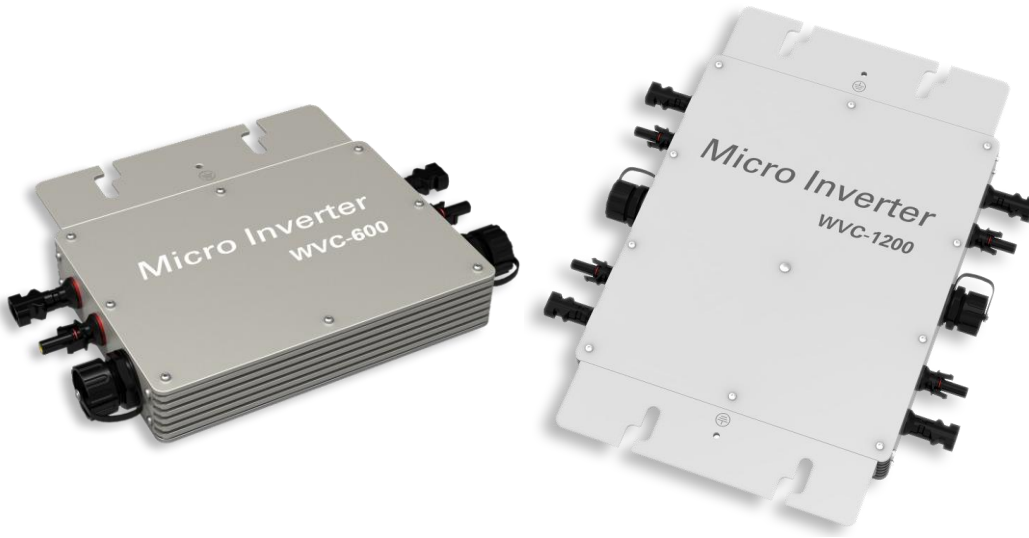


## Micro inverter WVC600/ WVC1200



Our micro inverter Using IP65 waterproof streamline design, Can effectively prevent rainwater on the surface erosion, Built-in high-performance Maximum Power Point Tracking (MPPT) Function, Better able to track changes in the solar luminosity and control different output power, Effectively capture and collect sunlight. AC electric power transmission using the reverse transmission technology, Is one of our patented technology, the inverter output power can provide load priority use, Extra electricity to the grid, efficient use of the inverter to the power emitted, Electricity transmission rate of up to 99%.

Communication using two modes, between the inverter and Collector Using power line carrier communication signals, Collector with a PC or other devices to communicate Using RS232 serial port/ WIFI wireless communication. Intelligent monitoring systems, the inverter can collect real-time data, Inverter can be controlled startup / shutdown / power regulation.

### Features

One of biggest advantages to using micro-inverters is that instead of sizing (and therefore limiting) your inverter to a specific number and overall wattage of solar panels, you use one micro-inverter per panel. To increase the size of your solar electric system, you can simply add single (or any number of panels of different wattages and even different manufacturers. You simply add one micro-inverter per panel. With the Micro-Inverter system, you do not have to invest in another larger inverter when you are ready to expand; just add one micro-inverter per panel.

### Notes

1. Please connect the inverter following the operation instruction show above.If have any question please contact info@eco-worthy.com .
2. Non-professionals donot disassemble. Only qualified personnel may repair this product.
3. Please install inverter in the low humidity and well-ventilated place to avoid the inverter over-heating, and clear around theinflammable and explosive materials.
4. When using this product,avoid children touching, playing,to avoid electric shock.
5. Connected solar panels,battery or windgenerators DC input DC with power supply cable.

## System function

### ◆Power line carrier-current communication(this is optional function,please confirm the spec outside the box first .)

By using electric power as a carrier of AC alternating current, can modulate high-frequency and carrier frequency (60 KHz) in AC wire transmission and can achieve the communication/ newsletter between inverters or between inverter and computer. And it can transfer the power data. Also monitor all functions of inverter.

- 1.Carrier frequency: 60KHZ (Frequency customizable);
2. Interface way:TTL level serial interface;
3. Carrier rate: 300BPS;
- 4.Serial rate: 9600PS (Can customize according to customer's request);
- 5.Modulation mode: FSK+DSSS;
6. Newsletter distance:400m;

### ◆6-grade power search

In overcast weather, the PV Panel's output current is extremely tiny, then inverter will automatic open 6-grade power search function,and keep outputting efficient and steady during the low power.

