EWT611-900NW20S Development Board
User Manual

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Chengdu Ebyte Electronic Technology Co.,Ltd.

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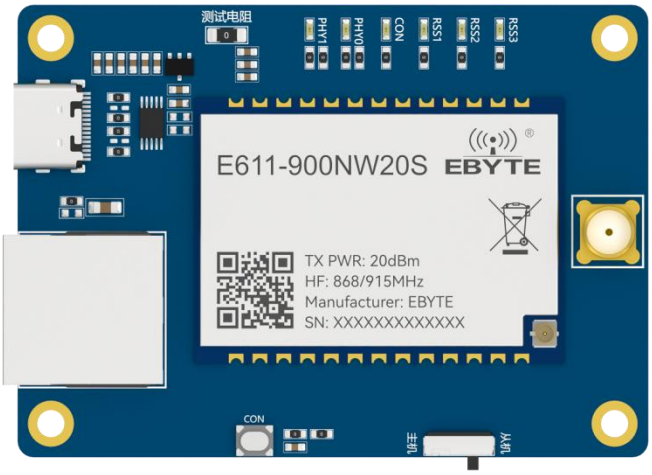
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1.Module Introduction

1.1 Features



EWT611-900NW20S

EWT611-900NW20S is an entry-level development board that needs to be used with Ebyte's self-developed long-distance image transmission + data transmission integrated long-distance wireless module E611-900NW20S. This development board has complete functions, a transmission rate of 16Mbps, can realize 4-channel 1080p video transmission, and can also achieve simultaneous transparent transmission of network port + serial port, working in the 850MHz~930MHz frequency band, and the maximum RF transmission power is 20dBm.

1.2 Parameter Introduction

Serial number	Parameter name	Parameter Value	Notes
1	Support modules	E611-900NW20S	Long-distance wireless module integrating long-distance image transmission and data transmission
2	Module size	50* 70mm	-
3	Production process	Lead-free process, machine mounting	Wireless products must be machine-mounted to ensure batch consistency and reliability
4	Power supply interface	USB	DC 5V
5	Communication interface	TTL/Network Port	-
6	Operating temperature	-40 ~ +85℃	Industrial Grade
7	Operating humidity	10% ~ 90%	Relative humidity, non-condensing
8	Storage temperature	-40 ~ +125℃	Industrial Grade

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2. Function Description

2.1 Component Introduction

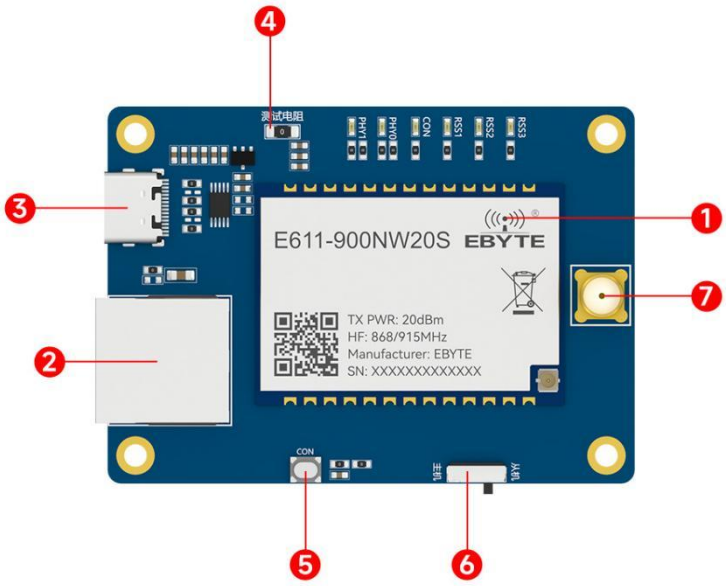


Figure 1 Main components

Serial number	Main firmware	introduce
1	E611-900NW20S	E611-900NW20SThe module is a long-distance image transmission developed by Ebyte +A long-distance wireless module integrating data transmission.16MbpsThe transmission rate can achieve4road1080pVideo transmission, but also network port+The serial port performs transparent transmission at the same time, working at850MHz~930MHzFrequency band, maximum RF transmit power is20dBm.
2	Network port	10/100MEthernet interface(RJ45).
3	USB change UART interface	Type-C USB Interface, which can be used as the power supply interface of the development board, can burn firmware to the chip, and can also be used as a communication interface through the on board USB change UART The bridge communicates with the chip.
4	Test resistance	Users can use this resistor to test the current.0Ω resistance.
5	Pairing button	Master-slave pairing button, the user needs to press the host button at the same timeRSS1~3andCONThe light is on, indicating that pairing is successful.
6	Mode switch button	Master-slave mode switching button.
7	Antenna interface	SMA-K.

