RS232/485 TO WIFI ETH (B)

From Waveshare Wiki
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Overview

RS232/485 TO WIFI ETH (B)

(https://www.waveshare.com/rs232-485-to-wifi-eth-b.htm)

RS232, Ethernet

Introduction

This is an RS232/485 device data acquisitor / IoT gateway designed for industrial environment. It combines multi functions in one, including serial server, Modbus gateway, MQTT gateway, serial port to HTTPD Client, etc. With RS232, RS485, WIFI and Ethernet interfaces, the module can realize functions such as serial port to WIFI, serial port to Ethernet, Ethernet to WIFI and so on. Onboard multiple power supply interfaces, supports 6~36V wide range power supply, and PoE function optional. Industrial grade metal case design, supports wall-mount and rail-mount installations, small in size, easy to install. It is suitable for applications like data acquisition, IoT gateway, safety & security IoT, and intelligent instrument monitoring...

Version Options

Note: The only difference between RS232/485 TO WIFI ETH (B) and RS232/485 TO WIFI POE ETH (B) is that the latter supports PoE power supply, other hardware and software functions are the same.

RS232/485 TO WIFI ETH (B)
RJ45 network port

RS232/485 TO WIFI POE ETH (B)
RJ45 network port with PoE support

(/wiki/File:RS232_WIFI_TO_WTH_B.png)

Specification

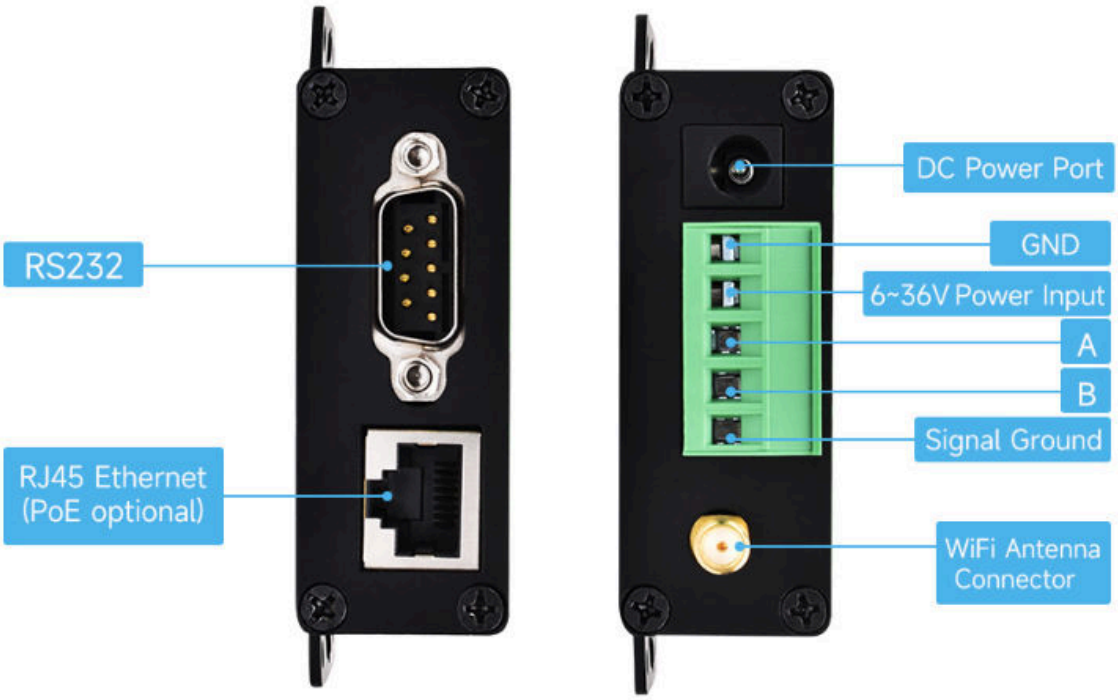
PRODUCT	UART-WIFI232-B2 (/wiki/UART-WIFI232-B2)	RS485 TO WIFI/ETH (/wiki/RS485_TO_WIFI/ETH)	RS232/485 TO WIFI ETH (B)	RS232/485 TO WIFI POE ETH (B) (/wiki/RS232/485_TO_WIFI_POE_ETH_(B))
	 (/wiki/File:UART-WIFI232-B2-10.jpg)	 (/wiki/File:RS485-TO-WIFI-ETH-11.jpg)	 (/wiki/File:RS232-485-TO-WIFI-ETH-B-10.jpg)	 (/wiki/File:RS232-485-TO-WIFI-POE-ETH-B-10.jpg)
OUTLINE				
Product Description	Embedded module	Industrial rail-mount module with plastic case	Industrial rail-mount/wall-mount module with metal case, PoE function optional	
Power supply	DC 3.3V (±5%)	DC 5~36V	DC 6~36V	DC 6~36V / PoE port
Power supply method	Pin header	Screw terminal	DC 5.5 power port, screw terminal	DC 5.5 power port, screw terminal, or PoE port
Dimensions (L × W × H)	25.00×40.00×8.00mm	109.66×28.00×64.71mm	84.00×64.00×24.00mm	
COMMUNICATION				
Ethernet	10 / 100M auto-negotiation (Connection via pin header)	10/100M auto-negotiation RJ45 connector		
WiFi	Support 802.11b/g/n			
UART	UART	RS485 (ESD/EFT/surge protection)	RS232 (ESD/EFT) RS485 (ESD/EFT/surge protection)	
WIRELESS SPECIFICATION				
Frequency Band	2.412~2.484GHz			
Wireless network	Station/AP/AP+Station Mode			
Security mechanism	WPA-PSK/WPA2-PSK			
Encryption type	TKIP/AES			
Transmitting power	802.11b: +19dBm (Max.@11Mbps) 802.11g: +18dBm (Max.@54Mbps) 802.11n: +17dBm (Max.@HT20, MCS7); +17dBm (Max.@HT40, MCS7)			
Receiving sensitivity	802.11b: -89dBm (@11Mbps) 802.11g: -81dBm (@54Mbps) 802.11n: -73dBm (@HT20, MCS7); -71dBm (@HT40, MCS7)			

