# Gigabit Industrial Outdoor Bridge Repeater

# VBGO-2.4G/VBGO-5G

Quick Setting Guide

# Statement



# Notice

The parameters used in the screenshots shown in this manual are only for reference of setting examples and may not be completely consistent with the actual situation. Please set the parameters according to your actual needs.

Due to different software versions, the screenshots shown in this manual may not be exactly the same as the web interface of the product you purchased. Please configure your product according to the actual web interface.

# Product application and secondary development precautions

1. Problems related to wireless interference:

- 1.1 Use the ping command to test the wireless transmission performance. If it is found that the delay of the ping packet response is extremely uneven, and there are many responses with a large delay, it can basically be judged that the wireless has been strongly interfered;
- 1.2 The product antenna should be kept as far away as possible from sources of interference, such as switching power supplies, antennas of other modules or wireless products, etc.;
- 1.3 If it is too close to the antenna of other wireless products, it will cause mutual interference, resulting in an increase in the transmission bit error rate and a slower transmission rate. At this point, the wireless signal must be properly attenuated. The methods of attenuating the signal include adding obstacles, extending the distance, and adding a resistor in series between the antenna feed point and the antenna, etc., to meet the actual application requirements;

2. Selecting a suitable power supply is the key to good and stable wireless transmission and stable operation of the product. Improper power supply will cause damage to the product or poor wireless performance. The selected power supply must meet the voltage range and input power requirements of the power supply input, and the ripple must be less than the required maximum power supply ripple (100mV);

3. POE related issues:

- 3.1 If the product has PSE function (POE output), it needs 48V power supply voltage and meets the power requirements of POE output before it can be used;
- 3.2 If the network port of the product has a POE output port, if it is connected to other non-POE network ports, please use it with caution, and ensure that the access network port is isolated from the ground, otherwise it may cause damage to the connected product!
- The safest way is: let the product use a two-pin switching power supply without ground (AC TO DC, AC input is two-pin instead of three-pin).

**The adapter power supply in all the schematic diagrams shown in the following figures are externally connected to the power supply.**

| Transmission distance parameter table (Table 1) | | | | | |
|---|---|---|---|---|---|
| Model Number | Antenna type | Frequency Band | | Barrier-free point-to-point transmission distance(for reference only) | Transmission Rate（Mbps） |
| VBGO-5G | Internally | Single Frequency | 5GHz | >2000m | 1800 |
| VBGO-2.4G | Internally | | 2.4GHz | >1200m | 600 |

| Power Supply Parameter Table (Table 2) | | | | | |
|---|---|---|---|---|---|
| Model Number | Wide voltage power supply | | Output Power | Typical power supply | Ripple |
| VBGO-2.4G<br>VBGO-5G | No POE output power supply | DC12V--48V | ≥30W | 12V/3A | <100mV |
| | With POE output power supply | DC48V | ≥57W | 48V/1.2A | <200mV |
| The standard kit of this product does not include a power supply, please select the power supply carefully according to "Table 2", otherwise the product may be damaged or the WiFi performance may be degraded. | | | | | |

Notice:

**⚠WARING: Keep power on during DIP setting to avoid damage.**

In the actual application environment, if the POE output port (PSE) is connected to a non-POE network port (PD is an access network port), please use it with caution, and ensure that the access network port is isolated from the power ground, otherwise it may

cause the access device to fail. damage! When the power input is 48V (≥57W), the POE output is valid!

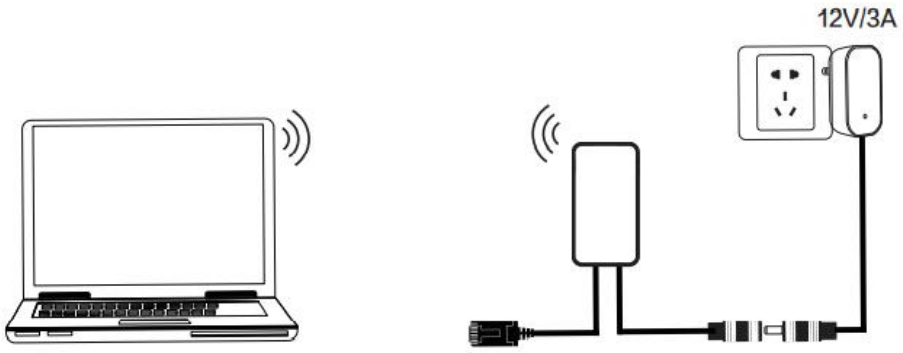
# Contents

# Chapter 1 Bridge+Repeater Mode Configuration Instruction

## 1.1 Device connect(In the actual application environment, if the POE output port (PSE) is connected to a non-POE network port (PD is an access network port), please use it with caution, and ensure that the access network port is isolated from the power supply ground, otherwise it may cause the access device. damage!)

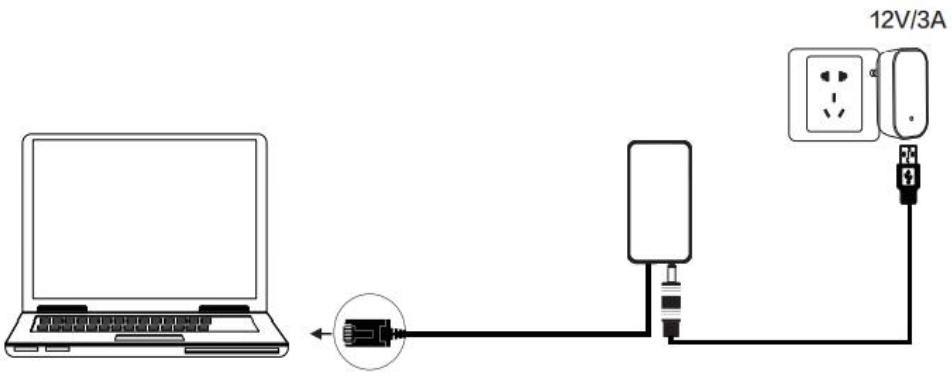
Power on VONETS device by 12V/3A power supply, then connect to PC, there are two connection ways as below:

A. Computer is wired connected to LAN port of VONETS device;




（Recommend Method）

B. The computer wirelessly connects to the WiFi signal of VONETS device, its default hotspot parameters are as follows:
WiFi SSID: VONETS-****** (corresponding to VONETS device MAC address)
WiFi password: 12345678

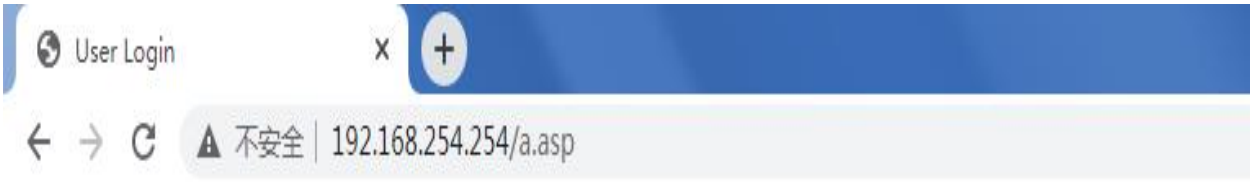



（After the WiFi parameters are configured, the WiFi will be disconnected, that is normal.）

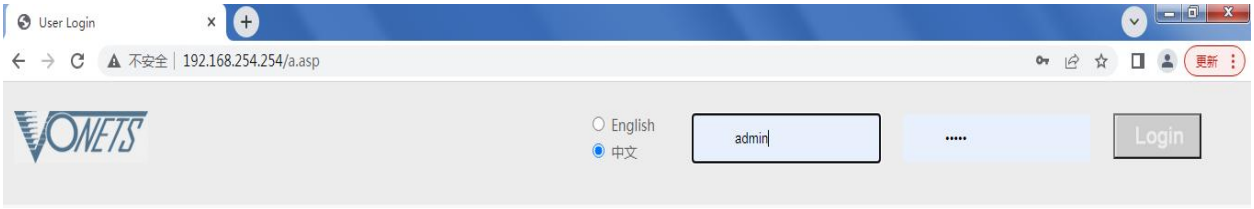
## 1.2 Bridge+Repeater Application Configuration

The configuration steps of VONETS device for WiFi repeater and WiFi bridge are basically the same, so this manual combines the configuration instructions of the two application modes.

