Intelligence
Switched On

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340-00438-03

GEP
3-5KW SINGLE PHASE
USER MANUAL

Ver.1.3

SOLAR INVERTER

www.gesolarinverter.com

TABLE OF CONTENTS

1 Symbols

	Failure to observe a warning indicated in this manual may result in injury.
	Danger of high voltage & electric shock
	Don't touch, hot surface!
	This side up - The package must always have the arrows point up
	No more than six (6) identical packages stacked on each other.
	Fragile
	Recyclable materials
	Special disposal instructions
	Keep Dry
	Refer to operation instructions
	Wait at least 5 minutes after disconnecting the inverter before handling internal parts
	CE mark.

2 Safety Measures & Warning

- The GEP inverter strictly conforms and has been tested according to international safety regulations.
- The manufacturer strongly advises installers to follow local safety regulations during commissioning, operation and maintenance of the GEP inverter. Improper operation may result in electric shocks or damage to equipment and property.
- The installation, maintenance and connection of the inverters must be performed by qualified personnel, in compliance with local electrical standards, regulations and following the regulations of the local power suppliers, companies and related authorities.
- If the GEP inverter is unpacked but not put into use immediately, please put it back to the original package with the desiccant bag and seal it with tape.
- To avoid electric shocks, the DC input and AC output port of the inverters must be disconnected for at least 5 minutes before performing any installation or maintenance.
- The temperature of some components of the inverters may exceed 60℃ during operation. To avoid burns, do not touch the inverter during operation. Let the inverter cool before operating.
- Keep children away from the inverter.
- Touching or changing inverter components without following manual instructions may cause personal injury, damage the inverters and could ultimately invalidate the warranty.
- The electronic components of the inverter could be damaged by static electricity. Appropriate methods must be adopted to prevent such damage, otherwise the warranty may be null and void.
- Ensure the output voltage of the proposed PV array is lower than the maximum rated input voltage of the inverter, otherwise the inverter may be damaged and the warranty may be null and void.
- When exposed to sunlight, the PV array generates dangerously high DC voltage. We strongly advise operators strictly follow instructions and avoid actions that put lives at risk.
- The PV modules should have as a minimum an IEC61730 class A rating protection.
- If the equipment is used in a way not authorized by the manufacturer, the equipment built-in protections may be damaged.
- In order to achieve complete equipment isolation: turn off the AC switch first, then turn off the DC switch.
- Do not insert or pull the AC or DC terminals when the inverter is in operation.
- An Arc Fault Detector is recommended to be installed on the DC side of an earthing photovltaic system.
- The inverter can exclude the possibility of DC residual currents to 6mA in the system, Where an external RCD is required in addition to the built-in RCMU, type A RCD must be used to avoid tripping.
- The PV is not grounded as default configuration.

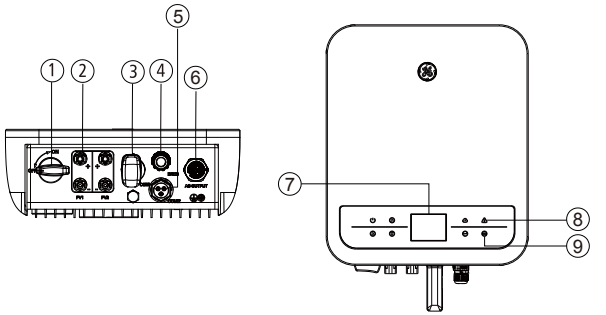
⚠ To ensure IP65 protection is maintained, please make sure that the inverter is rigorously packed and its components are sealed properly. GE strongly suggests to install the inverter at most one day after it has been unpacked. If this is not the case and the installation takes longer, please re-seal all the unused terminals and ensure that the inverter and its components are not exposed to water or dust.

The manufacturer provides a standard warranty which comes with the inverter product and prepaid warranty extension solution for our customer. For further details please visit **www.gesolarinverter.com**

3 Product Introduction

3.1 Inverter Overview

GEP inverter illustration.

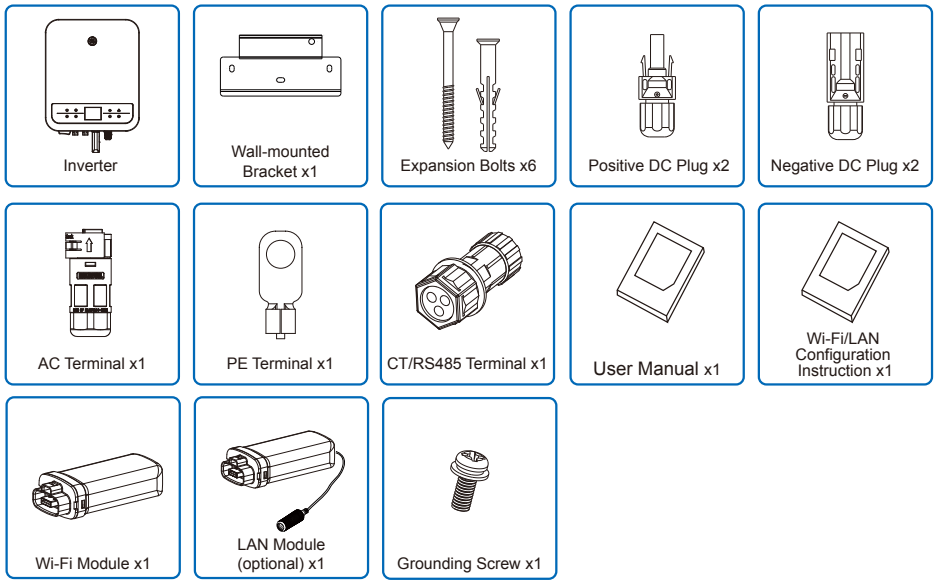


Item	Name	Description
1	DC Switch	During normal operation, it is in "on" state and it can shut down the inverter after it is disconnected from the grid by the AC breaker.
2	PV Input Terminal	For PV string connection
3	Wi-Fi /LAN Module (Optional)	For Wi-Fi or LAN communication
4	DRED Function (Optional)	For DRED communication
5	CT and RS485 (Optional)	For CT and RS485 Communication
6	AC Output Terminal	For AC cable connection
7	LCD Display	Inverter operation data overview and parameter configuration.
8	Indicator Lights	Display the state of the inverter
9	Buttons	For configuration and viewing parameters.

3.2 Package

The unit is thoroughly tested and strictly inspected before delivery. Damage may still occur during shipping.

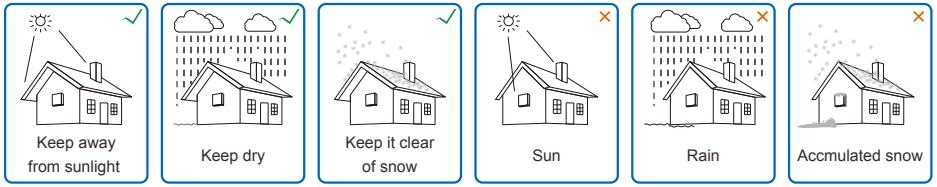
1. Check the package for any visible damage upon receiving.
2. Check the inner contents for damage after unpacking.
3. Check the package list below.



4 Installation

4.1 Mounting Instructions

1. In order to achieve optimal performance, the ambient temperature should be lower than 45°C.
2. For easy maintenance, we suggest to install the inverter at eye level.
3. Inverters should not be installed near flammable and explosive items. Strong electro-magnetic charges should be kept away from installation site.
4. Product label and warning symbols should be located and placed in a manner that can be easily ready by users.
5. Ensure the inverter is installed in a location that is protected from direct sunlight, rain and snow.

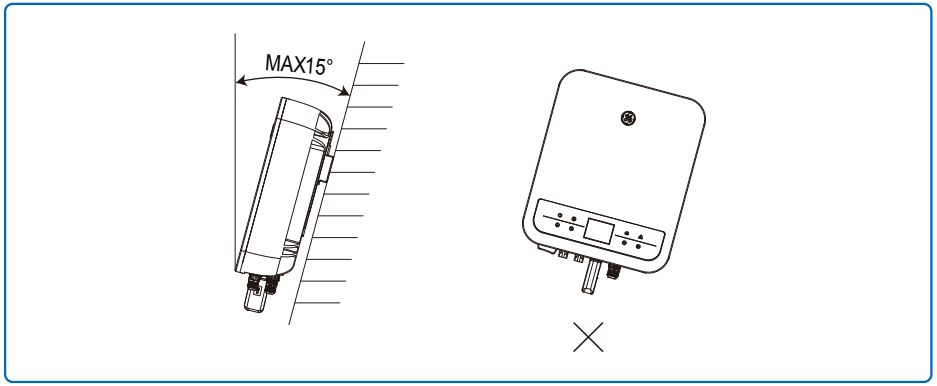


4.2 Equipment Installation

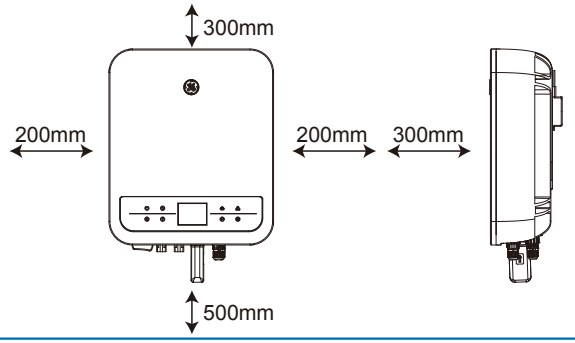
4.2.1 Select installation location

Please take the following points into consideration when you selecting a proper location to install inverter.