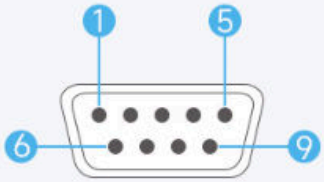
SERIAL SPECIFICATION		
Baudrate	300~460800bps	
Parity bit	none, odd, even, mark, space	
Data bit	5~9 Bits	
Flow control	RTS/CTS flow control	N/A
SOFTWARE		
Protocol	TCP/UDP/ARP/ICMP/DHCP/DNS/HTTP/MQTT	
Configuration	host, web browser, serial AT command	
Communication method	TCP/IP direct communication, VCOM	
Operating mode	Transparent transmission, serial command, HTTPD Client, Modbus TCP to Modbus RTU	
ENVIRONMENT REQUIREMENT		
Operating temperature	-40~85℃	
Humidity range	5%~95% relative humidity	

Basic Function

(/wiki/File:RS232_to_WIFI_ETHb.png)

Interface Introduction





RS232 Pinout Definition

RS232 PINOUT	
DB9 Male (PIN)	RS232 PIN
2	RXD
3	TXD
5	GND
1 , 4 , 6 , 7 , 8 , 9	N/C

(/wiki/File:RS232_to_wifi_eth_b05.png)

Outline Dimensions

(/wiki/File:RS232_to_WIFI_eth_b06.png)

Resource

Document

- User Manual (https://files.waveshare.com/upload/9/9a/RS232-485-TO-WIFI-ETH-User-Manual-EN.pdf)

Software

- SSCOM (https://files.waveshare.com/upload/b/b3/Sscom5.13.1.zip)

- RS485 to WIFI ETH Config (https://files.waveshare.com/upload/0/08/RS485_TO_WIFI-ETH_Config.zip)

Related Application Example

- RS485 TO WIFI ETH MQTT (https://www.waveshare.com/wiki/RS485_TO_WIFI_ETH_MQTT)

FAQ

Question: Why can't the configuration web page be opened in the computer's browser and cannot communicate with TCP?

