Anti-backflow

Micro Inverter

User Manual

V1.1

NBQ800-EU
NBQ1000-EU
NBQ1200-EU

Disclaimer:

Before using this product, please read this document carefully to ensure that you fully understand the product and can use it correctly. After reading this document, please keep it in a safe place for future reference.

Improper use of this product may result in serious injury to yourself or others, or damage to this product and other property. By using this product, you acknowledge that you have read, understood, and agreed to all the terms and conditions of this document. The company shall not be liable for any losses incurred as a result of the user's failure to operate this product in accordance with the instructions.

In accordance with applicable laws and regulations, the Company reserves the final right to interpret this document and all documents related to this product. This document may be updated without prior notice. Please visit the official website for the latest version.

Table of Contents

1. Important Notes

1.1 Product Range

This manual provides instructions for the assembly, installation, commissioning, maintenance, and troubleshooting of the following models of micro inverters.

NBQ800-EU NBQ1000-EU NBQ1200-EU

**Note: "800" indicates 800 W, "1000" indicates 1000 W, and "1200" indicates 1200 W.*

1.2 Symbol explanation

Symbol	Description
	**High Voltage Hazard** High voltages in the micro inverter can be life-threatening.
	**Precautions** Do not approach within 8 inches (20 cm) of the micro inverter while it is operating.
	**Caution: High Temperature** The inverter generates heat during operation; avoid contact with metal surfaces while it is running.
	**Disposal of equipment** Electronic devices must not be disposed of with household waste. Old appliances that are no longer usable must be collected and disposed of separately. Please follow local laws or regulations for disposal.
	**CE Mark** The micro inverter is labeled with the CE mark, indicating that the device complies with European low voltage and EMC directives.
	**Operating Instructions** Please read the user manual carefully before using this product.
	**Grounding** The AC cable includes a grounding wire, allowing direct grounding. In regions with special requirements, a grounding bracket must be installed to complete external grounding.
RoHS	**RoHS Mark** The product complies with 2011/65/EU and (EU) 2015/863.

2. Safety Guidelines

2.1 Important Safety Instructions

- ✧ Before installing, using, or servicing this product, please read all documents carefully. These documents may be modified due to product updates or other reasons.
- ✧ All operations, including transportation, installation, startup, and maintenance, must be performed by trained and qualified personnel.
- ✧ Before installation, inspect the equipment packaging and appearance to ensure there is no damage during transportation.
- ✧ Before connecting, ensure that all cables and plugs are intact and dry to prevent electric shock.
- ✧ Before completing the installation, ensure that the solar photovoltaic panels and microinverters are disconnected from the household power supply.
- ✧ Personal protective equipment, such as gloves and goggles, must be used during installation.
- ✧ Do not install or operate the equipment under extreme weather conditions, such as lightning, snow, heavy rain, or strong winds.
- ✧ Warning labels on the equipment must not be damaged, covered, or removed.
- ✧ After installation, remove any leftover materials, such as cut cable ties or torn insulation material.
- ✧ Do not attempt to repair the microinverter. If a malfunction occurs, contact our customer support department and initiate the replacement procedure. Unauthorized repairs or opening of the microinverter will void the warranty.
- ✧ Understand the components and functions of the grid-connected photovoltaic system to ensure that all electrical connections and the voltage and frequency of the equipment comply with local electrical standards.
- ✧ Exercise extreme caution whenever the inverter is disconnected from the public grid, as certain components may retain sufficient charge to pose an electric shock hazard.
- ✧ Ensure the micro inverter is securely installed to prevent accidents or damage to the product caused by falling.
- ✧ For safety reasons, equipment should use original or authorized cables. We are not responsible for any damage caused by the use of third-party accessories.

2.2 Environmental Requirements

- ✧ Ensure that the equipment is installed, operated, or stored in a well-ventilated area. Insufficient ventilation may cause permanent damage to the equipment.
- ✧ Do not install or place this equipment in environments with strong electrical or magnetic fields to avoid radio interference.
- ✧ Do not install the equipment in flammable, explosive, corrosive, extremely hot, extremely cold, or humid environments.
- ✧ Do not install the equipment where children or pets can touch it.

3. Delivery List

1. Micro inverter *1
2. Power cord*1
3. User manual*1
4. M8 screw set*2

5. Anti-reverse current module*1
6. CT ring *1

Note:

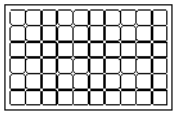
✧ If any accessories are missing, please contact the customer service department.