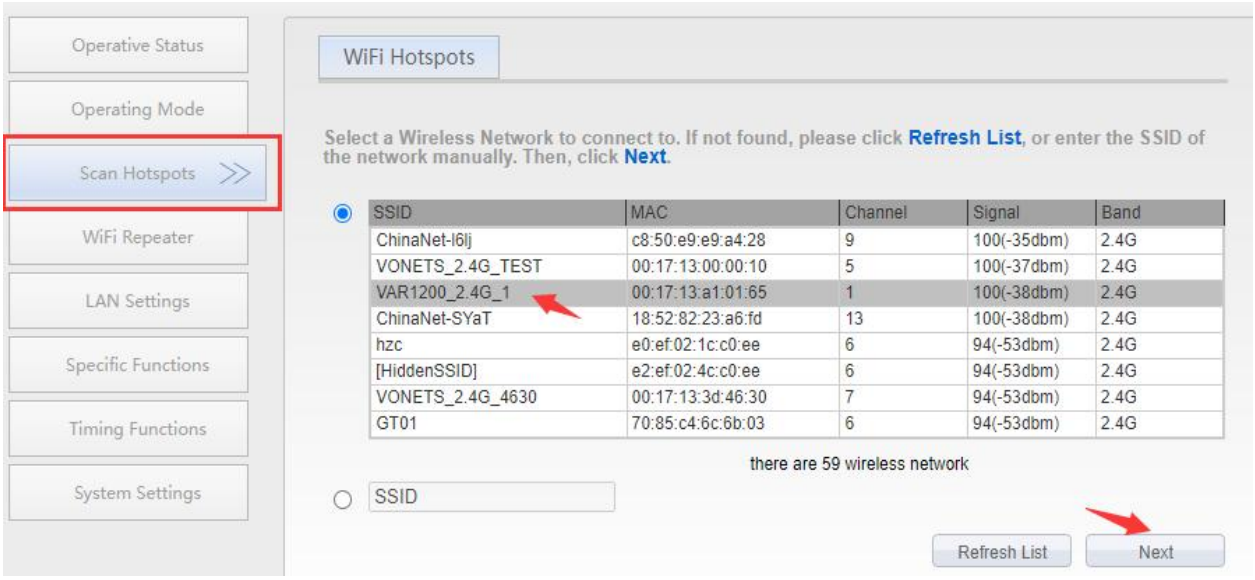
1. After computer is connected to VONETS device, open browser, input configured page: http://vonets.cfg (or IP: 192.168.254.254), then press Enter;




2. Input User name and Password in login page (both are “admin”), click “Login” button to enter configured page;




3. “Scan Hotspots”, choose the source hotspots, click “Next”；

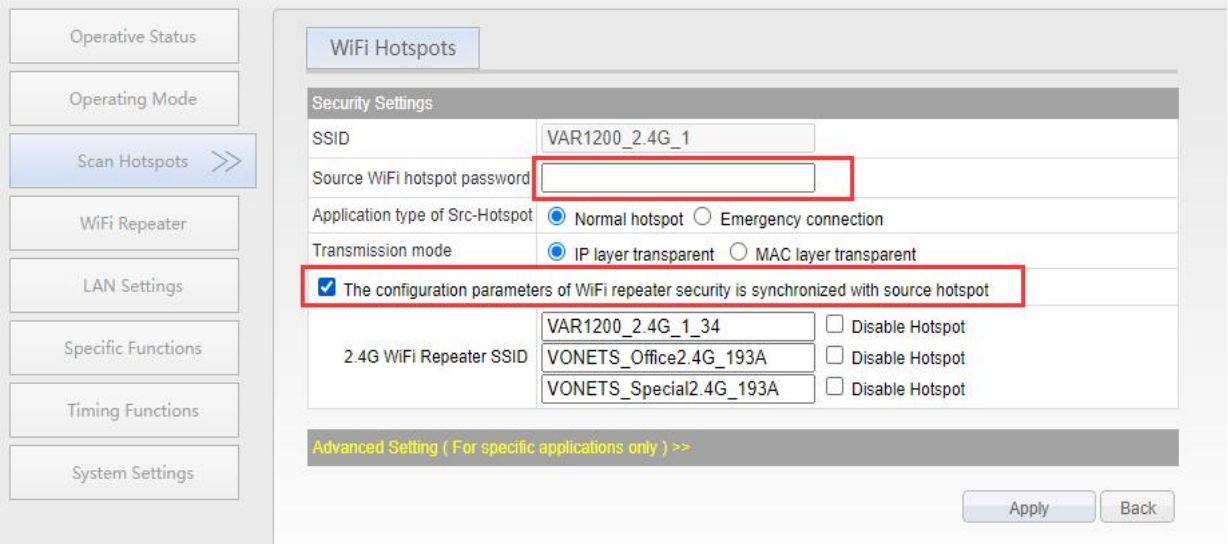



4. Input “Source wireless hotspot password”, click “Apply”;

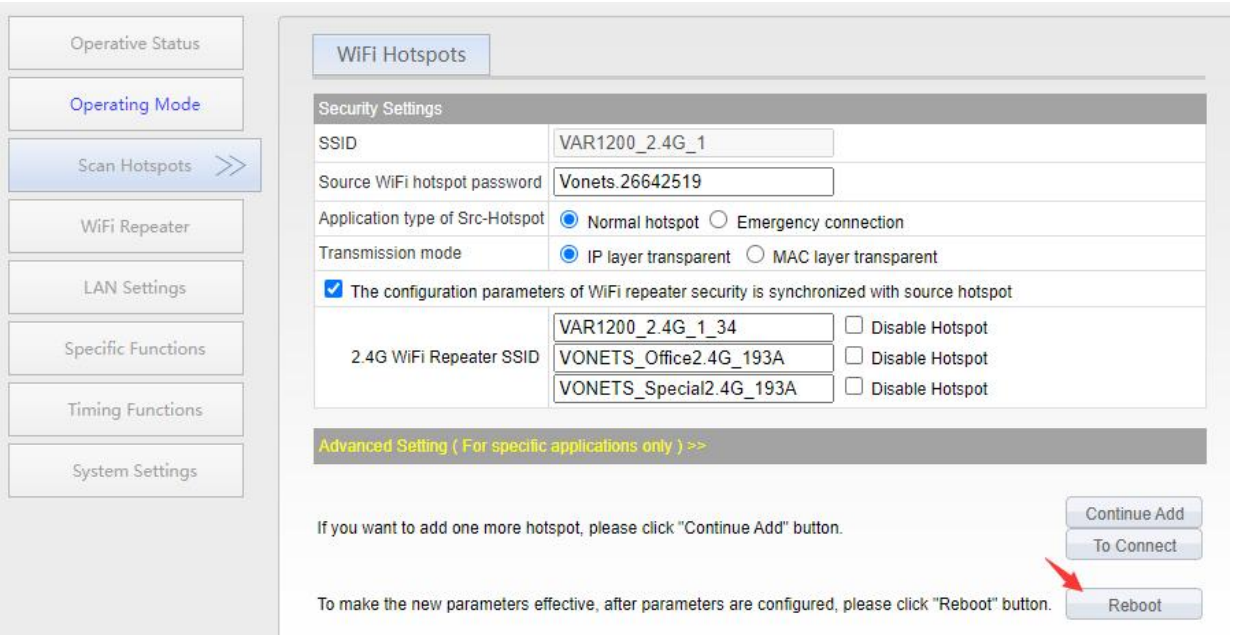
- **IP layer transparent transmission** (factory default), transparent transmission of IP layer data, can meet most of WiFi bridge applications;
- **MAC layer transparent transmission**, transparent transmission of all data above the MAC layer (link layer) and MAC layer, including IP layer data. MAC transparent transmission can solve some special applications for MAC layer encryption, such as