### ◆Wide voltage input(22-50VDC)

1. DC voltage input: 22~50VDC;
2. Second level power variable voltage conversion.

### ◆High-frequency two-way and one-way grid function

1. High frequency direct modulation, AC half wave synthesis;
2. Two-way grid means: Load consume directly. And can reverse AC current transmission.

### ◆Kinds of frequency output function

1. It can apply to 50Hz and 60Hz frequency of AC;
- 2.Frequency range: 45Hz ~ 64Hz;

### ◆Directly connected to the solar panels (do not need to connect the battery)

### ◆AC 0 angle with high precision auto-detection

High-precision analyzing the AC phase angle .The phase shift rate is less than 1%, thus achieve high-precision with phase modulation AC output together.

1. AC phase shift: < 1%;
- 2.Over-zero protection: 0.2 VAC;
- 3.AC switching: 50Hz / 60Hz.

### ◆Synchronous High-frequency Modulation

1. Modulation synthesis: half wave and full-bridge modulation synthesis (100Hz / 120Hz);
2. Synthetic way: MOSFET full-bridge;
- 3.High frequency: 50 KHz.

### ◆Pure Sine Wave Output---Use SPWM directly to make pure sine wave output.

1. Output waveform: Adopt complementary PWM to push-pull pure sine wave;
- 2.Generate means: enhancement-mode SPWM.

### ◆Power Automatically Locked (APL)--- automatically powers locked in maximum power point, made output more stable.

### ◆Constant Current, Constant Power---constant current and output power, without any overload, over-current phenomenon.

### ◆Exactly and timely automatic Island Effect Protection

### ◆High-Frequency High Conversion Rate---Adapt high frequency converter, the output more efficient.

### ◆Maximum Power Point Tracking (MPPT)---high-precision (MPPT) operation power, automatic and immediate adjust the solar panels output power at the maximum output point,made the inverter discharge to power grid with the highest efficiency.

### ◆Stack using--- Such as: 4 micro inverter of 260W stacking can achieve 1040W. the number of the stacking is unlimited.

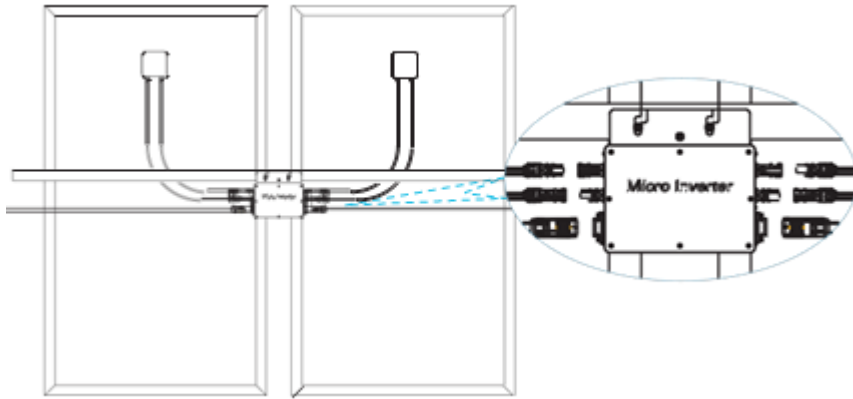
### ◆DC input---Input voltage range: 22V to 50V,PV Panel: Recommend using the power more than 30W and the standard voltage of 36V PV panels.Suggestion making the PV in parallel.