✧ Other tools and accessories required for installation and commissioning are not included in the packaging list. If needed, please purchase them separately.

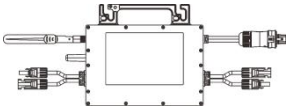
4. Overview

4.1 Grid-connected photovoltaic inverter system overview

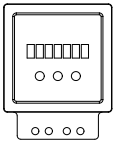
The grid-connected photovoltaic inverter system includes photovoltaic modules, micro-inverters, electricity meters, and the power grid. The micro-inverters convert the direct current (DC) generated by the photovoltaic modules into alternating current (AC) that meets grid requirements, and then feed the AC into the grid via the electricity meters.



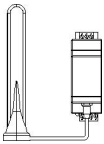
Photovoltaic modules



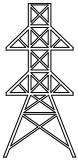
Microinverter



Grid-connected metering device

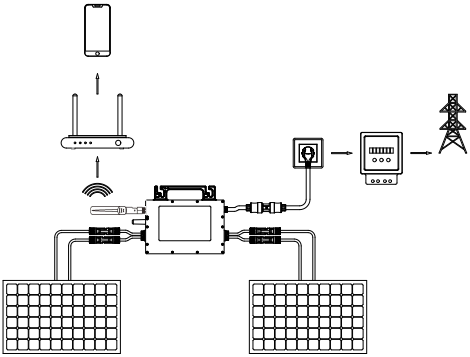


Anti-reverse flow module

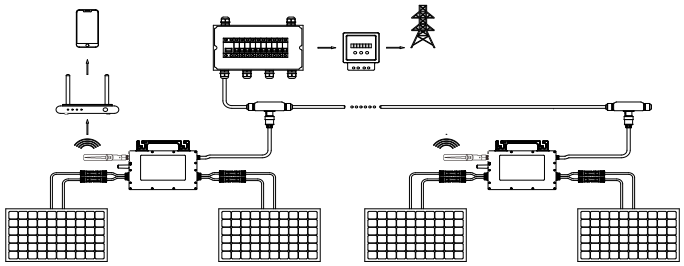


Grid

✧ Single Micro Inverter Connection Diagram



✧ Multiple Micro Inverter Connection Diagram



4.2 Overview of Micro Inverters

- ✧ A micro inverter is a module-level solar inverter that tracks the maximum power point of each photovoltaic module.
- ✧ When a photovoltaic module fails or is shaded, the other modules remain unaffected.
- ✧ Microinverters monitor the current, voltage, and power of each module, enabling module-level data monitoring.
- ✧ Microinverters operate at low-voltage DC, eliminating the risk of personnel exposure to dangerous high-voltage DC.
- ✧ Microinverters are easy to install and can be scaled according to the number of photovoltaic modules.
- ✧ The microinverter housing is specifically designed for outdoor installation and meets IP67 protection rating standards.

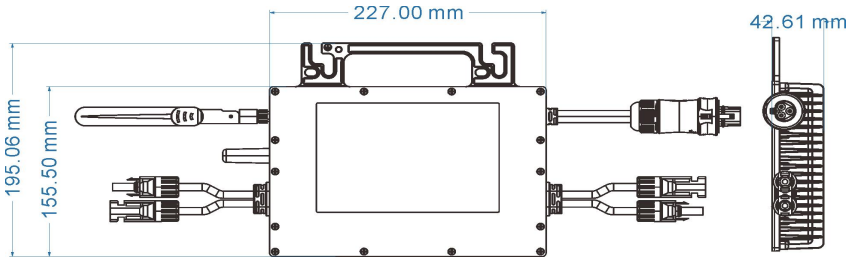
4.3 Anti-reverse flow module overview

This anti-reverse current module is a point-to-point transmission module for 2.4G. It can collect the current grid output power status, wirelessly transmit it to the micro inverter over long distances, and control the output power of the entire micro inverter system. It can operate independently without relying on Wi-Fi and automatically prevent reverse current. Additionally, after connecting to Wi-Fi via the micro inverter, users can view the total power consumption and power generation of the household.

