User Manual

-Installation

-Operation

Omniksol-5k-TL3
Omniksol-6k-TL3

Omnik New Energy Co., Ltd.

Catalog

1. Notes on this manual

1.1 Scope of Validation

The main purpose of this User's Manual is to provide instructions and detailed procedures for installing, operating, maintaining, and troubleshooting the following three types of Omnik Inverters:

- Omniksol-5k-TL3
- Omniksol-6k-TL3

Please keep this user manual all time available in case of emergency.

1.2 Symbols Used

DANGER

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

WARNING indicates a hazardous situation which, if not avoided, can result in death or serious injury or moderate injury.

CAUTION

CAUTION indicates a hazardous condition which, if not avoided, can result in minor or moderate injury.

NOTICE

NOTICE indicates a situation that can result in property damage, if not avoided.

1.3 Target Group

- Chapter 1, 2, 3, 4, 7, 8, 9, 10, 11 and Chapter 12 are intended for anyone who is intended to use Omnik Grid Tie Solar Inverter. Before any further action, the operators must first read all safety regulations and be aware of the potential danger to operate high-voltage devices. Operators must also have a complete understanding of this device's features and functions.

WARNING

Do not use this product unless it has been successfully installed by qualified personnel in accordance with the instructions in Chapter 5, "Installation".

- Chapter 5 and Chapter 6 are only for qualified personnel who are intended to install

  Or uninstall the Omnik Grid Tie Solar Inverter.

NOTICE

Hereby qualified personnel means he/she has the valid license from the local authority in:

- Installing electrical equipment and PV power systems (up to 1000 V).
- Applying all applicable installation codes.
- Analyzing and reducing the hazards involved in performing electrical work.
- Selecting and using Personal Protective Equipment (PPE).

2. Preparation

2.1 Safety Instructions

DANGER

DANGER due to electrical shock and high voltage **DO NOT** touch the operating component of the inverter, it might result in burning or death. **TO** prevent risk of electric shock during installation and maintenance, please make sure that all AC and DC terminals are plugged out. **DO NOT** stay close to the instruments while there is severe weather conditions including storm, lighting etc.

WARNING

The installation，service ，recycling and disposal of the inverters must be performed by qualified personnel only in compliance with national and local standards and regulations. Please contact your dealer to get the information of authorized repair facility for any maintenance or repairmen.

Any unauthorized actions including modification of product functionality of any form will affect the validation of warranty service; Omnik may deny the obligation of warranty service accordingly.

NOTICE

Public utility only

The PV inverter designed to feed AC power directly into the public utility power grid，do not connect AC output of the device to any private AC equipment.

CAUTION

The PV inverter will become hot during operation; please don't touch the heat sink or peripheral surface during or shortly after operation。Risk of damage due to improper modifications. Never modify or manipulate the inverter or other components of the system.

2.2 Explanations of Symbols on Inverter

Symbol	Description
	**Dangerous electrical voltage** This device is directly connected to public grid, thus all work to the inverter shall only be carried out by qualified personnel.
	**DANGER to life due to high electrical voltage!** There might be residual currents in inverter because of large capacitors. Wait **10 MINUTES** before you remove the front lid.
	**NOTICE, danger!** This device directly connected with electricity generators and public grid.
	**Danger of hot surface** The components inside the inverter will release a log of heat during operation, DO NOT touch aluminum housing during operating.
	**An error has occurred** Please go to Chapter 10 "Trouble Shooting" to remedy the error.
	**This device SHALL NOT be disposed of in residential waste** Please go to Chapter 9 "Recycling and Disposal" for proper treatments.
	**Without Transformer** This inverter does not use transformer for the isolation function.

CE	**CE Mark** Equipment with the CE mark fulfils the basic requirements of the Guideline Governing Low-Voltage and Electromagnetic Compatibility.
	**No unauthorized perforations or modifications** Any unauthorized perforations or modifications are strictly forbidden, if any defect or damage (device/person) is occurred, Omnik shall not take any responsibility for it.

3. Product Information

3.1 Overview

- Industrial Layout

- Excellent Heat Elimination

3.2 Major Characteristics

Omnik inverter has following characteristics which make Omnik inverter “High Efficiency, High Reliability, High Cost Effective Ratio”

- Wide DC input voltage and current ranges, enables more PV panels connected.
- Wide MPP voltage range ensure high yield under various weather conditions.
- High MPP tracking accuracy, ensure the minimum power loses during converting.
- Complete set of protection methods.

Also, following protection methods are integrated in Omnik inverter:

- Internal overvoltage
- DC insulation monitoring
- Ground fault protection
- Grid monitoring
- Ground fault current monitoring
- DC current monitoring
- Integrated DC switch

3.3 Datasheet

Type	Omniksol-5k-TL3	Omniksol-6k-TL3
Input(DC)		
Max. PV Module Power [W]	6000	7200
Max. DC Voltage [V]	580	580
Nominal DC Voltage [V]	360	360
Operating MPPT Voltage Range [V]	120 - 500	120 - 500
MPPT Voltage Range at Nominal Power [V]	270 - 500	320 - 500
Start up DC Voltage [V]	150	150
Turn off DC Voltage [V]	120	120
Max. DC Current[A]	A : 10 / B : 10	A : 10 / B : 10
Max. Short Circuit Current [A]	A : 14 / B : 14	A : 14 / B : 14
Max. inverter back feed current to the array [A]	A : 0 / B : 0	A : 0 / B : 0
Number of MPP trackers	A : 1 / B : 1	A : 1 / B : 1
Number of DC Connection	A : 1 / B : 1	A : 1 / B : 1
DC Connection Type	Amphenol Connector	Amphenol Connector
Output(AC)		
Max. AC Apparent Power [VA]	5000	6000
Nominal AC Power [W]	5000	6000
Nominal Grid Voltage [V]	220 / 230 / 240	220 / 230 / 240
Nominal Grid Frequency [Hz]	50 / 60	50 / 60
Max. AC Current [A]	25	30
Maximum output fault current[A]	26	31
Maximum output protection current [A]	28	33
Grid Voltage Range [V]*	185 - 276	185 - 276
Grid Frequency Range [Hz]*	45 - 55 / 55 - 65	45 - 55 / 55 - 65
Power Factor	0.9i - 0.9c	0.9i - 0.9c
Total Harmonic Distortion (THD)	＜3%	＜3%
Night time Power Consumption [W]	＜1	＜1
AC Connection Type	Terminal Blocks	Terminal Blocks
Efficiency		
Max. Efficiency	98.1%	98.1%
Euro Efficiency	97.3%	97.3%
MPPT Efficiency	99.9%	99.9%

Safety and Protection		
Protection Functions	Array ground insulation resistance monitoring Residual current monitoring	Output over current protection
	Array polarity reverse protection Surge protection	Output over/under voltage protection
	Array over voltage protection Anti-island protection	Output over/under frequency protection
	Array over current protection Over temperature protection	Output short circuit protection
Protection Class	Ⅰ（According to IEC 62103）	
Overvoltage Category	PV Ⅱ / Mains Ⅲ（According to IEC 62109-1）	
Reference Standard		
Safety Standard	IEC/EN 62109-1,IEC/EN 62109-2	
EMC Standard	EN 61000-6-1,EN61000-6-3,EN 61000-6-2,EN61000-6-4,EN61000-3-2,EN 61000-3-3	
Grid Standard	VDE-AR-N 4105,VDE 0126-1-1,C10/11, G59/3,CEI 0-21 EN50438,NB/T32004,IEC62116,IEC61727,IEC61683,IEC60068	
Physical Structure		
Dimensions (WxHxD) [mm]	343 * 425 * 136	
Weight [kg]	17.3	
Environmental Protection Rating	IP 65（According to IEC 60529）	
Cooling Concept	Natural convection	
Mounting Information	Wall bracket	
General Data		
Operating Temperature Range [℃]	-25 to +60（derating above 45℃）	
Relative Humidity	0% to 100%,no condensation	
Max. Altitude (above sea level) [m]	2000	
Noise Level [dB]	＜40	
Environmental Category Rating	Outdoor, suitable to wet locations	
Pollution class	III	
UV resistance	Yes	
Isolation Type	Transformerless	
Display	2 LED,Backlight,2 * 16 Character LCD	
Data Communication Interfaces	RS485 / WiFi / GPRS optional	
Guarantee	5 - 25 years optional	

*The AC voltage and frequency range may vary depending on specific country grid

4. Packing checklist

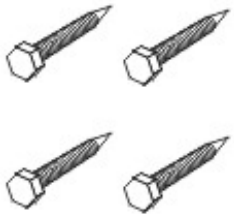
4.1 Assembly parts

After you receive the Omnik inverter, please check if there is any damage on the carton, and then check the inside completeness for any visible external damage on the inverter or any accessories. Contact your dealer if anything is damaged or missing.

A

B

C



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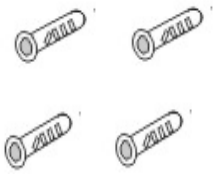

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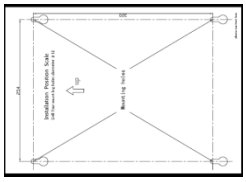
F



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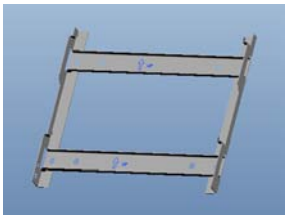
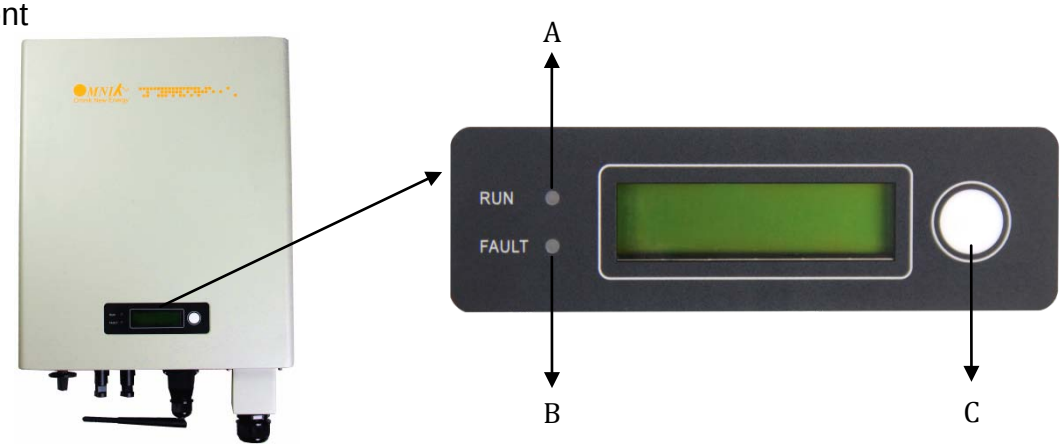


H

Object	Quantity	Description
A	1	Omnik inverter
B	2 pair	DC connector
C	1	AC connector
D	4	Screw (ST6×50)
E	4	Expansion tube
F	1	User manual
G	1	Installation position scale
H	1	Wall mounting bracket

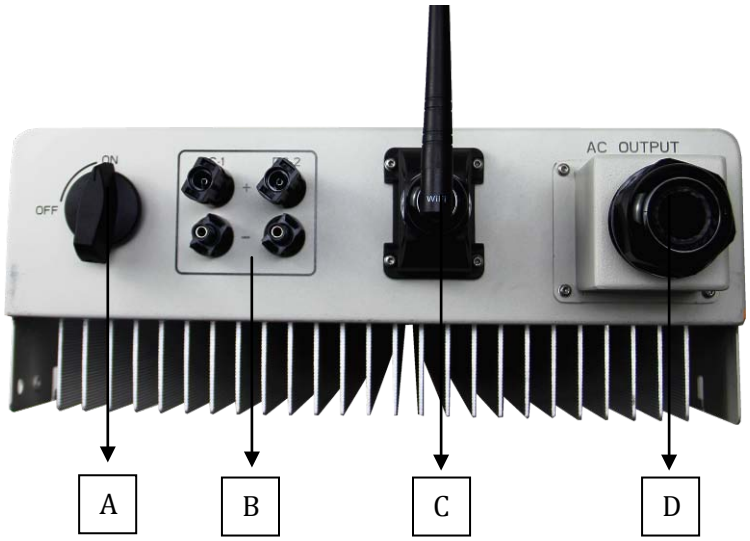
4.2 Product Appearance

- Front



Object	Description
A	LED light(Green) – RUN
B	LED light(Red) – FAULT
C	Function key for displays and choice of language

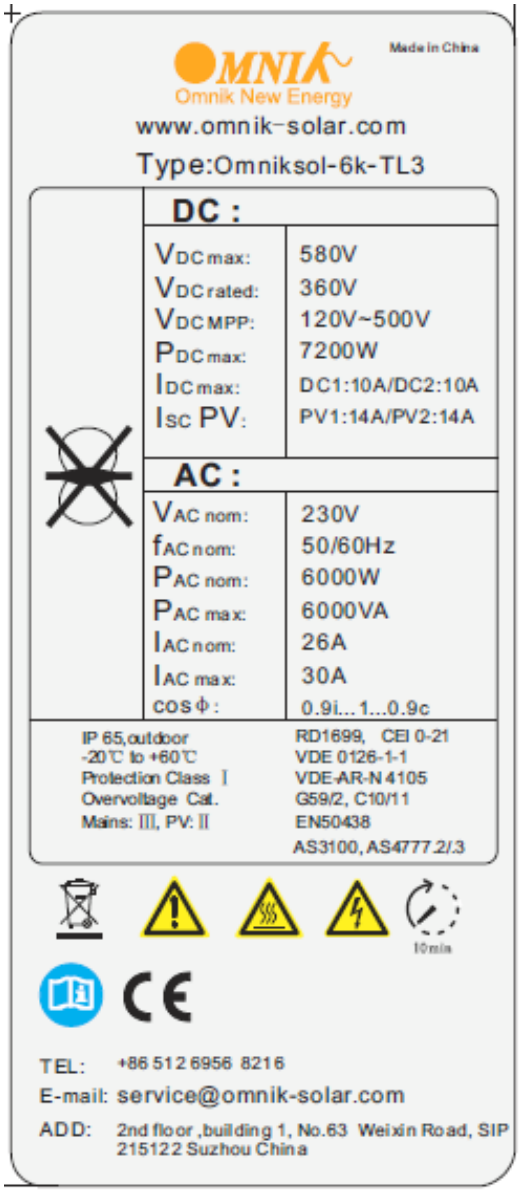
- Bottom



Object	Description
A	DC switch
B	Plug connectors for DC input.
C	WiFi/GPRS/RS485 interface
D	Terminal for grid connection (AC output)

4.3 Product Identification

You can identify the inverter by the side nameplate. Information such as type of the inverter and inverter specifications are specified on the side name plate. The name plate is on the middle part of the right side of the inverter housing. And the following figure is the side name plate example as on **Omniksol-6k-TL3**.



4.4 Further Information

If you have any further questions concerning the type of accessories or installation, please check our website www.omnik-solar.com or contact our service hotline.

5. Installation

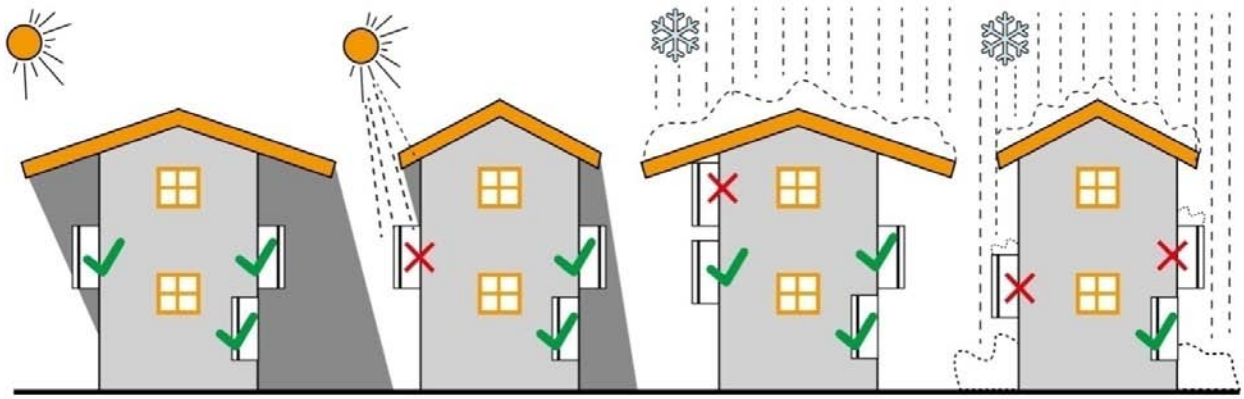
5.1 Safety

DANGER

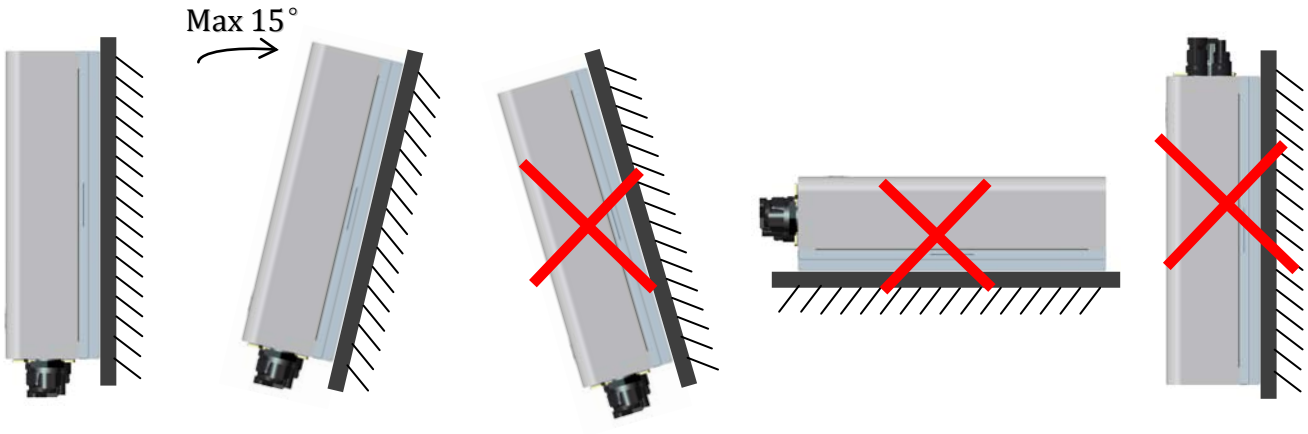
DANGER to life due to potential fire or electricity shock.
DO NOT install the inverter near any inflammable or explosive items. This inverter will be directly connected with HIGH VOLTAGE power generation device; the installation must be performed by qualified personnel only in compliance with national and local standards and regulations.

