Multipurpose Grid Tie Power Inverter

GTN & GTW /1000W 1200W

Installation and operation manual

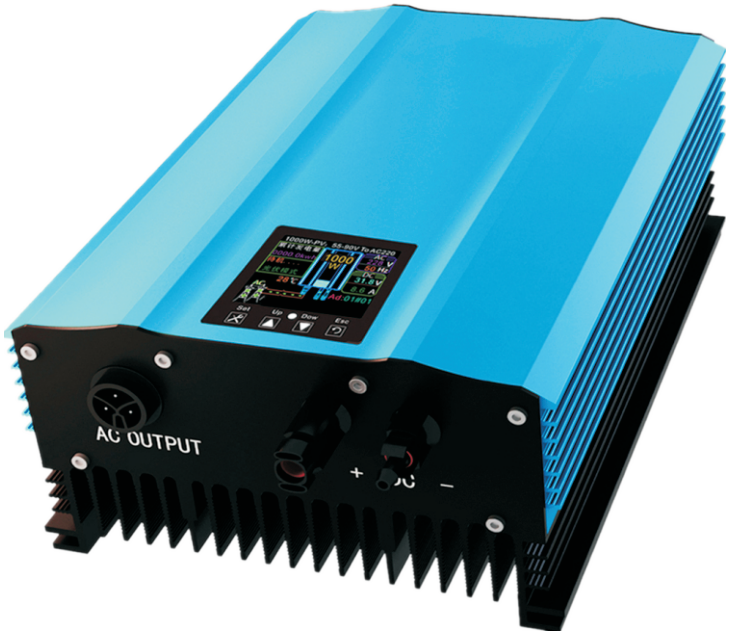


Table of Contents

1. Manual description

1. 1 *product description*

The GTW&N-1000W/1200W grid-tied inverter uses innovative grid-connected inverter technology, which has the same ability to serial and parallel connect multiple components in series with a centralized inverter, while also having a distributed micro-inverter Small size and high efficiency, built-in innovative speed-enhanced maximum power point tracking (MPPT) control algorithm, integrated LCD function display and LED status display. The whole machine uses a number of patented designs, with high circuit integration, reliable performance, comprehensive optimization of the heat dissipation system, compatibility with various types of photovoltaic panel components, easy to operate and install

The grid-connected inverter can be applied to (such as various types of photovoltaic modules, various types of batteries, DC switching power supplies, DC motors, etc.) in the grid feed system or power supply type of load discharge, aging test and other systems. In the photovoltaic grid-connected inverter, the solar panel assembly can maximize the power output (built-in precision MPPT), convert the output energy of the solar panel assembly to the grid, or use other switching power supplies and battery discharge tests. Contact us for technical information.

1.2 Packaging inspection

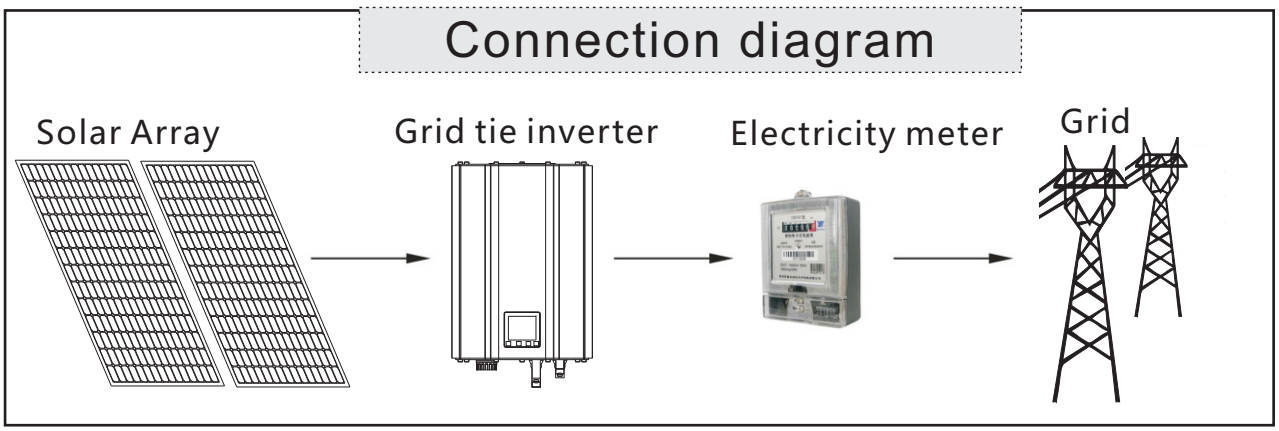
Although we have carefully tested and tested the grid-connected inverter before transportation, it is inevitable that damage may occur during transportation, so please check it carefully before installation. If any damage is detected, please contact the shipping company or contact us directly. Please provide a photo of the damage, we will provide you with the fastest and best service.

2 Safety instructions and specifications

Please read this manual carefully before installation and operation. If the equipment is damaged due to failure to install and operate according to the instructions in this manual, the company reserves the right not to provide warranty-free service.

2.1 Specifications

a. Normal safe operation of the inverter requires proper transportation, storage, installation and connection, as well as operation and maintenance.
b. All operations and wiring should be performed by professional mechanical and electrical engineers, and all electrical installations must comply with local electrical installation standards.
c. Before installing or wiring, be sure to measure the DC side and AC side voltage of the device with a voltmeter to ensure that the DC side and AC side are operated without voltage.
d. Follow all instructions for hazard, warning, and safety information in accordance with the operating and installation instructions.