GoPro camera, Cisco AP, Hikvision monitoring system, etc;

- The option "**The configuration parameters of WiFi repeater security is synchronized with source hotspot**" is default ticked, it means the SSID of VONETS repeater is associated with the SSID of the source hotspot, and the WiFi password is the same as the password of the source hotspot;
- **Disable hotspot**, if you select "Disable hotspot" on the right side of the SSID, the device will not transmit the corresponding hotspot and can only be used as a bridge application;
- **Advanced Setting,**include Hot spot authentication match mode, WiFi Signal Motion Detection and SSA Signal strength alarm threshold,these options here can be kept unchanged, for instructions on this option, go to www.vonets.com and download the "V Series WiFi Bridge Advanced Features Instruction";




5. Click "Reboot", VONETS device will connect to the configured WiFi hotspot automatically, if connection is successful, the WiFi LED light will flash quickly;

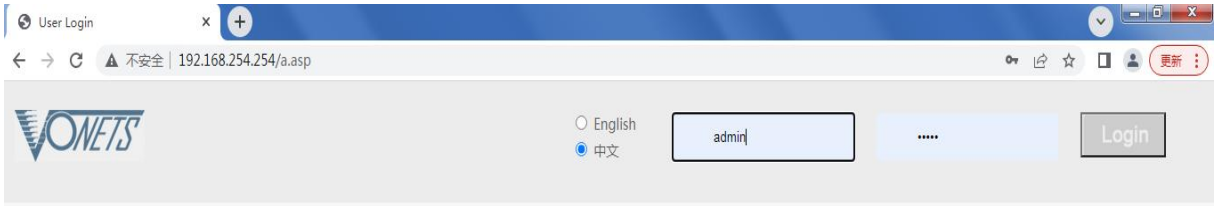


| Remark 1: LED Light Form | | | | |
|---|---|---|---|---|
| Model | Green Light | Blue Light | Yellow Light | Red Light |
| VBG0-2.4G | Stronger Signal& System Light | Strong Signal | Medium Signal & Ethernet port light | Weak Signal& POE light |
| VBG0-5.8G | | | | |

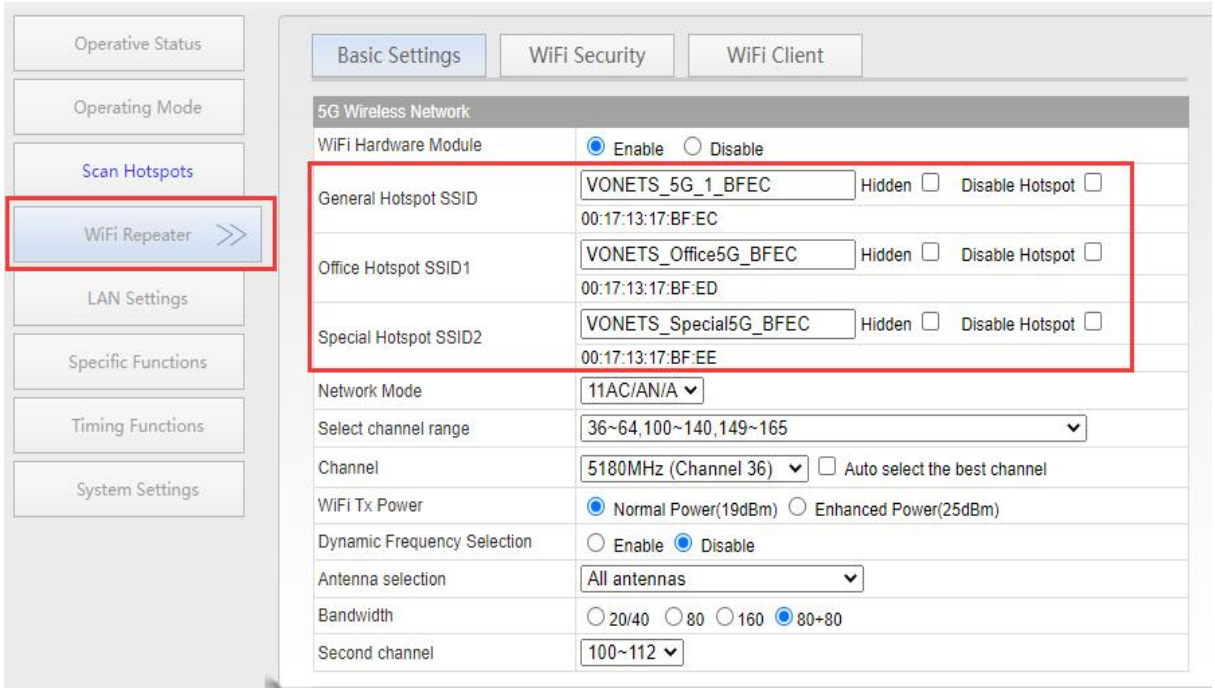
### 1.3 AP Application Configuration

VONETS device can be configured as an AP application, the wireless terminal device can connect to VONETS device hotspot to connect to the network; however, it is best to change its WiFi name and password for network security.

1. Log in to the configuration page on your computer browser at IP: 192.168.254.254 (or http://vonets.cfg), both user name and password are “admin”;

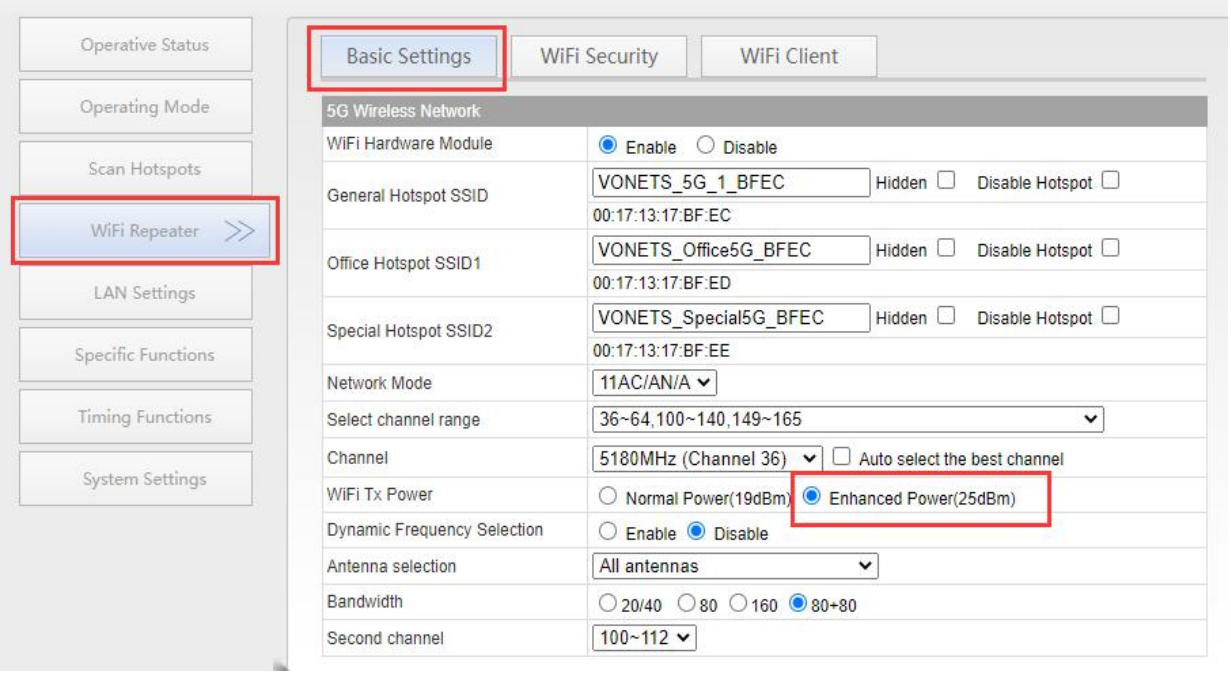



2. Change the WiFi name: select "Basic Settings" in "WiFi Repeater", enter the new WIFI name in the text box after the SSID, and click the "Apply" button;
Note: There are a total of 6 hotspots for dual-band device (2.4GHz+5GHz), you can set the account name and password accordingly;