1. Please choose appropriate mounting methods and installation location taking into account the weight and dimension of inverter.
2. The location must be well ventilated and sheltered from direct sunlight.
3. Install the inverter vertically or with a backward tilt up to 15 degrees maximum. No lateral tilt is allowed. The inverter should not be tilted sideways. The area of the connectors should point downwards.

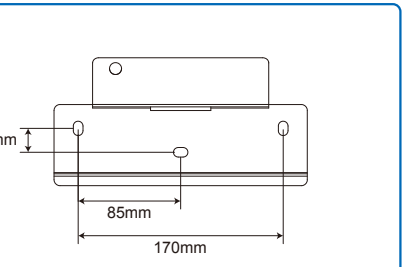


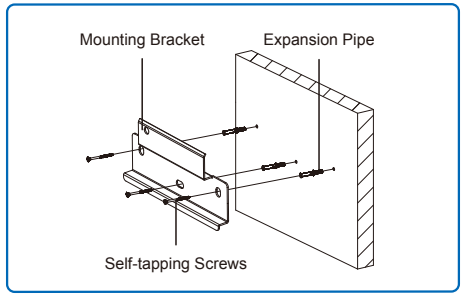
4. To guarantee the enough space for heat dissipation and facilitate the installation and removal, the spacing around the inverter should meet the requirements as demonstrated in the following illustration.

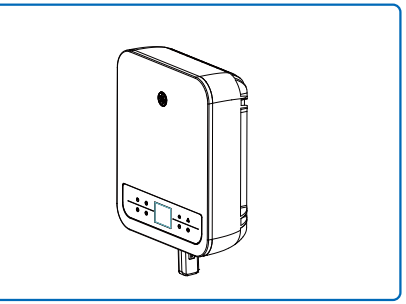


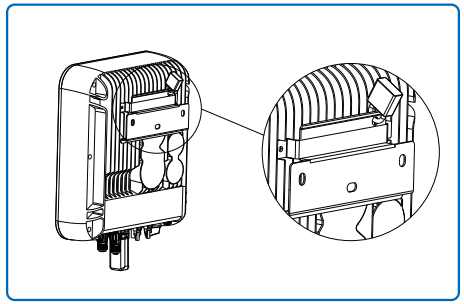
4.2.2 Mounting procedure

1. Use the wall-mount bracket as a template and drill holes with 10mm in diameter and 80 mm in depth on the wall.
2. Fix the wall-mount bracket on the wall with the expansion bolts in the accessories bag.
3. Hold the inverter by the side groove.
4. Mount the inverter onto the wall-mount bracket.







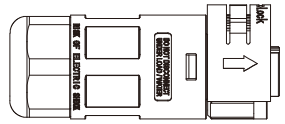


4.3 Electrical Connection

4.3.1 AC Side Connection

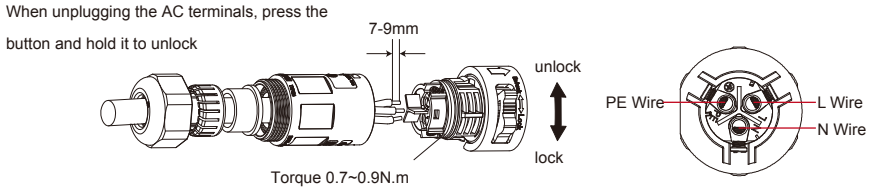
1. When connecting the inverter, please make sure both the voltage and the frequencey of the inverter installed are complied with grid regulations and the inverter's specification.
2. Add a breaker or fuse to the AC side. Please note that the specification should be more than 1.25 times the rated AC output current.
3. The PE wire of the inverter should be connected to earth. Make sure the impedance of neutral wire and earth wire is less than 10Ω.
4. Disconnect the breaker or fuse between the inverter and the utility.
5. The AC connector brand compatible with the inverters is Exceedconn.
6. When laying the AC Wire make sure that the protective earthing conductor is not strained.

The Actual AC Connector is shown in the accessory box.



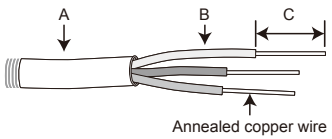
Exceedconn

Exceedconn connectors installation instruction



Make sure the terminal is rotated to the lock position before the inverter is powered on.

AC cable specification



Grade	Description	Value
A	O.D.	10~12mm
B	Conductor Material Sectional Area	2.5~4mm²
C	Bare Wire Length	10mm around

* Neutral wire is blue, live wire is brown (preferred) or black and protective earth wire is yellow-green.

* Rotate (tightening torque: 0.6N.m) the connector of AC cable into the corresponding terminal.

4.3.2 AC circuit breaker and leakage current protection device

Please install an independent two pole circuit breaker to protect the inverter and make sure it is safe to disconnect it from the grid.

In addition to the built-in RCMU, an external RCD is required to ensure that the inverter system does not carry DC residual currents. To avoid tripping, the types A can be used.

Inverter Model	Recommended Circuit Breaker Specifications
GEP3.6-1-10	25A
GEP4.2-1-10/GEP5.0-1-10	32A

Note: it is not recommended that multiple inverters share a single circuit breaker.

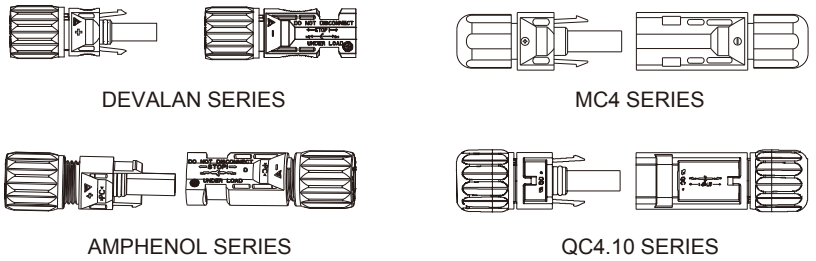
The integrated leakage current detection device of the inverter can detect external leakage current in real time. When the detected leakage current exceeds the limit value, the inverter will quickly disconnect from the grid. If the leakage current protection device is installed externally, the action current should be 300mA or higher.

4.3.3 DC Side Connection

1. Before connecting the PV strings, please ensure the plug connectors have the correct polarity. Incorrect polarity has the potential risk to cause permanent damage to the inverter.
2. The open circuit voltage of the PV strings cannot exceed the maximum input voltage of the inverter.
3. Only the DC connectors supplied by the manufacturer are suitable for use.
4. The positive and negative pole should not be connected to the PE wire (ground wire). Not following this instruction may cause damage to the inverter.
5. Red wire represents positive, black wire represents negative.
6. For the GE series the minimum insulation resistance to the ground of the PV panels must exceed 20kΩ(R=600/30mA). There is risk of electric shock if this minimum resistance requirement is not met.

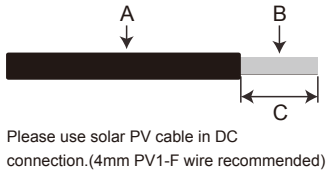
⚠ Note:There is risk of burning if the DC connector is not connect tightly,you can hear the “Click” sound to confirm the connectivity.

There are four types of DC connectors, DEVALAN, MC4, AMPHENDL H4 and QC4.10 series.



Note: The actual DC connector used is shown in the accessory box.