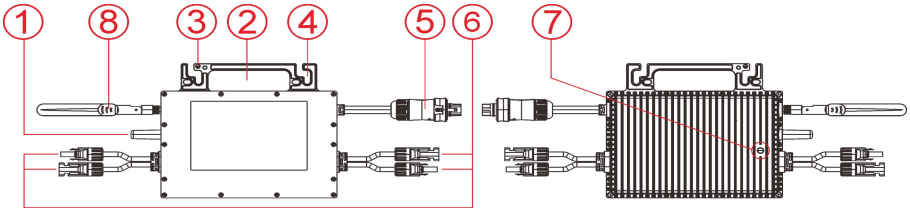
4.4 Compatibility

Please refer to the "Data Sheet" in this manual to verify electrical compatibility with photovoltaic modules. Please ensure to order photovoltaic modules compatible with the micro-inverter from your dealer.

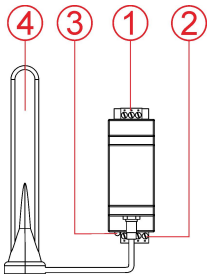
4.5 Dimensions (mm)



4.6 Functional Overview



Item	Description	Item No.	Description
1	Antenna	5	AC output connector
2	Handle	6	DC input connector
3	Grounding hole	7	LED indicator light
4	Mounting hole	8	Anti-backflow antenna



Item number	Description
1	Mains input
2	Current transformer input
3	Indicator light (communication/power)
4	Antenna

4.7 System Monitoring

The micro inverter connects to the internet via a broadband router. After connecting to the system platform according to the operating instructions, the platform will display current and historical performance trends and provide real-time updates on the status of the photovoltaic system.

5. Installation

5.1 Installation Requirements

During installation, the device must be disconnected from the grid, and photovoltaic modules must be shielded or isolated.

The input PV cable should be less than 3 meters in length.

Ensure that the environmental conditions meet the requirements of the micro inverter (protection rating, temperature, humidity, altitude, etc.).

Avoid direct sunlight to prevent internal temperature rise in the micro inverter, which may lead to power reduction.

Place the inverter in an area away from gases or flammable materials.

Avoid electromagnetic interference, as it may affect the normal operation of electronic devices.

The stripes on the back of the micro inverter are heat sinks. When installing, ensure that the heat sinks are at least 20 cm away from other objects and maintain proper ventilation.

Note:

- ✧ If you wish to inspect the solar system and put it into use immediately, assembly should be performed on a sunny day.
- ✧ We recommend that at least three people work together during assembly or disassembly.

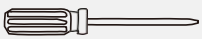
5.2 Components and tools required for installation

Note:

M8 screws *2

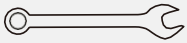
M8 nuts *2

Zip ties *10

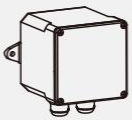


Screwdriver *1

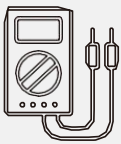
Hex wrench*1



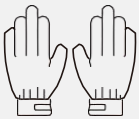
Wrench*1



Junction box*1



Voltmeter*1



Safety gloves *1

- ✧ All tools not listed in the delivery list must be provided by the customer.

5.3 Installation steps

Installing the micro inverter involves the following key steps, which are detailed below.

Step 1 - Planning and installing the micro inverter
Step 2 - Laying out AC cables
Step 3 - Connecting the Micro Inverter
Step 4 - Connecting the Junction Box
Step 5 - Create an installation diagram
Step 6 - Connecting the Photovoltaic Modules
Step 7 - Install anti-reverse modules
Step 8 - System Power-Up

Step 1 - Plan and install the microinverters

A) Mark the position of each micro inverter on the rail according to the layout of the photovoltaic modules.

B) Secure the screws to the rails.

C) Hang the microinverters on the screws and tighten the screws.

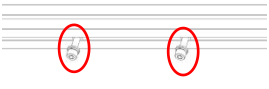


Figure A

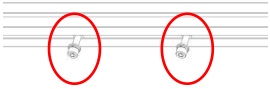


Figure B

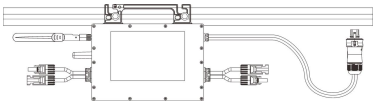
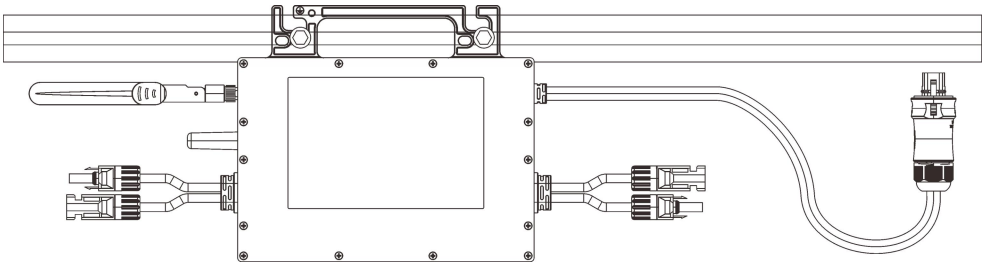