Answer:

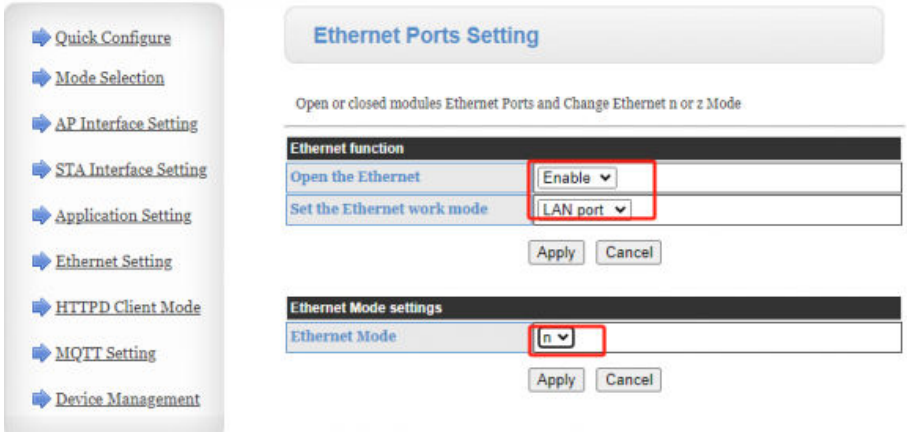
Set the IP of RS485 TO WIFI/ETH and computer to the same network address and different node address IP:

For example, RS485 TO WIFI/ETH IP is 10.10.100.254; computer IP is 10.10.100.253.

Question: Why can't I access the configuration page after connecting RS485 to the AP hotspot?

Answer:

Turn off ETH or change to LAN mode:



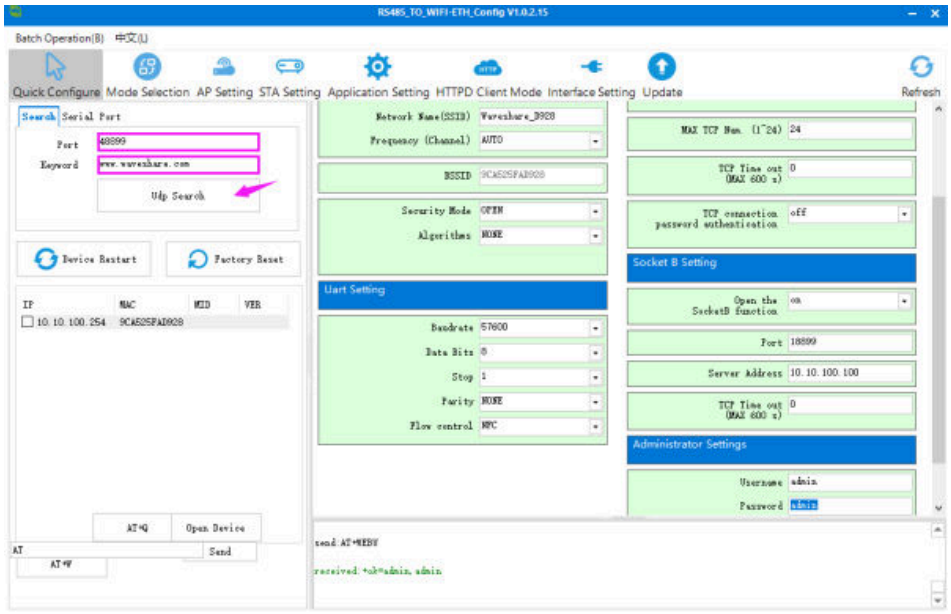
(/wiki/File:Lan-wan-eth.png)

Question: I forgot my IP, what should I do?