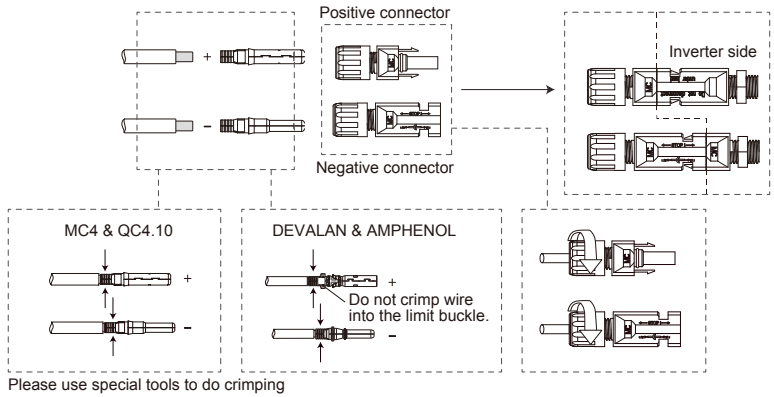
DC cable specification:



Please use solar PV cable in DC connection.(4mm PV1-F wire recommended)

Label	Description	Value
A	External diameter of wire stock	4~5mm
B	Cross-sectional area of conductor material	2.5~4mm²
C	Length of bare wire	About 7mm

The installation method of DC connector.



4.3.4 Earth Terminal Connection

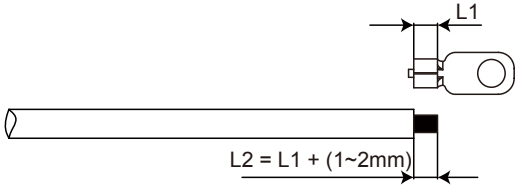
The inverter is equipped with earth terminal according to the requirement of EN 50178.

All non-current carrying exposed metal parts of the equipment and other enclosures in the PV power system must be grounded.

Please follow the steps below to connect "PE" cable to ground.

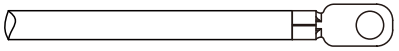
Step 1

Strip the wire insulation sheet of a suitable length with a wire stripper.



Step 2

Insert the stripped wire into the terminal and compress it tightly by crimping pliers.

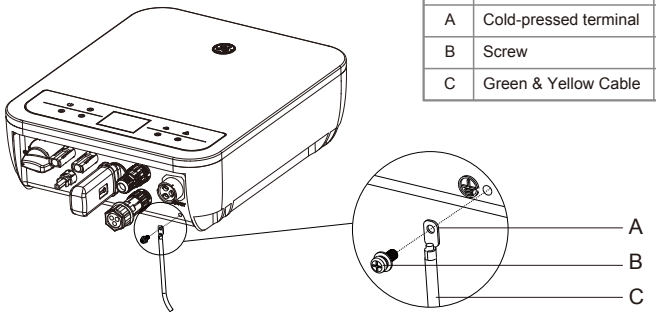


Step 3

Fix the earth wire

In order to improve the corrosion resistance of the terminal, it is recommended to apply silica gel on the earth terminal for corrosion protection after the grounding cable connection is completed.

NO.	Name	Explanation
A	Cold-pressed terminal	
B	Screw	M5*14 (1~1.5Nm)
C	Green & Yellow Cable	4mm² / 10AWG



4.4 Communication Connection

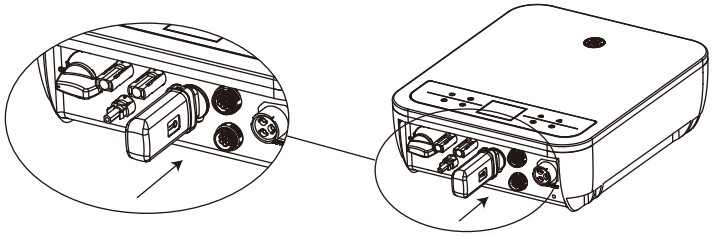
After the replacement of the Wi-Fi/LAN, the new module can work only after restarting PV array connected to the inverter.

⚠ This port is used for connection of Wi-Fi or LAN module only. No connection to USB is allowed. Do not connectPC or other device to this port.

4.4.1 Wi-Fi Communication

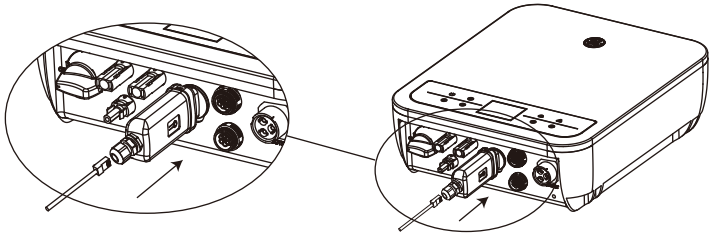
Wi-Fi communication option is only applicable to Wi-Fi version inverter and Wi-Fi communication module is required. Please refer to "Wi-Fi Configuration Instruction" in the accessory box for detailed instruction.

The Wi-Fi module installation of the GEP inverter is shown as below:



4.4.2 LAN Communication (optional)

LAN Communication is only application to LAN version inverter and LAN Communication module is required.



4.4.3 DRED / CT(Power Limit Device) /RS485 Connection

DRED (Demand Response Enabling Device) is only for Australia and New Zealand installations, in compliance with Australian and New Zealand safety requirements, and DRED is not provided by the manufacturer.

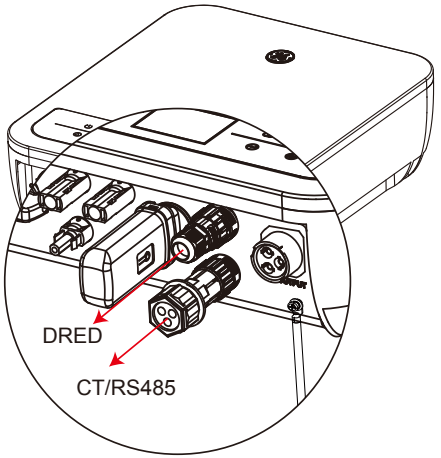
DRED should be connected to the COM port with 6-Pin as illustrated below.

Please connect the cables in order as shown in the right table.

CT(Power Limit Device) and RS485 communication ports are optional based on the demand of the clients.

Step 1:

Unplug the terminal.

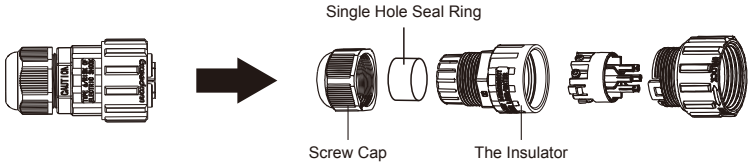


Step 2:

Dismount the terminal.

Note: There is an 6-Pin terminal in the accessory box.

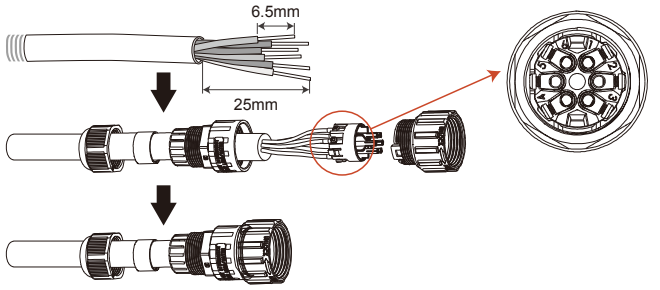
For 6-Pin terminal



Step 3:

Connection of DRED

Please connect the cables in order as shown in the right table.

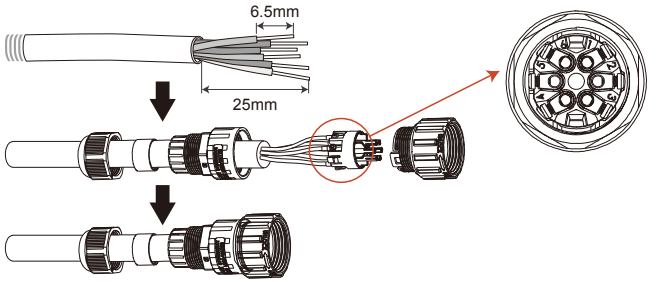


NO.	Function
1	DRM1/5
2	DRM2/6
3	DRM3/7
4	DRM4/8
5	REFGen
6	Com/DRM0

Step 4:

Connection of CT(Power Limit Device)/RS485

Detailed operation is shown below:



RS485	
NO.	Function
1	RS485 B
2	RS485 B
3	RS485 A
4	RS485 A

CT	
NO.	Function
5	CT +
6	CT −

1.DRED connection is only available for Australia and New Zealand.

2.Supported DRM command: DRM0, DRM5, DRM6, DRM7, DRM8.

