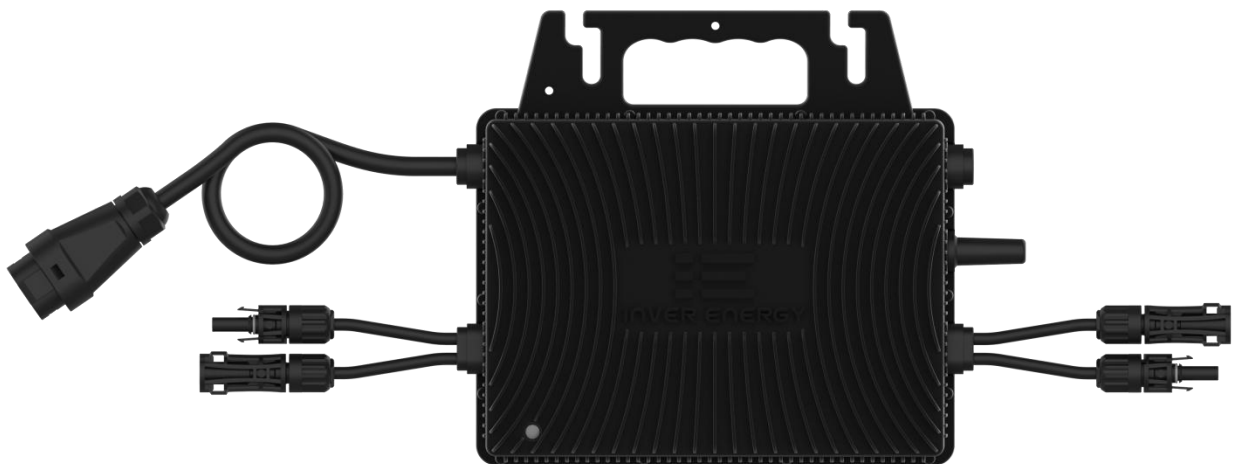


User Manual

IS-060S / IS-080S

NS-060S/NS-080S



Quick Start: Connecting Your Device

1. Scan the QR code below to download the “Inver Energy” app. Sign up or log in using a supplier-provided account.



Inver Energy

2. Power on the microinverter and check for a green light, indicating that it is ready and both DC and AC are connected.

3. To confirm that the device is on, enable Bluetooth on your smartphone and check for the device's signal.

4. To pair your microinverter with the app, tap “Network Configuration” in the app to detect unconnected devices by their SN code.

5. To connect to Wi-Fi, ISO users default to using the Wi-Fi connected to their current phone, while Android users can select from a list of available networks.

Note: Device data can only be accessed in the app after a successful Wi-Fi connection.

About Microinverter

This system is composed of a group of microinverters that convert direct current (DC) into alternating current (AC) and feeds it into the public grid. The system is designed for the incorporation of one Microinverter for four photovoltaic modules. Each Microinverter works independently that guarantees the maximum power generation of each photovoltaic module.

This setup enables user to control the production of a single photovoltaic module directly, consequently improving the flexibility and reliability of the system.

About the Manual

This manual contains important instructions for the IS-060/IS-080S/NS-060S/NS-080S Microinverter and must be read in its entirety before installing or commissioning the equipment. For safety, only qualified technician, who has received training or has demonstrated skills can install and maintain this microinverter under the guide of this document.

Other Information

Product information is subject to change without notice. User manual will be updated frequently, please refer to Invertechs official website at www.invertechs.com for the latest version.

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1 Important Safety Instructions

This manual contains important instructions to follow during installation and of the PV Grid-tied Inverter (Microinverter). To reduce the risk of electrical shock and ensure the safe installation and operation of the microinverter, the following symbols appear(see1.3) throughout this document to indicate dangerous conditions and important safety instructions.

Specifications subject to change without notice - please ensure you are using the latest manual found at the manufacturer website.

WARNING: This indicates a situation where failure to follow instructions may cause a serious hardware failure or personnel danger if not applied appropriately. Use extreme caution when performing this task.

****Note: This indicates information that is important for optimized microinverter operation. Follow these instructions strictly.***

1.1 Safety Instructions

- ✓ DO NOT Disconnect the PV module from the microinverter without Disconnecting the AC power.
- ✓ Only qualified professionals should install and/or replace the microinverter.
- ✓ Perform all electrical installations in accordance with local electrical codes.
- ✓ Before installing or using the microinverter, please read all instructions and cautionary markings in the technical documents and on the microinverter system and the microinverter solar- array.
- ✓ Be aware that the body of the microinverter is the heat sink and can reach a temperature of 80°C. To reduce risk of burns, do not touch the body of the microinverter.
- ✓ DO NOT attempt to repair the microinverter. If it fails, contact technical support to obtain an RMA number and start the replacement process. Damaging or opening the microinverter will void the warranty caution!

The external protective earthing conductor is connected to the inverter protective earthing terminal through AC connector.

When connecting, connect the AC connector first to ensure the inverter earthing then do the DC connections.

When Disconnecting, Disconnect the AC by opening the branch circuit breaker first but maintain the protective earthing conductor in the branch circuit breaker connect to the inverter, then Disconnect the DC inputs.

- ✓ In any circumstance, do not connect DC input when AC connector is unplugged.
- ✓ Please install isolation switching devices on the AC side of the inverter.

1.2 Radio Interference Statement

CE EMC Compliance: The equipment can comply with CE EMC, which are designed to protect against harmful interference in a residential installation. The equipment could radiate radio frequency energy, and this might cause harmful interference to radio communications if not following the instructions when installing and using the equipment. But there is no guarantee that interference will not occur in a particular installation. If this equipment causes harmful interference to radio or television reception, the following measures might resolve the issues:

- A) Relocate the receiving antenna and keep it well away from the equipment.
- B) Consult the dealer or an experienced radio / TV technical for help. Changes or modifications not expressly approved by the party responsible for compliance may void the user's authority to operate the equipment.

Invertechs (Xiamen) Technology Co., Ltd. hereby declares that the PV Microinverter in compliance with Directive 2014/53/EU."

Warning: Operation of this equipment in a residential environment could cause radio interference(refer to EN 55032).

1.3 The Meaning of Symbols

Symbol	Usage
	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 required must be returned to an authorized dealer or approved collection and recycling facility.
	Caution Do not come within 8 inches (20cm) of the microinverter for any length of time while it is in operation.
	Danger of high voltages Danger to life due to high voltage in the microinverter.
	Beware of hot surface The inverter can become hot during operation. Avoid contact with metal surfaces during operation.

