



# WiFi Bridge/Repeater/Router/ Serial port transparent transmission VAP11S-232/VAP11S-5232/VAP11S-D232

## Quick Setting Guide

### Declaration

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### Note

The parameters used in the screenshots shown in this manual are only used as reference examples for setting examples. They may not be exactly the same as the actual situation. Please set the parameters according to your actual needs.

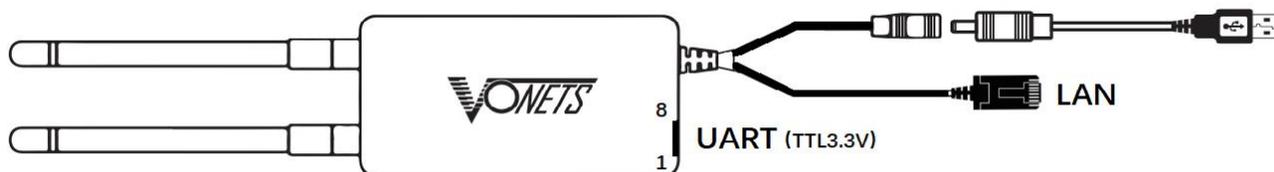
Due to the different software versions, the screenshots shown in this manual may not be exactly the same as the web interface of the product you purchased. Please configure your product according to the actual web interface.

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

Transmission Distance Parameters Form				
Model	Antenna Type	No-barrier point to point Transmission Distance	Transmission Rate (Mbps)	Band
VAP11S-232	External	400m~800m	300	2.4G
VAP11S-5232		100m~300m	900	5G
VAP11S-D232	Built-In	30m~100m	300	2.4G
		100m~300m	900	5G

Power supply parameter table				
Model Number	Supply Voltage	Output Power	Typical power	Ripple
VAP11S-232 VAP11S-5232 VAP11S-D232	DC5V--24V	≥10W	12V/1A	<100mV

Attached:



## Contents

<b>Chapter 1 Application Mode</b> .....	1
<b>1.1 Bridge + Repeater Mode</b> .....	1
<b>1.2 Router Mode</b> .....	2
<b>1.3 Serial port forwarding mode</b> .....	2
<b>Chapter 2 Bridge+Repeater Mode Configuration Instruction</b> .....	3
<b>2.1 Device connect</b> .....	3
<b>2.2 Bridge+Repeater Application Configuration</b> .....	4
<b>2.3 AP Application Configuration</b> .....	7
<b>Chapter 3 Router Mode Configuration Instruction</b> .....	9
<b>3.1 Change device mode</b> .....	9
<b>3.2 WAN port settings</b> .....	10
<b>3.2.1 WAN/LAN exchange</b> .....	11
<b>3.2.2 WAN Port connection method</b> .....	11
<b>3.2.3 WAN port wired connect network——DHCP</b> .....	11
<b>3.2.4 PPPoE WAN port wired connect network——PPPoE</b> .....	12
<b>3.2.5 WAN port wireless connect network--- WiFi</b> .....	12
<b>3.3 Set WiFi hotspot parameters</b> .....	14
<b>Chapter 4 Serial port forwarding mode Configuration Instruction</b> .....	16
<b>4.1 Data forwarding type setting</b> .....	16
<b>4.2 Serial port settings</b> .....	16
<b>4.3 Forwarding target server settings</b> .....	16
<b>4.4 Default serial port configuration for different devices</b> .....	17
<b>Chapter 5 Other components and installation method</b> .....	18
<b>5.1 Other components</b> .....	18
<b>5.2 Accessories diagram</b> .....	错误! 未定义书签。
<b>5.3 Industrial chassis rail hook kit installation</b> .....	22
<b>5.4 Installation diagram of optional accessories for each model</b> .....	23
<b>5.5 Antenna Installation Instructions</b> .....	24
<b>Appendix Frequently Asked Questions</b> .....	24

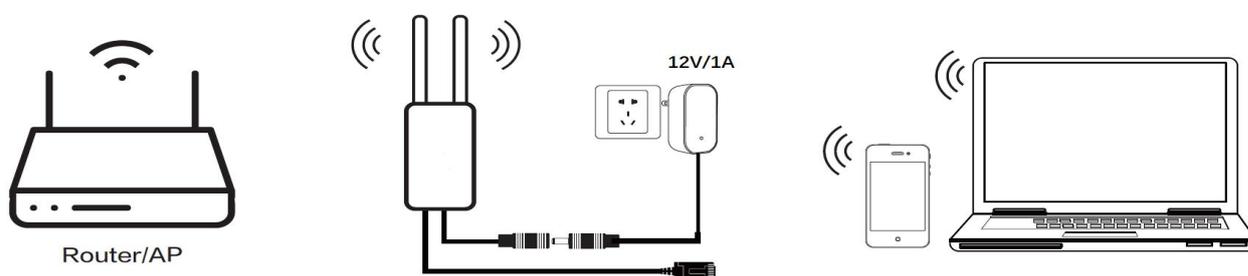
## Chapter 1 Application Mode

### 1.1 Bridge + Repeater Mode

There are three application modes for the bridge mode of VONETS device: WiFi repeater, WiFi bridge and WiFi AP.

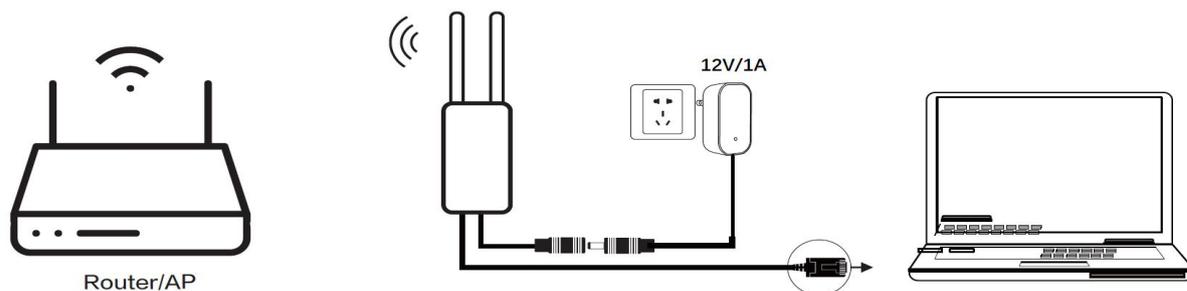
- **WiFi Repeater:**

VONETS device as WiFi Repeater, it must be configured to source WiFi hotspot parameters, can be used to extend the wireless signal coverage of existing APs or wifi router .



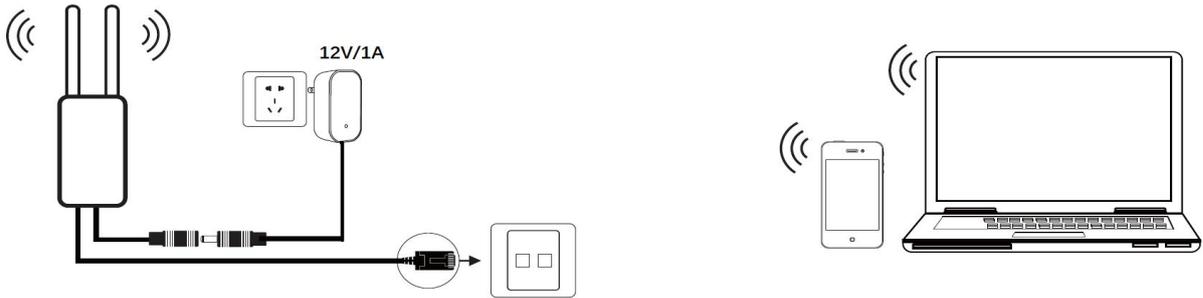
- **WiFi Bridge:**

VONETS device as WiFi bridge, it must be configured to source WiFi hotspot parameters, can be used for devices only with Ethernet ports to access wireless networks.



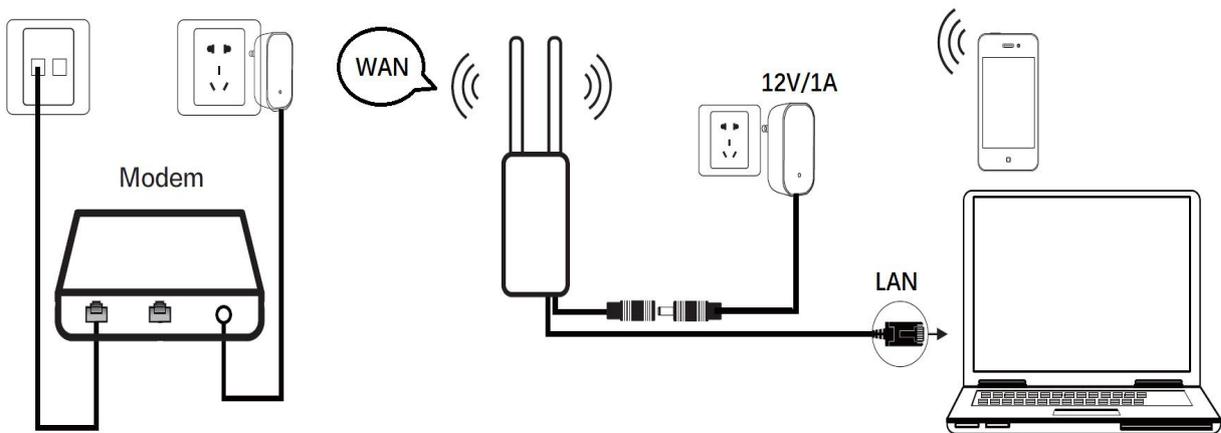
- **WiFi AP:**

VONETS device as WiFi AP, it can achieve wireless access to wired LAN, no configuration required, plug and play.