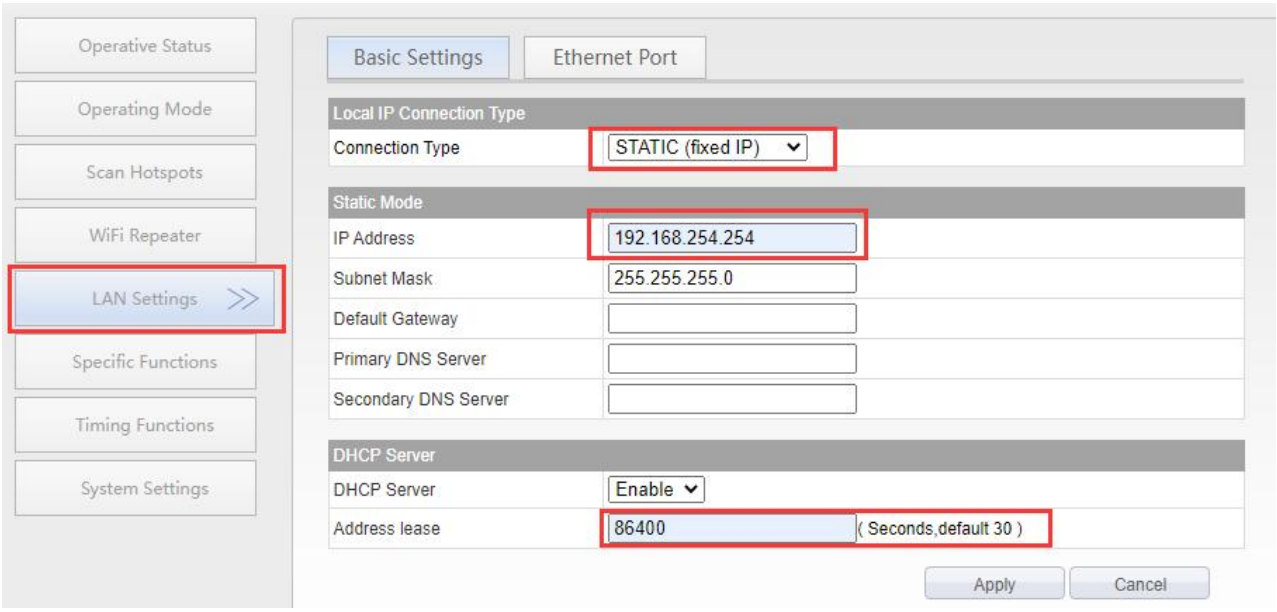


3. Revise WiFi password, in “WiFi Repeater”---“WiFi Security”, enter new WiFi password in “Pass Phrase”, click “Apply”;

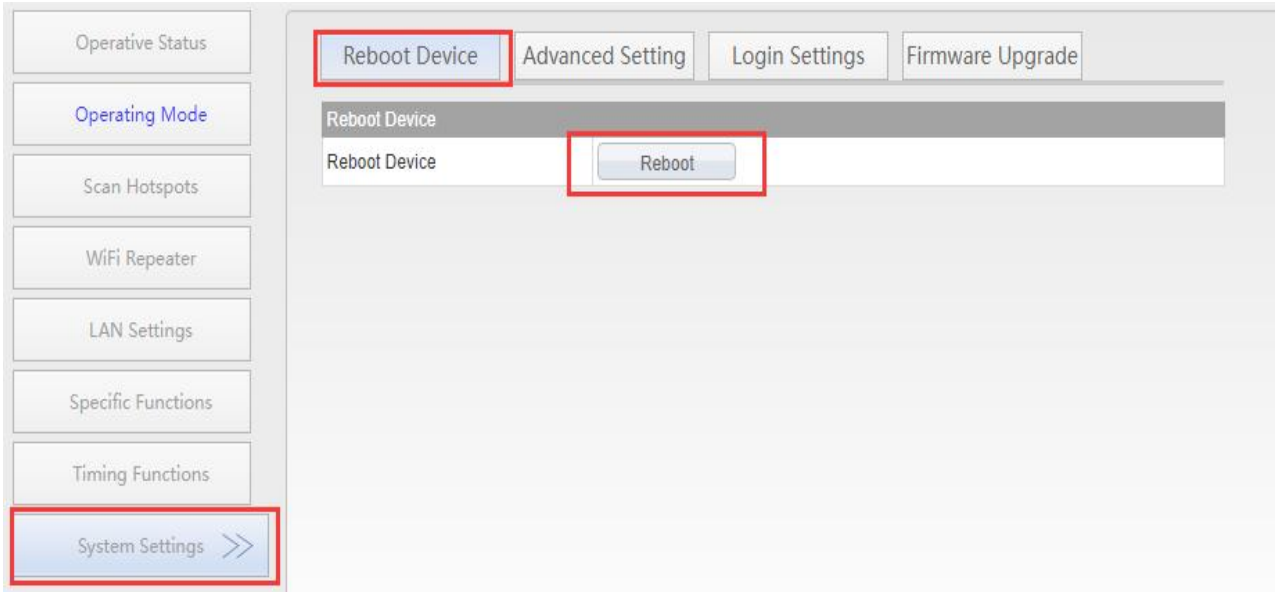

4. VONETS devices can change the WIFI transmitter power: In the WiFi Repeater--Basic Settings, select the appropriate WiFi Tx Power and click "Apply";




5. Click LAN port settings, set the same network segment IP (default gateway, DNS can not be filled in) of the equipment that needs to communicate in the LAN, and modify the lease to 86400 (lease length of 24 hours).




6. Reboot device, jump to “System Settings”---- “Reboot Device”, click “Reboot”, when it is finished, all revised options will take effort.