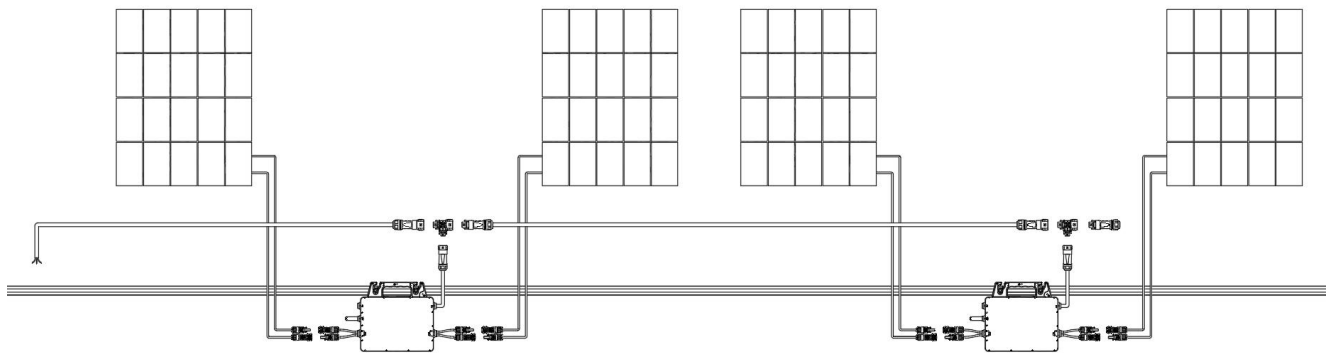
	CE mark The inverter complies with the requirements of the Low Voltage Directive for the European Union.
	Read manual first. Please read the installation manual first before installation, operation, and maintenance.

This image shows a full page of white paper with horizontal dashed lines, typical of primary-ruled notebook paper. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

2 Microinverter System Introduction

2.1 About 2 in 1 Unit

“2-in-1 Unit Microinverter” with ultra-wide DC input operating voltage range (16 V–60 V) and low start-up voltage (22 V only).



2.2 Microinverter Highlights

- Maximum output power up to 600W/800W;
- Peak efficiency 96.70%.
- Static MPPT efficiency 99.90%, Dynamic MPPT efficiency 99.76% in overcast weather
- Power factor (adjustable) 0.90 leading.....0.90 lagging
- High reliability: NEMA6 (IP67) enclosure, 6000V surge protection.
- Built-in Wi-Fi module enables quicker and easier installation and commissioning
- Connect directly to the home router, no gateway is required

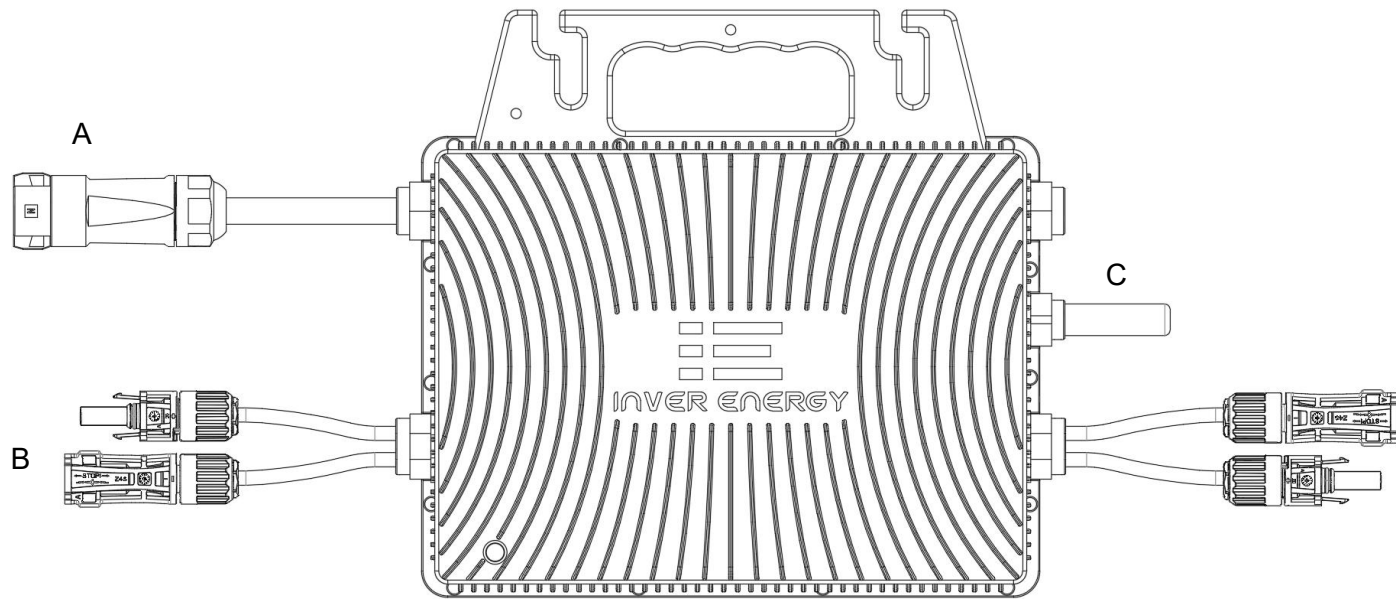
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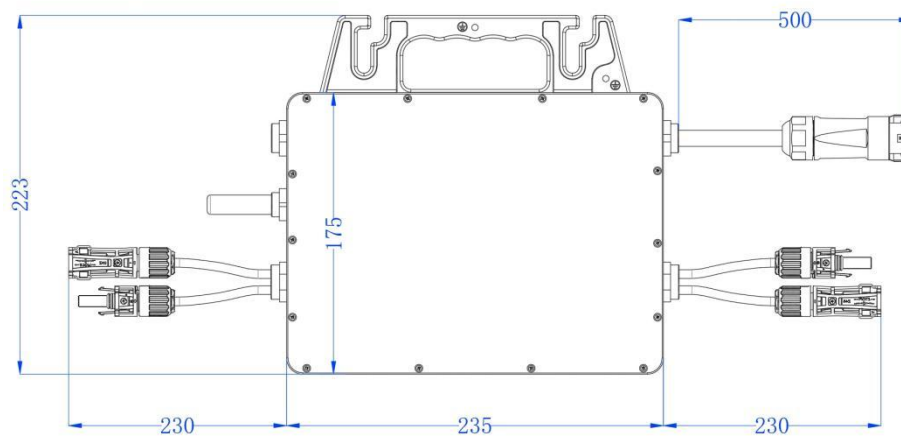
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2.3 Terminals Introduction