NOTICE

NOTICE due to the inappropriate or the harmonized installation environment may jeopardize the life span of the inverter.
Do not expose to direct sunlight to avoid power derating due to increase in the internal temperature of the inverter.
Do not expose to rain and snow cover to enhance inverter life time.
The installation site MUST have good ventilation condition.



5.2 Mounting Instructions



- Omnik inverter is designed for indoors and outdoors installation
- Please mount the inverter in the direction as illustrated above
- Install the inverter in the vertical direction is recommended, with a max.15 degrees backwards.
- For the convenience of checking the LCD display and possible maintenance activities, please install the inverter at eye level.
- Make sure the wall you selected is strong enough to handle the screws and bear the weight of the inverter
- Ensure the device is properly fixed to the wall
- It is not recommended that the inverter is exposed to the strong sunshine, because the excess heating might lead to power reduction
- The ambient temperature of installation site should be between -25 °C and +60 °C
- Make sure the ventilation of the installation spot, not sufficient ventilation may reduce the performance of the electronic components inside the inverter and shorten the life of the inverter

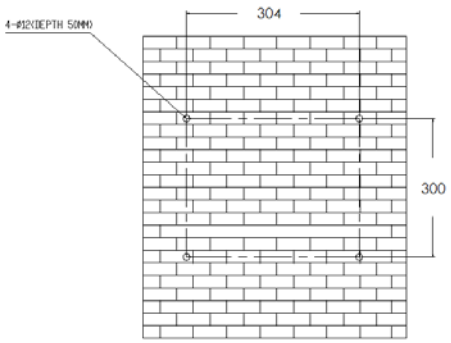
5.3 Safety Clearance

Observe the following minimum clearances to walls, other devices or objects to guarantee sufficient heat dissipation and enough space for pulling the electronic solar switch handle.

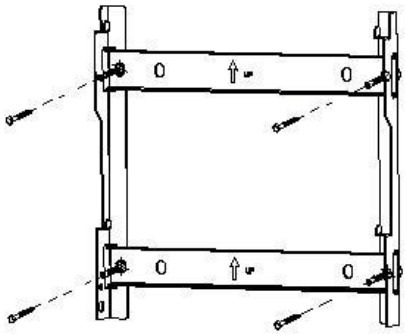
Direction	Minimum clearance
Above	30 cm
Below	40 cm
Sides	10 cm

5.4 Mounting Procedure

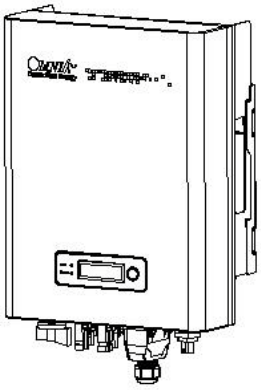
1. Mark 4 positions of the drill holes on the wall according to the wall mounting bracket in the carton box.



2. First, according to the marks, drill 4 holes in the wall. Then, place 4 expansion tubes in the holes using a rubber hammer. Next, make 4 screws through the mounting holes in the bracket, then tighten the screws into the expansion tubes. So far, the wall mounting bracket is fixed already.



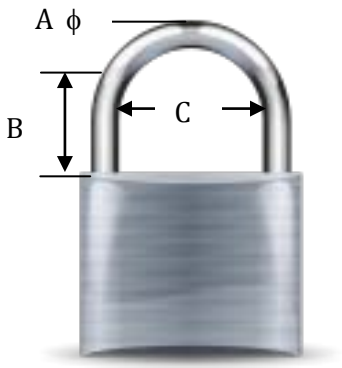
3. Align both sides of the radiator on the hooks of the back panel, move the inverter until the hooks completely into the slot of the radiator.



5.5 Safety lock

After the inverter is hanging up on the bracket, lock up the device and the bracket together at the Lower Left Corner of the inverter (as the picture showed below).

Recommended padlock dimension:



A. Shackle Diameter	5~7 mm
B. Vertical Clearance	8~15 mm
C. Horizontal Clearance	12~20 mm
Stainless, solid hanger and secured lock cylinder	

NOTICE

For further maintenance and possible repair, please keep the key of the padlock in a safe place.

6. Electrical Connection

6.1 Safety

DANGER

DANGER to life due to potential fire or electricity shock. With the inverter powered, comply with all prevailing national regulations on accidents prevention. This inverter will be directly connected with HIGH VOLTAGE power generation device; the installation must be performed by qualified personnel only in compliance with national and local standards and regulations.

NOTICE

Electrical connections shall be carried out in accordance with the applicable regulations, such as conductor sections, fuses, PE connection.

6.2 AC Side Connection

DANGER

DANGER to life due to potential fire or electricity shock.

NEVER connect or disconnect the connectors under load.

6.2.1 Integrated RCD and RCM

The inverter is equipped with integrated RCD (Residual Current Protective Device) and RCM(Residual Current Operated Monitor). The current sensor will detect the volume of the leakage current and compare it with the pre-set value, if the leakage current exceeds the permitted range, the RCD will disconnect the inverter from the AC load.

6.2.2 Assembly Instructions

NOTICE

Use **10-8AWG (6 – 10mm^2)** copper wire for all AC wiring connections to Omnik inverter. Use only solid wire or stranded wire.

NOTICE

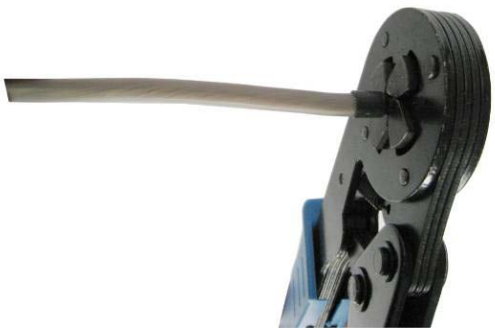
Use a residual current protective device **(residual operating current: 100mA)**.

In order to reduce the line loss of AC side (no more than 1% of Pout), Omnik suggest that the length of AC cable from the inverter to the distribution box should not exceed the limit below.

Model	Rated current	Length of cable	
		6 mm^2	10 mm^2
Omniksol-5k-TL3	21.7A	18m	30m
Omniksol-6k-TL3	26A	15m	25m

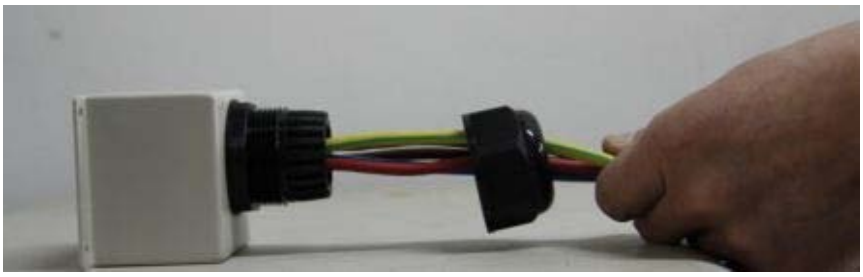
1) Strip the cable 12mm

2) Insert the striped cable into cord end terminal and insert the assembly into barrel.

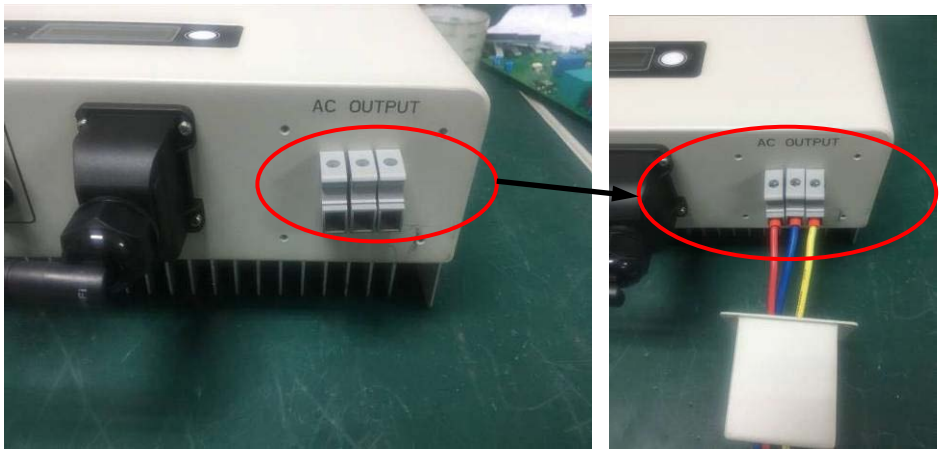


3) Then the line will like the picture below.

4) Insert the finished 5 lines into AC cover assembly with the following sequence：



5) Open the plastic cover, use slot type screwdriver to press the shrapnel in the indicated position, and then put the line in the right hole, please note the sequence of the line shall in the right order: N,L,PE



6) Cover the assembly, tightly screwed and then screw the cable gland.

6.3 DC Side Connection

DANGER

DANGER to life due to potential fire or electricity shock.

NEVER connect or disconnect the connectors under load.

DANGER

NEVER connect the ground lead of PV module to the inverter.

For Omniksol-5k/6k-TL3, there are two MPP Trackers, and the DC characteristics of the mare illustrated as the following table.

Inverter Type	MPP Tracker	Max. DC Power	Max. DC Voltage	Max. DC Current
Omniksol-5k-TL3	2	6000W	580V	10A /10A
Omniksol-6k-TL3		7200W	580V	10A /10A

In order to reduce the line loss of DC side (no more than 1% of Pin), Omnik suggest that the length of DC cable for each cable section should not exceed the limit below.

Model	Length of cable	
	2.5 mm^2	4 mm^2
Omniksol-5k-TL3	50m	80m
Omniksol-6k-TL3	60m	96m

MC4 Assembly instructions

☞ If, during self assembly, parts and tools other than those stated by MC are used or if the preparation and assembly instructions described here are disregarded then neither safety nor compliance with the technical data can be guaranteed.

⚠ For protection against electric shock, PV-connectors must be isolated from the power supply while being assembled or disassembled.

⚠ The end product must provide protection from electric shock.

☞ The use of PVC cables is not recommended.

☞ Unplugging under load: PV plug connections must not be unplugged while under load. They can be placed in a no load state by switching off the DC/AC converter or breaking the DC circuit interrupter. Plugging and unplugging while under voltage is permitted.

☞ It is unadvisable to use non-tinned cables of type H07RN-F, since with oxidized copper wires the contact resistances of the crimp connection may exceed the permitted limits.

☞Disconnected connectors should be protected from dirt and water with sealing caps.

☞Plugged parts are watertight IP67. They can't be used permanently under water. Do not lay the MC-PV connectors on the roof surface.

☞See the MC catalogue 2 Solar line for technical data and assembled parts.

PV-Female cable coupler **PV-Male cable coupler**

PV-KBT4 PV-KST4

Touch protection, mated/unmated	IP67/IP2X	**Rated current**	17A(1,5mm2/14AWG) 22A(2,5mm2/ 12AWG) 30A(4mm2,6mm2/ 10AWG)
Ambient temperature range	-40℃...90℃ (IEC/CEI) -40℃ ...75℃(UL) -40℃ ...70℃(UL/AWG14)	**Rated voltage**	1000V (IEC/CEI) 600V (UL)
Upper limiting temperature	105°C (IEC/CEI)	**Safety class**	II

Tools required

ill.1

ill.2

ill.3

(ill.1) Crimping tool incl. locator and built-in crimping insert.
Type: PV-ES-CZM-18100
PV-ES-CZM-19100

(ill.2) Interchangeable crimping inserts incl. hexagonal screwdriver A/F 2,5.
Type: PV-ES-CZM-18100
PV-ES-CZM-19100

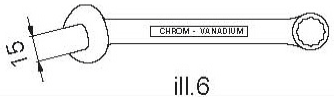
(ill.3) Open-end spanner PV-MS 1 set = 2 pieces
Order No. 32.6024

ill.4

(ill.4) PV-WZ-AD/GWD socket wrench insert to tighten, Order No. 32.6006

ill.5

(ill.5) PV-SSE-AD4 socket wrench insert to secure PV-SSE-AD4, Order No. 32.6026



ill.6

(ill.6) Open-end spanner A/F 15 mm

ill.7

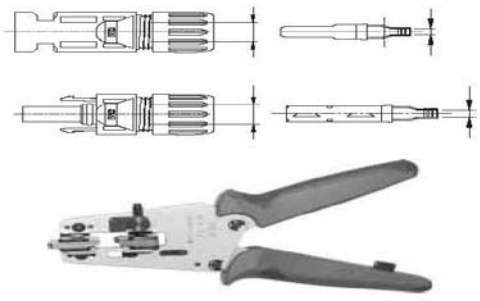
(ill.7) Torque screwdriver A/F 12 mm

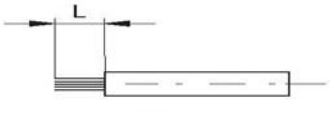
ill.8

(ill.8) Test plug PV-PST
Order No.: 32.6028

ill.9

Cable preparation
(ill.9) Important: Cables with class 2, 5 or 6 construction can be connected. It is advantageous to use tinned conductors. It is unadvisable to use non-tinned cables of type H07RN-F, since with oxidized copper wires the contact resistances of the crimp connection may exceed the permitted limits.





ill.10

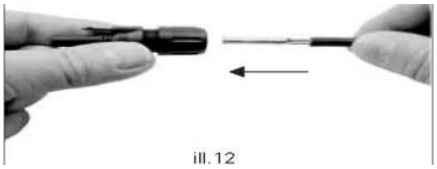
Check dimension b according to the following table:

Type	A = Ø-range of cable mm	b control dimension mm	Conductor cross section mm²	AWG
PV-K...T4/...2,5I	3 - 6	3	1,5 - 2,5	14
PV-K...T4/...2,5II	5,5 - 9	3	1,5 - 2,5	14
PV-K...T4/...6I	3 - 6	5	4 - 6	12/10
PV-K...T4/...6II	5,5 - 9	5	4 - 6	12/10

care not to cut individual strands.
Recommended tool:
Stripping pliers PV-AZM, Order No.32.6027

ill.11

Crimping
(ill.11) Notes to the operation of the crimping pliers, see¬MA251-def (www.multicontact.com)

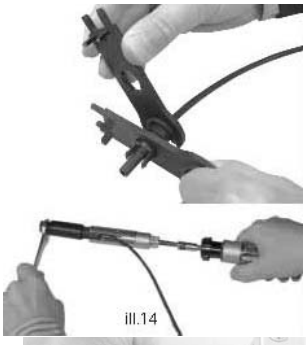


ill.12

(ill.12) Push the crimped contact into the socket resp. plug insulator until it engages. Pull lightly on the lead to check that the metal part has engaged.

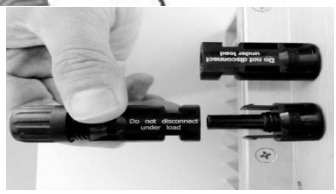
ill.13

Assembly control
(ill.13) Insert the test pin with the corresponding side into the socket or plug to the end position. If the contact is correctly assembled, the white marking on the test pin
must be still visible.



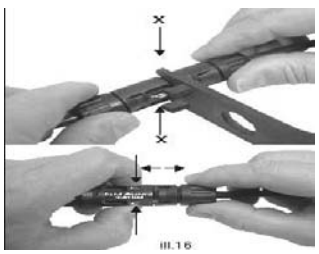
ill.14

(ill.14) Screw on the cable gland, hand-tight, with the tools PV-MS. Or
Screw on the cable gland, with the tools PV-WZ-AD/GWD and PV-SSE-AD4
In any case:
The tightening torque must be adapted to the solar cables used in each specific case. Typical values lie in a range between 2,5 Nm to 3 Nm.



Plugging and unplugging the cable coupler without safety lock clip PV-SSH4

Plugging
(ill.15)
Plug the coupling together until they engage. Check correct engagement by pulling on the coupling.



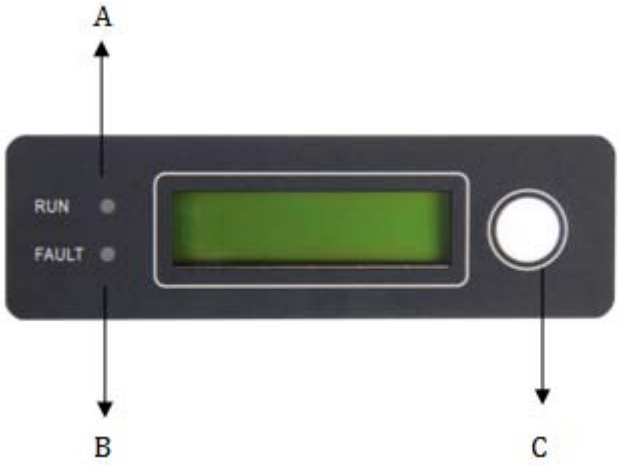
ill.16

Unplugging
(ill.16)
Compress the two snap-in springs (X) by hand or with the PV-MS tool and separate the coupling.
Plugging and unplugging the cable coupler without safety lock clip PV-SSH4

Refer to cable manufactures specification for minimum bending radius.

7. Display

7.1 LCD Panel



Object	Description
A	LED light(Green) – RUN
B	LED light(Red) – FAULT
C	Function key for displays and choice of language

The LCD panel is integrated in the front lid of the inverter, so it is easy for user to check and set the data. In addition, the user can press the function key to illuminate the LCD screen.

NOTICE

Omnik inverter is not an aligned measuring instrument for current, voltage or power consumption. A slight deviation of a few percent points is intrinsic to the system; the results from the inverter cannot be used for grid balance calculations. An aligned meter will be required to make calculations for the utility company.

7.2 LCD Display

The display content consists of 2 lines. The bottom line (Line 2) always displays the output power (Pac = xxxx W). The top line (Line 1) shows current state information by default, and by pressing function key it will display different operating information as the following flow chart and table.

execution sequence	name	LCD example
1	Day total energy/kWh	E-Today = xx.x kWh
2	Total energy/kWh	E-Total = xxxxx kWh
3	PV Voltage/V	Vpv = xxx.x V
4	PV Current/A	Ipv = xx.x A
5	Grid voltage/V	Vac = xxx.x V
6	Grid current/A	Iac = xx.x A
7	Grid frequency/Hz	Frequency = xx.x Hz
8	Models	Omniksol-4k-TL3
9	Standard	Italy
10	Version	Version
11	Temperature	Temperature
12	Language	Language： English
13	S/N and IP address	SN/IP
14	Time setting	Date: 20xx-xx-xx Time : xx:xx:xx
15	Grid setting	Set V/F Value
16	Protect setting	Protect： xx
17	Coefficient setting	Coefficient
18	Self Test(for Italy)	Self Test
19	P(f)and Q(v)	P(f)&Q(v)
20	Error Record	Error Record

* Item 9 and 15 - 20 needs passwords. Contact your dealer or Omnik if you need to set them.

