G3 Series_User Manual（Global）

User Manual_EN

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Release Notes

This document records the changes related to G3 Series microinverter.

Version	Update Date	Changes of Contents
V1.0	2024-12-18	Initial Version

Read before using

Dear customer, thank you for choosing the microinverter from TSUN. We hope you will find our products meet your needs for renewable energy. In the meantime, we appreciate your feedback regarding our products.

A solar microinverter, or simply microinverter, is a plug-and-play device used in photovoltaics, that converts direct current (DC) generated by a single solar module to alternating current (AC). The main advantage is that small amounts of shading, debris, or snow lines on any single solar module, or even a complete module failure, do not disproportionately reduce the output of the entire array. Each microinverter harvests optimum power by performing maximum power point tracking (MPPT) for its connected module. Simplicity in system design, lower amperage wires, simplified stock management, and added safety are other factors introduced with the microinverter solution.

This manual contains important instructions for microinverters and must be read in their entirety before installing or commissioning the equipment. For safety, only qualified technicians, who have received training or have demonstrated skills can install and maintain this microinverter under the guide of this document.

Applicable products and models

This manual is valid for the following G3 series microinverter:

Series	Model					
1 in 1	TSOL-MS300	TSOL-MS350	TSOL-MS400	TSOL-MX400	TSOL-MX450	TSOL-MX500
2 in 1	TSOL-MS600	TSOL-MS700	TSOL-MS800	TSOL-MX800	TSOL-MX900	TSOL-MX1000
4 in 1	TSOL-MS1600	TSOL-MS1800	TSOL-MS2000	TSOL-MX2250	/	/
6 in 1	TSOL-MX2400D	TSOL-MX2500D	TSOL-MX2700D	TSOL-MX3000D	TSOL-MX3300D	/

Target Group

This manual is intended for professional technicians who are responsible for installation, operation, and maintenance of inverters, and users who need to check inverter parameters. The inverter must only be installed by professional technicians. The professional technician is required to meet the following requirements:

- Know electronics, electrical wiring and mechanical expertise, and be familiar with electrical and mechanical schematics.

- Have received professional training related to the installation and commissioning of electrical equipment.
- Be able to quickly respond to hazards or emergencies that occur during installation and commissioning.
- Be familiar with local standards and relevant safety regulations of electrical systems.
- Read this manual thoroughly and understand the safety instructions related to operations.

Important Safety Information

During installation, testing, and inspection, adherence to all the handling and safety instructions is mandatory. Failure to do so may result in injury or loss of life and damage to the equipment.

Product Label

The following safety symbols are used in this document. Familiarize yourself with the symbols and their meaning before installing or operating the system.

Identification	Explanation
	**Danger:** Danger indicates a dangerous situation that may cause fatal electric shock, other serious personal injury, or fire danger.
	**Warning:** Warning indicates this instruction that must be fully understood and followed to avoid potential safety hazards, including equipment damage or personal injury.
	**Caution:** Caution indicates that the described operation must not be carried out. The reader should stop the attemptation and fully understand the operations explained before proceeding.

The symbols on the microinverter are listed below and illustrated in detail.

Label	Description
	This device is directly connected to the public grid, thus all work to the inverter shall only be carried out by qualified personnel.
	The components inside the inverter will release a lot of heat during operation. Do not touch the metal plate housing during operation.

	Please read the installation manual first before installation, operation, and maintenance.
	This device SHOULD NOT be disposed of in residential waste.
	This device fulfills the requirements of the Radio Equipment Directive.
	Unauthorized removal of necessary protections, improper use, incorrect installation and operation can cause serious safety risks and shock or damage to the equipment.
	There is a risk of electric shock during energy conversion. Before releasing the remaining voltage, do not perform any operations and do not enter within 25 centimeters of the surrounding area. Before opening the lid, it is necessary to disconnect the device and let it sit for at least 5 minutes.
	There is a risk of electric shock during energy conversion. Before releasing the remaining voltage, do not perform any operations and do not enter within 25 centimeters of the surrounding area. Before opening the lid, it is necessary to disconnect the device and let it sit for at least 1 minute.

Product Introduction

System Introduction

The microinverter is used in grid-tied applications, comprised of two key elements:

- Microinverter.
- TSUN monitoring system.

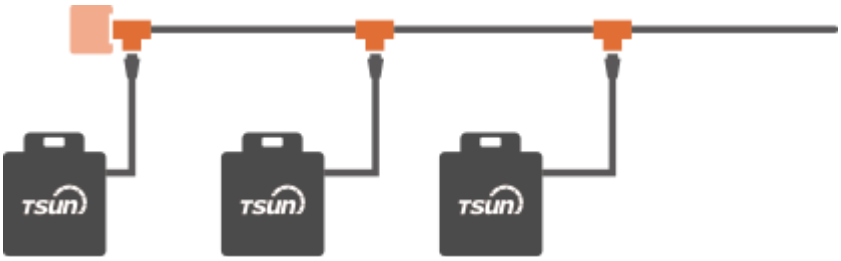
The microinverter plays a crucial role in PV systems by converting the direct current (DC) electricity generated by solar panels into alternating current (AC) electricity that meets the standards of the public electrical grid. This AC power is then fed into the grid, which helps to alleviate the load on the grid during peak demand periods.

Microinverters can be connected using two primary methods:

1. Daisy Chain: In this configuration, each microinverter is connected to the next in a series, forming a chain. This method simplifies installation and reduces the amount of cabling required.
2. Trunk Cable: With this approach, individual microinverters are connected to a main trunk cable, which then connects to the grid. This method can offer more flexibility in system layout and may be preferable in larger installations or where panels are spread out

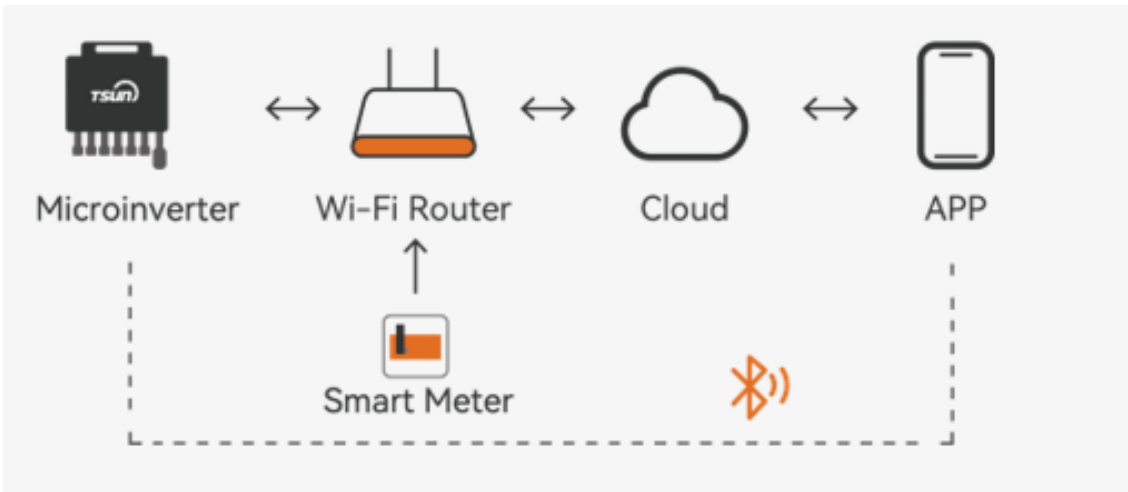
Wiring Diagram-Daisy chain:

Wiring Diagram-Trunk cable:

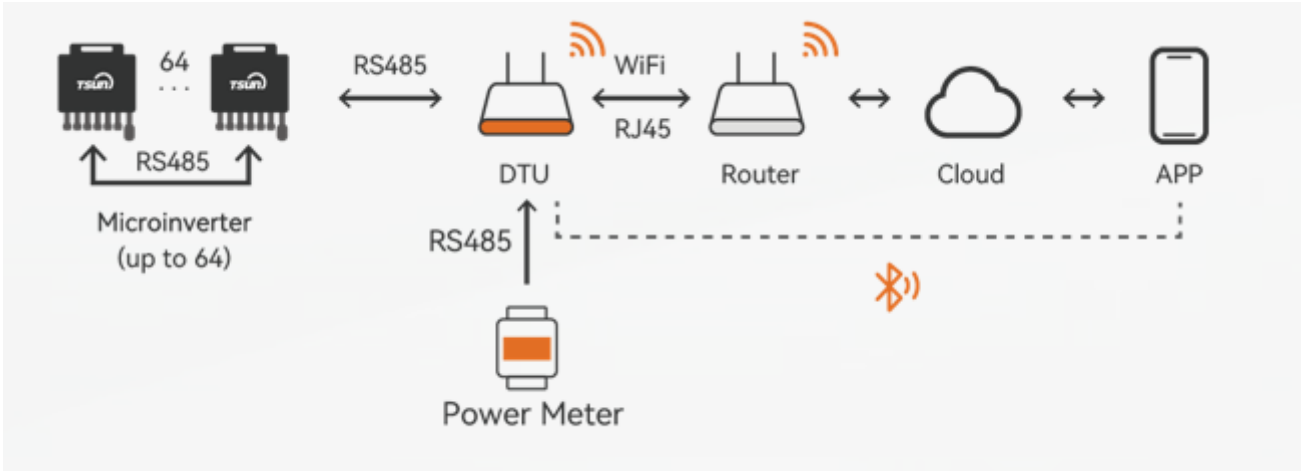


G3 Series microinverters have three types of communication methods: WiFi module only, RS485 module only, WiFi module and RS485 module compatible.

- The microinverter is integrated with the Wi-Fi module and connects to the home Wi-Fi router directly. Users can monitor the power generation of the system by TSUN monitoring App.



- In commercial and industrial rooftop scenarios, RS485 communication is used to achieve stability and reliability.The microinverter is integrated with RS485 module and connects to DTU, and DTU connects to the home Wi-Fi router. Users can monitor the power generation of the system by TSUN monitoring App.



For configuring RS485 and monitoring system, please refer to the user manual of DTU (Data Transfer Unit).

The followings are different communication types for different microinverter series.

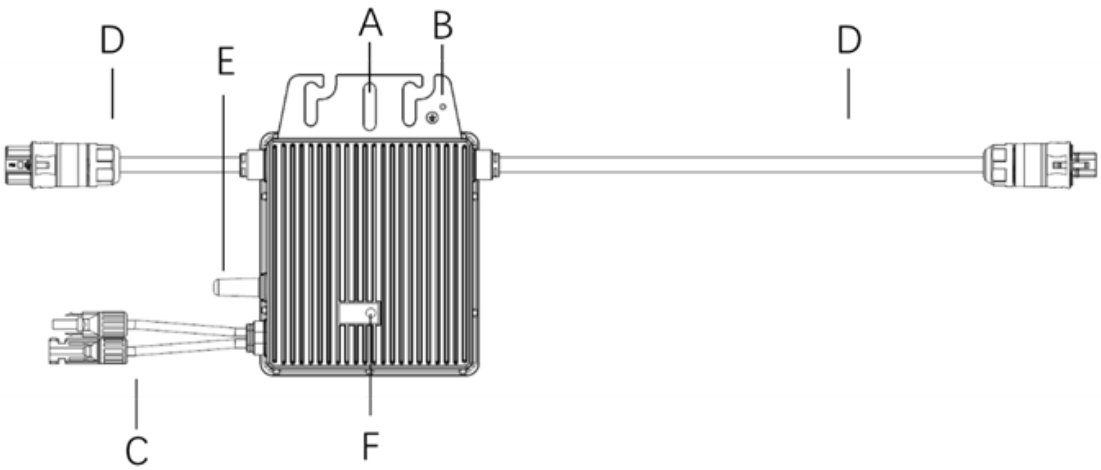
Series	WiFi	RS485
1 in 1	√	×
2 in 1(TSOL-MS series)	√	×
2 in 1(TSOL-MX series)	√	√
4 in 1	√	√
6 in 1	√	√

Microinverter Display

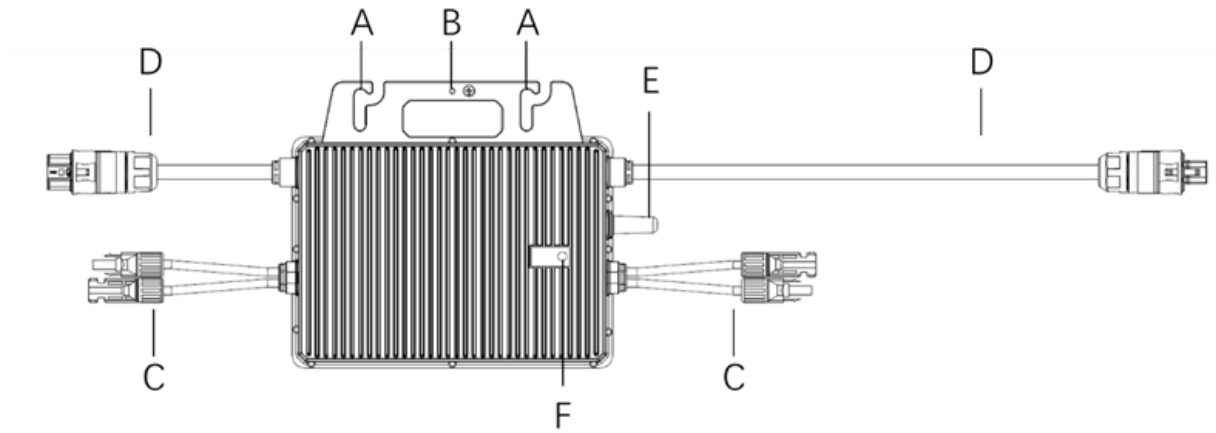
Daisy-chain

A	Mounting Hole	D	AC Output
B	Grounding Hole	E	Antenna
C	DC Input	F	Status Light
G	RS485 Port	/	/