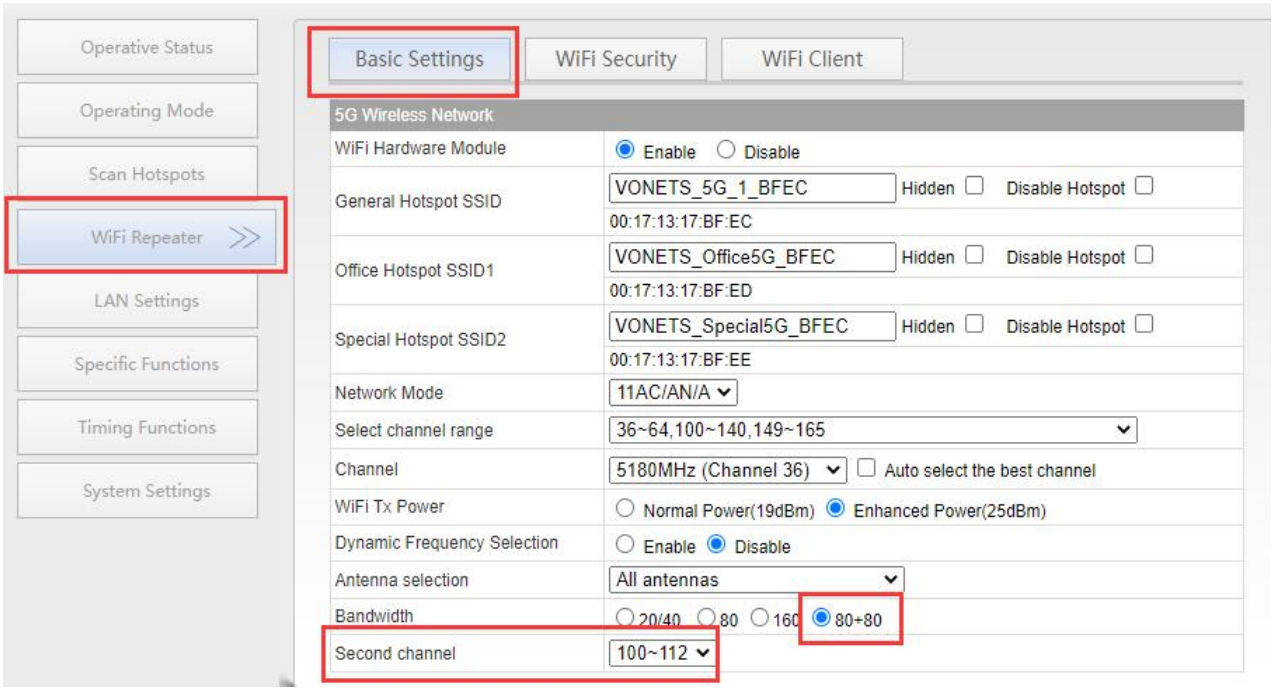

## Additional: 5G VHT160/VHT80+80 Bandwidth Selection Instructions

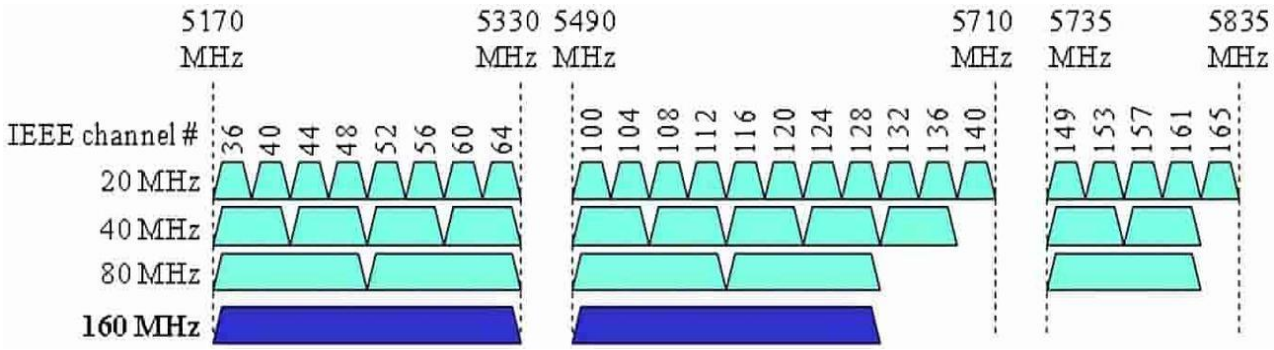
Bandwidth 80+80 (factory configured by default) is required to achieve maximum rate values for two APs in point-to-point pairing;

Performance: Although the total bandwidth of 80+80 MHz is the same as a single 160 MHz channel, their performance may vary depending on a number of factors. For example, discontinuous channels may cause signal fading and increased interference, which can affect overall performance. However, under certain conditions, such as tight spectrum

resources or the need to avoid conflicts with neighbouring networks, the 80+80 MHz configuration may be more

advantageous!




## Chapter 2 VWiFi Pairing Instructions

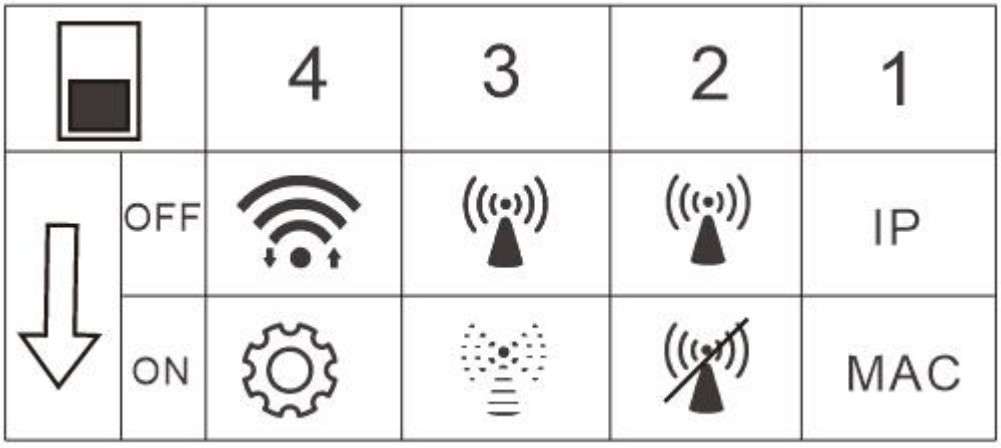
### 2.1 Change the default status of the device DIP-Switch.

The DIP-Switch bit is off off state, the upward snap is ON on state；

(In the actual application environment, POE output port (PSE) if connected to a non-POE network port (PD that is, the access port), please be sure to use caution, must ensure that the access port and the power supply ground isolation, or it may result in damage to the access equipment!)

## 2.2 DIP-Switch Function

The DIP-Switch pairing function is mainly used to simplify the pairing connection between devices via WiFi, without the need to enter web configuration.
The DIP-Switch pairing function is achieved by connecting the two devices via a wired LAN port.
The DIP-Switch has four positions, which are as follows:

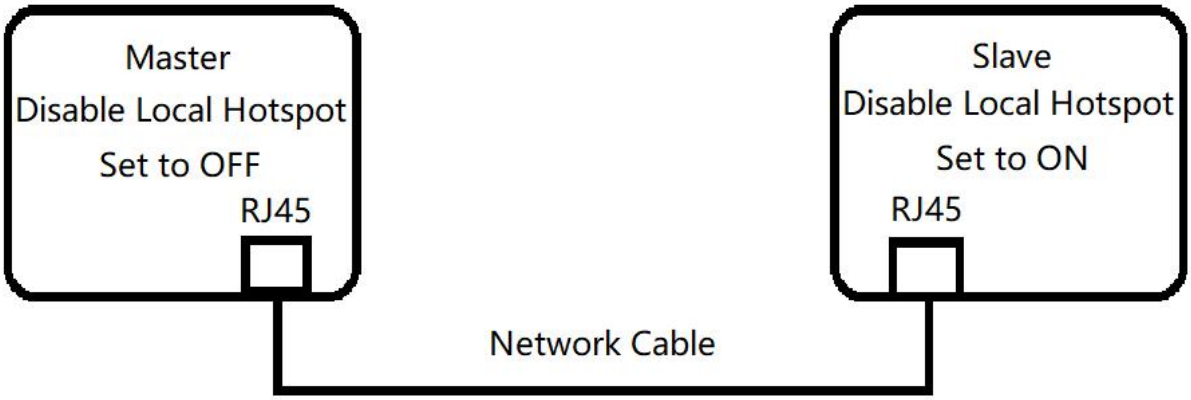



| DIP-Switch Mode Bit | 4<br>DIP Mode | 3<br>Hide Local Hotspots | 2<br>Disable Local Hotspot | 1<br>MAC layer pass-through |
|---|---|---|---|---|
| Disable（OFF） | Default Disable | Local WiFi Hotspot Display | Local WiFi Hotspot on Status | Default Connection to WiFi Hotspot: IP Transmission |
| Turn On（ON） | Bits 1, 2, and 3 Take Effect When in DIP- switch Configuration Mode | VONETS Device: Hide Local WiFi Hotspot | The VONETS Device Closes the Local Hotspot and Disables Client Access | How VONETS Devices Connect to WiFi Hotspots: MAC Transmission |

Note: The two devices paired with the DIP-Switch cannot have the “Switch local hotspot” setting set to “ON” at the same time.

