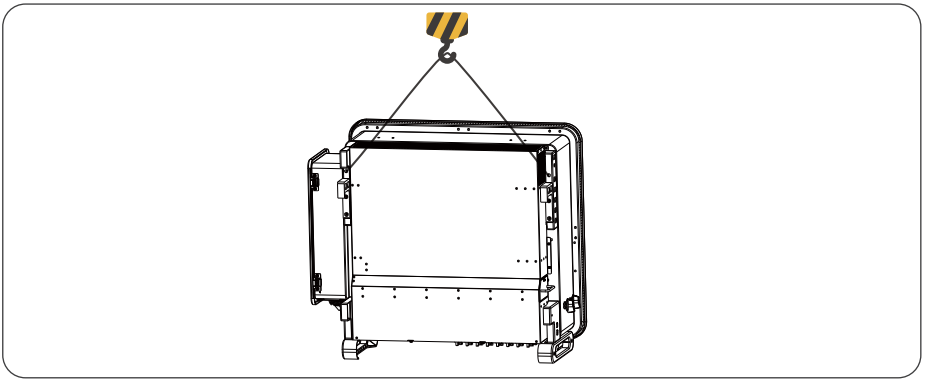
Inverter moving scenarios



Inverter installation scenario

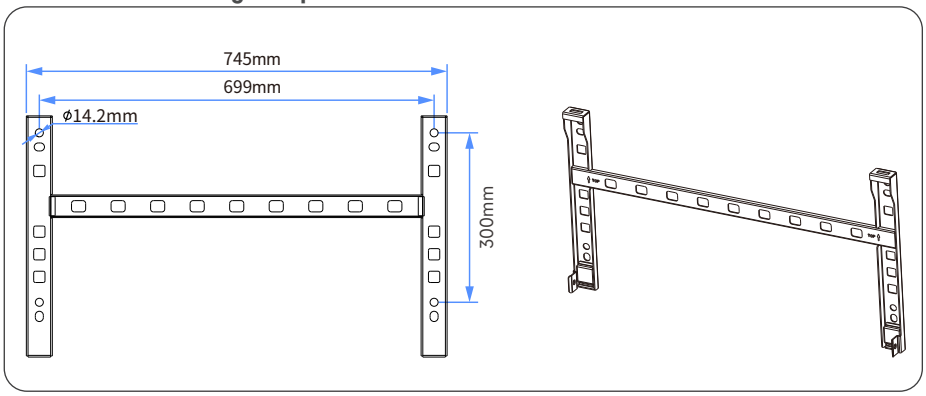
If the installation position is high and it is not possible to mount the inverter directly to the project mounting, pass the rope for lifting (which must meet the load-bearing requirements of the product) through the two lifting holes and then lift the inverter.

When lifting the inverter, please pay attention to keep the balance, so that the inverter will not collide with the wall or obstacles and damage the shell.



5.3 Installing the Inverter

Dimension of mounting backplate :



5.3.1 Wall-mounted Installation

Installation procedure:

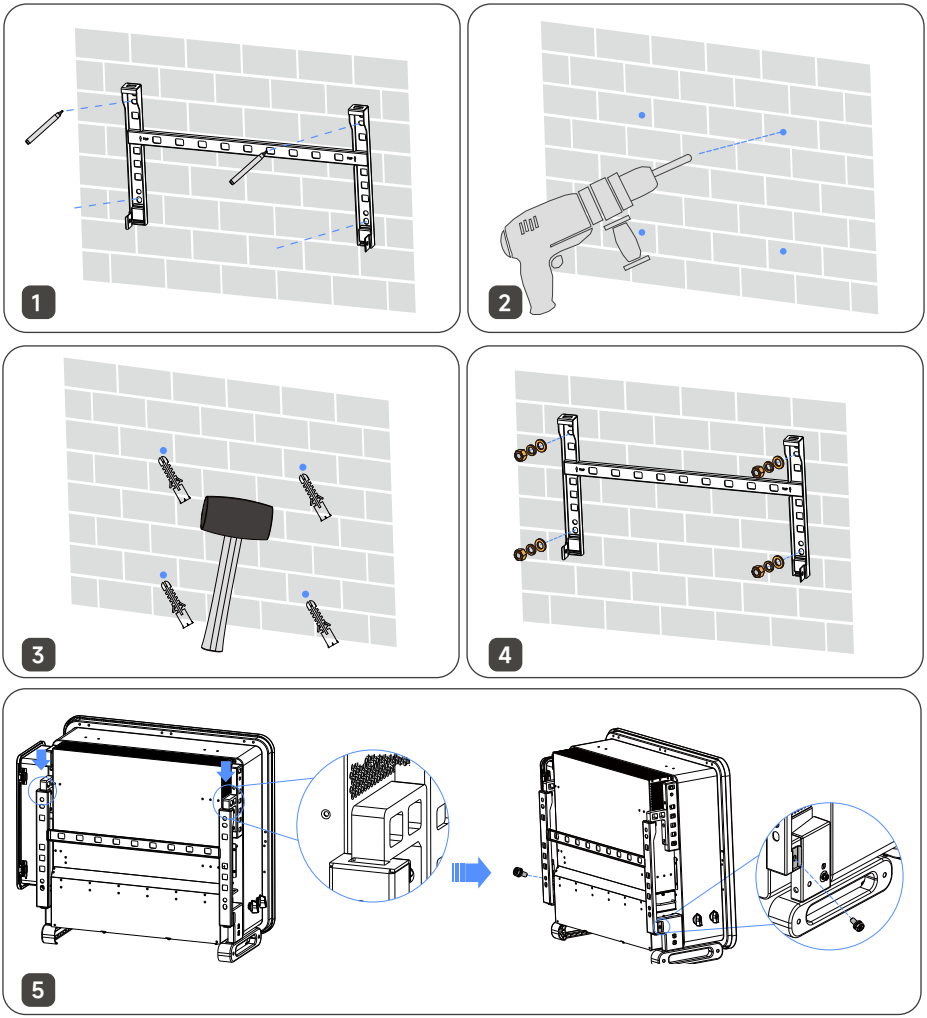
Step 1: Place the backplate horizontally on the wall, recommend to select the hole position shown in the picture and mark the drilling position.

