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WEEE Number: 80133970

INSTRUCTION MANUAL

30K ON GRID SOLAR INVERTER



SKU	MODEL
11507	VT-6630305

MULTI-LANGUAGE MANUAL QR CODE

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Preface

The manual is intended to provide detailed information of product information, installation, application, trouble shooting, precautions and maintenance of iMars series grid-tied solar inverters. The manual does not contain all the information of solar system. Please read this manual carefully and follow all safety precautions seriously before any moving, installation, operation and maintenance to ensure correct use and high performance of operation on the inverter.

The use of the iMars series grid-tied solar inverters must comply with local laws and regulations on grid-tied power generation.

The manual needs to be kept well and be available at all times.

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There might be some deviations on actual inverter and data due to product updating, please refer to the actual product.

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1 Safety precautions

iMars series grid-tied solar inverters are designed and tested strictly in accordance with relevant international safety standards. As an electrical and electronic device, all relevant safety regulations must be strictly complied during installation, operation, and maintenance. Incorrect use or misuse may result in：

- Injury to the life and personal safety of the operator or other people.
- Damage to the inverter or other property belonging to the operator or other people.

In order to avoid personal injury, damage to the inverter or other devices, please strictly observe the following safety precautions.

This chapter mainly describes various warning symbols in operation manual and provides safety instructions for the installation, operation, maintenance and use of the iMars series grid-tied solar inverters.

1.1 Warning marks

Warning marks is alerting users to conditions which may cause serious physical injury or death, or damage to the device. They also tell users how to prevent the dangers. The warning marks used in this operation manual are shown below:

Mark	Name	Instruction	Abbreviation
 Danger	Danger	Serious physical injury or even death may occur if not follow relevant requirements.	
 Warning	Warning	Physical injury or damage to the device may occur if not follow relevant requirements.	
 Forbid	Electrostatic sensitive	Damage may occur if relevant requirements are not followed.	
 Hot	High temperature	Do not touch the base of the inverter as it will become hot.	
Note	Note	The procedures taken for ensuring proper operation.	**Note**

1.2 Safety guidance

	● After receiving this product, first please confirm the product package is intact. If any question, please contact the logistic company or local distributor immediately. ● The installation and operation of PV inverter must be carried out by professional

	technicians who have received professional trainings and thoroughly familiar with all the contents in this manual and the safety requirements of the electrical system. ● Do not carry out cable connection/disconnection, cover open for inspection and unit replacement operations on the inverter when power is connected. Before wiring and inspection, users must confirm the breakers on DC and AC side are disconnected and wait for at least 5 minutes.
	● Ensure there is no strong electromagnetic interference caused by other electronic or electrical devices around the installation site. ● Do not refit the inverter unless authorized. ● All the electrical installation must conform to local and national electrical standards.
	● Do not touch the housing of the inverter or the radiator to avoid scald as they may become hot during operation.
	● Ground with proper technics before operation.
	● Do not open the surface cover of the inverter unless authorized. The electronic components inside the inverter are electrostatic sensitive. Do take proper anti-electrostatic measures during authorized operation.
	● Grounding mark. The inverter must be reliably grounded.
	● Discharging mark. Ensure that DC and AC side circuit breakers have been disconnected and wait at least 5 minutes before wiring and checking.
Note: Technical personnel who can perform installation, wiring, commissioning, maintenance, troubleshooting and replacement of the iMars series grid-tied solar inverters must meet the following requirements:	
● Operators need professional training. ● Operators must read this manual completely and master the related safety precautions. ● Operators need to be familiar with the relevant safety regulations for electrical systems. ● Operators need to be fully familiar with the composition and operating principle of the entire grid-tied solar power generation system and related standards of the countries/regions in which the project is located. ● Operators must wear personal protective equipment.	

1.2.1 Transport and installation



- During storage or transport, ensure the inverter package and the chassis is intact, dry and clean.
- The movement and installation of the inverter require at least two persons due to its heavy weight.
- Select proper tools for movement and installation to ensure the inverter can operate normally and avoid physical injury. The installation personnel must take mechanical protective measures such as wearing anti-drop shoes or working clothes to protect physical security.
- The inverter must be installed by professional technicians.
- Do not store, or install the inverter on or close to flammable and explosive objects;
- Do not install the inverter in the place where children and other public can easily touch
- Remove the metal accessories in hands e.g. ring or bracelet before device installation and electrical connection to avoid electric shock.
- The solar cell module exposed to the sunlight may generate dangerous voltage. Users must cover the solar cell with fully-lightproof materials before electrical connection
- The inverter input voltage cannot exceed the max input voltage, otherwise the inverter may be damaged.
- Grid-tied PV inverter is not applicable to the positive or negative ground system of solar cell panel.
- Ensure inverter PE is grounded properly, otherwise the inverter cannot run normally.
- Ensure the inverter is installed firmly and electrical wiring is reliable.

Note: Grid-tied PV inverter is only suitable for crystalline silicon solar module.

1.2.2 Grid-tied operation



- Permissions by local electric power agency must be obtained and the inverter grid-tied power generation operation must be done by professional technicians.
- All electrical connections must meet the electrical standards of the countries/regions in which the project is located.
- Ensure the inverter is installed firmly and electrical wiring is reliable before operating on the inverter.
- Do not open the inverter when it is running or connecting power

1.2.3 Maintenance and inspection

	● The maintenance, inspection and repair of the inverter must be done by well trained and qualified professional technicians. ● Contact distributor or manufacture for inverter repairing. ● In order to avoid irrelevant personnel entering the maintenance area during maintenance, temporary warning labels must be placed to warn non-professionals to enter or please isolate with fences. ● Before carrying out any maintenance operations, users must disconnect the breaker on grid side, then disconnect the DC breaker and wait at least 5 minutes until the internal parts of inverter are fully discharged. ● The internal of inverter are mostly electrostatic-sensitive circuits and parts, users must follow electrostatic protection (rules) and take anti-electrostatic measures. ● Do not use components provided by other companies when repairing the inverter. ● The inverter can be started again for grid-tied power generation only after confirming there is no fault that may impact the safety performance of the inverter. ● Do not get close to or touch the grid or any metal conductive parts in the PV power generation system during operation, otherwise electric shock or fire may occur. Take note of any safety marks and instructions such as “Danger, electric shock risk”.

1.2.4 Waste disposal

	● Do not dispose of the inverter together with household waste. The user has the responsibility and obligation to send it to the designated organization for recycling and disposal.

2 Product overview

This chapter mainly describes the appearance, package accessories, nameplate and technical parameters of the grid-tied inverter.

2.1 Grid-tied PV power generation system

Grid-tied PV power generation system comprises solar panels, grid-tied inverter, energy meter and power grid.

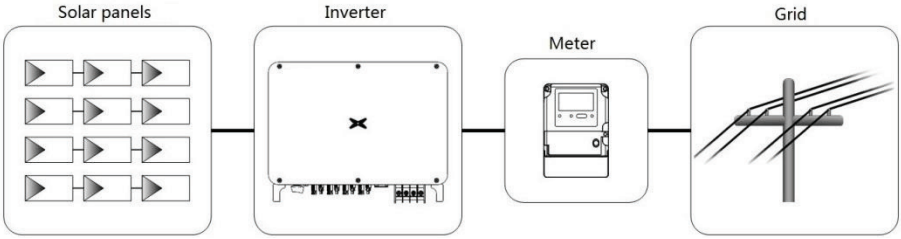


Fig 2.1 Application of grid-tied PV inverter

The grid-tied PV inverter is the core part of solar grid-tied PV power generation system. The sunlight can be converted through PV panel to DC power, which further converted by grid-tied inverter to the sine AC current with the same frequency and phase position as the public grid, then feedback the AC power to the grid.

⚠	• It is recommended that the PV array to be installed conforms to IEC 61730 class A standards.

2.1.1 Supported grid connection structure

iMars series grid-tied solar inverters support TN-S, TN-C, TN-C-S , TT and IT grid connection. When applied to the TT connection, the N-to-PE voltage should be less than 30V.