Short press the page can be performed. Long press to enter the page and setup.

Line 1	Description
State information	Current state information: all possible content shows in the following table, reference to 7.4 for further information
E-today	The energy generated today in kilo watt hours (kWh)
E-total	The energy generated since starting up the inverter (kWh)
Vpv	The present voltage of the solar generator
Ipv	The present current of the solar generator
Vac	The grid voltage
Iac	The present grid current
Frequency	The grid frequency
Model	The model of the inverter
Standard	Choose standard for different country, reference to 7.3 for further information
Version	Long press to check the firmware version
Temperature	Long press to check the temperature of the inverter
Language	Long press to set language
SN/IP	Long press to check S/N and IP address of the inverter
Date and Time	Long press to set date and time
Grid setting	Long press to set V/F value
Protect setting	Long press to change protect settings
Coefficient setting	Only used in factory
Self Test(for Italy)	Long press to start self-test
P(f)and Q(v)	Long press to set P(f)and Q(v) value
Error Record	Long press to check error record

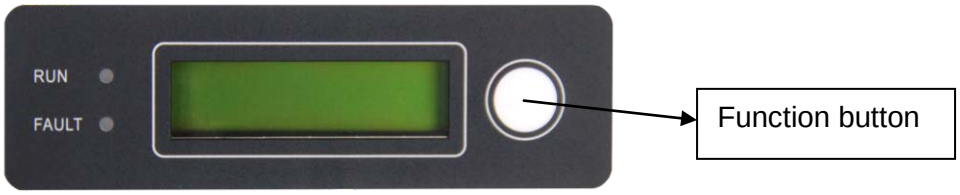
7.3 Instructions of Safety Standard selection when power-up

1. Attentions before the operation:

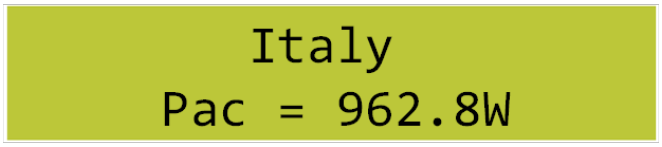
Only perform this operation when the accumulative generated electricity is less than 1kWh.

2. Operation steps are as following:

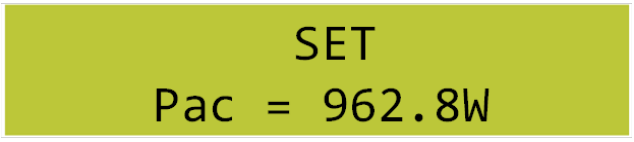
a) Power on the inverter with AC side connected.



b) Press the Function button until the first line of LCD displays " Standard " ,for example "Italy".



c) Hold the button for 5 seconds or more until the first line of LCD displays "Set". Change the standard by pressing the Function button one at a time.



d) When the LCD displays your desired Safety Standard, hold the Function button for 5 seconds or more until the first line of LCD shows "Set OK".

e) Cut down the AC power of the inverter and wait for 10 minutes .Then power on the inverter with AC side connected again .The safety standard has been changed now.

7.4 State Information

State	Display	State information
Wait	Waiting	Initialization & waiting
	Reconnects	Reconnect
	Checking's	Checking
Normal	Normal	Normal state
Fault	F00	GFCI Device Fault
	F01	Island Fault
	F03	PV Volt Low
	F04	Consistency Fault
	F05	Bus Volt Low
	F06	Bus Volt High
	F09	No Utility
	F10	Ground Current Fault
	F11	Bus Unbalance
	F12	10min Over Volt
	F13	Over Temp Fault
	F15	PV Volt High
	F17	Grid Volt Fault
	F18	Isolation Fault
	F19	Current DC Offset
	F21	PV2 Over Current
	F24	PV1 Over Current
	F25	Relay Fault
	F27	Inv Over Current
	F29	Grid Freq Fault
Flash	F/W Updating	Update

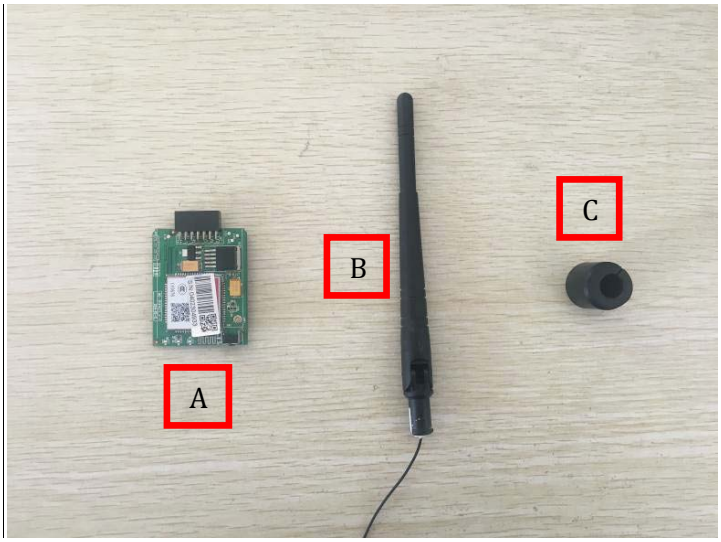
About the further information for each fault, please reference toChapter"10.TROUBLESHOOTING".

8. Communication Setting

8.1 GPRS Card

GPRS card is an optional device. If your inverter had installed the GPRS card, please go to **8.3. Register on monitoring website**.

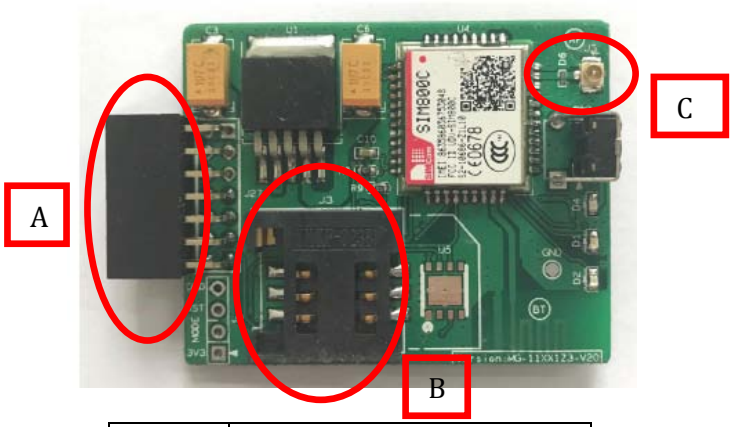
After unpacking the box, please check the parts according to the below list. Contact the manufacturer immediately when you find any damage, missing or wrong model.



No.	Name	Quantity
A	PV data collector	1
B	GPRS antenna	1
C	Rubber washer	1

Omnik provide 2 kinds of GPRS cards. One is a standard GPRS card and the other one has a card slot.

No.	Name
A	14 pin connector
B	I-PEX interface



No.	Name
A	14 pin connector
B	SIM card slot
C	I-PEX Interface

The serial number is shown as below.

8.2 Installation of GPRS/WiFi card

Warning: Before installing the GPRS card to inverter, you must turn off both the AC side and DC side of inverter to make sure personal safety.

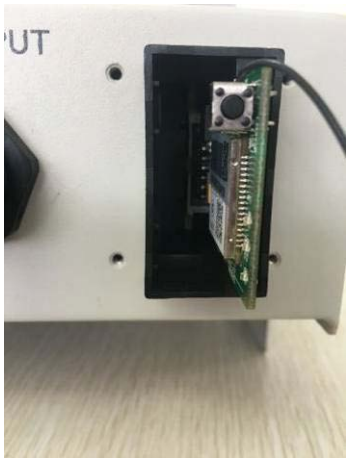
Unscrew the four screws on the interface panel with the screwdriver as shown in Picture above and keep the screws aside.

The standard connector has two holes. Use the single-hole rubber washer to take place of the double-hole rubber washer.

Insert the GPRS antenna through the gland and screw the hex nut with a torque of 2.0 N.m.

Connect the data line into the I-PEX interface.

While using the second kind of GPRS card, just insert the SIM card into the card slot. Then insert the GPRS card into the inverter.

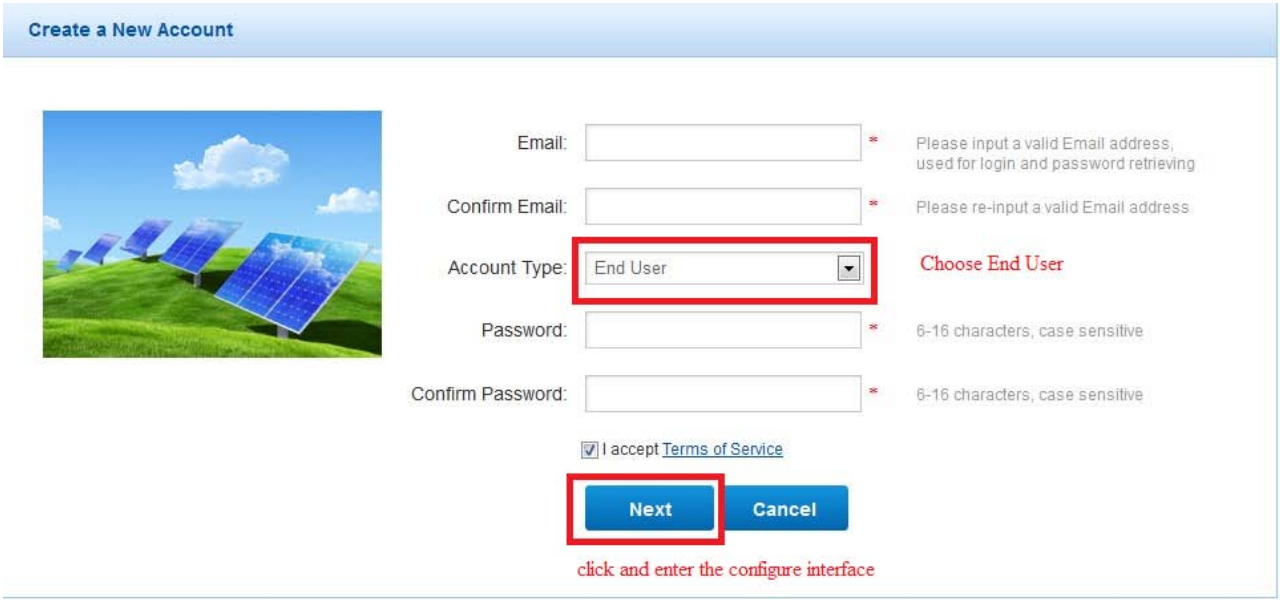


Install the communication box back to the inverter. While the installation is completed, Antenna can be turned in 360 degrees.

8.3 Register on monitoring website

The PV monitoring system of Omnik is supported by: IE8, Firefox, Chrome, and Safari. Login the website **http://www.omnikportal.com**, click register to enter the user registration page, follows the requirements for registration; please fill in the information for register. After successful registration, enter the mailbox and activity the account, then to complete the registration.

Click and enter the register interface

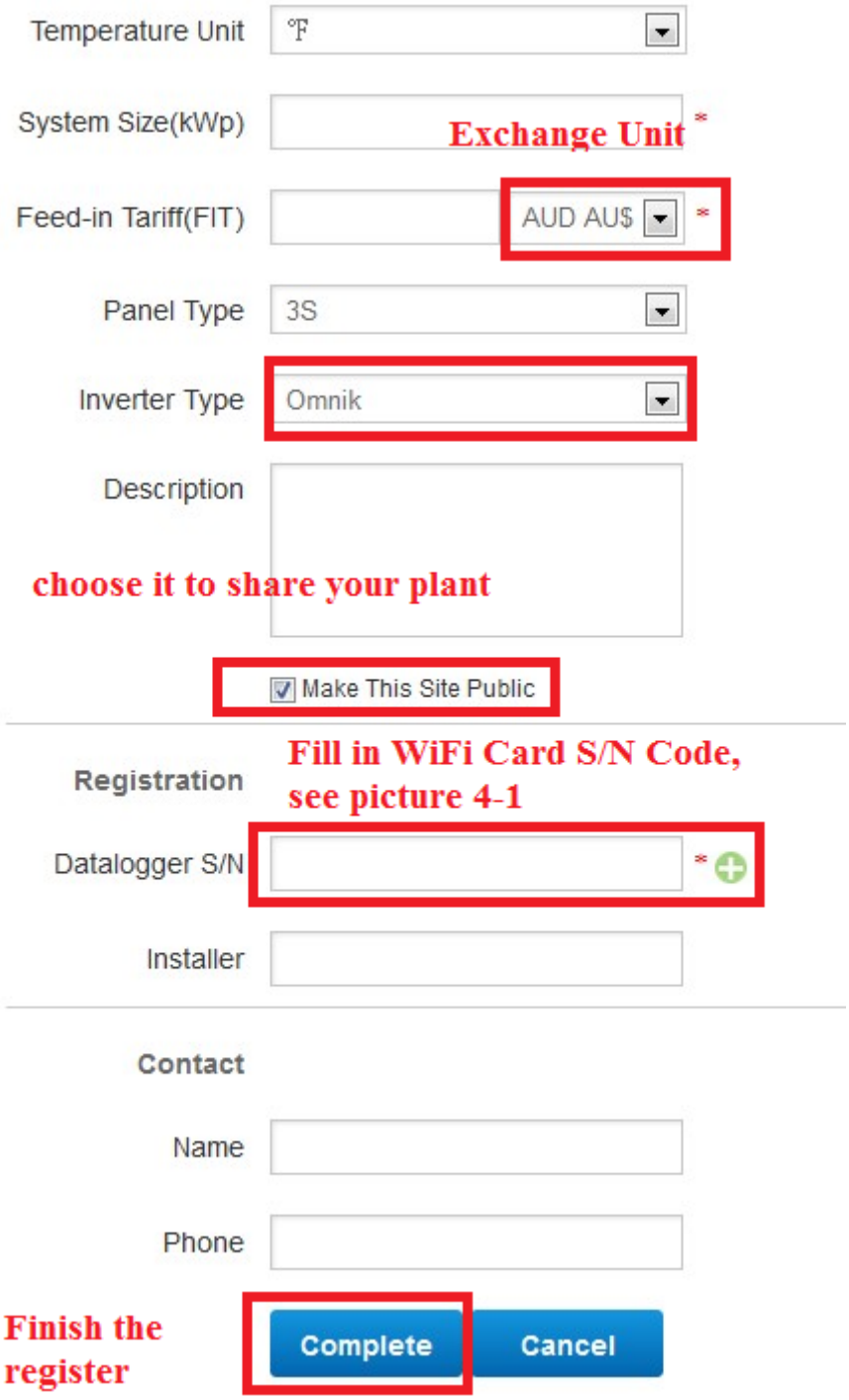


Choose the account type

Remarks: please read the < Omnik service agreement > carefully, the enclosure is the cost list for all the countries; please choose your operators ***End User*** *means the final user*

"" you must fill it*

Fill in the power station information



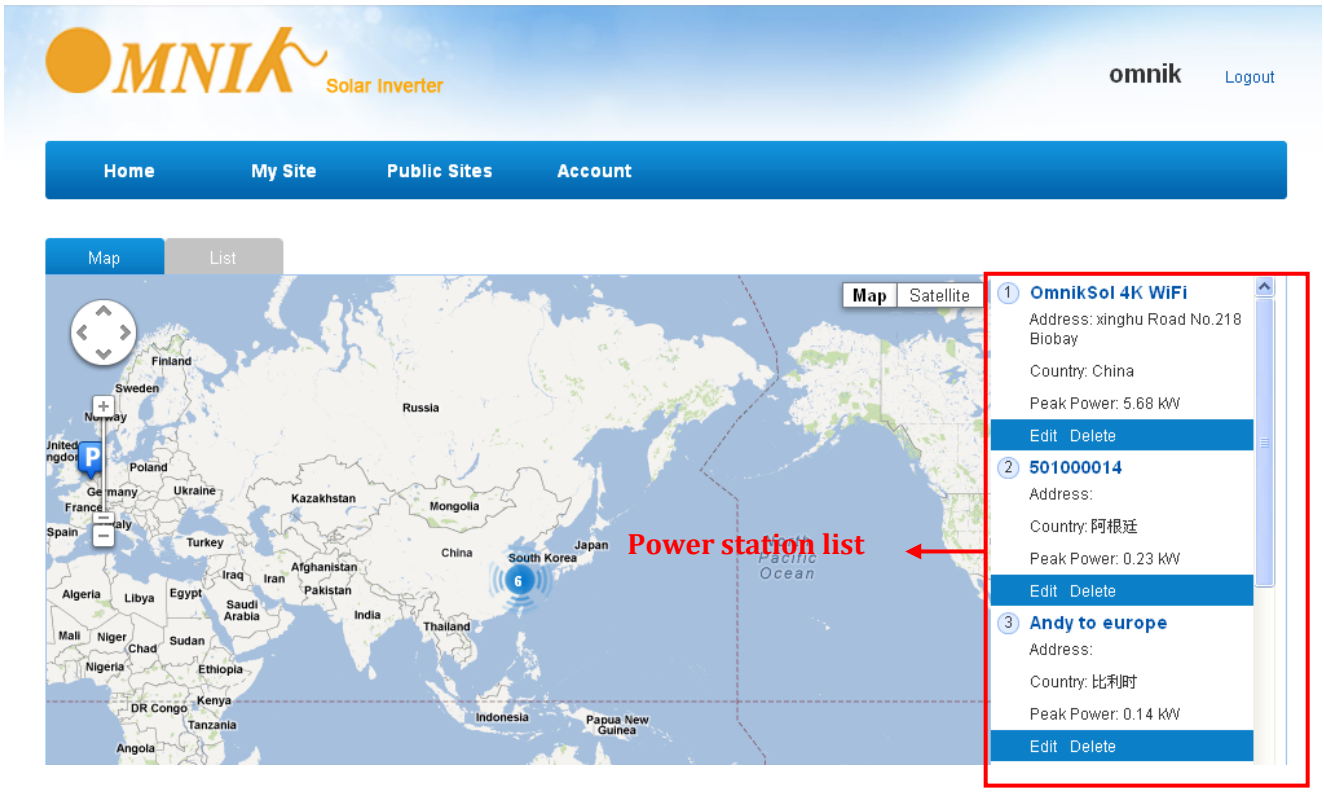
Fill in the power station information

After the register, you may enter next chapter **8.4 Login Monitoring System**.