2.2 Model Name description

GTN-1200G48-2-RS

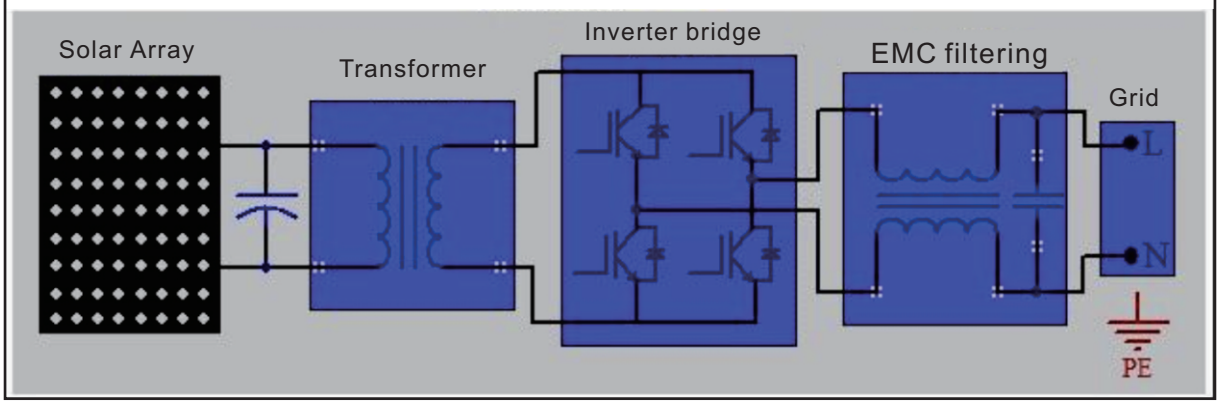
- "Rs" With 485 communication function
- AC Output voltage range:" 1" is AC90-135V ; "2" is 190-260V
- "48" is suitable for 48V battery , or DC input voltage range is 55V-90V
- 1200" means that the maximum peak power of the inverter's AC output is 1200W.
- "GTN" means that the inverter is not waterproof, and "GTW" means it is a waterproof inverter.

For detailed specifications, please see the parameter specification table on page 9-10

2.3 Features of grid tie inverter:

1. With imported high-speed main control chip and power device to improve system stability.
2. Advanced Maximum power point tracking (MPPT)to ensure the high efficiency of system.
3. Efficiency of MPPT > 99%.
4. Solar modules can be serial/parallel input for easy adjustment of system combination power.
5. High-efficiency and frequency transformer,sufficient patents.
6. Anti-islanding technology.
7. Multiple software, hardware system protection, advanced modular design, safe and reliable.
8. LCD rich content display function, user interface, clear and intuitive.
9. Lightweight, easy to install, operate and maintain.
10. Supports access to various DC sources for discharge and can be used as energy-saving feedback electronic loads.
11. Support RS-485 communication function, data transmission and remote control to operate various functions of this inverter.

Circuit architecture figure



3.Installation

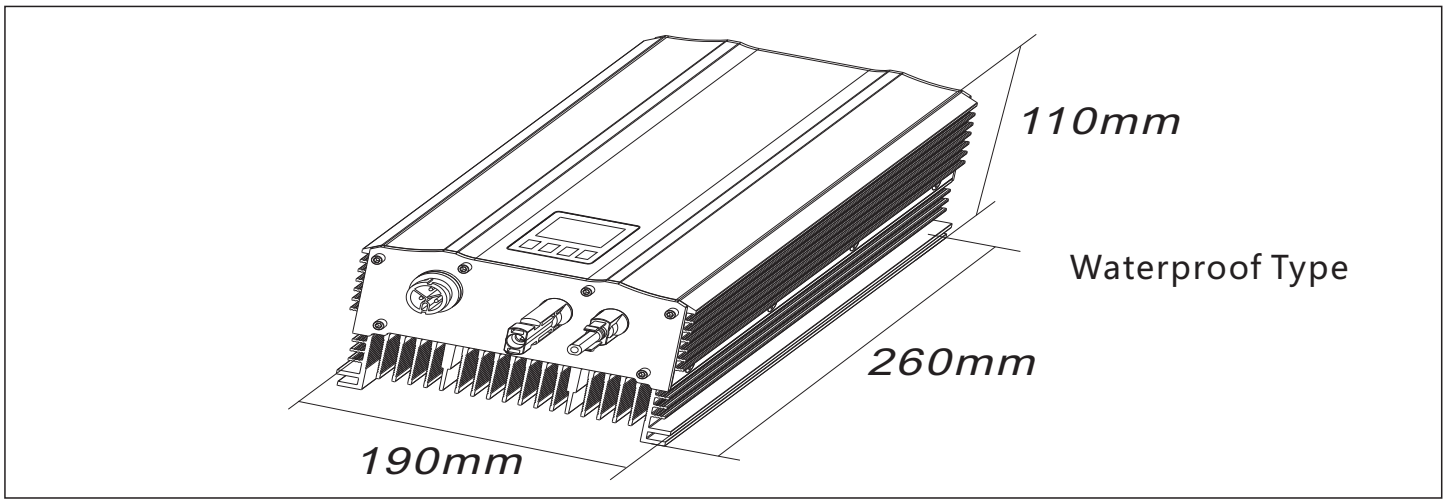
Before installation,please read the installation instuctions carefully.