## 2.3 VWiFi Pairing Instructions

1.Device pairing




- Before powering on, the two devices are configured as shown in the table below (* indicates that they are configured as required by the function) and connected via the network cable;

| | DIP-Switch Configuration (DIP Configuration Mode) | | | |
|---|---|---|---|---|
| | 4 | 3 | 2 | 1 |
| | DIP-Switch Configuration Mode Bits | Hide Local Hotspots SSID | Disable Local Hotspot | Enable MAC Passthrough |
| Master | ON | * | OFF | * |
| Slave | ON | * | ON | * |

1. The DIP-Switch Configuration bit is valid only when configured before powering on the device;

2. DIP-Switch configuration mode bit dipped to ON, the device will enter the DIP-Switch configuration mode;

3. Disable local hotspot bit dipped to OFF, the local hotspot will be on and the device will be the master when pairing, on the contrary, the local hotspot will be off and the device will be the slave when pairing.

**Warnning:** Keep power on during DIP setting to avoid damage.

- The status indicators after the unit is powered on are as follows:

| Table of Status Lamp Correspondence in Configuration Mode (Master/Slave) | | | | |
|---|---|---|---|---|
| DIP-Switch Configuration Mode Operating Phase | System Lamp Status | | WiFi Signal Strength Light | Note |
| | Master | Slave | | |
| Booting up | / | / | Reverse WiFi Loop Flow Light | / |
| Saving Configuration Parameters | / | / | Positive WiFi Loop Running Light | If DIP-Switch configuration bits are different from the original configuration, the configuration parameters are saved. |
| Waiting To Be Paired | Always Bright | Slow Flash | No Bright | / |
| Matching In Progress | Always Bright | Slow Flash | Reverse WiFi Loop Running Light | / |
| Pairing Successful | Always Bright | Slow Flash | Master: Not Bright Slave: Fully lit and green light flashing fast | / |
| Pairing Failed | Always Bright | Slow Flash | Not Bright and red light blinking slowly | / |

- After the successful pairing of DIP-Switch, all the DIP-Switch of the Master and the slave DIP back to OFF state, disconnect the network cable connection, and reboot the two devices to take effect.
- Cascade configuration, to be paired after a pair, the original slave's “disable the local hotspot bit” pulled to “OFF”, the original slave to become the Master of this round of pairing, and then continue to configure the second level of slave according to the above steps.
- A Master can be paired with more than one slave, just follow the above steps to configure the slaves one by one.

2.Stand-alone adjustment configuration only need to power on the “pull code configuration mode bit” pulled to “ON”, the other bits according to the function needs to be configured, and then turn on the power to see the following changes in the status of the lamp, until complete.

| DIP-Switch Configuration Mode Status Lamp Correspondence Table (Master/Slave) | | | |
|---|---|---|---|
| Phases of operation in DIP-Switch configuration mode | System Lamp Status | WiFi Signal Strength Light | Note |
| Booting Up | Medium Blinking | Reverse WiFi Loop Running Light | / |
| Saving Configuration Parameters | Medium Blinking | Positive WiFi Loop Running Light | If the DIP-Switch configuration bits are different from the original configuration, the configuration parameters are saved |
| Saving Configuration Parameters Complete | Always Light | No Light | / |

3.Status light display during normal operation

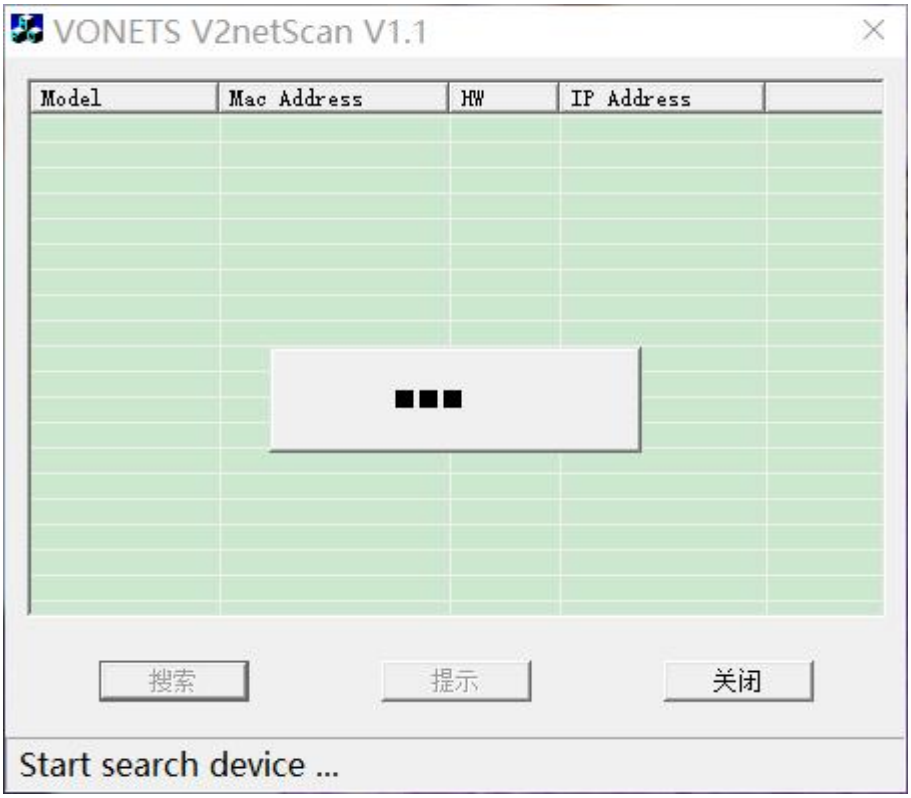
| **Corresponding table of status lamps in normal operation mode** | | | |
|---|---|---|---|
| Operating status | | System Status Light | WiFi signal strength light |
| Starting | | Medium Speed Blinker | Fully Extinguished |
| Startup Complete | Hotspot Not Configured | Fast Flash | No Light |
| | Hotspot Configured but Disconnected | Fast Flash | Green light Flashes Slowly |
| | Hotspot Is Connected | Fast Flash | 1)Display the signal strength of the connected hotspot according to the signal strength of the connected hotspot;<br>2)All 4 lights indicate the strongest signal;<br>3)Only red light indicates the worst signal. |

Note:

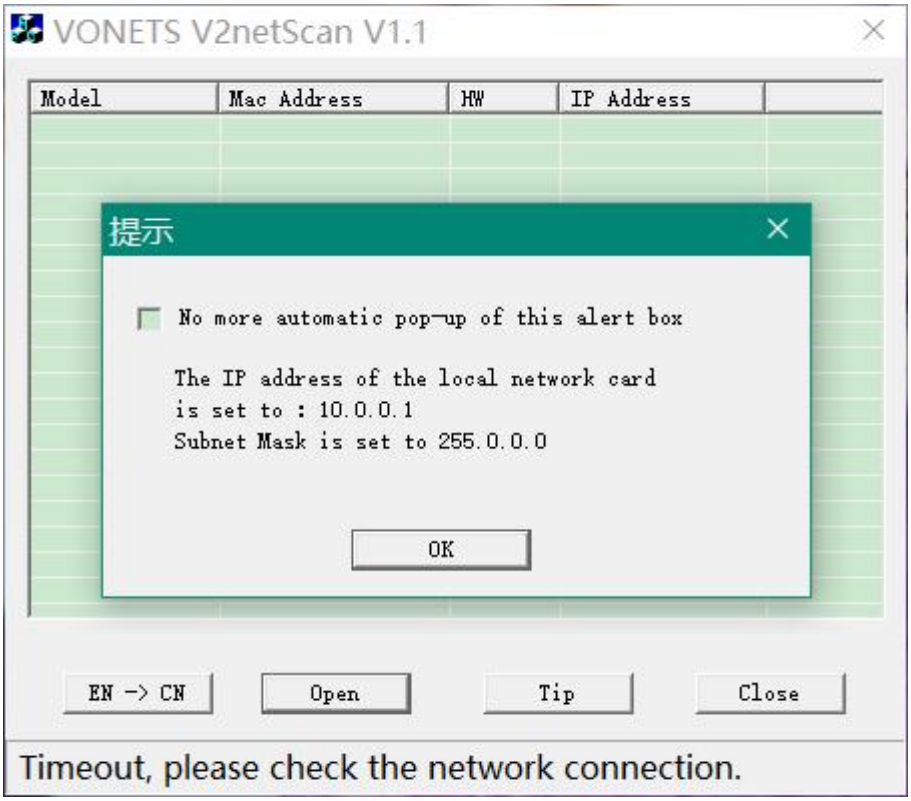
1. In general, before two VBG0 devices are paired (default factory state), the one that is powered on and working first is the master, and the one that is connected to the power supply later is the slave!
2. After successful pairing, you need to restore the DIP-Switch to OFF state.
3. WiFi strength indicator: the cycle of the running light state can not be disconnected.
4. If the slave appears system light slow flash, WiFi strength indicator light is all out, it means that the DIP-Switch pairing failed, you can restart the device, or restore factory settings to the device.

## 2.4. V2netScan program

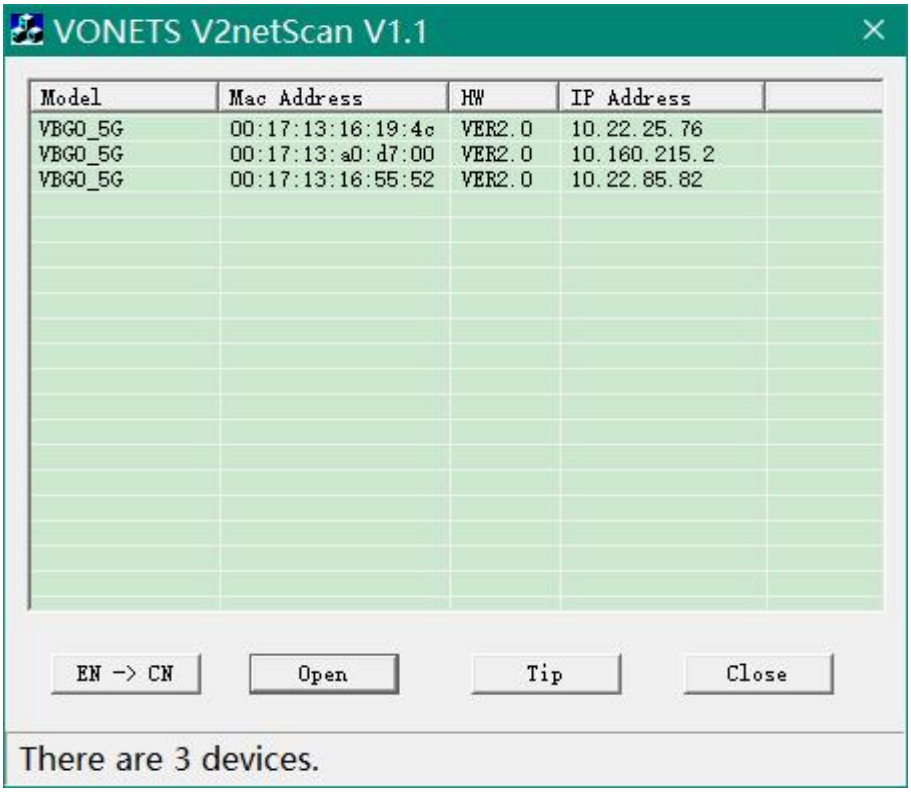
WiFi pairing is successful, the first bit of all the device DIP-Switch back to the off (OFF) state, power on and start. If you want to access one of the devices, connect the device by wire, because the IP address of the device is unknown, open the V2netScan program(Download Address:www.vonets.com/cms/DownloadCenter/216.html), and the V2netScan program automatically searches for Vonets devices as shown in the figure:



If the device cannot be searched, a prompt box will pop up automatically, as shown in the figure:




The device is searched as shown in the figure:




Access the device's configuration web page based on the device's corresponding IP address, such as http://10.22.25.76.

# Chapter 3 Other components and installation method

## 3.1 Other components

| 1. Configure Ethernet cable (1m/Standard Accessory) | 2. Cable ties (2 pieces/Standard Accessory) | 3. DC wiring socket (Standard Accessories) | 4. DIP-Switch tool (Standard Accessories) |
|---|---|---|---|
|  |  |  |  |
| 5. Anti-slip rubber strip (length 14cm/Standard Accessory) | 6. Fixed Bracket A&B (Option) | 6.1. Hexagonal Nuts (2pcs/Option) | 6.2. Hexagonal Screws (4pcs/Option) |
|  |  |  |  |
| 6.3. Hexagonal Screw Wrench (1pc/Option) | 7. Power Adapter (POE Option) (48V/1.2A) | 8. Power Adapter (No POE Option) (12V/3A) | |
|  |  |  | |

## 3.2 Fixed bracket installation

# Installation Diagram

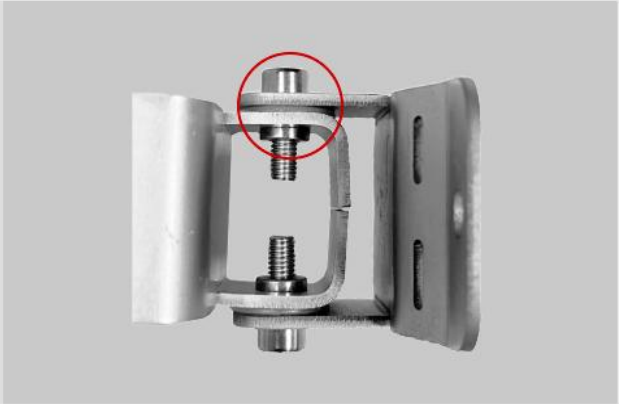
Supports wall mounting (wall mounting accessories available for purchase) or pole mounting (comes standard with 2 nylon zip ties).

Without affecting the original design, greatly reduce the difficulty of construction for workers and improve construction efficiency.

## Fixed bracket installation diagram

1. Two black gaskets with two screws attached to the fixed bracket

2. Two white gaskets with two nuts + two screws connected to the fixed bracket

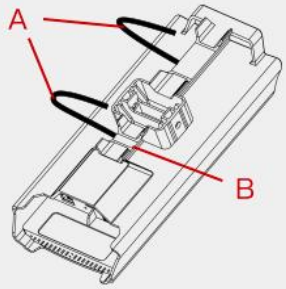


Full illustration:

## 3.3 Zip tie installation diagram

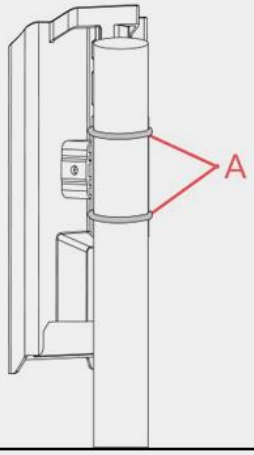
### Zip tie installation

1. First, thread a nylon zip tie A through the installation hole on the back of the product at position B. The installation position can be adjusted according to the thickness of the pole.



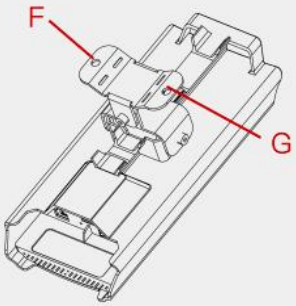

2.Secure the anti-slip rubber strip to the pole.

