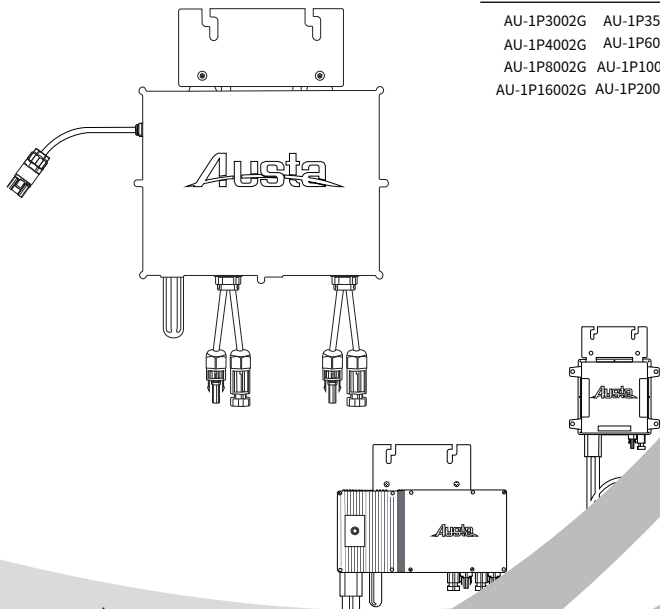


MICROINVERTER SYSTEM MIKRO-WECHSELRICHTER SYSTEM

USER MANUAL BENUTZERHANDBUCH

AU-1P3002G AU-1P3502G
AU-1P4002G AU-1P6002G
AU-1P8002G AU-1P10002G
AU-1P16002G AU-1P20002G



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NINGBO AUSTA SOLAR TECH CO.,LTD.

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General Introduction

This system is composed of a group of microinverters that convert direct current (DC) into alternating current (AC) and feed the power to the public grid. The system is designed for one microinverter is connected with one or two PV modules.

Each microinverter works independently so as to guarantee the maximum power generation of each PV module. This setup is highly flexible and reliable as the system enables direct control of the production of each PV module.

About the Manual

This manual contains important instructions for AU-1P300/350/400/600/800/1000/1600/20002G microinverters, for security reasons, please install or debug the equipment after reading the instructions in this manual carefully.

Other Information

Product information is subject to change without notice.

User manual will be updated regularly, so please refer to Ausat official website at www.austasolar.net for the latest version.

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1. Important Notes

1.1 Product Ranges

This manual describes the assembly, installation, debugging, maintenance and troubleshooting of the following models of Austa Microinverter AU-1P300/350/400/600/800/1000/1600/20002G

Note:

"600" means 600W output.

1.2 Target Group

Austa micro inverters are designed for residential use and it has feature of quick installation.




Users must read and follow the instructions in this manual to install the inverter, no professional installers are required.

However, if the feed power exceeds the upper limit allowed by the state, it must be installed by professional installers

We strongly recommend that children or people lacking relevant knowledge not attempt to operate this system

1.3 Symbols Used

The safety symbols in this user manual are shown as below.

	This indicates a hazardous situation that can result in deadly electric shocks, or her serious physical injuries, or fre incidents.
	This indicates that directions must be strictly followed to avoid safety hazards including equipment damage and personal injury.
	This indicates that the act is forbidden. You should stop, use caution and fully understand the operations explained before proceeding

1.4 Electromagnetic interference statement

This microinverter has been tested and complies with the requirements of CE EMC, meaning that it will not be affected by electromagnetic interference. Please note that incorrect installation may cause electromagnetic disturbances.

You can turn the equipment of and on to see if radio or television reception is interfered by this equipment. If this equipment does cause harmful interference to radio or television, please try the following measures to fix the interference:

- 1) Relocate other apparatus' antenna.
- 2) Move the microinverter farther away from the antenna.
- 3) Separate the microinverter and the antenna with metal/concrete materials or roof.
- 4) Contact your dealer or an experienced radio/TV technician for help.

2.Safety Instructions








2.1 Important Safety Instructions

The AU-1P300/350/400/6002G microinverter is designed and tested according to international safety requirements. However, certain safety precautions must be taken when installing and operating this inverter. The installer must read and follow all instructions, cautions and warnings in this installation manual.