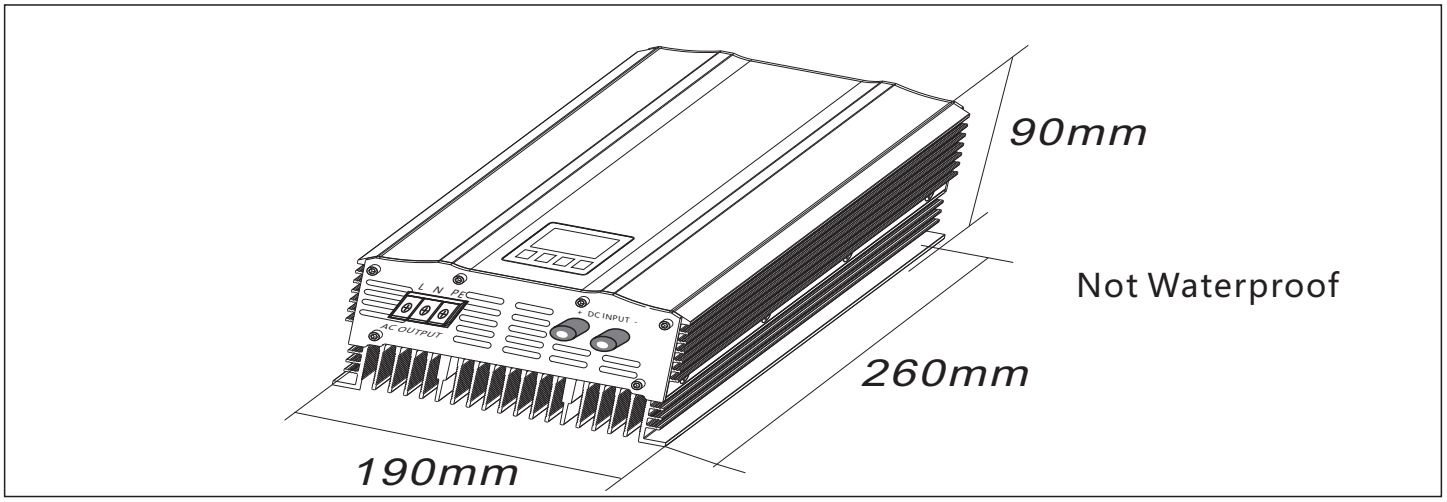
Warning

The temperature will rise by the working.
So don't put inverter with flammable and explosive goods stored in.
Don't install the inverter in where have explosive dangerous

3.1 Securely Anchored

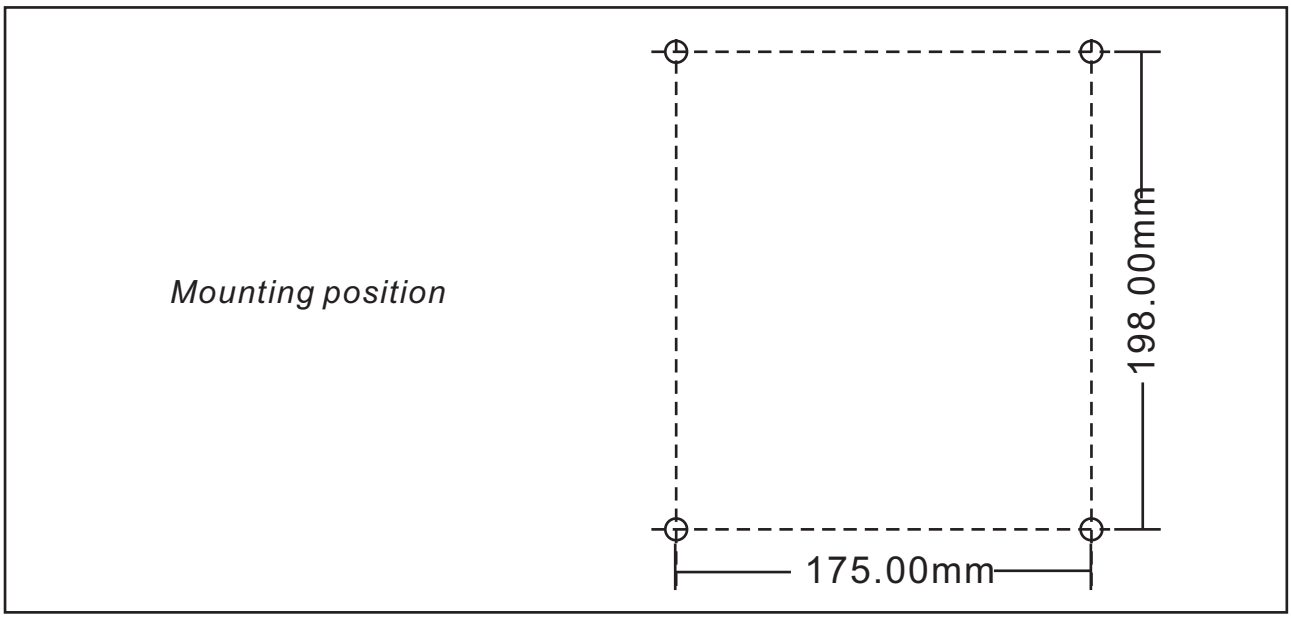
First,should ensure the installation location is stable and safe.the size of the inverter as the picture ,and then the user should mark the mounting holes possition on the wall according to the size of the inverter. Installation location should ensure stable and easy to observe the LED lamp. Last, bottom and top of the inverter should have enough space for colling and mainterance, please see the figure.