Step 2: Drill holes at the location shown, the depth of the hole is about 70 mm.

Step 3: Place the expansion tube into the holes.

Step 4: Place the backplate, and secure it with M12 expansion screws.

Step 5: Hang the inverter to the backplate, ensure the inverter is securely fastened to the mounting lugs of the backplate. And then secure the inverter with M6 screws. (Torque wrench:4.5~5 N • m)

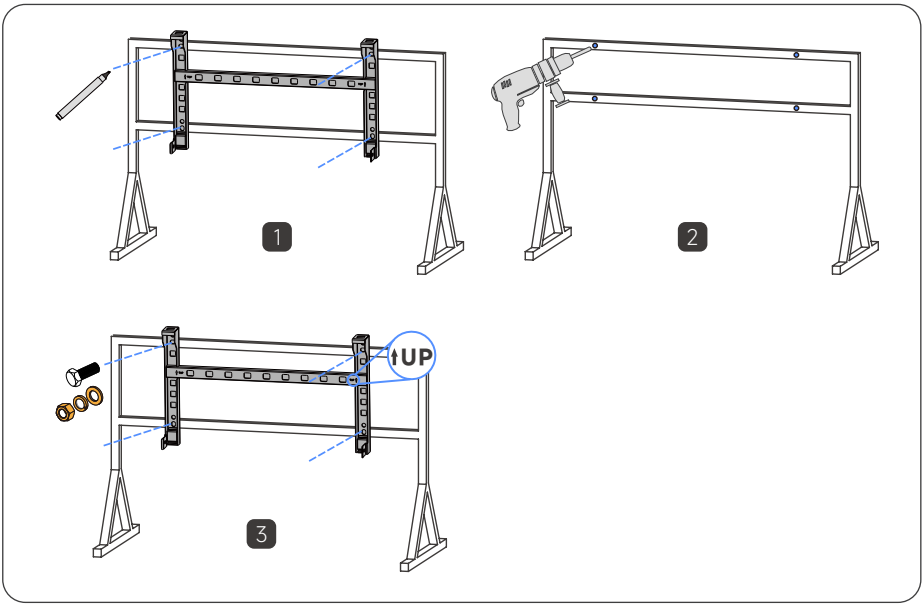


5.3.2 Bracket-mounted Installation

Step 1: Use the backplate to determine the drilling position, level the hole position with a spirit level , and mark it with a marker.

Step 2: Use a hammer drill to drill holes (it is recommended to perform rust-proof treatment on the drilling area).

Step 3: Fix the backplate, and finally install the inverter on the backplate. The following steps are the same as wall-mounted installation.



6 Electrical Connection

⚠ DANGER

- High voltage may be present in the inverter.
- Exposure of the PV module to sunlight will generate dangerous voltages.
- Do not close the AC/DC circuit breaker before completing the electrical connection and prevent misconnection.
- Make sure that all cables are not energized before making electrical connections.

⚠ WARNING

- Any improper operation during wiring may result in equipment damage or personal injury or death.
- The wiring operation must be done by professional technicians only.
- The cables used in the PV power generation system must be firmly connected, intact, well insulated and of appropriate specifications.

⚠ WARNING

- Since the inverter is transformerless, the positive and negative terminals of the PV string must not be grounded, otherwise the inverter will not operate properly.
- Before connecting the AC side, the PV string and the communication connection, please make an external ground connection.
- The ground connection of the external protective earth terminal is not a substitute for the connection of the PE terminal in the AC wiring, but must ensure that both are reliably grounded. Otherwise, HYXI will not take any responsibility for the possible consequences.

⚠ CAUTION

- The wiring process must follow the relevant rules of the local power grid and the relevant safety instructions of PV modules.
- All electrical installations must comply with the electrical standards of the country and region where they are installed.
- The inverter can be connected to the grid only after obtaining the permission of the local power department.

6.1 Additional Required Cables

S indicates the conductor cross-sectional area of the AC cable, and Sp indicates the conductor cross-sectional area of the PE cable.

<table>
<tr><th>Cable</th><th>Type</th><th>Conductor Cross-Sectional Area</th><th>Outer Diameter</th><th>Source</th></tr>
<tr><td>DC input power cable</td><td>PV cable that meets the 1000V standard</td><td>4~6 mm²</td><td>5.5~9 mm</td><td rowspan="8">Prepared by users</td></tr>
<tr><td rowspan="6">AC output power cable *</td><td>Outdoor five-core copper wire cable</td><td rowspan="6">Copper cable
S: 70–240 mm²
Sp: ⩾ S/2