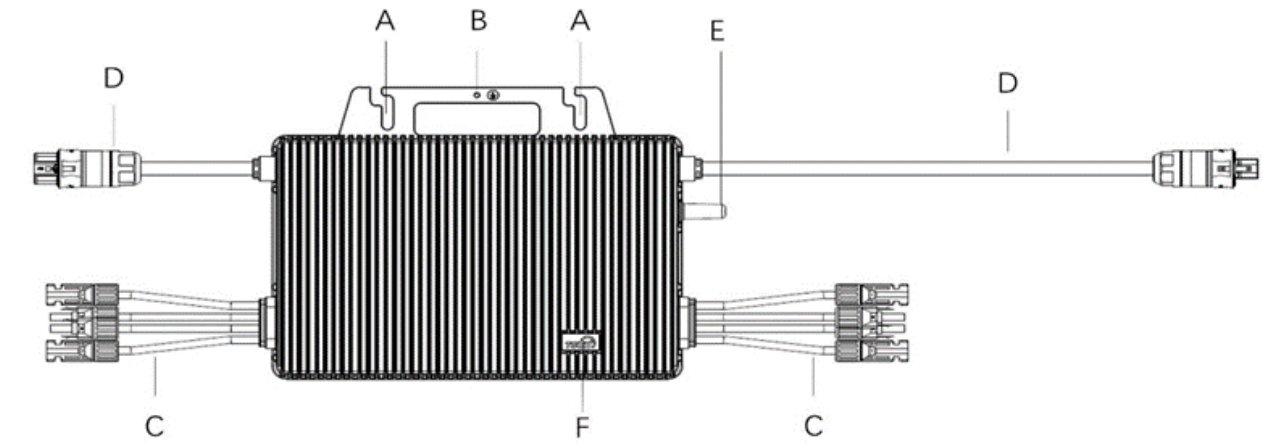
1 in 1



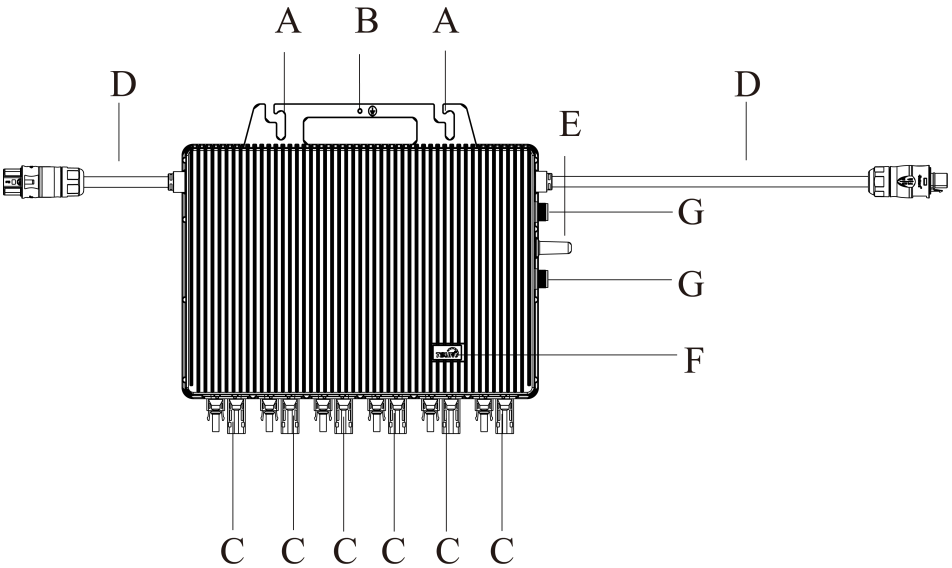
2 in 1



4 in 1



6 in 1

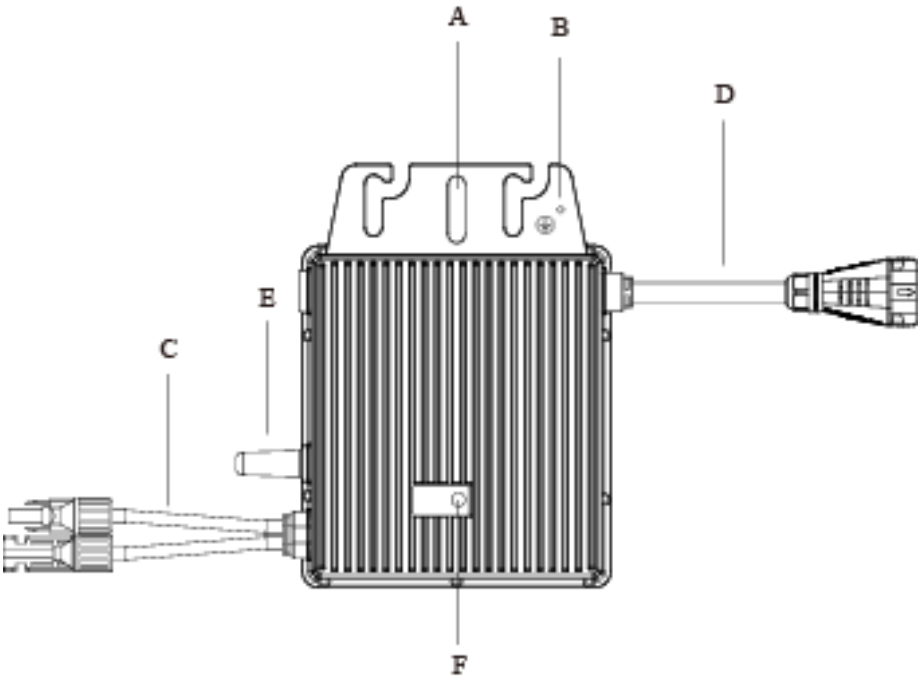


Trunk cable

A	Mounting Hole	D	AC Cable
B	Grounding Hole	E	Antenna
C	DC input	F	Status Light

G	RS485 Port	/	/

1 in 1



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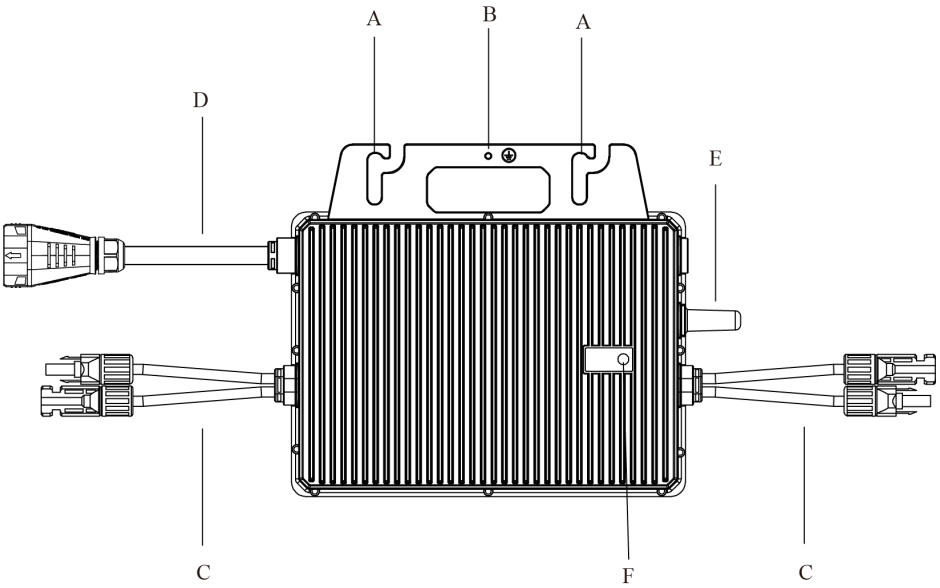
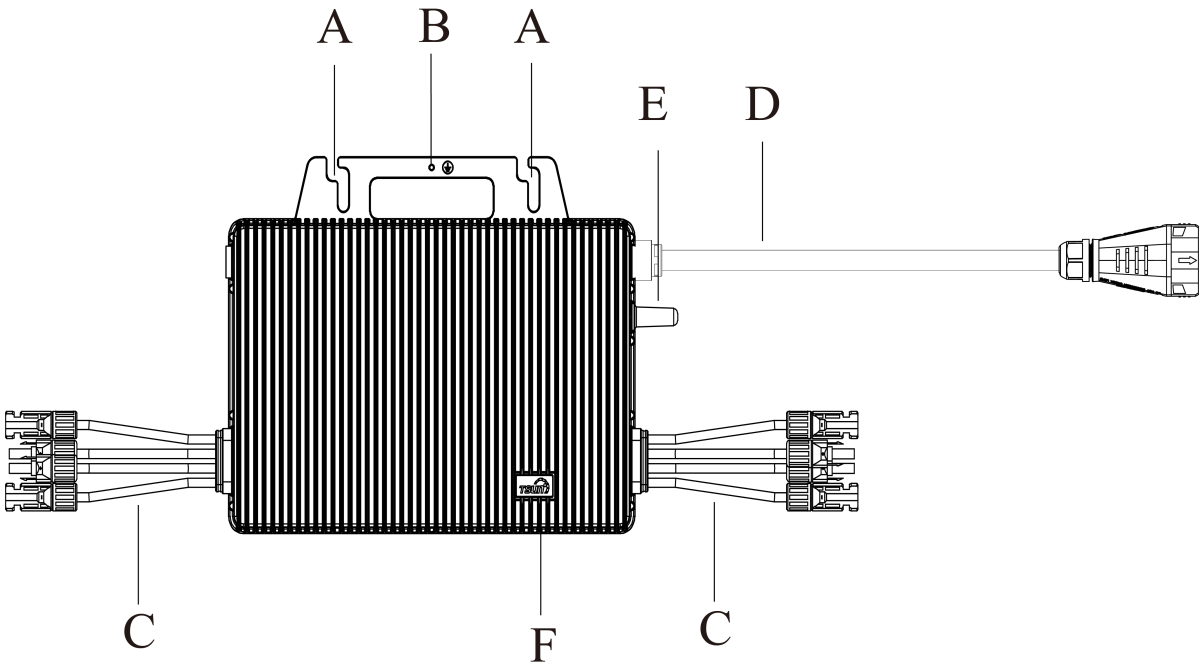
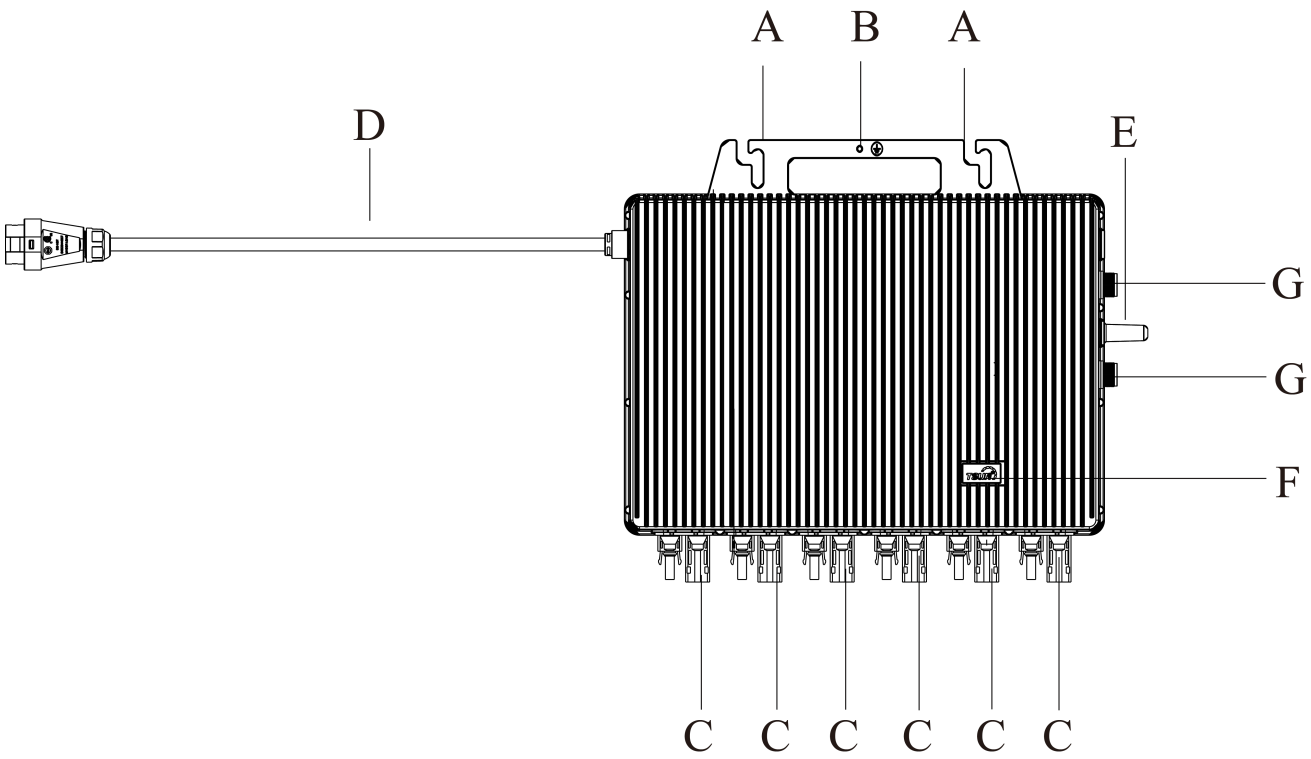


4 in 1



6 in 1

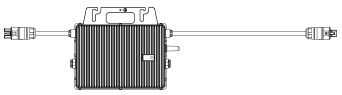
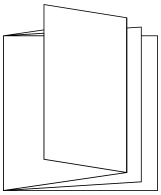
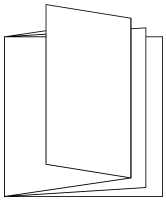
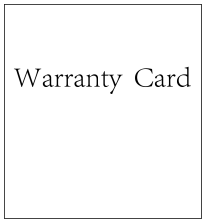
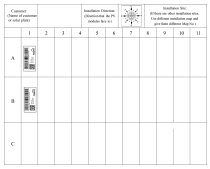


What's in the box

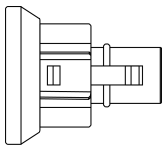
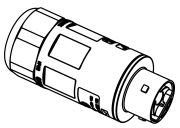
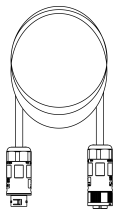
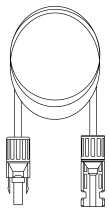
Daisy-chain

Standard Accessories

Microinverter	Quick Guide	APP Quick Quide	Warranty Card	Installation Map

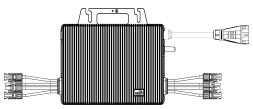
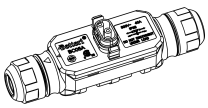
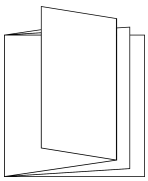
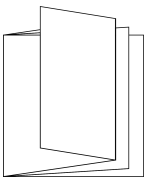
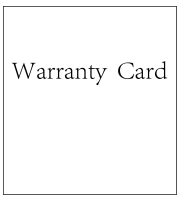
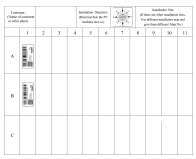
				

Optional Accessories

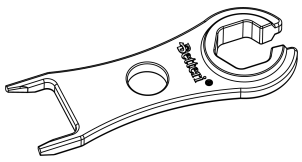
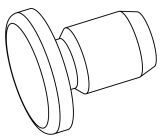
Protective Cap	AC Connector	AC Extension Cable	DC Extension Cable
			

Trunk cable-BC05A

Standard Accessories

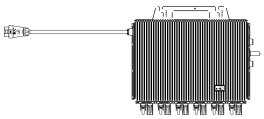
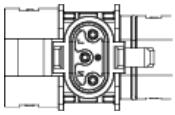
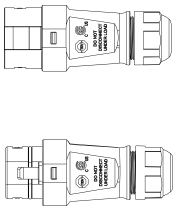
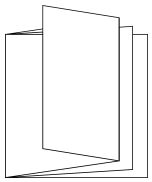
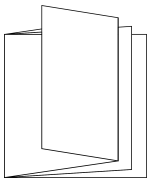
Microinverter	T Connector	Quick Guide	APP Quick Quide	Warranty Card	Installation Map
					

Optional Accessories

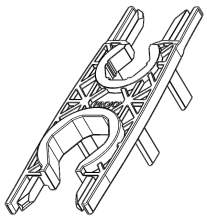
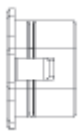
Tool	Protective Cap
	

Trunk cable-BC05C/ PECO-T-C

Standard Accessories

Microinverter	T Connector	Trunk Cable Connector	Quick Guide	APP Quick Guide	Warranty Card	Installation Map
						

Optional Accessories

Tool	Protective Cap
	

Product Installation

Check before Installation

Check the Package

Although TSUN’ s microinverters have surpassed stringent testing and are checked before they leave the factory, but it is still possible that during transportation microinverters may suffer damage. Please check the package for any obvious signs of damage, and if such evidence is present, do not open the package and contact your dealer as soon as possible.

Check the Installation Environment and Position

When choosing the position of installation, comply with the following conditions:

- To avoid unexpected power derating due to high internal temperature, do not expose it to direct sunlight.
- To avoid overheating, always make sure the microinverter is with good ventilation condition.
- Do not install in places where explosive or flammable substances may be present.
- Avoid electromagnetic interference that can compromise the correct operation of electronic equipment.

- It’ s recommended to install microinverter on structures underneath the photovoltaic modules so that they work in the shade.
- Use a mobile phone to check the Wi-Fi signal strength at the installation position. If the Wi-Fi signal is not strong enough, we recommend to install the microinverter in another position with better Wi-Fi signal coverage or move the Wi-Fi router near the installation position.选 repeater

Installation Steps（Daisy-chain）

·Only qualified personnel should install, troubleshoot, or replace G3 micro inverters or the cable and accessories.

·Before installation, check the unit to ensure the absence of any transportation or handling damage, which could affect insulation integrity or safety clearances.

·Unauthorized removal of necessary protections, improper use, incorrect installation, and operation may lead to serious human injury, electrical shock hazards or equipment damage.

Step 1.Make an installation map

·If there are more than one installation site, please use seperate installation map for each site and mark a clear description of each site.

·The row of the table corresponds to the shorter side of the PV module and the column of the table corresponds to the longer side of the PV module. The direction in the upper left corner means the actual installation orientation.

Take out the SN labels and installation map from the package. Paste the SN labels on the installation map as below according to the actually installation position of the microinverters and complete the information for the solar plant.

Customer: (Name of customer or solar plant)		Installation Direction: (Direction that the PV modules face to)		Installation Site: (If there are other installation sites, Use different installation map and give them different Map No.)							
	1	2	3	4	5	6	7	8	9	10	11
A											
B											
C											

Step 2.Mount the microinverter

When choosing the position of installation,

· Avoid direct sunlight, overheating environment, flammable/explosive substances, and strong electromagnetic device.

· Please use your mobile phone to check the WiFi signal strength around the installation spot within 1m. If the WiFi signal is less than two bars, please try another installation spot or move the WiFi router near to the installation spot.

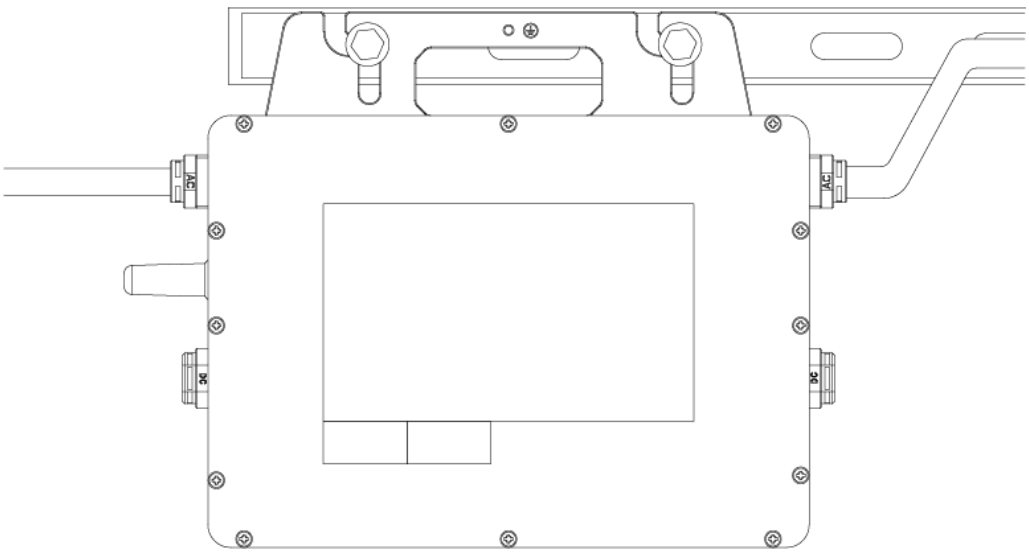
· Make sure good air ventilation. Suggest minimum 5cm distance between roof and the lower surface of microinverter.

· There are no screws or nuts in the package.

The distance between each two connected microinverters should not exceed the total length of the connected AC cables of these two microinverters. The length of AC cables are shown as below:

PV Input	Cable Length
Microinverter(6 PV Inputs)	3.7m
Microinverter(4 PV Inputs)	2.52 m
Microinverter(2 PV Inputs)	2.43 m
Microinverter(1 PV Input)	1.45 m

Using two pairs of screws and nuts to mount the microinverter on the rail. Mount the microinverter’ s flat surface up.



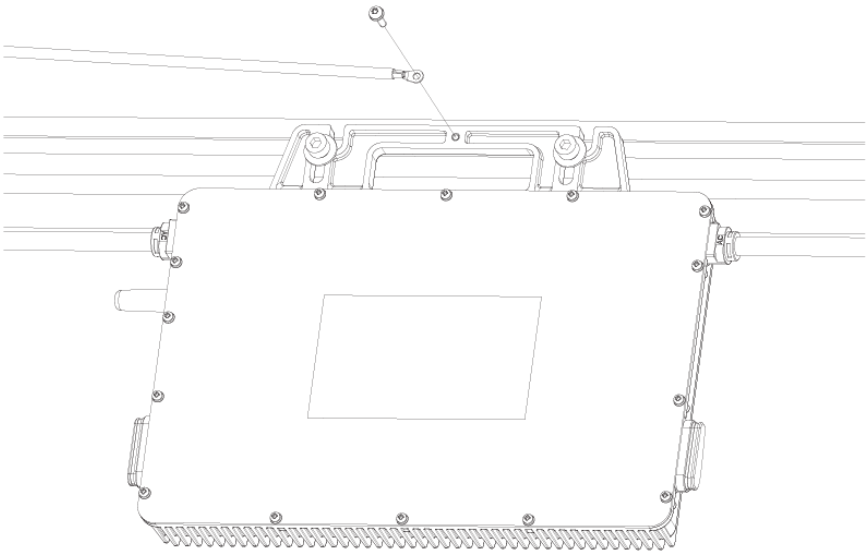
Step 3.Connect the ground cable

· Ensure that all the microinverters are well grounded or it will affect the warranty.

· Use ϕ6 screw for the grounding hole.

· Use a 4mm² ground cable.

Fix the ground cable to the grounding hole of the microinverter using ϕ6 screw,and connect the other end of the ground cable to the rail or valid grounding position.



Step 4. Connect the AC cable of two microinverters

⚠

· Max. installation quantity for the microinverter in each string is based on the Max. current of the AC cable.