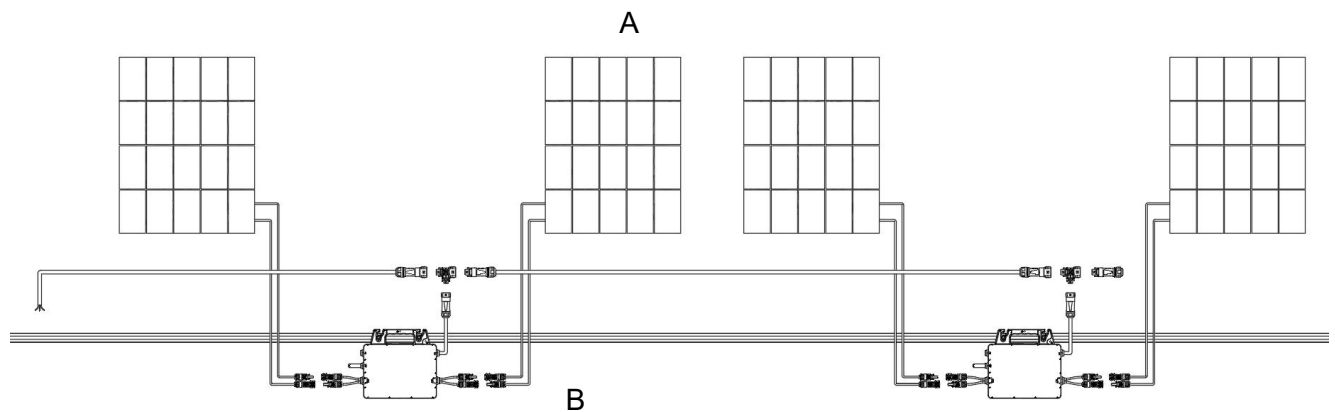
Object	Description
A	AC Connector
B	DC Connectors
C	2.4G Wireless Terminal

2.4 Dimensions (mm)



3 About Installation

3.1 Accessories



Object	Description
A	Microinverter
B	PV module

***Note:**

- 1. All accessories above are not included in the package and need to be purchased separately. Please contact our sales representative for the price.***
- 2. PV modules should be connected to DC input ports of a microinverter.***
- 3. Use DC extension cable when the original cable is not long enough. Please consult the local power operator to make sure that the DC cable complies with local regulations.***

3.2 Installation Precaution

Please install the microinverter and all DC connections under the PV module to avoiding direct sunlight, rain exposure, snow layup, UV etc. Allow a minimum of 2 cm of space around the microinverter enclosure to ensure ventilation and heat dissipation.

3.3 Preparation

Installation of the equipment is carried out based on the system design and the place in which the equipment is installed.

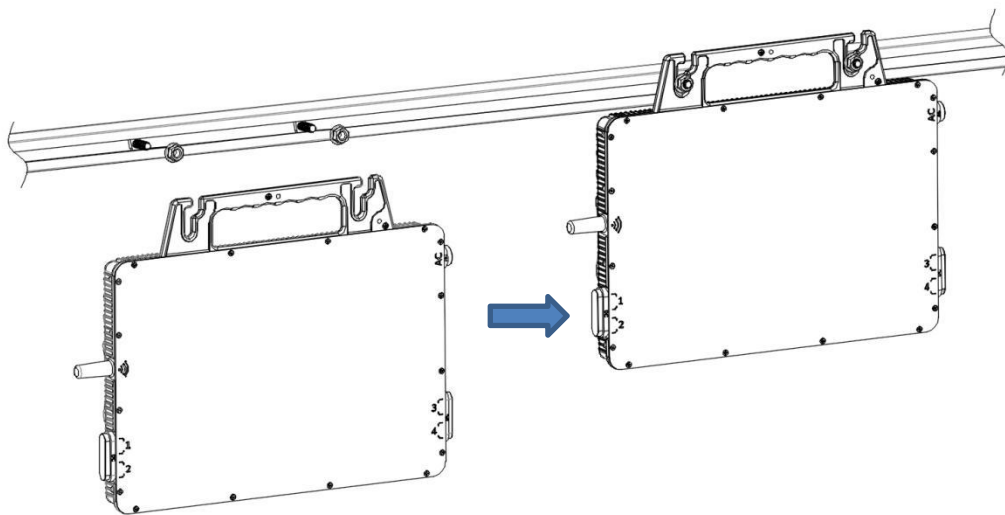
- The installation must be carried out with the equipment dISConnected from the grid (power Disconnectswitch open) and with the PV modules shaded or isolated.

-
- Referring to the Technical Data to make sure the environmental conditions fit the microinverter's requirement (degree of protection, temperature, humidity, altitude, etc.)
 - To avoid power de-rating due to an increase in the microinverter internal temperature, do not expose it to direct sunlight.
 - To avoid overheating, always make sure the air flow around the microinverter is not blocked.
 - Do not install in places where gasses or flammable substances may be present.
 - Avoid electromagnetic interference that can compromise the correct operation of electronic equipment.
 - When choosing the position of installation, comply with the following conditions:
 - Install only on structures specifically conceived for PV modules (supplied by installation technicians).
 - Install microinverter underneath of the PV modules to make sure it works in the shadow. If this condition cannot be met, might trigger the inverter production de-rating.

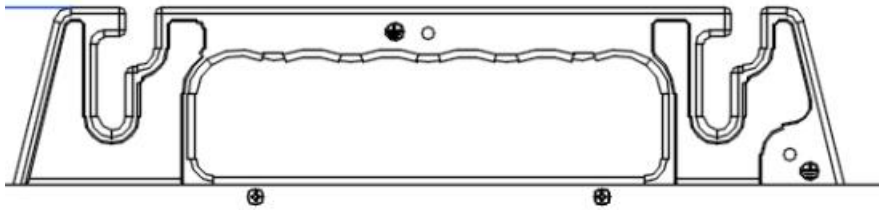
3.4 Installation Steps

Step 1. Attach Microinverter on Rail.

- A) Mark the position of each microinverter on the rail according to the PV module layout.
- B) Fix the screws on the rail.
- C) Hang the microinverter on the screws and tighten the screws.



The AC cable contains earth wire, so grounding can be done directly with it. For regions that have special requirements, we offer optional grounding brackets that can be used to complete the external grounding.



Route a continuous grounding cable through grounding brackets for each microinverter to the AC grounding electrode that conforms with local regulations.

Torque each grounding cleat screw to 2 N • m.

Note:

- Microinverter installation and DC connections must be done under the PV module to avoid direct sunlight, rain exposure, snow buildup, UV etc.
- Leave a minimum of 2 cm of space around the microinverter enclosure to ensure ventilation and heat dissipation.
- Mounting torque of the 8 mm screw is 9 N • m. Do not over-torque.
- Do not pull or hold the AC cable with your hand. Hold the handle instead.