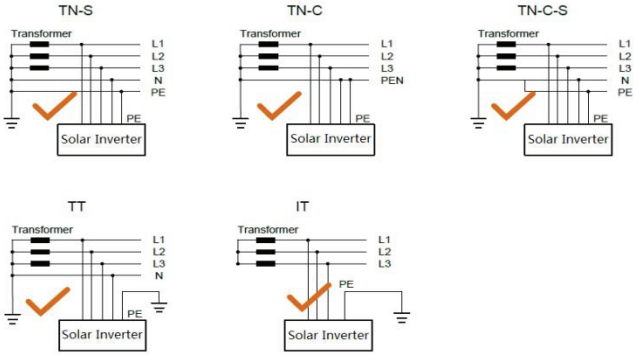


Fig 2.2 Type of grid

2.2 Product appearance

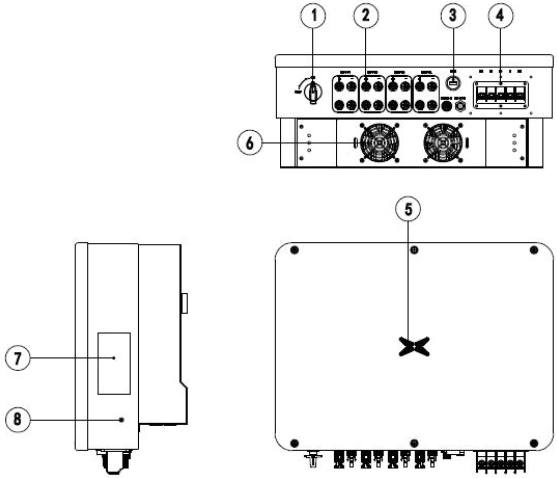


Fig 2.3 Appearance of the three-phase PV inverter

Table 2-1 Instruction list

No	Name	Instructions
1	DC switch	Switch on or off DC input
2	DC input connectors	DC input port, connect to PV array
3	Communication interfaces	USB, RS485, DRM communication terminals
4	AC connector	AC output port, connect to power grid
5	LED indicator	Indicates the working state of the inverter
6	Fan	Air inlet
7	Nameplate	Indicates the rated parameters
8	Earthing terminals	Two nos, connect at least one of them

2.3 Nameplate

Figure 2.4 shows the inverter nameplate.

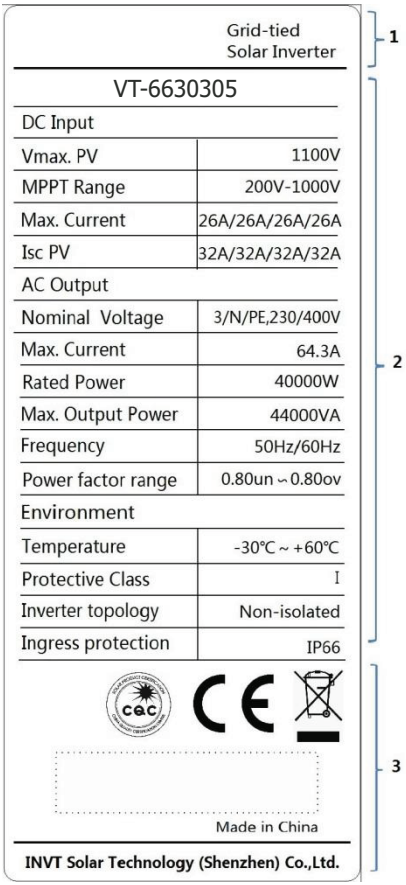


Fig 2.4 Inverter nameplate

（1）Trademark and product type

（2）Model and important technical parameters

（3）Certification systems which the inverter conforms, serial number, company name and country of origin

Icons	Instruction
	● TUV certification mark. The inverter is certified by TUV.
	● CE certification mark. The inverter complies with the CE directive.
	● CQC certification mark. The inverter passed CQC certification.
	● EU WEEE mark. The inverter cannot be disposed of as domestic waste.

2.4 Product model

Table 2-2 Models of three-phase grid-tied PV inverter

Product name	Model	Rated output power(W)
three-phase (L1, L2, L3, N, PE)		
three-phase grid-tied solar inverter	XG25KTR-3M	25
three-phase grid-tied solar inverter	XG30KTR	30
three-phase grid-tied solar inverter	XG33KTR	33
three-phase grid-tied solar inverter	XG36KTR	36
three-phase grid-tied solar inverter	XG40KTR	40
three-phase grid-tied solar inverter	XG25KTR-3S	25
three-phase grid-tied solar inverter	XG30KTR-S	30
three-phase grid-tied solar inverter	XG33KTR-S	33
three-phase grid-tied solar inverter	XG36KTR-S	36
three-phase grid-tied solar inverter	XG40KTR-S	40

Note: Refer to the Appendix for technical parameters.

2.5 Outline dimension and weight

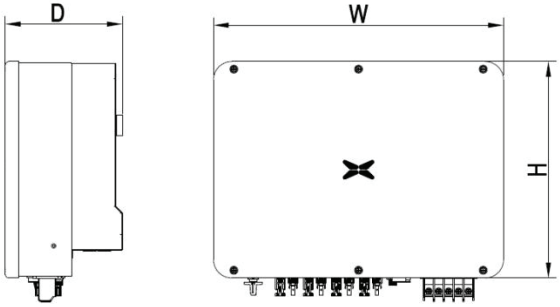


Fig 2.5 Dimensions of the inverter

Table 2-3 Dimensions and weight

Model	Height (mm)	Width (mm)	Depth (mm)	Net weight (kg)
25-40kW	425	570	230	37.5

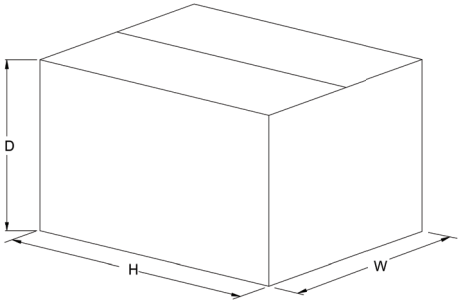


Fig 2.6 Dimension of carton box

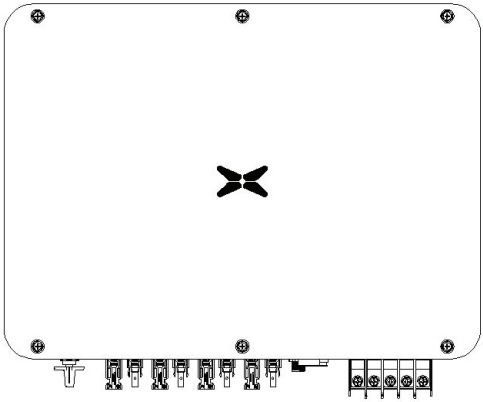
Table 2-4 Package dimension and gross weight

Model	Height(mm)	Width(mm)	Depth(mm)	Weight(kg)	Package material
25-33kW	680	550	350	40	carton box
36-40kW	680	550	350	42	carton box

2.6 The front panel

The front panel comes with LED indicators (modern design) or LCD panel a to indicate the working state of the inverter.

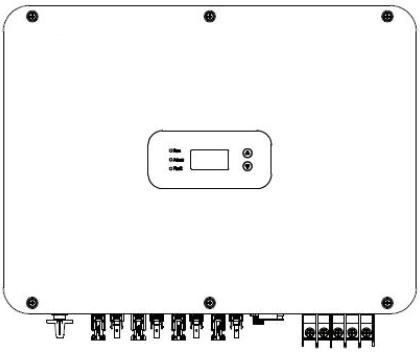
2.6.1 LED panel (Modern design)



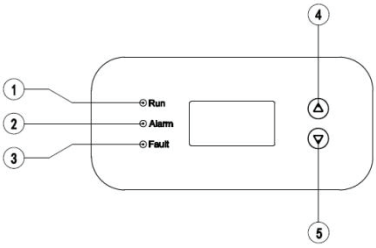
LED indication:

	Steady blue	Normal, grid-tied and generating power
	Blinking blue at short interval (0.2s)	Bluetooth connected and with communication. And inverter has no error
	Blinking blue at long interval (2s)	DC or AC connected, inverter in standby or starting (no power generation)
	Steady red	Error occurs.(The inverter fail to connect to the grid)
	Blinking red	Bluetooth connected and in communicating but inverter has error
	Off	DC and AC are disconnected

2.6.2 LCD panel

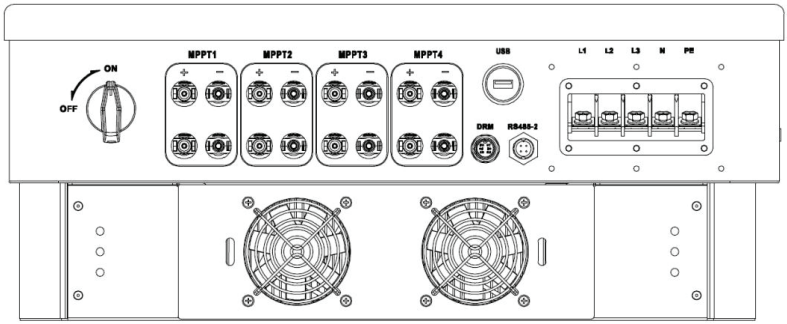


LED indicators and buttons：

① Run indicator, green, indicates running state;	
② Alarm indicator, yellow, indicates alarm state;	
③ Fault indicator, red, indicates fault state;	
④UP button, for up selection;	
⑤Down button, for down selection.	