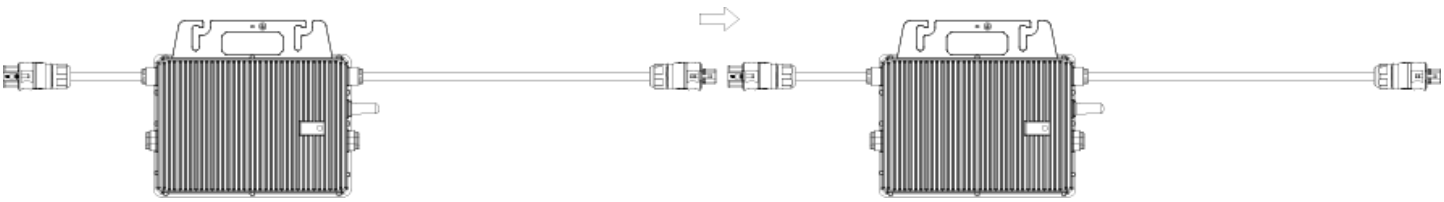
Model[W]	300	350	400	450	500
Max. Units Per Branch(12AWG)	23	20	17	15	14
Max. Units Per Branch(10AWG)	31	26	23	20	18

Model[W]	600	700	800	900	1000
Max. Units Per Branch(12AWG)	12	10	9	8	7
Max. Units Per Branch(10AWG)	15	13	12	10	9

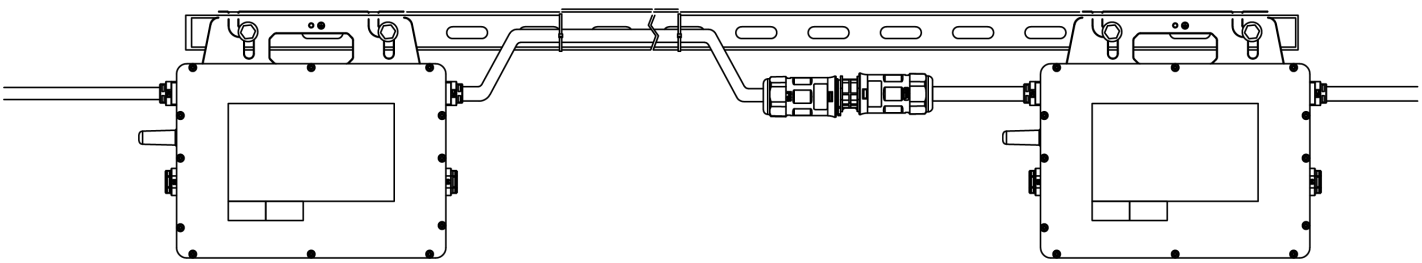
Model[W]	1600	1800	2000	2250
Max. Units Per Branch(12AWG)	4	4	3	3
Max. Units Per Branch(10AWG)	6	5	5	4

Model[W]	2400	2500	2700	3000	3300
Max. Units Per Branch(12AWG)	3	3	2	2	2
Max. Units Per Branch(10AWG)	4	4	3	3	3

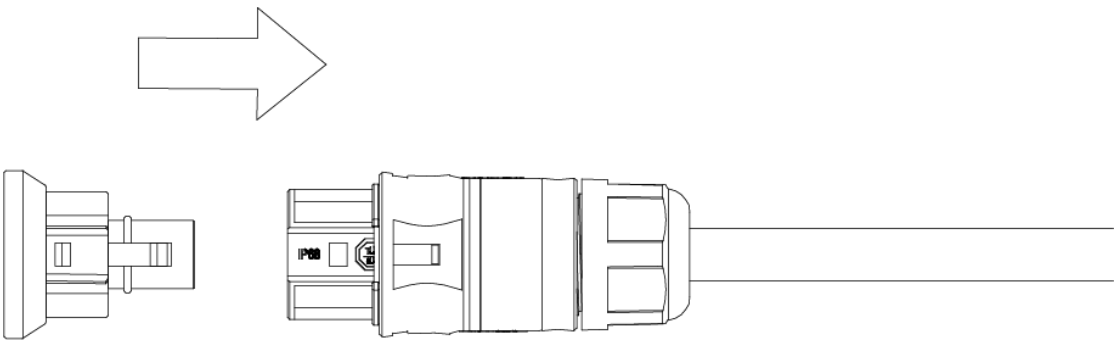
Connect AC cables between two microinverters.



Use Nylon cable ties to fix the AC cables onto the rail.



Attach the protective cap to the terminal AC connector of each string.



Step 5.Connect AC end cable

· Switch off AC breaker before installation.

·Ensure that all AC cables are correctly wired and that none of the wires are pinched or damaged.

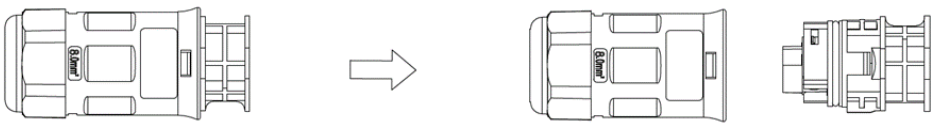
·Use AWG 12 (4 mm^2) cable for AC end cable.

·The installation technician is responsible for using the suitable AC cable and connecting the microinverter system to the home distribution network correctly.

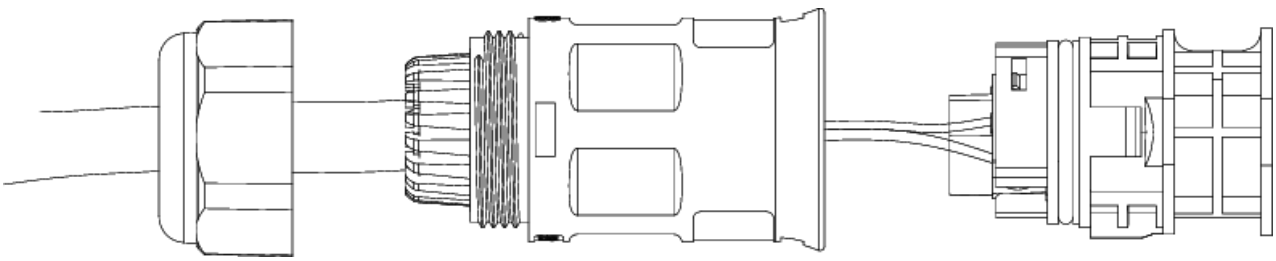
·The AC connectors may be provided by different suppliers. The port definitions are subject to actual objects.

·The AC connector and protection cap is not included in the microinverter package.

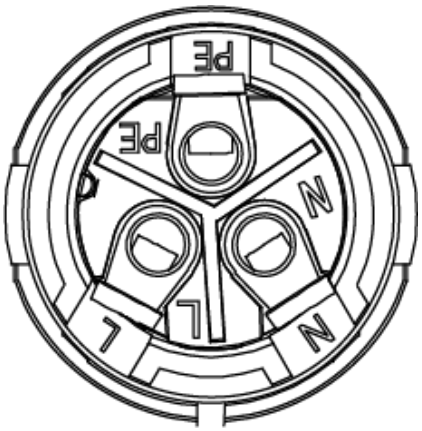
Disassemble the AC connector as shown below.



Get the AC cable through the shell of the AC connector and connect the cable to the right port.

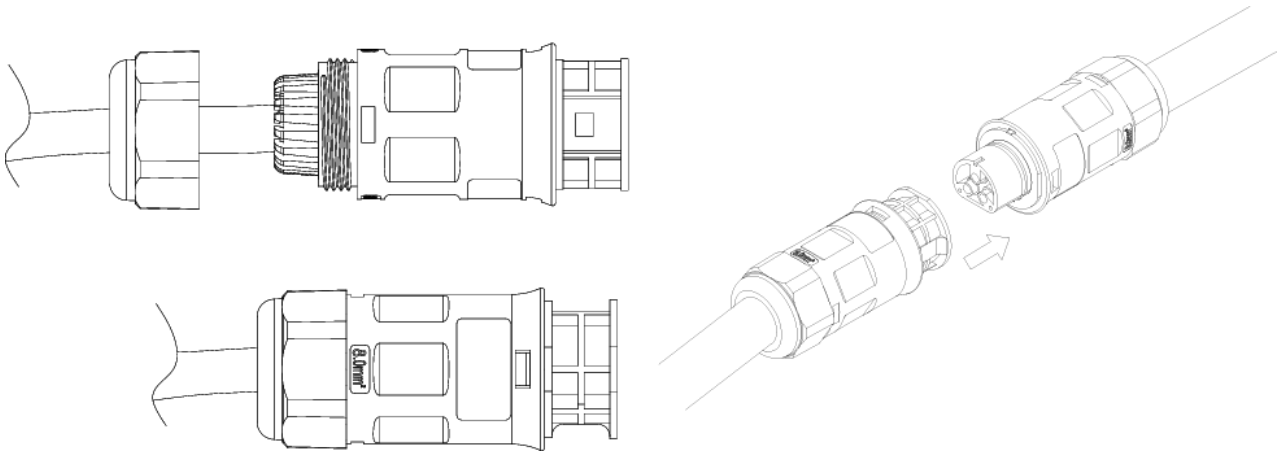


The definition of the port is shown below:



L:	Live	(Brown/Red)
N/L:	Neutral/Live	(Blue/Black)
PE:	Ground	(Yellow-Green)

Reassemble the AC connector. Connect it with the other corresponding AC connector of the last microinverter of the string and then connect the AC cable to the AC distribution box.



Step 6.Connect DC cable

· When the PV Module is exposed to light, it provides DC voltage to the microinverter.

· Ensure that all DC cables are correctly wired and that none of the wires are pinched or damaged.

· The maximum open circuit voltage of the PV module shall not exceed the specified maximum input DC voltage of the TSOL microinverter.

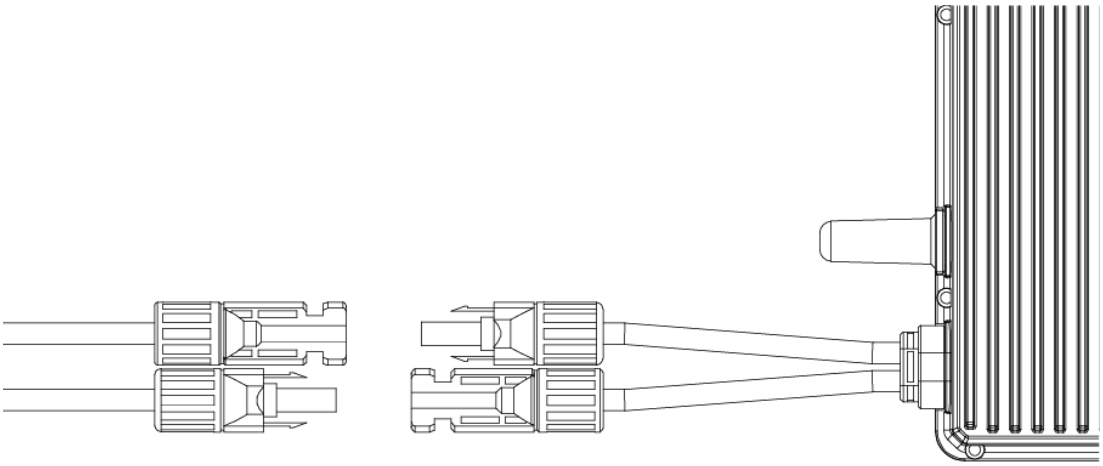
· If the DC cable is too short for installation, please use DC Extension Cable to connect PV modules to the microinverter.

· Use MC4 compatible DC connectors for the inverter side of the DC extension cable, or get the same type of DC connectors from TSUN.

· Contact PV module manufacturers for the requirements of the DC connectors for the module side of the DC extension cable.

Install the PV modules and connect the DC cable to the microinverter.

Please pay attention to MPPTs and polarities if product series are 6 in 1. 6 in 1 series have 6 DC inputs and 3 MPPTS. Therefore, 1 MPPT for every two modules, as shown in the figure. Avoid installing different power modules or directions in the same MPPT.



Step 7.Start the system

· Only qualified personnel should connect this system to the utility grid.

· Do not connect microinverters to the grid or energize the AC circuit(s) until you have completed all the installation procedures and have received prior approval from the local utility company.

While installation is all finished, turn on the main utility-grid AC circuit breaker. Your system will start to produce power in about two minutes.

The LED might flash green and red in the beginning. Once the system starts regular production of electricity, the LED light will keep flashing green. The definition of LED is shown below:

Status	Indicates
Flashing Green	Working normally
Flashing Red	Working abnormally
Solid Red	Fault

Installation Steps（Trunk cable-BC05A）

Step 1.Make an installation map

·If there are more than one installation site, please use seperate installation map for each site and mark a clear description of each site.

·The row of the table corresponds to the shorter side of the PV module and the column of the table corresponds to the longer side of the PV module. The direction in the upper left corner means the actual installation orientation.

Take out the SN labels and installation map from the package. Paste the SN labels on the installation map as below according to the actually installation position of the microinverters and complete the information for the solar plant.

Customer: (Name of customer or solar plant)		Installation Direction: (Direction that the PV modules face to)			Installation Site: (If there are other installation sites, Use different installation map and give them different Map No.)					
	1	2	3	4	5	6	7	8	9	10	11
A											
B											
C											

Step 2.Mount the microinverter

When choosing the position of installation,

· Avoid direct sunlight, overheating environment, flammable and explosive substances, electromagnetic device.

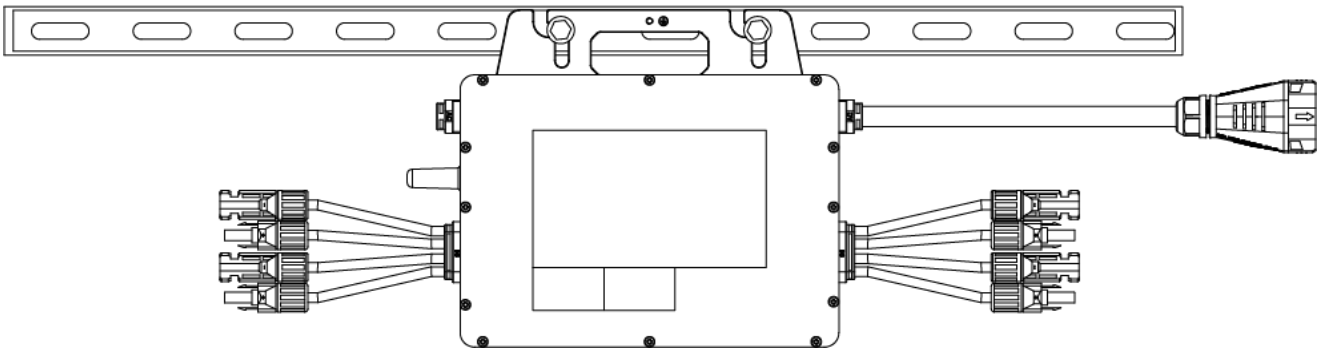
· Please use your mobile phone to check the WiFi signal strength near the installation spot within 1m. If the WiFi signal is less than two bars, please change to another installation spot or move the WiFi router.

· Make sure good air ventilation. Suggest at least 5cm distance between roof and microinverter.

· There are no screws and nuts in the package.

Using two pairs of screws and nuts to mount the microinverter on the rail. Mount the microinverter’ s

flat surface up.



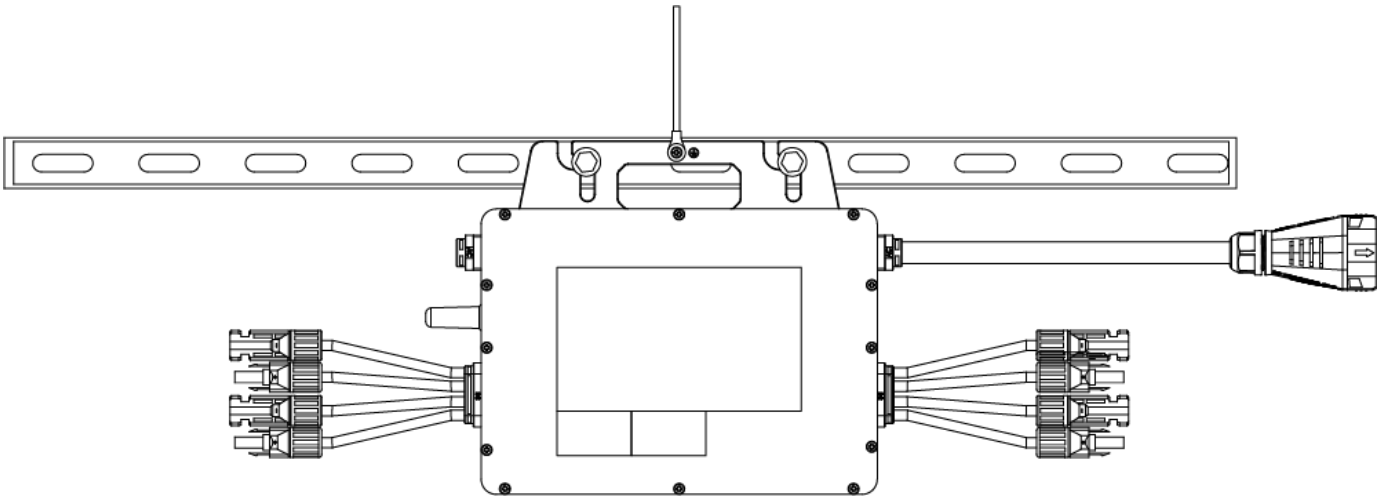
Step 3.Connect the ground cable

· Ensure that all the microinverters are well grounded or it will affect the warranty.

· Use ϕ6 screw for the grounding hole.

· Use a 4mm² ground cable.

Fix the ground cable to the grounding hole of the microinverter using ϕ6 screw,and connect the other end of the ground cable to the rail or valid grounding position.



Step 4.AC trunk cable pre-installation

· Select AC trunk cable according to maximum system power and maximum system AC current.

Model[W]	300	350	400	450	500
Max. Units Per Branch(12AWG)	23	20	17	15	14

Max. Units Per Branch(12AWG)	31	26	23	20	18

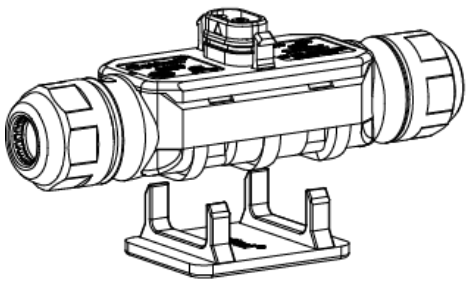
Model[W]	600	700	800	900	1000
Max. Units Per Branch(12AWG)	12	10	9	8	7
Max. Units Per Branch(12AWG)	15	13	12	10	9

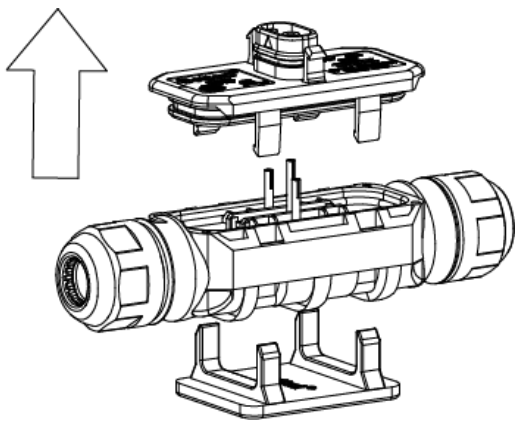
Model[W]	1600	1800	2000	2250
Max. Units Per Branch(12AWG)	4	4	3	3
Max. Units Per Branch(12AWG)	6	5	5	4

⚠

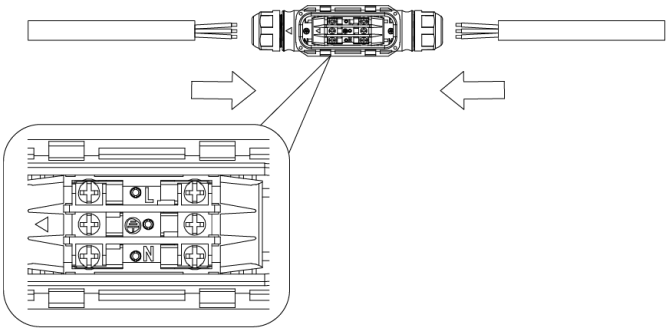
·Tools and protection cap should be purchased additionally.