3.Install the main device on the pole and use pliers to tighten the nylon zip tie A.

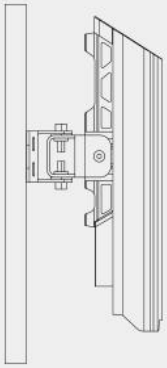


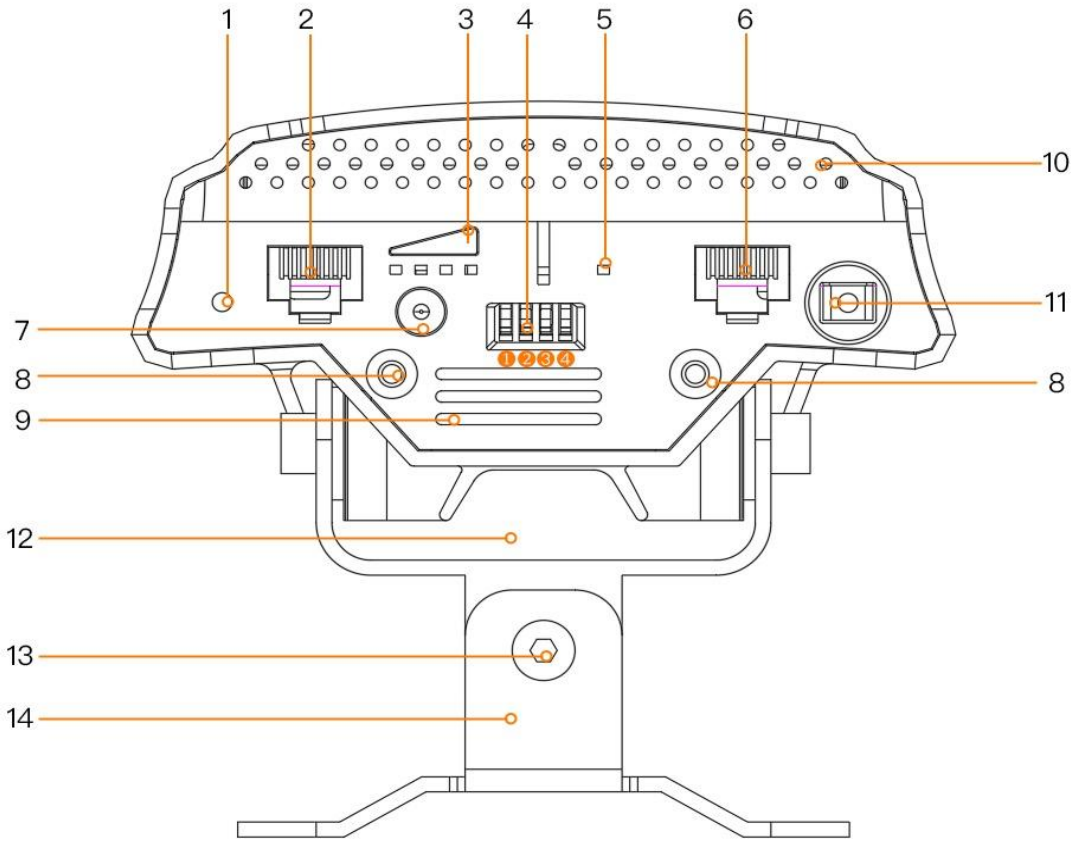

### Wall mounting

1. F and G are nail holes.




2. Hammer two nails into the wall, then hang the device on the nails by aligning its two holes with the nails.



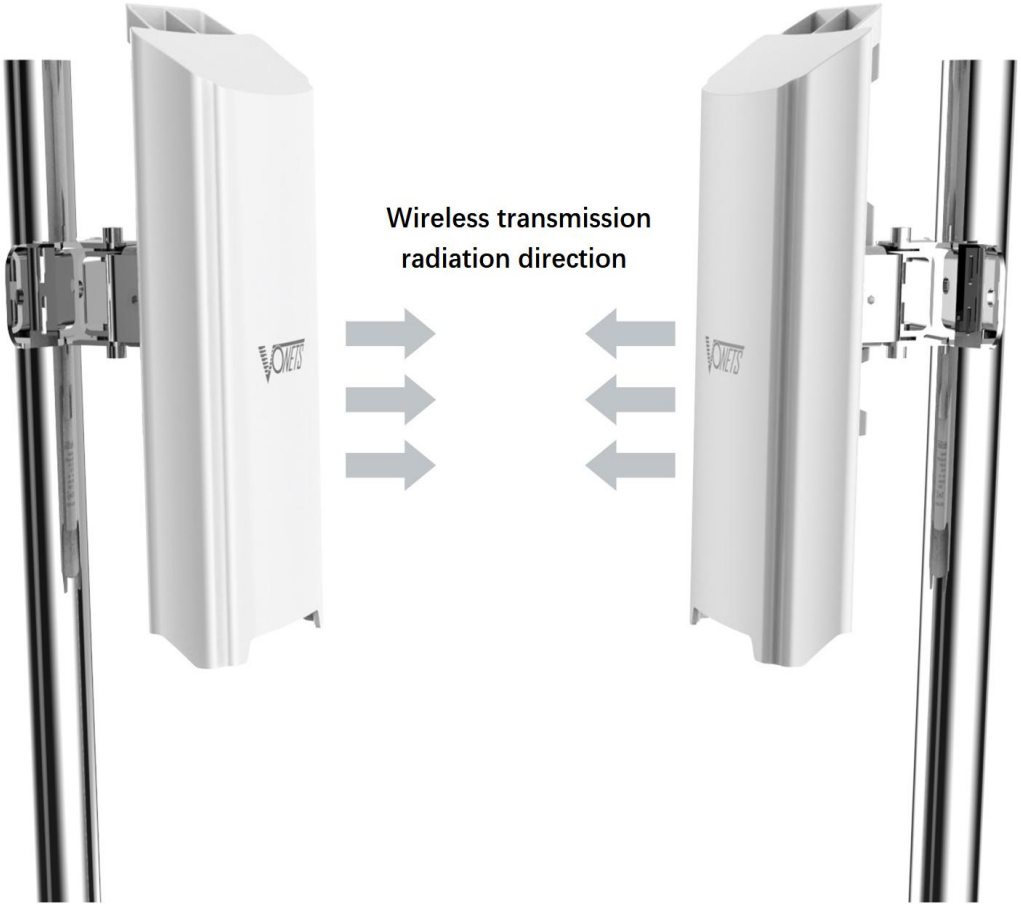



1. Reset
2. Ethernet/PoE Input
3. Hotspot Signal Strength Light


4. ①On/Off MAC layer pass-through bit、
   ②Turn on/off the local hotspot bit、
   ③Hide SSID bit、④Dial Configuration Mode Bits
5. System light
6. Ethernet/PoE Output
7. DC Input
8. Panel Mount Outlet
9. Air outlet
10. Air inlet
11. GND
12. B: Fixed bracket B
13. Bracket Screws
14. A: Fixing Bracket A

# Appendix

1. Bridge pairing optimal placement --- point-to-point optimal pairing direction, so that its directional antenna to achieve the optimal state:




2. How to restore the factory default parameters of the device?

   Reset Instructions:

   2.1. Wait ~60s after power-on

   2.2. Hold Reset button for 5s, then release

   2.3. Indicator blinks → Auto-reset completes in ~80s

   Critical Warnings:

   2.4. Strictly prohibit power interruption during reset (causes permanent damage)

   2.5. Ensure stable power supply

3. Can VONETS products support firmware upgrade and how to upgrade?

   VONETS supports firmware upgrade and online upgrade. For details, please refer to www.vonets.com, the website of Houtian Network VONETS, to find relevant documents.