2.7 Bottom of chassis

XG25-40KTR is equipped with one DC switch, which connects or disconnects all PV inputs.



XG25-40KTR bottom view

3 Storage

If the inverter is not put into use immediately, the storage of inverter should meet the following requirements:

- Do not remove the outer packing.
- The inverter needs to be stored in a clean and dry place, and prevent the erosion of dust and water vapor.
- The storage temperature should be kept at - 30°C~+70°C, and the relative humidity should be kept at 5%RH~95%RH.
- The stacking of inverters is recommended to be placed according to the number of stacking layers in the original shipment. Place the inverter carefully during stacking to avoid personal injury or equipment damage caused by the falling of equipment.
- Keep away from chemically corrosive substances that may corrode the inverter.
- Periodic inspections are required. If damages are made by worms and rats, or packaging is found damaged, the packaging materials must be replaced in time.
- After long-term storage, inverters need to be inspected and tested by qualified personnel before put into use.

4 Installation

This chapter describes how to install the inverter and connect it to the grid-tied solar system (including the connection between solar modules, public grid and inverter).

Read this chapter carefully and ensure all installation requirements are met before installation. Only qualified electricians are allowed to install the inverter.

4.1 Unpacking confirmation

The inverter has been thoroughly tested and rigorously checked before delivery, but damage may still occur during transportation. Before unpacking, check carefully whether the product information in the order is consistent with that on the nameplate of the package box and whether the product package is intact. If any damage is detected, please contact the shipping company or the supplier directly. Please also provide photos of the damage to get our fastest and best service.

Store the idled inverter in its original package and take anti-moisture and anti-dust measures.

After taking the inverter out of the box, check the following items:

Confirm the main body of the inverter is intact and free from any damage;

Confirm there is operation manual, interface accessories and installation accessories inside the package box;

Confirm the deliverables inside the package box are intact and complete;

Check whether the product information in the order is consistent with that on the inverter nameplate;

The standard delivery list is shown below.

Standard deliverables of three-phase inverter:

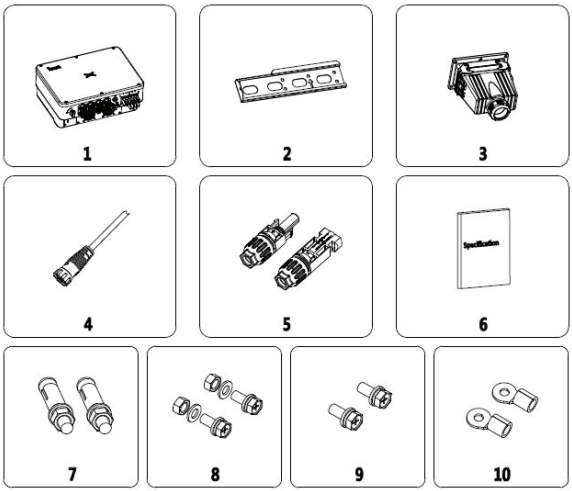


Fig 4.1 Deliverables of XG25-40KTR three-phase inverter

Table 4-1 Deliverables of three-phase inverter

No	Name	Qty
1	Inverter	1
2	Installation bracket	1
3	Water-proof cover for AC output	1
4	RS-485 communication cable	1
5	DC connector (pair)	6/8*
6	Operation manual	1
7	Expansion bolt (M84*60)	5
8	Nuts and bolts (M8)	5
9	Bolts (M4)	1
10	AC ring connector	5

*XG25KTR/XG30KTR/XG33KTR 6 pairs

* XG36KTR/XG40KTR 8 pair

Check above items carefully and if any question, contact the supplier immediately.

4.2 Preparation before installation

4.2.1 Installation tool

Table 4-2 List of installation tool

No	Installation tool	Purpose
1	Marker pen	Mark the installation hole
2	Electric drill	Drill holes on bracket or the wall
3	Hammer	Knock on the expansion bolt
4	Adjustable wrench	Fix the installation bracket
5	Inner hex screwdriver	Tighten the tamper-proof screw and disassemble AC junction box
6	“Slotted” or “cross-head” screwdriver	AC wiring
7	Mega ohmmeter	Measure the insulation and grounding impedance
8	Multi-meter	Check the circuit and measure AC/DC voltage
9	Electric soldering iron	Solder the communication cable
10	Wire crimper	Crimp DC terminal
11	Hydraulic clamp	Crimp ring connector for AC wiring

4.2.2 Installation environment

(1) The inverter can be installed in indoor and outdoor environment.

(2) During the operation of the inverter, the temperature of the chassis and heat sink will be relatively high. Please do not install the inverter in the easily touched position.

(3) Do not install inverters in areas where flammable and explosive materials are stored

(4) The inverter shall be installed in a place which has good ventilation to ensure good heat dissipation

(5) It is recommended to choose the installation site with shelter or build sunshade.

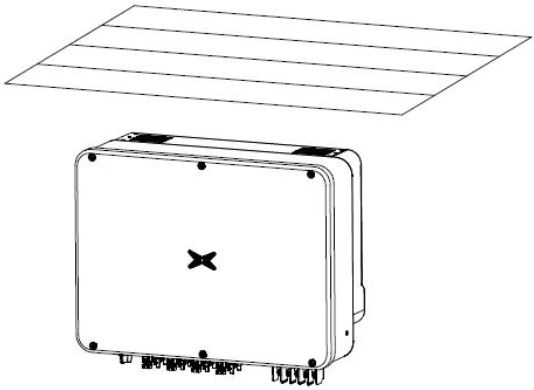


Fig 4.2 sunshade

(6) The installation environment temperature is - 25 ℃ ~ 60 ℃;

(7) The installation site should be far away from the electronic equipment with strong electromagnetic interference;

(8) The installation site should be fixed and solid object surface, such as wall, metal support, etc;

(9) The installation position shall ensure the reliable grounding of the inverter, and the grounding metal conductor material shall be consistent with the reserved grounding metal material of the inverter.

4.3 Space requirements

(1) Recommend to install the inverter to the height of eye level to check the inverter state conveniently.

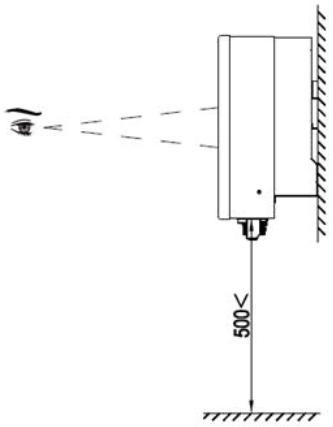


Fig 4.3 optimal installation height

(2) Make sure there is enough space for installation and ventilation, see below recommendations.

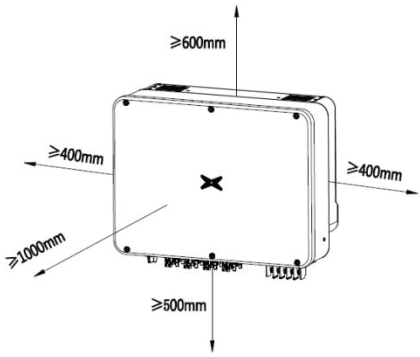


Fig 4.4 installation spacing of inverter

(3) When installing multiple inverters, a certain distance should be reserved between the inverters, as shown in Figure 4.4. At the same time, sufficient distance should be reserved between the upper and lower parts of the inverter to ensure good heat dissipation.