Answer:

- If you have not changed your IP, the shipping IP defaults to 10.10.100.254;
- If you forget, you can configure the host computer tool in Windows to enter the corresponding parameters to search for the device IP, as shown in the figure below:

```
Port: 48899
Keyword: www.waveshare.com
```



(/wiki/File:485-wifi-config.png)

Question: How to restore factory settings?

Answer:

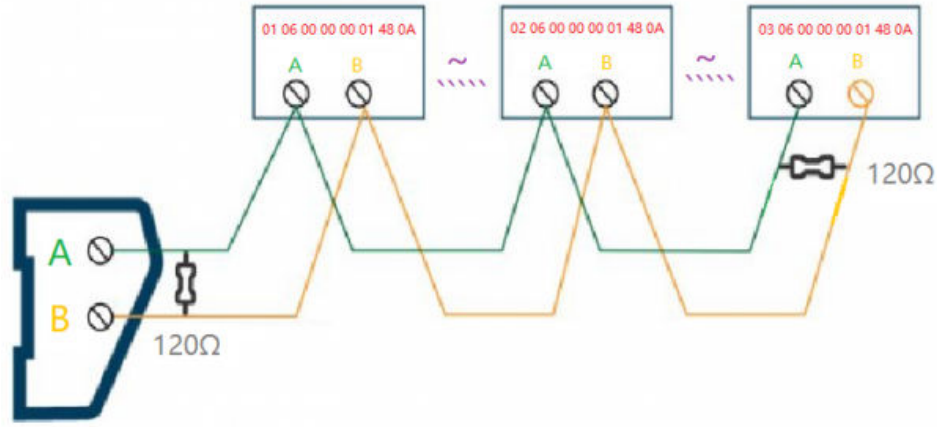
After powering on, press and hold the Reload button for more than 5 seconds to restore the factory settings:

(/wiki/File:RS485_TO_WIFI-ETH.png)

Question:Can RS485 be connected to more than one RS485 device?

Answer:

Yes, please use the handshake cascade method to access as below:

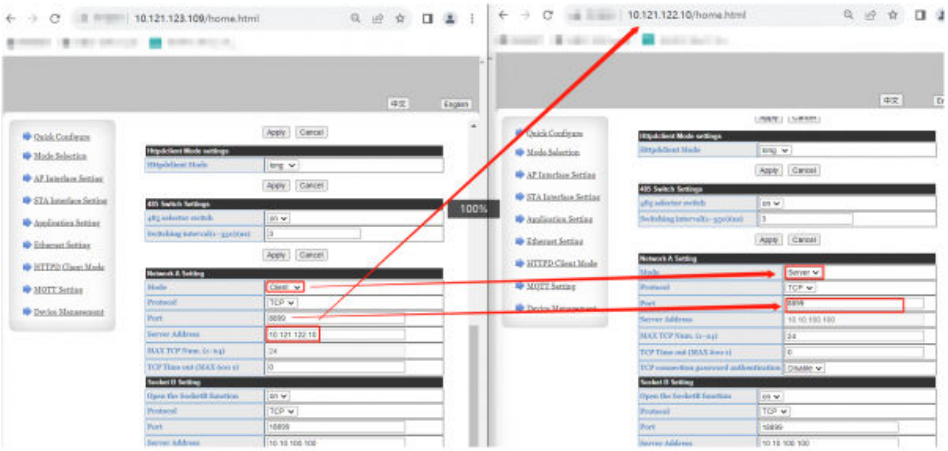


(/wiki/File:RS485_TO_WIFI-ETH-02.png)

Question:How can two RS485 TO WIFI/ETH devices establish communication?