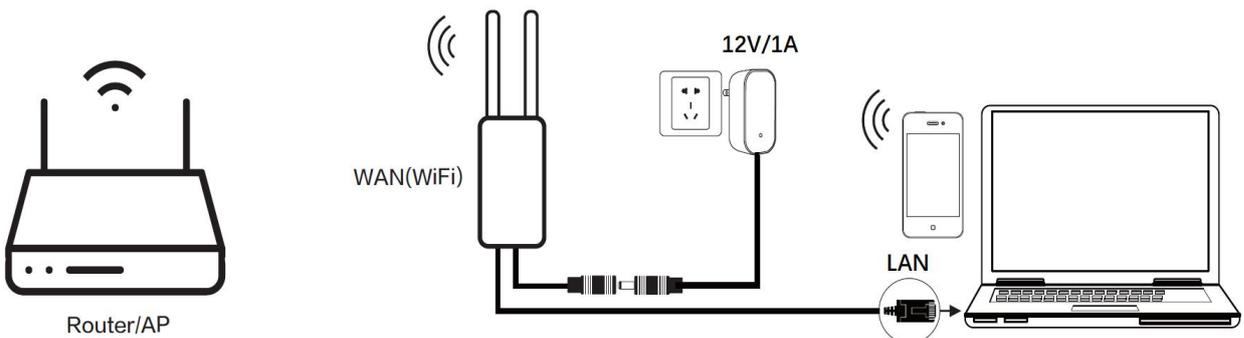


## 1.2 Router Mode

- The VONETS device is used as a wireless router, the WiFi is the WAN port, the Ethernet cable is the LAN port by default, and the WAN and LAN are interchangeable;

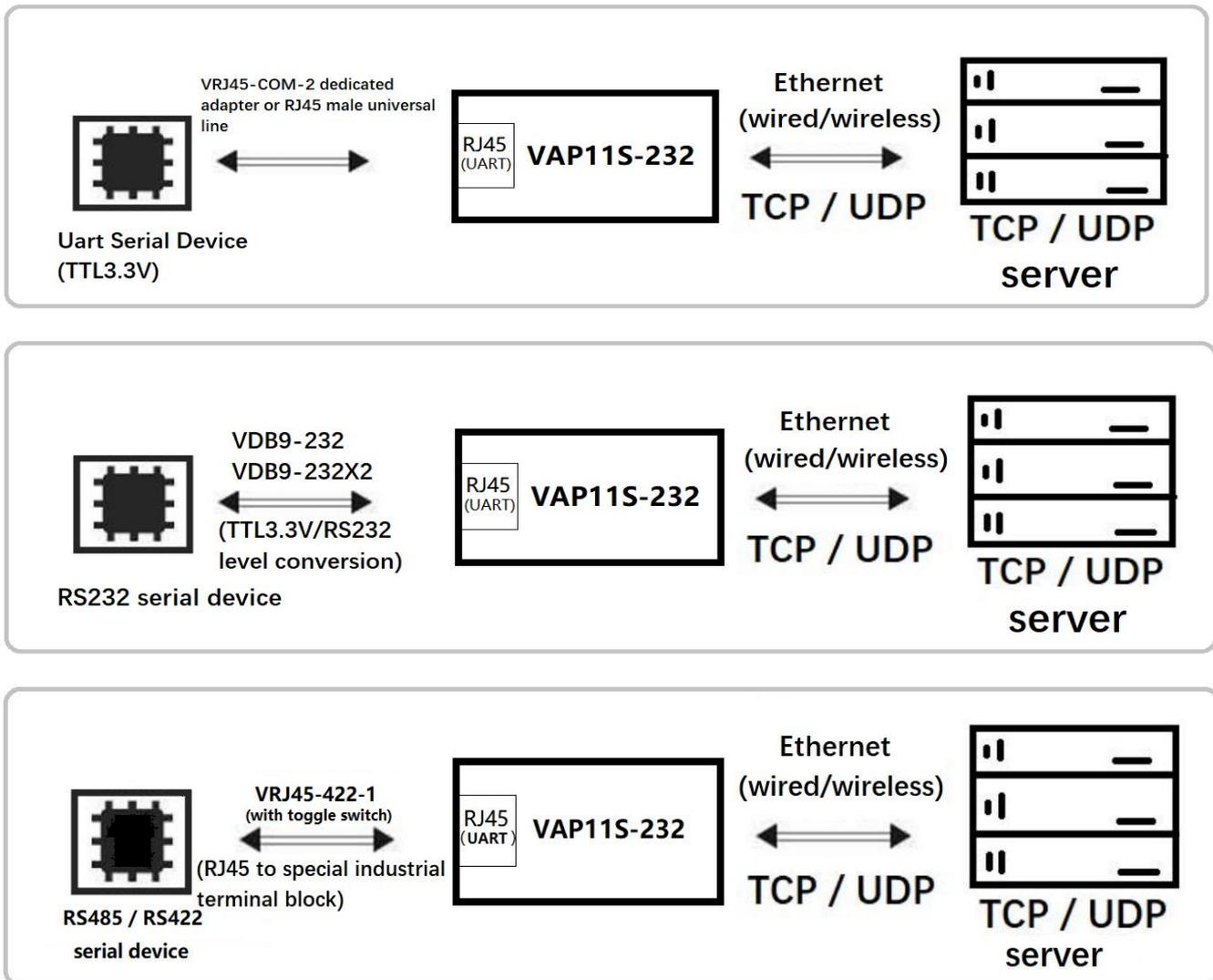


- The VONETS device is used as a wireless router. It can set up a WiFi hotspot of the WAN port and use it as a secondary router. Its Ethernet cable is a LAN port.



## 1.3 Serial port forwarding mode

- The VONETS device is used as a serial port forwarding server, the RJ45 network port is used as a serial port to connect to the serial device, the wired network port or WiFi is connected to the TCP/UDP server, and the data is transferred from the serial device to the TCP/UDP server through the VONETS device;
- VAP11S-232/VAP11S-481/VAP11S-482 supports serial port forwarding mode;



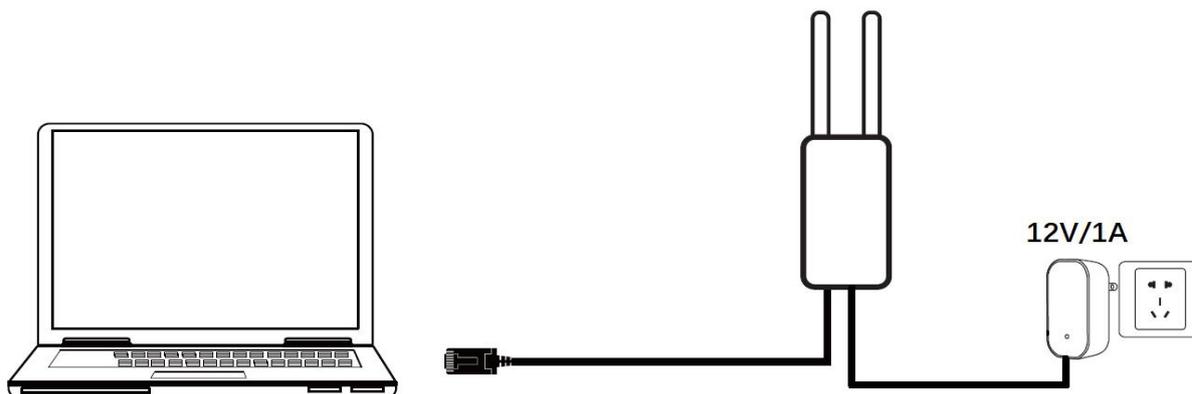
## Chapter 2 Bridge+Repeater Mode Configuration

### Instruction

#### 2.1 Device connect

Power on VONETS device by 12V/1A 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.)

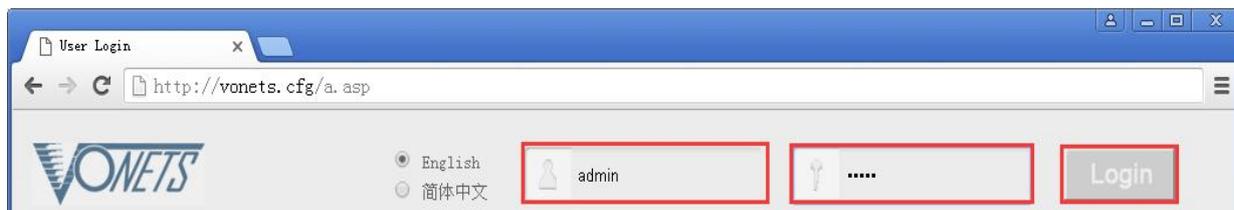
## 2.2 Bridge+Repeater Application Configuration

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.

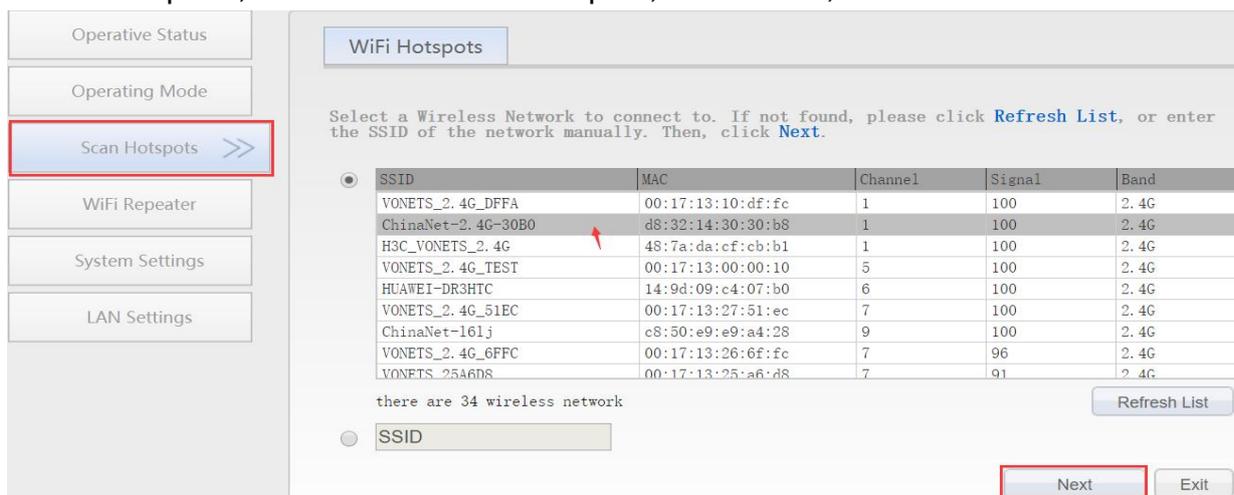
1. After computer is connected to VONETS device, open browser, input configured page: <http://vonets.cfg> (or IP: 192.168.254.254), then press Enter;



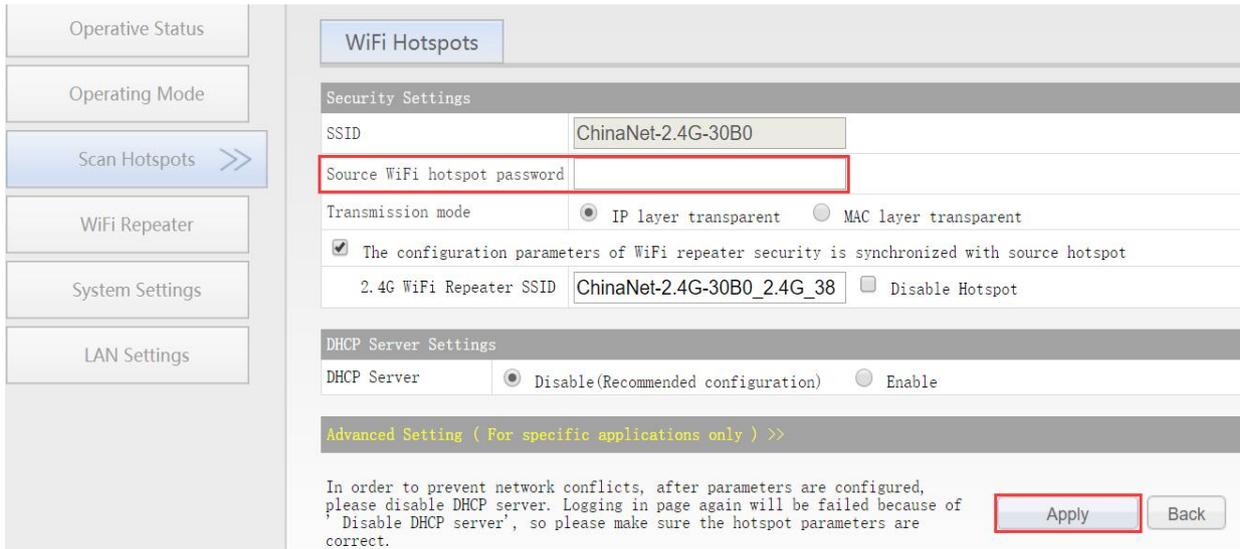
- Input User name and Password in login page (both are “admin”), click “Login” button to enter configured page;