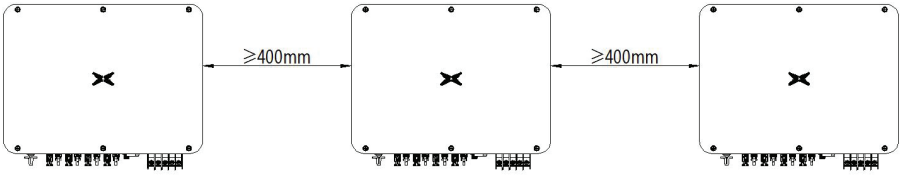


Fig 4.5 side by side installation spacing requirements

(4) Install the inverter vertically or lay back a little bit (≤15°) for good heat dissipation. Do not tilt the inverter forward, horizontally, upside down, over-backward or roll it.

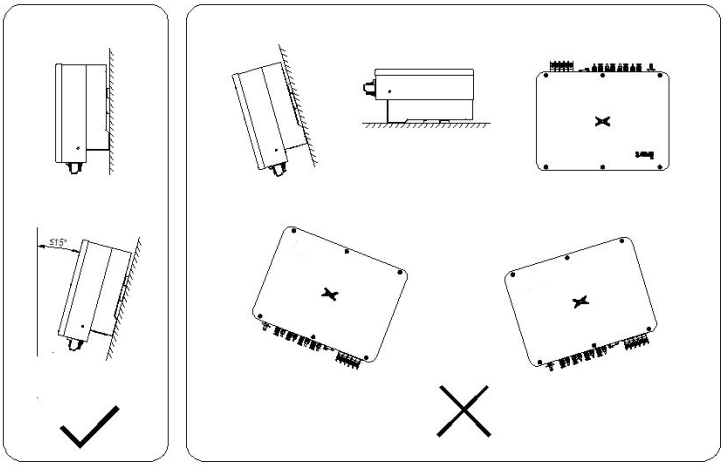


Fig 4.6 installation posture of inverter

4.4 Dimensions of the mounting bracket

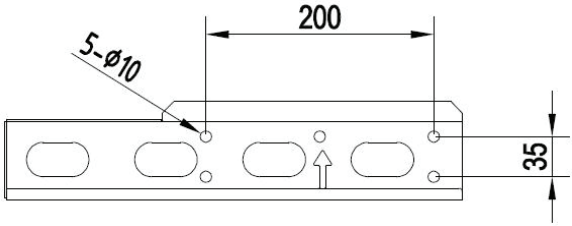
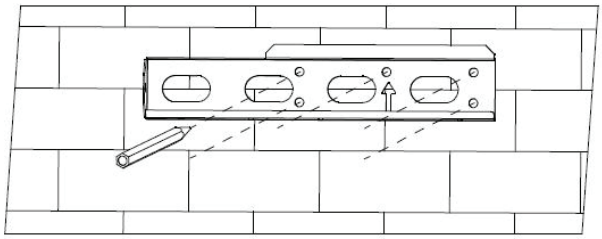


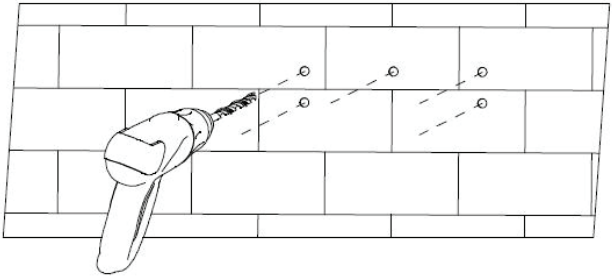
Fig 4.6 dimensions of mounting bracket

4.5 Wall installation

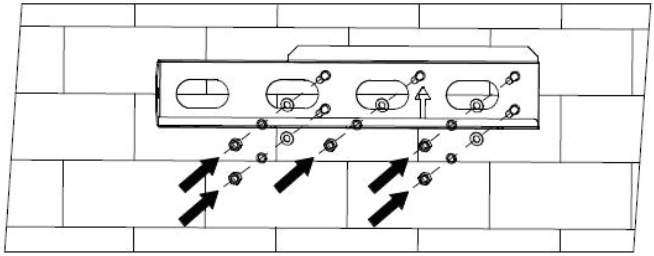
Step 1: Put the brackets onto the wall and adjust the horizontal level using the level meter, mark the bolt positions with marker pen.



Step 2： Drill holes on the wall for the M8 x 60 expansion bolts with impact drill.



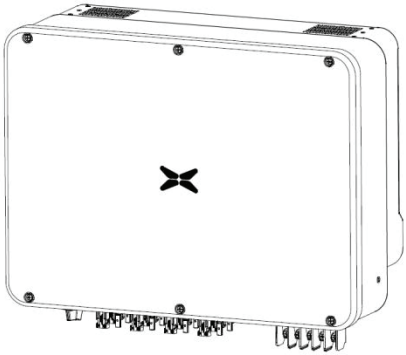
Step 3： Clean the dust out from the holes and knock the screw and expansion tube of the expansion bolts into the holes with a rubber hammer. Put the bracket, flat pads, spring pads and nuts in turn onto the bolts. Tighten the nuts with 13N•m.



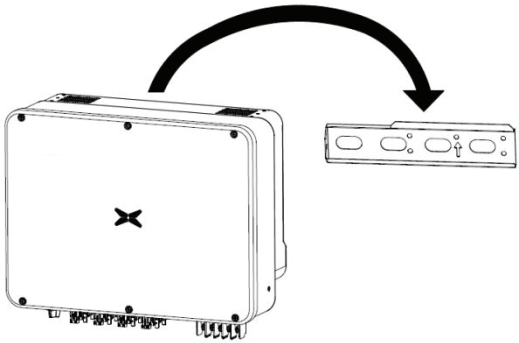
4.6 Installation of inverter

Step 1: Take the inverter out of the packing box.

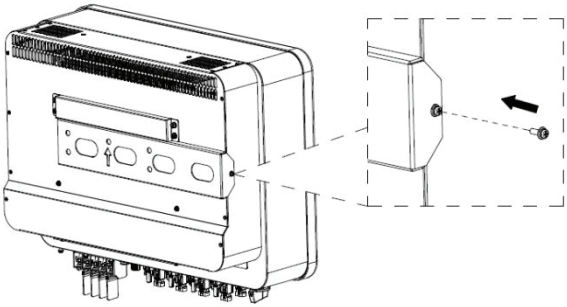
Step 2: If the installation position is high, it is necessary to use lifting machine to lift the inverter. Lift the inverter 100 mm up from the ground and pause, double check if everything is tight and the lifting is safe.



Step 3: Hang the inverter onto the bracket and make sure the hanging is in place.



Step 4: Fix the inverter and the bracket with one M4 x 12 screw on the left side of the inverter with 2.5N•m, see below.



5 Electrical connection

5.1 Overview of electrical connection

This section presents the detailed contents and safety precautions related to electrical connection.

Fig 5.1 is the connection diagram for Grid-tied PV system.

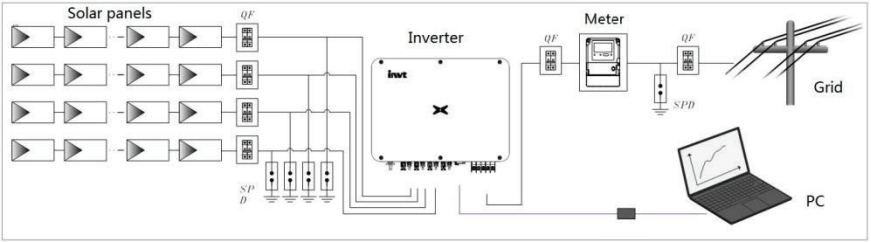


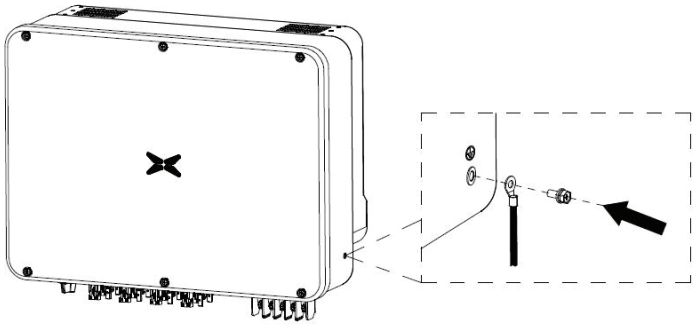
Fig 5.1 Connection diagram of the Grid-tied PV system

⚠	● Electrical connection must be carried out by professional technicians as wrong operation may cause damage to the device, physical injuries or even death during system operation. ● All the electrical installation must conform with the national regulations concerning electrical safety regulations. ● Ensure all the cables are installed firmly according to the specified safety requirements and free from any damage. ● It is not allowed to turn on the AC and DC breakers before all cable connections are finished and checked.
Note	● Read this section carefully and operate strictly according to the requirements. ● Note the rated voltage and current specified in the manual as they cannot be exceeded.