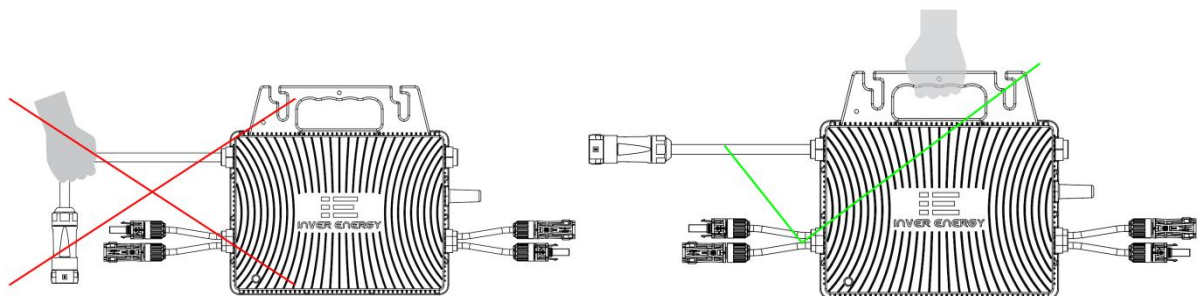
Step 2. Plan and Build the AC Trunk Cable

AC Trunk Cable is used to connect the microinverter to the power distribution box.

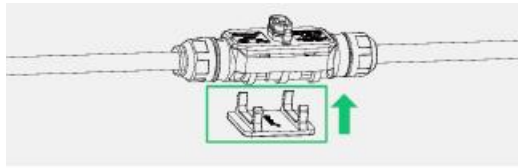
A) Select the appropriate AC Trunk Cable according to the spacing between microinverters. The connectors of the AC Trunk Cable should be spaced based on the spacing between microinverters to ensure that they can be properly matched. (Invertechs provides AC Trunk Cable with different AC Trunk Connector spacing.)

B) Determine how many microinverters you plan to install on each AC branch and prepare AC Trunk Connectors accordingly.

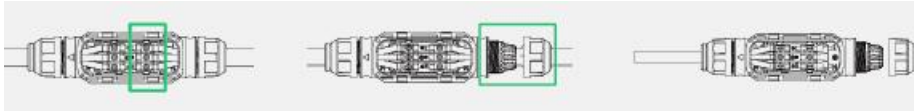
C) Take out segments of AC Trunk Cable as you need to make AC branch.



- Unlock the connector's upper cover with AC Trunk Connector Unlock Tool.

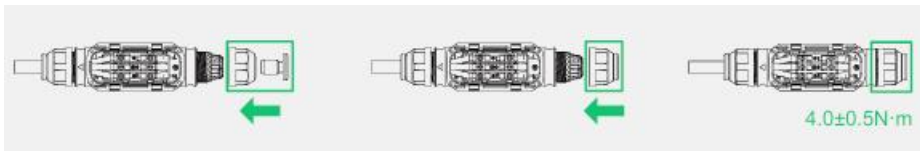


- Loosen the three screws with the screwdriver. Untighten the cap and remove the cable.

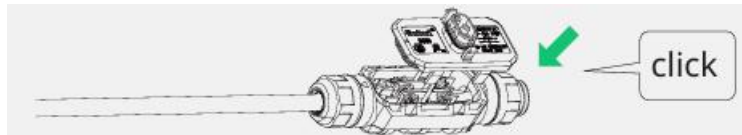


2) Install the AC Trunk End Cap at one side of AC Trunk Cable (the end of AC Trunk Cable).

- Insert the AC Trunk End cap and screw the cap back to port, then tighten the cap.

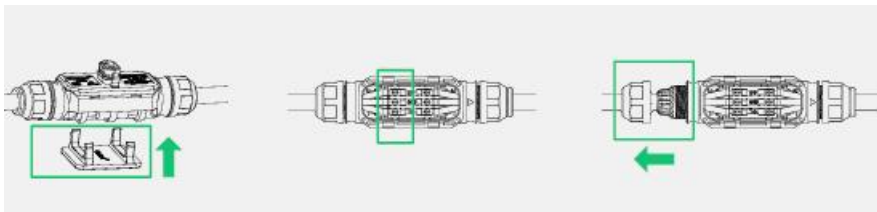


- Plug the upper cover back to the Trunk connector.

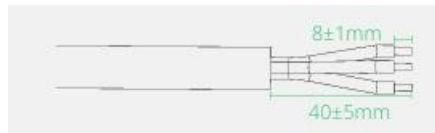


3) Install AC end cable on the other side of AC Trunk Cable (connected to the distribution box).

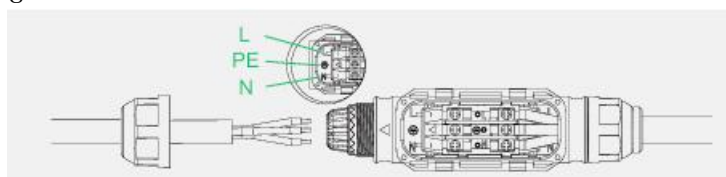
- Unlock the port upper cover, loosen the screws with the screwdriver and remove the extra cable. (Skip this step if there is no cable at this side.)



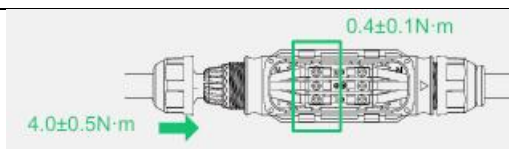
- Prepare a segment of AC cable of suitable length to connect to the distribution box, with stripping requirements fulfilled.



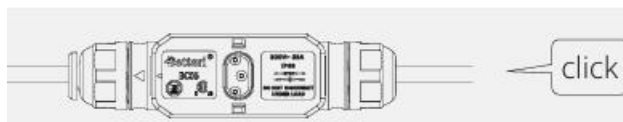
- Insert the cable into the cap in a way that the L, N and PE are in corresponding slots.



- Tighten the screws, and then tighten the cap back to the port.

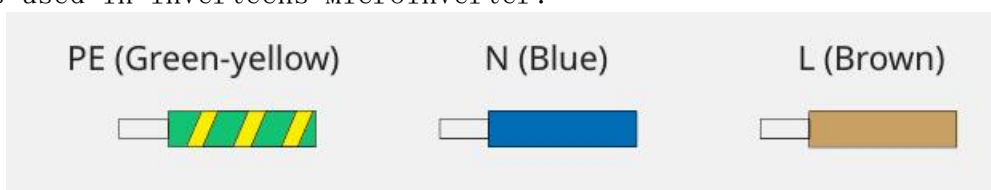


- Plug the upper cover back to the Trunk connector.