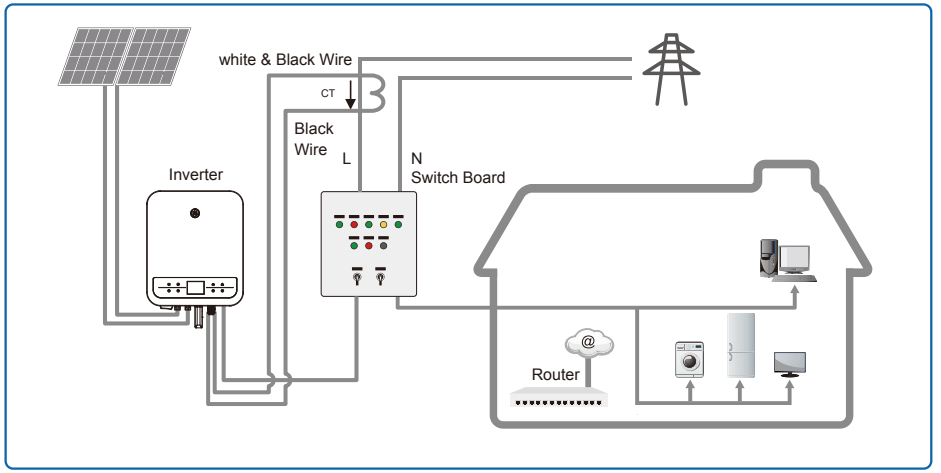
3.After installation is completed, please set up power limiting function referring to section 5.2.

4.Please pay attention to the direction of CT when wiring. CT clip should be locked tightly. The white&black cable should connect Wire 2, the black cable should connect Wire 1. Tighten them with a screwdriver. Make sure CT cables connected to the right output phase wires of inverter when in use.

⚠ If any of the terminals is not used, please use the corresponding waterproof rubber gland or cap to seal it.

4.4.4 Export Power Limit Connection Diagram

The methods of connecting the Power Limiting device CT is shown below.
For the detailed installation procedure of CT, please refer to Step 4 of 4.4.3.



4.4.5 Earth Fault Alarm(Only for Australia and New Zealand)

In compliance with the section 13.9 of IEC62109-2, the GEP inverter is equipped with an earth fault alarm. When earth fault occurs, the fault indicator at the front LED screen will light up. On inverters with Wi-Fi communication, the system sends an email with the fault notification to the customer. For inverters without Wi-Fi, the buzzer of the inverter will keep ringing for one minute and ring again at 30-minute intervals until the fault is resolved. (This function is only available in Australia and New Zealand).

4.4.6 Monitoring Portal

Portal is an on-wire monitoring system. After completing the installation of communication connection, you can access portal.gesolarinverter.com or download the 'Power Sight' App by scanning the QR code to monitor your PV plant and device. Please contact after-sales for further details.

Power Sight

5 System Operation

5.1 LCD Panel

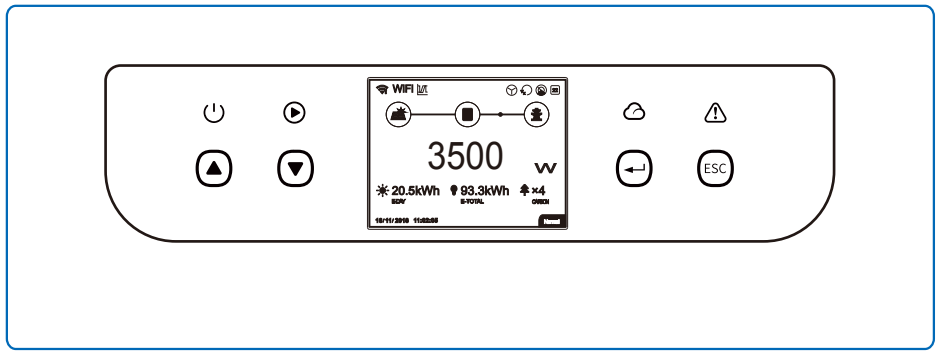
Green / green /green / red light respectively correspond to:

INDICATOR	STATUS	EXPLANATION
		ON = INVERTER POWER-ON
		OFF = INVERTER POWER-OFF
		ON = INVERTER IS FEEDING POWER
		OFF = INVERTER IS NOT FEEDING POWER
		SINGLE SLOW FLASH = SELF CHECK BEFORE GRID CONNECT
		SINGLE FLASH = WILL CONNECT WITH GRID
		ON = COMMUNICATION SUCCESS
		BLINK 2 = ROUTER COMMUNICATION FAILURE
		BLINK 4 = SERVER COMMUNICATION FAILURE
		BLINK = RS485 CONNECTED
		ON = FAULT OCCURRED
		OFF = NO FAULT

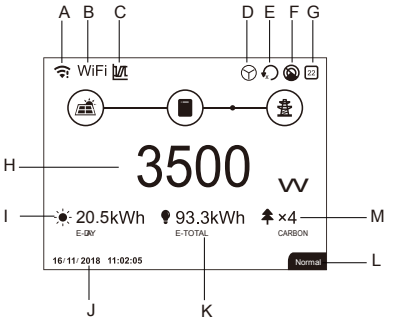
5.2 User Interface And System Configuration

5.2.1 Overview of Menu Architecture

Use the Up, Down, Enter and Esc buttons to toggle the main menus. Press the Enter Esc key to toggle the 123 menu, use the up and down keys to select the item and change the parameters, and long press the Enter (short press is also ok for some items) to set the parameters. The display and keys of the GEP inverter is shown as below:



5.2.2 Home Introduction



A: Communication information icon: Wi-Fi show the signal strength, RS485 shows the communication address.

B: Communication icon: This icon indicates the current communication method including Wi-Fi and LAN and RS485.

C: LVRT/HVRT icon: The icon indicates that the system LVRT/HVRT function is on.

D: Grid Type icon: The icon indicates the grid type selected including Delta Grid/Star Grid.

E: Power limit icon: The Power limit icon indicates that the Power limit function is on.

F: Shadow icon: The Shadow icon indicates that the shadow function is on.

G: Safety icon: The number represents the safety code.

H: Real-time power.

J: System time and date.

I: E-day icon: The number represents the power generation for the current day.

K: E-Total: Historical cumulative power generation.

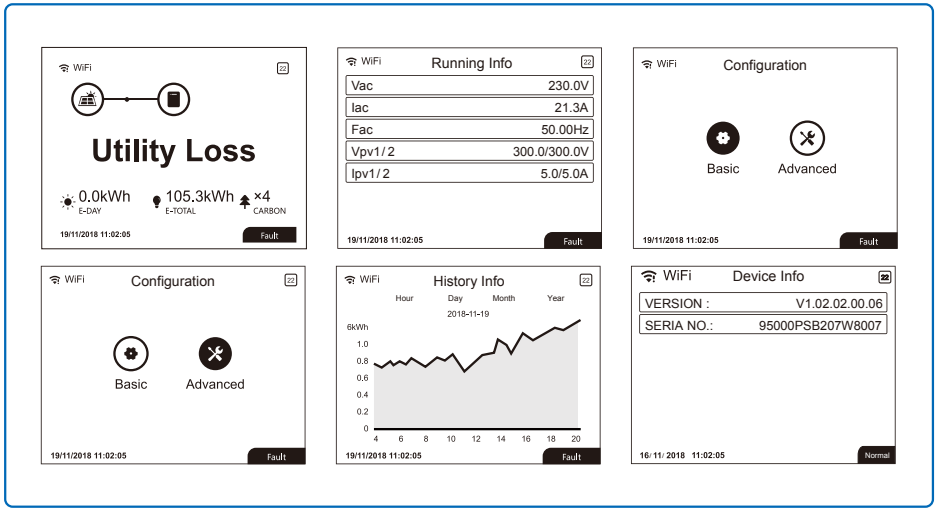
L: System status information.

M: Carbon: Energy conservation and emission reduction.