5.2 Connect the protective earth wire

Step 1: Crimp OT terminal on the ground wire.

Step 2: Fix the ground wire on the right side of the inverter with 4-5 N·m, see below



5.3 Connection of solar string

Step 1: Make MC4 connectors for each PV string

MC4 crimping method：

(1) Remove 8-10mm cable sheath from the PV cable (see A and B below), crimp the inner contact of MC4 connector with the cable(see C below, the longer one is for positive PV wire);

Take off the nuts of the MC4 and insert the crimped cables through the nuts (see D and E below, the D is for the positive wire);

Tighten the nuts with 2.5-3 N·m (see F below)

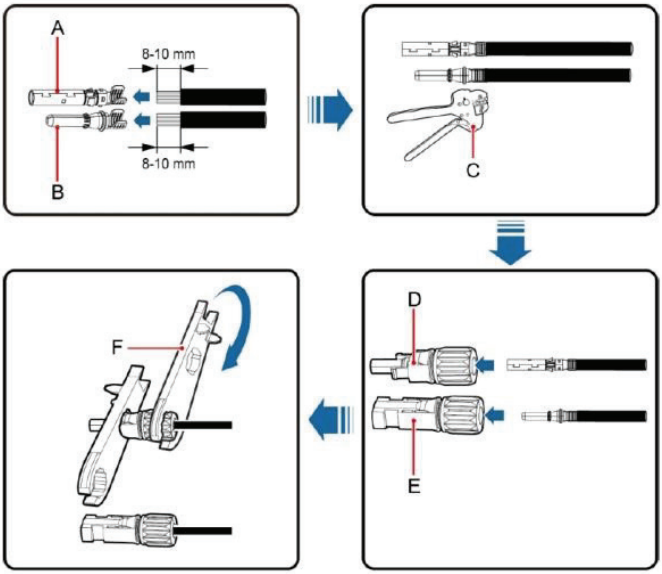


Fig 5.2 MC4 connector making

(2) Verify the polarity of the MC4 connector, make sure they are correct (see Fig 5.3). Check if the voltage of the PV string is within what's expected. Make sure to check each PV string.

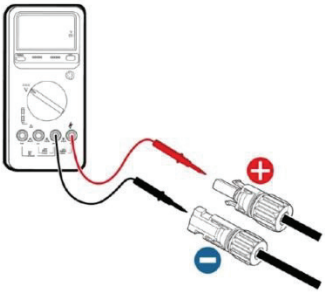


Fig 5.3 DC input polarity and voltage check

⚠	● Use the DC connectors delivered along with the inverter, do not use other connectors without authorization from our company, otherwise damage to the device, unstable operation or fire may occur and our company will not undertake quality assurance or assume any direct or joint liability thereof.

Step 2: Connect the MC4 connectors to the inverter, Make sure to distinguish each pair of PV string.

(1) Connect the MC4 connectors to the inverter, you will hear the 'click' sound;

(2) To disconnect the MC4 connection, use MC4 spanner as below and unplug;

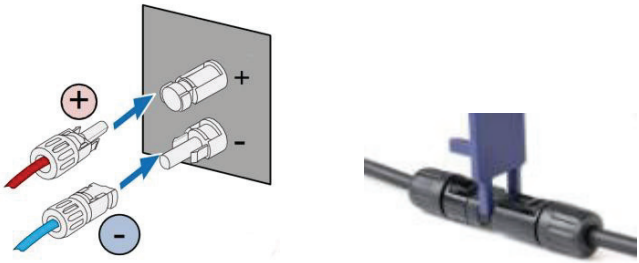


Fig 5.4 Connect and disconnect PV string connection

5.4 Three-phase inverter grid connection

Table 5-1 Interface description of three phase solar inverter AC connector

Inverter AC connector interface	Three phase grid	remarks
L1	L1（A）	
L2	L2（B）	
L3	L3（C）	
N	N(Neutral line)	
⏚	PE (ground wire)	Must be connected

5.4.1 Grid connection

(1) Crimp ring connectors on the AC cable for the Grid, the N of the five cores (L1, L2, L3, N, PE) is optional. It is very important that the crimping is tight and reliable;

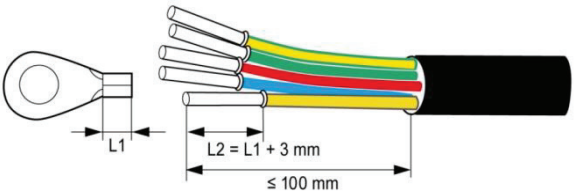


Fig 5.5 crimping cable terminals

(2) Connect the crimped AC cable to the AC block of the inverter with 7-9N•m (PE) and connect the AC water-proof cover.

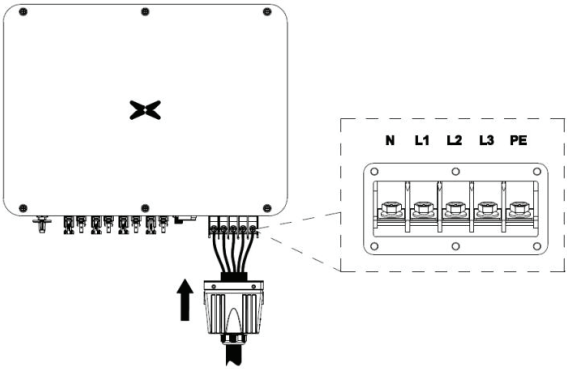


Fig 5.6 AC connection

(3) Lock the AC water-proof cover on the left and right, see below.

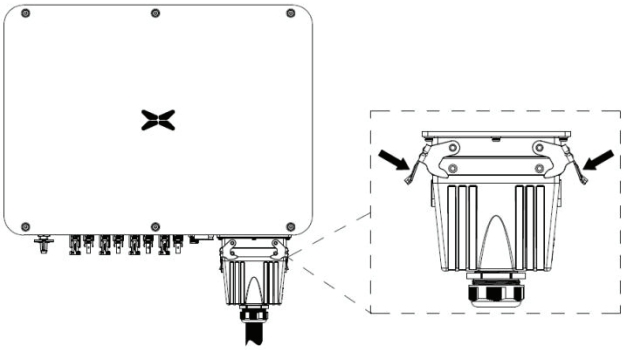
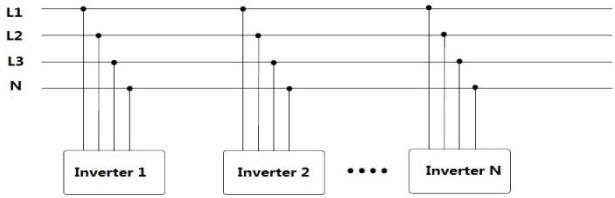


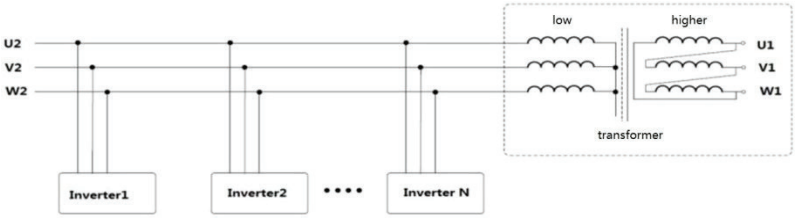
Fig 5.7 AC water-proof cover lock

5.4.2 Parallel operation requirements

Multiple inverters can be connected to the low-voltage three-phase grid directly, contact us if the total capacity of the inverters exceeds 0.5-0.8MVA.