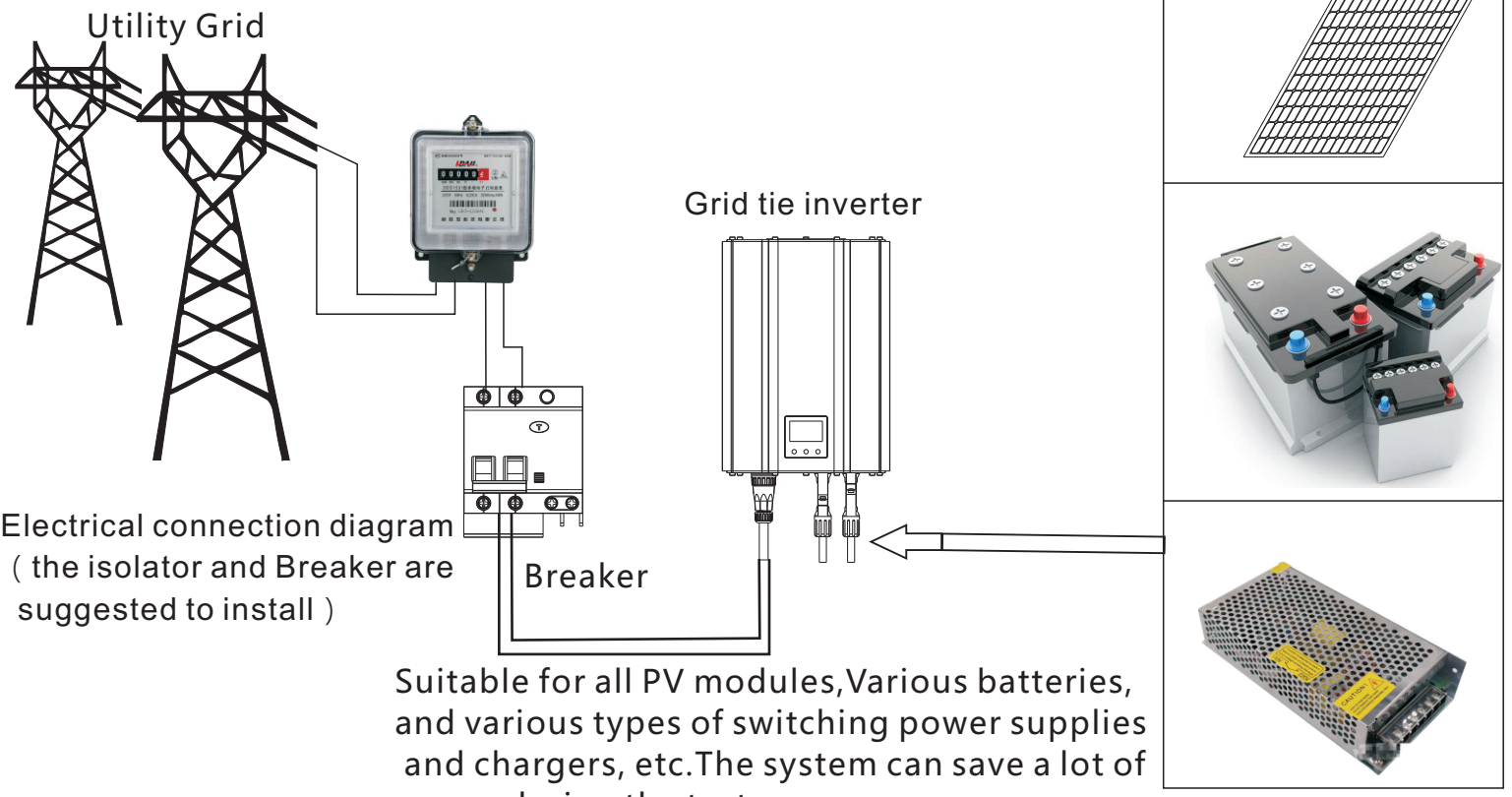




3.2 Install the inverter

Drill four screws holes in the chosen mounting location,ensure the electric drill is vertical the wall when drilling holes an not shaking the electric drill due to the inclined mounting





Electrical connection diagram
(the isolator and Breaker are suggested to install)

Suitable for all PV modules,Various batteries, and various types of switching power supplies and chargers, etc.The system can save a lot of power during the test.

4. Electrical connection and test run

This mentioned how to connect the inverter ,solar array and eletrical and test run,please read those steps,warning and matters need attention.

Warning

▼Please connect the inverter without AC and DC voltage.

▼The open circuit voltage of the solar array must be less than the inverter.

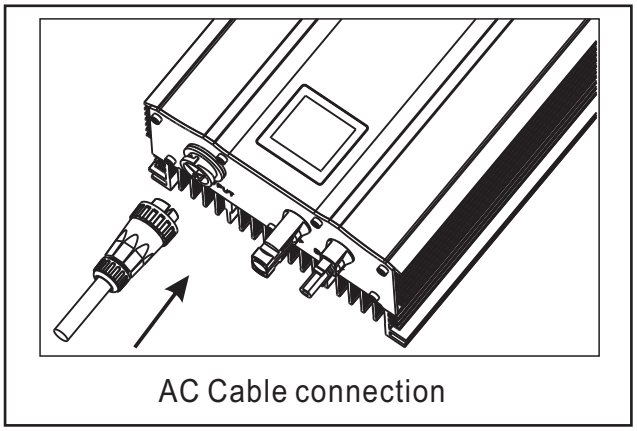
4.1 Specification of Cable

Please note this before the installation.

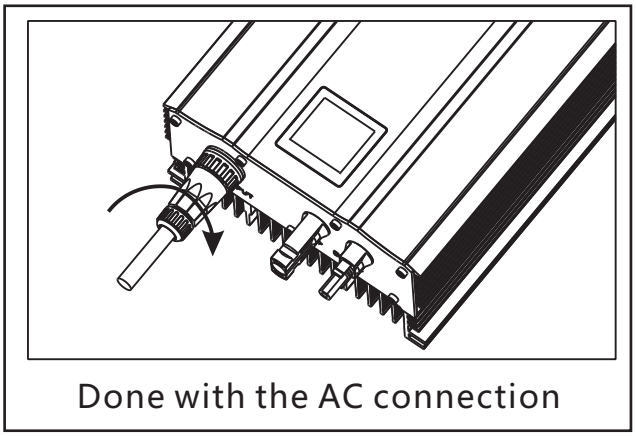
Cable	Input current below 15A	Input current 15A–25A	Input current 25A–35A
Line length	3 meter are best or less	3 meter are best or less	3 meter are best or less
DC input Wire size	Cable requirements greater than or equal to 14AGW Line.	Cable requirements greater than or equal to 12AGW Line.	Cable requirements greater than or equal to 10AGW Line.
AC Output Wire size	Pure copper cable above 18AGW.		