Figure C

*The microinverter must be installed below the photovoltaic modules to avoid direct sunlight, rain, snow accumulation, and ultraviolet rays.

The AC cable includes a ground wire and can be directly grounded. For regions with special requirements, we provide grounding brackets. Pass the continuous grounding cable through the microinverter grounding bracket and connect it to an electrode compliant with local regulations to complete the grounding requirements.



Use a screwdriver to install the grounding bracket wire into the grounding holes on the top of the microinverter and tighten the screws to 2N.m.

Step 2 - Laying out the AC cables

A) Determine the number of microinverters to be installed on each AC branch and prepare the corresponding number of AC cables.

B) Select AC cables of appropriate length based on the distance between the microinverters. Allow extra length for cable connections, bundling, and bending.

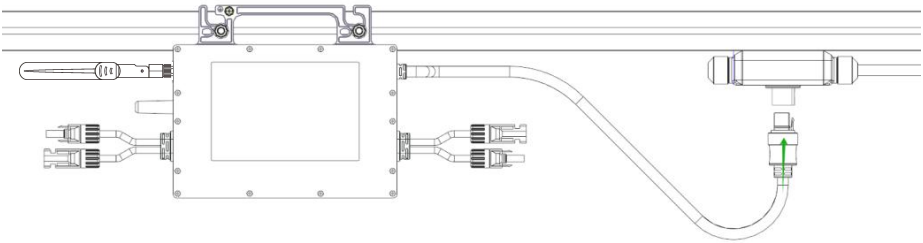
C) Lay the main AC cable on the rail and secure it temporarily to facilitate connecting the microinverters to the main cable.

Step 3 - Connecting the Mini Inverters in Parallel

A) Align the interface of the main AC cable with the AC output port on the right side of the micro inverter until you hear a "click,"

B) Repeat the above steps to connect the micro inverter to the same branch circuit.

C) Secure the AC cables with cable ties.



*The number of microinverters on the same branch circuit must not exceed the specified maximum connection limit.

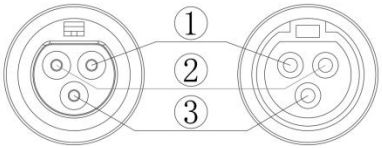
Step 4 - Connect the junction box

A) Connect the AC cables to the AC output ports of the microinverters.

B) Connect the AC cables to the outlet or junction box.

a) Connect to the outlet.

b) Connect to the junction box.

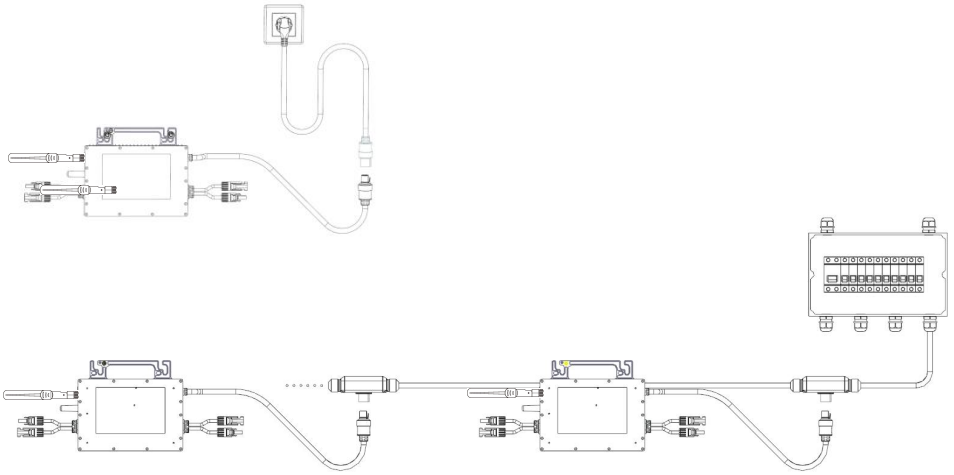


*Interfaces and wires used with micro inverters.