If the Grid is not low-voltage, a step-up transformer should be used. Connect the inverters to the low voltage side of transformer. The transformer used should have capacity higher than the total capacity of the inverters. The transformer should have neutral point.



	• It is recommended to use the transformer of which the short-circuit impedance is no more than 7%

6 Running

This chapter mainly introduces inverter operations related to inspection before running, power generation, stop power generation and maintenance.

6.1 Inspection before running

The following items must be checked strictly before running the Grid-tied PV inverter (including but not limited to the following items):

(1) Confirm the installation site of the inverter meet requirements of section 4.2.2 to ensure convenient installation, disassemble, operation and inspection on the inverter;

(2) Confirm the mechanical installation of the inverter meet requirements of section 4.3;

(3) Confirm the electrical connection of the inverter meet the requirements of section 4.4;

(4) Confirm all the switches are in “OFF” state;

(5) Confirm the open-circuit voltage of each PV string conforms to the parameter requirements of inverter DC ratings, the ratings can be checked in the Appendix;

(6) Confirm the electrical safety marks on the installation site is clear enough.

	● In order to ensure a safe, normal and stable operation of the PV power generation system, all the newly installed, renovated and repaired Grid-tied PV power generation system and its grid-tied inverter must undergo inspection before running.

6.2 Inverter grid-tied running

Start the inverter according to below steps to achieve grid-tied operation of the inverter:

Note	● The Grid standard must be set for the initial setup, set the Grid standard according to the your national standard, see section 6.5 ● Keep the inverter power on for at least 30 minutes to charge the built-in clock battery of the inverter to ensure the clock can run normally!

(1) Confirm the requirements in section 6.1 are fulfilled;

(2) Switch on the AC breaker to connect the inverter to the Grid;

(3) Switch on the built-in DC switch of the inverter;

(4) Switch on the external DC switch to connect the PV strings to the inverter;

(5) Observe the LED indicator state of the inverter (For details, please see 2.6.1 and 2.6.2 LED indications)

Run Green running LED blinks (the other two LEDs are off): Inverter powered on and self-checking, waiting for enough solar power for generation;

Run Running LED is solid green (the other two LEDs are off): Inverter self-checking passed, generation power to the Grid.

'Alarm' or 'Fault' is on or blinks: Inverter powered on but has errors. Check on the LCD and look up the codes on Table 8-1 for the definition of the codes. To troubleshoot, stop the inverter first (refer to section 6.3) and refer to section 8 for troubleshooting. Upon all faults are cleared, refer to section 5 to connecting the inverter back to the system.

(6) Refer to section 6.4.4 to set the Day and time according to your local time.

(7) Refer to section 6.4.4 to set the DC input mode. The default DC input mode is 'Independent' mode.

6.3 Inverter stop

When it is necessary to carry out power-off maintenance, inspection and fault elimination on the inverter, stop the inverter according to the following steps:

(1) Disconnect the AC breaker to disconnect the Grid from the inverter;

(2) Disconnect the built-in DC switch of the inverter;

(3) Disconnect the external DC breaker to disconnect PV strings;

(4) Before trying to take off or open the inverter, wait for at least 5 minutes until the internal parts of the inverter are fully discharged.

6.4 Regular inspection and maintenance

The inverter can run in all seasons, it starts and stops power generation automatically, but to ensure system stability and extend inverter life span, it is necessary to perform regular inspection and maintenance according to the manual.

6.4.1 Regular inspection and maintenance list

Inspection item	Inspection method	Maintenance cycle
Inverter running data	Backup the running data, parameters and logs on the monitoring software.	Once per quarter
Inverter running state	Check if the inverter is hung reliably, has visible dent or deformed. Check if there is abnormal running noise in the inverter. Check if running data makes sense. Check if the housing is too hot with thermal camera.	Once per half a year
Clean the inverter	Check the ambient humidity and dust, refer to section 6.4.2 to clean the inverter when necessary.	Once per half a year
Electrical connection	Check if the electrical connection is loose, refer to corresponding section to tighten the connection if necessary. Check if the cable sheath has visible damage,	Once per half a year

Inspection item	Inspection method	Maintenance cycle
	especially where it is close to the metal.	
Cooling fan	Check if the air intake and exhaust are normal, check if the fan has abnormal running noise and if its blades have cracks. Clean the air inlet if necessary. Refer to corresponding section to change the fan if necessary.	Once per half a year
Safety function	Stop power generation on the LCD to verify the function, check the communication under such condition. Check if the warning sign is complete and clear, change it if necessary.	Once per half a year

6.4.2 Maintenance guidance

Clean the inverter

The cleaning steps are listed below:

(1) Disconnect the AC and DC connection;

(2) Wait for ten minutes;

(3) Clean the surface and air inlet/outlet of the inverter with soft brush or vacuum cleaner;

(4) Repeat the operations in section 6.1;

(5) Restart the inverter.

Fan maintenance



- Disconnect AC and DC connections of the inverter to stop the inverter before maintenance.
- After AC and DC are disconnected, wait for at least 5 minutes until the internal capacitors of the inverter are fully discharged before maintenance.
- The fan can be maintained and replaced by professional electricians only.

Step 1: Stop the inverter running and disconnect the electrical connections.

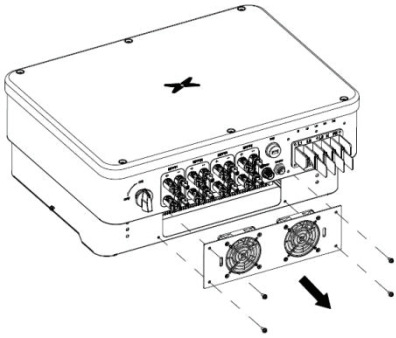
(1) Disconnect the DC input and AC output circuit breakers.

(2) Turn the built-in DC switch to the "OFF" position.

(3) Wait at least 10 minutes.

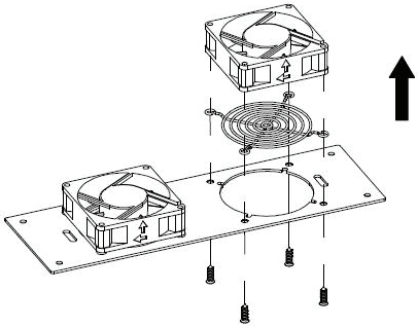
(4) Disconnect all cable connections from the bottom of the inverter.

Step 2: Unscrew the screws as below, unplug the fan cables and remove the fan plate at the bottom.



Step 3: Clean the fan with dusting brush or vacuum cleaner, change it if the fan has been damaged (refer to below Step 4).

Step 4: If the fan has been damaged, refer to below picture to change it with a new one.



Step 5: Install the fan plate back to the bottom of the inverter and connect all the cables back and make sure all connections are tight and reliable, restart the inverter.

Note	● Once the inverter stops due to an alarm, it is forbidden to start the machine immediately. The cause should be identified and all faults must be eliminated before starting up. Inspections should be carried out in strict accordance with the procedures in Section 6.1

7 LCD display operation

This chapter describes the LCD operation and LED indicators.

8 Troubleshooting

This chapter describes the error codes for fast troubleshooting.