4.2 AC connection description

se the AC power cord that is randomly distributed when connecting the grid-Tie inverter to the AC grid.
If you need to lengthen please use a copper cable with a size of 1.5 ㎜² or more to extend it.
Install as shown below



AC Cable connection



Done with the AC connection

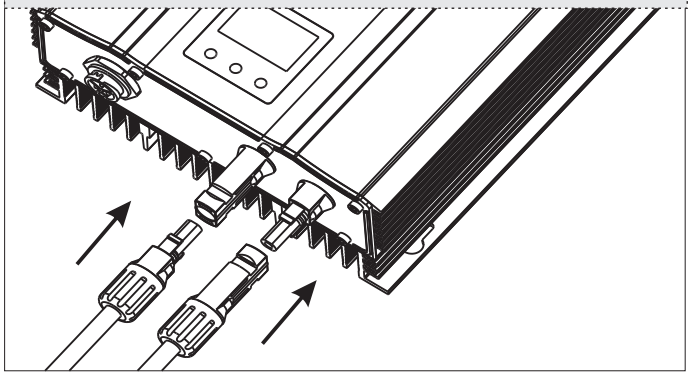
In the single-phase AC 220V or 110 grid, the inverter Dno't need to distinguish between the Neutral wire and the Live wire, respectively, the red wire and the blue wire can be connected, and the yellow line is connected to the earth. Under the commercial power of the two-phase Ac110 (double 110 Live wires), the red and blue wire are connected to the L1 and L2 wire respectively, and the yellow wire is connected to the Earth wire.

Warning

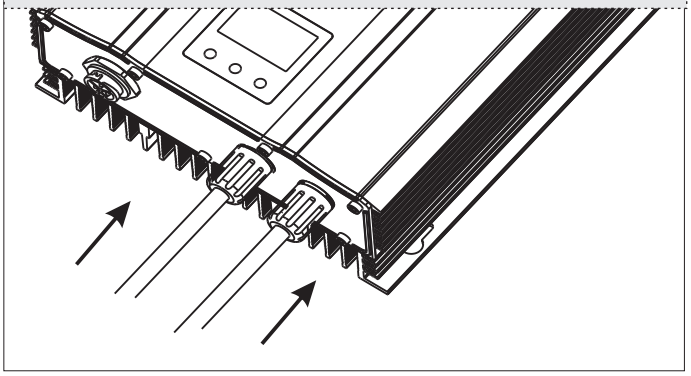
▼Do not insert and extract any connectors Under the charged state

4.3 DC connection description

MC4 DC connector docking



DC connection column tightening



4.4 Test Run

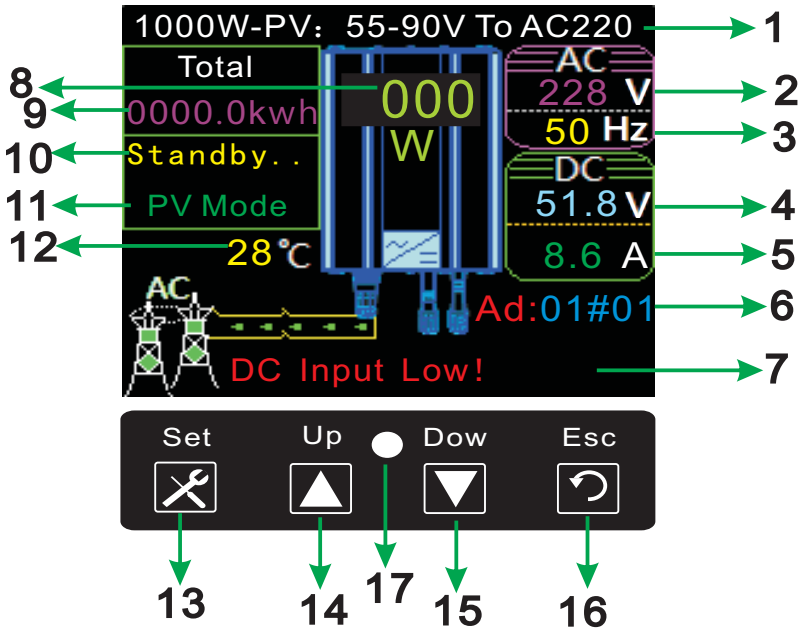
After connected all the machines,Follow those steps to start the Inverter

（1）Make sure the inverter is connected in the correct way.

（2）Make sure that the battery connected to the DC side of the inverter, the plus or minus polarity of the PV panel or switching power supply is correct and the connection terminals are secure.

After finish the previous steps,the grid voltage and DC side voltage is normal the inverter will automatically start parallel operation

5 LCD Display Introduction



5.1 LCD main interface display content description

1：This model specification shows: This Inverter is a 1000W model,PV Open circuit voltage input 55 - 90V, suitable for AC 220V voltage.

2：Display the input AC voltage value

3：Display the input AC frequency value

4：Display the input DC voltage value

5：Displays the DC current value during operation.

6： * The local communication address is displayed, 01 # is the area address (1 - 99), and 01 following # is the bit address (1 - 99)。

7：Display prompt information and cause analysis. 5.2 has related instructions.

8：Displays the AC power value of the inverter output.

9：Display total power generation.

10：The working status of the inverter is displayed, and there are two status of “Standby.” and “Run.”

11：The operating mode of the inverter is displayed, and there are two types of "PV mode" and "Bat mode".

12：The temperature inside the inverter is displayed. When the internal temperature reaches 45 ℃, the cooling fan will start running.

5.2 The LCD abnormal information prompts the content description.

a. “Not Connected M-board” --》The cable connecting the LCD driver board to the motherboard may have poor connection and need to be reconnected or restarted.

b. “DC Input Low ! ” --》The input DC voltage does not reach the starting voltage range of the inverter operating mode. Please check whether the connected solar module voltage or the connected battery voltage is lower than the input voltage requirement of the grid-Tie inverter.

c. “DC Input High ! --》When you see this abnormal information prompt, you should immediately disconnect the DC input. Please confirm whether the connected solar module or battery voltage is too high. If the maximum allowable input voltage of the inverter is exceeded, the internal components may be damaged. Overvoltage access to the inverter is strictly prohibited.

d. “AC Input High ! ” --》Please check if the home grid voltage meets the AC allowable input voltage of this inverter?

e. “AC Input Low ! ” --》Please check if the home grid voltage meets the AC allowable input voltage of this inverter?

f. “Overheat ! ” --》When the internal temperature of the inverter is higher than 65 ℃, the inverter will stop output and will be in standby.The fan will continue to work until the internal temperature drops to 49 ℃ and the inverter will automatically operate.