5.2.3 Main Menu

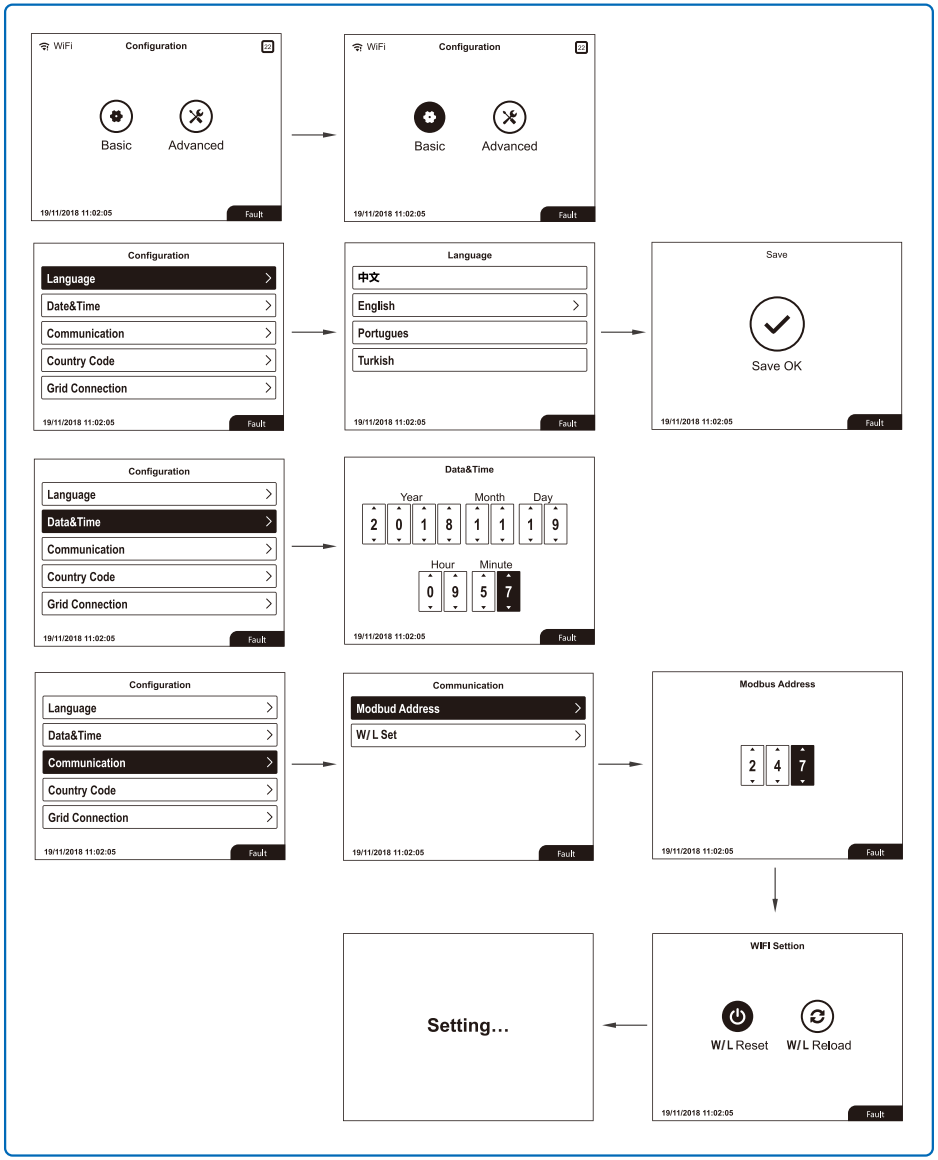
Level 1 menu interface through the up and down key cycle, in the historical information, configuration, advanced settings interface, press the Enter key will enter the Level 2 menu. To enter the Level 2 menu, select the item from the up and down keys. Press Enter to enter the project setup menu, go to the Level 3 menu, change the setting contents by pressing the up and down keys, and press the Enter key to set the contents. If safety country is not selected (shows Configure Safety on display at home page) , press any key to enter Safety Country page.

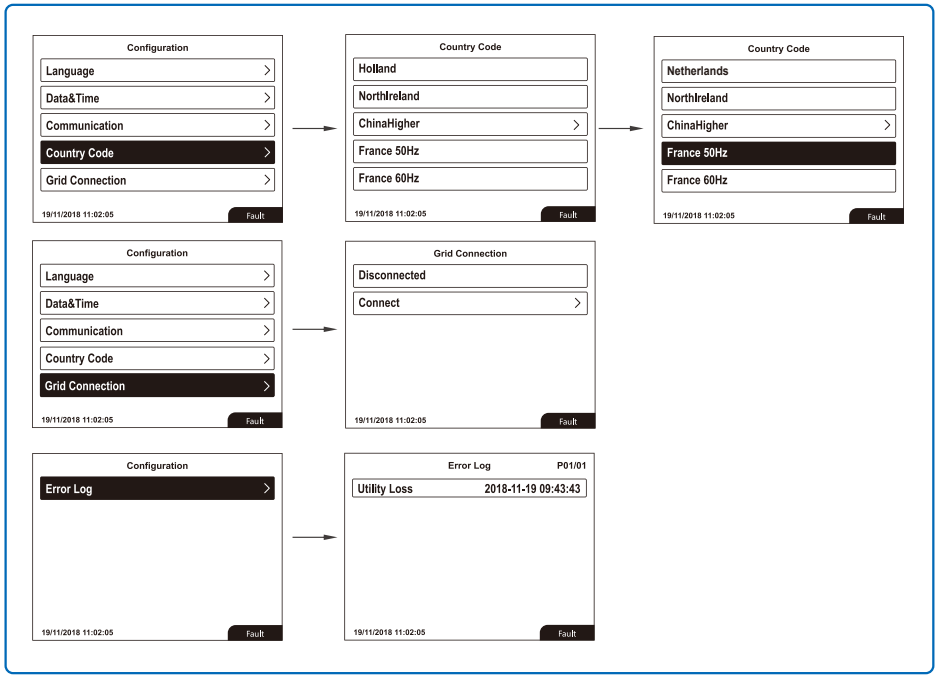
The main menus interfaces are presented below:



5.2.4 Basic Settings

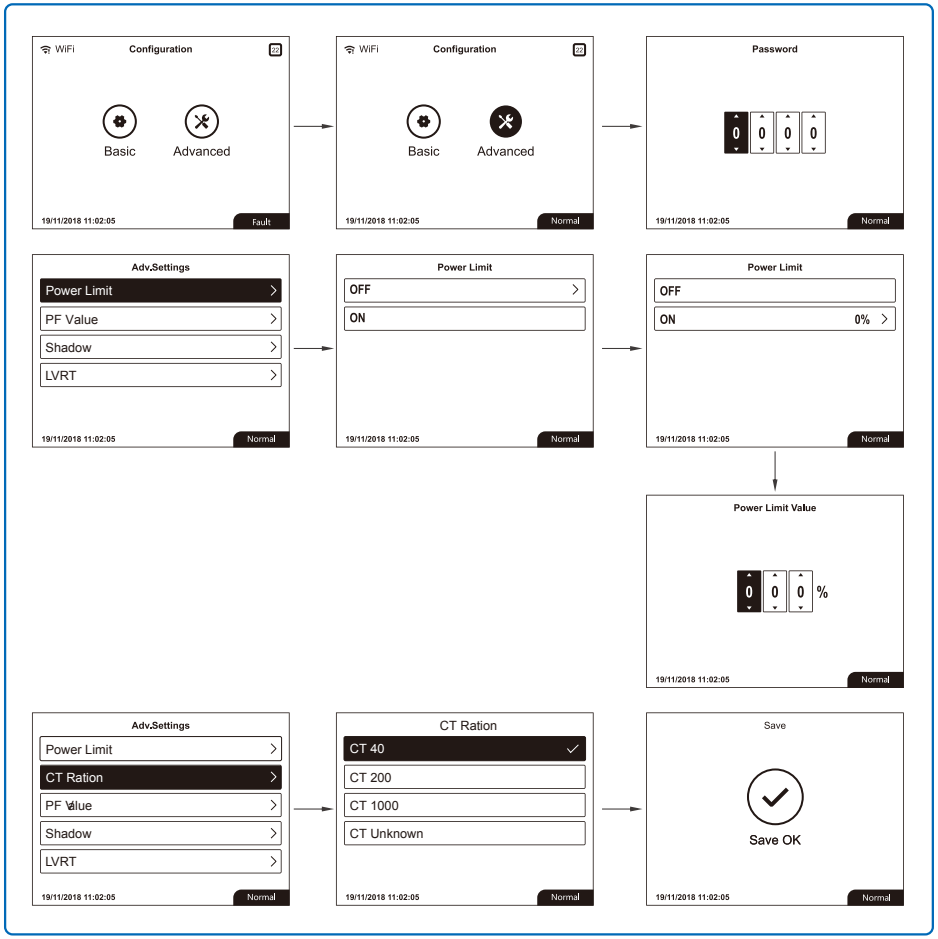
Basic Settings is mainly used to set the commonly used parameters, including language settings, time settings, communication settings and safety setting. And these parameters can be set in the APP.