Use the AC trunk connector unlock tool to unlock the upper cover.



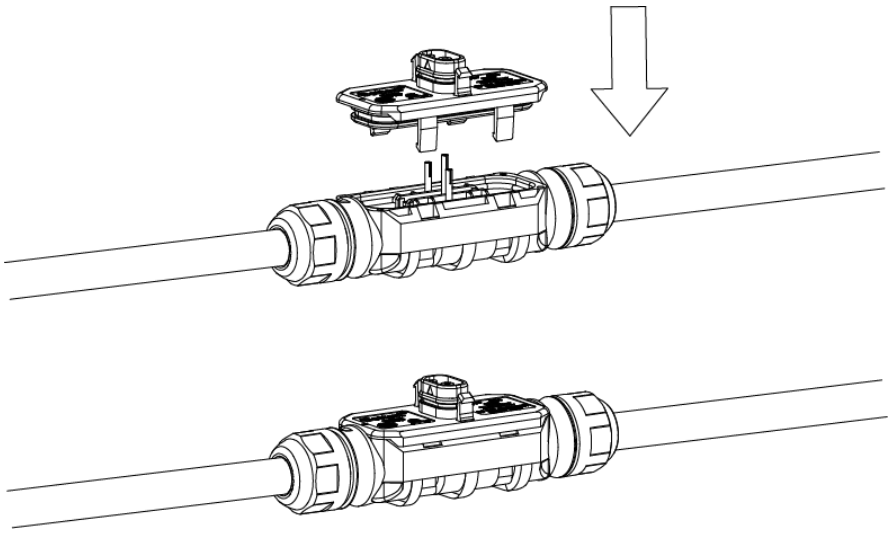


Insert the AC trunk cable into the T connector . Tighten the T connector.

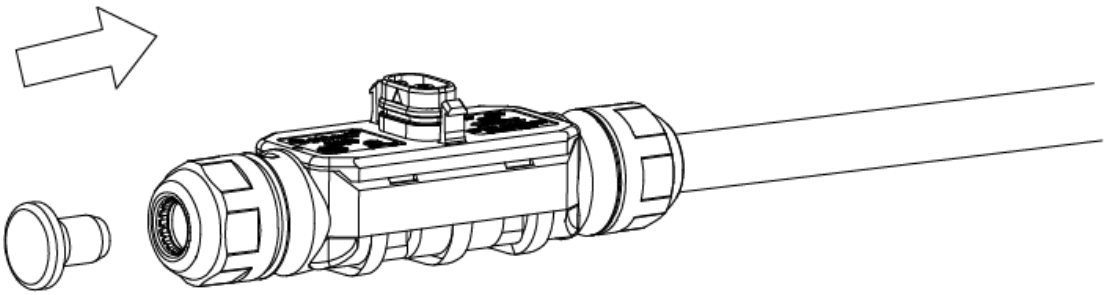


L:	Live	(Brown/Red)
N/L:	Neutral/Live	(Blue/Black)
PE:	Ground	(Yellow-Green)

Plug the upper cover back to the T connector.



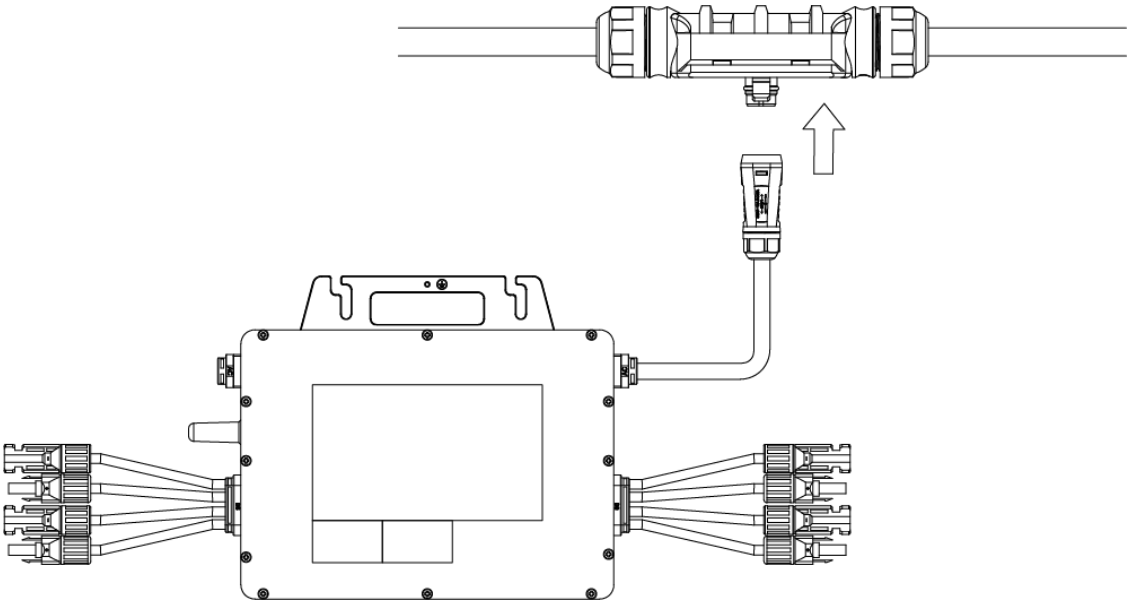
Install the AC trunk cable protective cap if only one side of the AC cable is connected.



Connect AC trunk cable to distribution box or combiner box.

Fixen the AC trunk cable to the mounting rail, and secure the cable with ties.

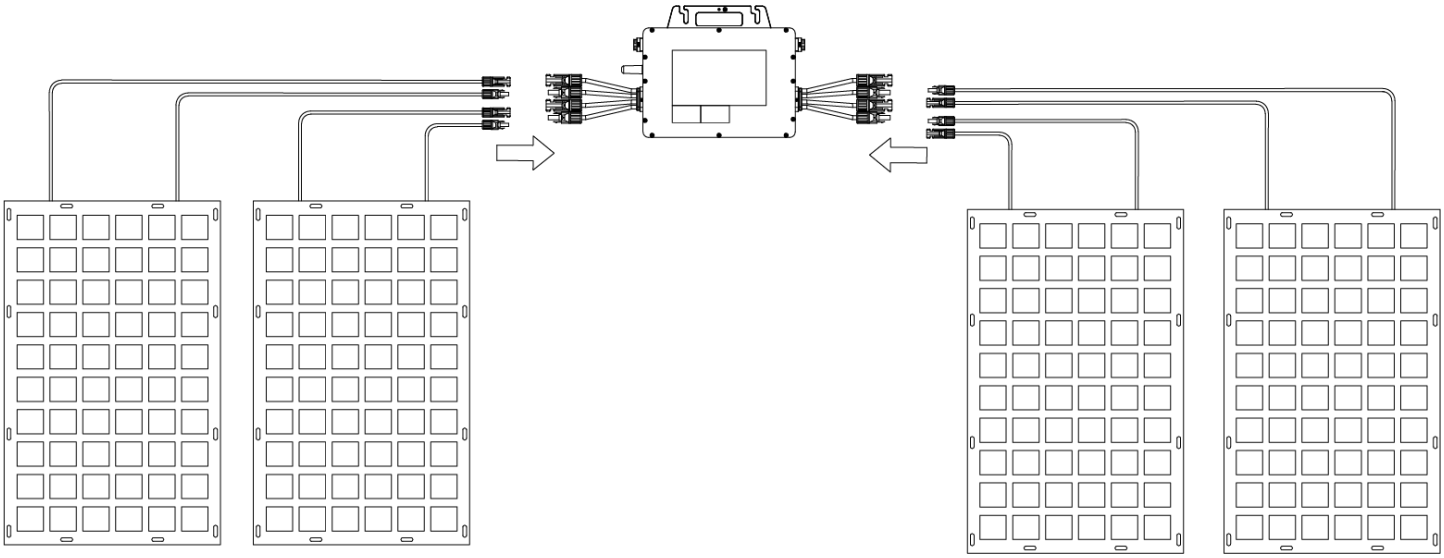
Step 5.Connect microinverter to the AC trunk cable



Step 6.Connect DC cable

⚠
· When the PV Module is exposed to light, it provides DC voltage to the microinverter.
⚠
· Ensure that all DC cables are correctly wired and that none of the wires are pinched or damaged. · The maximum open circuit voltage of the PV module must not exceed the specified maximum input DC voltage of the TSOL microinverter.
⚠
· If the DC cable is too short for installation, use a DC Extension Cable to connect PV modules to the microinverter. · Use MC4 compatible DC connectors in the inverter side of the DC extension cable, or get the DC connectors from TSUN. · Contact PV module manufacturers for the requirements of the DC connectors in the module side of the DC extension cable.

Install the PV modules and connect the DC cable to the microinverter.



Step 7.Start the system

⚡
· Only qualified personnel should connect this system to the utility grid.
⚠
· Do not connect microinverters to the grid or energize the AC circuit(s) until you have completed all the installation procedures and have received prior approval from the electrical utility company.

While installation is all finished, turn on the main grid AC circuit breaker. Your system will start to produce power in about two minutes.

The LED might flash green and red in the beginning. Once the system starts regular production of electricity, the LED light will keep flashing green.The definition of LED is shown below:

Status	Indicates
Flashing Green (0.2-0.8s)	Working normally
Flashing Red	Working abnormally
Solid Red	Fault

Installation Steps（Trunk cable-BC05C/PECO-T-C）

Step 1.Make an installation map

·If there is more than one installation site, please make the installation map separately and give a clear description of the installation site.

·The row of the table corresponds to the shorter side of the PV module and the column of the table corresponds to the longer side of the PV module. The direction in the upper left corner means the actual installation orientation.

Take out the SN labels and installation map from the package. Paste the SN labels on the installation map as below according to the actually installation position of the microinverters and complete the information for the solar plant.

Customer: (Name of customer or solar plant)			Installation Direction: (Direction that the PV modules face to)			Installation Site: (If there are other installation sites, Use different installation map and give them different Map No.)				
	1	2	3	4	5	6	7	8	9	10	11
A											
B											
C											

Step 2.Mount the microinverter

When choosing the position of installation,

· Avoid direct sunlight, overheating environment, flammable and explosive substances, electromagnetic device.

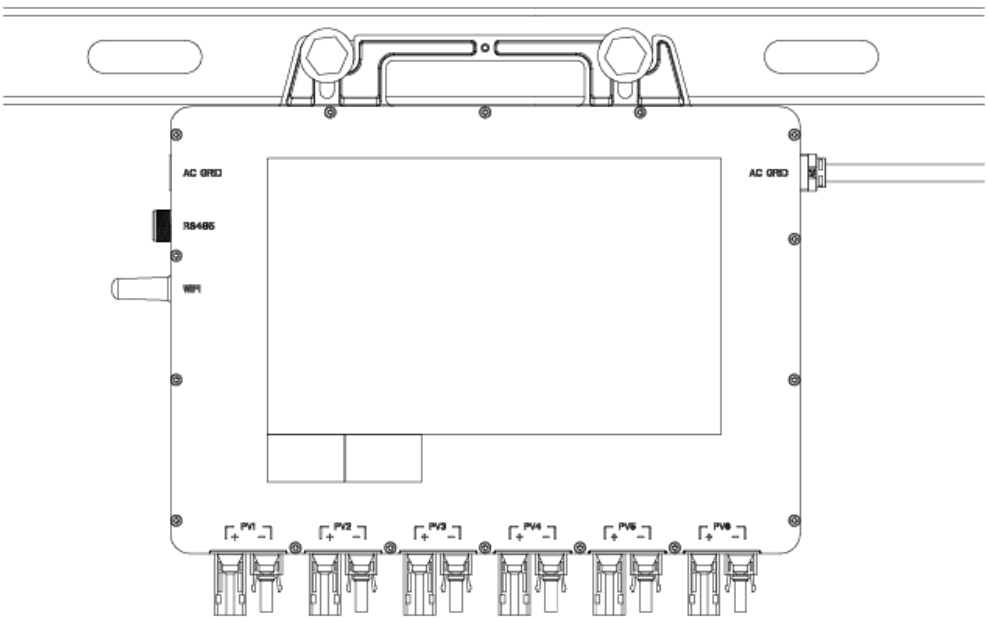
· Please use your mobile phone to check the WiFi signal strength near the installation spot within 1m. If the WiFi signal is less than two bars, please change to another installation spot or move the WiFi router.

· Make sure good air ventilation. Suggest at least 5cm space gap between roof and microinverter.

· There are no screws and nuts in the package.

Using two pairs of screws and nuts to mount the microinverter on the rail. Mount the microinverter’ s

flat surface up.



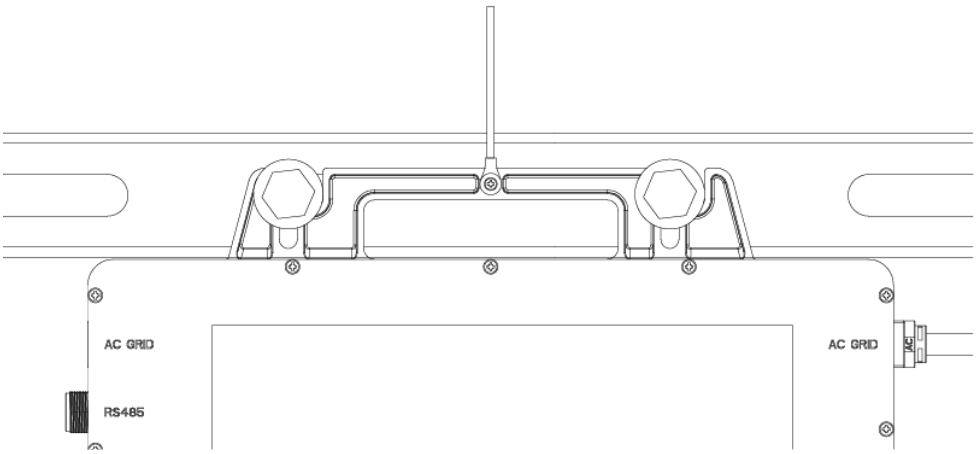
Step 3. Connect the ground cable

· Ensure that all the microinverters are well grounded or it will affect the warranty.

· Use ϕ6 screw for the grounding hole.

· Use a 4mm² ground cable.

Fix the ground cable to the grounding hole of the microinverter using ϕ6 screw,and connect the other end of the ground cable to the rail or valid grounding position.



Step 4.AC trunk cable pre-installation

·Select AC trunk cable according to maximum system power and maximum system AC current.

Model[W]	300	350	400	450	500
Max. Units Per Branch(12AWG)	23	20	17	15	14
Max. Units Per Branch(10AWG)	31	26	23	20	18

Model[W]	600	700	800	900	1000
Max. Units Per Branch(12AWG)	12	10	9	8	7
Max. Units Per Branch(10AWG)	15	13	12	10	9

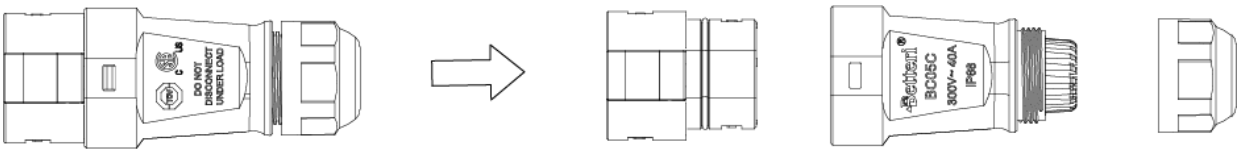
Model[W]	1600	1800	2000	2250
Max. Units Per Branch(12AWG)	4	4	3	3

Max. Units Per Branch(10AWG)	6	5	5	4

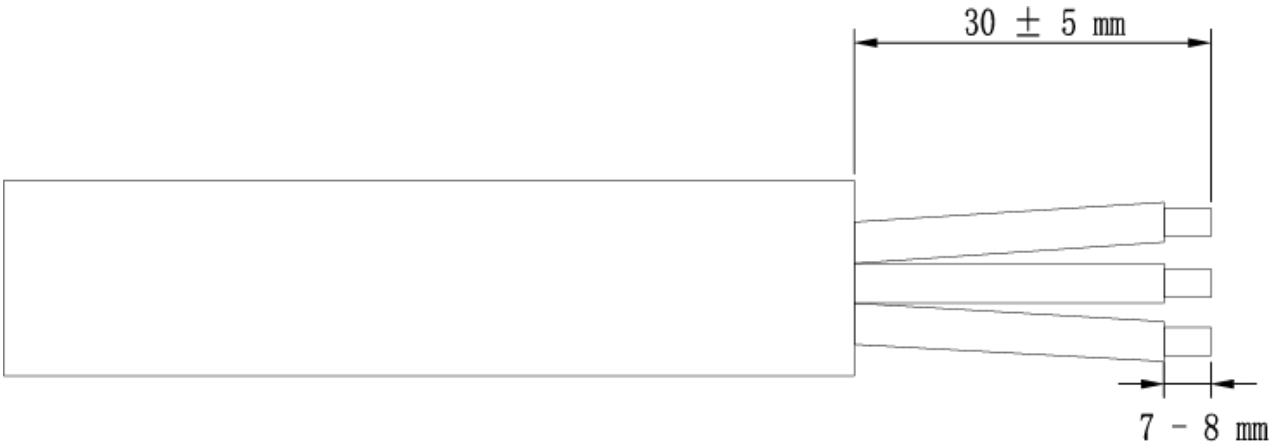
Model[W]	2400	2500	2700	3000	3300
Max. Units Per Branch(12AWG)	3	3	2	2	2
Max. Units Per Branch(10AWG)	4	4	3	3	3

·Tools and protection cap should be purchased additionally.