Note:

- Tightening torque of the cap: $4.0 \pm 0.5 \text{ N} \cdot \text{m}$. Please do not over-torque.
- Torque of locking screw: $0.4 \pm 0.1 \text{ N} \cdot \text{m}$.
- Do not damage the sealing ring in the AC Trunk Connector during disassembly and assembly.
- Wires used in Invertechs Microinverter:

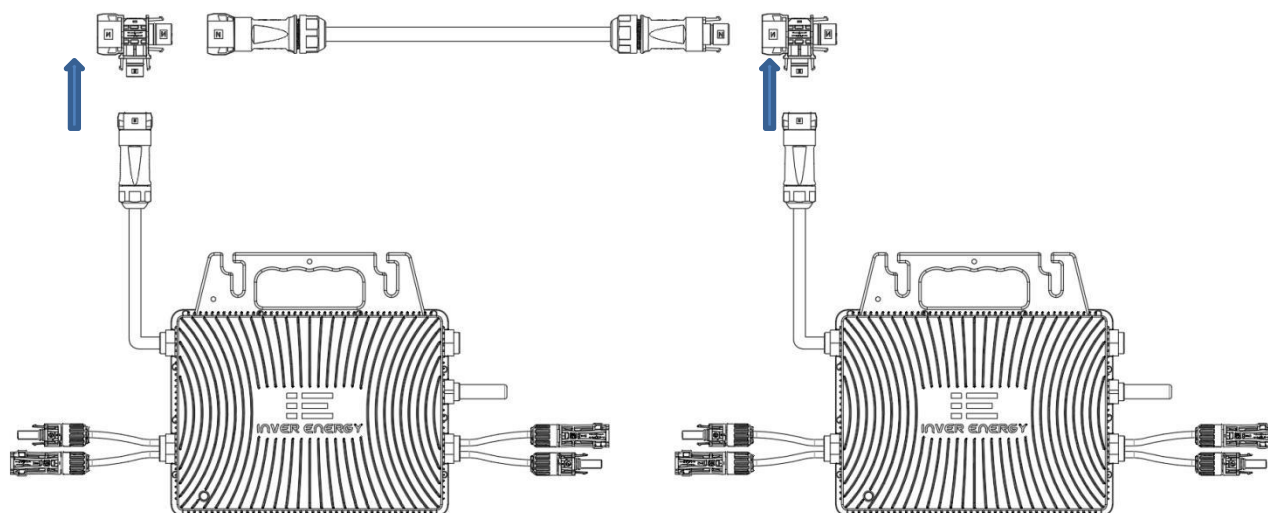


D) Repeat the above steps to make all the AC Trunk Cables you need. Then lay out the cable on the rail as appropriate so that the microinverters can be connected to the Trunk connectors.

E) Attach the AC Trunk Cable to the mounting rail and fix the cable with tie wraps.

Step 3. Complete the AC Connection

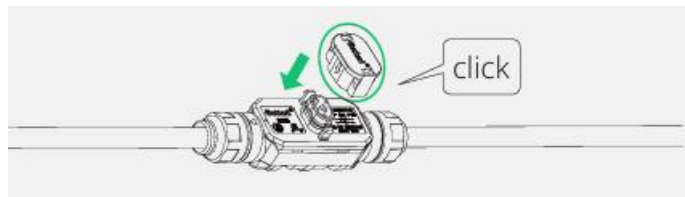
A) Plug the AC Sub Connector of the microinverter into the AC Trunk Connector until you hear the click.



B) Connect the AC end cable to the distribution box, and wire it to the local grid network.

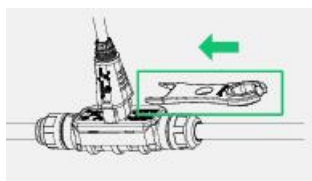
C) Please plug the AC Trunk Port Cap in any vacant AC Trunk Port to make it

water- and dust-proof.



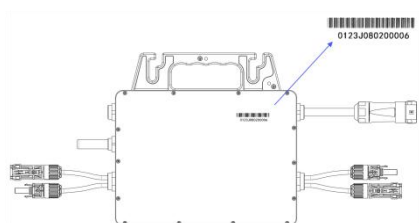
Note:

- Make sure that the AC Trunk Connectors are kept away from any drainage channels.
- In case you need to remove the microinverter AC cable from AC Trunk Connector, insert the AC Trunk Port Disconnect Tool into the side of AC Sub Connector to complete the removal.



Step 4. Create an Installation Map

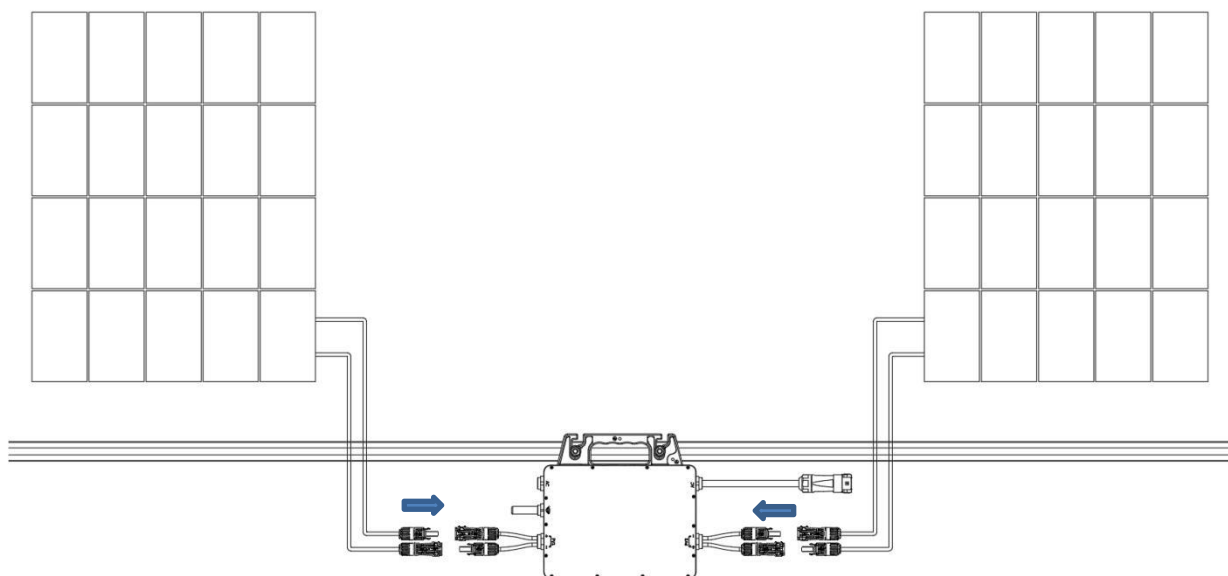
- Peel the removable serial number label from each microinverter.
- Affix the serial number label to the respective location on the installation map (please refer to the appendix).



Microinverter Installation Map															
Please Mark it for North		Location		Address		Project Name		Installation Date		Installer		Installer		Installer	
Project		1		2		3		4		5		6		7	
A															
B															
C															
D															

Step 5. Connect PV Modules

- Mount the PV modules above the microinverter.
- Connect the PV modules' DC cables to the DC input side of the microinverter.



Step 6. Energize the System

- A) Turn on the AC breaker of the branch circuit.
- B) Turn on the main AC breaker of the house. Your system will start to generate power after about two minutes of waiting time.