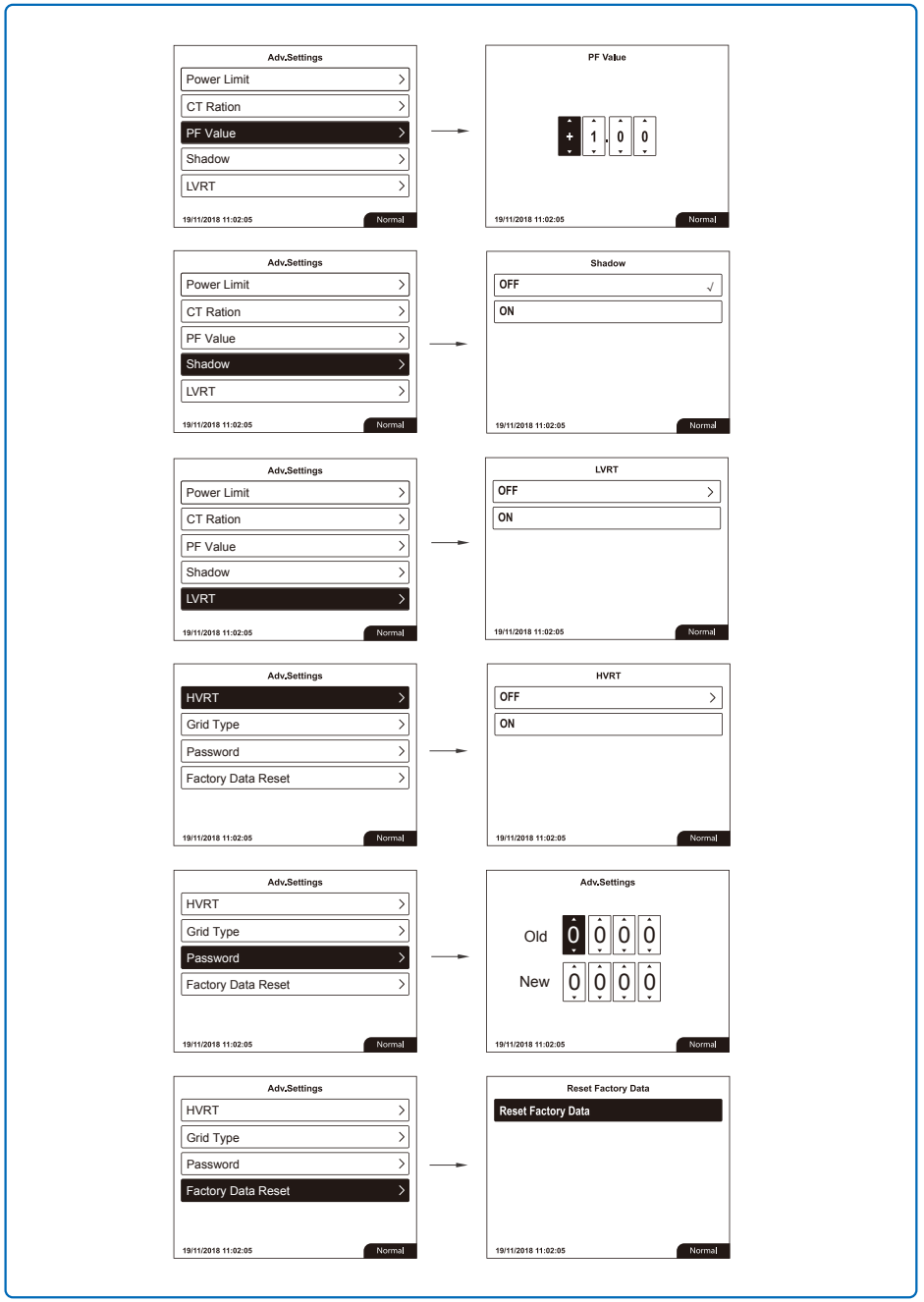




5.2.5 Advanced Settings

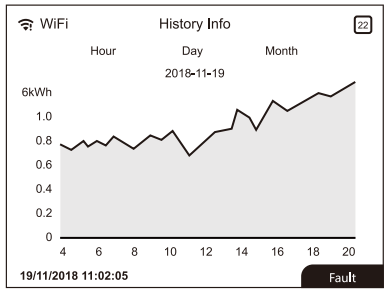
Advanced settings are mainly used to set the function parameters of the equipment running. In order to prevent improper operation from customers, all advanced settings require a password to obtain advanced permission to operate advanced settings (Once password has bene entered, you can set the advanced settings menu for all items) .The default password is : 1111.In order to prevent customers from forgetting the password, all devices have a unique super password, bound to the serial number. Advanced settings items include Power limit settings, PF value settings, LVRT settings,HVRT settings,Shadow settings, Password modification settings and Factory data reset.Additional settings can be found on the ‘SolarGo’ APP. Please download ‘SolarGo’, connect to the inverter via the App and complete the setup accordingly.





5.2.6 History Information

The history information mainly includes the information of the generating capacity of the equipment, the power generation information mainly includes the amount of electricity generation, daily power generation, monthly power generation and annual power generation information.



5.3 Wi-Fi/LAN Reset And Reload

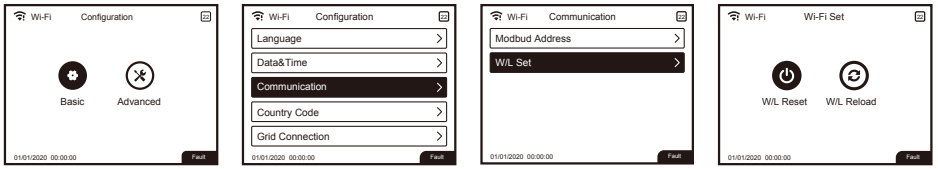
These functions are only available for Wi-Fi/LAN model inverters.

W/L Reset will reboot the Wi-Fi/LAN module without erasing the existing settings.

W/L Reload will recover the Wi-Fi/LAN module back to factory settings.

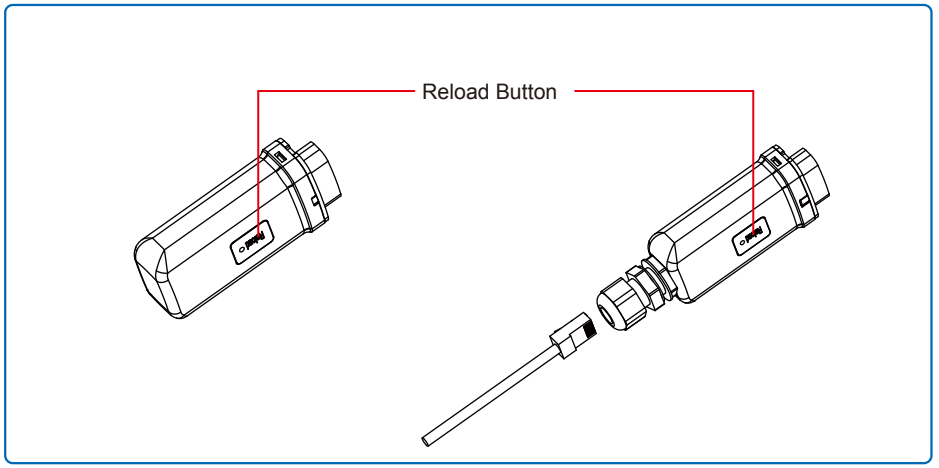
5.3.1 Reset&Reload of Wi-Fi/LAN Module on LCD

1. Press ‘Up’ / ‘Down’ to select ‘Basic’ and press ‘Enter’.
2. Press ‘Up’ / ‘Down’ to select ‘Communication’ and press ‘Enter’.
3. Press ‘Up’ / ‘Down’ to select ‘W/L Set’ and press ‘Enter’.
4. Press ‘Up’ / ‘Down’ to select ‘W/L reset / W/L Reload’ and long press ‘Enter’.



5.3.2 Reload of Wi-Fi/LAN Module using Button

Long press the button on the Wi-Fi/LAN module for at least 5 seconds and then release to restore factory settings when the inverter is powered on.



5.4 Precaution For Initial Startup

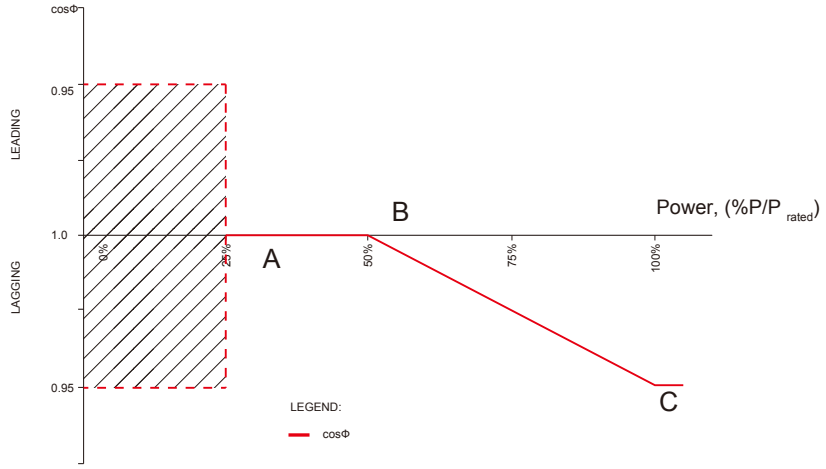
1. Make sure the AC circuit is connected and AC the breaker is turned off.
2. Make sure the DC cable between inverter and PV string is connected, and the PV voltage is normal.
3. Turn on the DC switch, and set safety country according to the local regulation.
4. Turn on the AC breaker. Check the inverter work is working normally.