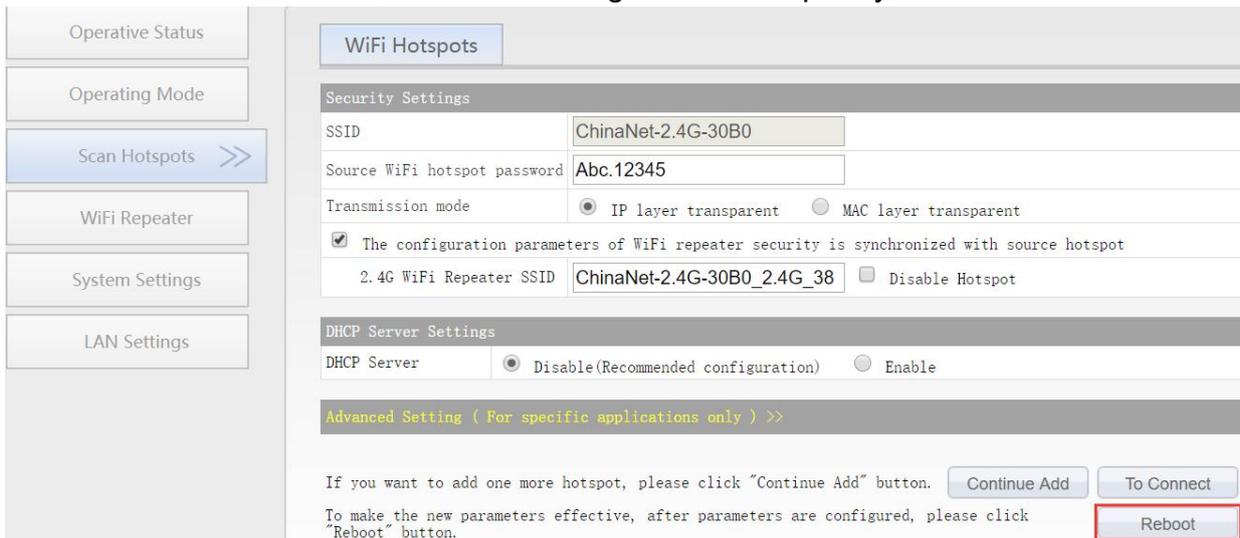
- “Scan Hotspots”, choose the source hotspots, click “Next”;



- 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](http://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:

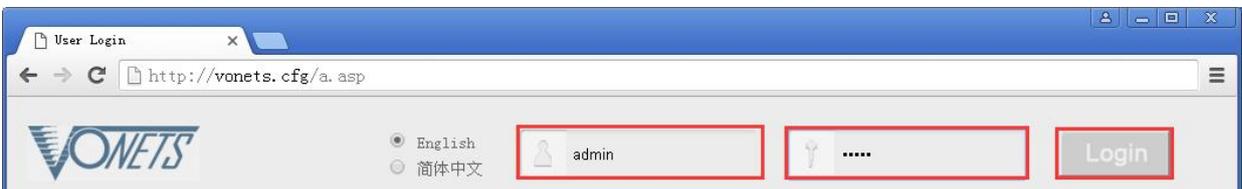
LED Light Form			
Model	Blue Light	Green Light	Yellow Light
VAP11S-232	2.4G connection status light	/	Ethernet Cable Connection Status Light
VAP11S-5232	/	5G connection status light	
VAP11S-D232	2.4G connection status light	5G connection status light	
① VONETS device is not connected to any hotspot, WiFi connection status light will flash quickly; ② VONETS device is connected to hotspot successfully, but hotspot signal strength is greater than 50%, WiFi connection status light will quick flash;			

- ③ VONETS device is connected to hotspot successfully, but hotspot signal strength is less than 50% greater than 10%, WiFi status light will pause flash and flash;
- ④ VONETS device is connected to hotspot failed, WiFi connection status light will flash slowly.

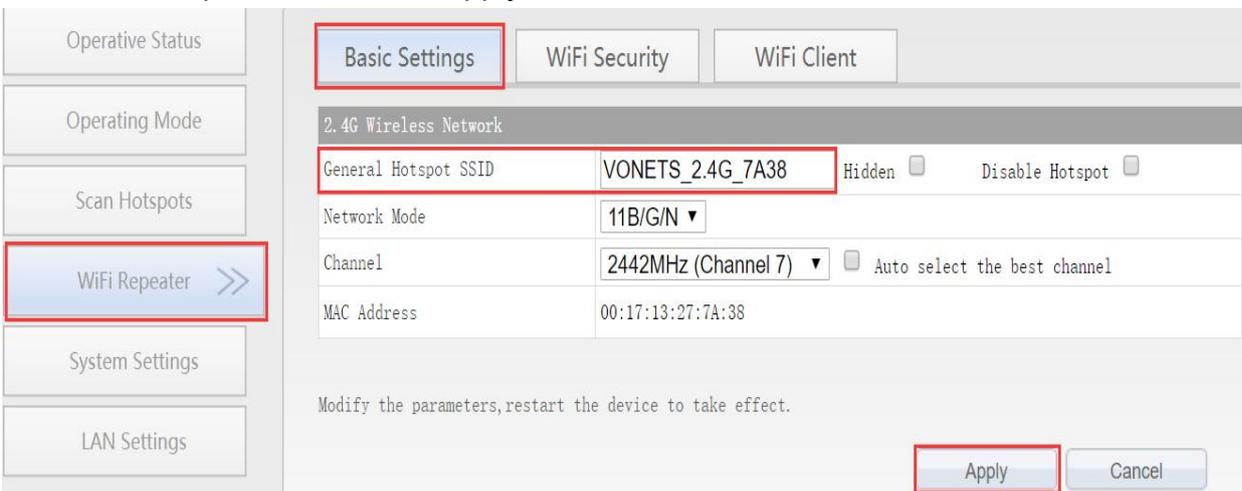
### 2.3 AP Application Configuration

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 <http://vonets.cfg> (or IP: 192.168.254.254) you're your computer browser, both user name and password are "admin";



2. Revise WiFi name: Jump to "WiFi Repeater"--- "Basic Settings", enter new WiFi name in "General Hotspot SSID", click "Apply";



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

## VONETS—WiFi Bridge/Repeater/Router

Operative Status

Operating Mode

Scan Hotspots

WiFi Repeater >>

System Settings

LAN Settings

Basic Settings | **WiFi Security** | WiFi Client

WiFi Security

Repeater SSID: VONETS\_2.4G\_7A38

Security Mode: WPAPSK-WPA2PSK

WPA Algorithms:  TKIP  AES  TKIP-AES

Pass Phrase: 12345678 (8-63 characters or 64 hex numbers)

Modify the parameters, restart the device to take effect.

Apply Cancel

4. “WiFi Tx Power” of VONETS device can be changed, jump to “System Settings”---- “Advance Settings”, choose suitable transmit power, then click “Apply”;

Operative Status

Operating Mode

Scan Hotspots

WiFi Repeater

System Settings >>

LAN Settings

Reboot Device | **Advanced Setting** | Login Settings | Firmware Upgrade

Recovery Factory

Restore default settings: Reset

Import Configuration

Import from local file: 选择文件 未选择任何文件 Import

Export Configuration

Export to local file: Export

Select Wifi Tx Power

2.4G Wifi Tx Power:  Normal Power (20dBm)  Enhanced Power (23dBm)

When the device is restarted, the power level device will take effect.

Apply

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

Operative Status

Operating Mode

Scan Hotspots

WiFi Repeater

System Settings >>

LAN Settings

Reboot Device | Advanced Setting | Login Settings | Firmware Upgrade

Reboot Device

Reboot Device: Reboot

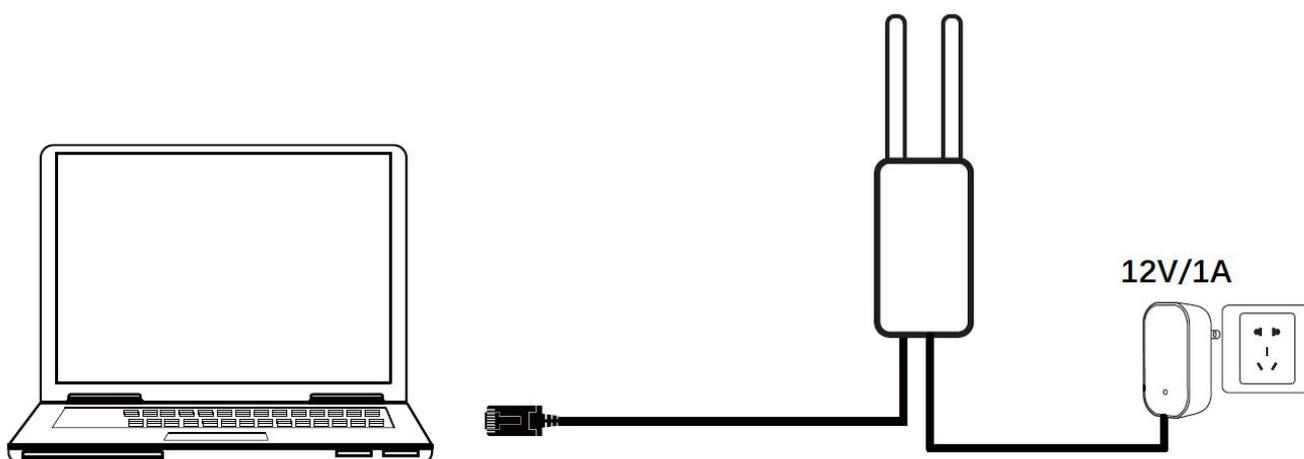
Remark 2: When VONETS device connects to external network, its IP address will be changed. At this time, when log in configured page, we suggest you enter configured domain

name: <http://vonets.cfg>. Or in Windows command window, enter the command: ping vonets.cfg, to get the IP address of the device, then log in configuration page by this IP address.