Note: For specific function instructions, please refer to EWT611-900NW20S" manual.

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2.2 Mechanical Dimensions

The following figure shows the front view of EWT611-900NW20S as an example:

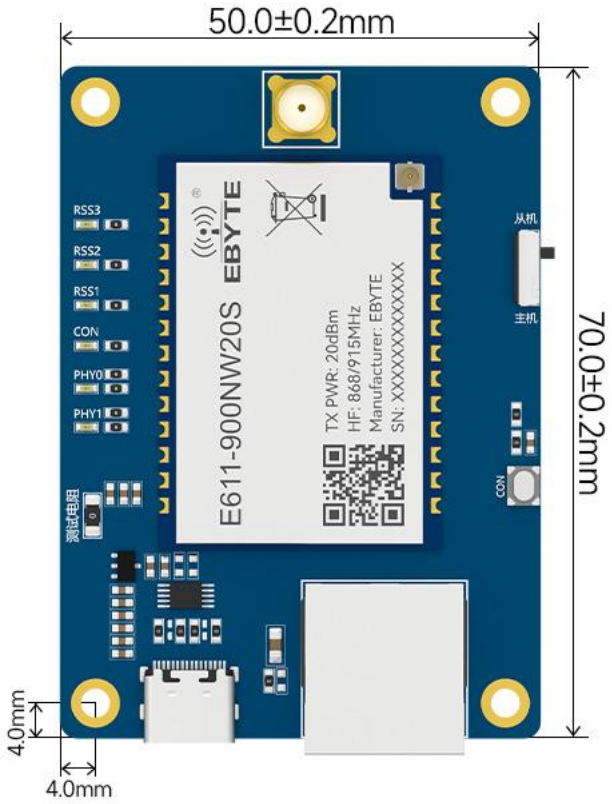


Figure 2 Dimensions

3.Module parameter description

3.1 Role Description

The module supports the following4Working modes:

Serial number	Working Mode	Mode Details
1	Host Mode ap	The central role of star networking
2	Slave Mode sta	Slave Role
3	Multicast Mode group	Multicast, see multicast command for details
4	Relay Mode ap sta	The device in relay mode acts as a slave to connect to the upper-level host, and also acts as a host to provide connection services to other slaves.

4.Usage Examples

The following is a test demonstration using our baseboard

4.1Modules1right1Connect serial port transparently

1, prepare twoE611Module, install the antenna

2,Typec connect pc computer.

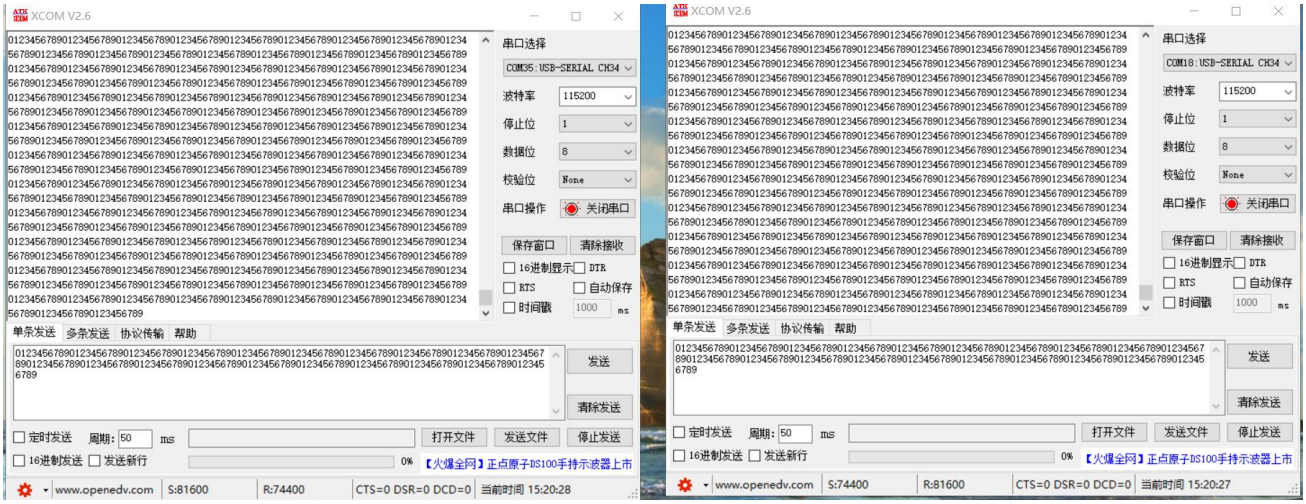
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3, press and hold both modules at the same time con Button, wait2sAfter releasing, you can see the connection lights and rssi The signal indicator light is always on.