5.5 Special Adjustable Setpoints(Only for Australia and New Zealand)

The inverter has a field in which the user can set functions, such as trip points, trip times, reconnect times, active and inactive QU curves and PU curves. It is adjustable through special software. If needed, please contact after-sales. To obtain software manuals, you can download them from the official website or contact after-sales.

5.5.1 PF Power Curve Mode

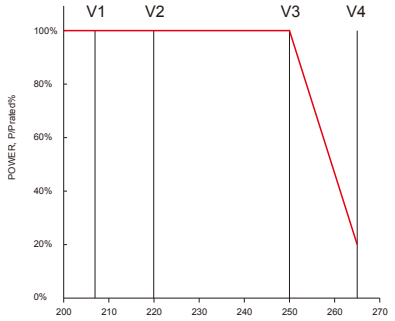
PF power curve mode can be modified by Modbus communication method, specifically according to the inverter Modbus address and Modbus register value, according to the set range in the set the corresponding value.



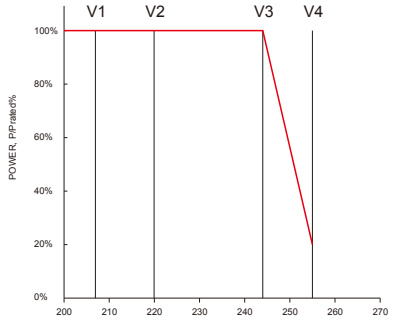
PF Power Curve Mode				
Function	Default value (Australia)	Default value (New Zealand)	Setting range	Register
PF curve mode enable or disable	0	0	“0”or“1”	40600
B %P/Prated	50 (50%)	50 (50%)	30%~80%	40603
C Power factor	0.9	0.9	0.8~1	40606

5.5.2 PU Curve Mode

The PU curve mode can be modified by Modbus communication method, specifically according to the inverter Modbus address and Modbus register value, according to the set range to set the corresponding value.



Example curve for a volt-watt response mode (Australia)



Example curve for a volt-watt response mode (New Zealand)

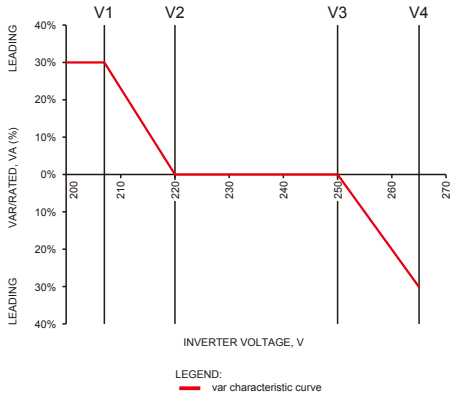
PU curve Mode				
Function	Default value (Australia)	Default value (New Zealand)	Setting range	Register
PU curve mode enable or disable	1	1	““0”or“1”	40680
V1 voltage ratio	900（207V）	900（207V）	0~2000	40683
P1 power ratio	1000（100%*Pn）	1000（100%*Pn）	0~1500	40684
V2 voltage ratio	956（220V）	956（220V）	0~2000	40685
P2 power ratio	1000（100%*Pn）	1000（100%*Pn）	0~1500	40686
V3 voltage ratio	1087（250V）	1061（244V）	0~2000	40688
P3 power ratio	1000（100%*Pn	1000（100%*Pn	0~1500	40689
V4 voltage ratio	1152（265V）	1109（255V）	0~2000	40690
P4 power ratio	200（20%*Pn）	200（20%*Pn）	0~1500	40691

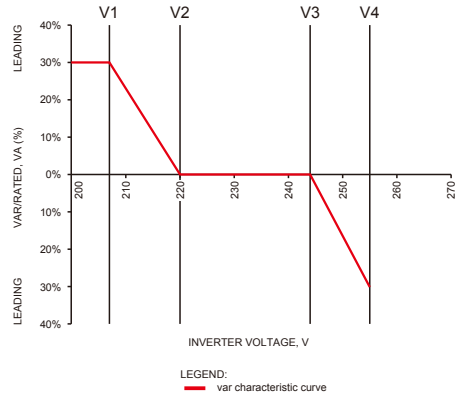
Example: set the ratio of V1 voltage to 1100V, corresponding to the rated voltage of 230V, V1 = 230V * 110% = 253V.

Example: set P1 power ratio to 900 and the corresponding power to 0.9* rated power.

5.5.3 QU Curve Mode

QU curve mode can be modified by Modbus communication, specifically according to the inverter Modbus address and Modbus register value, according to the set range to set the corresponding value.





QU curve Mode				
Function	Default value (Australia)	Default value (New Zealand)	Setting range	Register
QU curve mode enable or disable	0	0	“0”or“1”	40650
V1 voltage ratio	900（207V）	900（207V）	0~2000	40653
Q1 reactive power ratio	300（30%*Pn）	300（30%*Pn）	0~600	40654
V2 voltage ratio	957（220V）	957（220V）	0~2000	40655
Q2 reactive power ratio	300（30%*Pn）	300（30%*Pn）	0~1500	40656
V3 voltage ratio	1087（250V）	1061（244V）	0~2000	40657
Q3 reactive power ratio	300（30%*Pn）	300（30%*Pn）	0~1500	40658
V4 voltage ratio	1152（265V）	1109（255V）	0~2000	40659
Q4 reactive power ratio	300（30%*Pn）	300（30%*Pn）	0~600	40660

Example: set the ratio of V1 voltage to 1100V, corresponding to the rated voltage of 230V, V1 = 230 * 110% = 253V.

Example: set Q1 reactive power ratio to 300, corresponding reactive power Q1=30%* rated power.

5.5.4 Power Recovery Rate

The power recovery rate can be modified by Modbus communication, specifically according to the inverter Modbus address and Modbus register value, according to the set range to set the corresponding value.

Function	The default value (Australia & New Zealand)	Setting range	Register
Power recovery rate Settings	16（16%Pn/min）	5~100	40536

If you need to change the above Settings, please contact our after-sales service.

6 Troubleshooting

If the Inverter is not able to work properly, please refer to the following instructions before contacting your local service. If any problems arise, the red (FAULT) LED indicator on the front panel will light up and the LCD screen will display relevant information. Please refer to the following table for a list of error messages and associated solutions.

Type of fault		Troubleshooting
System Failure	Isolation Failure	1. Disconnect DC switch, take off DC connector, check the impedance between PV (+) & PV(-) to earth. 2. If impedance is less than 100 kΩ, please check the insulation of PV string wiring to earth. 3. If impedance is large than 100 kΩ, please contact local service office. 4. Take off AC connector, measure the impedance between neutral wire and PE line. If it is larger than 10KΩ, please check AC wiring.
	Ground I Failure	1. The ground current is too high. 2. take off the inputs from the PV generator and check the peripheral AC system. 3. When the problem is cleared, reconnect the PV panel and check the Inverter status. 4. Contact local service office for help if the problem still persist.
	Vac Failure	1. The PV Inverter will automatically restart within 5 minutes if the grid returns to normal. 2. Make sure grid voltage conforms to specifications. 3. Make sure neutral (N) wire and PE wire are well connecteds. 4. Contact local service office for help if the problem still persist.
	Fac Failure	1. Grid is not connected. 2. Check grid cable connection. 3. Check availability of grid.
	Utility Loss	1. Not connect to the grid. 2. Check if the power cable is connected with grid. 3. Check the availability of power from the grid.
	PV Over Voltage	1. Check whether PV open circuit voltage is higher or too close to the maximum input voltage. 2. If the problem still persist when PV voltage is less than the maximum input voltage, contact local service office for help.
	Over Temperature	1. The internal temperature is higher than normal specified value. 2. Reduce ambient temperature. 3. Move the inverter to a cool place. 4. If the problem still exists, contact local service office for help.
Inverter Failure	Relay-Check Failure	1. Turn off DC switch of the inverter. 2. Wait till the inverter's LCD light is off. 3. Turn on DC switch and make sure it is connected. 4. If the problem still exists, contact local service office for help.
	DCI Injection High	
	EEPROM R/W Failure	
	SCI Failure	
	SPI Failure	
	DC BUS High	
	BUS Unbalance	
	GFCI Failure	
	Ifan Fault	
	Efan Fault	
	Afan Fault	
	No display	1. Turn off DC switch, take off DC connector, measure the voltage of PV array. 2. Plug in DC connector, and turn on DC switch. 3. If PV array voltage is lower than 250V , please check configuration of inverter module. 4. If PV array voltage is higher than 250V , please contact local service office.
Others	Wi-Fi module fail to connect to network	1. If the Wi-Fi module fails to connect to network after choosing the right router hotspot and entering the right password，it's possible that there are special characters not supported by the module in the hotspot password. Please modify the password so that it consists of only Arabic numerals or uppercase / lowercase letters. 2. If the problem still persists, contact local service office for help.