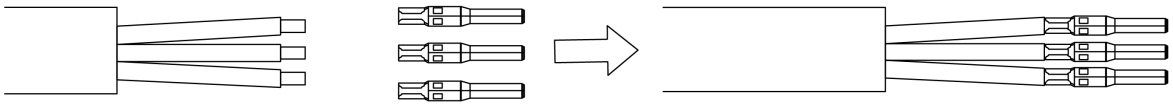
Take out the connectors, disassemble the wiring plastic housing from the outer housing and extract the corresponding metal pins/sockets of the male/female connector.



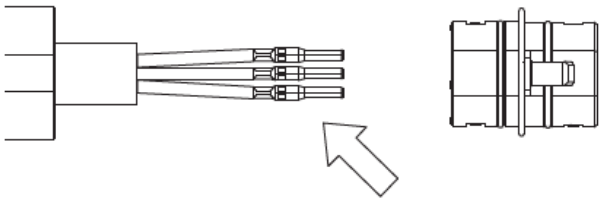
Installers shall only purchase and use the suitable AC trunk cables which is compatible with the system power/current and shall adjust the cable to the required length. Strip the conductors as shown in the image below(outer cable sheath: 30±5mm, inner core: 7-8mm).



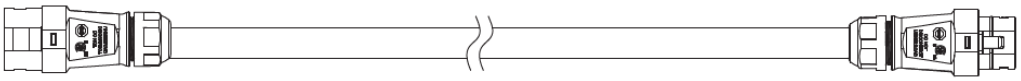
Use tools to crimp the metal pins or sockets.



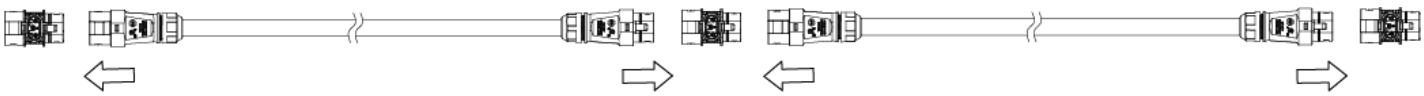
Insert the pin of the wiring into the corresponding hole of the male or female connector.



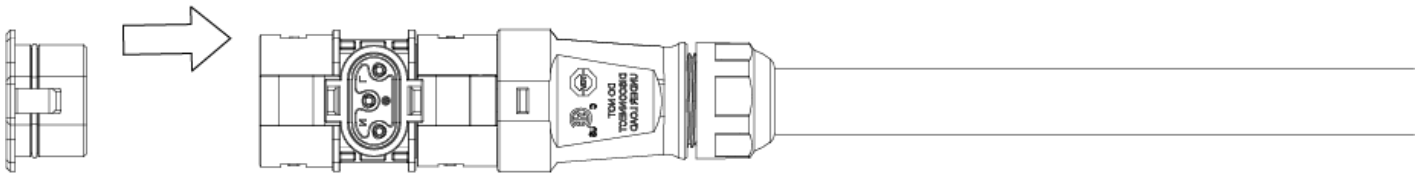
L:	Live	(Brown/Red)
N/L:	Neutral/Live	(Blue/Black)
PE:	Ground	(Yellow-Green)



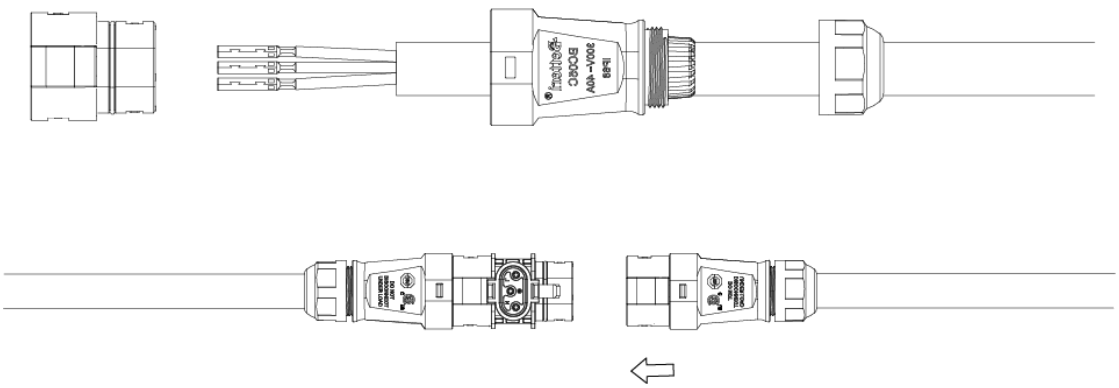
Connect the trunk cable and the T connector.



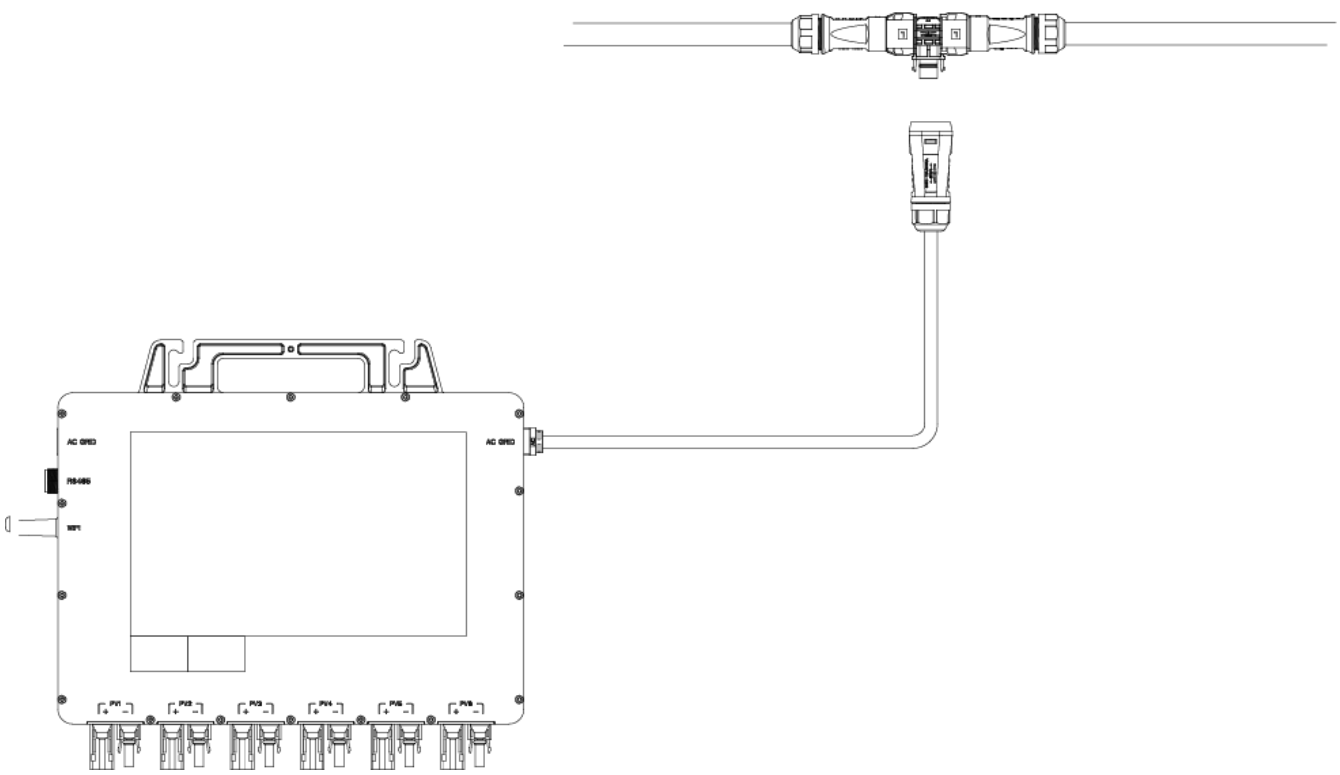
Install the T connector protective cap if only one side of AC cable is connnected.



Prepare the AC end cable, insert the connector of the AC end cable into the T connector, and connect the other side to the Distribution Box.



Step 5.Connect microinverter to the AC trunk cable

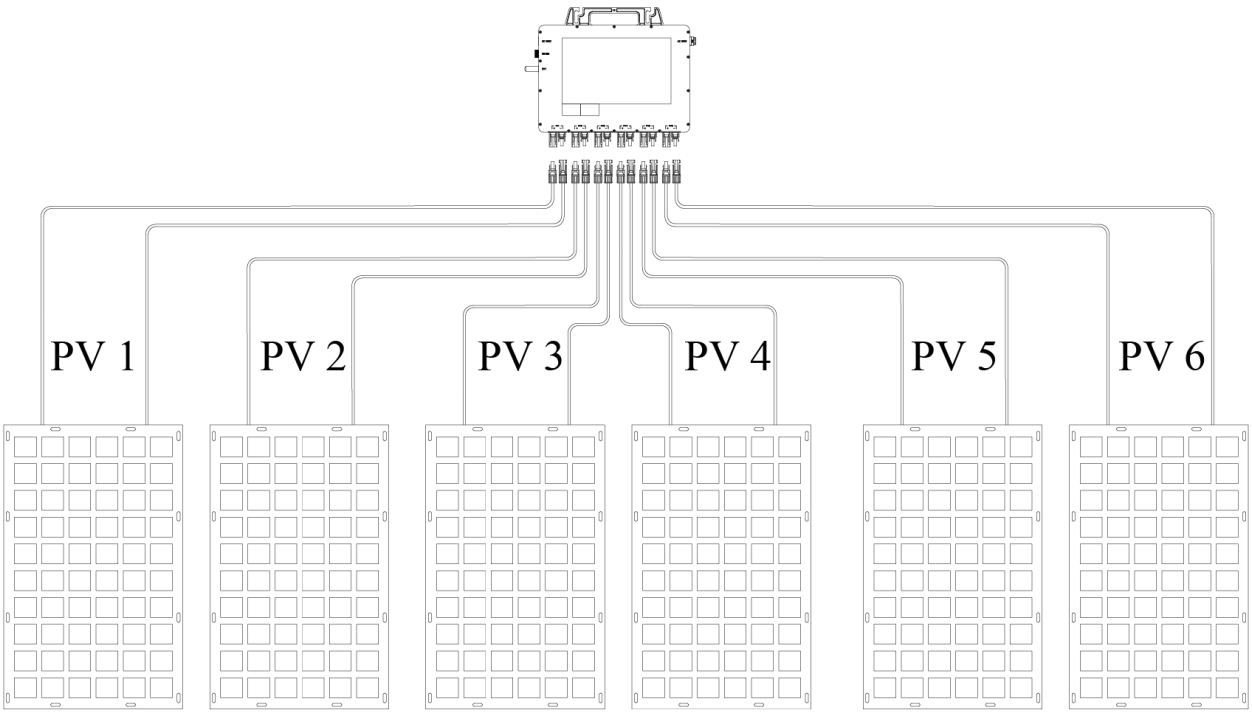


Step 6.Connect DC cable

⚠
·When the PV Module is exposed to light, it provides DC voltage to the microinverter.
⚠
·Ensure that all DC cables are correctly wired and that none of the wires are pinched or damaged. ·The maximum open circuit voltage of the PV module must not exceed the specified maximum input DC voltage of the TSOL microinverter.
⚠
·If the DC cable is too short for installation, use a DC Extension Cable to connect PV modules to the microinverter. ·Use MC4 compatible DC connectors in the inverter side of the DC extension cable, or get the DC connectors from TSUN. ·Contact PV module manufacturers for the requirements of the DC connectors in the module side of the DC extension cable.

Install the PV modules and connect the DC cables to the microinverter.

Please pay attention to MPPTs and polarities if product series are 6 in 1. 6 in 1 series have 6 DC inputs and 3 MPPTS. Therefore, 1 MPPT for every two modules, as shown in the figure. Avoid installing different power modules or directions in the same MPPT.



Step 7.Start the system

· Only qualified personnel should connect this system to the utility grid.

· Do not connect microinverters to the grid or energize the AC circuit(s) until you have completed all the installation procedures and have received prior approval from the electrical utility company.

While installation is all finished, turn on the main utility-grid AC circuit breaker. Your system will start to produce power in about two minutes.

The LED might flash green and red in the beginning. Once the system starts regular production of electricity, the LED light will keep flashing green.The definition of LED is shown below:

Status	Indicates
Flashing Green (0.2-0.8s)	Working normally
Flashing Red	Working abnormally
Solid Red	Fault

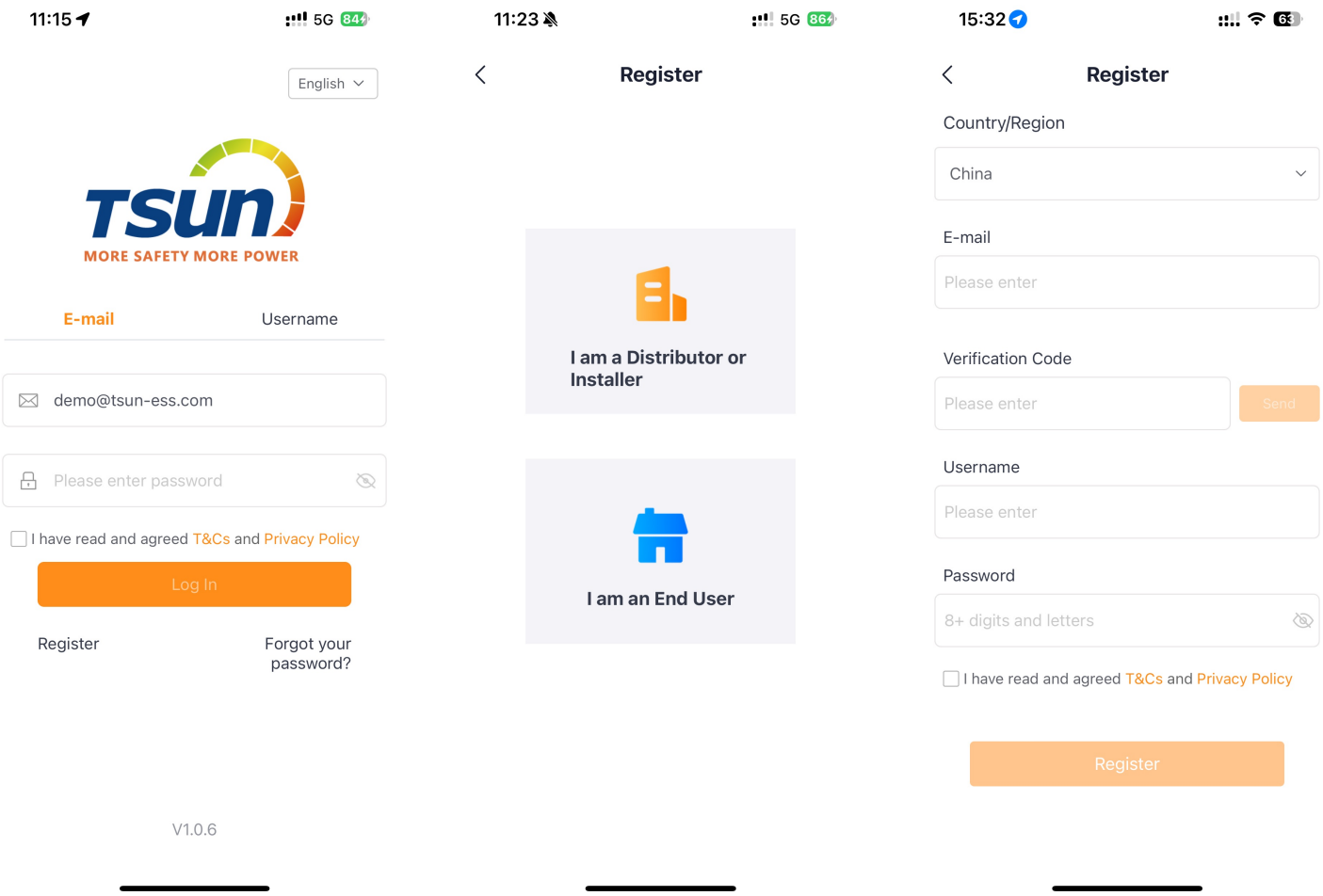
Monitoring system

Preparation

1. IOS users can directly search for "TSUN Smart" in the APP Store and download the app.
2. Android users can directly search for "TSUN Smart" in Google Play and download the app.
3. Android users who cannot access Google Play can scan the QR code below to download and install "TSUN Smart".

Register&Log in

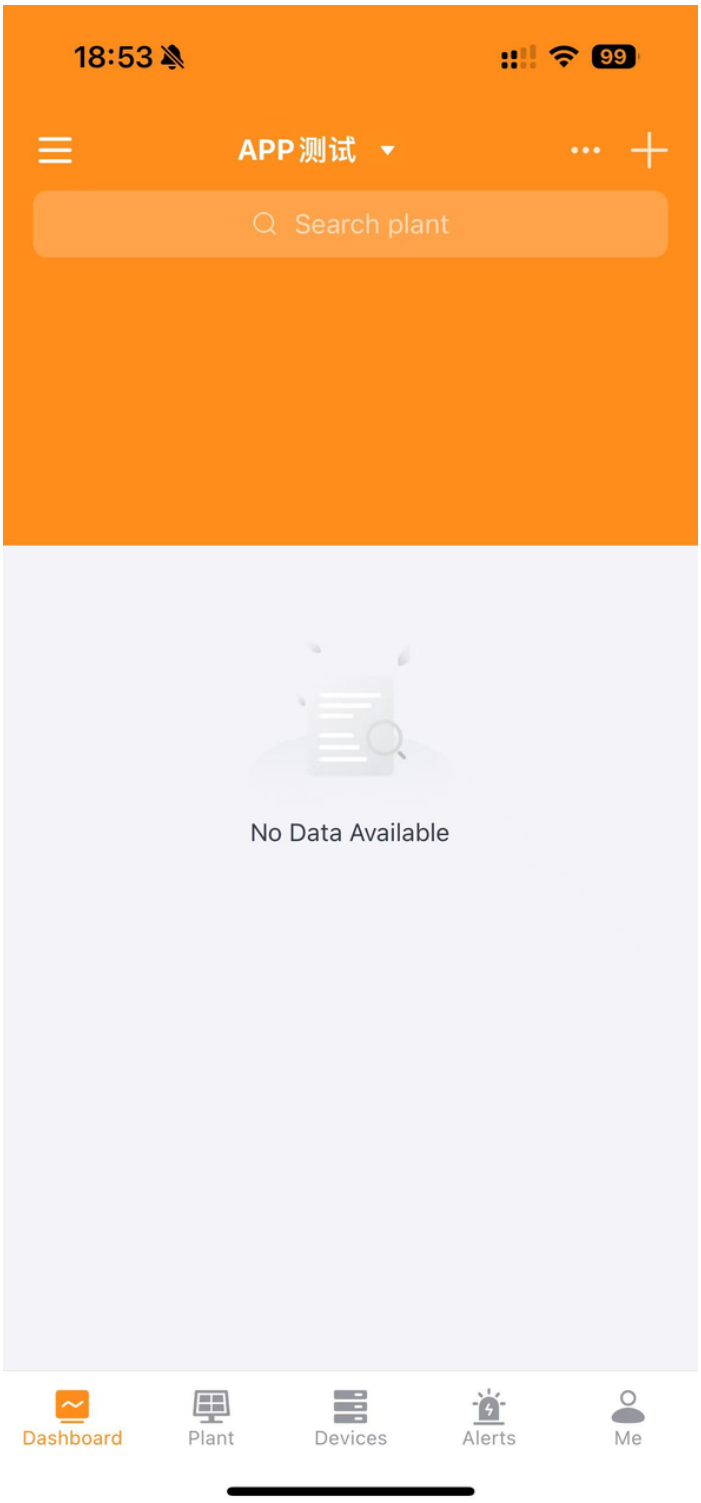
Click"Register", select "I am a Distributor or Installer" , and fill in all registration details & read the T&C and Privacy Policy.