### ◆AC output---220VAC: 180V - 262V, 50HZ; 110V AC: 80V - 160V, 60HZ.

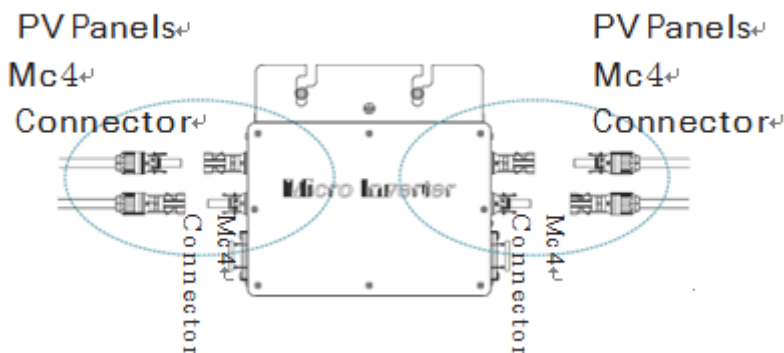
## Installation

### Installation of Micro Inverter

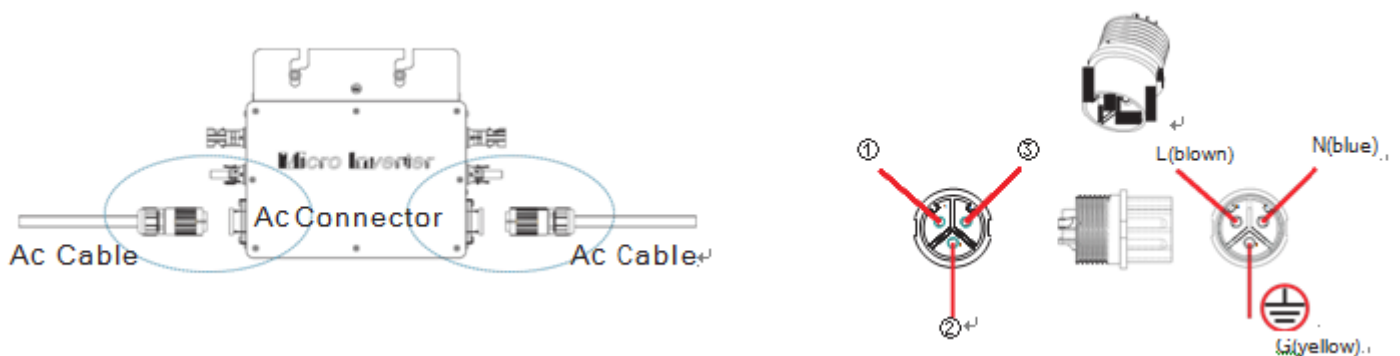
**Step1** Installation for fixed the inverter on the PV holder with the screws attached is as following