4,Open XCOM Serial port assistant, corresponding to opening the serial port (pay attention to the serial port parameters 115200, 8N1）

5、The serial port can send data directly. As shown in the following figure:



4.2Modules1right1Connect as a bridge to connect twopc

1, prepare twoE611Module, install the antenna

2, Ethernet connect ion pc

3, After the module is powered on after correct connection, you can seephy0The indicator light is always on, and an unknown network appears in the computer network interface



4, both sides pc Manually modify the corresponding static ip, pay attention to the devices on both sides ip The two devices need to be in the same network segment and firewall and other software must be turned off to avoid communication failure.

5, with the help of the network debugging assistant, apc Start TCP server, as shown below, note ip For the corresponding modified Ethernet ip

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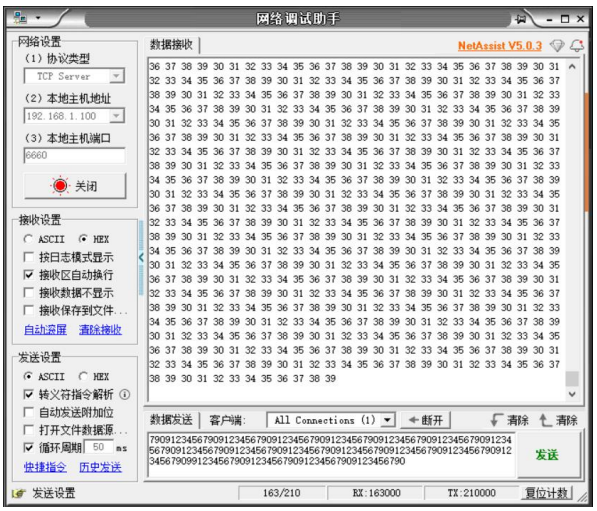
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6, another device connected to the corresponding ip port, you can see that it can be connected successfully.

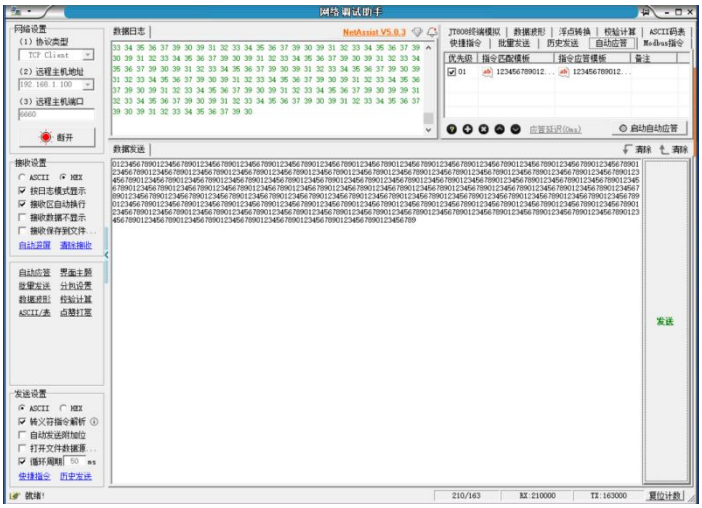


7, data testing,50msPacket interval per pack1000Bytes, as shown below server client Data from both sides