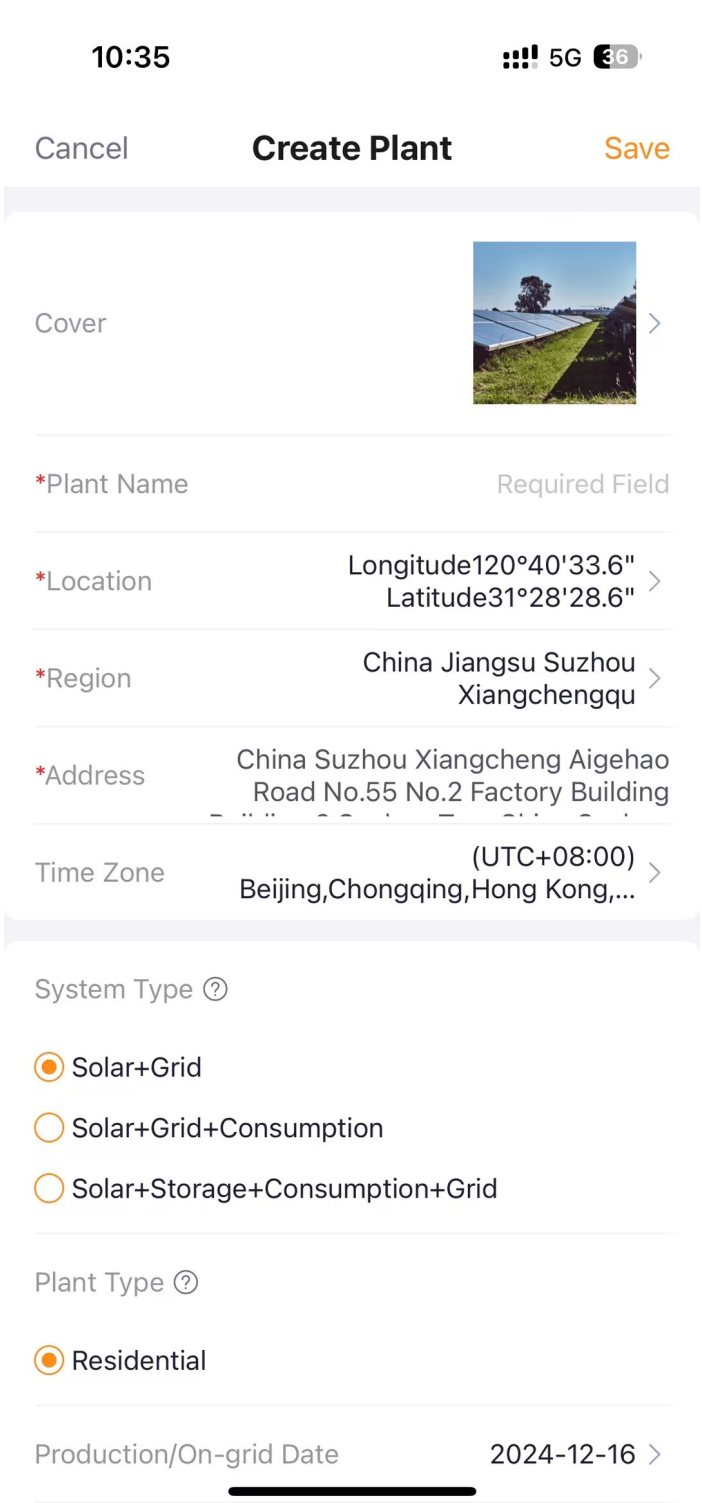


Add Plant

Click "+" to create a soalr plant. After filling in the plant information, click "Save" to complete the solar plant creation.

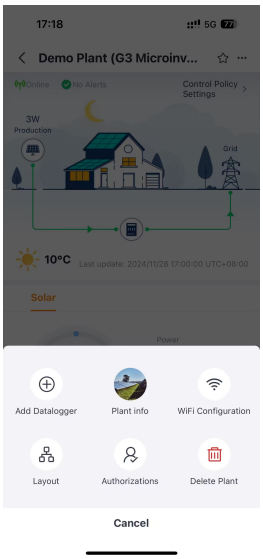
⚠	**Note:** If you install the smart meter in the system, the system type should be "Solar + Grid + Consumption".





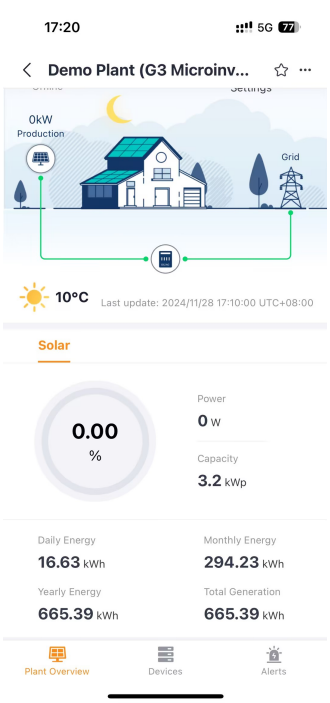
Add Device

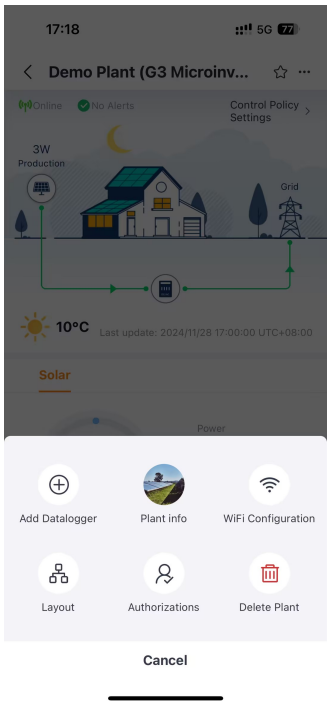
Click "Add Datalogger" and scan the QR code of the label on the carton to complete this step.

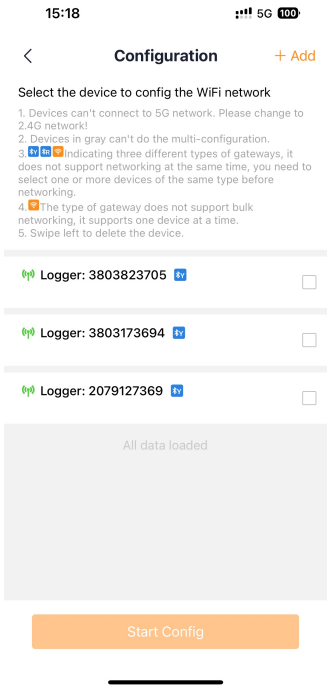


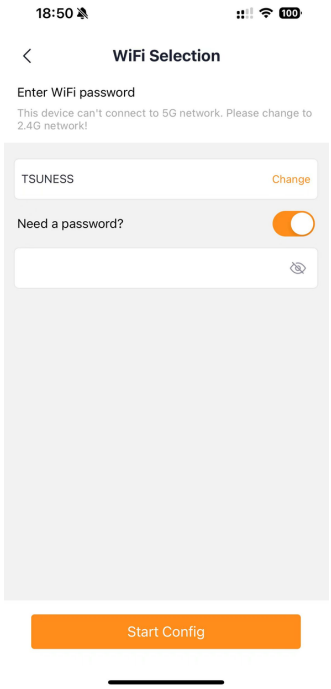
WiFi Configuration

- Click “...” on the plant homepage and select "WiFi Configuration".
- Select the corresponding microinverter for network configuration. You can select multiple microinverters if they belong to the same system.
- Click "Start Config" to start configuration .
- Select the WiFi you want to connect to, input the WiFi password, and click "Start Config" again.







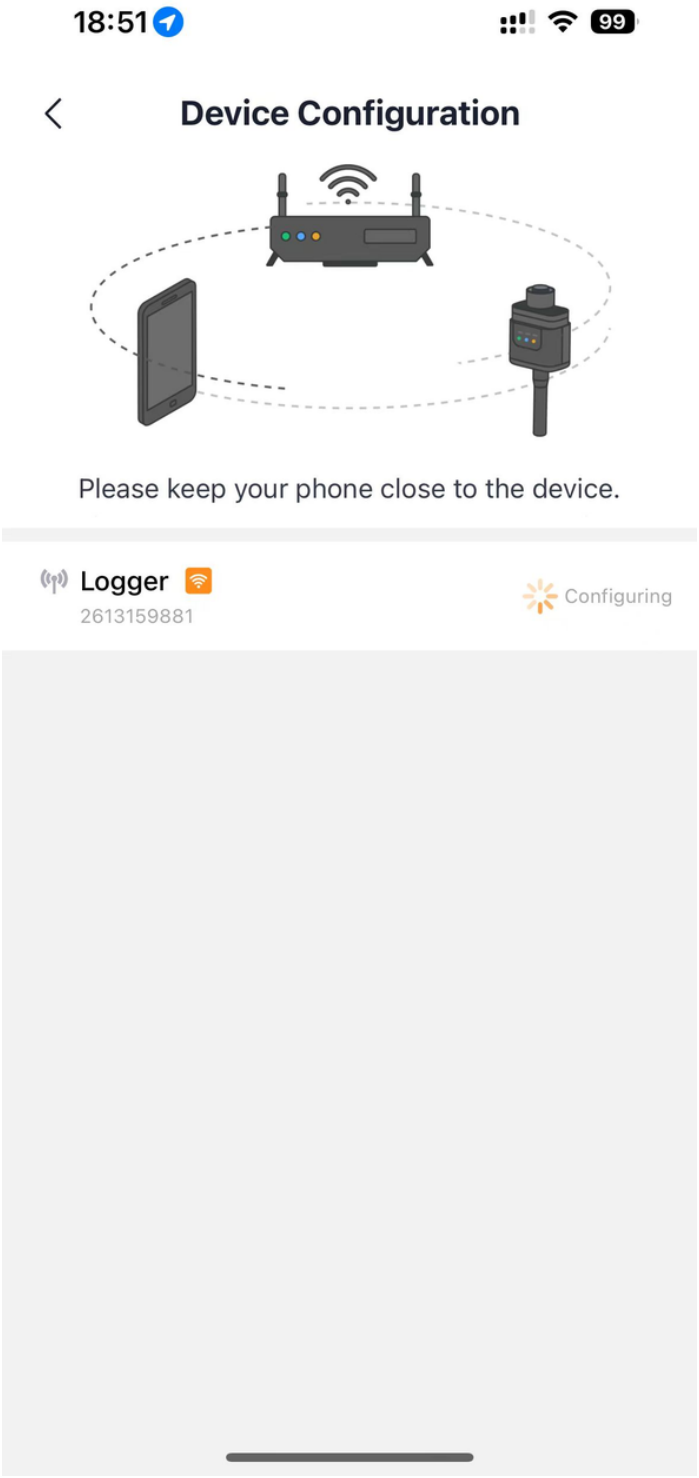


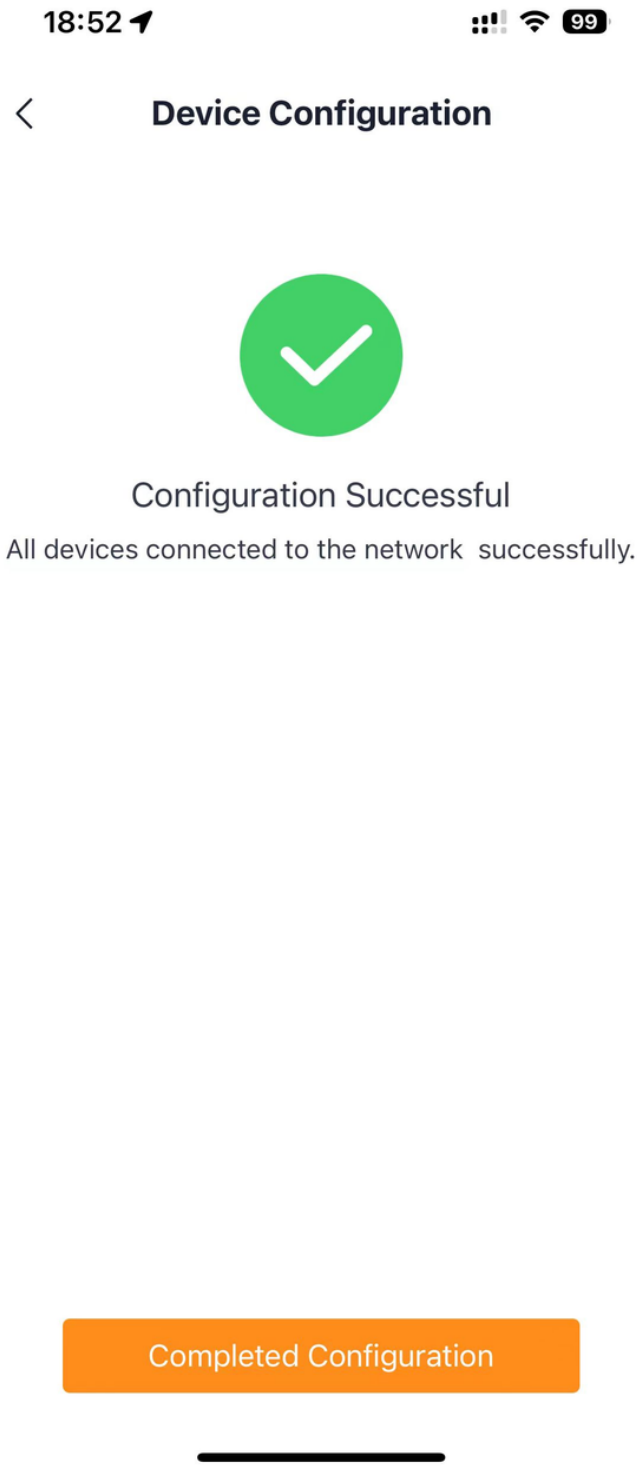
During the network configuration process, please only use the 2.4GHz network. If the page displays an error, check the following possible causes and try again:

- Check if the WiFi password is correct or not, and make sure WiFi name has no special characters, only numbers and English letters are acceptable .

- Check if WiFi router work in 2.4Ghz , the WiFi of microinverter cannot connects to the 5G network.
- WiFi signal strength should be at least 2 bars shown on the phone at the installation spot.
- One router can only connect to up to 9 devices (not only microinverter, but also phones, PCs, etc.).
- Make sure that the phone's WLAN and bluetooth are turned on.
- Try shortening the distance between the phone and the device.

After approximately 10 seconds, the WiFi configuration will be completed successfully, and the data of microinverter will be uploaded to the server in about 5-10 minutes.

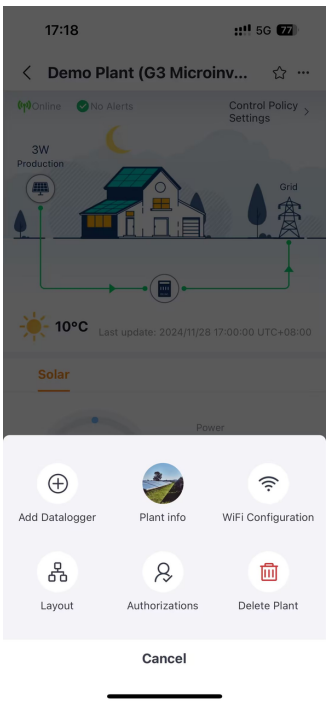


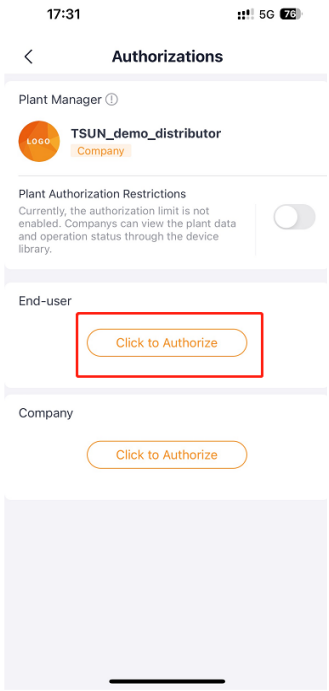


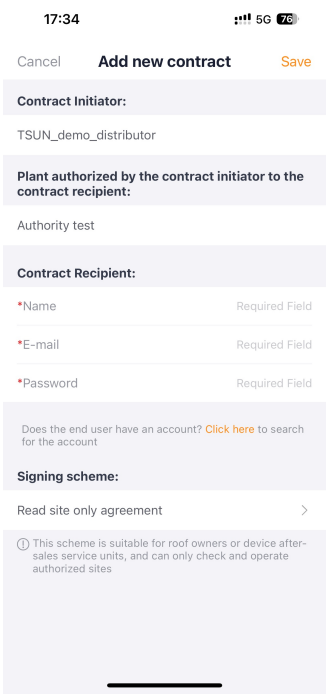
Note		

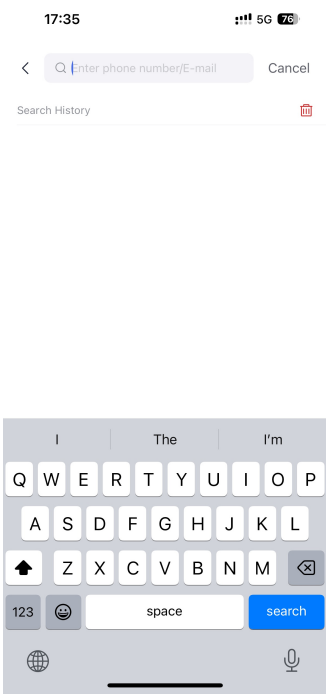
Authorized Plants to End User

- Click "Authorized plants to contract end users".
- Select "Click to Authorize".
- If the end user does not have his/her own account, add end user information , input end user name, e-mail and password.
- If the end user has his/her own account, click"Click here" and input the end user phone number or e-mail.