Answer:

- Set two RS485 TO WIFI/ETH devices both as STA modes, respectively connect to the same router through WiFi, and set one as the client, the other one as the server. The remote IP and port number of the client is the local IP and port number of the server:



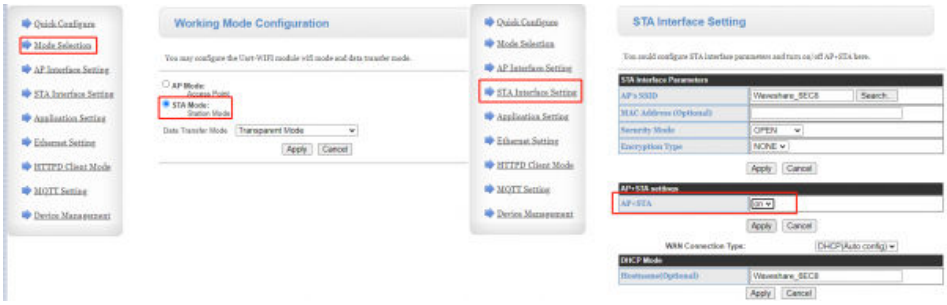
(/wiki/File:RS485_TO_WIFI-ETH-05.png)

- Or you can set one device as AP mode, and the other one as STA mode. Then the communication is established after connecting them.

Question:After setting it to STA mode, can I open the hotspot for other devices?

Answer:

Yes, please enable AP+STA mode, as shown below:



(/wiki/File:RS485_TO_WIFI-ETH-06.png)

Question:What can the maximum devices be connected in AP mode? What is the best transmission distance for WIFI?

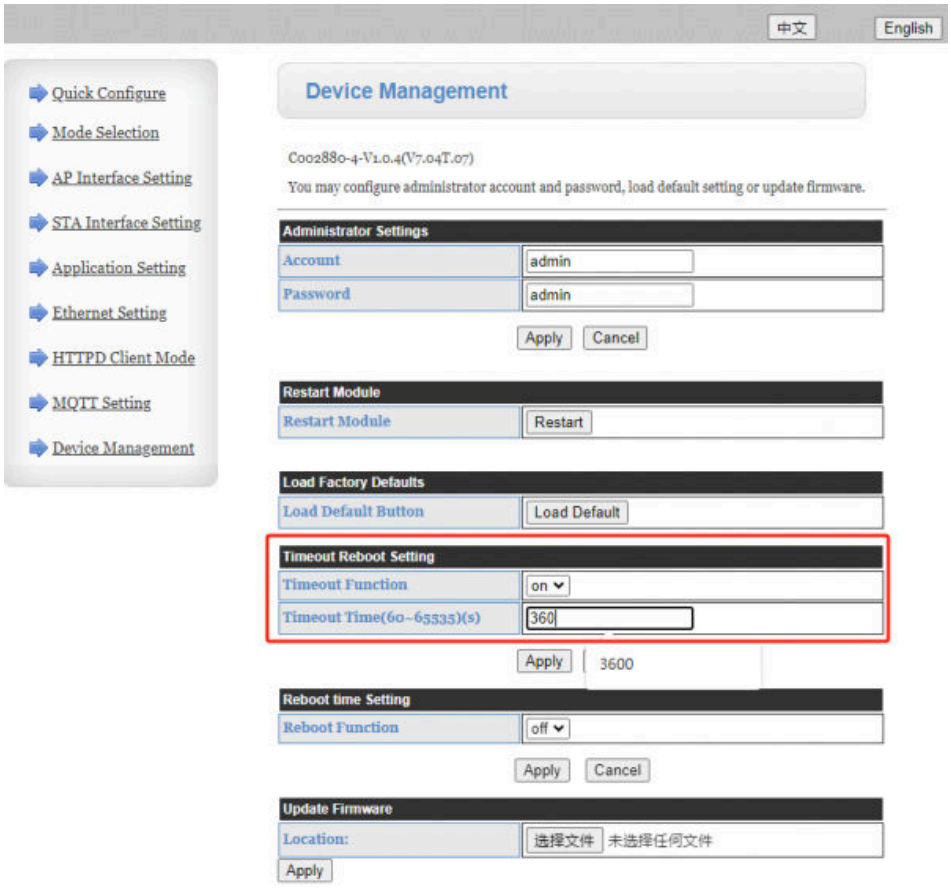
Answer:

Up to 24 devices and the best transmission distance for WIFI is 150m (open area, using a 3dbi antenna).