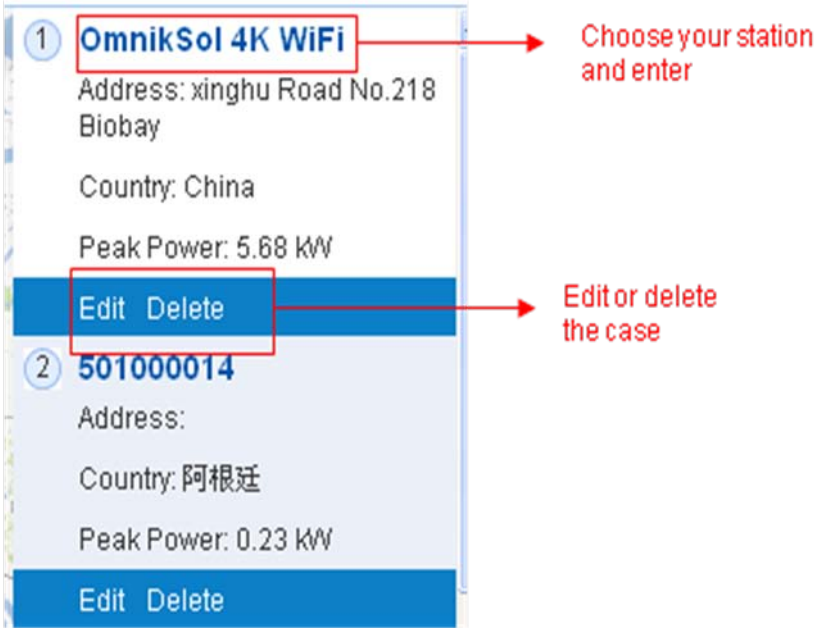
8.4 Login monitoring System

After the successful register and account activation, open the login interface as below. Input the correct email and code. Enter the PV monitoring system. Then you can monitor and manage the power station.

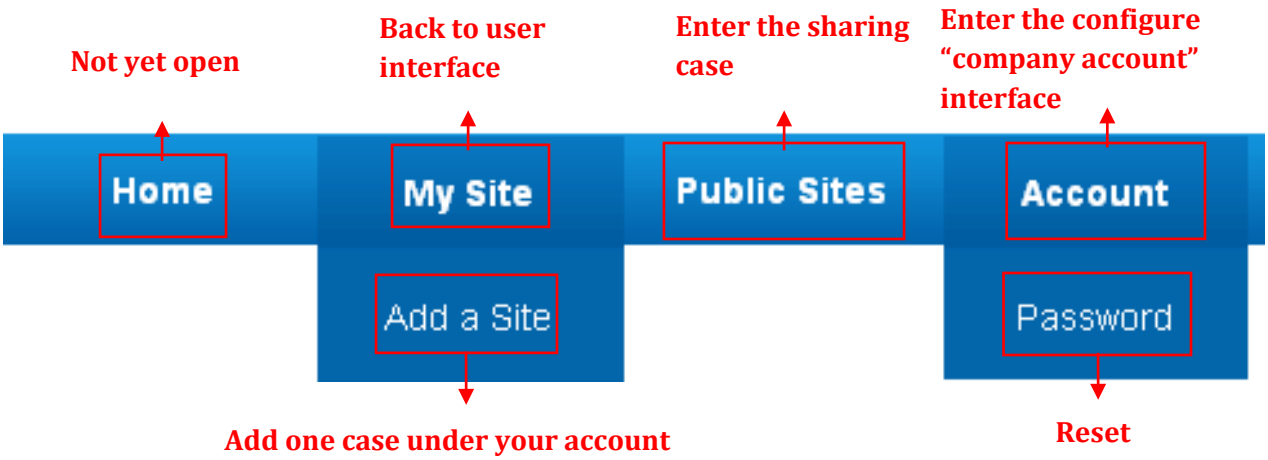
Input the email and code



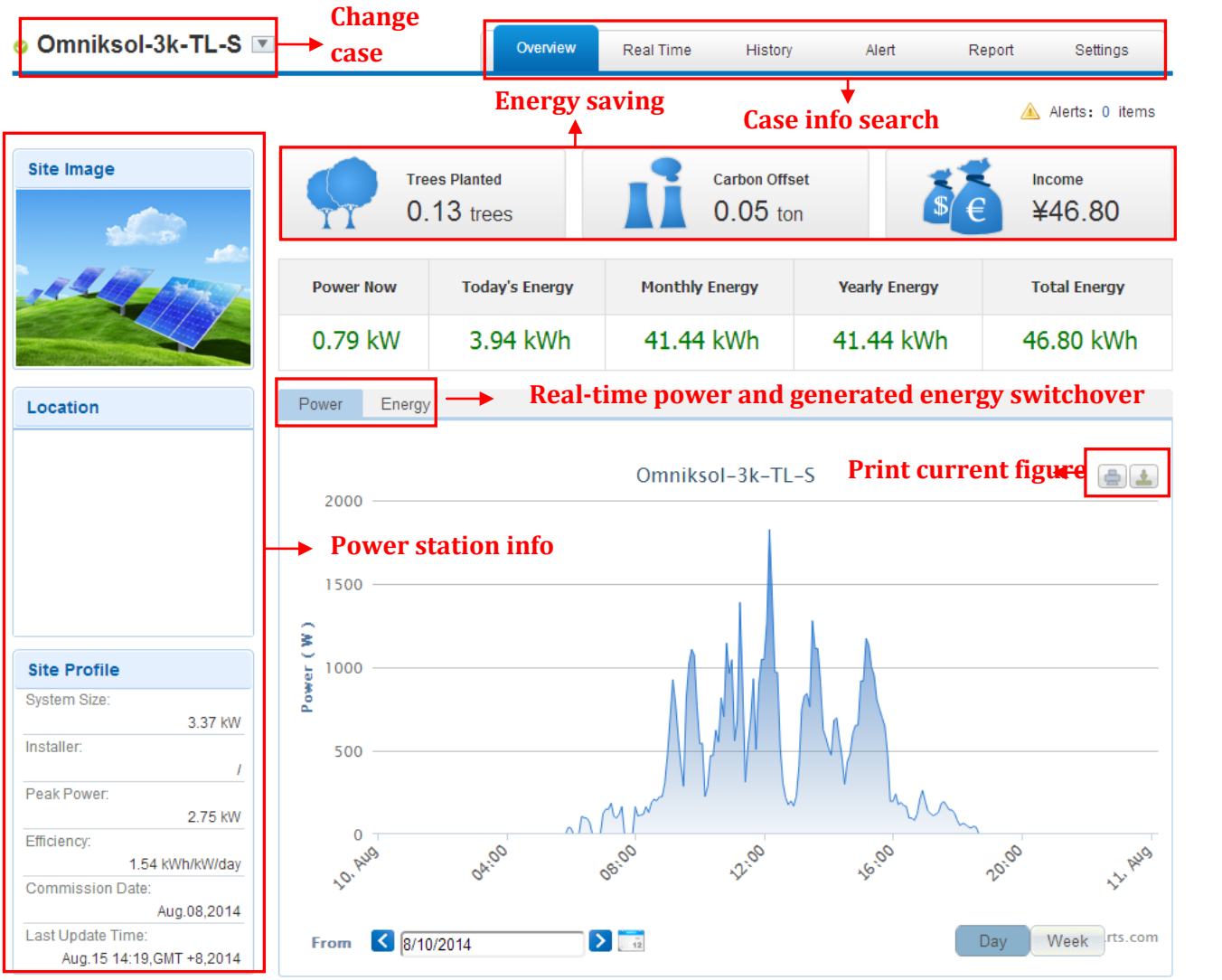
User interface



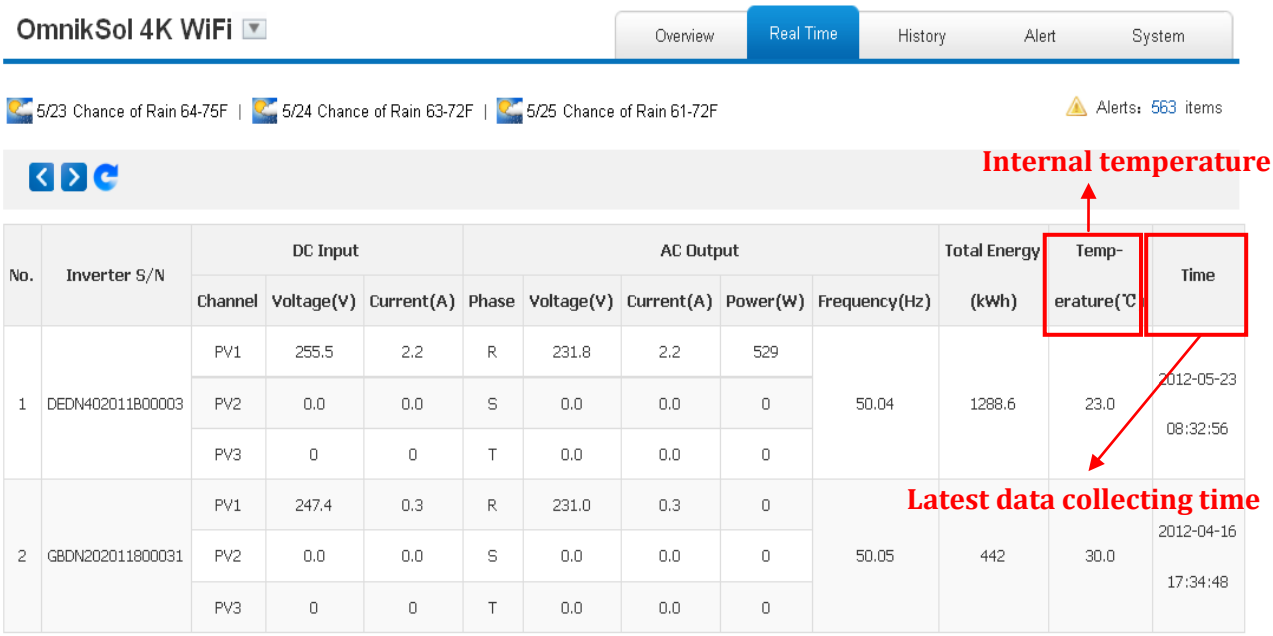
List of power station



Navigation Bar

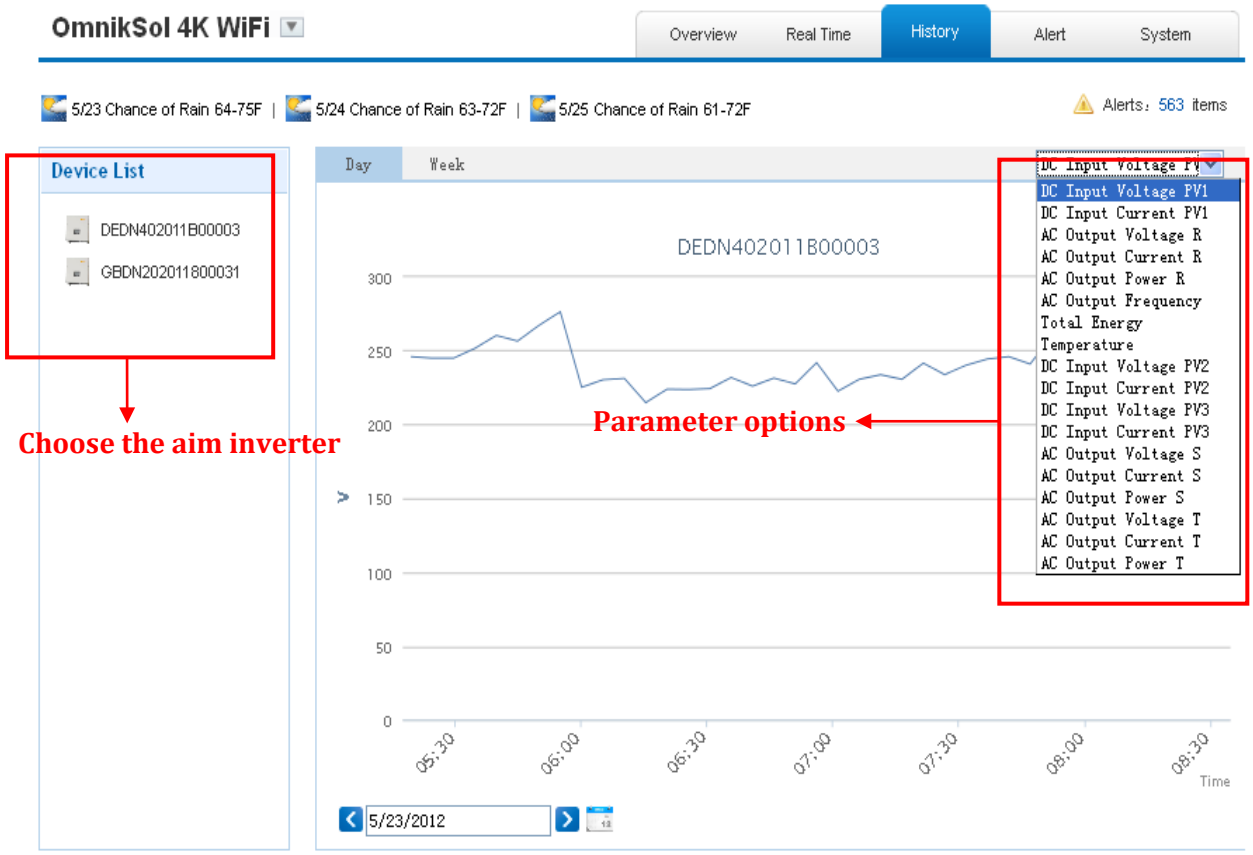


Main interface of Power Station

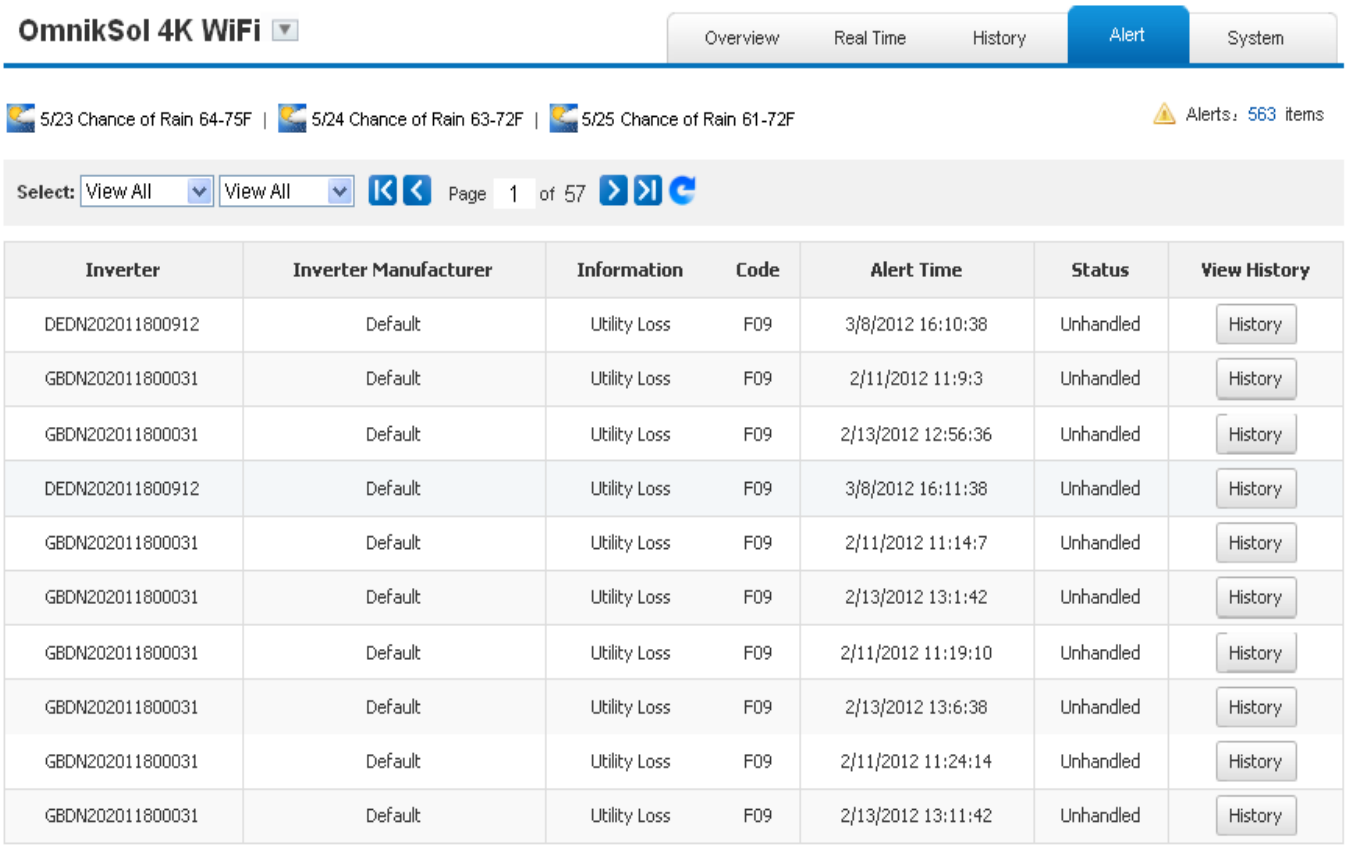


No.	Inverter S/N	DC Input			AC Output				Total Energy	Temp-erature(℃)	Time
		Channel	Voltage(V)	Current(A)	Phase	Voltage(V)	Current(A)	Power(W)	Frequency(Hz)	(kWh)		
1	DEDN402011B00003	PV1	255.5	2.2	R	231.8	2.2	529	50.04	1288.6	23.0	2012-05-23 08:32:56
		PV2	0.0	0.0	S	0.0	0.0	0				
		PV3	0	0	T	0.0	0.0	0				
2	GBDN202011800031	PV1	247.4	0.3	R	231.0	0.3	0	50.05	442	30.0	2012-04-16 17:34:48
		PV2	0.0	0.0	S	0.0	0.0	0				
		PV3	0	0	T	0.0	0.0	0				