Aluminum alloy cable or copper-clad aluminum cable
S: 95–240 mm²
Sp: ⩾ S/2</td><td>30~60 mm</td></tr>
<tr><td>Outdoor four- core wire copper cable
Outdoor PE cable</td><td>L1, L2, L3, N wire:
30~ 60 mm
PE wire:
14 ~ 32 mm</td></tr>
<tr><td>Outdoor five-core aluminum wire cable</td><td>30~60 mm</td></tr>
<tr><td>Outdoor four- core aluminum wire cable
Outdoor PE cable</td><td>L1, L2, L3, N wire:
30~ 60 mm
PE wire:
14 ~ 32 mm</td></tr>
<tr><td>Five outdoor single-core copper cables</td><td rowspan="2">14 ~ 32 mm</td></tr>
<tr><td>Four outdoor single-core aluminum cables
Outdoor PE cable</td></tr>
<tr><td>Communication cable</td><td>Outdoor shielded twisted pair cable that meets the local standard</td><td>0.25~1 mm²</td><td>1- or 2-core communication cable: 4~11 mm
3-core communication cable: 4~8 mm</td></tr>
</table>

* Note:

1. If aluminum cables are used, copper-aluminum transition terminals shall be equipped.

2. The Sp value is valid only when the PE cable and the AC output cable use conductors of the same material. If the materials differ, the cross-sectional area of the PE cable conductor shall provide equivalent conductivity to the value specified in the table. The PE cable shall either comply with the requirements in this table or be calculated in accordance with IEC 60364-5-54.

3. When using copper cable, it is recommended to select conductors with a cross-sectional area of 70–150 mm² to facilitate installation.

4. Select AC cables that meet local standards and safety regulations based on the requirements listed in the table.

6.2 Grounding Connection

⚠ WARNING

- In the PV power generation system, all non-current-carrying metal parts and equipment enclosures should be grounded (e.g., PV mounting structures, etc.).
- The external grounding terminal of a single inverter shall be grounded nearby.
- When there are multiple inverters, the external grounding terminals of all inverters and the grounding points of PV mounting should be connected to the equipotential line (depending on the site conditions) to ensure that the external grounding of all inverters is grounded.
- Please ensure that the grounding procedure has been completed before any other operation.
- The cross-sectional area of the secondary grounding cable must be the same as the cross-sectional area of the PE core in the AC cable.

NOTICE

- The secondary grounding cable and terminal block are to be prepared by users.

NOTICE

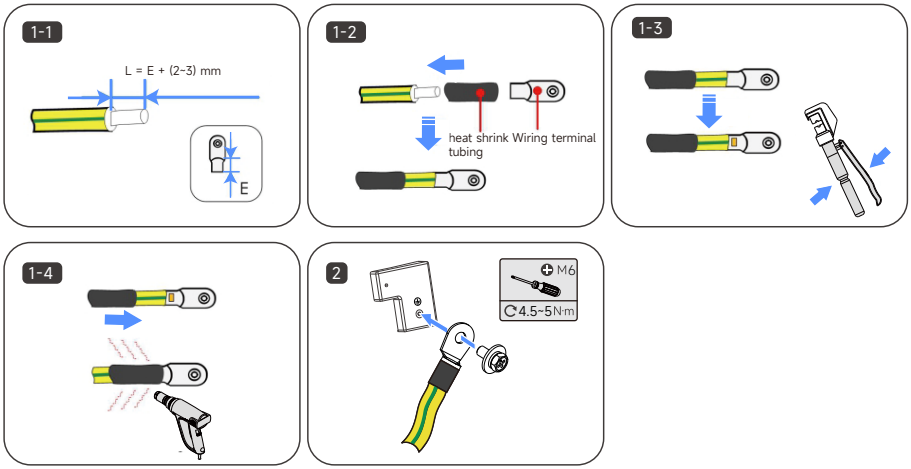
- When stripping cables, pay attention not to damage the conductors.
- The cavity formed after crimping the OT terminal must completely enclose the conductors. The conductors must make tight contact with the OT terminal.
- Wrap the crimped area with heat-shrink tubing or PVC electrical tape. The image below shows an example using heat-shrink tubing.
- When using a heat gun, pay attention to protect the equipment from burns.

Grounding procedure:

Step 1: Make the cable and crimp the terminal block.

Step 2: Remove the screws from the grounding terminal and use a screwdriver to secure the cable.

Step 3: Apply silicone or paint to the grounding terminal to improve its corrosion resistance.



6.3 AC Side Connection

6.3.1 AC Side Requirements

⚠ DANGER

- Before connecting to the grid, make sure that the grid voltage and frequency meet the requirements of the inverter, please refer to the "Technical Data" for detailed parameters. Otherwise, contact the power company to solve the problem.
- Inverters can only be connected to the grid with the local power company's access permit.
- A three-phase AC switch needs to be installed on the AC side of the inverter. To ensure the inverter can be safely disconnected from the grid in case of abnormal conditions, please select an appropriate overcurrent protection device according to local power distribution regulations.
- Multiple inverters must not share a single AC circuit breaker.
- No load can be connected between the inverter and the AC circuit breaker.

AC Circuit Breakers

An independent two-pole circuit breaker must be installed on the output side of the inverter to ensure safe disconnection from the grid. The recommended specifications are as follows.

Inverter Model	Recommended Rated Voltage & Current
HYX-S50K-T2	75.9A/380V 72.1A/400V
HYX-S60K-T2	100.2A/380V 95.2A/400V
HYX-S75K-T2	113.9A/380V 108.2A/400V
HYX-S80K-T2	133.7A/380V 127A/400V
HYX-S99K9-T2	151.9A/380V 144.3A/400V
HYX-S100K-T2	151.9A/380V 144.3A/400V
HYX-S110K-T2	167.1A/380V 158.7A/400V
HYX-S125K-T2	189.9A/380V 180.4A/400V

Leakage current protector

The inverter is equipped with an integrated comprehensive leakage current monitoring unit. The installation of an RCD (residual current monitoring device) is determined according to the requirements of local laws and regulations. The inverter can be externally connected to an RCD of type A to protect it when the DC component of the leakage current exceeds the limit value.