## Chapter 3 Router Mode Configuration Instruction

### 3.1 Change device mode

1. Power on VONETS device by 12V/1A 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. 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



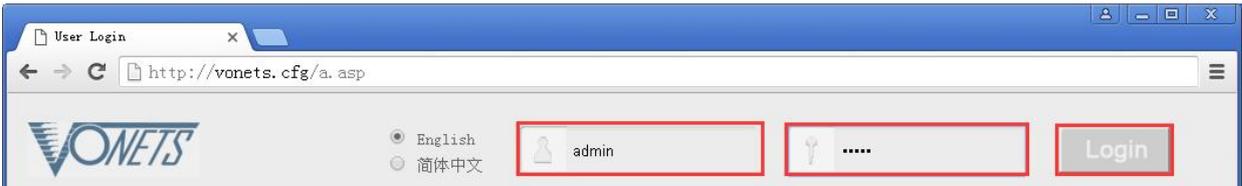
(After the WiFi parameters are configured, the WiFi will be disconnected, that is normal.)

## VONETS—WiFi Bridge/Repeater/Router

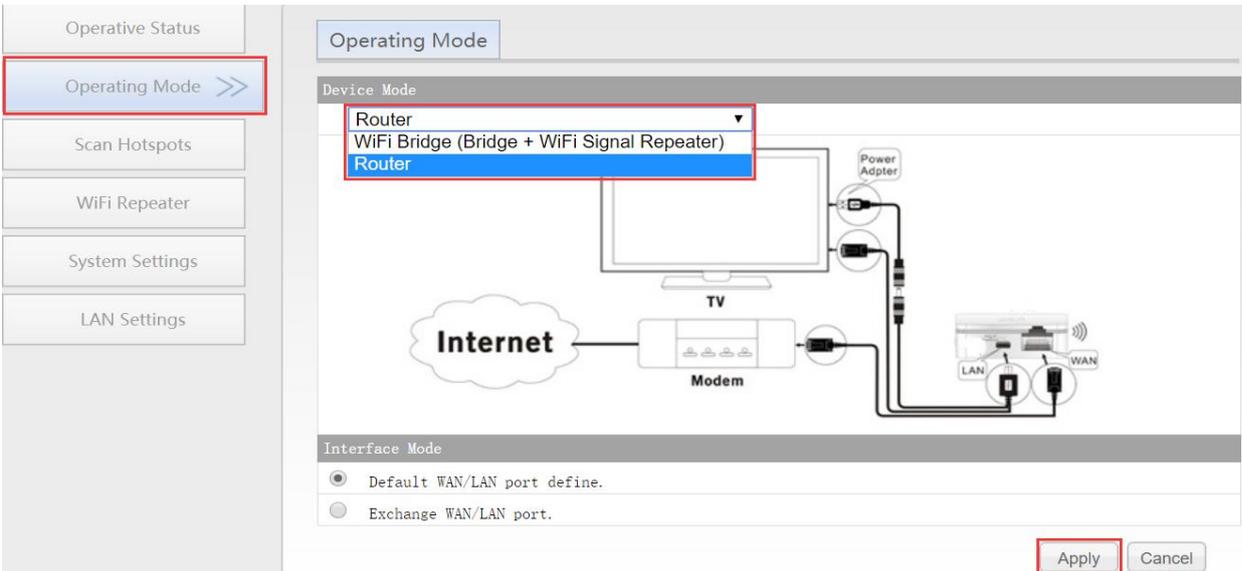
2. After computer is connected to VONETS device, open browser, input configured page domain name: `http://vonets.cfg` (or IP: `192.168.254.254`), then press Enter;



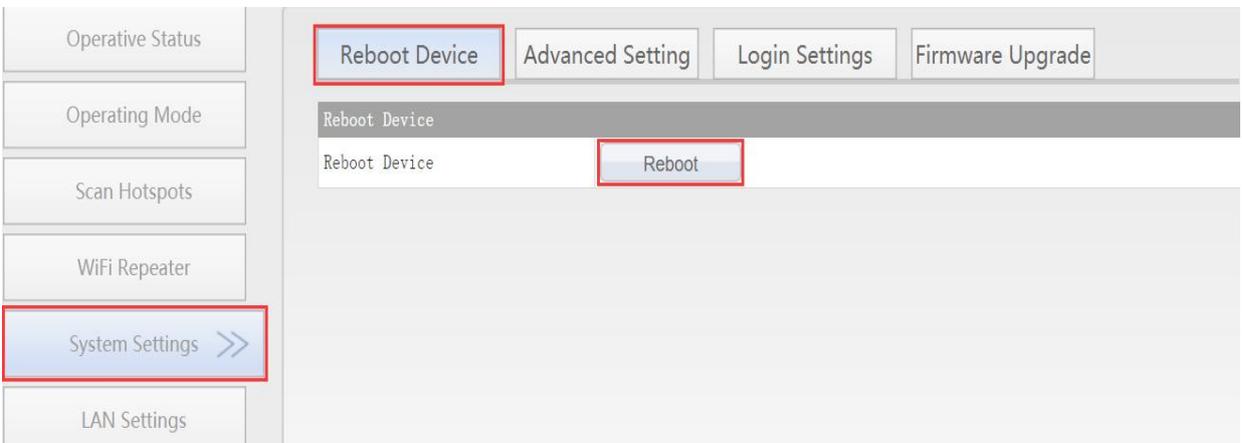
3. Enter User name and Password in login page (both are “admin”), click “Login” button to enter configured page;



4. In “Operating Mode”, change Device mode to “Router” mode, click “Apply” Button;



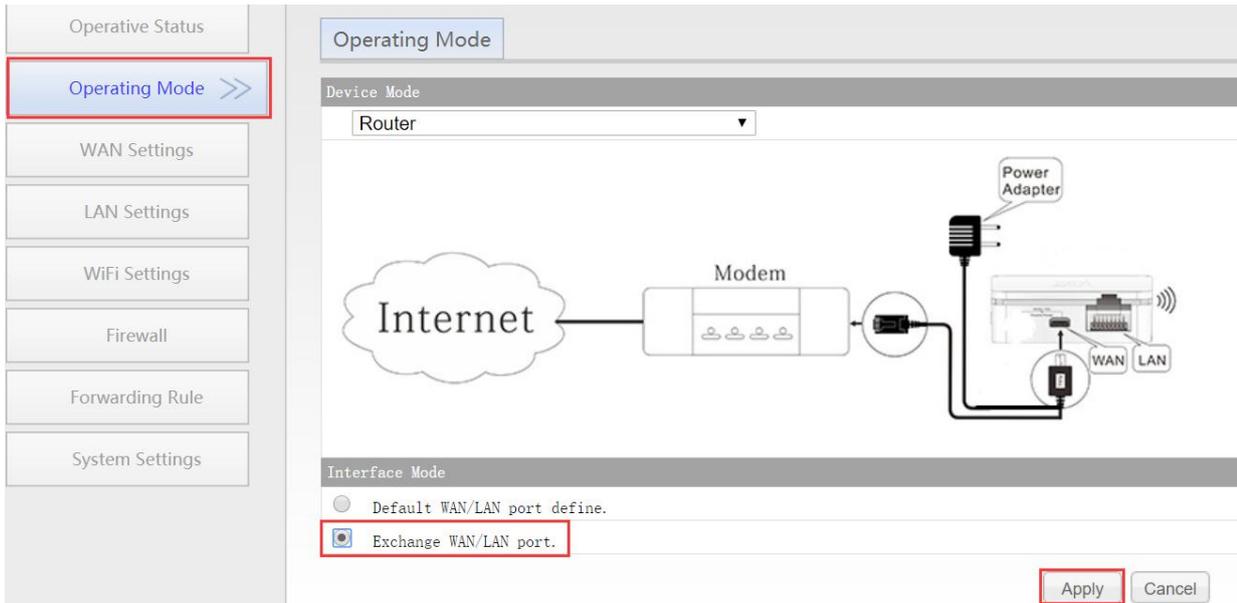
5. Reboot device: go to “System Settings”-- “Reboot device”, click “Reboot” button, VONETS device will automatically switch to router mode.



## 3.2 WAN port settings

### 3.2.1 WAN/LAN exchange

In routing mode, the WIFI hotspot of the VONETS device is the WAN port and the Ethernet cable is the LAN port, and the WAN/LAN can be interchanged;  
 The WiFi of the VONETS device is the WAN port by default, and the Ethernet cable is the LAN port by default. If the interface mode is changed to "WAN/LAN interchange", the Ethernet cable is the WAN port, and the WiFi is the LAN port (no modification required);



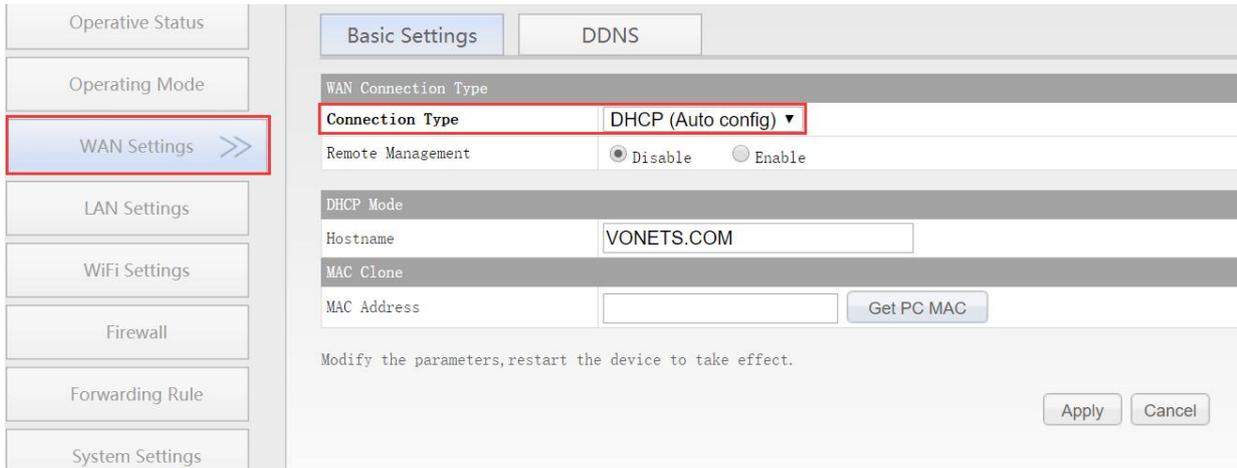
### 3.2.2 WAN Port connection method

By setting the WAN port of the router, you can change the network connection type according to the actual needs of the individual, there are three types of WAN port connections commonly used in the routing mode of VONETS device: DHCP(Auto Config), PPPoE(ADSL) and WiFi. DHCP and PPPoE are wired connections, and the WAN port needs to be connected to the source network through a wired connection:

- DHCP(Auto Config): WAN port connection type is selected as **“DHCP(Auto Config)”**, VONETS device will automatically obtain IP address from source network;
- PPPoE(ADSL): WAN port connection type is selected as **“PPPoE”**, that is, ADSL virtual dialing mode requires ISP (Internet Service Provider) to provide Internet account and password;
- WiFi: WAN port connection type is selected as **“WiFi”**, VONETS device uses a built-in WiFi network card (used to connect to the source hotspot) as a WAN port, and all Ethernet ports as LAN ports, while providing WiFi hotspot functions.