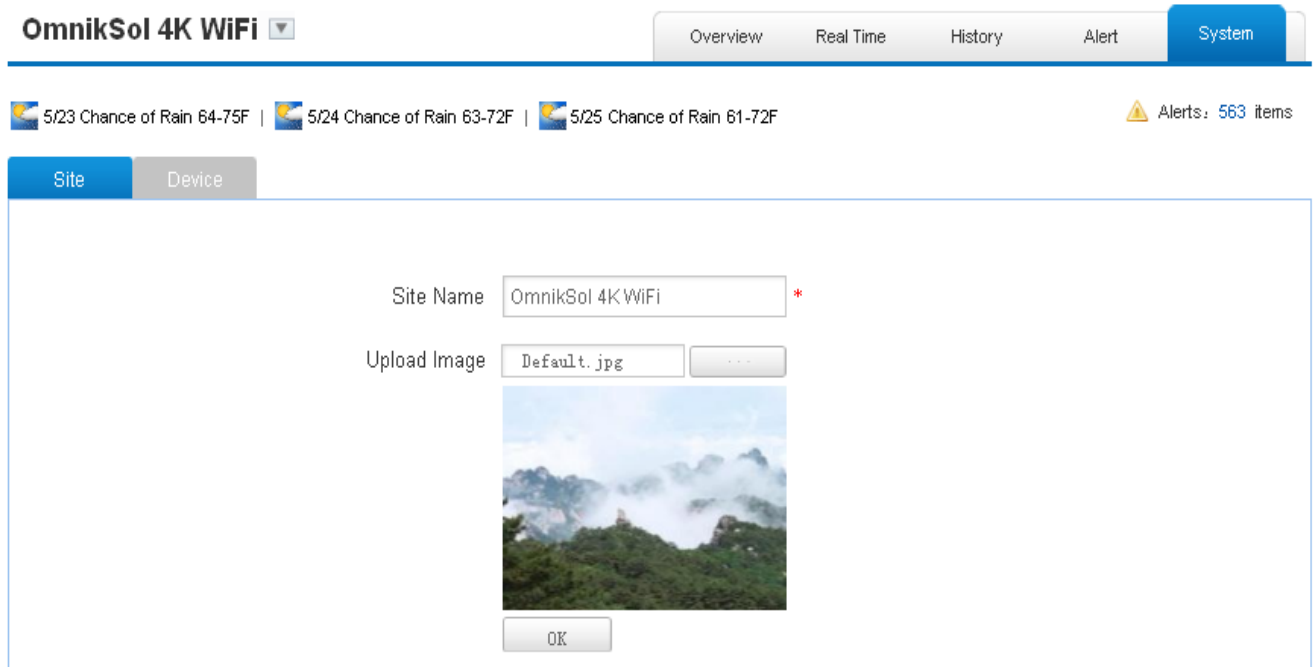
Real Time Interface



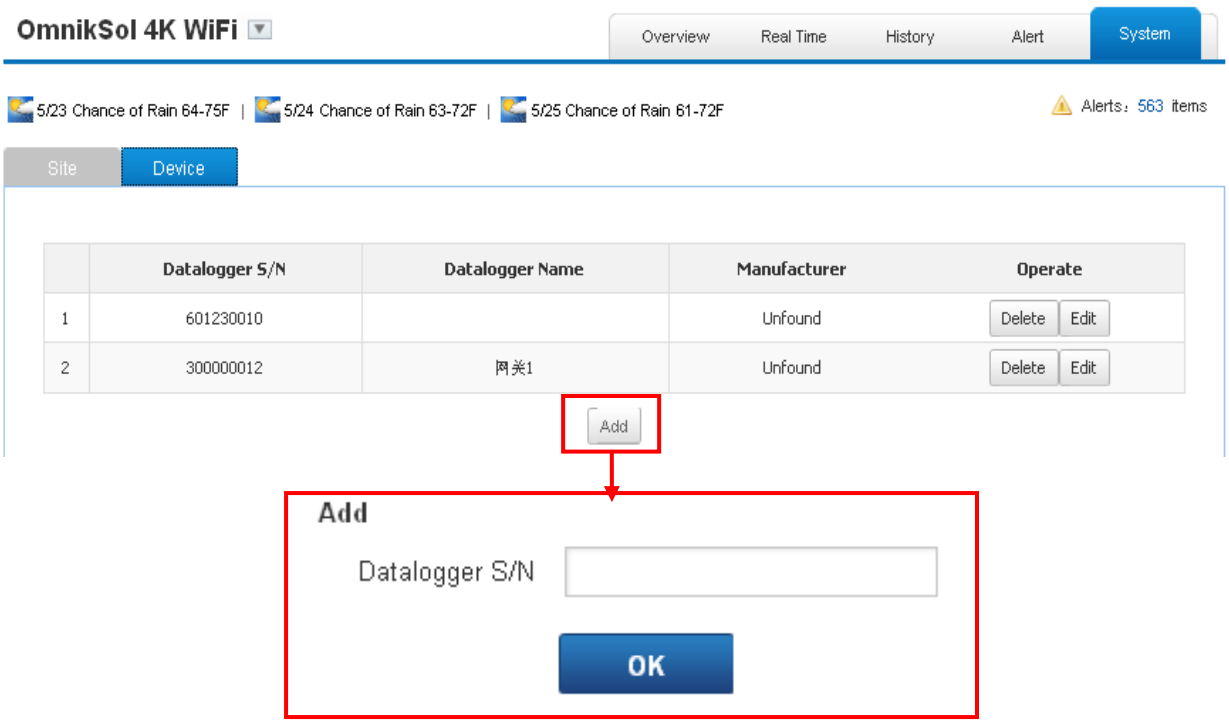
History Interface



Alert Interface



System Setting Interface

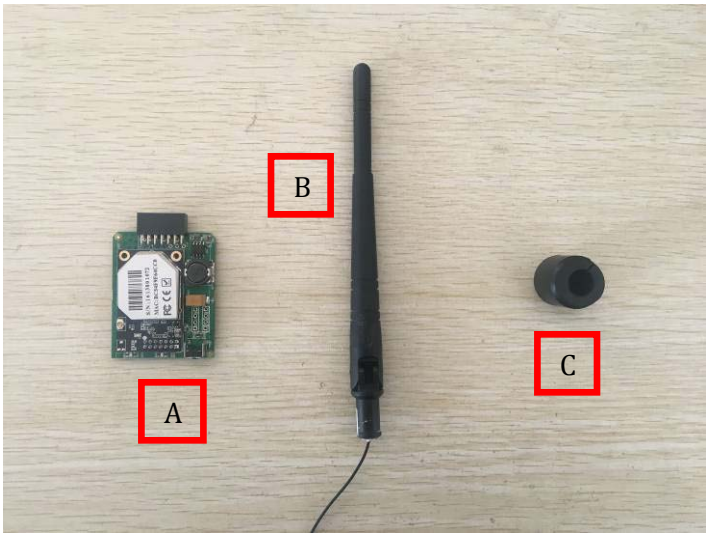


Add serial number

8.5 WiFi card

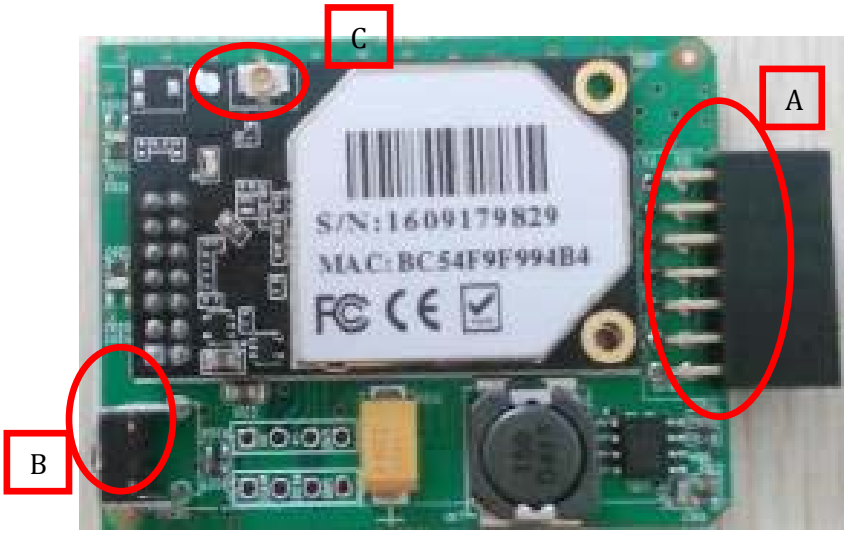
WiFi card is an optional device. If your inverter had installed the WiFi card, please go to **8.6. Network Settings.** If your inverter had not installed the WiFi card, please go to **8.2. Installation of GPRS/WiFi card** first, then go to **8.6. Network Settings.**

After unpacking the box, please check the parts according to the below list. Contact the manufacturer immediately when you find any damage, missing or wrong model.



No.	Name	Quantity
A	PV data collector	1
B	WiFi antenna	1
C	Rubber washer	1

WiFi card is shown as below:

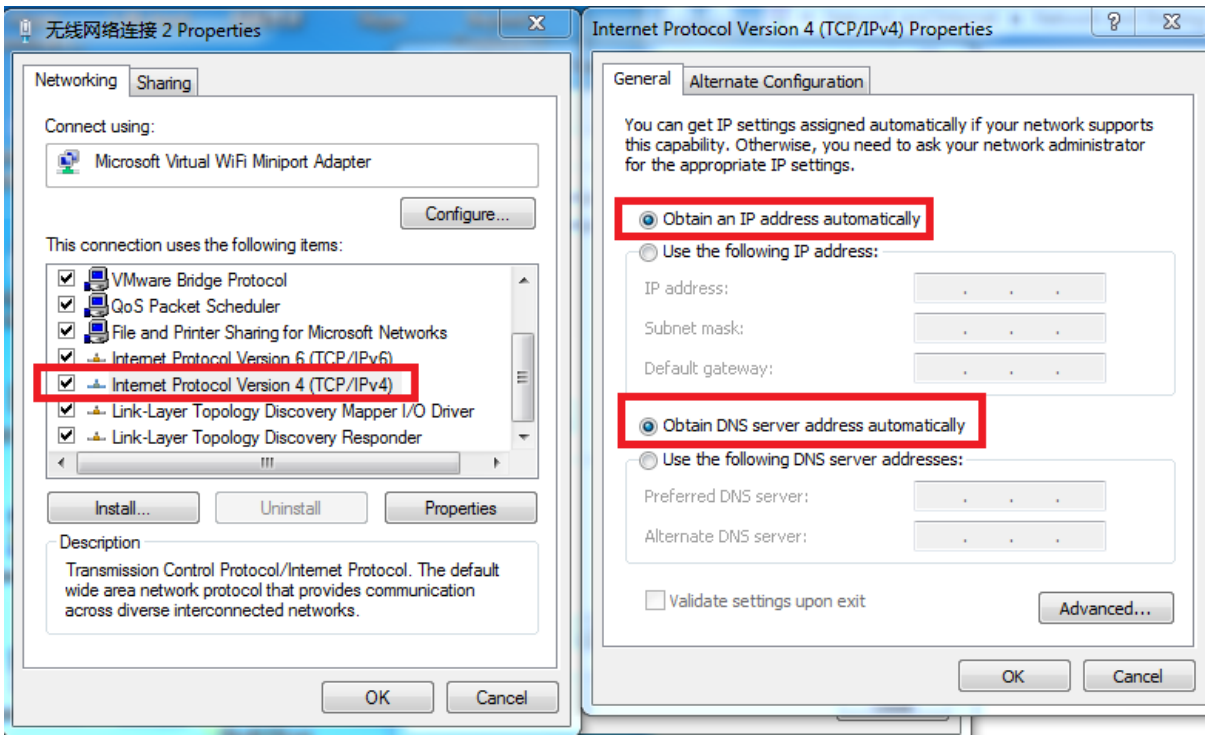


No.	Name
A	14 pin connector
B	Reset Button
C	I-PEX Interface

Serial Number

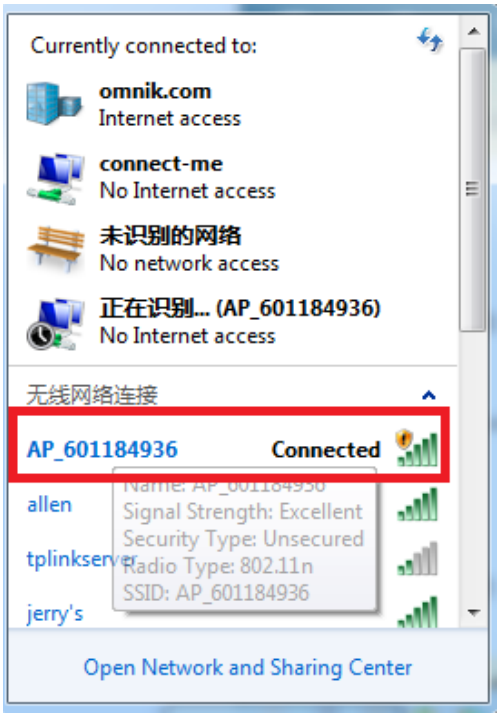
8.6 Netwoek Settings

1) Prepare a computer or device, e.g. tablet PC and smart phone that enables WiFi
2) Obtain an IP address automatically
   - Open Wireless Network Connection Properties, double click **Internet Protocol Version 4(TCP/IPv4)**
   - Select Obtain an IP address automatically, and **click OK**



3) Open wireless network connection and click **View Wireless Networks**

Select wireless network of the data logging module, no passwords required as default. The network name consists of **AP** and the **serial number** of the product. Then click **Connect.**



Connection successful

*Notice: If **AP_ (serial number of product)** is not available in the wireless network list, there may be problems in the connection or setting of data logging module. Please check if the WiFi had installed ok, and inverter has been powered on.*

Before troubleshooting, please inquire with your inverter installer whether you are allowed to remove the cover of the inverter to trouble shoot the module. If not allowed, please contact customer service.

4) Set parameters of WiFi module

(a) Open a web browser, and enter 10.10.100.254(the Default IP address of WiFi card, you may set domain name access, please see the picture 6-14), then fill in username: **admin** and password: **admin**, both of which are admin as default.

Recommended browsers: Internet Explorer 8+, Google Chrome 15+, Firefox 10+

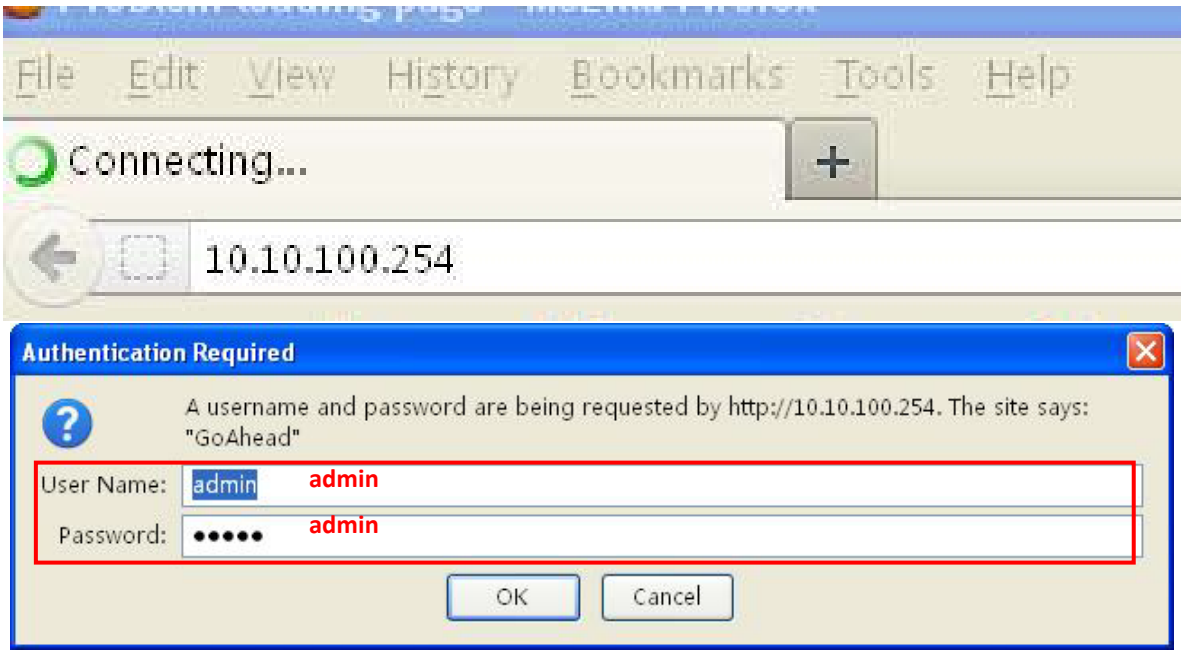
Note:

① *If the IP address shows **0.0.0.0** (factory value) on your LCD (Picture5-4-1), it is not a correct address. There are 2 cases show 0.0.0.0:*

- *Not connect router rightly, you need reset to connect you router to make it right*
- *Card loose in the inverter, please check your inverter, see chapter 4:.WiFi Card Installation*

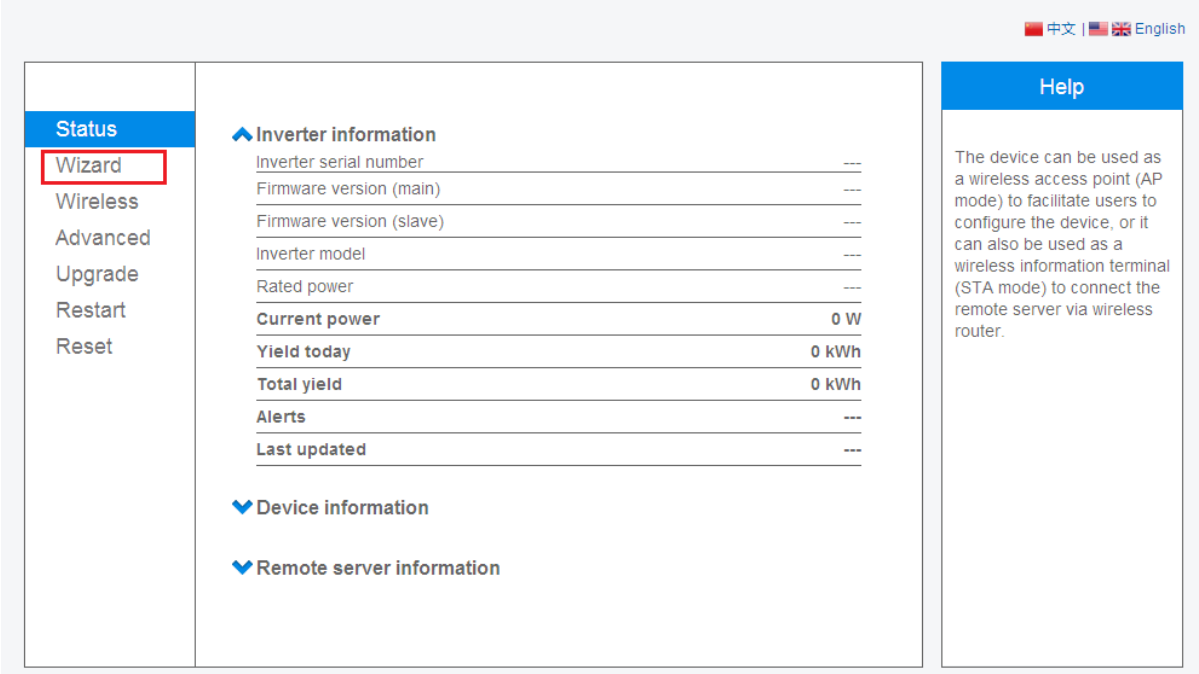
② *The default username & password :admin, admin, we suggest modify the username & password:*

Step: choose Account, input your username &password.

