A Guide to Quick Installation

Single-phase Grid-tied PV String Inverter:

7K/8/10K

Quality Guarantee

Where otherwise agreed to in a contract, quality warranty period of the inverter is 60 months. The PV inverter defective or damaged within its quality warranty period shall be repaired or replaced for free. However, warranty or liability will be void if damage is caused from below operations/situations:

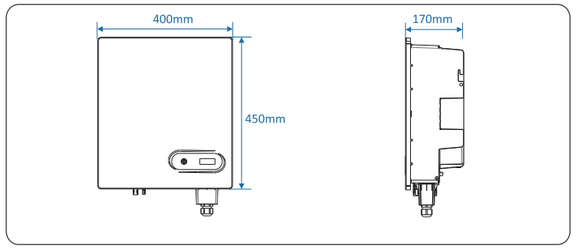
1. The warranty period expired;
2. The damage caused during transit;
3. The damage caused by force majeure including, but not restricted to the
4. following:earthquake, flood, fire, explosion, debris flow etc;
   Operation in adverse environments beyond that described in User Manual;
5. Any installation and operation environment beyond the relevant national standards;
6. Any installing, reconfiguring, or using faulty;
7. Any revising the product or modifying its software code without authorization;
8. Maintenance faulty caused by the technician personnel unauthorized;
9. Any operation ignoring the safety precautions stipulated in User Manual;

Symbol Conventions

Read through the safety symbols used in this manual, which highlight potential safety risks and important safety information, before using the inverter.

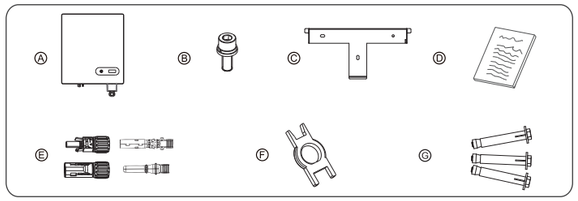
Symbol	Description
DANGER	Indicates an imminently hazardous situation which, if not correctly followed, will result in serious injury or death.
WARNING	Indicates a potentially hazardous situation which, if not correctly followed, could result in serious injury or death.
CAUTION	Indicates a potentially hazardous situation which, if not correctly followed, could result in moderate or minor injury.
NOTICE	Indicates a potentially hazardous situation which, if not correctly followed, could result in equipment failure to run, or property damage.
NOTE	Calls attention to important information, best practices and tips: supplement additional safety instructions for your better use of the PV inverter to reduce the waste of your resource.

Outline and Dimensions



Installation

The deliverables in the fittings of inverter



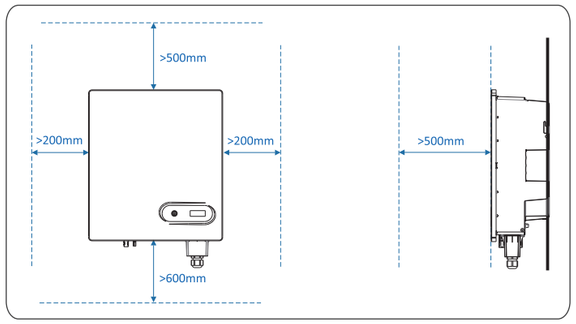
Items	Deliverables
A	The inverter
B	M6 Screw
C	Rear panel
D	File package
E	DC terminal connector group
F	Removal tool for DC connector
G	Expansion screws (reserved for tightening the rear panel)

Determining the Installation Position

The inverter must be installed on the place where is free from direct exposure to sunlight, rain, and snow to extend its service life.

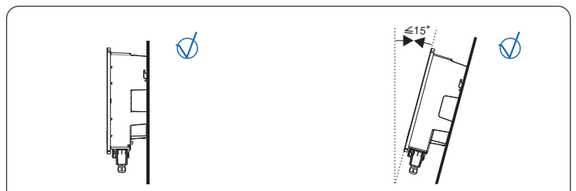
Installation Space Requirements

Reserve enough clearance around the inverter to ensure sufficient space for installation and heat dissipation, as shown in below Figure. When installing multiple inverters, ensure 200mm distance between inverters' lateral sides, 500mm-600mm between inverters' top and/or bottom sides, and 500mm clearance between inverters' front sides.



Installation Mode Requirements

The correct installation mode.

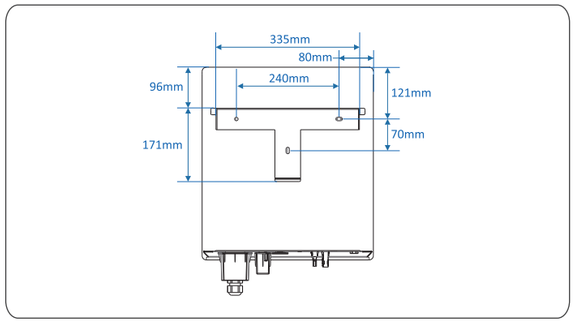


The wrong installation mode.