The following RCD specifications are for reference:

Inverter Model	Recommended RCD
HYX-S50K-T2	≥ 1000 mA
HYX-S60K-T2	
HYX-S75K-T2	
HYX-S80K-T2	
HYX-S99K9-T2	
HYX-S100K-T2	
HYX-S110K-T2	≥ 1250 mA
HYX-S125K-T2	≥ 1250 mA

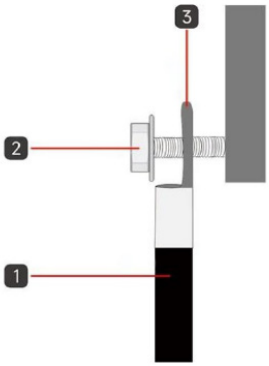
OT/DT Terminal Requirements

When copper core cables are used, use copper terminals.

When copper-clad aluminum cables are used, use copper terminals.

When aluminum alloy cables are used, use copper to aluminum conversion terminals.

If aluminum cable is selected, copper-aluminum transition terminals are required to avoid direct contact between the copper terminal and aluminum cable.



1	Aluminum cable
2	Nut
3	Copper-aluminum transition terminals

6.3.2 AC Side Wiring

⚠ WARNING

- When wiring, the AC output wires should be fully matched to the "L1", "L2", "L3", and "N" ports of the AC terminals. Incorrect cable connections will damage the inverter.
- Ensure the wire cores are fully inserted into the AC terminal holes without any exposed wires.
- Ensure that the cable connections are secure; otherwise, the terminals may overheat during operation, causing damage to the inverter.
- There are two wiring methods for the AC output terminals: three-phase four-wire and three-phase five-wire. The specific wiring method should be determined based on the actual wiring configuration. This manual uses the three-phase five-wire method as an example.
- A sufficient length of protective grounding wire should be reserved to cope with situations where the AC output lines are subjected to force majeure or tension, ensuring the protective ground wire can withstand the stress.
- Ensure that the cable is not twisted.

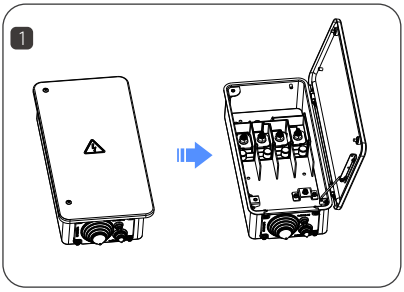
NOTICE

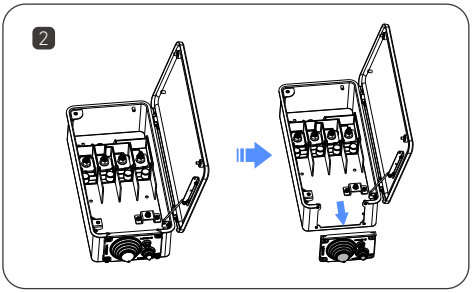
- M8 grounding OT terminal and M12 AC OT terminal should be prapared by users.

AC Side Connection Steps

Step 1: Disconnect the AC side circuit breaker and loosen cover screws of the junction box. Use the limit rod to keep the junction box open during wiring.

Step 2: Remove the sealing plate and cut a suitable sealing ring according to the outer diameter of the cable.

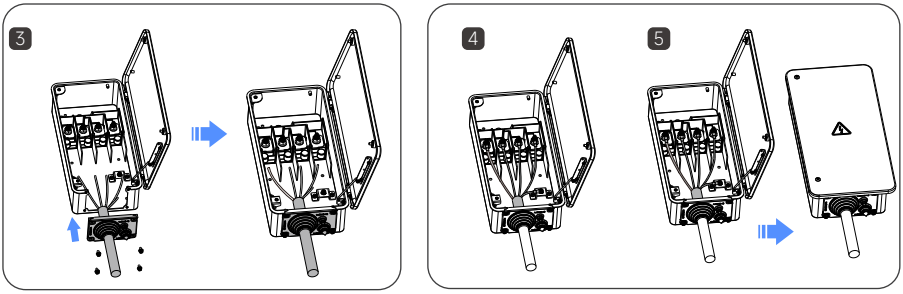




Step 3: Pass the cable (with the protective sheath removed) through the sealing ring and tighten the screws on the sealing plate.

Step 4: Secure the crimped OT/DT terminal cable to the corresponding terminal. (For terminal installation torque values, please refer to the torque label inside the AC junction box).

Step 5: Remove the limit rod, and close the box, then tighten the screws on the cover.



6.4 DC Side Connection

⚠ DANGER

- Before connecting the DC input power cable, ensure the DC voltage is within a safe range (below 60V DC) and that the DC switch is in the "OFF" position. Otherwise, high voltage may be generated, leading to electric shock.
- When the inverter is running, do not operate the DC input power cable, such as connecting or disconnecting the PV strings. Doing so may result in electric shock.
- If no PV strings are connected, do not remove the waterproof caps from the inverter's DC input terminals. Doing so will affect the inverter's IP rating.

⚠ WARNING

Ensure that the following conditions are met. Otherwise, the inverter may be damaged, or even a fire could happen.