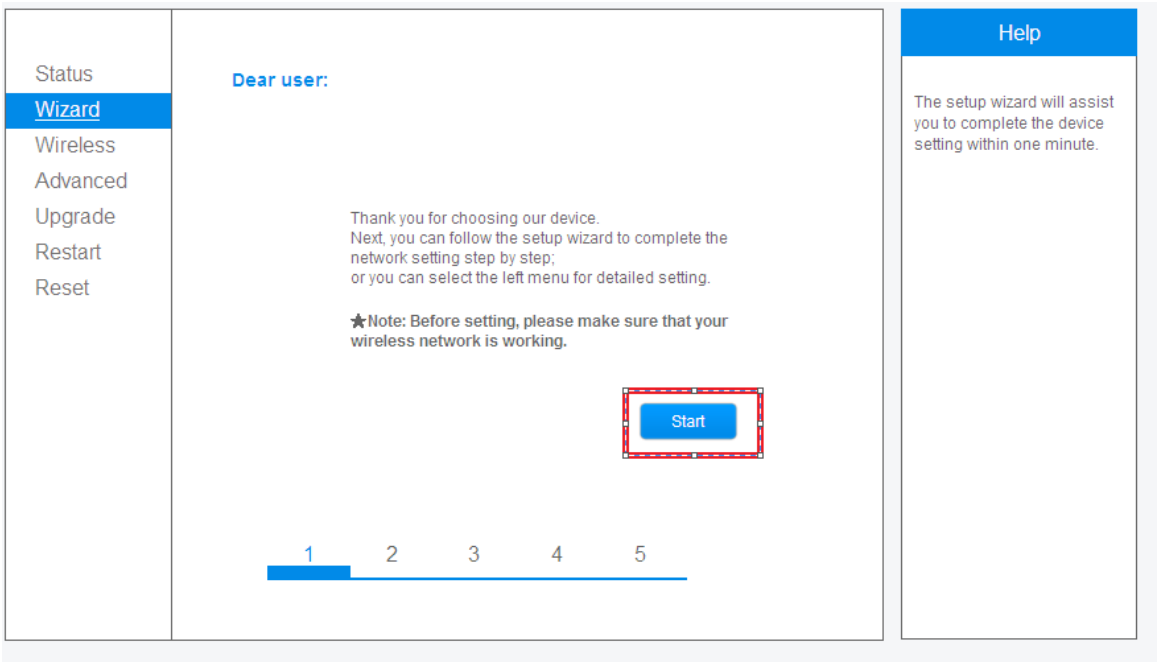


(b) In the configuration interface of WiFi module, you can view general information of the module.

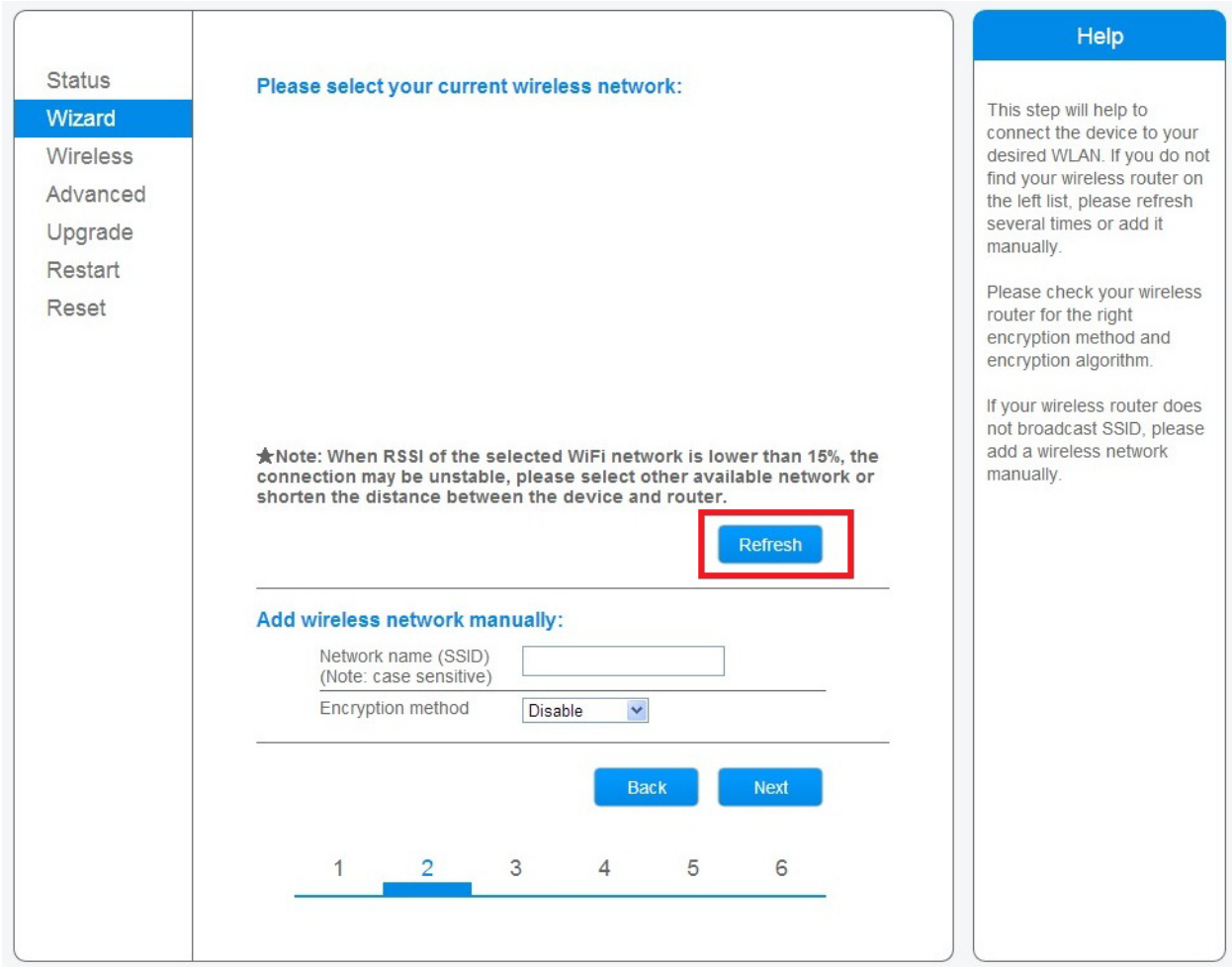
Follow the setup wizard to start quick setting.



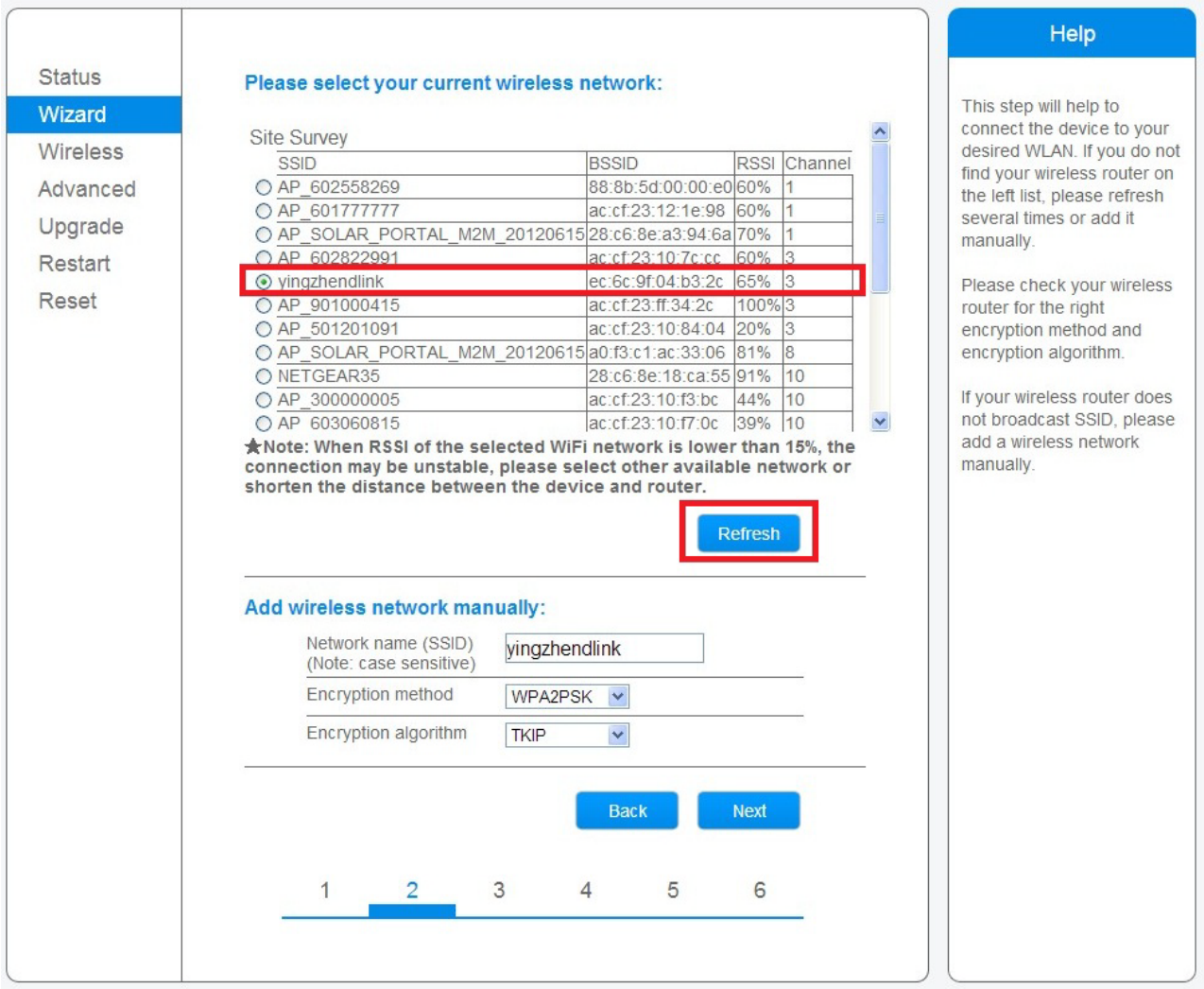
Click **Wizard** to start



Click **Start** to continue



Click **Refresh** to search available wireless networks



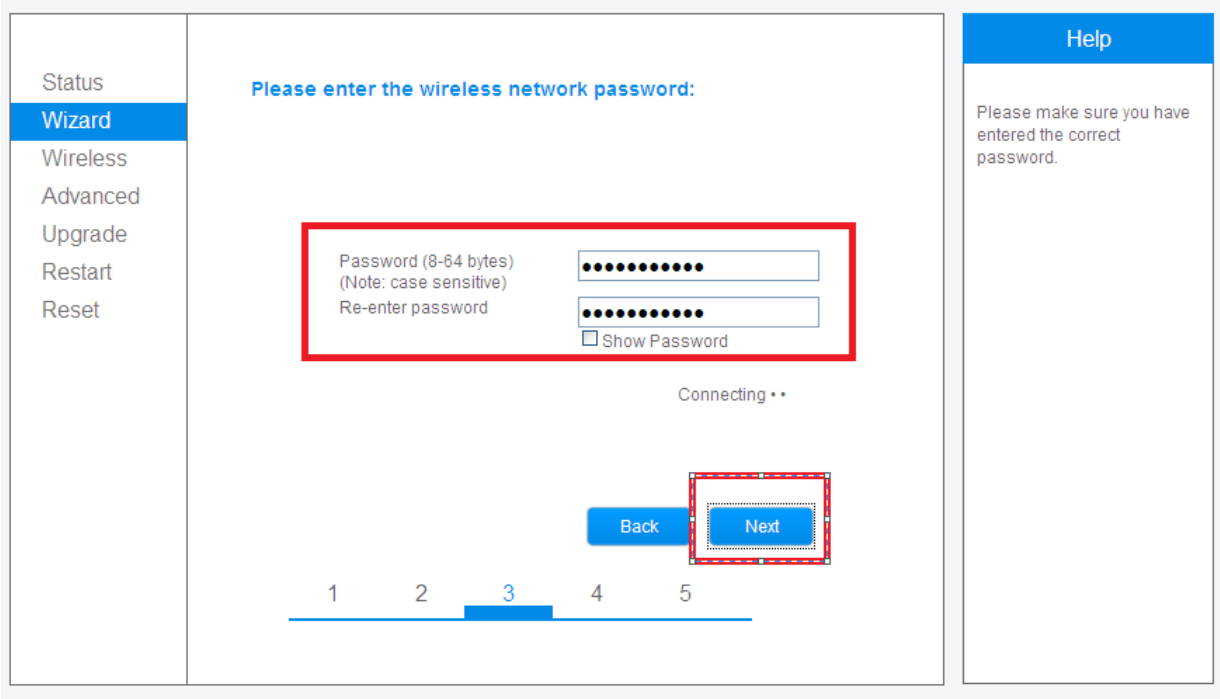
Select the wireless network you need to connect, then click **Next**

Notice:

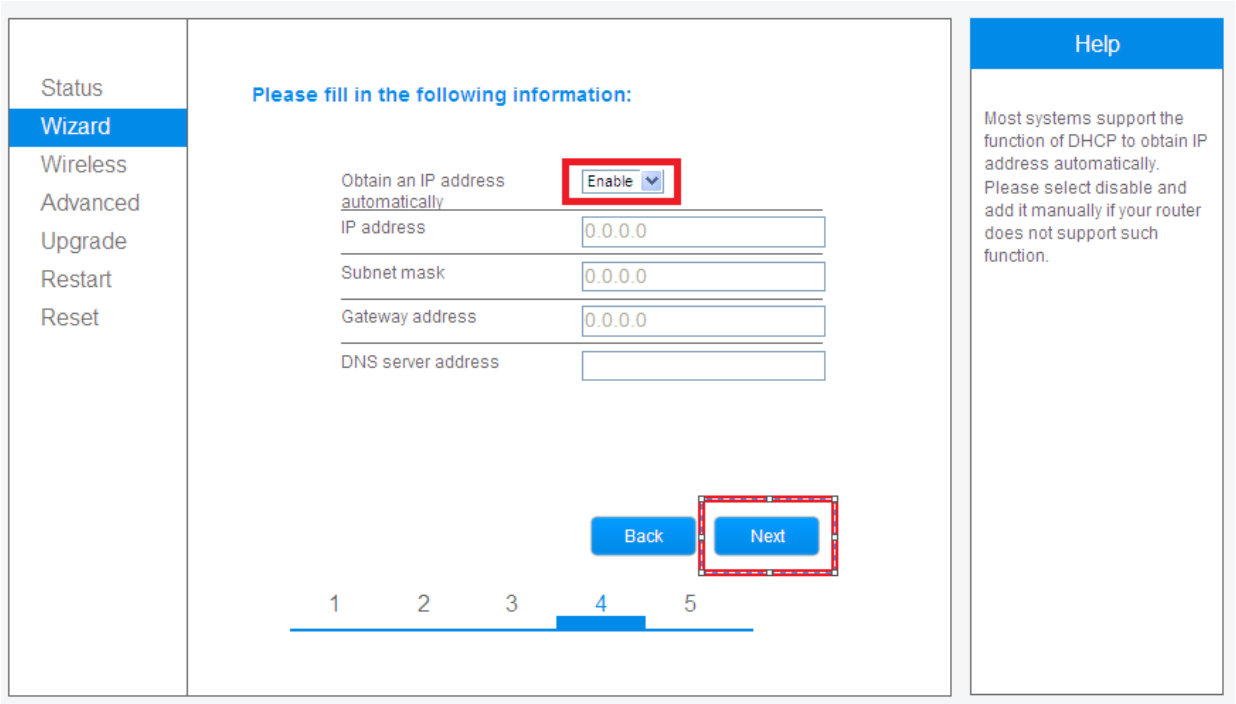
① If the signal strength (RSSI) of the selected network is <10%, which means unstable connection, please adjust the antenna of the router, or use a repeater to enhance the signal.