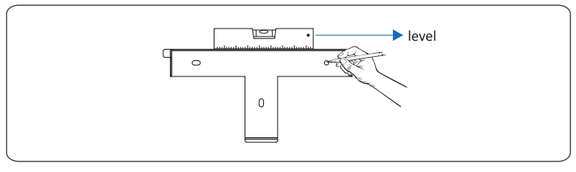
Inverter fixation

Step 1 Move out the rear panel from the packing case.

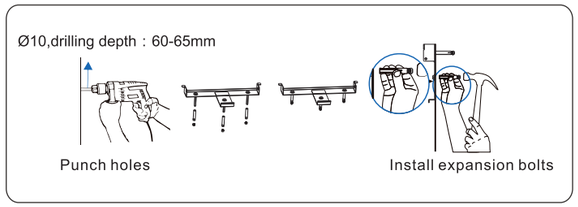
Step 2 Determine the positions for drilling holes using the rear panel.



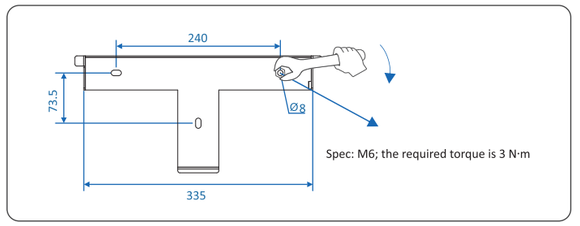
Step 3 Level the hole positions using a level, and mark the hole positions using a marker.



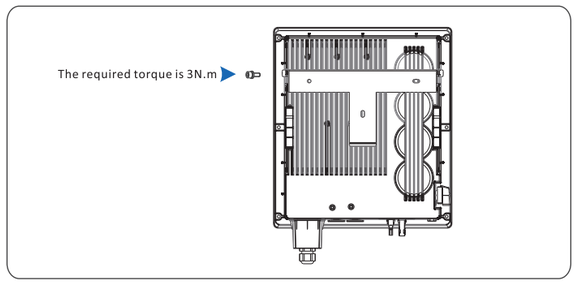
Step 4 Drill a hole in a marked position using a hammer drill, and tighten and knock the expansion bolt completely into the hole using a rubber mallet.



Step 5 Tighten expansion screws, fixing the bracket entirely.



Step 6 Mount the inverter on the rear panel and tighten the screws at both sides.

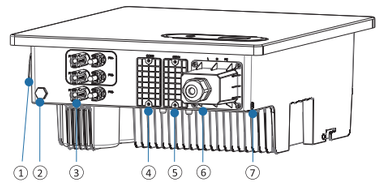


Installation Self-check

1. Ensure that the supporting points (on the rear side of the inverter) align with the holes of the support.
2. Ensure that the inverter is well fixed.
3. Ensure that the inverter is locked on the support.

Preparation before wiring

1. DC isolation switch
2. Vent valve
3. PV input connectors
4. COM2(RS-485/meter/CT/DI)
5. COM1(WIFI/GPRS/Ethernet/ RS-485)
6. AC output connector
7. External protection ground interface



Electrical Connections

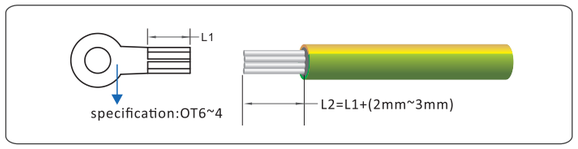
DANGER	Before performing any electrical connections, ensure that both DC and AC Switches are OFF. Otherwise, fatal injury can occur due to the high voltage caused from AC and DC cables.
CAUTION	Grounding the PV Strings needs below prerequisites.
An isolation transformer must be installed on the AC side of each inverter; Ensure that the neutral wire of the isolation transformer must be disconnected from the PGND cable.	
One isolation transformer is with one PV inverter: do not install a single isolation transformer for multiple inverters; otherwise, circulating current generated by the inverters will lead to operation failure.	
Select “Isolation SET” on the APP, and set in “Input Grounded”, “With TF”.	