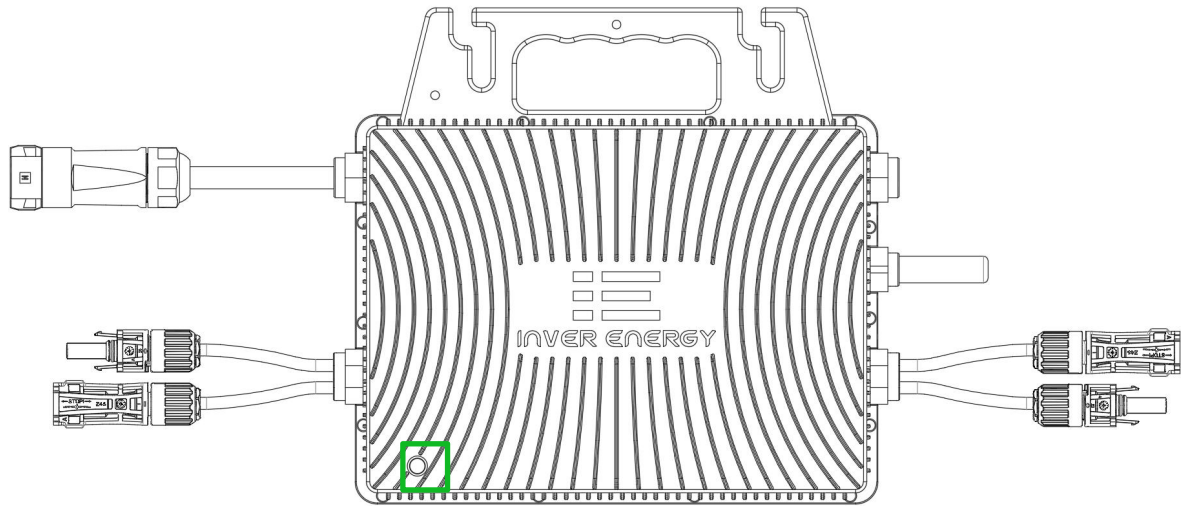
Step 7. Set Up the Monitoring System

Refer to the IS User Manual or IS Quick Installation Guide, and Quick Installation Guide for Invertechs Monitoring Platform Online Registration to install the IS invert and set up your monitoring system.

4 Troubleshooting

4.1 Status LED Indicator

The LED flashes five times at start up. All green flashes (1s gap) indicate normal start up.



LED

1. Start-up Process
 - Flashing Fast Green (0.3s gap): Start-up process
2. Run Process
 - Flashing Fast Green (1s gap): Producing power.
 - Flashing Slow Green (3s gap): Producing power but one input is abnormal.
 - Flashing Red (0.5s gap): There is a fault that are not invalid AC grid or hardware failure, refer to Invertechs Monitoring Platform for more details.
 - Flashing Red (1s gap): Not producing power due to invalid AC grid.
 - Solid Red: Hardware failure, refer to Invertechs Monitoring Platform for more details.
3. Other Status
 - Flashing Red and Green alternately: Firmware is corrupted.

****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 Invertechs technical support team.***

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4.2 On-site Inspection (For qualified installer only)

To troubleshoot an inoperable microinverter, follow the steps in the order shown.

1. Verify the utility voltage and frequency are within ranges shown in the in appendix Technical Data of this microinverter.
2. Check the connection to the utility grid. Verify utility power is present at the inverter in question by removing AC, then DC power. Never Disconnect the DC wires while the microinverter is producing power. Re-connect the DC module connectors and watch for five short LED flashes.
3. Check the AC branch circuit interconnection between all the microinverters. Verify each inverter is energized by the utility grid as described in the previous step.
4. Make sure that any AC breaker are functioning properly and are closed.
5. Check the DC connections between the microinverter and the PV module.
6. Verify the PV module DC voltage is within the allowable range shown in appendix Technical Data of this manual.
7. If the problem persists, please call Invertechs customer support.

****Note: Do not try to repair the microinverter. If the troubleshooting fails, please return it to the factory for replacement.***

Users can also use the Inver Energy app to establish a power station and bind it to the corresponding micro-inverter to view the machine's operational data and alarm messages. The corresponding detailed fault codes and descriptions are as follows:

Code	Description	Handling suggestions
0001	Grid undervoltage	1. If the alarm occurs occasionally, the grid voltage may be just abnormal temporarily. The microinverter can automatically recover after grid voltage becomes normal. 2. If the alarm occurs frequently, check whether the grid voltage is within the acceptable range. If not, contact the local power operator or change the grid undervoltage protection limit in the grid profile via Inver Energy monitoring system with the consent of the local power operator. 3. If the fault still exists, check the AC switch or AC wiring.

0002	Grid overvoltage	1. If the alarm occurs occasionally, the grid voltage may be just abnormal temporarily. The microinverter can automatically recover after grid voltage becomes normal. 2. If the alarm occurs frequently, check whether the grid voltage is within the acceptable range. If not, contact the local power operator or change the grid overvoltage protection limit in the grid profile via Inver Energy monitoring system with the consent of the local power operator.
0003	Grid disconnection	Please check whether the AC switch, branch breaker, AC wiring and the power grid is normal.
0004	10 min value grid overvoltage	1. If the alarm occurs occasionally, the grid voltage may be just abnormal temporarily. The microinverter can automatically recover after grid voltage becomes normal. 2. If the alarm occurs frequently, check whether the grid voltage is within the acceptable range. If not, contact the local power operator or change the grid overvoltage protection limit via Inver Energy monitoring system with the consent of the local power operator.
0005	Island detected	1. If the alarm occurs occasionally, the grid voltage may be just abnormal temporarily. The microinverter can automatically recover after grid voltage becomes normal. 2. If the alarms occur frequently on all the microinverters in your station, contact the local power operator to check whether there is a grid island. 3. If the alarm still exists or happens on only several microinverters, please contact your dealer or Inver Energy technical support.
0006	Grid underfrequency	1. If the alarm occurs occasionally, the grid frequency may be just abnormal temporarily. The microinverter can automatically recover after grid frequency becomes normal. 2. If the alarm occurs frequently, check whether the grid frequency is within the acceptable range. If not, contact the local power operator or change the grid underfrequency protection limit via Inver Energy monitoring system with the consent of the local power operator.
0007	Grid overfrequency	1. If the alarm occurs occasionally, the grid frequency may be just abnormal temporarily. The microinverter can automatically recover after grid frequency becomes normal. 2. If the alarm occurs frequently, check whether the grid frequency is within the acceptable range. If not, contact the local power operator or change the grid overfrequency protection limit via Inver Energy monitoring system with the consent of the local power operator.