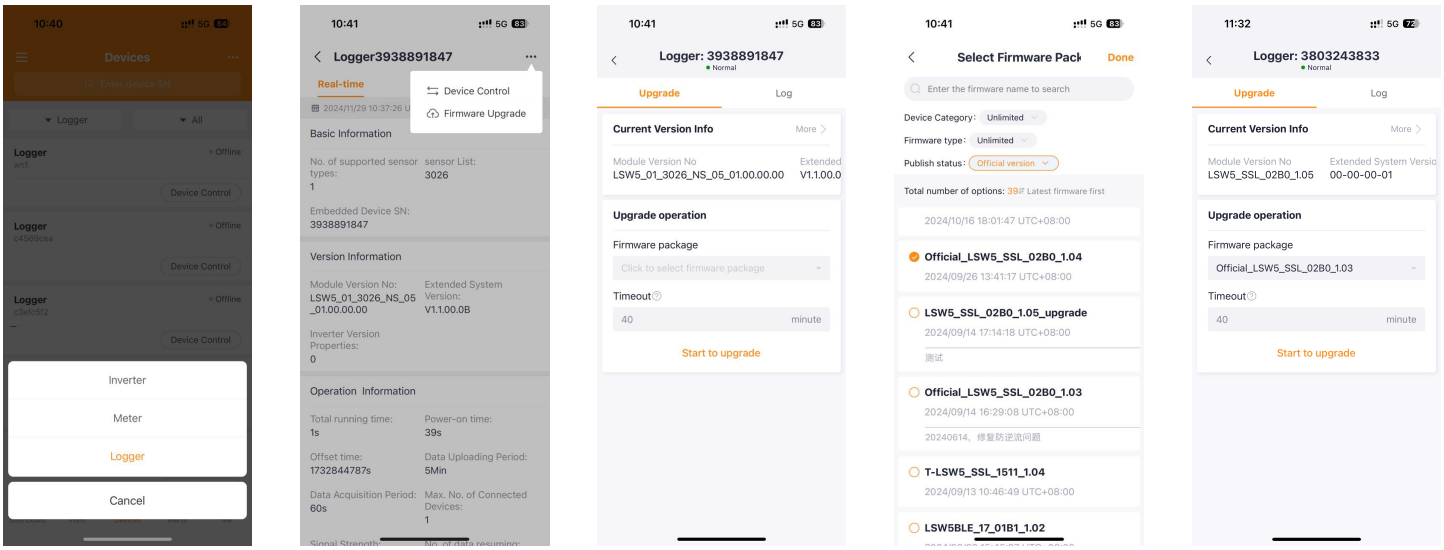






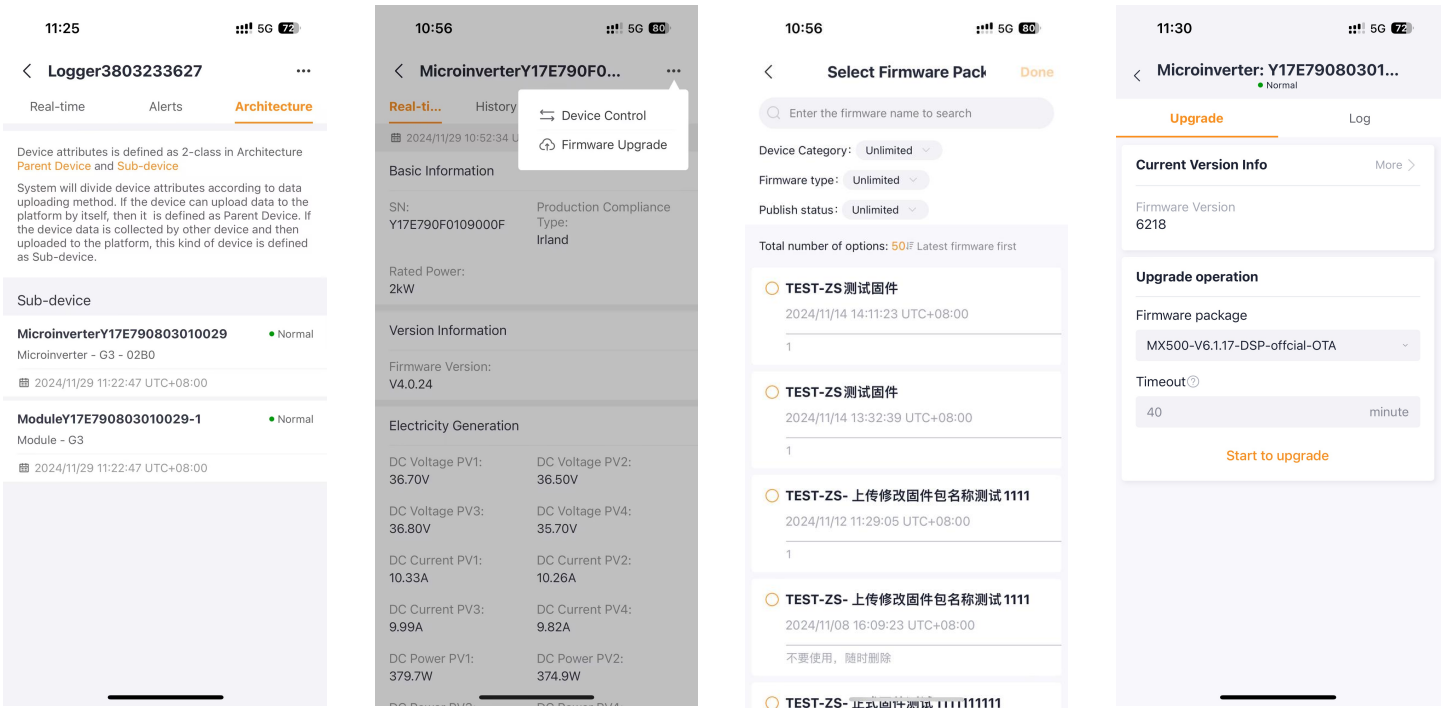
Logger Firmware Update

- Select "Logger" on the Devices page.
- Click “...” and select"Firmware update".
- Select the firmware corresponding to your device and click "Done".
- Click "Start to update" to begin the update process, and wait for several minutes until the update is completed.



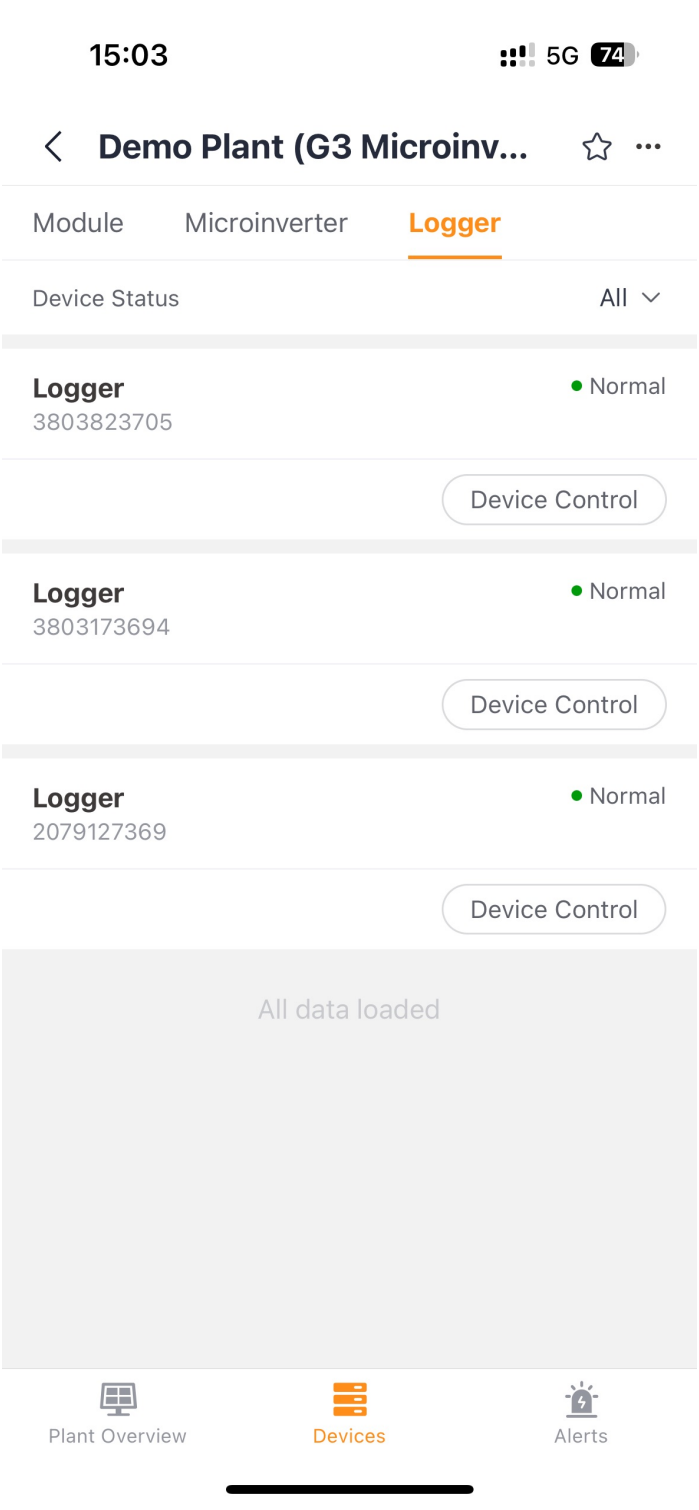
Microinverter Firmware Update

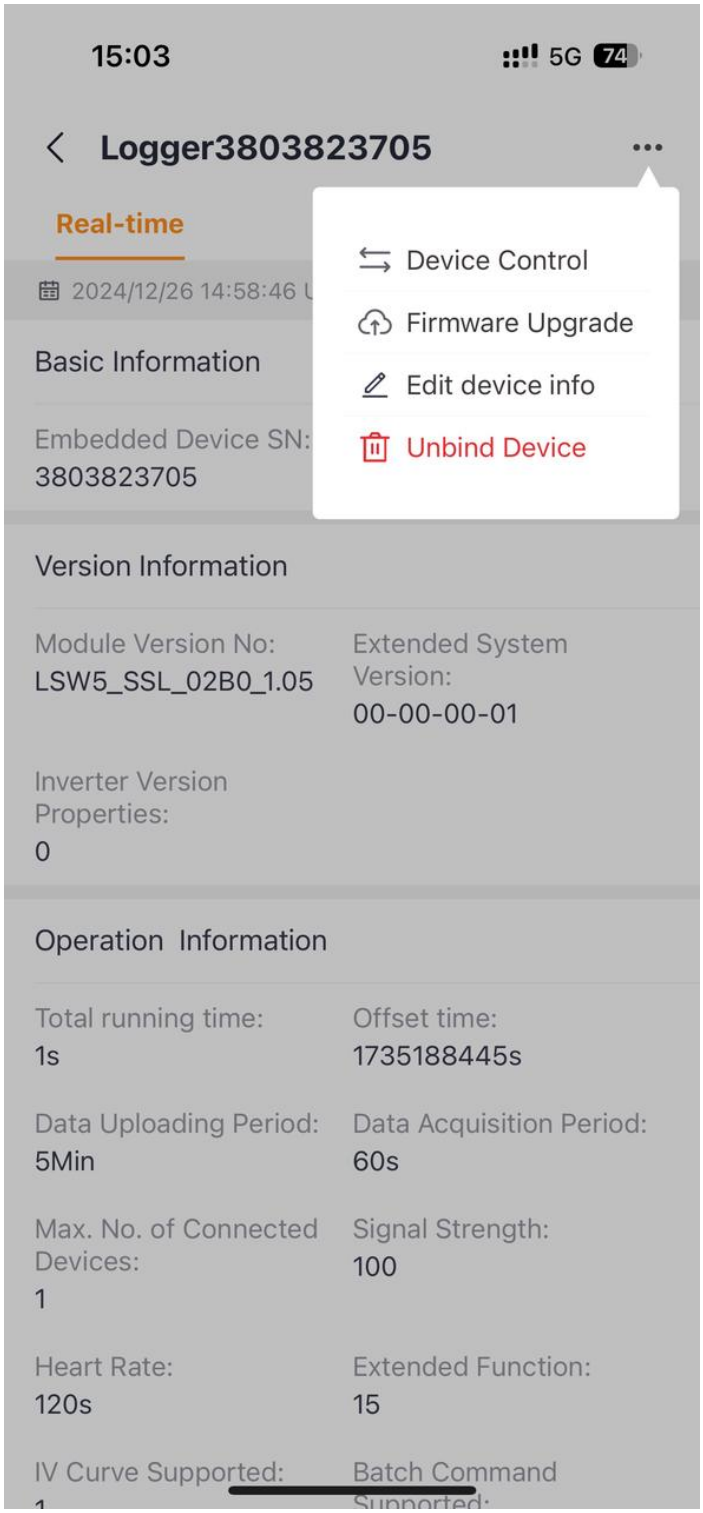
- Click "Architecture" on the Logger page.
- Click “...” and select "Firmware update".
- Select the firmware corresponding to your device and click "Done".
- Click "Start to update" to begin the update process, and wait for several minutes until the update is completed.



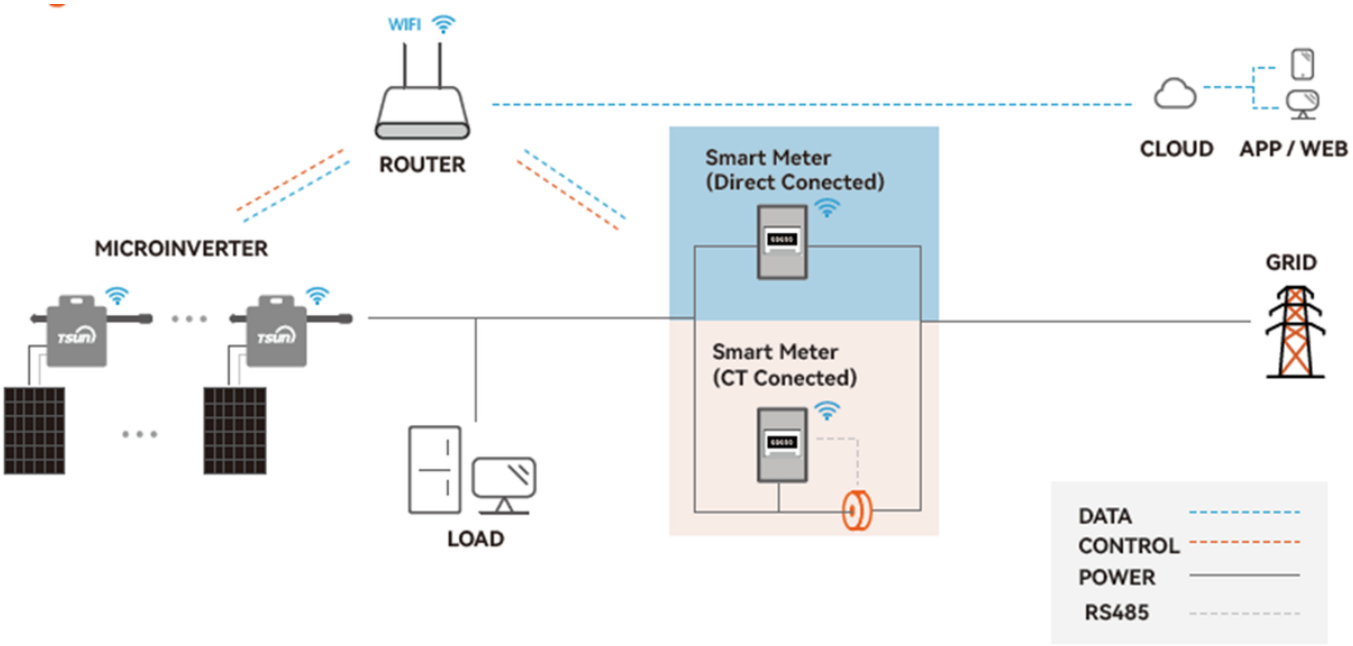
Unbind Device

- Select the device you want to unbind on the device page.
- Click"Unbind Device"to unbind device.





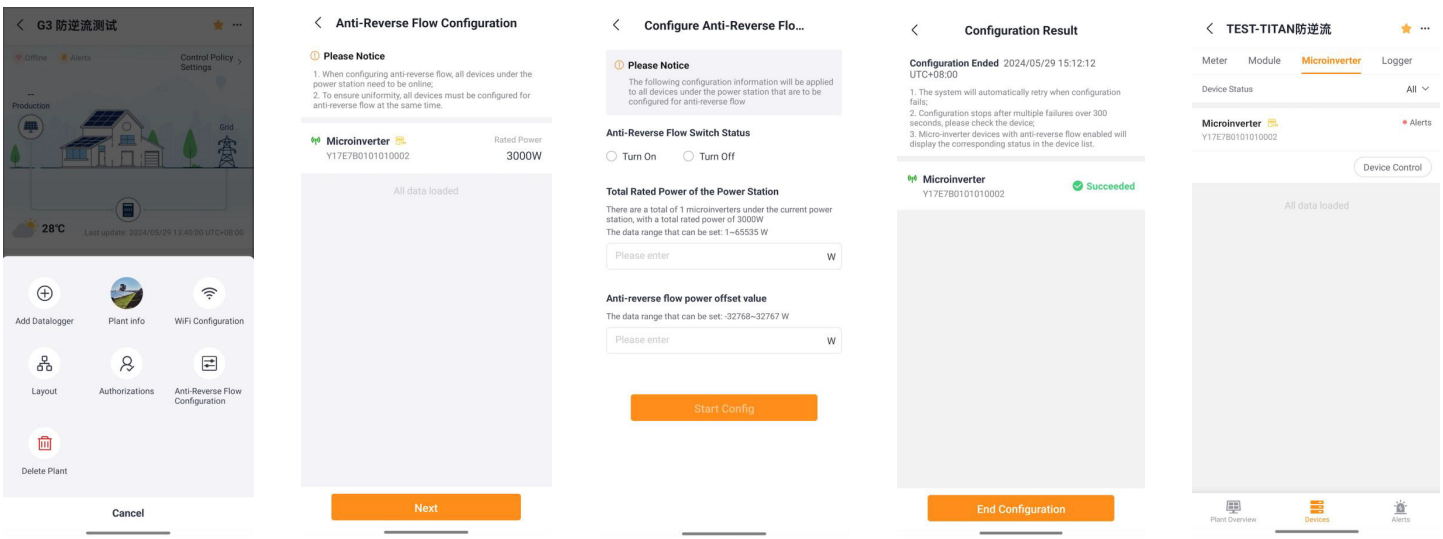
Anti-Reverse Flow Setting



If you want the system to have anti-reverse flow function, you need to purchase additional WiFi smart meter and configure the WiFi smart meter. For detailed instructions on how to configure the smart meter, please refer to the smart meter user manual.