⚠ Note: When sunlight is insufficient, the inverter may continuously start up and shut down automatically due to insufficient power generation from the PV panels, This should not lead to inverter damage.

7 Caution

7.1 Checking The DC Switch

DC switch does not require any maintenance.

It is recommended, though not compulsory, to:

• Check the DC switch regularly.

• Activate the DC switch 10 times in a row once a year.

Operating the switch will clean the contacts and will extend the life of the DC switch.

Boot order:

1. Turn on the breaker on AC side.

2. Turn on the DC switch.

3. Turn on the breaker on DC side.

Caution: if there is no switch, step 2 is not required.

Shutdown order:

1. Turn off the breaker on AC side.

2. Turn off the DC switch.

3. Turn off the breaker on DC side.

Caution: if there is no switch, step 2 is not required.

7.2 Checking The Electrical Connection

1. Check if the AC or DC wire is loose.

2. Check if the earth wire is reliably grounded.

3. Check if the waterproof covers of RS485 /WiFi port are fasten.

Caution: Maintenance cycle is once every half a year.

4. Please use torque wrench to tighten the AC terminal wiring connection once a year.

Caution: Maintenance cycle is once every half a year.

8 Technical Parameters

Technical Data	GEP3.5S	GEP3.6S	GEP4.2S
PV String Input Data			
Max. DC Input Power (W)	5500	5500	6300
Max. DC Input Voltage (V)	600	600	600
MPPT Range (V)	80~550	80~550	80~550
Start-up Voltage (V)	80	80	80
Min. Feed-in Voltage(V)	100	100	100
Nominal DC Input Voltage (V)	360	360	360
PV Input Operating Voltage range (V)	80~600	80~600	80~600
Max. Inverter Backfeed Current To The array (A)	0	0	0
Max. Input Current (A)	13/13	13/13	13/13
Max. Short Current (A)	16.3/16.3	16.3/16.3	16.3/16.3
No. of MPP Trackers	2	2	2
No. of Input Strings per Tracker	1	1	1
AC Output Data			
Nominal Output Power (W)	3500	3600	4200
Max. Output Apparent Power (VA) [1]	3500	3960	4620
Nominal Output Voltage (V)	230V	230V*4	230V
Nominal Output Frequency (Hz)	50	50*1	50
Max. Output Current (A)	15.2	18	21
Output Power Factor	~1 (Adjustable from 0.8 leading to 0.8 lagging)		
Output THDi (@Nominal Output)	<3%	<3%	<3%
Current(inrush)	130	130	130
Maximum output fault current	155	155	155
Maximum output over current protection(A)	50	50	50
Efficiency			
Max. Efficiency	98.3%	98.3%	98.3%
Europen Efficiency	97.5%	97.5%	97.6%
Protection			
Anti-islanding Protection	Integrated		
Input Reverse Polarity Protection	Integrated		
Insulation Resistor Detection	Integrated		
DC SPD Protection	Integrated(Type Ⅱ)		
AC SPD Protection	Integrated(Type Ⅱ)		
Residual Current Monitoring Unit	Integrated		
Output Over Current Protection	Integrated		
Output Short Protection	Integrated		
Output Over Voltage Protection	Integrated		
Protective Class	Class Ⅰ		
Decisive Voltage Classification (DVC)	C		
General Data			
Operating Temperature Range (℃)	-25~60		
Relative Humidity	0~100%		
Operating Altitude (m)	≤4000		
Cooling	Natural Convection		
User Interface	LCD & LED		
Communication	Wi-Fi / RS485 / LAN(Optional)		
Weight (kg)	11		
Size (Width*Height*Depth mm)	336*400*124		
Protection Degree	IP65		
Night Self Consumption (W)	<1		
Topology	Transformerless		
Model	GEP3.5-1-10	GEP3.6-1-10	GEP4.2-1-10

*1:For Brazil Nominal Output Frequency GEP3.6-1-10 is 60Hz, GEP5.0-1-10 is 60Hz.

*4:For Brazil Nominal Output Voltage GEP3.6-1-10 is 220V, GEP5.0-1-10 is 220V.

Technical Data	GEP4.6S	GEP5.0S
PV String Input Data		
Max. DC Input Power (W)	7500	7500
Max. DC Input Voltage (V)	600	600
MPPT Range (V)	80~550	80~550
Start-up Voltage (V)	80	80
Min. Feed-in Voltage(V)	100	100
Nominal DC Input Voltage (V)	360	360
PV Input Operating Voltage range (V)	80~600	80~600
Max. Inverter Backfeed Current To The array (A)	0	0
Max. Input Current (A)	13/13	13/13
Max. Short Current (A)	16.3/16.3	16.3/16.3
No. of MPP Trackers	2	2
No. of Input Strings per Tracker	1	1
AC Output Data		
Nominal Output Power (W)	4600	5000*5
Max. Output Apparent Power (VA) [1]	4600	5500*2
Nominal Output Voltage (V)	230V	230V*4
Nominal Output Frequency (Hz)	50	50*1
Max. Output Current (A)	20	25*3
Output Power Factor	~1 (Adjustable from 0.8 leading to 0.8 lagging)	
Output THDi (@Nominal Output)	<3%	<3%
Current(inrush)	130	130
Maximum output fault current	155	155
Maximum output over current protection(A)	50	50
Max. Efficiency	98.3%	98.3%
Europen Efficiency	97.6%	97.8%
Protection		
Anti-islanding Protection	Integrated	
Input Reverse Polarity Protection	Integrated	
Insulation Resistor Detection	Integrated	
DC SPD Protection	Integrated(Type Ⅱ)	
AC SPD Protection	Integrated(Type Ⅱ)	
Residual Current Monitoring Unit	Integrated	
Output Over Current Protection	Integrated	
Output Short Protection	Integrated	
Output Over Voltage Protection	Integrated	
Protective Class	Class Ⅰ	
Decisive Voltage Classification (DVC)	C	
General Data		
Operating Temperature Range (℃)	-25~60	
Relative Humidity	0~100%	
Operating Altitude (m)	≤4000	
Cooling	Natural Convection	
User Interface	LCD & LED	
Communication	Wi-Fi / RS485 / LAN(Optional)	
Weight (kg)	11	
Size (Width*Height*Depth mm)	336*400*124	
Protection Degree	IP65	
Night Self Consumption (W)	<1	
Topology	Transformerless	
Model	GEP4.6-1-10	GEP5.0-1-10

*1: For Brazil Nominal Output Frequency GEP3.6-1-10 is 60Hz, GEP5.0-1-10 is 60Hz.

*2: For Australia Max. Output Apparent Power GEP5.0-1-10 is 4999VA.

*3: For Australia Max. Output Current GEP5.0-1-10 is 21.7A.

*4: For Brazil Nominal Output Voltage GEP3.6-1-10 is 220V, GEP5.0-1-10 is 220V.

*5: For Australia Nominal Output Power GEP5.0-1-10 is 4999W.

Note：Overvoltage Category Definition

Category I:
applies to equipment connected to a circuit where measures have been taken to reduce transient overvoltage to a low level.

Category II:
applies to equipment not permanently connected to the installation. For example, appliances, portable tools and other plug-connected equipment;

Category III:
applies to fixed downstream equipment, including the main distribution board. For example, switch-gear and other equipment in an industrial installation;

Category IV:
applies to equipment permanently connected at the origin of an installation (upstream of the main distribution board).For example, electricity meters, primary overcurrent protection equipment and other equipment connected directly to outdoor open wires.

Moisture Location Category Definition

Moisture parameters	Level		
	3K3	4K2	4K4H
Temperature Range	0~+40℃	-33~+40℃	-20~+55℃
Humidity Range	5%～85%	15%～100%	4%～100%

Environment Category Definition

Outdoor : the ambient air temperature is -20~50℃. Relative humidity range is from 4% to 100%, applied to PD3.

Indoor unconditioned:
the ambient air temperature is -20~50 ℃. Relative humidity range is from 5% to 95%, applied to PD3.

Indoor conditioned:
the ambient air temperature is 0~40 ℃. Relative humidity range is from 5% to 85%, applied to PD2.
Pollution Degree Definition.

Pollution degree 1:
No pollution or only dry, non-conductive pollution occurs. The pollution has no influence.

Pollution degree 2:
Normally only non-conductive pollution occurs. However, a temporary conductivity occasionally caused by condensation should be expected.

Pollution degree 3:
Conductive pollution occurs. Or dry, non-conductive pollution becomes conductive due to condensation, which is expected.

Pollution degree 4:
Persistent conductive pollution occurs. For example, pollution caused by conductive dust, rain or snow.