0008	Frequency large jump	1. If the alarm occurs occasionally, the grid frequency may be just abnormal temporarily. The microinverter can automatically recover after grid frequency becomes normal. 2. If the alarm occurs frequently, check whether the grid frequency change rate is within the acceptable range. If not, contact the local power operator or change the grid frequency change rate limit in the grid profile in the grid profile via Inver Energy monitoring system with the consent of the local power operator.
0009	Hardware failure	1. If the alarm occurs occasionally and the microinverter can still work normally, no special treatment is required. 2. If the alarm occurs frequently and cannot be recovered, contact your dealer or Inver Energy technical support team.
0010	Rapid grid frequency change rate	1. If the alarm occurs occasionally, the grid frequency may be just abnormal temporarily. The microinverter can automatically recover after grid frequency becomes normal. 2. If the alarm occurs frequently, check whether the grid frequency change rate is within the acceptable range. If not, contact the local power operator or change the grid frequency change rate limit in the grid profile in the grid profile via Inver Energy monitoring system with the consent of the local power operator.
0011	AC bias anomaly	1. If the alarm occurs occasionally and the microinverter can still work normally, no special treatment is required. 2. If the alarm occurs frequently and cannot be recovered, contact your dealer or Inver Energy technical support team.
0012	Grid-connection configuration parameter error	1. Check if the grid configuration parameter is correct and upgrade. 2. If the fault still exists, contact your dealer or Inver Energy technical support team.
0013	Quick grid undervoltage protection	1. If the alarm occurs occasionally, the grid voltage may be just abnormal temporarily. The microinverter can automatically recover after grid voltage becomes normal. 2. If the alarm occurs frequently, check whether the grid voltage is within the acceptable range. If not, contact the local power operator or change the grid undervoltage protection limit in the grid profile via Inver Energy monitoring system with the consent of the local power operator. 3. If the fault still exists, check the AC switch or AC wiring.

0014	Quick grid overvoltage protection	1. If the alarm occurs occasionally, the grid voltage may be just abnormal temporarily. The microinverter can automatically recover after grid voltage becomes normal. 2. If the alarm occurs frequently, check whether the grid voltage is within the acceptable range. If not, contact the local power operator or change the grid overvoltage protection limit in the grid profile via Inver Energy monitoring system with the consent of the local power operator.
0015		1. If the alarm occurs occasionally and the microinverter can still work normally, no special treatment is required. 2. If the alarm occurs frequently and cannot be recovered, contact your dealer or Inver Energy technical support team.
0016		1. If the alarm occurs occasionally and the microinverter can still work normally, no special treatment is required. 2. If the alarm occurs frequently and cannot be recovered, contact your dealer or Inver Energy technical support team.
0017	Over temperature protection	1. Check the ventilation and ambient temperature at the microinverter installation location. 2. If the ventilation is poor or the ambient temperature exceeds the limit, please improve the ventilation and heat dissipation. 3. If the problem persists when ventilation and ambient temperature are appropriate, contact your dealer or Inver Energy technical support team.
0018	Low temperature protection	1. If the problem persists when ambient temperature is appropriate, contact your dealer or Inver Energy technical support team.
0019	Insulation anomaly	1. If the alarm occurs occasionally and the microinverter can still work normally, no special treatment is required. 2. If the alarm occurs frequently and cannot be recovered, contact your dealer or Inver Energy technical support team.
0020	Auxiliary power anomaly	1. If the alarm occurs occasionally and the microinverter can still work normally, no special treatment is required. 2. If the alarm occurs frequently and cannot be recovered, contact your dealer or Inver Energy technical support team.
0021	TZ Protection	1. If the alarm occurs occasionally and the microinverter can still work normally, no special treatment is required. 2. If the alarm occurs frequently and cannot be recovered, contact your dealer or Inver Energy technical support team.

0022	Adc initialization failure	1. If the alarm occurs occasionally and the microinverter can still work normally, no special treatment is required. 2. If the alarm occurs frequently and cannot be recovered, contact your dealer or Inver Energy technical support team.
0023	E2p initialization failure	1. If the alarm occurs occasionally and the microinverter can still work normally, no special treatment is required. 2. If the alarm occurs frequently and cannot be recovered, contact your dealer or Inver Energy technical support team.
0024	Shut down by remote control	1. The current machine has been executed with a shutdown command. 2. please contact the local dealer or Inver Energy technical support team for assistance in powering it on.
0025	Relay sticking fault	1. If the alarm occurs occasionally and the microinverter can still work normally, no special treatment is required. 2. If the alarm occurs frequently and cannot be recovered, contact your dealer or Inver Energy technical support team.
0026	Input port1 undervoltage	1. Please make sure that the PV module open-circuit voltage is not lower than minimum input voltage. 2. If the PV module open-circuit voltage is within the normal range, contact your dealer or Inver Energy technical support team.
0027	Input port1 overvoltage	1. Please make sure that the PV module open-circuit voltage is less than or equal to the maximum input voltage. 2. If the PV module open-circuit voltage is within the normal range, contact your dealer or Inver technical support team.
0028	Input port1 No input	1. Please confirm whether this port is connected to the PV module. If the PV module is connected, please check the DC cable connection between this port and the PV module.
0029	Input port1 overcurrent	1. If the alarm occurs occasionally and the microinverter can still work normally, no special treatment is required. 2. If the alarm occurs frequently and cannot be recovered, contact your dealer or Inver Energy technical support team.
0031	Input port1 Ids overcurrent	1. If the alarm occurs occasionally and the microinverter can still work normally, no special treatment is required. 2. If the alarm occurs frequently and cannot be recovered, contact your dealer or Inver Energy technical support team.
0032	Input port2 undervoltage	1. Please make sure that the PV module open-circuit voltage is not lower than minimum input voltage. 2. If the PV module open-circuit voltage is within the

		normal range, contact your dealer or Inver Energy technical support team.
0033	Input port2 overvoltage	1. Please make sure that the PV module open-circuit voltage is less than or equal to the maximum input voltage. 2. If the PV module open-circuit voltage is within the normal range, contact your dealer or Inver technical support team.
0034	Input port2 No input	1. Please confirm whether this port is connected to the PV module. If the PV module is connected, please check the DC cable connection between this port and the PV module.
0035	Input port2 overcurrent	1. If the alarm occurs occasionally and the microinverter can still work normally, no special treatment is required. 2. If the alarm occurs frequently and cannot be recovered, contact your dealer or Inver Energy technical support team.
0036	Input port2 Vds overvoltage	1. If the alarm occurs occasionally and the microinverter can still work normally, no special treatment is required. 2. If the alarm occurs frequently and cannot be recovered, contact your dealer or Inver Energy technical support team.
0037	Input port2 Ids overcurrent	1. Please confirm whether this port is connected to the PV module. If the PV module is connected, please check the DC cable connection between this port and the PV module.
0050	E2P write anomaly	1. If the alarm occurs occasionally and the microinverter can still work normally, no special treatment is required. 2. If the alarm occurs frequently and cannot be recovered, contact your dealer or Inver Energy technical support team.
0051	illegal interrupt	1. If the alarm occurs occasionally and the microinverter can still work normally, no special treatment is required. 2. If the alarm occurs frequently and cannot be recovered, contact your dealer or Inver Energy technical support team.
0052	Relay cannot be engaged	1. If the alarm occurs occasionally and the microinverter can still work normally, no special treatment is required. 2. If the alarm occurs frequently and cannot be recovered, contact your dealer or Inver Energy technical support team.
0055	Input Port1 Soft start failure	1. Please make sure that the PV module open-circuit voltage is less than or equal to the maximum input voltage. 2. If the PV module open-circuit voltage is within the normal range, contact your dealer or Inver technical

		support team.
0056	Input Port2 Soft start failure	1. Please make sure that the PV module open-circuit voltage is less than or equal to the maximum input voltage. 2. If the PV module open-circuit voltage is within the normal range, contact your dealer or Inver technical support team.
0059	Input Port1 Tz Protection	1. If the alarm occurs occasionally and the microinverter can still work normally, no special treatment is required. 2. If the alarm occurs frequently and cannot be recovered, contact your dealer or Inver Energy technical support team.
0060	Input Port2 Tz Protection	1. If the alarm occurs occasionally and the microinverter can still work normally, no special treatment is required. 2. If the alarm occurs frequently and cannot be recovered, contact your dealer or Inver Energy technical support team.