⚠	**Note:** Smart meter need to be purchased separately .

To activate the anti-reverse flow function, click “…” on the plant homepage and click “Anti-Reverse Flow Configuration”. Choose “Turn On” and set the total plant power and offset value (Normally set to 0 W). Reconfirm all the information and click “OK”. Waiting for around 300 seconds and complete this configuration. Check the status in the device list after the configuration.



Self-Test Function for the Italian market

TSUN monitoring system provides self-test function for the Italian market. While using the self-test function, ensure that:

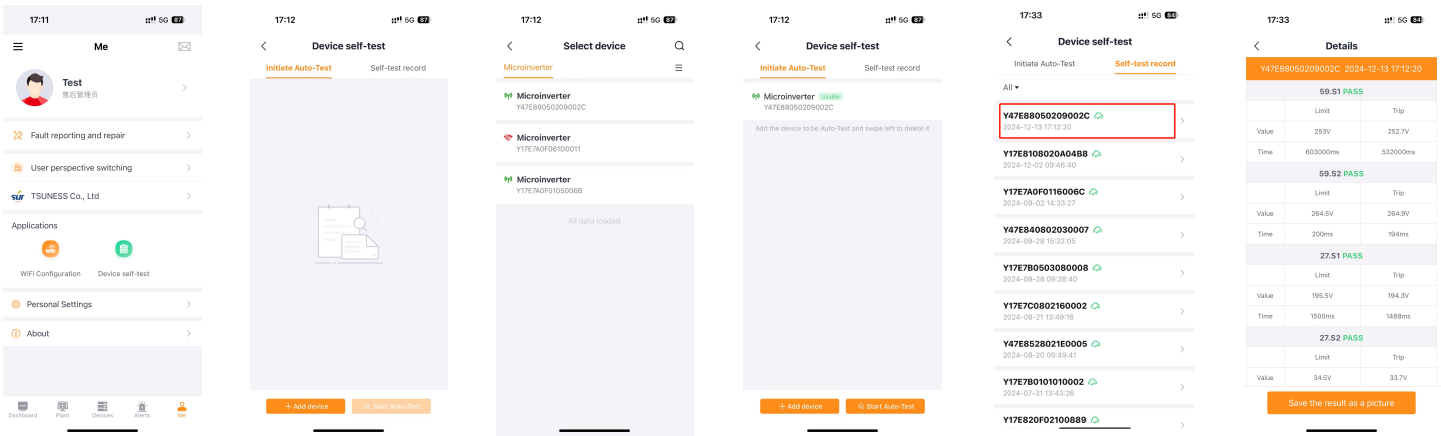
1） Microinverter country code is Italy;

2） Use distributor or installer account;

3） Use the self-test function on TSUN smart app or https://pro.talent-monitoring.com.

If you want to implement the self-test function on the TSUN smart app,

- Click" Me" and click "Device self-test".
- Click "Add device".
- Select the microinverter which you want to do self-test.
- Click "Start Auto-Test", and wait for 10-20 minutes until self-test completed.



Remote Dispatch

In some countries, it might be required that the generating plants should be equipped with a logic interface (input port) to cease the output of active power or limit active power to a regulated level. This logic input can be the RS485 port, Ethernet port, and so on. While using the function, ensure that:

1) The microinverter has RS485 port.

Currently supported model:**MX2400D,MX2500D,MX2700D,MX3000D,MX3300D**

2)DTU is installed in the system.

For detailed instructions on how to configure the Data Transfer Unit(DTU), please refer to the DTU user manual.

Troubleshooting

Code	Fault Information	Troubleshooting
1		

	PV VoltOver_Fault	Check the voltage of the PV module and make sure that the voltage is below the maximum DC input voltage of the microinverter. If this fault appears continuously, please contact the TSUN service.
2	PV VoltLow_Fault	This warning mostly appears in the morning or at dusk. It’s normal and will disappear automatically. If this warning appears in the daytime, please check the connection to the PV module. If this fault appears continuously, please contact the TSUN service.
3	PV CurrOver_Fault	Disconnect the AC power to restart the microinverter. If this fault appears continuously, please contact the TSUN service.
4	No Utility	The AC power grid is disconnected. Check the AC power grid. If this fault appears continuously, please contact the TSUN service.
5	GridVoltOverRating	The AC power grid is abnormal. This fault will disappear automatically when the AC power grid is normal. If this fault appears continuously, please contact the TSUN service.
6	GridVoltUnderRating	
7	GridFreqOverRating	
8	GridFreqUnderRating	
9	OverTemp	Check the installation of the microinverter. Make sure the microinverter has good heat dissipation。 If this fault appears continuously, please contact the TSUN service.
10	GFDI_Fault	This is an internal fault. Disconnect the AC power to restart the microinverter. If this fault appears continuously, please contact the TSUN service.
11	Fault 01 - 08	Disconnect the AC power to restart the microinverter. If this fault appears continuously, please contact the TSUN service.

Product Maintenance

Routine Maintenance

- Only authorized personnel are allowed to carry out the maintenance operations and are responsible for reporting any anomalies.
- Always use the personal protective equipment provided by the employer when carrying out maintenance.
- During normal operation, check that the environmental conditions and logistics are appropriate. Make sure that the conditions have not changed over time and that the equipment is not exposed to adverse weather conditions and has not been covered with foreign bodies.
- DO NOT use the equipment if any problems are found and restore the normal conditions after the fault has been corrected.
- Conduct an annual inspection on various components and clean the equipment with a vacuum cleaner or special brushes.
- Firmware version can be checked by using the monitoring system.
- Always de-energize the AC branch circuit before servicing.
- Do not attempt to dismantle the microinverter or do any internal repairs! To preserve the integrity of safety and insulation, microinverters are not designed to allow internal repairs!
- Maintenance operations must be carried out with the equipment disconnected from the grid (AC power switch off) and the photovoltaic modules shaded or isolated unless otherwise indicated.
- For cleaning, DO NOT use rags made of filamentary material or corrosive products that may corrode parts of the equipment or generate electrostatic charges.
- Avoid temporary repairs. All repairs should be carried out using only genuine spare parts.

Storage

- If the equipment is not used immediately or is stored for long periods, check whether it is correctly packed. The equipment must be stored in well-ventilated indoor areas that do not have characteristics that might damage the components of the equipment.
- Take a complete inspection when restarting after a long time or prolonged stop.
- Please dispose of the equipment properly after scrapping, as component parts are potentially harmful to the environment, following the regulations in force in the country of installation.

Recycling and Disposal

This device should not be disposed of as residential waste. A Microinverter that has reached the end of its life is not required to be returned to the dealer. Users must find an approved collection and recycling facility in the area.

Warranty

This warranty is subject to the following conditions:

- The products must have been installed and correctly commissioned by a licensed installer. Proof may be required of correct commissioning of the Product (such as a certificate of compliance). Claims for failures due to incorrect installation or commissioning are not covered under this warranty.
- The product must have its original serial number and rating labels intact and readable.
- This Warranty does not extend to any product that has been completely or partially disassembled or modified, except where such disassembly is carried out by TSUNESS.
- If any faults can not be recovered, pls contact Tsun local support team which are stated in below.
- The original purchase receipt must be provided.

For detailed warranty policies, please refer to the document: TSUN warranty service terms& conditions

Exclusions

Customers need to comply with TSUN's installation instructions and specifications to use TSUN's products correctly, otherwise, TSUN will not take any responsibility on the failure parts.

In the event of damages related to the causes listed below, no warranty claims will be acknowledged or accepted. Claims that relate to defects that are caused by the following factors are not covered by TSUN’ warranty obligations:

a. Force majeure (storm damage, lightning strike, overvoltage, fire, thunderstorm, flooding, warfare, major infectious diseases, etc.)

b. Improper or noncompliant use

c. Improper installation, commissioning, start up or operation (contrary to the guidance detailed in the installation manual)

d. Inadequate ventilation and circulation resulting in minimized cooling and natural air flow

e. Installation in a corrosive environment

f. Damage during transportation

g. Unauthorized repair attempts

h. Normal appearance wears out, including discolor and scratch

i. Damaged caused by defects of other components out of the system

j. The original identification marks (including trademark and serial number) of such product have been defected, altered, or removed.

Distributor Responsibility

In the event of an equipment failure or fault, it is the Distributor’ s responsibility to work directly with the TSUNESS Service Centre to limit the return of non-faulty equipment. TSUNESS Service Centre will work with the Distributor to rectify the fault or fault message through telephone support or with direct PC links. Note: To qualify for further compensation and a replacement unit, the distributor/installer must first contact TSUNESS and fulfill the distributor’ s /installer’ s responsibilities under instruction.

Within the warranty period of the microinverter, the invoice and date of purchase are required for the service. Besides, the trademark on the product should be visible, otherwise, warranty is not available.

More information can be found in TSUN Warranty Policy.

Contact Us

(DE) service_DE@tsun-ess.com

(FR/Italy) service_FR@tsun-ess.com

(Other European regions)service_UK@tsun-ess.com

(Greater China)service_CN@tsun-ess.com

(Latin America)service_BRA@tsun-ess.com

(South Asia)service_THA@tsun-ess.com

Appendix

Product Certificates

TSUNESS Co., Ltd declares that the radio equipment (Microinverter) is in complies with Directive 2014/53/EU. The full text of the EU Declaration of Conformity is available at the following internet address: https://www.tsun-ess.com/files/10_1729492281475.pdf

OPERATING FREQUENCY (the maximum transmitted power)

2412MHz—2472MHz(EIRP ＜20dBm)

2402MHz—2480MHz(EIRP ＜10dBm)

Datasheet

1 in 1

Model	MS300	MS350	MS400/MX400	MS450	MS500

Input Data (DC)					
Recommended Module Power (Wp)	300 - 550		300 - 600		
Start up Voltage per Input @Rated condition (V)	22				
MPPT Voltage Range per Input (V)	16 - 60				
Max. Input Voltage per Input (V)	60				
Short-current(A)	20				
Max. Input Current per Input (A)	14				
Quantity of MPPTs	1				
Quantity of DC Inputs	1				
Output Data (AC)					
Max. Continuous Model (VA)	300	350	400	450	500
Nominal Continuous Power (W)	300	350	400	450	500
Nominal Output Current (A)	1.30	1.53	1.74	1.96	2.17
Max. Output Current (A)	1.45	1.59	2.00	2.25	2.50
Nominal Output Voltage (V)	220/230/240, L/N/PE				
Nominal Frequency (Hz)	50/60				
Power Factor	>0.99 default 0.8 leading ⋯ 0.8 lagging				
Output Current Harmonic Distortion	<3%				
Maximum units per 12AWG branch	23	20	17	15	14
Maximum units per 10AWG branch	31	26	23	20	18
Efficiency					
Peak Inverter Efficiency	96.7%				
EU Weighted Efficiency	96.5%				
Nominal Mppt Efficiency	99.9%				
Night Time Power Consumption	<50 mW				
Mechanical Data					

Dimensions (W×H×D mm)	164 * 225 * 30
Weight [kg]	2.1(Daisy chain)/1.75(Trunk cable)
General Data	
Communication	WiFi (Bluetooth)
Type of Enclosure	IP67
Cooling	Natural convection
Type of isolation	Galvanically Isolated HF Transformer
Operating Ambient Temperature Range	-40 ~ +65 °C (derating of over 50°C Ambient Temperature@ PV input 30V)
Relative Humidity	100%
Max. Operating Altitude Without Derating [m]	2000
Over voltage category	III(Mains), II (PV)
Compliance	EN 50549-1: 2019, VDE-AR-N 4105: 2018, VFR2018,IEC/EN 62109-1/-2, CEI 0-21：2022 / IEC/EN 61000-6-1/-2/-3/-4, IEC/EN 61000-3-2/-3
※ The AC voltage and frequency range may vary depending on specific country grid.	

2 in 1

Model	**MS600**	**MS700**	**MS800**	**MX800**	**MX900**	**MX1000**
Input Data (DC)						
Recommended Module Power (Wp)	300-550			300 - 600		
Start up Voltage per Input@Rated condition (V)	22					
MPPT Voltage Range per Input (V)	16 - 60					
Max. Input Voltage per Input (V)	60					
Short-current(A)	20					

Max. Input Current per Input (A)	14					
Quantity of MPPTs	2					
Quantity of DC Inputs	2					
Output Data (AC)						
Max. Continuous Model (VA)	600	700	800	800	900	1000
Nominal Continuous Power (W)	600	700	800	800	900	1000
Nominal Output Current (A)	2.61	3.04	3.48	3.48	3.91	4.35
Max. Output Current (A)	3.00	3.19	4.00	4.00	4.50	5.00
Nominal Output Voltage (V)	220/230/240, L/N/PE					
Nominal Frequency (Hz)	50/60					
Power Factor	>0.99 default 0.8 leading ⋯ 0.8 lagging					
Output Current Harmonic Distortion	<3%					
Maximum units per 12AWG branch	12	10		9	8	7
Maximum units per 10AWG branch	15	13		12	10	9
Efficiency						
Peak Inverter Efficiency	96.7%					
EU Weighted Efficiency	96.5%					
Nominal Mppt Efficiency	99.9%					
Night Time Power Consumption	<50 mW					
Mechanical Data						
Dimensions (W×H×D mm)	250 * 223 * 30			261 * 228 * 32		
Weight [kg]	3.1(Daisy chain)/ 2.6(Trunk cable)			3.3(Daisy chain)/2.8(Trunk cable)		
General Data						
Communication	WiFi (Bluetooth)			WiFi (Bluetooth) or RS485		
Type of Enclosure	IP67					
Cooling	Natural convection					

Type of isolation	HF isolation
Operating Ambient Temperature Range	-40 ~ +65 °C (derating of over 50°C Ambient Temperature@ PV input 30V)
Relative Humidity	100%
Max. Operating Altitude Without Derating [m]	2000
Over voltage category	III(Mains), II (PV)
Compliance	EN 50549-1: 2019, VDE-AR-N 4105: 2018, VFR2018,IEC/EN 62109-1/-2, CEI 0-21：2022 / IEC/EN 61000-6-1/-2/-3/-4, IEC/EN 61000-3-2/-3
※ The AC voltage and frequency range may vary depending on specific country grid.	

4 in 1

Model	**MS1600**	**MS1800**	**MS2000**	**MX2250**
Input Data (DC)				
Recommended Module Power (Wp)	300 - 600			400 - 700
Start up Voltage per Input@Rated condition (V)	22			
MPPT Voltage Range per Input (V)	16~60			
Max. Input Voltage per Input (V)	60			
Short-current(A)	25			
Max. Input Current per Input (A)	16			18
Quantity of MPPTs	4			
Quantity of DC Inputs	4			
Output Data (AC)				
Max. Continuous Model (VA)	1600	1800	2000	2250
Nominal Continuous Power (W)	1600	1800	2000	2250
Nominal Output Current (A)	6.96	7.83	8.70	9.78

Max. Output Current (A)	8	9	10	11.5
Nominal Output Voltage (V)	220/230/240, L/N/PE			
Nominal Frequency (Hz)	50/60			
Power Factor	>0.99 default 0.8 leading ⋯ 0.8 lagging			
Output Current Harmonic Distortion	<3%			
Maximum units per 12AWG branch	4	4	3	3
Maximum units per 10AWG branch	6	5	5	4
Efficiency				
Peak Inverter Efficiency	96.7%			
EU Weighted Efficiency	96.5%			
Nominal Mppt Efficiency	99.9%			
Night Time Power Consumption	<50 mW			
Mechanical Data				
Dimensions (W×H×D mm)	331 * 261 * 44			
Weight [kg]	5.5(Daisy chain)/5(Trunk cable)			
General Data				
Communication	WiFi (Bluetooth) or RS485			
Type of Enclosure	IP67			
Cooling	Natural convection			
Type of isolation	HF isolation			
Operating Ambient Temperature Range	-40 ~ +65 °C (derating of over 50°C Ambient Temperature@ PV input 30V)			
Relative Humidity	100%			
Max. Operating Altitude Without Derating [m]	2000			
Over voltage category	III(Mains), II (PV)			
Compliance				

	EN 50549-1: 2019, VDE-AR-N 4105: 2018, VFR2018,IEC/EN 62109-1/-2, CEI 0-21： 2022 / IEC/EN 61000-6-1/-2/-3/-4, IEC/EN 61000-3-2/-3
※ The AC voltage and frequency range may vary depending on specific country grid.	

6 in 1

Model	**MX2400D**	**MX2500D**	**MX2700D**	**MX3000 D**	**MX3300D**
Input Data (DC)					
Recommended Module Power (Wp)	300-600				400-700
Start up Voltage per Input@Rated condition (V)	22				
MPPT Voltage Range per Input (V)	16 - 60				
Max. Input Voltage per Input (V)	60				
Short-current(A)	25				
Max. Input Current per Input (A)	18				
Quantity of MPPTs	3				
Quantity of DC Inputs	6				
Output Data (AC)					
Max. Continuous Model (VA)	2400	2500	2700	3000	3300
Nominal Continuous Power (W)	2400	2500	2700	3000	3300
Nominal Output Current (A)	10.43	10.87	11.74	13.04	14.35
Max. Output Current (A)	12.00	12.50	13.50	15.00	16.50
Nominal Output Voltage (V)	220/230/240, L/N/PE				
Nominal Frequency (Hz)	50/60				
Power Factor	>0.99 default 0.8 leading ⋯ 0.8 lagging				
Output Current Harmonic Distortion	<3%				
Maximum units per 12AWG branch	12	10	9	8	7

Maximum units per 10AWG branch	15	13	12	10	9
Efficiency					
Peak Inverter Efficiency	96.7%				
EU Weighted Efficiency	96.5%				
Nominal Mppt Efficiency	99.9%				
Night Time Power Consumption	<50 mW				
Mechanical Data					
Dimensions (W×H×D mm)	380*313*49				
Weight [kg]	8.2(Daisy-chain)/7.5(Trunk cable)				
General Data					
Communication	WiFi (Bluetooth) + RS485				
Type of Enclosure	IP67				
Cooling	Natural convection				
Type of isolation	HF isolation				
Operating Ambient Temperature Range	-40 ~ +65 °C (derating of over 50°C Ambient Temperature@ PV input 30V)				
Relative Humidity	100%				
Max. Operating Altitude Without Derating [m]	2000				
Over voltage category	III(Mains), II (PV)				
Compliance	EN 50549-1: 2019, VDE-AR-N 4105: 2018, VFR2018,IEC/EN 62109-1/-2, CEI 0-21：2022 / IEC/EN 61000-6-1/-2/-3/-4, IEC/EN 61000-3-2/-3				
※ The AC voltage and frequency range may vary depending on specific country grid.					

Manual do Usuário_PT

Notas de Atualização

Este documento registra as alterações relacionadas aos microinversores da Série G3.