Question:Is it only be restored manually after network disconnecting?

Answer:

It can automatically reboot after the configuration timed out.

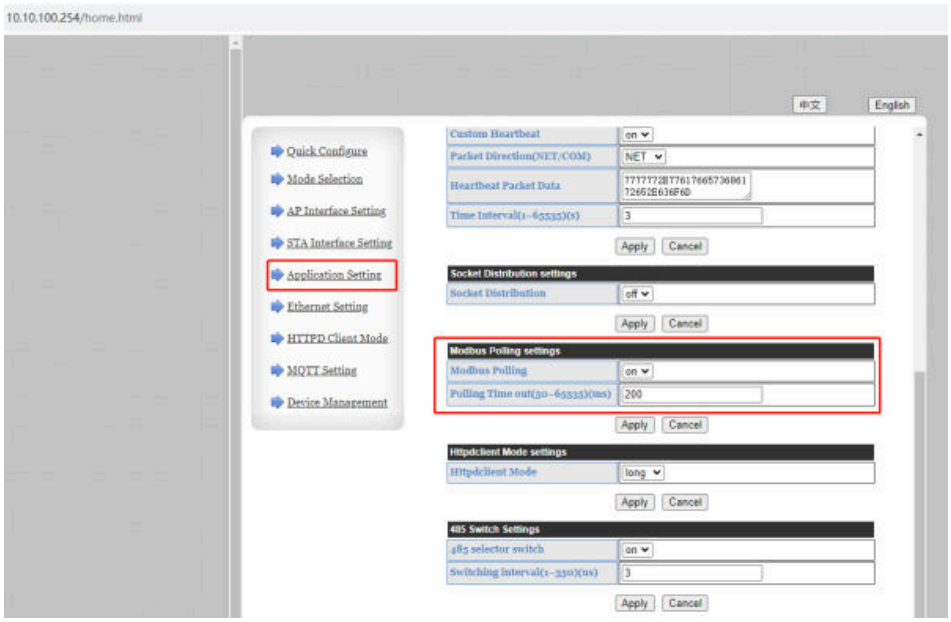


(/wiki/File:RS485_TO_WIFI-ETH-07.png)

Question:How to configure Modbus polling?

Answer:

As shown below:



(/wiki/File:RS485_TO_WIFI-ETH-08.png)

Question:Why does TCP/USP communication not work?

Answer:

- Check Hardware Connection

Ensure all physical connections are correct. Confirm that the RS485 A-A and B-B connections between the serial server and the inverter are properly established and that the Ethernet port is connected.

- Check Software Configuration Confirmation

Please verify the serial port baud rate (typically 9600bps and 115200bps), IP address, and port number configurations. The remote IP and port number of the client should match the local IP and port number of the server. Check firewall settings to ensure they allow TCP/UDP traffic, or temporarily disable the firewall for testing purposes.

Question:What are the differences between N-ver Ethernet mode and z-ver?

Answer:

- When the Wi-Fi module operates as an STA (software as Z-Ver), it works in bridge mode. After connecting to the AP, devices on the Ethernet interface will obtain IP addresses from the AP.
- When the Wi-Fi module operates as an STA (software as N-Ver), it works in router mode. After connecting to the AP, it obtains an IP address from the AP. The module itself forms a subnet (default 10.10.100.254), and devices on the Ethernet interface are assigned addresses by the module.

Question:What are the differences between the bridge mode and the router mode?

Answer:

- The WIFI module is made as an STA (software is Z-Ver) and the module works in bridge mode. After the module is connected to the AP, the device on the Ethernet interface will get the IP address from the AP. At this time, the module is like a transparent device in the whole network.