5.3 Button setting operation introduction :

13 : “Set”-->Setting amd Confirm Button

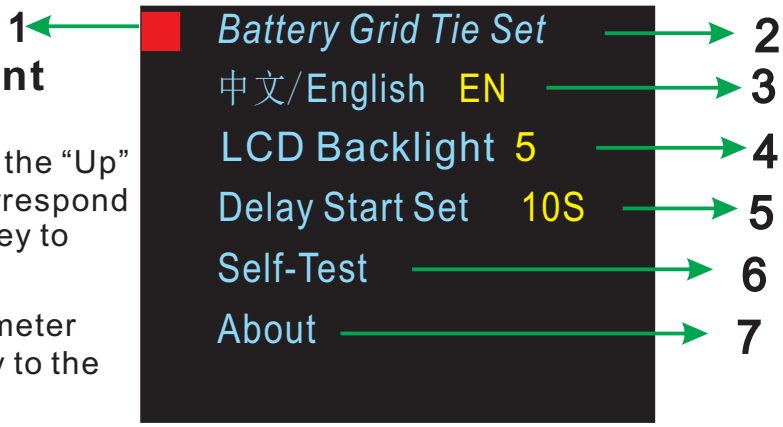
14 : “Up” -->Move up or switch in the options.

15 : “Dow” -->Move down or switch in the options.

16 : “Esc” -->Exit or return to the action in the options.

17 : Here is an LED indicator, the light flashes slowly in the standby state, and the normal output is always on.

5.4 Main setting interface content description



1. The red square is a movable cursor. Press the “Up” or“Dow” key to move up and down. The correspond item is the selected item. Press the “Set” key to enter the corresponding setting item.

2. “Battery Grid Tie Set” This option is a parameter setting option when connecting the battery to the grid. 5.5 has specific setup instructions.

3. “中文/English” displays the language switching item. When the cursor moves to this item, press the “Set” button, the yellow word will turn red. Press “Up” or “Dow” to switch to “中”. " or "E" display, press "Set" to confirm the save.

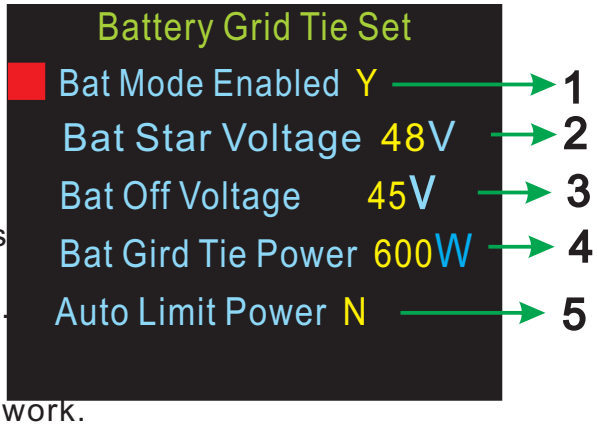
4. “LCD Backlight Set” When the cursor is moved to this item, press the “Set” button, the yellow number will turn red. Press the Up button or the Dow button to add or subtract the value. The highest value is 9, and the lowest value is 1. After selecting it, press "Set" to save.

5. “Delay Start Set" This delay function is the corresponding time after the power is turned off and restarts to enter the normal working state. The time can be set according to the requirements of the local country or region, 3~99 seconds.

6. "Self-Test" This item has no practical meaning for the user and can be ignored.

7. "About" This item is to view the software version number or other description information of the current inverter.

5.5 Battery grid tie parameter setting instructions:



1. “Battery Mode Enabled”, when the cursor corresponds to this item, press “Set” to select, then press “Up” or “Dow” to switch “Y” and “N”, when “Y” is displayed Press the Set button to confirm that the Battery mode is enabled. If it is "N", it is the PV mode.

2. "Battery Start Voltage" This item is used to set the voltage value when the connected battery starts to work.

3. "Battery Shutdown Voltage" This is the voltage value for setting the battery undervoltage protection. Prevent battery over-discharge and make battery life longer.

4. "Battery Grid-Tid Power" This item is the setting of the output power when the battery is connected to the grid. According to the output power of the household power, the power consumption of the utility grid can be reduced to achieve the self-use grid-connected effect.

5.* “Automatic Limit Power” This function is optional. It needs to be purchased separately to connect the module. This function will be accompanied by the corresponding operation manual.

6.Technical Data Sheet: Appendix A-1000W Model

Data Name \ Model	1000G24	1000G36	1000G48	1000G72	1000G96
	DC Input Data				
PV module open circuit voltage range (V)	26V~45V	39V~62V	55V~90V	85V~130V	120~180V
PV module power range (W)	200W~1100W				
MPPT operating voltage range(V)	21~31V	32~45V	44~70V	65-100V	90-135V
Battery voltage suitable for connection (V)	24V	36V	48V/60V	72V	96V
Battery startup voltage setting range (V)	24~31V	35~45V	46~70V	68~100V	90~120V
Battery low voltage shutdown setting range (V)	22V~30V	33V~44V	44V~69V	66V~99V	88V~119V
Maximum input protection current (A)	40A	30A	25A	20A	15A
AC Output Data (AC120 or AC230, 48-62HZ)					
PV Mode AC Output Peak Power (W)	1000W				
Battery mode output power setting range (W)	60-650W	60-700W	60-750W	60-800W	
Inverter conversion efficiency	88%	89%	90%	91%	92%

7.Technical Data Sheet: Appendix B-1200W Model

Data Name \ Model			1200G48	1200G72	1200G96
	DC Input Data				
PV module open circuit voltage range (V)			55V~90V	85V~130V	120~180V
PV module power range (W)	200W~1300W				
MPPT operating voltage range(V)			44~70V	65-100V	90-135V
Battery voltage suitable for connection (V)			48V/60V	72V	96V
Battery startup voltage setting range (V)			46~70V	68~100V	90~120V
Battery low voltage shutdown setting range (V)			44V~69V	66V~99V	88V~119V
Maximum input protection current (A)			30A	25A	20A
AC Output Data (AC120 or AC230, 48-62HZ)					
PV Mode AC Output Peak Power (W)	1200W				
Battery mode output power setting range (W)			60-800W	60-850W	
Inverter conversion efficiency			90%	91%	92%