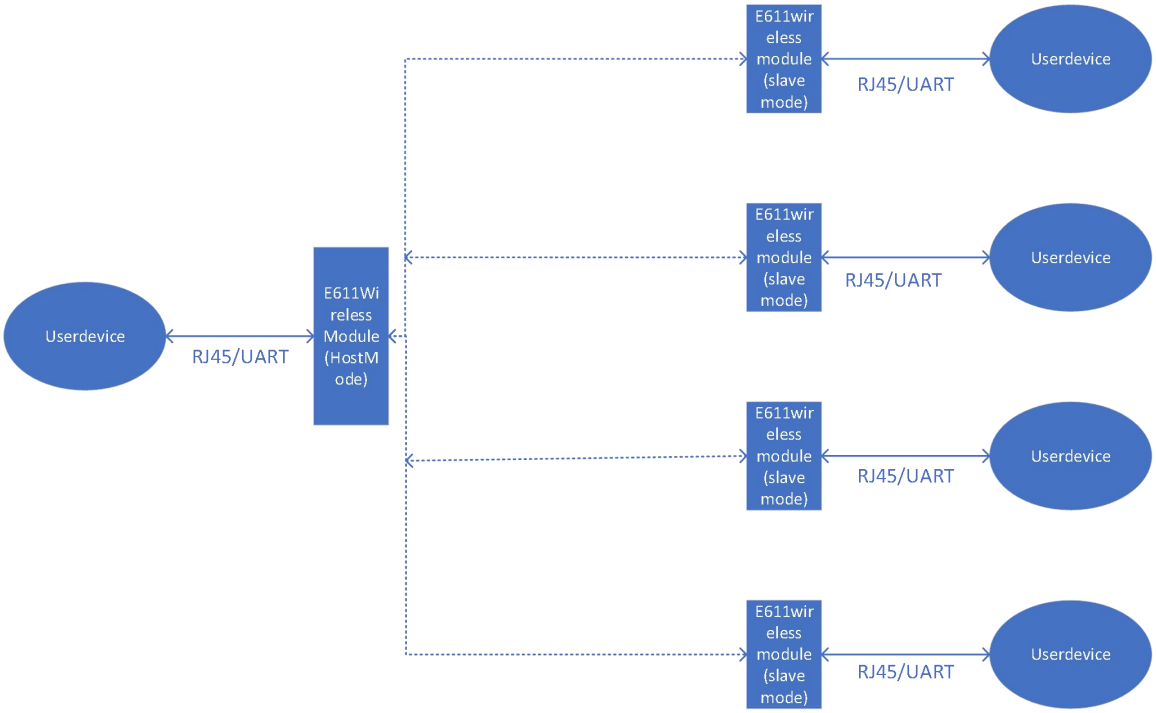
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4.3Modules1Multi-star networking

The network topology is as follows:



The actual networking type of this product is a star network, which consists of a host device and several slave nodes. A single host node can support8For a specific networking demonstration example, please refer to the official website video.

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4.4 AT Command usage examples

4.4.1 Basic instructions for establishing module connection

Use at Instruction pairE611The module is initialized, mainly including frequency setting, bandwidth setting, ssid and password settings.

Host module configuration:

1） AT+CHAN_LIST=9080,9160,9240set up3Frequency points

2） AT+BSS_BW=8set up8Mbandwidth

3） AT+SSID=hgic_ah_test set up SSID

4） AT+KEYMGMT=WPA-PSK Turn on encryption

5 ） AT+PSK=baa58569a9edd7c3a55e446bc658ef76a7173d023d256786832474d737756a82Set encryption password

6） AT+MODE=ap Set the module to host mode

Slave module configuration:

Remove AT+MODE=sta The rest of the configuration remains the same as the host.

4.4.2Configuring relay network instructions

Host module:

1) Configuration AP of ssid, each AP The configuration should be different, you can considerssid1,ssid2Increment like this, for example:

at+ssid =ssid1

2) Configure non-encryption (to simplify the configuration, temporarily use non-encryption as an example)

at+keymgmt=none

Relay module:

1） at+mode=apsta

2） Configure no encryption

at+keymgmt=none

3） Configuring the relay r_ssid, used to connect the relay to the host, should be connected to the host of ssid Consistent, for example:

at+r_ssid=ssid1

4） Configuring the relay ssid, used to connect the relay to the slave. For easy management, you can consider the previous one with the host ssid Consistent, add a suffix after it, for examplessid1_r1,ssid1_r2,ssid2_r1etc., for example:at+ssid=ssid1_r1

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Slave module:

1） Configuration sta of ssid, to connect the slave and the relay, it should be connected to the relay ssid Be consistent, for example:at+ssid=ssid1_r1

2) Configure not to at+keymgmt=none

5. AT instruction

Note: Before sending operation instructions, first ensure that the module is in wake-up mode, otherwise it will not be able to receive configuration instructions!

5.1Instruction Description

Instruction Type	Instruction Format	describe
Query command	AT+[X]?	This command is used to query the parameters of the setting command.
Setting Instructions	AT+[X]=<…>	This command is used to set user-defined parameters.
Execute Instructions	AT+[X]	Used for instructions without parameters, such as module reset.