- The WIFI module acts as an STA (software N-Ver) and the module works in routing mode. The module connects to the AP and gets the IP address from the AP. The module itself forms a subnet (default 10.10.100.254) and the devices on the Ethernet interface are assigned addresses by the module.

Question:Why can I only use WiFi but not ETH?

Answer:

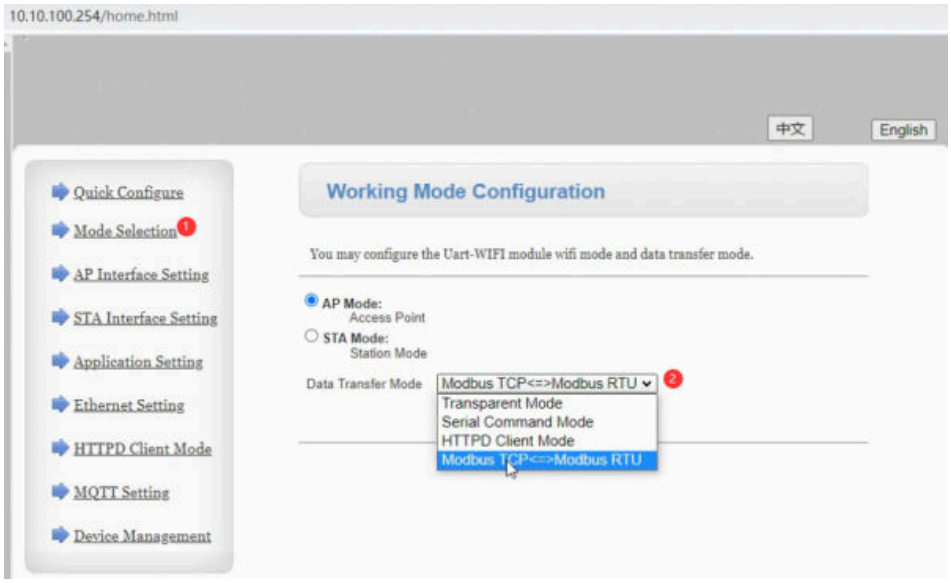
You need to turn on the LAN function of the network port, if you turn on WLAN, you can't use AP mode.

Question:What are the steps for Modbus devices communication?

Answer:

Take modbus as an example:

- Hardware connection:
  - Connect the Modbus device to the serial server module via the RS485 interface.
  - Connect the Waveshare RS485 to WiFi/ETH module to your network through WiFi or Ethernet.
- Meter parameter settings:
  - Check the documentation for the Modbus device for its RS485 communication protocol, device address, function code, and baud rate settings.
  - Configure the Modbus device to use the correct baud rate and device address.
- Configure Waveshare RS485 to WiFi/ETH module:
  - Connect Waveshare RS485 to WiFi/ETH module to your computer through WiFi or Ethernet.
  - Set the RS485 interface parameters using the configure interface on the module or the related configuration tools, and make sure its parameter is compatible with Modbus devices.



(/wiki/File:Wifi-modbus-485.png)

Question:Can you provide the average power consumption for this RS232/485 TO WIFI ETH (B) device in watts?

Answer:

Using 12V power supply, the average is about 0.0094A, and the power consumption is 1.12W (for reference only, depending on the working status).

(/wiki/File:RS232485_TO_WIFI_ETH_(B)FAQ11.jpg)

Question:What is its power consumption?

Answer:

The power consumption is 1.12W when it is provided with 12V power supply and an average current of 0.0094A (for reference only, it is defined by its operating status).

Support

Technical Support

If you need technical support or have any feedback/review, please click the **Submit Now** button to submit a ticket,
Our support team will check and reply to you within 1 to 2 working days. Please be patient as we make every effort to help you to resolve the issue.
Working Time: 9 AM - 6 PM GMT+8 (Monday to Friday)

Submit Now (https://service.waveshare.com/)

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