- The PV modules in the same PV string should be of the same specification.
- The open-circuit voltage of each PV module must be less than or equal to 1100V DC.
- The maximum short-circuit current of each PV module must be less than or equal to 25A.
- Ensure the DC input power cables are correctly connected. Connect the positive and negative terminals of the PV module to the corresponding DC input terminals of the inverter.
- If the DC input power cable is reversely connected, do not operate the DC switch or the positive and negative connectors. Wait until the solar radiation intensity decreases at night and the PV string current drops below 0.5A before turning off the DC switch. Then disconnect the positive and negative connectors to correct the polarity.

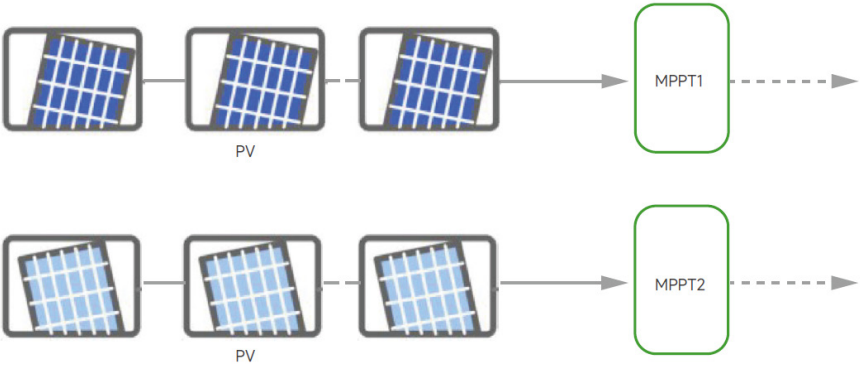
NOTICE

- Because the output terminals of the PV module connected to the inverter cannot be grounded, please ensure that the PV module output terminals are insulated to the ground.
- During the installation of PV strings and the inverter, the positive or negative terminals of PV strings may be short-circuited to ground if power cables are not properly installed or routed. When the inverter is operating, an AC or DC short circuit may occur and damage the device. The caused device damage is not covered under any warranty.

6.4.1 PV Input Configuration

The inverter has multiple PV input terminals, each equipped with an independent MPPT that can operate independently. To make full use of the PV input power, the PV modules in the same strings should have the same structure, including: the same type, number of modules, tilt angle and azimuth angle.

The structure of PV modules in different strings can be different, including: different module types, different number of cells in the string, different tilt and azimuth angles.



6.4.2 PV Side Connection

⚠ DANGER

- High voltage may present in the inverter!
- Make sure that all cables are not energized before performing electrical operations.
- The AC circuit breaker switch must not be closed until the inverter electrical connections are complete.

⚠ CAUTION

- If the DC input polarity is reversed, the inverter will be in a fault or alarm condition and will not operate properly.

PV Connector Steps

Step 1: Turn the DC switch to "OFF" manually, and make sure the inverter is powered off.

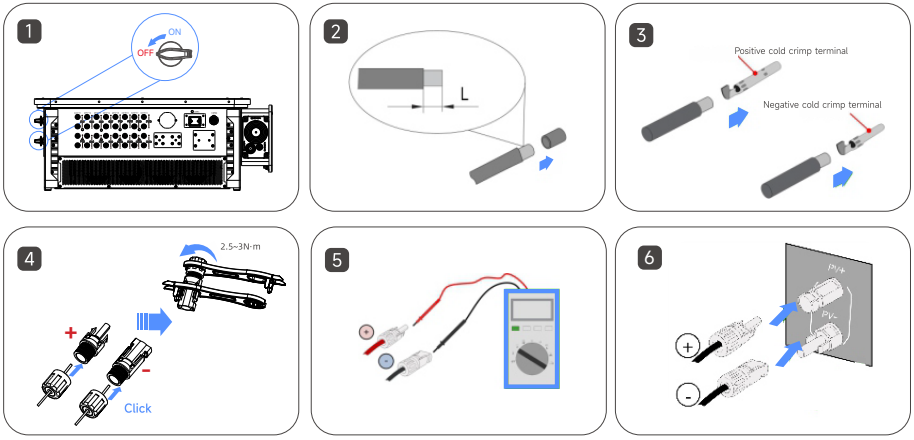
Step 2: Strip all DC cable insulation by approximately 7 mm.

Step 3: Use hydraulic plier to crimp the cable ends of the terminals.

Step 4: Insert the cable through the cable swivel nut, and the PV connector and fasten it, and pull the cable gently to make sure it is tightly connected. Use 2.5~3N·m force to tighten the PV connector.

Step 5: Use a multimeter to check the correct polarity of the PV cable.

Step 6: Connect the PV connector to the corresponding terminal until you hear a click. Seal the unused PV terminal with the MC4 waterproof plug.

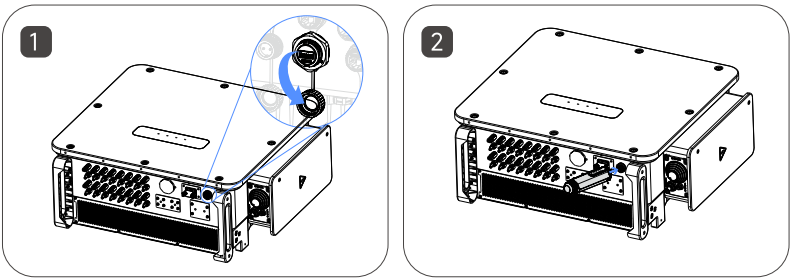


6.5 Communication Connection

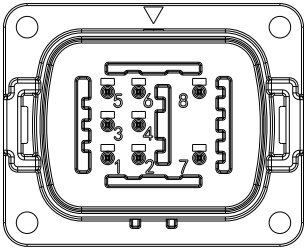
6.5.1 DCS Installation

Step 1: Remove the waterproof cover at the communication terminal of the inverter.