① ---L (Live wire)

② ---N (neutral)

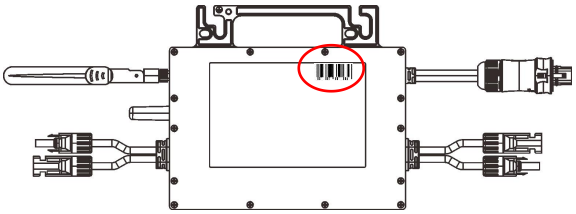
③ ---PE (Ground wire)

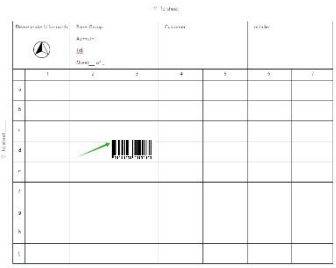


Step 5 - Create the installation diagram

A) Peel off the removable labels and attach them to the corresponding positions on the micro inverter.

B) Based on the position of the micro inverter within the entire system, attach the corresponding labels to the installation diagram.

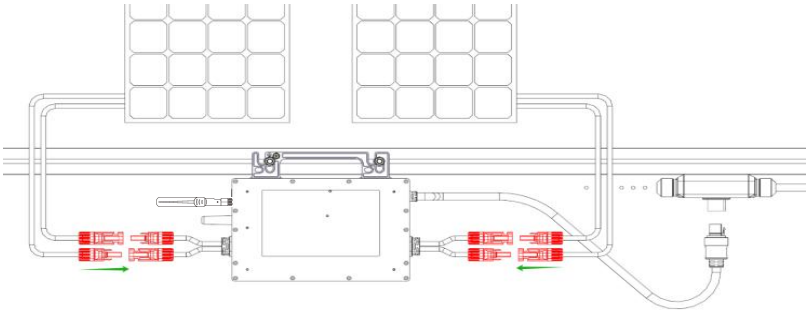




Step 6 - Connect the photovoltaic modules

A) Install the photovoltaic modules.

B) Connect the DC cables of the photovoltaic modules to the DC input ports of the microinverter.



* The DC cable from each photovoltaic module must be connected to the DC input port on the same side of the microinverter.

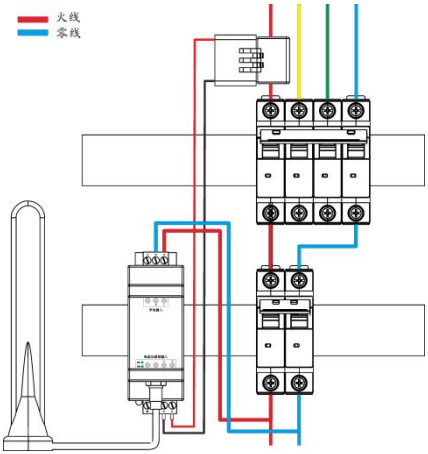
* The power rating of the photovoltaic modules must meet the input requirements of the microinverter. Please refer to the data sheet.

Step 7 - Anti-reverse current module installation

A) First, turn off the main circuit breaker in the household distribution panel, then install the anti-reverse flow module on the circuit breaker rail of the household grid.

B) Connect the neutral and live wires from the circuit breaker in the household electrical grid to the mains input ports above the module to activate the backflow prevention module.

C) Connect the current transformer to the CT ring and place the CT ring over the live wire of the household electrical circuit breaker.



Step 8 - System Power-On

A) Turn on the AC circuit breaker for the branch circuit.

B) Turn on the main AC circuit breaker for the house. The system will begin generating power approximately two minutes later.