The following are the 1000W and 1200W public data sheets

AC Voltage Range (V)*	90V~140V for AC120, or 180-260V for AC230
AC Frequency Range (Hz)*	59.3~60.5 for 60Hz, or 47.5~51.5 for 50Hz
Other Electrical Properties	
MPPT Efficiency	＞99%
Power Factor	＞0.98
Night power consumption	＜2W
THD	＜5%
Island protection	VAC;FAC
Work status indication	Color LCD display (Chinese/English display can be Switch language)
Protective function	DC: OVP/OCP AC :OVP/OCPt/OFP;Overheat protection

	GTW Series - Waterproof		GTN Series - No Waterproof
Storage temperature range	-40℃ ~ +60℃	Mechanical Data	-40℃ ~ +60℃
Operating temperature range.	-20℃ ~ +45℃		-20℃ ~ +45℃
Bare metal size (L * W * H)	305*190*110 mm		305*190*90 mm
Package size (L * W * H)	402*260*170 mm		402*260*170 mm
Net Weight(KG)	5.2KG		3.8KG
Gross Weight (KG)	5.5KG		4KG
Protection class	IP65		IP22
Cooling	Natural cooling + Fan		Natural cooling + Fan
Other Features			
Scope of application	Single crystal/ polycrystalline /amorphous/film/lead acid battery/ lithium battery, and various switching power supply energy feedback systems.		
communication method *	Optional RS485		

Parts List

Parets Name	*Quantity*
AC Cable	1
Instruction manual	1

Disclaimer and copyright notice

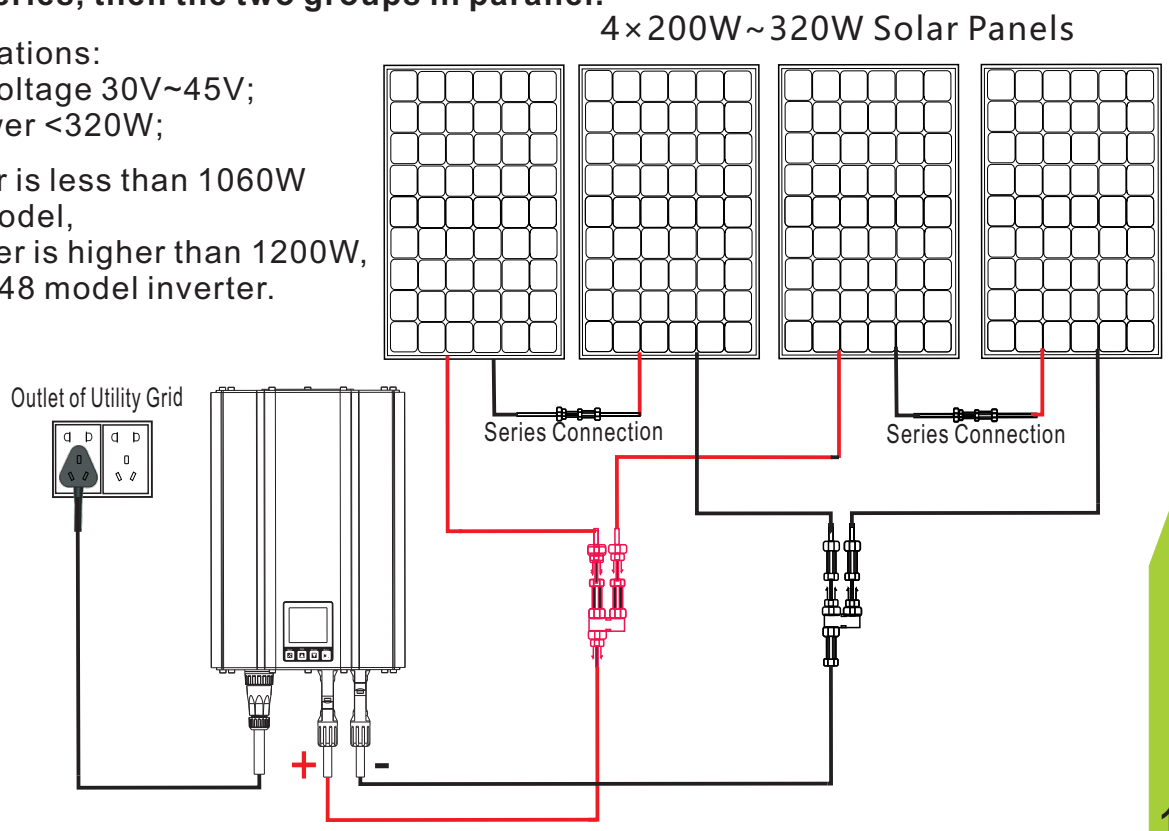
a. If the product size and parameters are changed, the latest information of the company is subject to change without prior notice.

8 system connection reference diagram

8.1 Two panels in series, then the two groups in parallel.

Single panel specifications:
a: Open circuit voltage 30V~45V;
b: Maximum power <320W;

The total panel power is less than 1060W
Can use 1000G48 model,
If the total panel power is higher than 1200W, you need Use 1200G48 model inverter.