Step 2: Insert DCS into the corresponding communication terminal at the bottom of the inverter and tighten it to ensure it is secure.



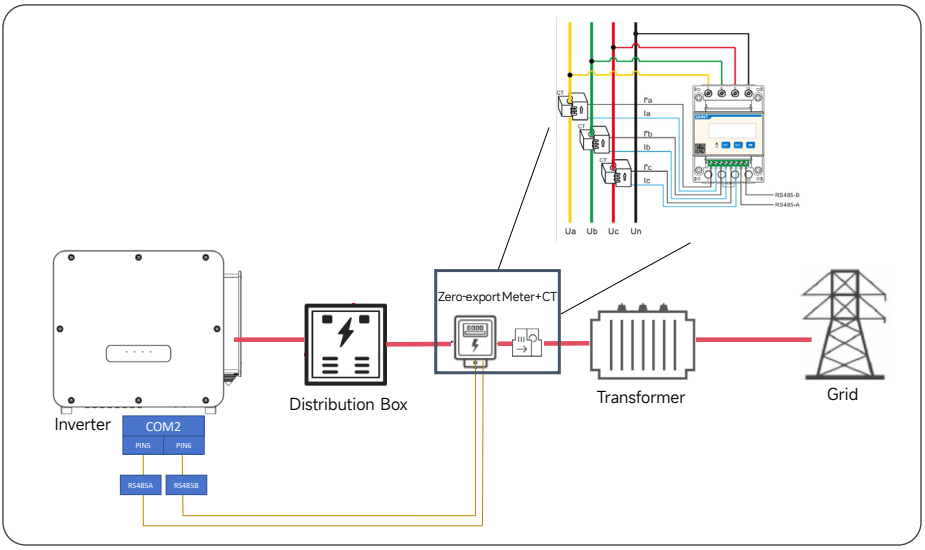
6.5.2 RS485 Installation



PIN	Definition	Function	Description
1	RS485_A1	RS485 differential signal +	For inverter cascading or connecting to the RS485 signal port
3	RS485_B1	RS485 differential signal -	
2	RS485_A2	RS485 differential signal +	For inverter cascading or connecting to the RS485 signal port
4	RS485_B2	RS485 differential signal -	
5	RS485_METER_A	RS485 differential signal +	Reserved. For connecting to the RS485 signal port for controlling the power meter at the grid connection point.
6	RS485_METER_B	RS485 differential signal -	
7	PE	Grounding	PE, the shielding layer is grounded
8	PE	Grounding	

Zero-Export Wiring Diagram

The following figure shows the cable connections between the inverter and DTSU666 meter.



7 System Commissionning

7.1 Checking before Power-On

- Check that the installation location of the inverter meets the requirements of Section 4.2 Installation Requirment and ensure easy installation, disassembly, operation and maintenance of the inverter.
- Check that the mechanical installation of the inverter meets the requirements of Section 5 Mechanical Installation.
- Check that the electrical connections to the inverter meet the requirements of Section 6 Electrical Connection.
- Check that all switches are in the "OFF" position.
- Make sure no construction tools, etc. are left inside of the machine or in the junction box (if the machine has one).
- AC circuit breakers are selected in accordance with this manual and local standards.
- All safety signs and warning labels are securely attached and clearly visible.
- Check that the PV module open circuit voltage meets the requirements of the DC side parameters of the inverter.

⚠ CAUTION

- To ensure the safe, normal and stable operation of PV generation system, all newly installed, renovated and repaired grid-connected PV generation system and its grid-connected inverter must be inspected before operation.

7.2 Power-On the Inverter

Step 1: Make sure that all items checked in section 7.1 are satisfied.

Step 2: Close the grid-connected AC circuit breaker and turn on the built-in DC switch of the inverter.

Step 3: Observe the LED status of the inverter. (Refer to 2.8 LED Indicator for details)

7.3 Power-Off the Inverter

⚠ CAUTION

- After the inverter has been shut down, there is still a risk of burns. After the inverter has cooled down, it is necessary to wear protective gloves before operating the inverter.
- It is necessary to shut down the inverter when maintenance or repair work needs to be performed. Follow the steps below to disconnect the inverter from the AC and DC power sources, failure to do so may result in injury or damage to the equipment.

Step 1: Use HYXI App to issue a shutdown command to the inverter.

Step 2: Disconnect the external AC circuit breaker and prevent reconnection due to misuse.

Step 3: Disconnect the external DC circuit breaker and turn the DC switch of the inverter to "OFF".

Step 4: Wait for at least 5 minutes until the internal capacitor is completely discharged.

Step 5: Use a current clamp to check the DC cable to make sure there is no current.