Cable specifications (recommended)

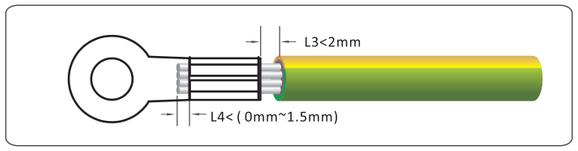
Cable	Cable type	Cross-sectional Area (mm²)		Cable Outer Diameter (mm)
		Range	Recommended Value	Range
AC cable	multi-core outdoor cable	8~14	8	14~20
DC cable	common PV cables in the industry (model: PV1-F)	4~6	4	5~8
External PGND cable	multi-core outdoor cable	8~14	8	NA

Connecting External PGND Cables

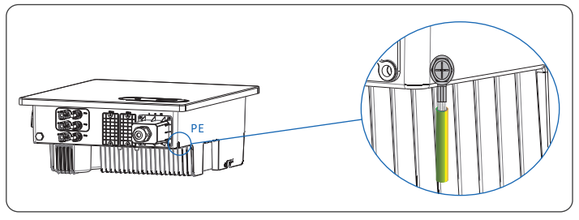
Step 1 Remove an appropriate length of the insulation layer from the external PGND cable using a wire stripper.



Step 2 Insert the exposed core wires into the crimp area of the OT terminal and crimp them using hydraulic pliers, and crimp them with hydraulic crimping pliers.



Step 3 Secure the PGND cable using the ground screw and tighten the screw to a torque of 1.2 N·m.

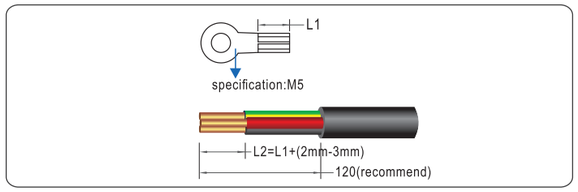


NOTICE	Connecting External Protection Ground (PGND) Cables cannot substitute the PE of connecting the AC power cables. Ensure that both connectings are grounding well; otherwise, warranty or liability will be void if damage is caused by electrical connection faults.

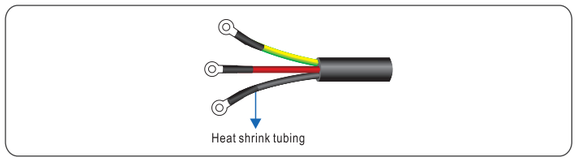
Connecting AC Output Cables

NOTICE	For your operation and safety sake, please prepare multi-stranded wire, crimping terminals and a proper crimping tool before AC Wiring.

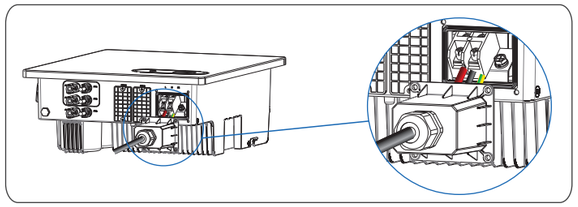
Step 1 Remove an appropriate length of the jacket and insulation layer from the AC output cable.



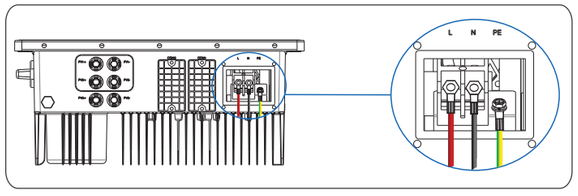
Step 2 Insert the exposed core wires into the crimp area of the OT terminal and crimp them using hydraulic pliers. Wrap the wire crimp area with heat shrink tubing or PVC insulation tape.



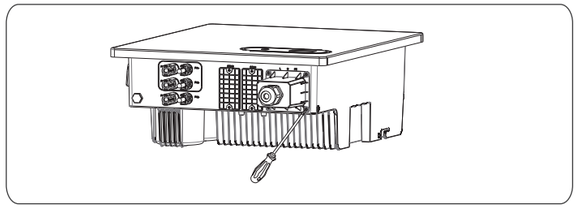
Step 3 Insert the processed AC output cables through waterproof terminals with reserved wire length for electrical connecting.



Step 4 Rout AC output cables to L, N and PE on the AC terminal block respectively, and tighten them using screw driver to a torque of 1.5N.m.



Step 5 Aligning with the hole position on the AC terminal cover, use a screw driver to tighten screws to a torque of 1.2 N.m.



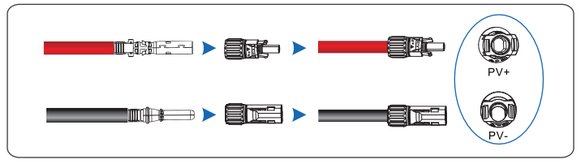
Step 6 Use a torque wrench to tighten the locking cap on the AC cable to a torque of 5N.m.

Connecting the PV Strings

Step 1 Remove an appropriate length of the insulation layer from the positive and negative power cables using a wire stripper, as shown in below Figure.