**Step2** Connect the two DC terminal of the PV to the inverter, positive to positive, negative to negative. Show below:



**Step3** Open the water proof cap on AC output side of the micro inverter, then plug to AC power line. Show below

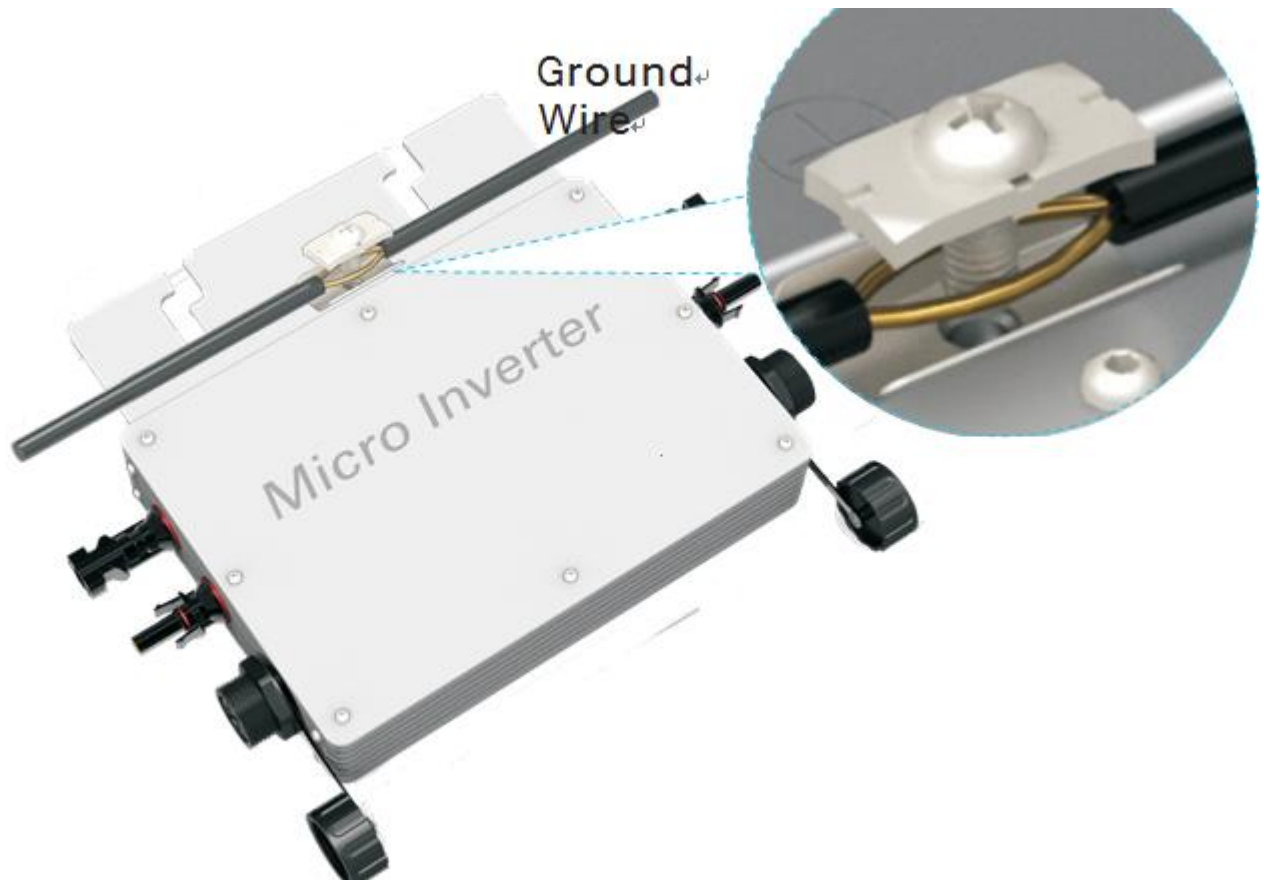


**Step4** Plug the AC output line to main AC cable;

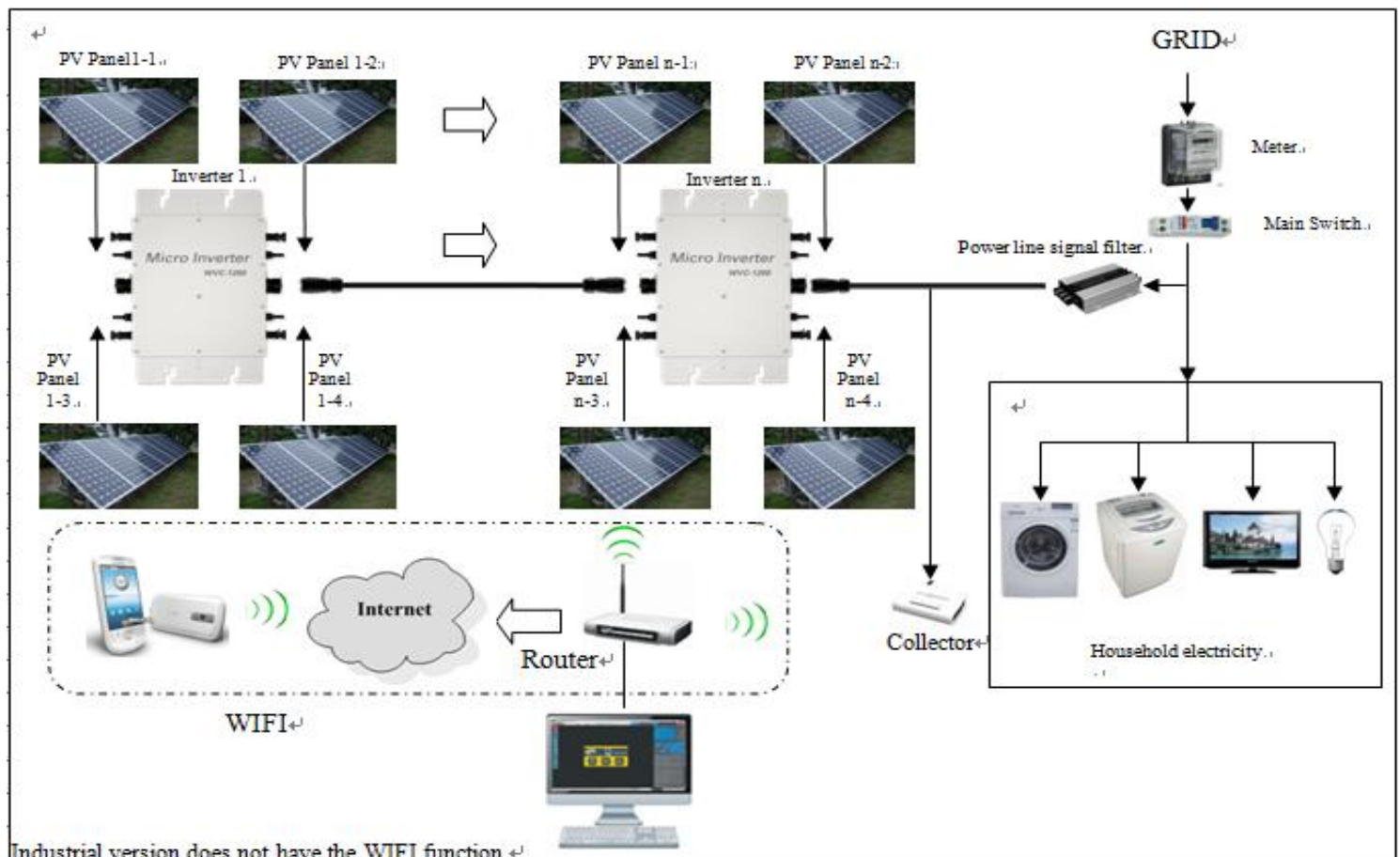
**Step5** Repeat the first step to the third step to complete the installation of micro inverters