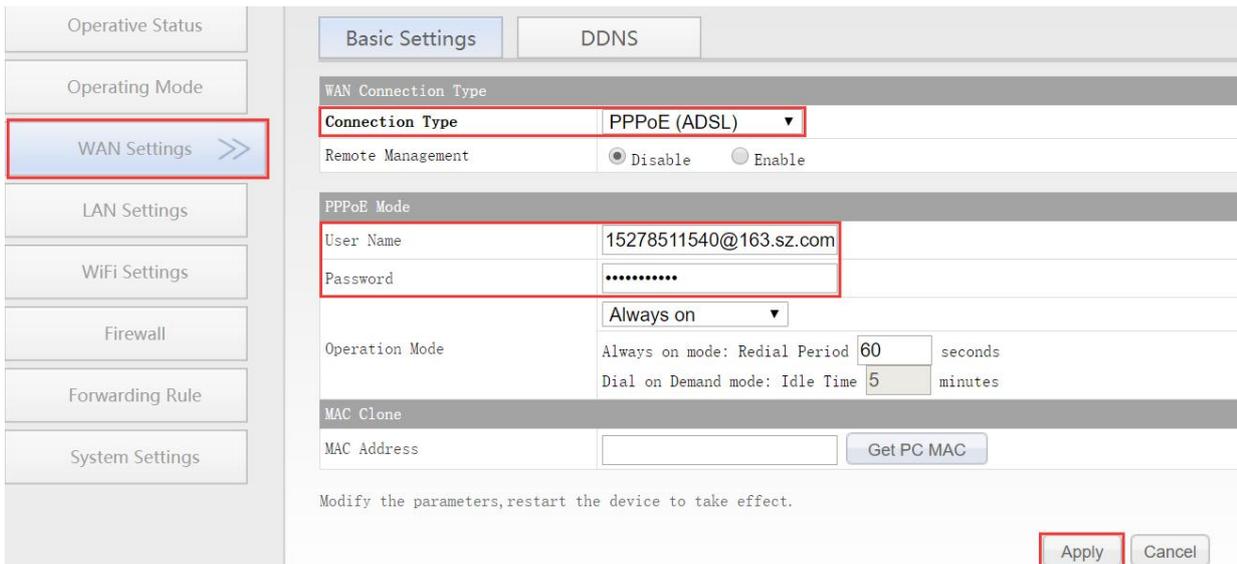
### 3.2.3 WAN port wired connect network—DHCP

The default WAN port connection method of VONETS device is DHCP. WAN port can automatically obtain an IP address after connecting to the source network.



### 3.2.4 PPPoE WAN port wired connect network—PPPoE

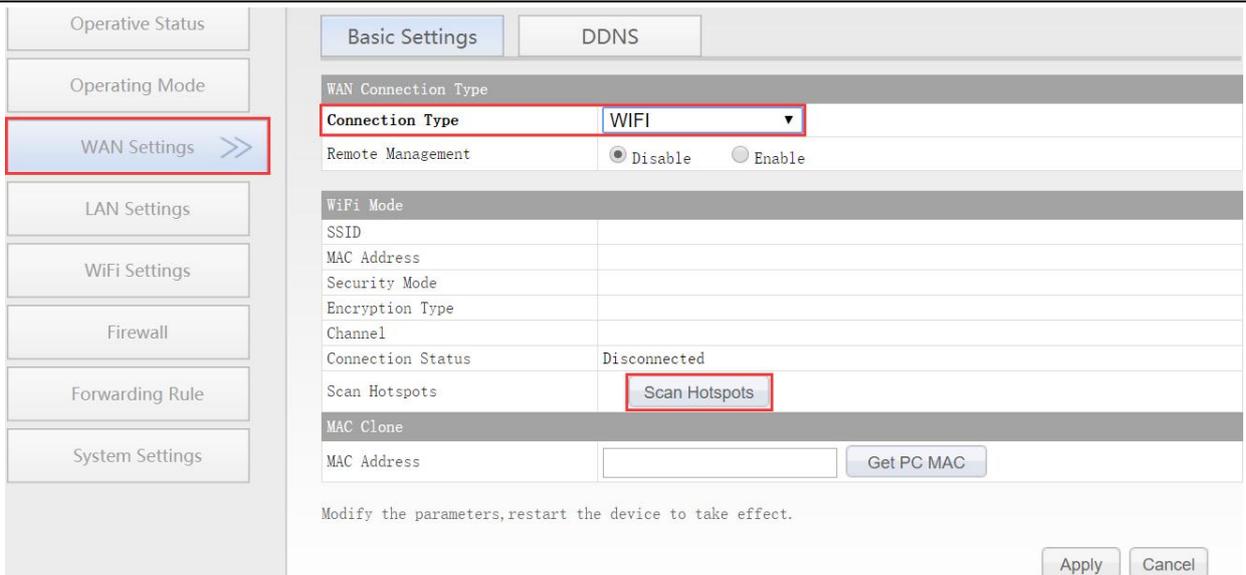
In “WAN settings”, select “Basic settings”, change the connection type to “PPPoE (ADSL)”, then enter the Internet account and password provided by the ISP (Internet Service Provider), click the “Apply” button, and reboot VONETS device, then can access to network.



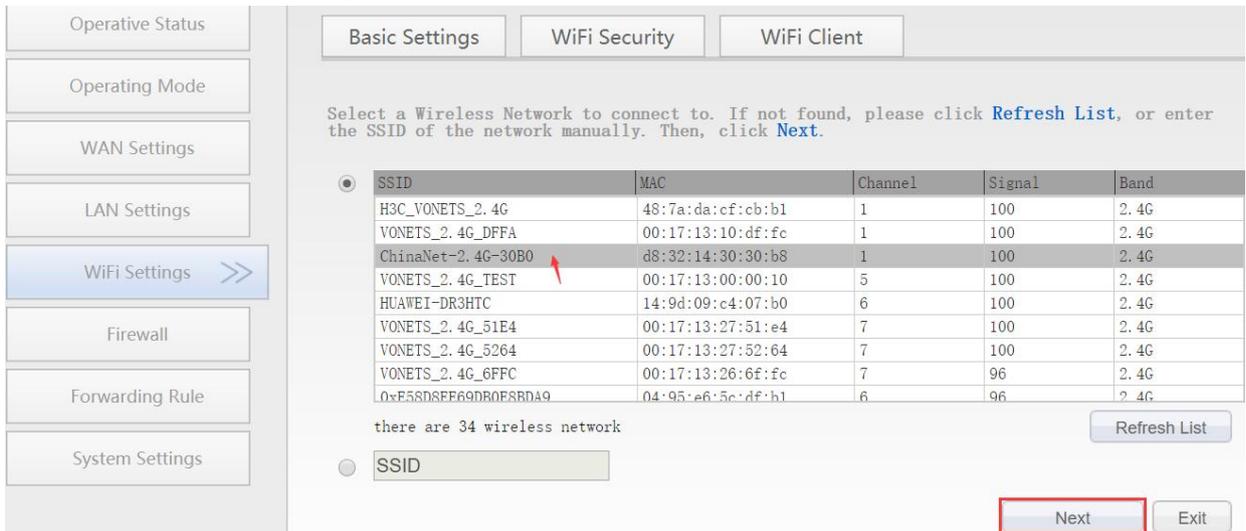
### 3.2.5 WAN port wireless connect network---- WiFi

1. In “WAN Settings”, select “Basic Settings”, change Connection type to “WiFi”, then click “Scan Hotspots” to enter the scanning hotspot list.