4.3 Routine Maintenance

1. Only authorized personnel are allowed to carry out the maintenance operations and are responsible to report any anomalies.
2. Always use the personal protective equipment provided by the employer when carry out the maintenance operation.
3. During normal operation, check that the environmental and logistic conditions are correct. 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.
4. DO NOT use the equipment if any problems are found and restore the normal conditions after the fault removed.
5. Conduct an annual inspection on various components and clean the equipment with a vacuum cleaner or special brushes.

5 Decommissions

5.1 Decommissions

Disconnect the inverter from DC input and AC output; remove all connection cable from the Microinverter; remove the Microinverter from the frame.

Please pack the Microinverter with the original packaging or use the carton box that can afford 5kg weight and can be fully closed if the original packaging is no longer available.

5.2 Storage and Transportation

Invertechs packages and protects individual components using suitable means to make the transport and subsequent handling easier. Transportation of the equipment, especially by road, must be carried out by suitable ways for protecting the components (in particular, the electronic components) from violent, shocks, humidity, vibration, etc. Please dispose the packaging elements in appropriate ways to avoid unforeseen injury.

It is the customer's responsibility to examine the condition of the components transported. Once receiving the Microinverter, it is necessary to check the container for any external damage and verify receipt of all items. Call the delivering carrier immediately if damage or shortage is detected. If inspection reveals damage to the inverter, contact the supplier, or authorized distributor for a repair/return determination and instructions regarding the process. The microinverter storage temperature is -40-85°C.

5.3 Disposal

If the equipment is not used immediately or is stored for long periods, check that 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 the equipment properly after scrapping, which are potentially harmful to the environment, in accordance with the regulations in force in the country of installation.

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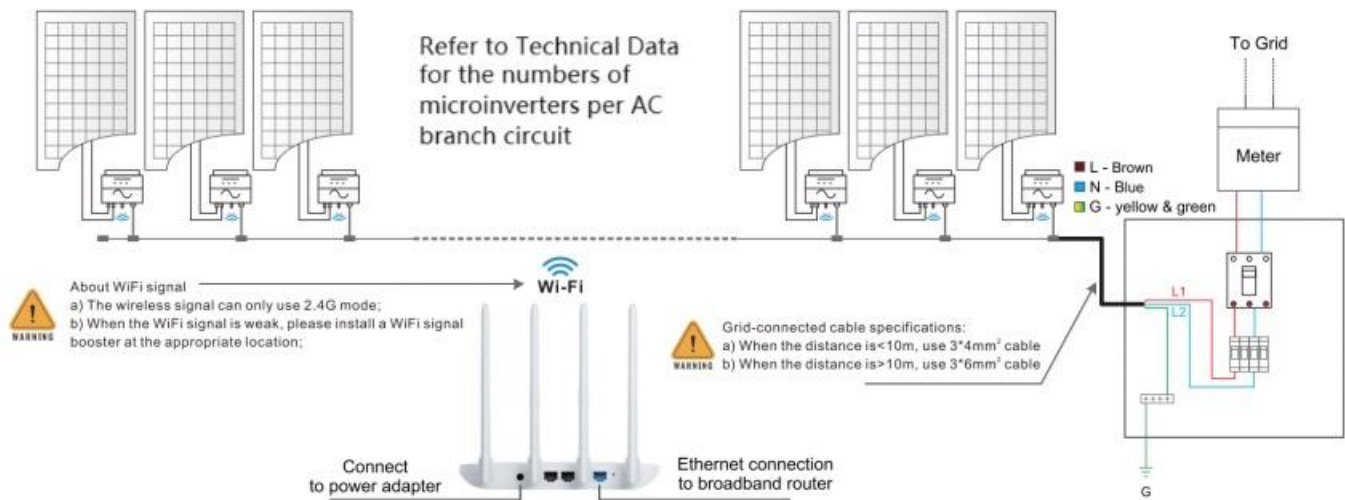
6 Technical Data

Model	IS-060S/ NS-060S	IS-080S/ NS-080S
PV Input Quantities		
Recommended Module Power (W)	240 To 405+	320 To 540+
Vmax PV ^a (Absolute Maximum)(d.c.v)	60	
PV Input Operating Voltage Range(d.c.v)	16~60	
Maximum Operating PV Input Current(d.c.A)	2*16	2*16
ISC PV ^a (Absolute Maximum)(d.c.A)	20	
Start-Up Voltage (V)	22	
No. Of MPPTs	2	
No. Of Inputs Per MPPT	1	
a.c Output Quantities:		
Voltage(Nominal Or Range) (a.c.V)	230 / 180-270	
Current(Maximum Continuous)(a.c.A)	2.87	3.82
Initial short-circuit AC current I _k	3.13	4.17
Current(Inrush)(a.c.A)	17	
Frequency(Nominal Or Range)(Hz)	50 / 45-55	
Power(Maximum Continuous)(W/Va)	600 / 660	800 / 880
Power Factor Range(Adjustable)	>0.99 Default 0.90 Leading...0.90 Lagging	
Maximum Output Fault Current(Rms ^b)(a.c.A)	12	
Maximum Output Over Current Protection(a.c.A)	3.45	4.63
Total Harmonic Distortion	<3%	
Maximum Units Per Branch	5	
Efficiency		
CEC Peak Efficiency	96.50%	
Static MPPT Efficiency	99.90%	
Dynamic MPPT Efficiency	99.70%	
Night Power Consumption (Mw)	< 50	
Mechanical Data		
Ambient Temperature Range(°C)	-40 ~ +65 , >50 Derating	
Dimensions (W×H×D Mm)	235*223*35	
Weight (Kg)	3.3	
Enclosure Rating	IP67	
Cooling	Free Cooling	
Altitude	4000 Meters	
Protective Class	I	

Installation Map

[illegible]

WIRING DIAGRAM – 230VAC SINGLE PHASE:



WIRING DIAGRAM – 230VAC / 400VAC THREE PHASE