Table 8-1 Inverter error codes

Code	Descriptions (short)	Descriptions (long)	Troubleshooting tips
A			
A001	Input UV	Input under-voltage	PV under-voltage
A002	Bus UV	Bus under-voltage	PV under-voltage or boost circuit fail
A003	Grid UV	Grid under-voltage	Grid voltage is too low
A004	Grid OV	Grid over-voltage	Grid voltage is too high
A005	Grid UF	Grid under-frequency	Grid frequency is too low
A006	Grid OF	Grid over-frequency	Grid frequency is too high
A007	Clock Fail	Clock fail	Wrong time set on the clock
A009	Cmd Shut	Manual off	Inverter has been manually turn off (via handheld HMI or supervisory computer)
A011	Grid Loss	Grid lost	Check if the AC is connected (e.g., check if AC breaker is connected) or the Grid has normal voltage
E			
E001	Input OV	Input over-voltage	PV input voltage is too high
E003	Bus OV	Bus over-voltage	Inverter internal bus voltage is too high
E004	Boost Fail	Boost fail	Inverter boost circuit fail
E005	Grid OC	Grid over-current	Inverter AC output current is too high
E006	OTP	Over temperature protection	Inverter internal temperature is too high
E007	Riso Low	Isolation resistance is too low	Isolation resistance is too low
E008	IGBT drv	IGBT driver protected	Inverter IGBT driver protection is triggered
E009	IntComm	Internal	The internal main and aux DSPs

Code	Descriptions (short)	Descriptions (long)	Troubleshooting tips
		communication error	cannot communicate with each other or the data check failed
E010	ILeek Fail	Leakage current is too high	System/inverter leakage current is too high
E011	Relay Fault	Relay fault	Inverter internal relay has fault
E012	Fan Fail	Fan fail	Inverter fan has fault
E013	Eeprom	Memory abnormal	Inverter internal memory has fault
E014	Dc inject	DC component is too much	DC component is too much in the AC output
E015	OutputShort	Output short circuit	AC output short circuit
E018	Input OC	Input over-current	Input over-current
E019	Incnst	Data inconsistent	The sample data is inconsistent between the main and aux DSPs
E020	PowerReversed	DC power reversed	DC power reversed

If any problem, please contact with the supplier and provide following information:

- Model of the inverter:_____;
- Serial No. of the inverter:_____;
- System version:

——version 1: _____;

——version 2: _____;

——MCU software version: _____;

- Fault code:_____;
- Fault description_____

9 Contact us

IN CASE OF ANY QUERY/ISSUE WITH THE PRODUCT
FOR MORE PRODUCTS RANGE
INQUIRY PLEASE CONTACT OUR DISTRIBUTOR OR NEAREST DEALERS.
V-TAC EUROPE LTD.
BULGARIA, PLOVDIV 4000
BUL.L.KARAVELOW 9B
support@v-tac.eu

10 Appendix

Table 9-1 Datasheet

Model		VT-6630305
DC	Max. DC voltage (V)	1100
	Start-up voltage (V)	250
	MPPT voltage range (V)	200~1000
	DC voltage range during rated output power (V)	500-800V
	MPPT number/ PV string number per MPPT	3/2
	Max. PV array power (W)	48000
	Max. input current each MPPT (A) x MPPT number	26x3
	Max. Isc (short-circuit current) of the PV array within each MPPT (A)	32
AC	Rated output power (W)	30000
	Rated voltage and frequency range (V)	230/400Vac,3L+N+PE/3L+PE,50/60Hz±5HZ（adjustable）
	Rated AC output current (A)	43.5
	Max. AC output current (A)	48.3
	Power factor	-0.8~+0.8 (adjustable)
	THDi	< 3% (@Rated power)
System	Cooling method	Smart fan
	Max. efficiency	98.60%
	European efficiency	98.20%
	MPPT efficiency	99.90%
	Ingress protection	IP66
	Power consumption at night	< 1W
	Protective class	I
	Overvoltage protection class	AC:III,PV:II
	Inverter topology	Non-isolated
	Pollution degree	3
	Operating temperature	(-30℃~+60℃), auto derating is required if the ambient temperature exceeds 45°C
	Humidity	RH 0~100%,condensation
	Max. altitude (m)	≤4000，derating is required if the altitude exceeds 3000m
	Display	LED, Bluetooth + APP
	System language	English, Chinese, Germany, Dutch
	Communication	RS485（standard）/WiFi（optional）/4G（optional）/GPRS（optional）
	DC terminal	MC4 water-proof connector
	Installation	Wall mount
Protections	Input overvoltage protection, input overcurrent protection, DC insulation monitoring, DC monitoring, grounding fault current monitoring, grid monitoring, islanding protection, short-circuit protection and overheat protection, etc.	

Meaningful Innovation.

WEEE Number: 80133970

INSTRUCTION MANUAL

WIFI MODULE FOR SOLAR INVERTER



INTRODUCTION

Thank you for selecting and buying V-TAC Product. V-TAC will serve you the best. Please read these instructions carefully & keep this user manual handy for future reference. If you have any another query, please contact our dealer or local vendor from whom you have purchased the product. They are trained and ready to serve you at the best.

User Manual QR CODE

Please scan the QR code to access the manual in multiple languages.

IN CASE OF ANY QUERY/ISSUE WITH THE PRODUCT PLEASE REACH OUT TO US AT SUPPORT@VTACEXPORTS.COM V-TAC HOUSE, KELPATRICK ROAD, SLOUGH, BERKSHIRE, SL1 6BW, UK.

WARNING

1. Please make sure to turn off the power before starting the installation.
2. Installation must be performed by a qualified electrician.



This marking indicates that this product should not be disposed of with other household wastes.



Caution, risk of electric shock.



NOTICE:
Please read this manual carefully before using products and keep it in the place where O&M providers can easily find.

Due to product upgrade and other factors, the content of this manual might change from time to time. Please take actual product as standard and get latest manual from www.vtacexports.com or sales. Unless otherwise agreed herein, this manual will only be used as guidance. Any statement, information or suggestion in this manual will not take any form of responsibility.

Without written permission, any content of this document (partly or entirely) cannot be extracted, copied or transmitted in any form by any company or individual.

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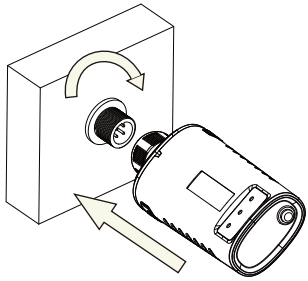
SOLARMAN Smart
Energy Assistant Around you

SOLARMAN Business
One-Stop O&M, After Service Management Software

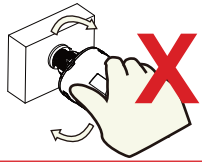
IOS: Search “Solarman Smart” or “Solarman Business” in Apple Store.
Android: Search “Solarman Smart” or “Solarman Business” in Google Play.

1. WIFI MODULE INSTALLATION

Type 1
Step1: Assemble WIFI Module to the inverter communication interface as shown in the diagram.



Warning:
Please do not hold the WIFI Module body to rotate while install or remove the Module.



2. WIFI MODULE STATUS

Check Indicator light

Lights	Implication	Status Description(All lights are single green lights.)
● NET	Communication with router	1.Light off: Connection to the router failed. 2.On 1s/Off 1s(Slow flash): Connection to the router succeeded. 3.Light keeps on: Connection to the server succeeded. 4.On 100ms/Off 100ms(Fast flash): Distributing network fast.
● COM	Communication with inverter	1.Light keeps on: WIFI Module connected to the inverter. 2.Light off: Connection to the inverter failed. 3.On 1s/Off 1s(Slow flash): Communicating with inverter.
● READY	WIFI Module running status	1.Light off: Running abnormally. 2.On 1s/Off 1s (Slow flash): Running normally. 3.On 100ms/Off 100ms(Fast flash): Restore factory settings.

The normal operation status of the WIFI Module, when router connected to the network normally:
1.Connection to the server succeeded: NET light keeps on after the WIFI Module powered on.
2.WIFI Module running normally: READY light flashes.
3.Connection to the inverter succeeded: COM light keeps on.

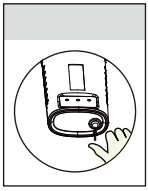
ABNORMAL STATE PROCESSING

If the data on platform is abnormal when the WIFI Module is running, please check the table below and according to the status of indicator lights to complete a simple troubleshooting. If it still can not be resolved or indicator lights status do not show in the table below, please contact Customer Support.
(Note: Please using the following table query after power-on for 2mins at least.)