VONETS—WiFi Bridge/Repeater/Router

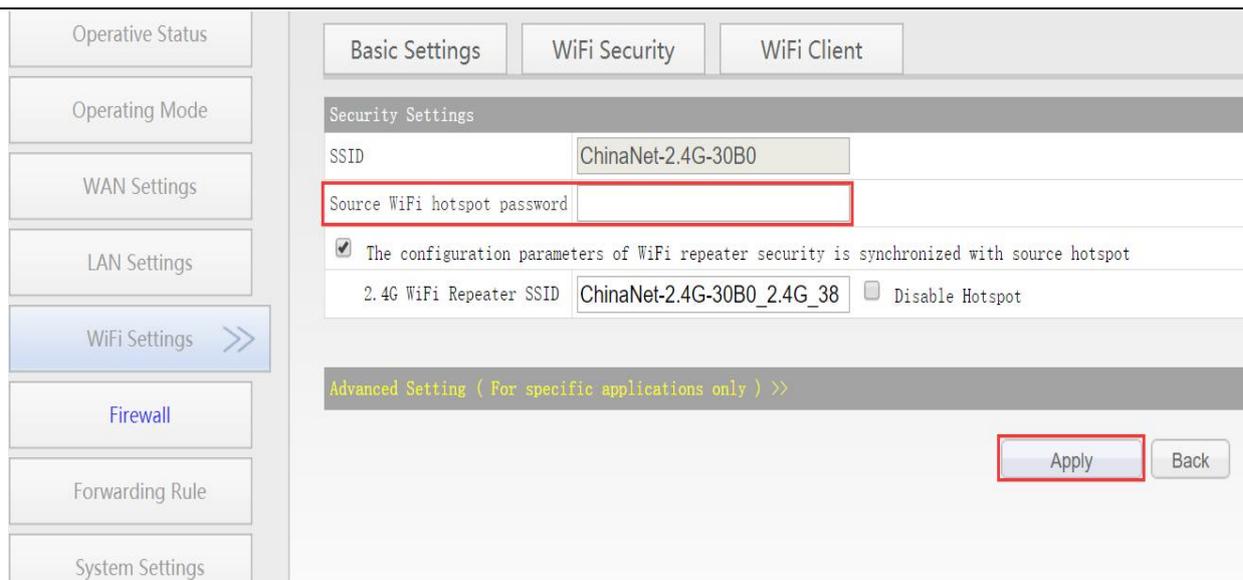


2. Choose the source hotspots, click “Next”;

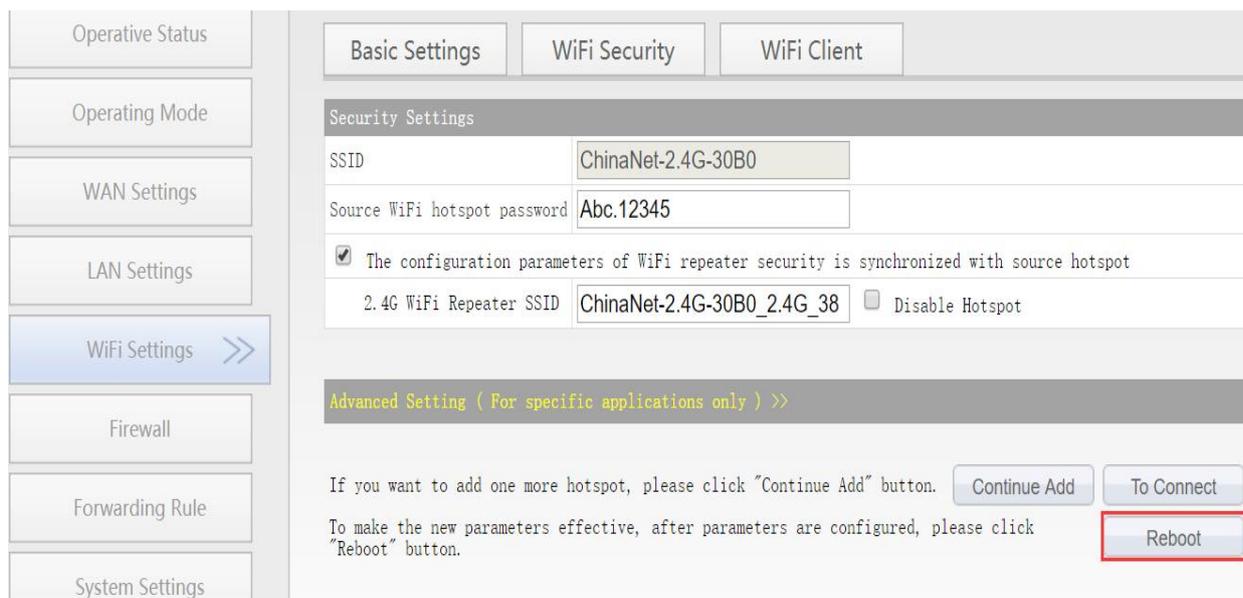


3. Input “Source wireless hotspot password”, click “Apply”

- 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](http://www.vonets.com) and download the “V Series WiFi Bridge Advanced Features Instruction”;



4. Click “Reboot”, VONETS device will connect to the configured WiFi hotspot automatically, if connection is successful, the WiFi LED light will flash quickly;(Please refer to Remark 1 for the description of the LED light.)



Remark 3: After VONETS device sets the WAN port to access the WiFi hotspot in the routing mode, its LAN port IP is still 192.168.254.254, and the terminal device also obtains the IP address of the same network segment, can login configuration page by 192.168.254.254 or http://vonets.cfg.

### 3.3 Set WiFi hotspot parameters

1. Revise WiFi name: Jump to “WiFi Repeater”---- “Basic Settings”, enter new WiFi name in “General Hotspot SSID”, click “Apply”;

## VONETS—WiFi Bridge/Repeater/Router

Operative Status

Operating Mode

WAN Settings

LAN Settings

WiFi Settings >>

Firewall

Forwarding Rule

System Settings

Basic Settings WiFi Security WiFi Client WiFi Hotspots

2.4G Wireless Network

WiFi Hardware Module  Enable  Disable

General Hotspot SSID VONETS\_2.4G\_7A38 Hidden  Disable Hotspot

Network Mode 11B/G/N

Channel 2442MHz (Channel 7)  Auto select the best channel

MAC Address 00:17:13:27:7A:38

Modify the parameters, restart the device to take effect.

Apply Cancel

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

Operative Status

Operating Mode

WAN Settings

LAN Settings

WiFi Settings >>

Firewall

Forwarding Rule

System Settings

Basic Settings WiFi Security WiFi Client WiFi Hotspots

WiFi Security

Repeater SSID VONETS\_2.4G\_7A38

Security Mode WPAPSK-WPA2PSK

WPA Algorithms  TKIP  AES  TKIP-AES

Pass Phrase 12345678 (8-63 characters or 64 hex numbers)

Modify the parameters, restart the device to take effect.

Apply Cancel

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

Operative Status

Operating Mode

WAN Settings

LAN Settings

WiFi Settings

Firewall

Forwarding Rule

System Settings >>

Reboot Device Advanced Setting Login Settings Firmware Upgrade

Reboot Device

Reboot Device Reboot

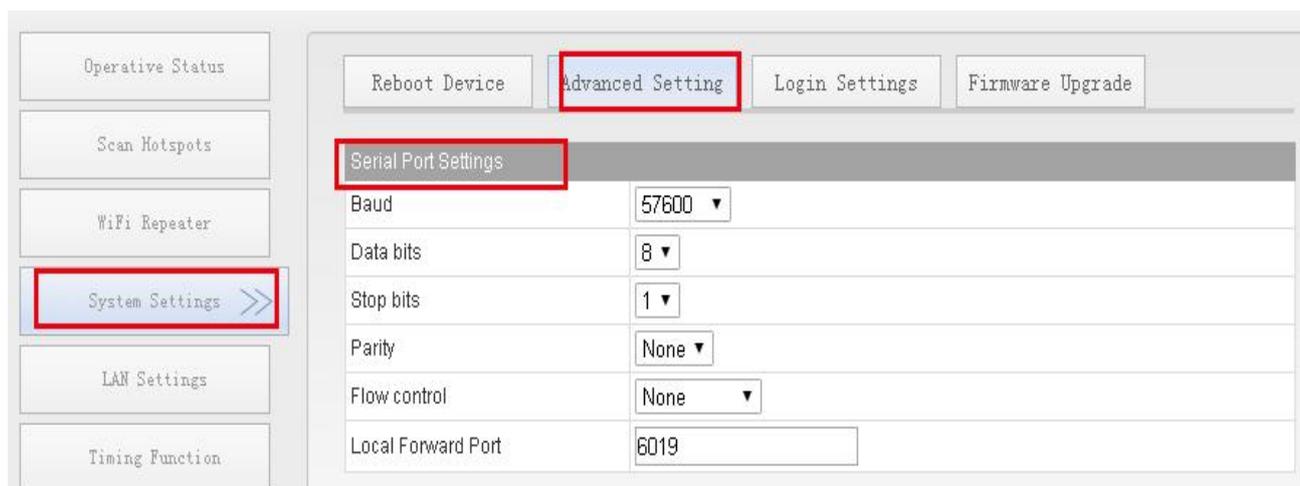
# Chapter 4 Serial port forwarding mode Configuration Instruction

## 4.1 Data forwarding type setting



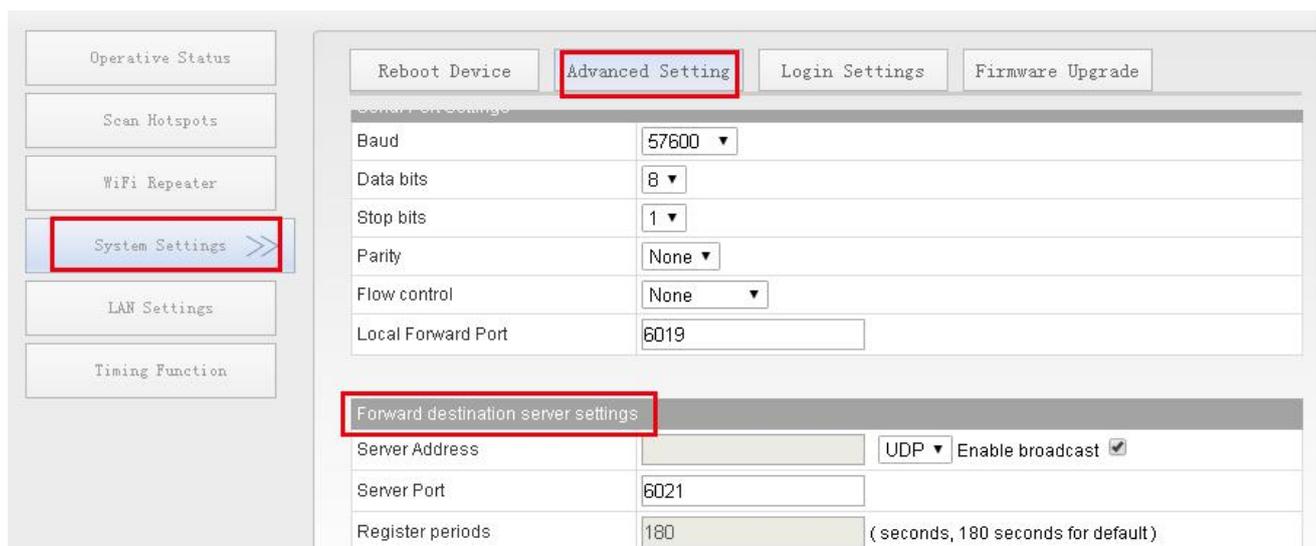
Note: Please refer to the document "VONETS-UART\_UDP Data Forwarding Instructions (3.0)\_20210901.pdf" for the description of data forwarding types.