- All operations including transportation, installation, start-up and maintenance must be carried out by qualified, trained personnel.
- Check the product before installation to make sure there is no damage caused during transportation because such damage can compromise the insulation integrity and safety clearances. Choose installation location carefully and adhere to specified cooling requirements. Unauthorized removal of necessary protections, improper use, incorrect installation and operation may cause damage to the equipment or incur serious safety and shock hazards.
- You should get necessary approvals from local power operator before connecting the microinverter to the power grid. This connection must be made only by qualified technical personnel. It is the responsibility of the installer to provide external disconnect switches and Over Current Protection Devices (OCPD).
- Each input of the inverter is connected to one PV module. Do not connect batteries or other sources of power supply. The inverter can be used only if all the technical parameters are observed and applied.
- Do not install the equipment in flammable, explosive, corrosive, extremely hot/cold, and humid environment. Do not use the equipment when safety devices in these environments are not working.
- Personal protective equipment such as gloves and goggles must be used during installation.
- Inform the manufacturer about non-standard installation conditions.
- Do not use the equipment if any operating anomalies are found.
- All repairs must be done with qualified spare parts which must be installed in accordance with their intended use and by a licensed contractor.
- Liabilities arising from components that are not produced by Austa are on the part of their respective manufacturers.
- Whenever the inverter has been disconnected from the public grid, please be extremely careful as some components can retain charge sufficient to create a shock hazard. Before touching any part of the inverter, please ensure the surface and the whole equipment are within the limit of safe temperature and voltage potential.
- Austa is not liable for any damage caused by incorrect or improper operation.
- Electrical installation and maintenance shall be conducted by licensed electrician and shall comply with local wiring rules

2.Safety Instructions

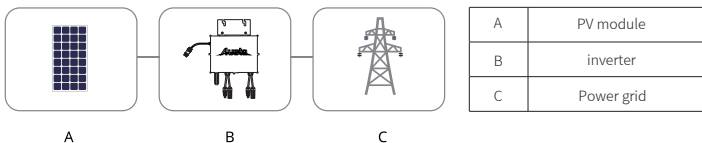
2.2 Explanation of Symbols

	Treatment To comply with European Directive 2002/96/EC 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 no longer needed must be returned to an authorized dealer or approved collection and recycling facility.
	Caution Keep people out of 8 inches (20 cm) of the microinverter while it is operating.
	Danger of high voltage High voltage in the microinverter can cause dangers to life.
	Beware of hot surface The inverter can become hot during operation. Avoid contact with metal surfaces during operation.
	CE mark The inverter complies with the Low Voltage Directive for the European Union & 2014/53/EU The Radio Equipment Directive (RED).
	Caution Risk of electric shock, Energy storage timed discharge.
	Read manual first Please read the installation manual first before installation, operation and maintenance.

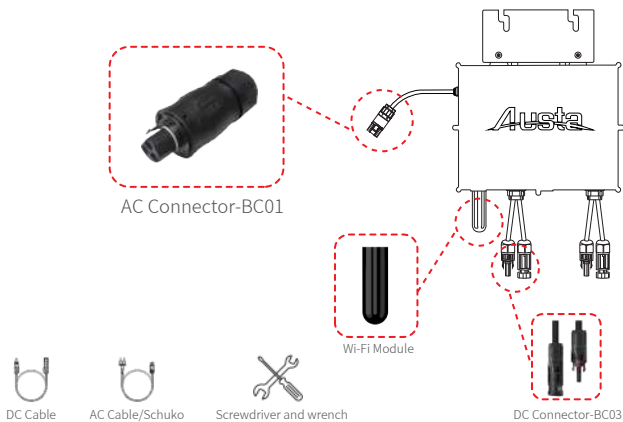
3.Product Introduction

3.1 About PV Inverter System

A typical grid-tied PV inverter system includes PV modules, PV inverter, and power grid, as shown below. PV inverter converts the DC power generated by PV modules into AC power that meets the requirements of the power grid. The AC power is then feed into the grid.