**Step6** Finally, please connect the AC main cable to the utility grid to run renewable energy and saving \$\$\$!

## Installation of Ground Wire



## System Block Diagram



## LED Display

1. Red light 3 second---Red LED light 3 second while device starts,then in working condition;
2. Green flash fast---MPPT searching;
3. Green flash slow---MPPT+searching;
- 4.Red flash slow---MPPT-searching;
5. Green lights on 3s and off 0.5s---MPPT locked;
6. Red light steady---a.Islanding protection; b. Over-temperature protection; c. Over/low AC voltage protection; d.Over/low DC voltage protection;e. Fault

### Remarks:

LED flashing in the process of being working condition:inverters connected to AC&DC sides Red LED light 3 second Green LED flash fast (MPPT searching)→Green LED flash slow (MPPT +searching)/Red LED flash slow (MPPT-searching)/ green LED lights on 3s and off 0.5s(MPPTlocked)

## Why is the use of micro-inverter?

1. The transition from a centralized to a distributed inverter optimizes energy collection.
2. The converter module integrated into the solar panels can reduce installation costs.
3. By reducing the temperature of the converter and remove the fan, you can enhance system reliability from 5 years to 20 years.
4. Soft switch technology to replace hard-switching technology can improve efficiency and reduce heat dissipation.
5. From cottage industry to mass production, standardized design (hardware and software) to improve reliability and reduce costs.
6. Using a special capacitor (due to the high failure rate). Design requires a higher voltage to reduce the current, we use a special electrolytic capacitors.
7. The converter can be connected to the grid to eliminate the need for many battery applications. The high price of batteries, require maintenance, life expectancy is shorter.
8. Work required micro-inverter power increasingly smaller (only a few hundred watts), which can reduce the internal temperature and improve reliability.
9. Micro-inverter solar inverter system needs to deal with a lot of a particular power level, in order to increase production, thereby reducing costs.

## Warranty & Repairs

Warranty Period: 15-year limited warranty period.

If your device has a defect or malfunction during the warranty period, please contact your retailer or installer.

Warranty claims are excluded for:

- Alterations or repairs to the unit without prior authorization
- Improper use or operation of device
- Improper and non-standard installation
- operating the equipment with defective safety devices
- Impact of foreign objects and force majeure (lightning, surge, storm, fire)



- Inadequate or nonexistent ventilation of the device
- disregarding of safety regulations
- shipping damage
- The Product has been improperly stored or was damaged while in possession of the Dealer or end user;

WARNING! Only qualified electrical professionals can do the troubleshooting of the Micro inverter system.

WARNING! Please turn off the Micro inverter first and then disconnect the AC grid before disconnecting the Micro inverter from the PV module when remove the inverter from the rack.

WARNING: Do not attempt to repair the Micro inverter. This may bring electrical hazard to the person and it will also void the Micro inverter warranty. If troubleshooting methods fail, please contact customer support to return the Micro inverter and initiate for replacement process.