② We recommend router setting:

- *Security setting: WPA2-personal*
- *Encryption type: AES*



Enter the password for the selected network, then click **Next**

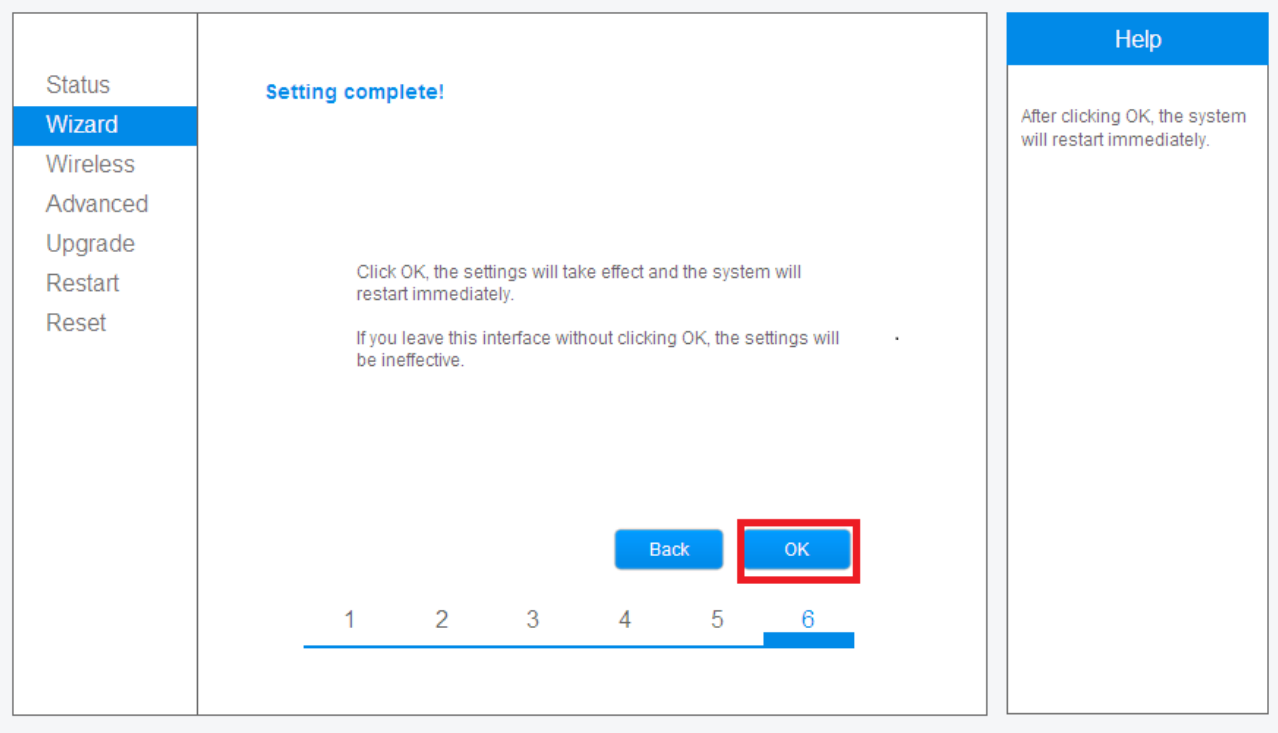


Select **Enable** to obtain an IP address automatically, then click **Next**

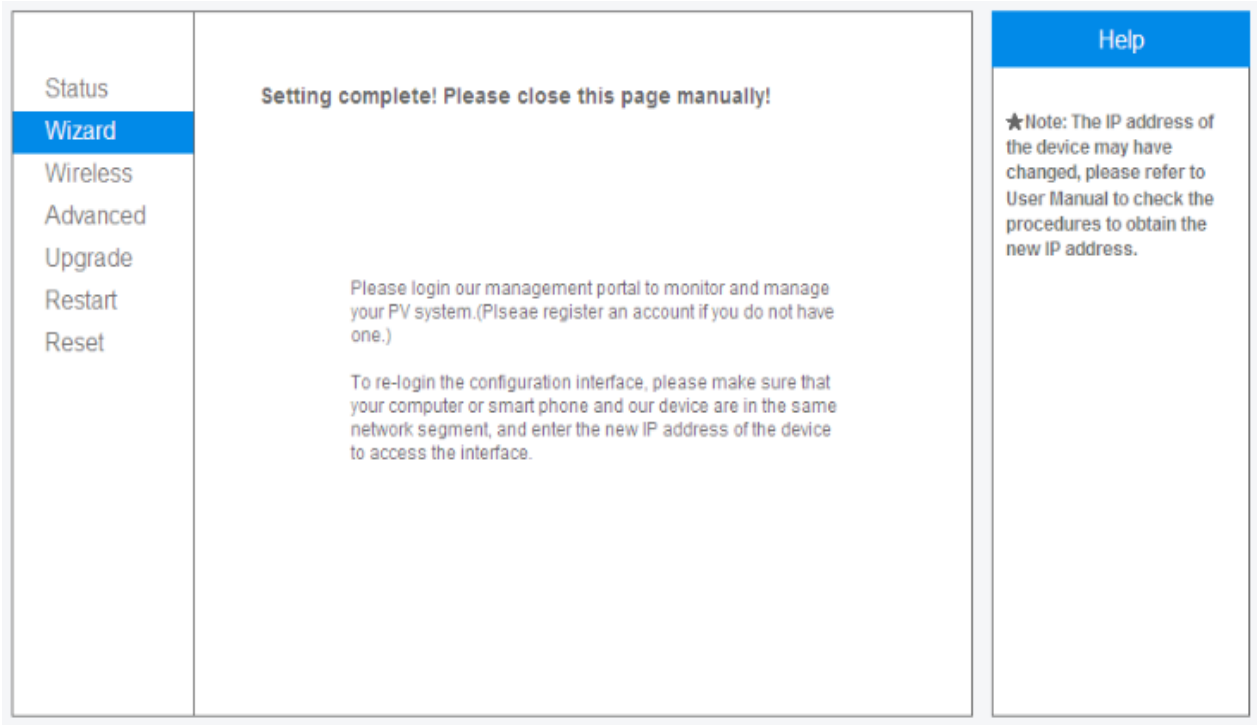
Notice:

① Turn off the firewall of the router

② Make sure the DHCP function of the router is enable



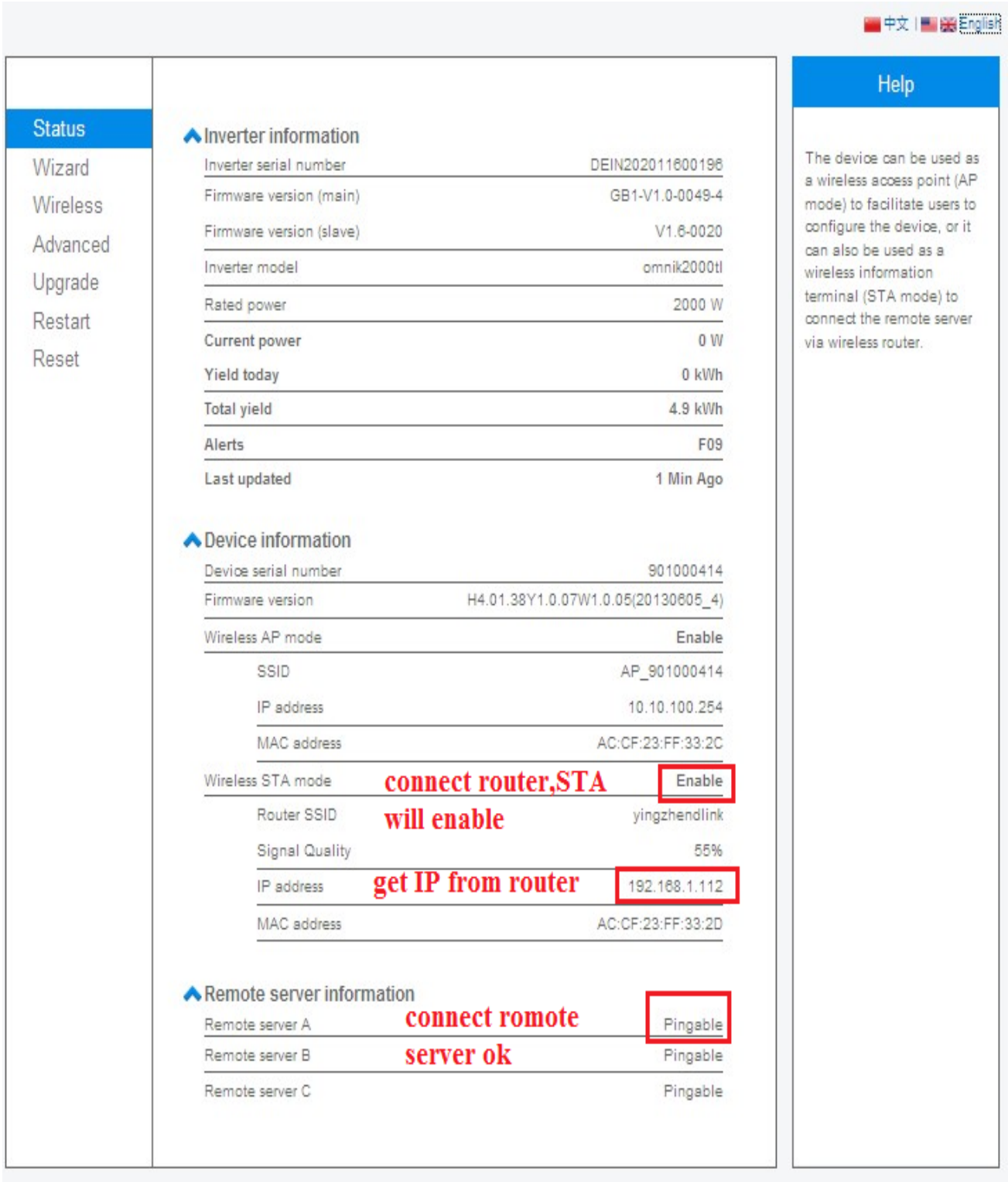
If setting is complete, the above page will display. Click **OK** to restart.



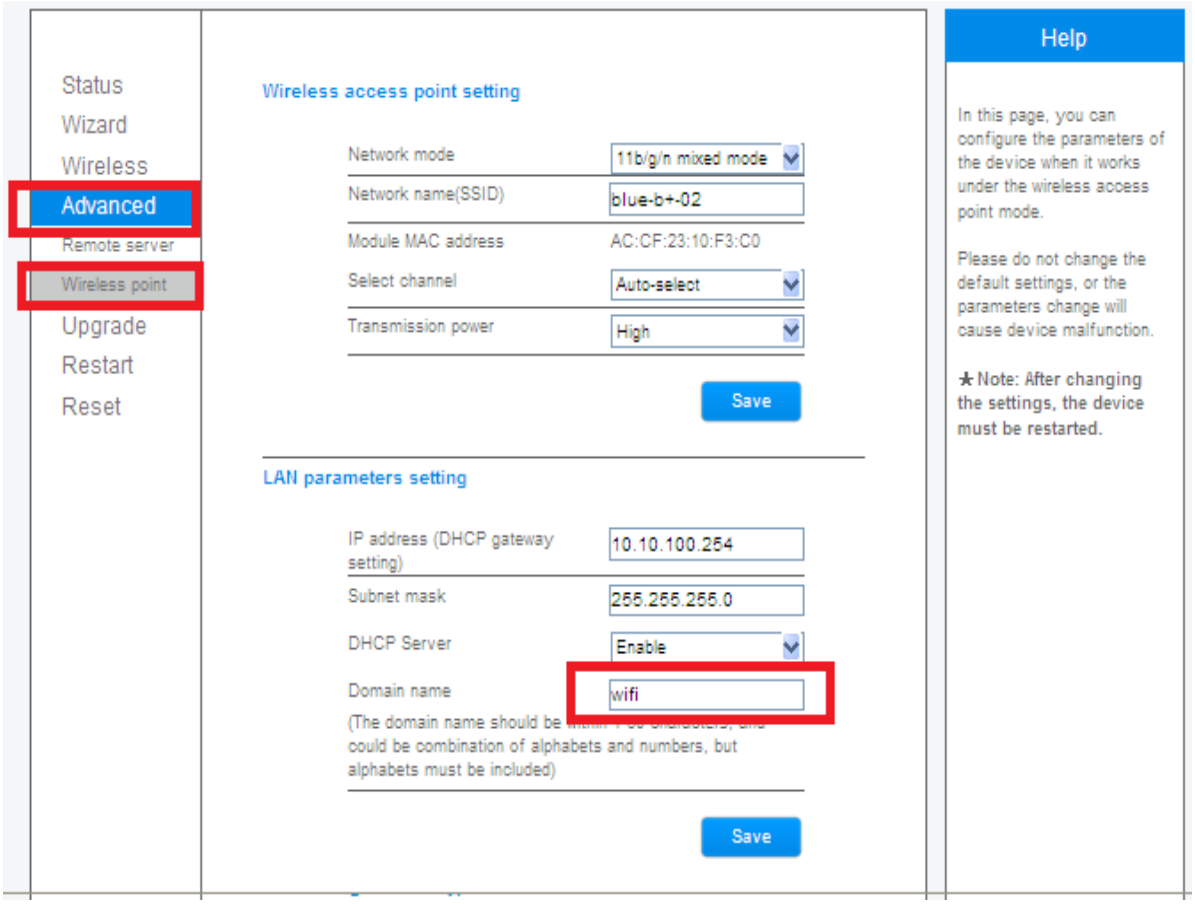
If setting is complete, the above page will display.

After your WiFi card set ok and get IP address from your router for example: 192.168.16.8, (You may see the IP address from inverter)

Input: http://192.168.16.8/ will display the following page:



You may also add your domain name of WiFi card to easy access according below picture , after you set ok, input http://wifi, you may also access the related page.

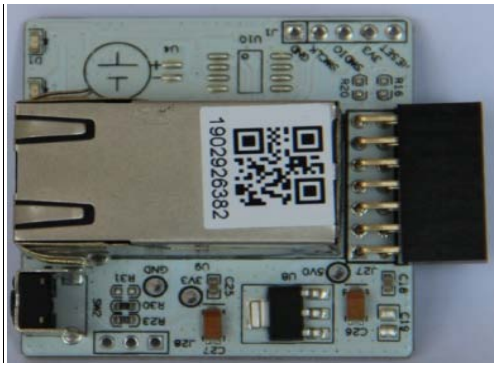


Now we finish the network setting, please go to **8.3. Register on monitoring website.**

8.7 Ethernet Card

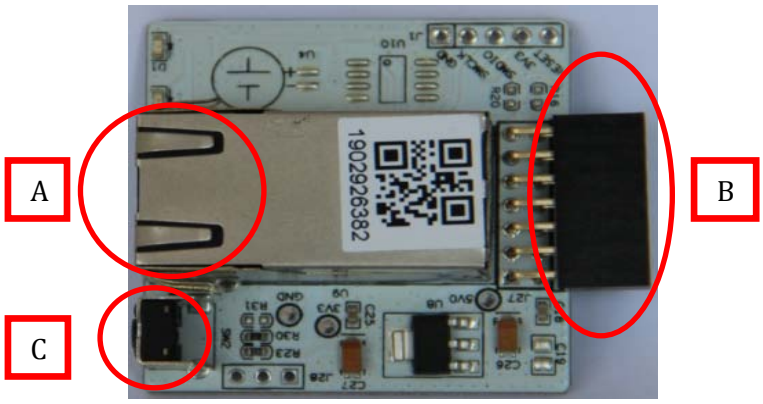
Ethernet card is an optional device. If your inverter had installed the Ethernet card, please go to **8.3. Register on monitoring website**. If your inverter had not installed the WiFi card, please go to **8.8. Installation of Ethernet card** first**.**

After unpacking the box, please check the parts according to the below list. Contact the manufacturer immediately when you find any damage, missing or wrong model.



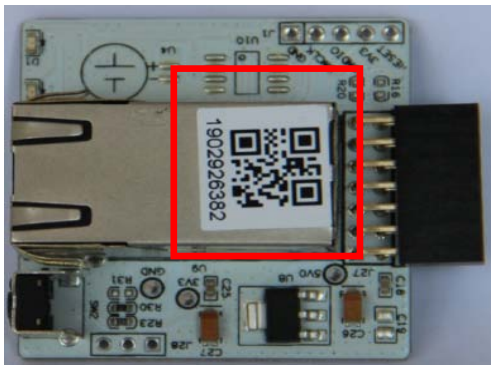
No.	Name	Quantity
A	PV data collector	1

The Ethernet card is shown as below.



No.	Name
A	RJ45 connector
B	14 pin connector
C	Reset button

The serial number is shown as below.



8.8 Installation of Ethernet card

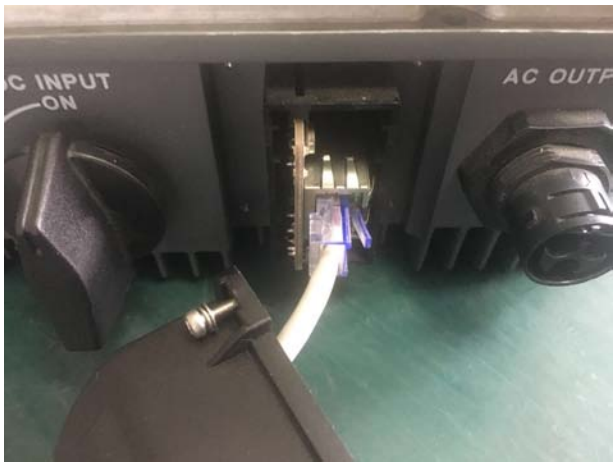
Warning: Before installing the Ethernet card to inverter, you must turn off both the AC side and DC side of inverter to make sure personal safety.

Unscrew the four screws on the interface panel with the screwdriver as shown in Picture above and keep the screws aside.

Wear the Ethernet cable into the waterproof terminals, and waterproof terminals and the cover plate is installed.

Insert the Ethernet card into the inverter.

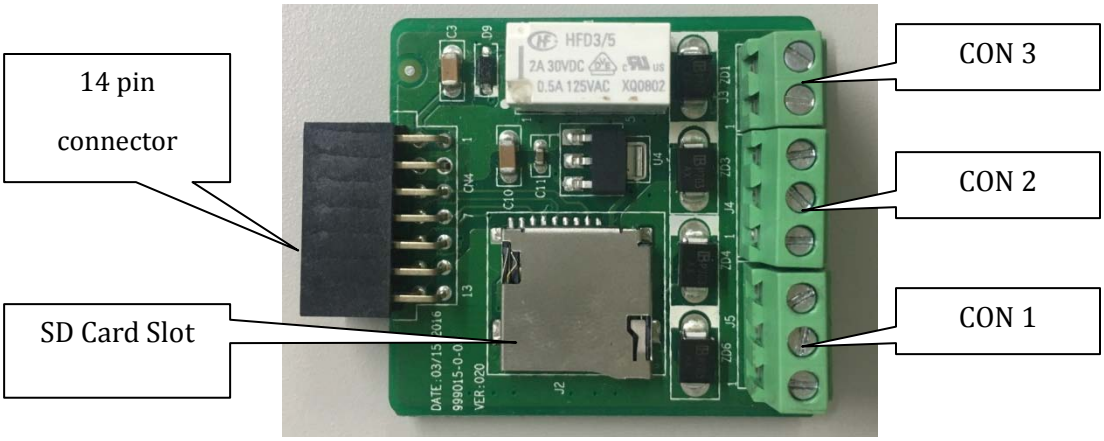
Connect the Ethernet cable to the Ethernet card.

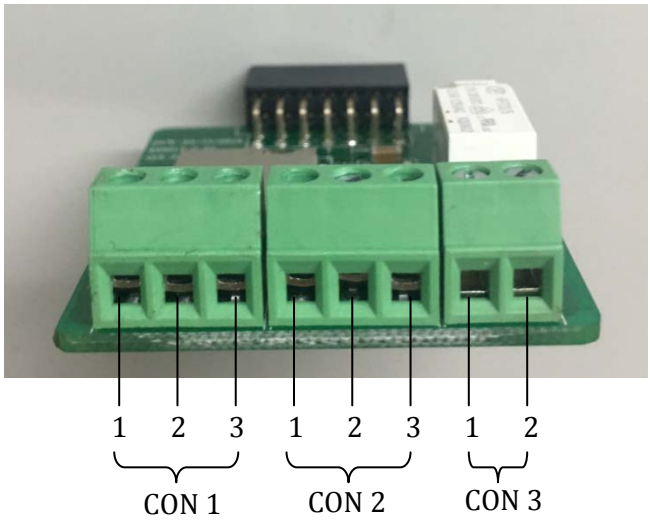


Strengthen waterproof case closely back to the inverter. Then connect the other side of the Ethernet cable to the router LAN port

8.9 RS485 card

RS485 card is used for external communication device. There are 3 connectors in the RS485 card. The definition of the connectors is shown in the table.