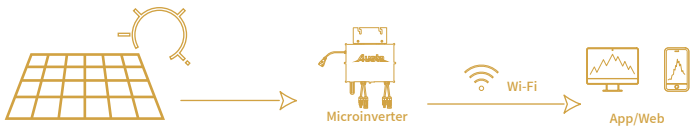


3.2 About Microinverter



Note: See the bracket installation manual for more mounting accessories

Grid-tied PV system consists of PV panels, grid-tied inverter. The DC output from the PV panels is converted into AC energy and feedback to the grid through the AU-1P300/350/400/6002G. AU-1P300/350/400/6002G PV micro inverter contains isolation transformer with basic insulation between PV input and AC grid output. This manual provides detailed product information and installation instructions for the AU-1P600/8002G micro inverter. Please read through this manual before installation and operation.



4. Installation Preparation

4.1 Position and Space Required

Please install the microinverter and all DC connections under the PV module to avoid direct sunlight, rain exposure, snow buildup, UV etc. The silver side of the microinverter should be up and facing the PV module. Leave a minimum of 2 cm of front side the microinverter enclosure to ensure ventilation and heat dissipation.

4.2 How to Connect PV Modules to Microinverter

General Guidelines:

1. PV modules should be connected to DC input ports of a microinverter.
2. Use DC cable . Please consult the local power operator to make sure that the DC cable complies with local regulations.

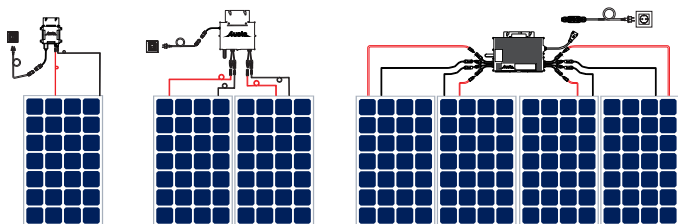
The Austa microinverter system is designed to connect max four PV modules.

AU-1P300/350/4002G can connect one PV module. AU-1P600/8002G can connect two PV modules.

AU-1P1000/1600/20002G can connect four PV modules.

The inverter can support over matching 1.5 times, such as AU-1P6002G can connect max 900W PV modules input.

The typical wiring method is shown below.



Note:

The voltage of modules (considering the effect of local temperature) must not exceed the maximum input voltage of the microinverter. Otherwise, the microinverter maybe damaged.

(refer to the Technical Data section to determine the absolute maximum input voltage).

4.3 AC Branch Circuit Capacity

The Austa AU-1P300/350/400/600/800/1000/1600/20002G can be paralleled using the paralleling interface on the microinverter. The number of microinverters on the AC branch must not exceed the limits. Do not exceed the maximum number of microinverters in the AC branch circuit, as indicated on the unit rating label. For 12AWG trunk cables, each microinverter's AC branch circuit must come from a dedicated branch circuit protected by a 20A maximum circuit breaker.

Note:

1. Microinverters can be connected to the same AC branch, as long as the total current does not exceed the ampacity specified in local regulations.

4. Installation Preparation

2. Ensure that protective end caps are installed on all unused AC connectors. Unused AC harness connectors are energised when the system is powered up.

3. AU-1P300/350/4002G supports up to maximum 11 units branch. AU-1P6002G supports up to maximum 6 units branch. AU-1P8002G supports up to maximum 5 units branch. AU-1P10002G supports up to maximum 3 units branch. AU -1P1600/20002G supports up to maximum 2 units branch.

4.4 Precautions

The equipment is installed based on the system design and the location .

- | |
|--|
| <ul style="list-style-type: none">• The installation must be done with the equipment disconnected from the grid (power disconnect switch open) and with the PV modules shaded or isolated. |
| <ul style="list-style-type: none">• Make sure the environmental conditions of the microinverter' s requirement (degree of protection, temperature, humidity, altitude, etc.) as specified in the Technical Data section. |
| <ul style="list-style-type: none">• Avoid direct sunlight to prevent power derating which can be caused by an increase in the internal temperature of the micro inverter. |
| <ul style="list-style-type: none">• Keep the inverter in well-ventilated place to avoid over heating. |
| <ul style="list-style-type: none">• Keep the inverter away from gases or flammable substances. |
| <ul style="list-style-type: none">• Avoid electromagnetic interference because it can compromise the normal operation of electronic equipment. |

Installation location shall meet the following conditions:

- | |
|---|
| <ul style="list-style-type: none">• Install only on structures specifically designed for PV modules (supplied by installation technicians). |
| <ul style="list-style-type: none">• Install microinverter underneath PV modules to make sure it works in the shadow. Nonobservance may cause the derating of inverter production. |