7.4 Disassembling the Inverter

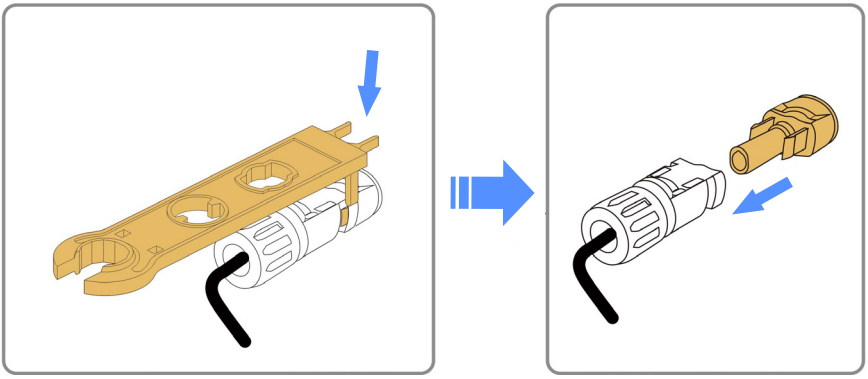
⚠ CAUTION

- Danger of burns and electric shocks!
- After disconnecting the inverter from the grid and the PV modules, wait at least 5 minutes before touching the internal conductive components.

NOTICE

- Before dismantling the inverter, both AC and DC must be powered off.
- If the inverter has more than two DC terminals, the outer DC connector needs to be removed before the inner DC connector can be removed.

Step 1: Refer to "6. Electrical Connection" and follow the steps in reverse order to disconnect all electrical connections from the inverter. To remove the DC connector, use the MC4 wrench to loosen the locking part of the DC connector and install the waterproof plug.



Step 2: Refer to "5. Mechanical Installation" and follow the steps in reverse order to remove the inverter.

Step 3: If necessary, remove the mounting backplate.

Step 4: If the inverter is to be put into use at a later date, store the inverter properly as described in "3.3 Inverter Storage".

7.5 Disposing of the Inverter

⚠ CAUTION

- Some parts of the inverter, such as capacitors, may cause environmental pollution. Do not dispose of this product with household waste, and dispose of it in accordance with the regulations for disposal of electronic waste used at the installation site.

8 Maintenance

In the solar PV grid-connected power generation system, the inverter can automatically complete the operation of grid-connected power generation and stop-start without human control.

In order to ensure and extend the service life of the inverter, in addition to using the inverter in strict accordance with the contents of this manual, it is necessary to perform the necessary routine maintenance and repair of the inverter.

8.1 Maintenance Precautions

⚠ DANGER

- Disconnect the grid-side AC circuit breaker, then disconnect the DC switch.
- Wait at least 5 minutes until the internal components are discharged before performing maintenance or service operations.
- Use test equipment to verify that no voltages or currents are present.

⚠ CAUTION

- When performing electrical connections and maintenance, post warning signs to prevent non-personnel from entering the electrical connection or maintenance area.
- Do not restart the inverter until all faults affecting its safety performance are solved.
- The inverter does not contain service parts inside, do not replace the internal components of the inverter without permission.
- Comply with electrostatic discharge (ESD) protection regulations, wear anti-static wrist strap, and avoid unnecessary contact with circuit board.
- Please contact HYXI after-sales service for maintenance, unauthorized disassembly will void the warranty, and HYXI shall assume no liability.

8.2 Routine Maintenance

Inspection content	Inspection method	Maintenance interval
Save inverter operation data	• Use monitoring software to read the inverter data in real time and regularly backup the data recorded by the monitoring software. • Save the operation data, parameters, and logs of the inverter recorded in the monitoring software to a file. • Check the monitoring software and view various parameter settings of the inverter through the hand-held keyboard.	Once every three months
Inverter operation condition	• Observe whether the inverter is firmly installed, and whether there is damage or deformation. • Listen to the inverter for abnormal sounds. • When the system is connected to the grid, check various variables. • Check whether the inverter housing is heating normally, and use a thermal imager to monitor the system heating.	Once every six months
Inverter cleaning	Check the humidity and dust in the environment around the inverter, and clean the inverter if necessary.	Once every six months
Electrical connection	• Check whether the system cable connection is loose and the inverter wiring terminals are loose. • Check the cable for damage,especially if there are cuts on the skin that contact the metal surface.	Once every six months
Safety functions	• Check the inverter LED indicators and system shutdown function. • Simulate the shutdown and check the shutdown signal communication • Check the warning label and replace it if necessary.	Once every six months

9 Human-Computer Interaction

9.1 Installing the App

Method 1

Download and install the HYXI App through the following application stores:

- App Store (iOS)
- Google Play

Method 2

Scan the following QR code to download and install the HYXI App according to the prompt information:

NOTICE

- Requires App version 6.0.7 or higher.

9.2 APP Configuration

For specification configuration, please scan the following QR code to check HYXI APP_User Manual.

10 Appendix

10.1 Technical Parameter

Product Model	HYX-S50K-T2	HYX-S60K-T2[1]	HYX-S75K-T2	HYX-S80K-T2
PV Input				
Max. Input Voltage [V]	1100[2]			
Nominal Input Voltage [V]	650			
Start-up Voltage [V]	160			
MPPT Operating Voltage Range [V]	140~1000[3]			
MPPT Full Load Voltage Range [V]	450~850			
Max. Input Current Per MPPT [A]	40			
Max. Short-circuit Current [A]	50			
Number of MPPT	4	6	6	6
Max. Input Number Per MPPT	2			
AC Output				
Nominal Output Power [kW]	50	60	75	80
Max. Apparent Power [kVA]	55	66	82.5	88
Nominal Output Voltage [V]	220 / 380, 230 / 400, 3L / N / PE			
Nominal AC Grid Frequency [Hz]	50 / 60			
Nominal Output Current [A]	75.9A/380V 72.1A/400V	91.1A/380V 86.6A/400V	113.9A/380V 108.2A/400V	121.5A/380V 115.4A/400V
Max. Output Current [A]	83.5A/380V 79.4A/400V	100.2A/380V 95.2A/400V	125.3A/380V 119.0A/400V	133.7A/380V 127A/400V
Adjustable Power Factor	> 0.99 / 0.8 leading...0.8 lagging			
THDi	< 3%			
Efficiency				
Max. Efficiency	98.5%			
European Weighted Efficiency	98.0%			
MPPT Efficiency	99.9%			
Protection				
Active Anti-islanding Protection	Yes			
Residual Current Monitoring	Yes			
DC Reverse Polarity Protection	Yes			
DC Switch	Yes			
AC Short-circuit Protection	Yes			
AC Over Voltage Protection	Yes			
AC Over Current Protection	Yes			
DC Surge Protection	Type II			
AC Surge Protection	Type II			
Ground Fault Detection	Yes			
AFCI	Optional			
PID recovery	Optional			
General Data				
Operating Temperature Range [°C]	-30 ~ +60°C			
Relative Operating Humidity [RH]	0 ~ 100%			