Step 2 Insert the exposed areas of the positive and negative power cables into the metal terminals of the positive and negative connectors respectively, crimp them, and tighten the locking nuts on the positive and negative connectors using a removal wrench.

Step 3 Take out the protective plug from the DC terminals of the inverter, insert the positive and negative connectors into the corresponding connector terminals of the inverter until a “click” sound is heard.

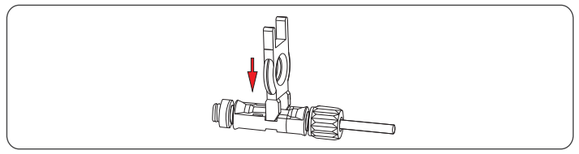


WARNING	When taking out DC connectors, please ensure that PV Strings are disconnected; otherwise, a fire can occur.

Inverter Uninstall

Inverter uninstall requires below procedure:

Step 1 Disconnect all electric connections including the communications cables, DC input cables, AC output cables and the PGND cables.



When uninstalling DC input connectors, insert removal tool into the bayonet as shown in Figure, press the tool down, and take out the connector.

Step 2 Remove the inverter from its rear panel.

Step 3 Remove the rear panel.

WARNING	Before uninstalling DC input connector, please ensure that the DC SWITCH is set to OFF to avoid equipment damage and/or personal injury.

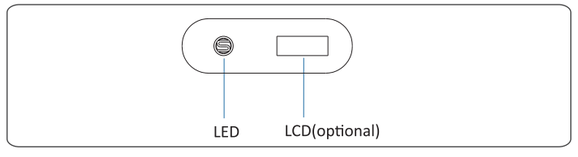
System Operation

Switch ON the AC circuit breaker and set the DC SWITCH of the inverter to ON. Observe statuses of grid-connecting light on the inverter for a while, and if the lights display that the inverter has entered grid-connecting, it means the inverter is operating well. Any query during operating the PV inverter, call your dealer.

To power OFF the Inverter, switch off the circuit breaker at AC terminal, and set the DC SWITCH to OFF.

WARNING	After the inverter power is off, the remaining electricity and heat may still cause eletrical shock and body burns. Please only begin servicing the inverter 5 minutes after the power-off.

Interface



HMI specification definition:

LED Indicator	Description	Status
Blue led	Standby	blink(slowly)
	Normal status	on
Green led	Limited power operation	on
Red led	Refer to the table below	
Warning Definition	**LCD Display**	**Status**
Grid over voltage	A0 Grid OV	Red led blink(slowly)
Grid under voltage	A1 Grid UV	Red led blink(slowly)
Grid absent	A2 Grid Loss	Red led blink(slowly)
Grid over frequency	A3 Grid OF	Red led blink(slowly)
Grid under frequency	A4 Grid UF	Red led blink(slowly)
PV over voltage	B0 PV OV	Red led blink(quickly)
Insulation resistance abnormal	B1 Imp abn	Red led blink(quickly)
Leakage current abnormal	B2 Lkge abn	Red led blink(quickly)
Control power abnormal	C0 Powerfail	Red led on
Arc fault	C1 Arc fault	Red led on
Dc bias current abnormal	C2 OP Dc OC	Red led on
Inverter relay abnormal	C3 RLY abn	Red led on
Inverter over temperature	C5 SYS OT	Red led on
Leakage current HCT abnormal	C6 LkgCT abn	Red led on
System fault	C7 SYS err	Red led on
Fan fault	C8 FAN lock	
DC link under voltage	C9 Bus UV	Red led on
DC link over voltage	CA Bus OV	Red led on
Internal Communications Fault	CB COM err	Red led on
Software version incompatibility	CC FW Incomp	Red led on
EEPROM fault	CD EEP err	Red led on
Sampling inconsistency	CE Inconsis	Red led on
Boost circuit abnormal	CG Bst abn	Red led on
Remote off	CN RMT OFF	

Maintenance

Check periodically that the heat sink is free from dust and blockage. If necessary, clean periodically the heat sink to ensure its good heat dissipation.

The Inverter Troubleshooting

If any abnormal phenomena occur, refer to below table for trouble shooting.
If failed, call your dealer for help.

Issue	Solution
No display	1. Check DC switch of inverter is on or off 2. If there is PV combiner box, check fuse, terminal, wires
No generation	1. Check AC breaker is on or off 2. Wait stronger sunshine 3. Check the number of PV panel 4. To operate according to inverter`s manual
Inverter abnormal	1. Disconnect both AC and DC breakers 2. Wait as less 10 minutes and switch on AC and DC breaker 3. Check whether inverter run normally or not
Power generation is less than expected	1. Ensure that inverter is free from direct sun exposure and good ventilation 2. Ensure enough installation distance between inverters