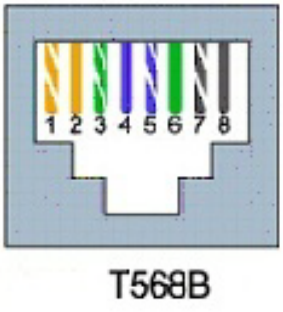


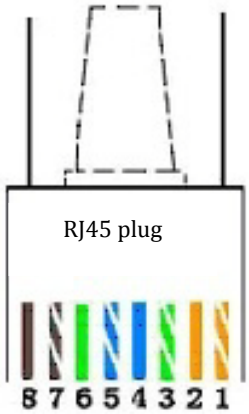


Connector	No.	Name	Description	Connection
CON1	1	A1	RS485+ Signal	Wi-Fi/GPRS Kit
	2	B1	RS485- Signal	
	3	GND	RS485 GND	
CON2	1	A2	RS485+ Signal	CHIT DIN Meter (DDSU 666)
	2	B2	RS485- Signal	
	3	GND	RS485 GND	
CON3	1	OP	Relay Operation	Alarm
	2	NO	Relay Normal Open	

8.9.1 CON 1

CON 1 is used to communicate with Wi-Fi Kit and GPRS Kit. The connector of Kit is shown as below.





Line sequence of T568B

1. orange with white
2. orange
3. green with white
4. blue
5. blue with white
6. green
7. brown with white
8. brown

RJ45	KIT
1	-
2	-
3	-
4	A1
5	B1
6	-
7	GND
8	GND

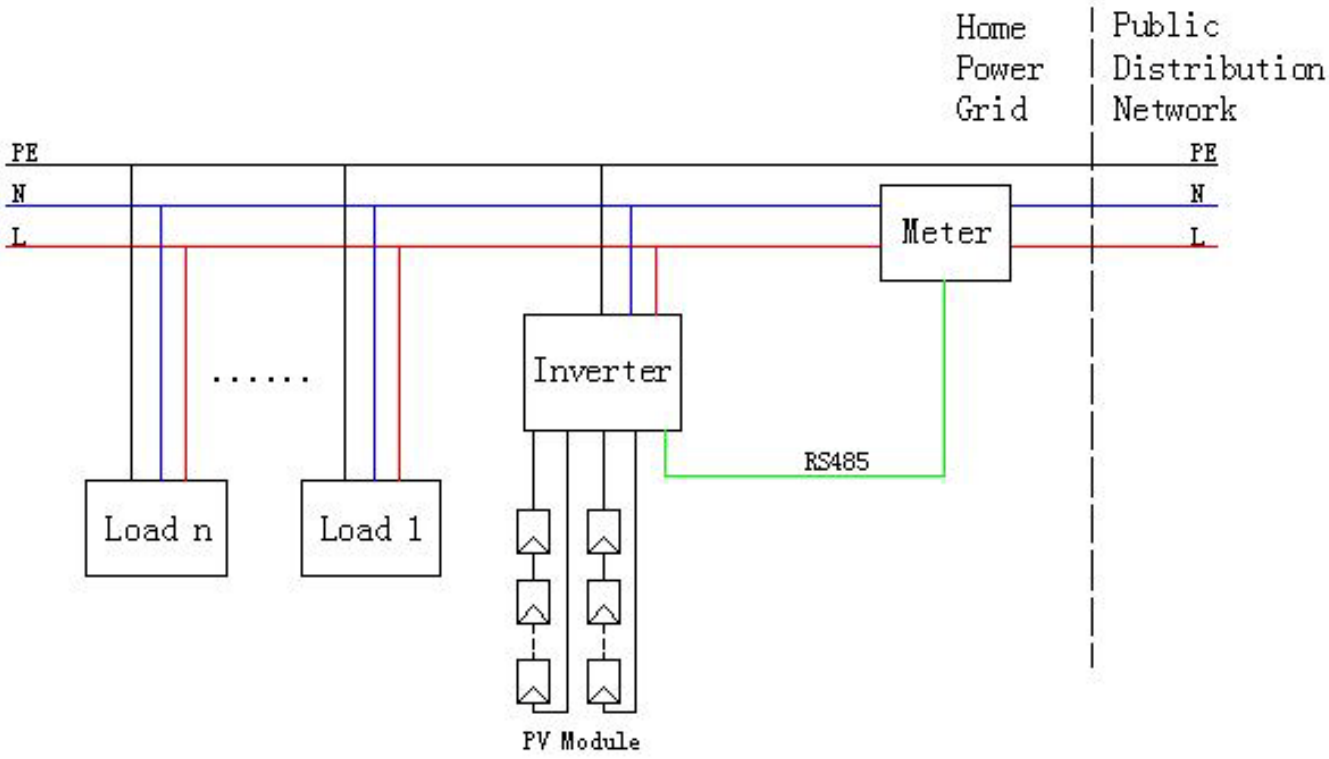
The definition of the connector is shown in the table.

More details can be obtained in the user manual of GPRS / Wi-Fi Kit.

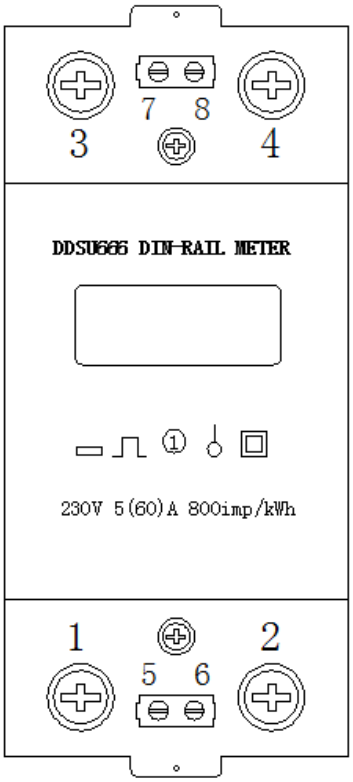
8.9.2 CON 2

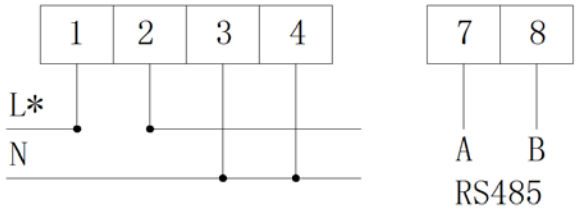
CON 2 is only used to communicate with CHIT DIN Meter (DDSU 666). It can be applied for solar projects of self-consumption without power export to the grid. It can ensure that the power generated by solar system will not export to grid at anytime.

There are 2 types of meters. The first type of meter is connected into the power grid as shown below.



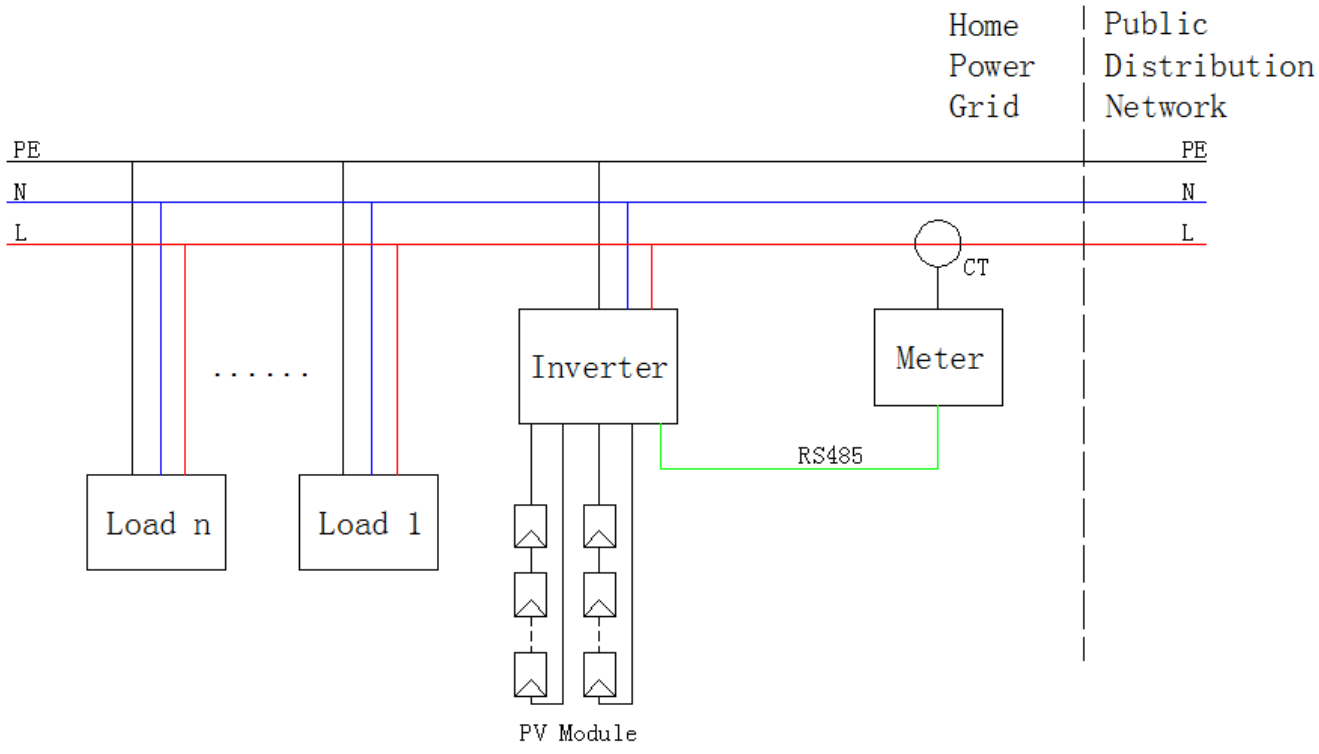
The definition of the connector is shown in the table.



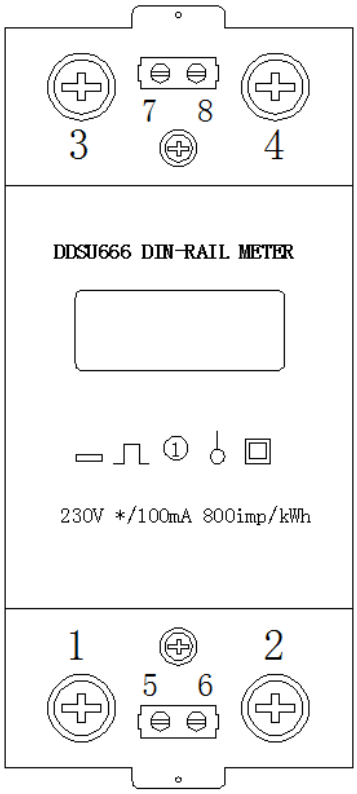


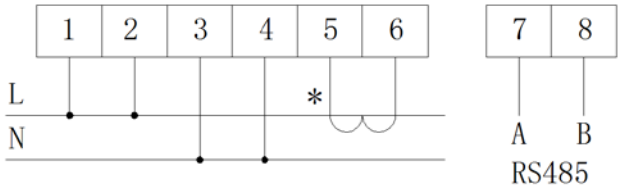
No.	Meter CON
1	L(*Grid side)
2	L(Inverter side)
3	N
4	N
5	-
6	-
7	A
8	B

The second type of meter is used with CT as shown below.



The definition of the connector is shown in the table.





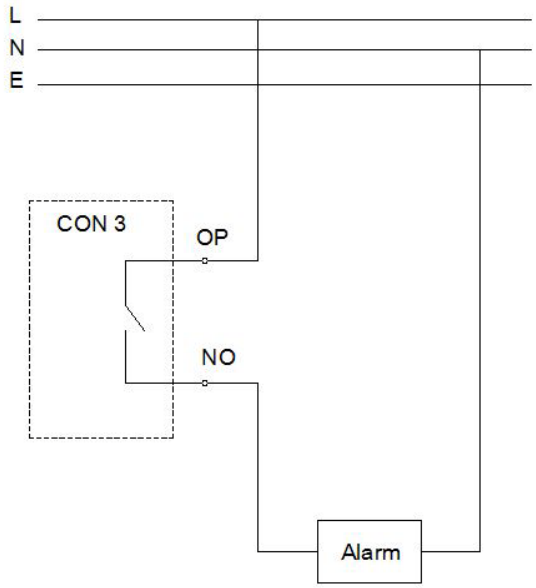
No.	Meter CON
1	L
2	L
3	N
4	N
5	CT(*White)
6	CT(*Black)
7	A
8	B

More details can be obtained in the user manual of CHIT DIN Meter (DDSU 666).

CON 3

CON 3 is used to control the alarm LED. It is a pair of Normally open contacts.

The load capacity of the Relay is 230 V/0.5 A.



9. Recycling and Disposal

To comply with European Directive 2012/19/EU on waste Electrical and Electronic Equipment and its implementation as national law, electrical equipment that has reached the end of its life must be collected separately and returned to an approved recycling facility. Any device that you no longer required must be returned to your dealer or you must find an approved collection and recycling facility in your area.

Ignoring this EU Directive may have severe affects on the environment and your health.

WARNING

This device SHALL NOT be disposed of in residential waste.

10. Troubleshooting

Fault No.	Fault Info On Display	Possible Reasons	Solutions
F00	GFCI Device Fault	Inverter GFCI Detector Issue	1.Restart to check 2.Re-Flash software 3.Replace part or inverter
F01	Island Fault	No Grid or Local Grid Frequency Isn't Stable	Restart to check after local grid is stable Close the protection from the inverter
F03	PV Volt Low	DC voltage is below 150V	1.Correct the installation (Add Panels More) 2.Re-Flash software 3.Replace part or inverter
F04	Consistency Fault	The Data That Be Master And Slave CPU Detected Is Inconsistency	1.Restart to check 2.Re-Flash software 3.Replace part or inverter
F05	Bus Volt Low	1.Test Value Wrongly 2.Software Issue 3.Hardware Broken	1.Restart to check 2.Re-Flash software 3.Replace part or inverter
F06	Bus Volt High	1.Test Value Wrongly 2.Software Issue 3.Hardware Broken	1.Restart to check 2.Re-Flash software 3.Replace part or inverter
F09	No Utility	No AC voltage	Measure AC voltage with a multi meter Check the wires in AC cable
F10	Ground Current Fault	1.Poor grounding 2.It Often occurs in the rainy day.	.Make inverter grounded well 2.Change it to another standard with wider protection range under authorization
F11	Bus Unbalance	1.Inverter Control Circuit Problem 2.Values Of Two Rows Bus Capacitance Differ Too Much	1.Restart to check 2.Re-Flash software 3.Replace part or inverter
F12	10min Over Volt	Mean Value Within 10min Is Above 10% Of The Rated Grid Voltage	Change it to another standard with wider protection range under authorization
F13	Over Temp Fault	The temperature of internal device exceeds 80 ℃	It happens rarely and can be used Normally

F15	PV Volt High	DC Voltage Is Too High Due To Wrong Installation	1.Correct The Installation (Remove Panels) 2.Re-Flash Software 3.Replace Part Or Inverter
F17	Grid Volt Fault	Grid Voltage Detection Within A Period Is Anomalous	Change the grid voltage protection range
F18	Isolation Fault	Impedance To Ground Between Battery Positive and Negative Is Less Than 2 MΩ	1.Remove this Fault 2.Change it to another standard with wider protection range under authorization
F19	Current DC Offset	A Phase Current Waveform That Be Detected Is Larger Deviation	Change it to another standard with wider protection range under authorization
F21	PV2 Over Current	The input current of PV2 is over rated value. May be there is something wrong with the hardware	1.Restart the inverter 2.If the problem persists, please replace the inverter.
F24	PV1 Over Current	The input current of PV1 is over rated value. May be there is something wrong with the hardware	1.Restart the inverter 2.If the problem persists, please replace the inverter.
F25	Relay Fault	General error in inverter start time, there may be damage of relay	If the problem persists, please replace the inverter.
F27	Inv Over Current	The inverter current is over rated value.	1.Restart the inverter to check 2.If it doesn't get back to normal please replace inverter
F29	Grid Freq Fault	The grid frequency exceeds the set range	Change it to another standard with wider protection range under authorization

11. Abbreviation

LCD	Liquid Crystal Display
LED	Light Emitting Diode
MPPT	Maximum Power Point Tracking
PV	Photovoltaic
Vdc	Voltage at the DC side
Vac	Voltage at the AC side
Vmpp	Voltage at the Maximum Power Point
Impp	Amperage at Maximum Power Point
AC	Alternating Current (Form of electricity supplied by Utility Company)
DC	Direct Current (Form of electricity generated by PV modules)
DC Switch	Switch in the DC Circuit. Disconnects DC source from Inverter. May be integrated or external to Inverter.

12. Contact

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GUARANTEE CARD

Agency retention

User information

Product Model	
Product ID	
Purchase Date	
Customer Name	

Historical Warranty

Warranty date	Troubleshooting	Finished date	Customer Signature

Client retention

User Information

Product Model	
Product ID	
Purchase Date	
Customer Name	

Historical Warranty

Warranty date	Troubleshooting	Finished date	Customer Signature

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Warranty Terms

1. Please fill in this card carefully and read the following warranty terms carefully to ensure that the product is effectively guaranteed.
   ① User keeps the card carefully when purchasing the product and asks the seller to seal it.
   ② Provide the warranty card when repairing the machine in the warranty period.
   ③ The information in this warranty card is true; otherwise it will not be valid.
   ④ Warranty period is 5 years (standard) □10 years (selectable, effective after sealing) During the warranty period, if the product fails, the quality of the original device or the production problem, the company provides free maintenance and parts replacement.
2. The following reasons cannot be used normally in the warranty period.
   ① Cause damage for not following the instructions.
   ② All man-made or accidental product damage
   ③ Without the company's approved repair, modification or product seal sticker damage.
   ④ Aging bruising and scratches on the surface of the product.
3. After the warranty expires, the user can still get the maintenance services provided by the company, but the corresponding expenses shall be paid.