Product Model	HYX-S50K-T2	HYX-S60K-T2[1]	HYX-S75K-T2	HYX-S80K-T2
Max. Operating Altitude [m]	4000			
Cooling Method	Smart air cooling			
Display	LED + App			
Communication	RS485/4G/Wi-Fi			
Weight [kg]	95			
Topology	Non-Isolated			
Dimensions (W*H*D) [mm]	880*760*340			
Degree of Protection	IP66			
Overvoltage Level	PV II / AC III			

Note 1: This model is only applicable to the Indian market.
Note 2: If the input voltage is beyond the MPPT voltage range, the inverter cannot work properly.
Note 3: The inverter achieves maximum efficiency when operating within this voltage range.

Product Model	HYX-S99K9-T2	HYX-S100K-T2	HYX-S110K-T2	HYX-S125K-T2
PV Input				
Max. Input Voltage [V]	1100[1]			
Nominal Input Voltage [V]	650			
Start-up Voltage [V]	160			
MPPT Operating Voltage Range [V]	140~1000[2]			
MPPT Full Load Voltage Range [V]	450~850			
Max. Input Current Per MPPT [A]	40			
Max. Short-circuit Current [A]	50			
Number of MPPT	8			
Max. Input Number Per MPPT	2			
AC Output				
Nominal Output Power [kW]	99.9	100	110	125
Max. Apparent Power [kVA]	109.9	110	121	125
Nominal Output Voltage [V]	220 / 380, 230 / 400, 3L / N / PE			
Nominal AC Grid Frequency [Hz]	50 / 60			
Nominal Output Current [A]	151.9A/380V 144.3A/400V	151.9A/380V 144.3A/400V	167.1A/380V 158.7A/400V	189.9A/380V 180.4A/400V
Max. Output Current [A]	167.1A/380V 158.7A/400V	167.1A/380V 158.7A/400V	183.8A/380V 174.6A/400V	189.9A/380V 180.4A/400V
Adjustable Power Factor	> 0.99 / 0.8 leading...0.8 lagging			
THDi	< 3%			
Efficiency				
Max. Efficiency	98.5%			
European Weighted Efficiency	98.0%			
MPPT Efficiency	99.9%			
Protection				
Active Anti-islanding Protection	Yes			
Residual Current Monitoring	Yes			
DC Reverse Polarity Protection	Yes			
DC Switch	Yes			
AC Short-circuit Protection	Yes			
AC Over Voltage Protection	Yes			
AC Over Current Protection	Yes			

Product Model	HYX-S99K9-T2	HYX-S100K-T2	HYX-S110K-T2	HYX-S125K-T2
DC Surge Protection	Type II			
AC Surge Protection	Type II			
Ground Fault Detection	Yes			
AFCI	Optional			
PID recovery	Optional			
General Data				
Operating Temperature Range [℃]	-30 ~ +60℃			
Relative Operating Humidity [RH]	0 ~ 100%			
Max. Operating Altitude [m]	4000			
Cooling Method	Smart air cooling			
Display	LED + App			
Communication	RS485/4G/Wi-Fi			
Weight [kg]	95			
Topology	Non-Isolated			
Dimensions (W*H*D) [mm]	880*760*340			
Degree of Protection	IP66			
Overvoltage Level	PV II / AC III			

Note 1: If the input voltage is beyond the MPPT voltage range, the inverter cannot work properly.
Note 2: The inverter achieves maximum efficiency when operating within this voltage range.

10.2 Quality Assurance

Zhejiang Hyxi Technology Co., Ltd. (hereinafter referred to as the Company) will repair or replace the product with a new one free of charge.

Evidence:

During the warranty period, customers need to show the invoice and date of purchase of the product. At the same time, the trademark on the product should be clearly visible, or the right not to quality assurance.

Conditions:

The replacement defective products shall be disposed of by the Company; the customer shall allow reasonable time for the Company to repair the defective equipment.

Liability Exemption:

We have the right not to carry out quality assurance if the following circumstances occur:

- The whole machine and parts have exceeded the free warranty period.
- Shipping damage.
- Incorrect installation, modification or use.
- Operation in very harsh environments beyond those described in this manual.
- Machine failure or damage caused by installation, repair, alteration or disassembly not by our service organization or personnel.
- Installation and use beyond the scope specified in the relevant international standards.
- Damage caused by an abnormal natural environment

10.3 Contact Information

If you have any questions about this product, please contact us.

In order to provide you with faster and better after-sales service, we need your assistance in providing the following information.

- Equipment model : _____
- Serial number of the equipment: _____
- Fault code / name: _____
- A brief description of the fault phenomenon: _____

_____

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The manual is subject to change without notice while the product is being improved.

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