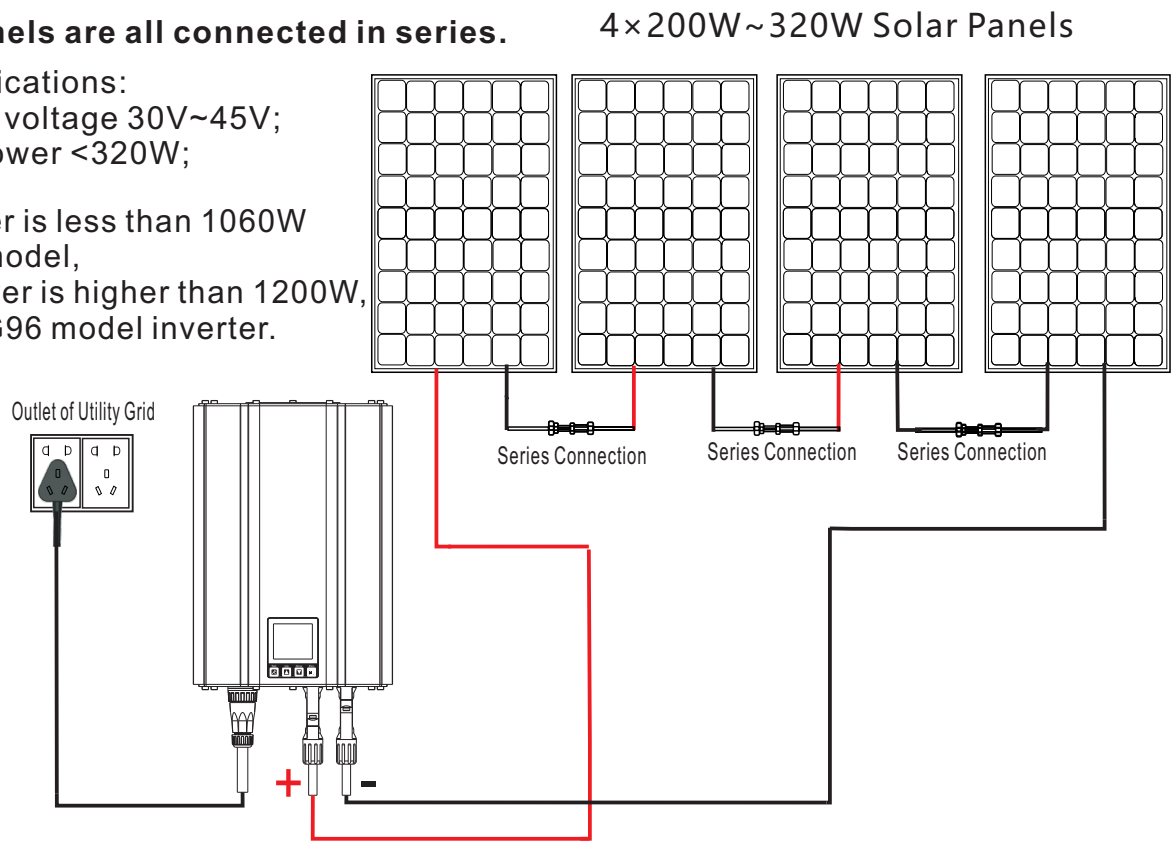


When connecting solar panels, the inverter needs to be set to work in <PV Mode> and the inverter will enable the internal MPPT.

8.2 Four solar panels are all connected in series.

Single panel specifications:
a: Open circuit voltage 30V~45V;
b: Maximum power <320W;

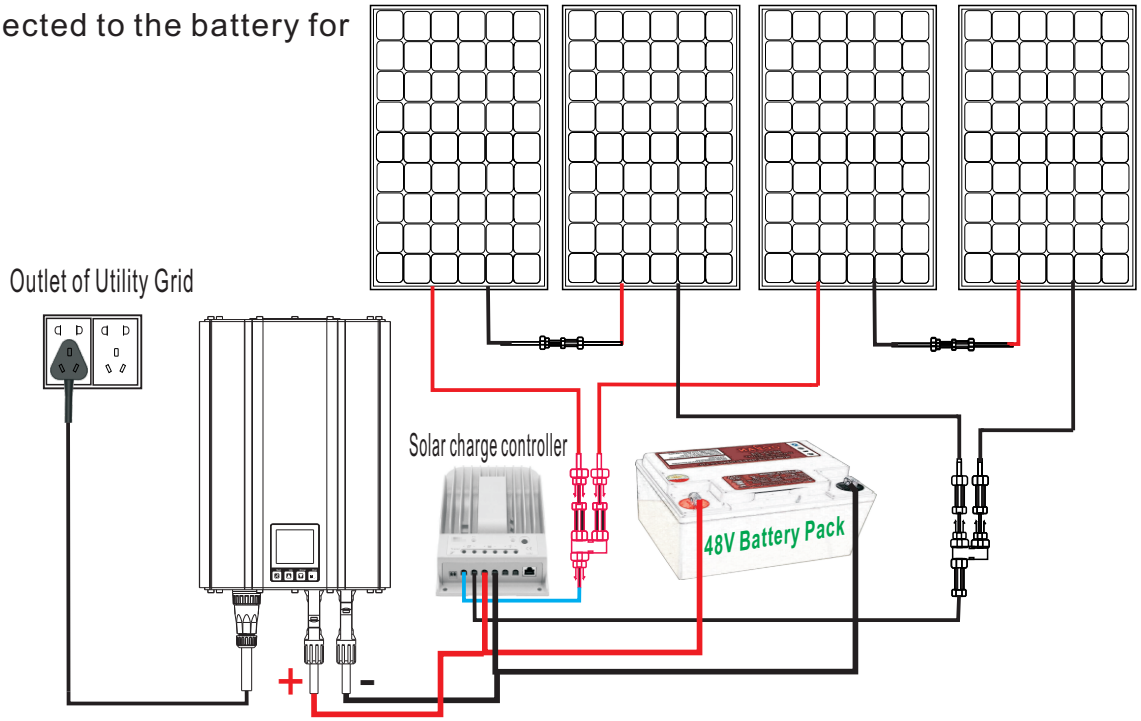
The total panel power is less than 1060W
Can use 1000G96 model,
If the total panel power is higher than 1200W, you need Use 1200G96 model inverter.



When connecting solar panels, the inverter needs to be set to work in <PV Mode> and the inverter will enable the internal MPPT.

8.3 The solar panel preferentially charges the battery.

The inverter is connected to the battery for discharge.



When connecting the battery, you need to set the inverter to <Bat Mode> The inverter will output according to the set power.