5.2 Use the network port to configure the module

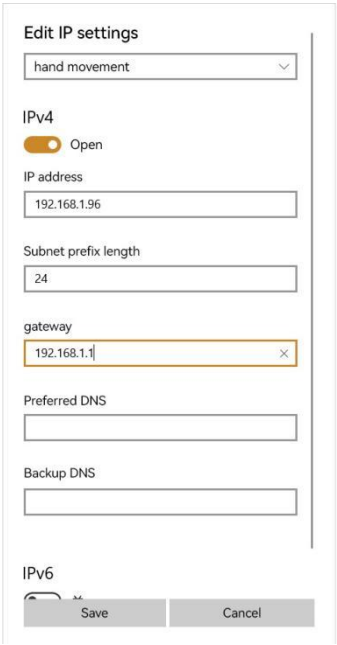
5.2.1 Module network cable connection pc



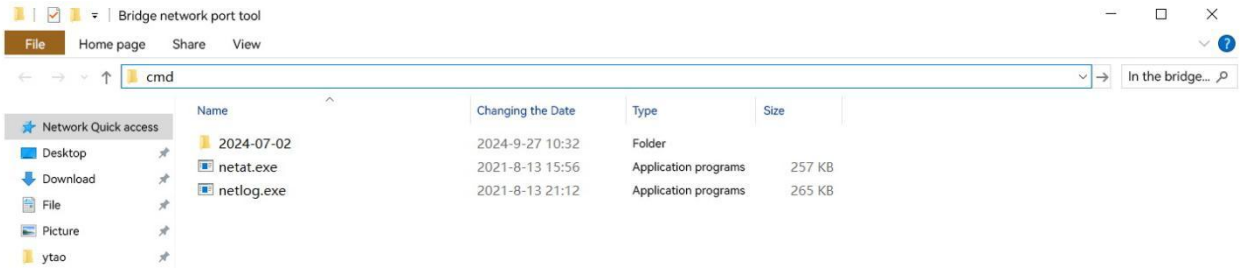
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5.2.2 Manually modify the corresponding network ip For static ip



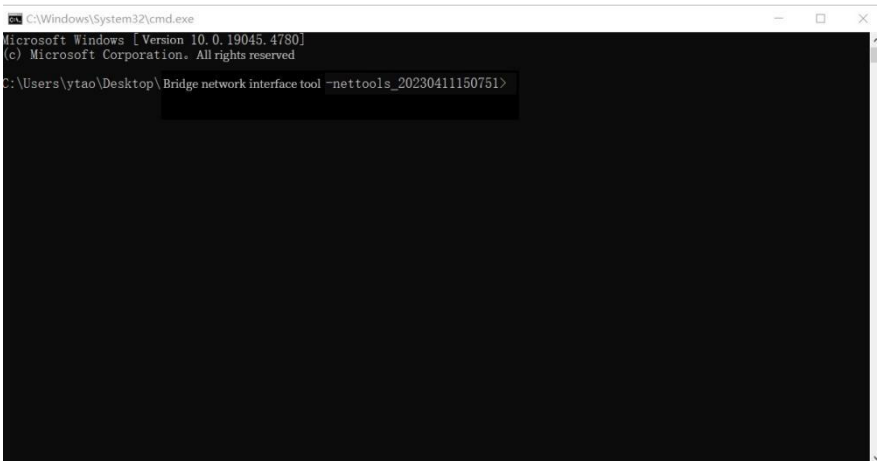
5.2.3 Open the network port tool folder and enter cmd



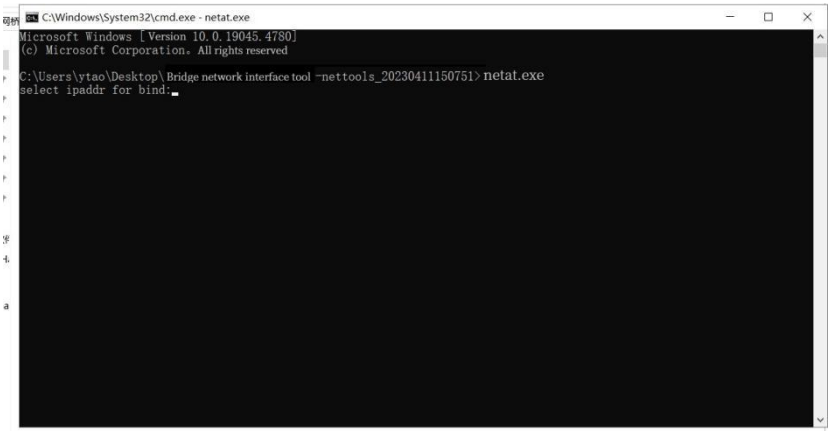
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5.2.4 Press Enter to enter the command line interface



5.2.5 enter netat.exe Enter



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5.2.6 Corresponding to the input just modified ip address, and then the corresponding command configuration can be sent normally



Version	Revision Date	Revision Notes	Maintainer
1.0	2025-3-26	Initial release	Hao
1.1	2026-7-1	Modify parameter description	Lan

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