## 4.2 Serial port settings



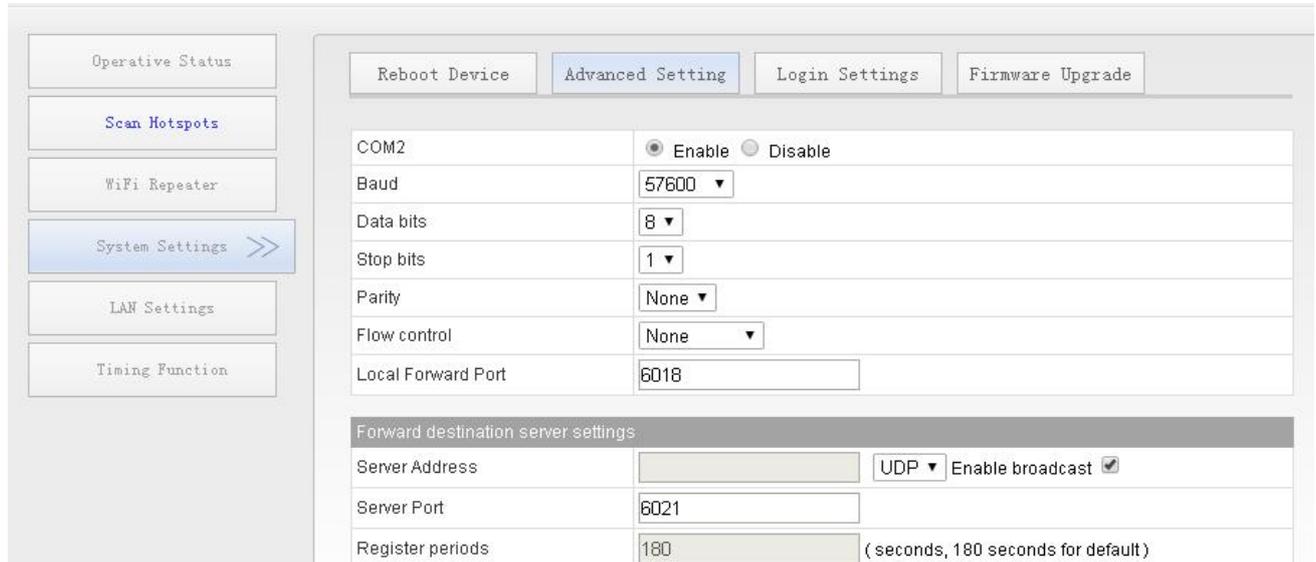
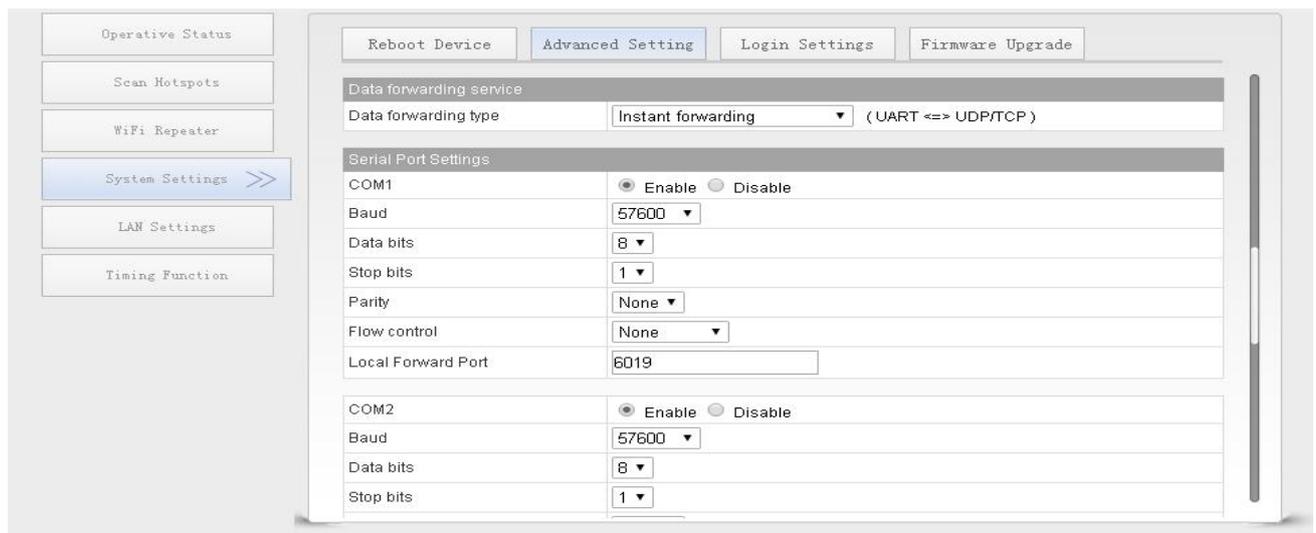
Note: The data forwarding service is enabled and effective.

## 4.3 Forwarding target server settings



Note: The data forwarding service is enabled and effective.

#### 4.4 Default serial port configuration for different devices



## Chapter 5 Other components and installation method

### 5.1 Other components

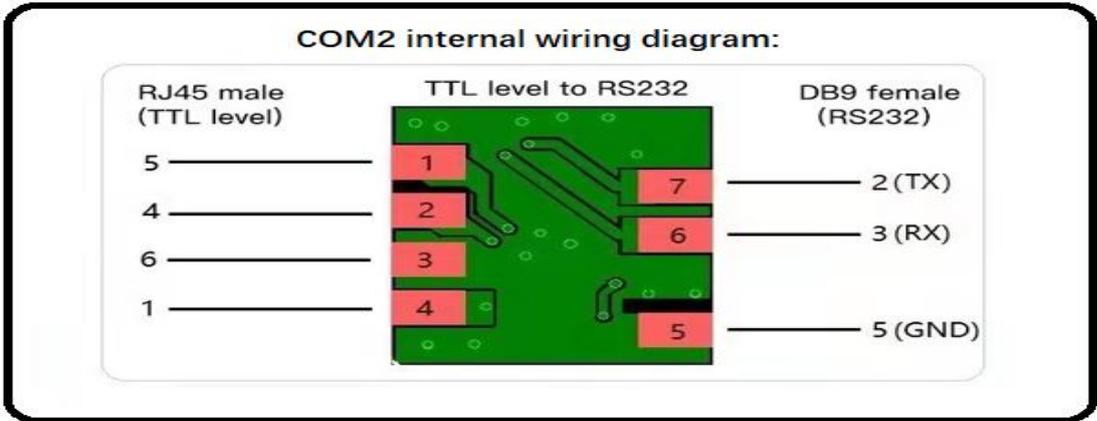
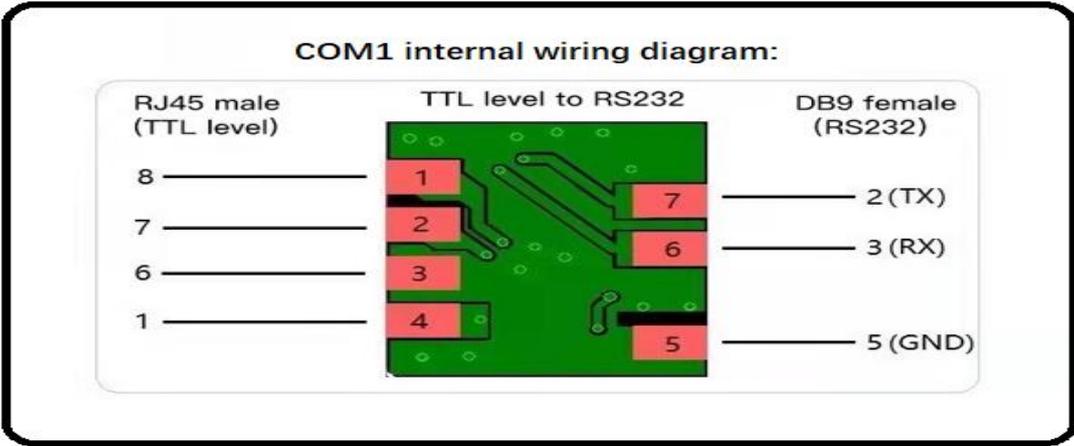
<p>1. Industrial power DC connector (standard accessories)</p>	<p>2. Industrial Chassis Rail Hook Kit (standard accessories)</p>	<p>3. Antenna extension cable(optional)</p>
		
<p>4. VDB9-232 (optional)</p>	<p>5. VDB9-232-X2 (optional)</p>	<p>6. VRJ45-5P (optional)</p>
		
<p>7. VRJ45-422-1 (optional)</p>		
		

## Accessories Instruction Sheet

model	category	Specification Description	Function description
VDB9-232	DB9 female seat	RJ45 crystal head + 1*DB9 interface (built-in RS232 chip)	RJ45 female UART port (COM1) TTL3.3V level conversion to RS232-DB9 female (built-in level converter chip)
VDB9-232-X2	Double DB9 female seat	RJ45 crystal head + 2*DB9 interface (built-in RS232 chip)	RJ45 female UART port (COM1+COM2) TTL3.3V level conversion to RS232-DB9 female (built-in level conversion chip)
VRJ45-5P	5PIN terminal block	RJ45 crystal head to 5P connector	RJ45 female connector converted to 5PIN terminal block (No built-in level shifter chip, the corresponding PIN pin is directly connected)
VRJ45-422-1	6PIN connector	Built-in RS485/RS422 chip with toggle switch RJ45 crystal head + 6P connector (black)	RJ45 female chassis of two UART converted to two RS485 or toggle switch to switch to one UART and converted to one RS422 6PIN connector (built-in RS485/RS422 level converter chip, toggle switch + RJ45 crystal head + 6P connector)

## 5.2 Schematic diagram of accessories function

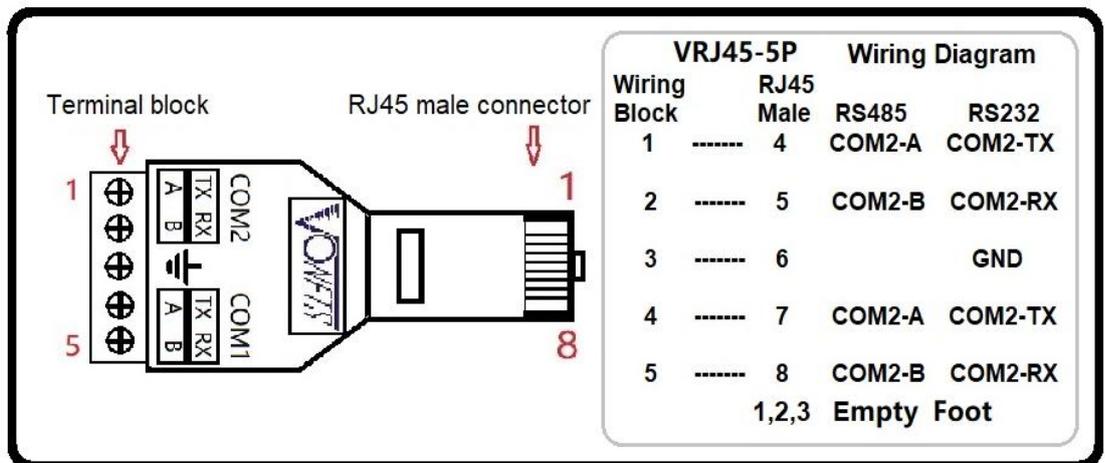
<p>Schematic diagram of accessories function</p>	<p>1</p>	<p><b>VDB9-232</b></p> <p>VONETS VDB9-232 (DB9 female to RJ45 male)</p> <p>DB9 female</p> <p>10cm</p> <p>DB9 female</p> <p>RJ45 male</p> <p><b>VDB9-232 (Internal wiring diagram)</b></p> <table border="1"> <thead> <tr> <th>VAP11S-232 RJ45 female</th> <th>RJ45 male (TTL level)</th> <th>TTL level to RS232</th> <th>DB9 memale (RS232)</th> </tr> </thead> <tbody> <tr> <td>COM1-RX</td> <td>8</td> <td>1</td> <td>2 (TX)</td> </tr> <tr> <td>COM1-TX</td> <td>7</td> <td>2</td> <td>3 (RX)</td> </tr> <tr> <td>GND</td> <td>6</td> <td>3</td> <td>5 (GND)</td> </tr> <tr> <td>(DC3V~5V)</td> <td>1</td> <td>4</td> <td></td> </tr> <tr> <td></td> <td></td> <td>5</td> <td></td> </tr> <tr> <td></td> <td></td> <td>6</td> <td></td> </tr> <tr> <td></td> <td></td> <td>7</td> <td></td> </tr> </tbody> </table>	VAP11S-232 RJ45 female	RJ45 male (TTL level)	TTL level to RS232	DB9 memale (RS232)	COM1-RX	8	1	2 (TX)	COM1-TX	7	2	3 (RX)	GND	6	3	5 (GND)	(DC3V~5V)	1	4				5				6				7	
VAP11S-232 RJ45 female	RJ45 male (TTL level)	TTL level to RS232	DB9 memale (RS232)																															
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		7																																
<p>accessories function</p>	<p>2</p>	<p><b>VDB9-232-X2</b></p> <p>VONETS VDB9-232-X2 (DB9 female to RJ45 male)</p> <p>DB9 female</p> <p>RJ45 male</p>																																