5. Microinverter Installation

Step 1. Plan and Install the Microinverter

Before you install, you should have the following devices:

MicroInverter

Required photovoltaic modules

Mounting brackets according to your installation design

AC cable and solar cables that meet your requirements in length

Suitable installation tools and no less than 2 people

Note:

1. Microinverter installation and DC connections must be done under the PV module to avoid direct sunlight, rain exposure, snow buildup, UV etc.
2. Leave a minimum of 2 cm of space around the microinverter enclosure to ensure ventilation and heat dissipation.

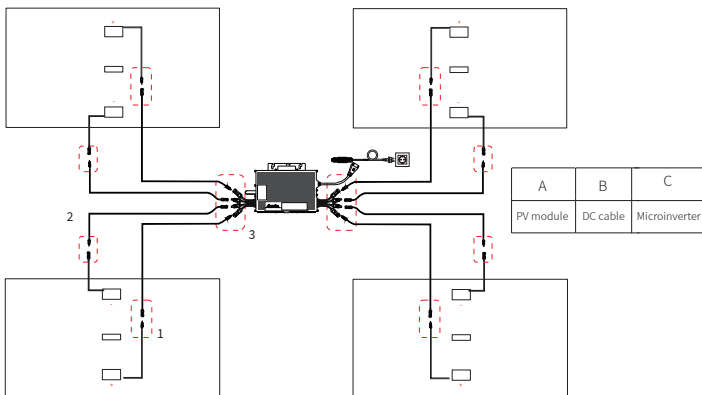
Step 2. Connect PV Modules

A) Mount the PV modules above the microinverter.

B) Connect the PV modules' DC cables to the DC input side of the microinverter. Wait five minutes and you'll see the LED will turn red and flashing.

Note:

1. Make sure that the AC Connectors are kept away from any drainage channels.
2. In case you need to remove the microinverter AC cable from interface, Removal is accomplished by inserting an MC4 spanner into the side connector.
3. The order of Step 1 and Step 2 can be reversed according to your planned needs.



Note:

The voltage of modules (considering the effect of local temperature) must not exceed the maximum input voltage of the microinverter. Otherwise, the microinverter maybe damaged (refer to the Technical Data section to determine the absolute maximum input voltage).

5. Microinverter Installation

Step 3. Connect the inverter to the monitoring App

Before starting this operation, please ensure that you already have the following conditions

1. 2.4Ghz Wi-Fi network is available
2. Make sure you know the access password of this Wi-Fi network
3. You have a inverter without defective
4. You have correctly downloaded the latest version of the Austa App

Download and Install "Austa Solar" App



Android



ios



Click "Wi-Fi Configuration" ready to enter

01



Click "Setup Wi-Fi connection" Access the Home Wireless

02



Click to select home Wi-Fi

03



Please wait for 90 secs Click to "Connect to the Device's WiFi"

04



Connect the inverter network MI-xxxxxxx

05



Click the blue test button, and click the setting

06



Select your home Wi-Fi

07



Your microinverter is configured successfully!