6. APP

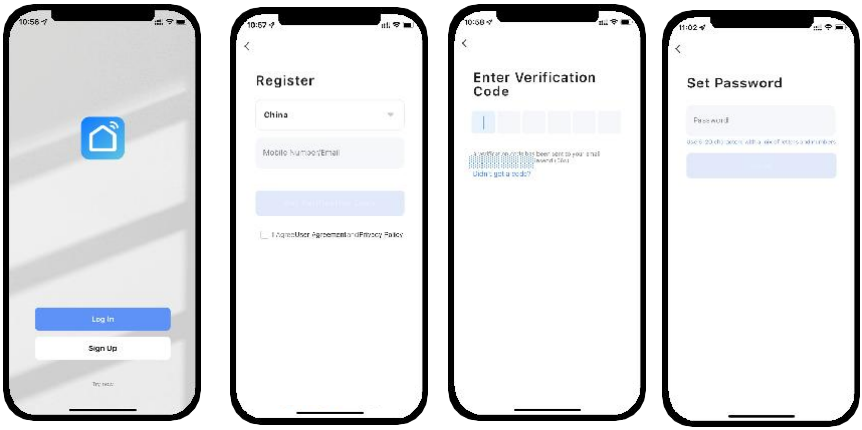
6.1 Download the APP

Through the app, you can remotely monitor and adjust the microinverter.

Search for "Smart Life" in the Apple App Store and other major app stores, or scan the QR code below to download the "Smart Life" app.

6.2 Register an account

1. Click "Sign Up," carefully read and agree to the User Agreement and Privacy Policy, then proceed to the "Register" page.
2. Register an account using your email address or phone number. State/Region is automatically assigned but can be manually changed. However, once the account is registered, this field cannot be modified. Click "Get Verification Code."
3. Enter the verification code you received, proceed to the password setup page, set your password as required, and click "Done."



6.3 Connect the micro inverter

1. Allow access to the network setup mode within 3 minutes of powering on. Plug and unplug the AC power three times within 20 seconds to initiate network setup.
2. Open the Smart Life app, and the "Add" button for the micro inverter will automatically appear. Click "Add" to begin connecting the micro inverter. If the "Add" button does not appear automatically, manually click the "Add Device" button, search for nearby devices, and enter the network configuration mode.

3. Follow the prompts to enter the Wi-Fi account and password. After completing the input, click the "Next" button and wait a few minutes for the micro inverter to complete the network setup.

6.4 APP interface

Generation and Historical Data

Cumulative power generation and electricity savings

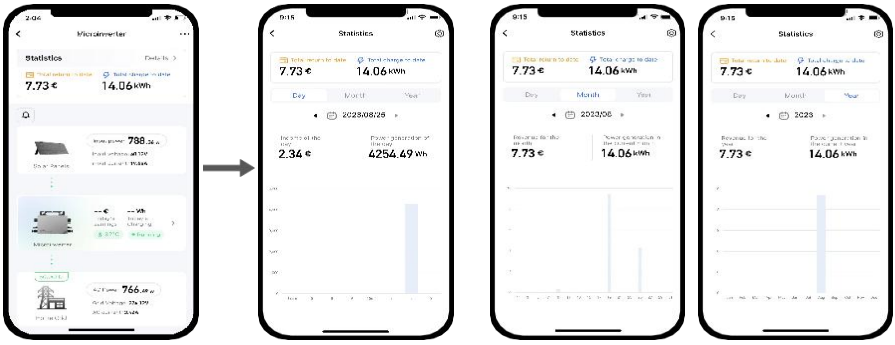
Abnormal Alarms

Solar Panel Operating Data

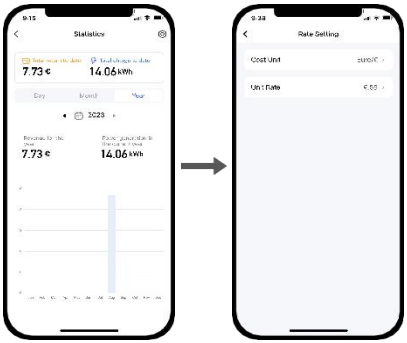
Microinverter operational data

Grid data

1. Click "Details" to view generated and historical generation data



2. Click the settings button in the top-right corner to enter the rate settings screen and set the currency and electricity unit price.



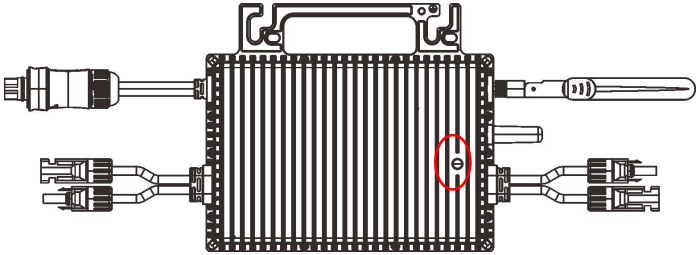
6.5 Rebind anti-reverse flow SN number

Note:

1. By default, the micro-inverter automatically matches the anti-reverse flow module upon factory shipment, no manual setup or matching is required
2. If the anti-reverse flow module is damaged due to other factors and a new anti-reverse flow module is replaced, you must rebind the new anti-reverse flow module SN number (do not change the SN number arbitrarily)
3. Smart Mode, Super Administrator Password: ADMIN123

7. Troubleshooting

7.1 LED status indicator



Red light flashing	Not connected to Wi-Fi, and micro-inverter alarm
Red light is constantly on	Connected to Wi-Fi, check the alarm information in the 7.2 APP
Green light flashing	Not connected to Wi-Fi, anti-reverse flow module is connected, micro-inverter automatically enters anti-reverse flow mode
Green light is constantly on	Connected to Wi-Fi, anti-reverse flow module is connected, micro-inverter
Light is off	No input voltage from the PV or internal fault

7.2 APP alarm message

	Alarm information
1	PV high-voltage protection
2	PV low-voltage protection
3	WiFi not connected
4	High temperature reminder
5	High temperature protection
6	AC low-frequency protection
7	AC high-frequency protection
8	AC high-voltage protection
9	AC low-voltage protection
10	AC power outage
11	Island protection
12	AC not connected
13	Relay fault
14	AC ground fault

15	PV ISO fault
16	Auxiliary Power fault
17	Internal Communication fault
18	PVA no current fault
19	PVB no current fault
20	Anti-reverse flow module not connected

7.3 Replace the micro inverter

Please follow the steps below to replace the micro inverter

a) Turn off the branch circuit breaker and disconnect the AC power supply.

b) Disconnect the AC connector of the micro inverter.

c) Cover the photovoltaic modules with an opaque cover to ensure that there is no current in the wires between the photovoltaic modules and the micro inverter.

d) Disconnect the photovoltaic module connectors from the micro inverter.

e) Remove the microinverter from the photovoltaic mounting bracket.

f) Install the replacement microinverter onto the photovoltaic mounting bracket.

g) Remove the light-blocking cover from the photovoltaic module.

h) Connect the photovoltaic module connectors on the microinverter.

i) Connect the AC cable to the micro inverter and verify that the micro inverter is functioning properly.

* Inverter replacement must be performed by trained professionals.

* The DC operating voltage range of the photovoltaic modules must match the allowable input voltage range of the microinverter.

8. Data sheet

Model	NBQ800-EU	NBQ1000-EU	NBQ1200-EU
Input Parameters (DC)			
Recommended solar panel input power	200-430W × 2	200-530W × 2	200-625W (×) × 2
Number of DC input connections	MC4 ×2		
Maximum input voltage	60V		
Maximum input short-circuit current	20A × 2		
DC voltage input range	16-60V		
Start-up voltage	22V		
Maximum power point tracking voltage range	22-55V		
MPPT tracking accuracy	>99.5%		
Maximum input DC current	14A*2	16A*2	18A*2
Output parameters (AC)			
Maximum output power	800W	1000W	1200W
Rated output voltage	230V		
AC voltage range	190-270V		
Maximum output current	3.47A	4.34A	5.21A
Rated output frequency	50Hz/60Hz		
Output frequency range	47.5-51.5 Hz/57.5-62.5 Hz		
Harmonic distortion	<5%		
Output power factor	>0.99		
Maximum conversion efficiency	96%		
Protection rating	Class I		
Protection features			
Overvoltage/Undervoltage Protection	Yes		
Overfrequency/Undervoltage Protection	Yes		
Islanding protection	Yes		
Overcurrent protection	Yes		
Overload protection	Yes		
Over-temperature protection	Yes		

IP rating	IP67
Operating temperature range	-40°C to +65°C
Indicator light	Operating status indicator
Communication mode	Wi-Fi / 2.4 GHz
Cooling method	Natural cooling (fanless)
Operating environment	Indoor/Outdoor
Weight	2.52 kg
Dimensions (L x W x H) mm	227 mm × 195.5 mm × 42 mm
Compliant with standards	EN61000; EN62109; IEC62321; IEC60529; VDE4105; EN18031

9. Appendix

9.1 Attachment 1. Installation map

Please make N for north		Panel Group: Azimuth.Titl. Sheet___of___			Customer :			Installer:		
	1	2	3	4	5	6	7			
a										
b										
c										
d										
e										
f										
g										
h										
i										

9.2 Attachment 2 wiring diagram