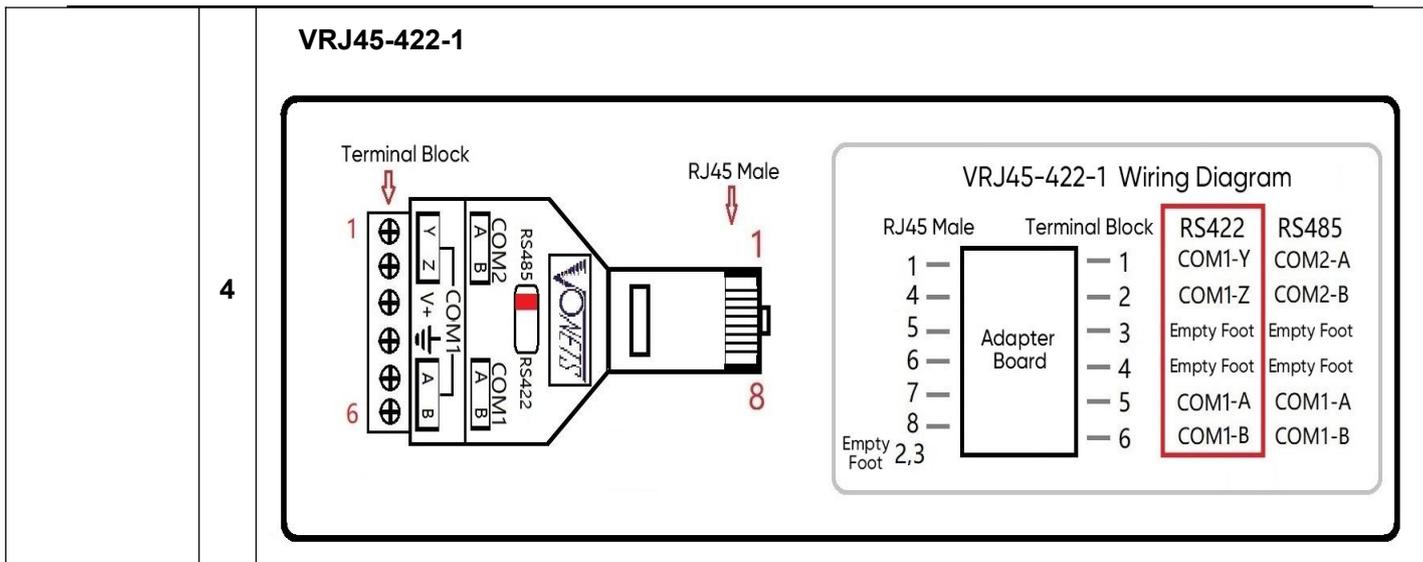


**VRJ45-5P**

(The illustration only shows the connection relationship between the corresponding PIN pins, there is no level shifting function, and the corresponding PIN pins are all directly connected))

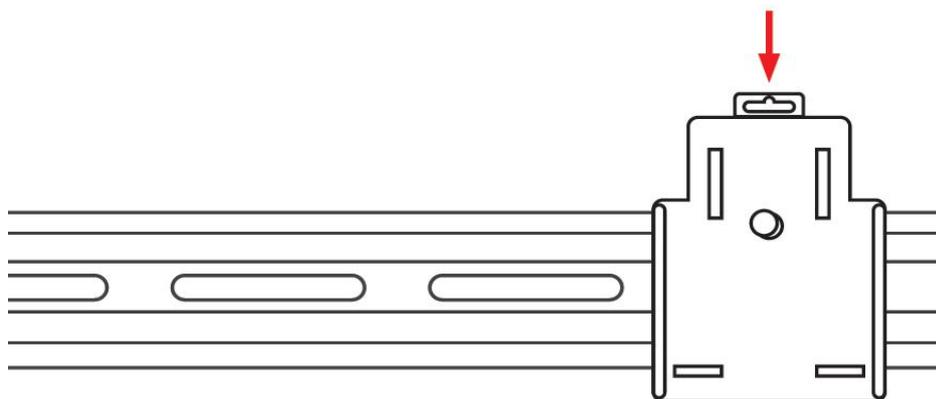
3



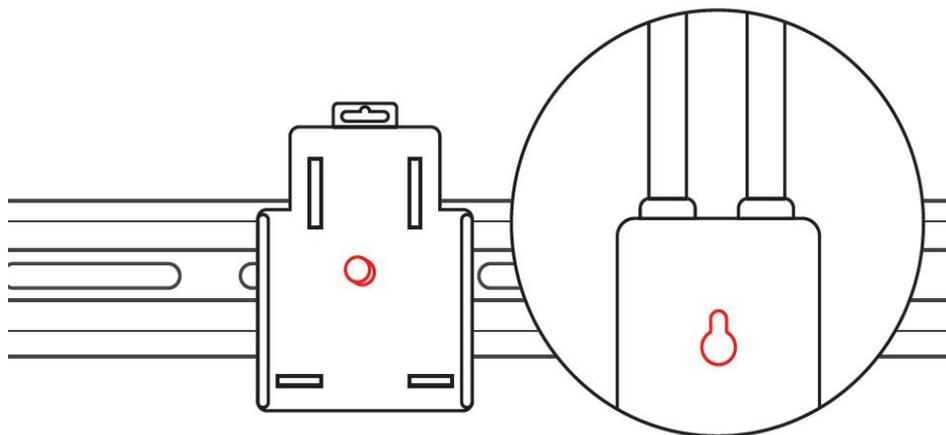


### 5.3 Industrial chassis rail hook kit installation

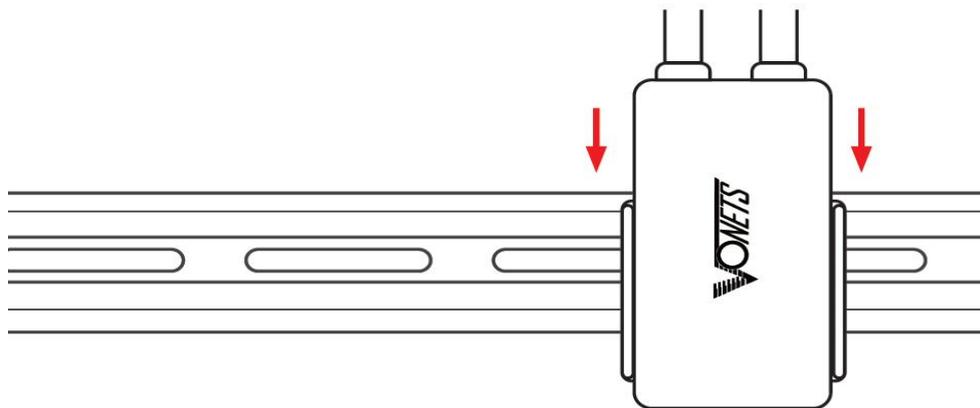
1. Install the hook kit onto the chassis rail and fasten the buckle



2. Install VONETS device onto the hook kit



3. Fixed VONETS device on the hook kit;



### 5.4 Installation diagram of optional accessories for each model

- VDB9-232: The TTL3.3V level of the UART port of the RJ45 female socket is converted into a RS232-DB9 female socket



- VDB9-232-X2: The TTL3.3V level of the UART port of the RJ45 female socket is converted into a dual RS232-DB9 socket



- RJ45 female socket is converted into 5PIN special terminal block (VRJ45-5P )



## 5.5 Antenna Installation Instructions

1. The following is the nut bag packed with the product:



2. Put the nut on the antenna RF base and screw the nut to the end:



3. Rotate the antenna close to the nut to ensure that it will not loosen.



## Appendix Frequently Asked Questions

1. How to reset to the factory default parameters?
2. Power on the device, after 60 seconds, long press Reset button until 5 seconds, the blue light will flash a few, then the device will automatically reset to the factory default parameters (it will take about 80 seconds to reset the device), during the recovery of the factory operation, the product can't be powered off, otherwise it may cause the product to damage.
3. Do VONETS device support firmware upgrade, how to upgrade?

4. VONETS devices support firmware upgrade, and support online upgrade, please visit website: [www.vonets.com](http://www.vonets.com) to refer to the related documents
5. The device WiFi hot spot can be found, but the smart phone or PC can't connect to this device hotspot?
  - Reason 1. Due to some unexpected operation or power down, caused the destroy of device parameters. At this time, just need to reset the device to factory default parameters;
  - Reason 2. The device WiFi doesn't work at the best channel, make the performance worse. At this time, you can try to change the source WiFi hot spot and this device WiFi channel to make the performance better;
  - Reason 3. The smart phone or PC haven't configured the correct WiFi password.
6. The device has been configured the source WiFi hot spot parameters, the smart phone or PC has connected to the device WiFi hot spot, but still doesn't get internet?
  - Reason 1. The distance between the device and source WiFi hot spot is too long, cause the communication performance degradation, finally effect the user's access to the Internet. At this time, just need shorten the distance between the device and source WiFi hot spot to solve this problem;
  - Reason 2. Due to some unexpected operation or power down, caused the destroy of device parameters. At this time, just need to reset the device to factory default parameters;
  - Reason 3. The device WiFi doesn't work at the best channel, make the performance worse. At this time, you can try to change the source WiFi hot spot WiFi channel to make it the same as the default channel of the device, the reboot the device, the device will automatically exchange to the same channel as the source WiFi hotspot, to make the performance better;
  - Reason 4. There are several WiFi hot spot around the device, WiFi channel mutual interference, make the performance worse. At this time, you can try to change the source WiFi hot spot and this device WiFi channel to make the performance better;
  - Reason 5. The configured source WiFi hot spot parameters are not correct. At this time, just need to configure the correct parameters then reboot.
7. The smart phone or PC has been connected the device by WiFi or Ethernet cable, but user can't log in the device WEB page, or after log in the WEB it shows error?
  - Reason 1. The users don't use the browser recommended by VONETS(IE,Google Chrome, Safari, the mobile phone browser);
  - Reason 2. The smart phone or PC installed the firewall, the security level is set too high, caused the above problem. At this time, only need to close the firewall;
  - Reason 3. The security level of browser is too high, it will also cause the above problem. At this time, just need to reduce the browser's security level, then log in again;

- Reason 4. The IP address of the device input error. For the new device from the factory, user only need input the correct IP address according to the instruction guide; for the device that has connected the source hot spot, user only operate according to <Remark 2>.

8. Product application and secondary development precautions

1) Problems related to wireless interference:

- 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;
- 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.;
- 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);