08

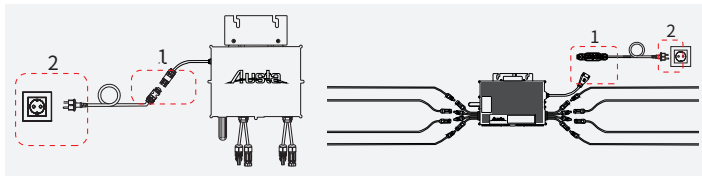


Note: Microinverter support 2.4Ghz Wi-Fi only

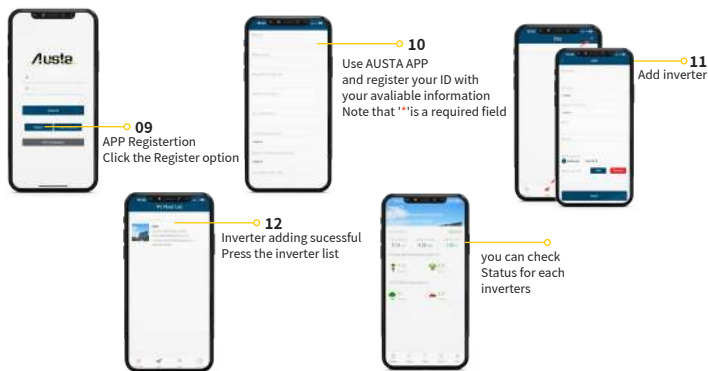
5. Microinverter Installation

Step 4. Add inverter in APP

Connecting the AC port to the power grid, after LED flashes GREEN every 3 secs, then configuration is done. Be careful to connect the AC cable to the inverter first. If the green light does not come on, it means that the configuration is wrong, please unplug the AC terminal from the grid connection and the DC port connection, and let it stand for 1 minute to reopen the network operation.



Note: Only operate when AC grid is connected



How to disconnect inverter from PV Module safely

To ensure the inverter is not disconnected from the PV modules under load, adhere to the following disconnection steps in the order shown:

1. Disconnect the AC by opening the branch circuit breaker.
2. Disconnect the first AC connect or in the branch circuit.
3. Cover the module with an opaque cover.
4. Using a DC current probe verify there is no current flowing in the DC wires between the PV module and the AU-1P300/400/600/800/1000/1600/20002G.
5. Care should be taken when measuring DC currents, most clamp-on meters must be zeroed first and tend to drift with time.
6. Disconnect the PV module DC wire connectors from the AU-1P300/400/600/800/1000/1600/20002G.
7. Remove the AU-1P300/400/600/800/1000/1600/20002G from the PV array racking

6. Troubleshooting

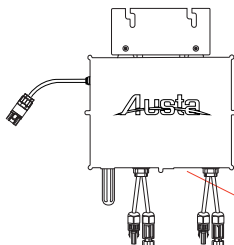
6.1 Troubleshooting List

In case of fault, Austa inverter has multiple protective functions and stops output power. The fault message may be sent to a connected gateway through power line communication.

1. Do not attempt to repair the microinverter; the microinverter contains no user-serviceable parts. If troubleshooting methods fail, return the microinverter to your dealer for repair.
2. Never disconnect the DC lead connector under load. Make sure there is no current in the DC leads before disconnecting. Before disconnecting, the module can be covered with thermal insulation.
3. The product is powered by the DC power supply of the PV module. Make sure you disconnect the DC power supply. Make sure you disconnect the DC power supply and reconnect the DC power supply to observe the LEDs come on for two seconds and the LEDs go off for two seconds after the DC power supply is turned on.
4. Always disconnect AC power before disconnecting PV module wiring from the microinverter. Microinverter AC Once the AC branch circuit breaker at the load centre has been opened, the AC connector of the first microinverter in the branch circuit serves as the means of disconnection.

6.2 LED Indicator Status

The micro inverter is powered on when sufficient DC voltage from the module is applied. The status LED will start flashing after sufficient DC power is applied as an indication that the micro inverter is live.



The "LED indicator" is placed at the bottom

Status	LED	Meaning
Standby	LED turn Green and Flashing every 2 seconds	Normal
Standby	LED turn Red and Flashing every 2 seconds	Error
Standby	LED turn Orange and Flashing every 2 seconds	Wireless connection -Error
Producing	LED turn Green and Flashing every seconds	Normal
Producing	LED turn and keep Red color	Grounding Fault
Producing	LED turn Orange and Flashing every seconds	Wireless connection -Error

Note:

The microinverter is powered by DC side. If the LED light is not on, please check the DC side connection. If the connection and input voltage are normal, contact your dealer or Austa technical support team.



Do not attempt to repair the microinverter yourself. If the troubleshooting fails, please return it to the dealer for replacement.

7. Technical Data



Verify that the voltage and current specifications of the PV module match those of the microinverter.

The maximum open circuit voltage rating of the PV module must be within the operating voltage range of the microinverter. We recommend that the maximum current rating at MPPT should be equal to or less than the maximum input DC current.