NET ● NET	COM ● COM	READY ● READY	Fault Description	Fault Cause	Solution
Any state	OFF	Slow flash	Communication with inverter abnormal	1.Connection between WIFI Module and inverter loosen. 2.Inverter does not match with WIFI Module's communication rate.	1.Check the connection between WIFI Module and inverter. Remove the WIFI Module and install again. 2.Check inverter's communication rate to see if it matches with WIFI Module's. 3.Long press Reset button for 5s, reboot WIFI Module.
OFF	ON	Slow flash	Connection between logger and router abnormal	1.WIFI Module does not have a network. 2.Antenna abnormal 3.Router WiFi signal strength weak.	1.Check if the wireless network configured. 2.Check the antenna, if there is any damage or loose. 3.Enhance router WiFi signal strength. 4.Long press Reset button for 10s, reboot WIFI Module and networking again.
Slow flash	ON	Slow flash	Connection between WIFI Module and router normal, connection between logger and remote server abnormal.	1.Router networking abnormal. 2.The server point WIFI of Module is modified. 3.Network limitation, server cannot be connected.	1.Check if the router has access to the network. 2.Check the router's setting, if the connection is limited. 3.Contact our customer service.
OFF	OFF	OFF	Power supply abnormal	1.Connection between WIFI Module & inverter loosen or abnormal. 2.Inverter power - insufficient. 3.WIFI Module - abnormal.	1.Check the connection, remove the WIFI Module and install again. 2.Check inverter output power. 3.Contact our customer service.
Fast flash	Any state	Any state	SMARTLINK networking status	Normal	1.Exit automatically after 5mins. 2.Long press Reset button for 5s, reboot WIFI Module. 3.Long press Reset button for 10s, restore factory settings.
Any state	Any state	Fast flash	Restore factory settings	Normal	1.Exit automatically after 1mins. 2.Long press Reset button for 5s, reboot WIFI Module. 3.Long press Reset button for 10s, restore factory settings.

USAGE METHODS AND NOTICES FOR RESET BUTTON

Usage methods and key-press descriptions for Reset button



Key-press	Status Description	Light Status
Short press 1s	SMARTLINK rapid networking status.	NET light flashes fast for 100ms.
Long press 5s	Rebooting the WIFI Module.	All lights are extinguished immediately.
Long press 10s	Resetting theWIFI Module.	1.All lights are extinguished after 4s. 2.READY light flashes fast for 100ms.

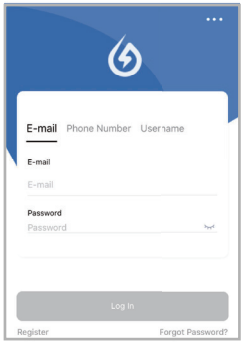
NOTICES FOR RESET BUTTON

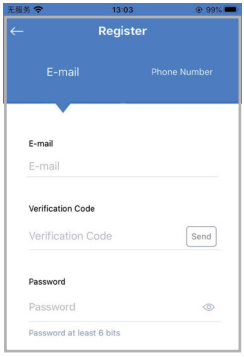
Notice:
Do not remove waterproof plug.



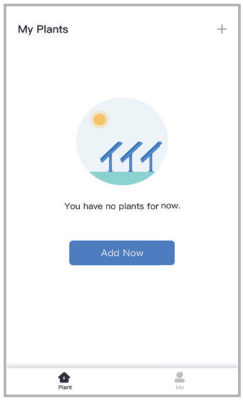
USER MANUAL FOR SOLARMAN SMART APP

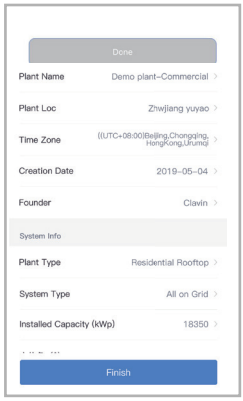
1.Registration
Go to Solarman Smart App and register.
Click "Register" and create your account here.





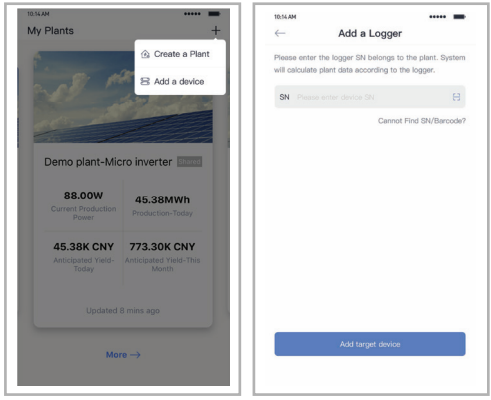
2.Create a Plant
Click "Add Now" to create your plant.
Please fill in plant basic info and other info here.





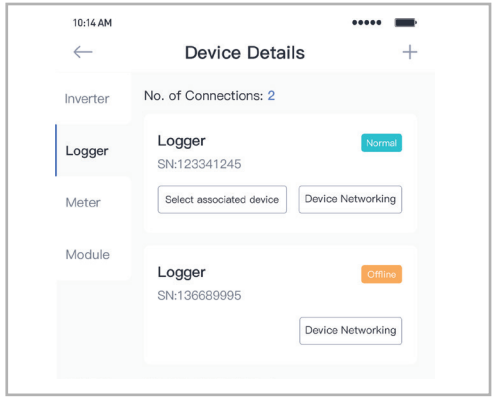
3.Add a Logger
Method 1: Enter logger SN manually.

Method 2: Click the icon in the right and scan to enter logger SN
You can find logger SN in the external packaging or on the logger body.



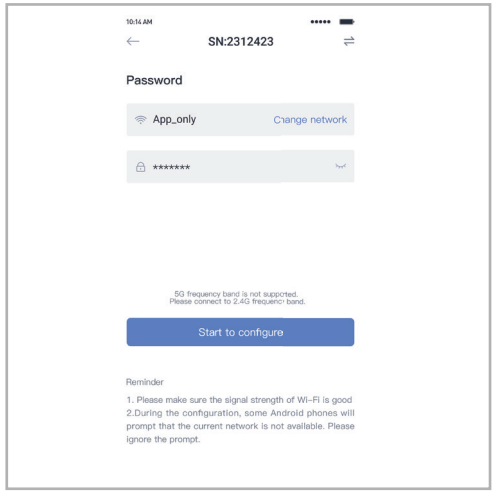
4.Network Configuration
After the logger is added, please configure the network to ensure normal operation.

Go to "Plant Details"-"Device List", find the target SN and click "Networking".



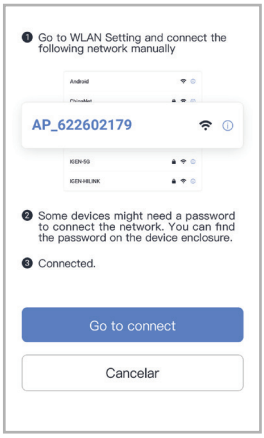
Step 1：Confirm Wi-Fi Info
Please make sure your phone has connected to the right WiFi network. And click "Start".

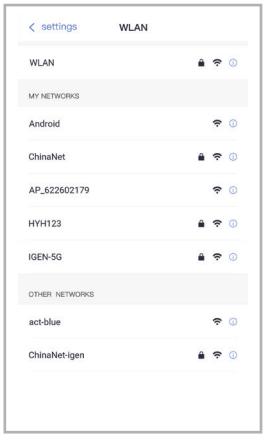
Notice:
5G WiFi is not supported .



Step 2:Connect to AP network
Click "Go to connect" and find the right "AP_XXXXX" network
(XXXXX Refers to logger SN).

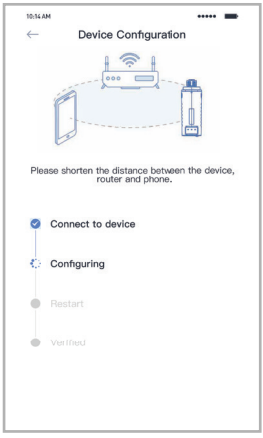
If the password is required, you can find the password on the logger body. Go back to Solarman Smart App, after connecting to AP network.

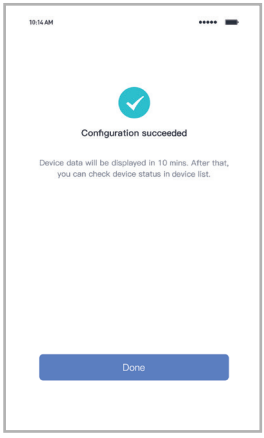




Step 3:Auto Configuration
Please wait for a while to complete the configuration. Then system will switch to the following page.

Click "Done" to check plant data. (Usually, the data will be updated in 10 mins)





If configuration failure occurs, please check the following reason and try it again.
(1) Make sure WLAN is ON.
(2) Make sure WiFi is normal.
(3) Make sure wireless router does not implement the white-black list.
(4) Remove the special characters in Wi-Fi network.
(5) Shorten the distance between the phone and device.
(6) Try to connect to other Wi-Fi.

Warning:
Please make sure the WIFI Module is working properly before you leave the site. If there is anything abnormal, please do not leave the site and contact customer service: support@v-tac.eu.