Input DC	AU-1P3002G	AU-1P3502G	AU-1P4002G	AU-1P6002G
Recommended PV Module Power Range / W	300~450	350~525	400~600	(300~450)x2
MPPT Voltage Range / V	33-55	33-55	33-55	22-55
Startup Voltage / V	24	24	24	24
Max. Input Voltage / V	60	60	60	60
Max. Input Current / A	14	16	16	14x2
Max. DC Short Circuit Current/A	18	18	18	18x2
DC Overvoltage Protection Category	II	II	II	II
Peak Output Power / VA	350	350	400	600
Max. Continuous Output Power / VA	300	350	350	600
Rated Output Voltage / V	230	230	230	230
Nominal Output Voltage Range / V	Configurable	Configurable	Configurable	Configurable
Max. Continuous Output Current / A	1.3	1.5	1.52	2.5
Nominal Frequency / Range / Hz	50 / Configurable	50 / Configurable	50 / Configurable	50 / Configurable
Power Factor (Nominal/Adjustable Range)	>0.99	>0.99	>0.99	>0.99
AC Short Circuit Fault Current	2.2	2.5	2.5	4.4
THDi@Rated Power	<3%	<3%	<3%	<3%
AC Overvoltage Protection Category	III	III	III	III
Operating Ambient Temperature Range / °C	-40~65	-40~65	-40~65	-40~65
Relative Humidity Range	0-100%	0-100%	0-100%	0-100%
Dimensions (W x H x D) / mm	180 x 186 x 25	180 x 186 x 25	180 x 186 x 25	277x 132x 50
Weight / kg	1.5	1.9	1.9	2.9
DC Connector Type	MC4	MC4	MC4	MC4
AC Connection Type (inverter-inverter)	Daisy Chain AC Bus	Daisy Chain AC Bus	Daisy Chain AC Bus	Daisy Chain AC Bus
Communication Method	PLC or WiFi	PLC or WiFi	PLC or WiFi	PLC or WiFi
Protection Class	IP-66 /67	IP-66 /67	IP-66 /67	IP-66 /67
Peak Efficiency	97.1%	97.3%	97.3%	96.9%
MPPT Efficiency	>99.5%	>99.5%	>99.5%	>99.5%
Night Power Consumption / mW	80	80	80	80

7. Technical Data

	AU-1P8002G	AU-1P10002G	AU-1P16002G	AU-1P20002G
Recommended PV Module Power Range / W	(400~600)x 2	(500~750)2	(400~600)x4	(500~700)x 4
MPPT Voltage Range / V	22-55	22-55	22-55	22-55
Startup Voltage / V	24	24	24	24
Max. Input Voltage / V	60	60	60	60
Max. Input Current / A	17x 2	17x 2	20x 4	20x 4
Max. DC Short Circuit Current/A	20x 2	20x 2	25x 4	25x 4
Night Power Consumption / mW	80	80	80	80
Rated Output Power /W	800	1000	1600	2000
DC Overvoltage Protection Category	II	II	II	II
Rated Output Voltage / V	230	230	230	230
Nominal Output Voltage Range / V	Configurable	Configurable	Configurable	Configurable
Max. Continuous Output Current / A	3.48	4.34	6.52	9.62
Nominal Frequency / Range / Hz	50 / 60	50 / 60	50 / 60	50 / 60
Power Factor (Nominal/Adjustable Range)	>0.99	>0.99	>0.99	>0.99
Max. AC Fault Current	9.6A	9.6A	18A	18A
THDi@Rated Power	<3%	<3%	<3%	<3%
AC Overvoltage Protection Category	III	III	III	III
Operating Ambient Temperature Range / °C	-40~65	-40~65	-40~65	-40~65
Relative Humidity Range	0-100%	0-100%	0-100%	0-100%
Dimensions (W x H x D) / mm	268 x 250 x 42	268 x 250 x 42	300 x 233 x 38	300 x 233 x 38
Weight / kg	2.9	2.9	5.33	5.33
DC Connector Type	MC4	MC4	MC4	MC4
AC Connection Type (inverter-inverter)	Daisy Chain AC Bus	Daisy Chain AC Bus	Daisy Chain AC Bus	Daisy Chain AC Bus
Communication Method	PLC or WiFi	PLC or WiFi	PLC or WiFi	PLC or WiFi
Protection Class	IP-66 /67	IP-66 /67	IP-66 /67	IP-66 /67
Peak Efficiency	97.1%	97.1%	97.1%	97.1%
MPPT Efficiency	>99.5%	>99.5%	>99.5%	>99.5%
Warranty	10 years	10 years	10 years	10 years