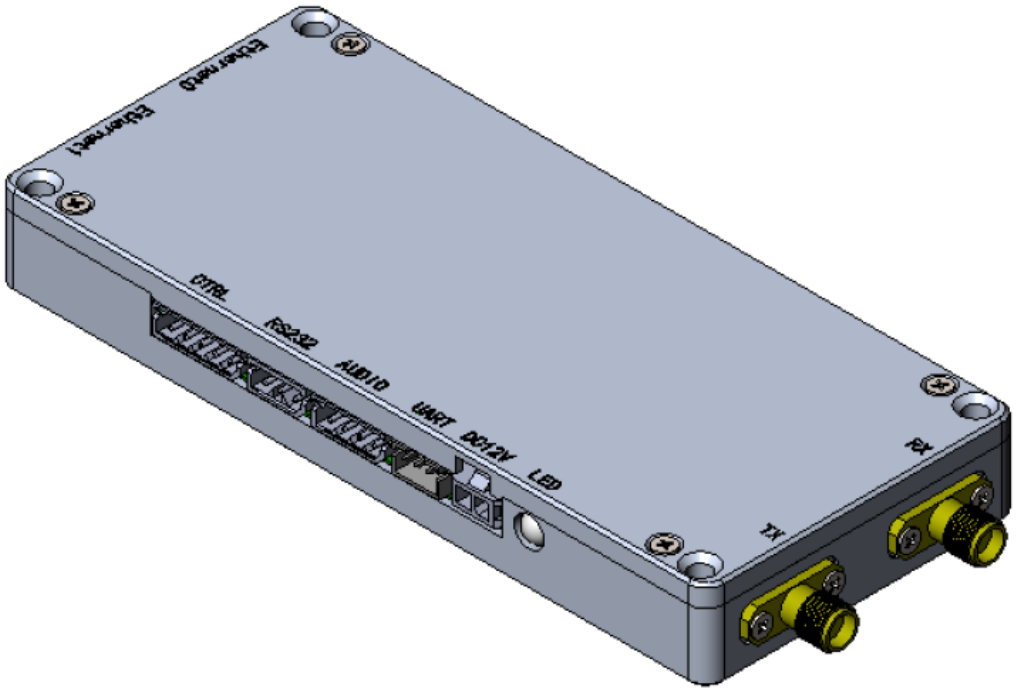
IP Radio FDD Transmission radio
User guide

version：20230612V1.0



Catalogue

1. Product overview

IP Radio is an FDD wireless video transmission equipment independently developed by our company. Using COFDM multi-carrier modulation technology, it has good anti-multipath and anti-interference . This product uses dual network port, double serial port and two-way voice and other multi-interface design. To a greater extent, it can meet the diversified needs of customers in the fields of UAV, fire protection, inspection, monitoring and many other application scenarios. At the same time, this product also supports wide band working range and supports external large power amplifier. It is used to meet customers' requirements on frequency band and distance.

2. Product accessories

IP Radio Product list（2）			
No	**Product**	**Instructions**	**Num**
1	IP Radio	FDD Transmission radio	2
2	Power semi-bare wire	Power cable 2PIN	2
3	Voice semi-bare wire	Audio cable 4PIN	2
4	Serial port semi-bare cable	Data serial cable 3PIN	4
5	Small liquid crystal display	Used to configure parameters	2
6	Small LCD cable	5PIN cable	2
7	Pushto Talk（optional）	Audio equipment（optional）	2
8	Voice switching board (optional)	Voice switching board (optional)	2

IP Radio module

Power 2PIN semi-bare wire

Small liquid crystal display

LCD screen 5PIN cable

Serial port 3-PIN semi-bare cable

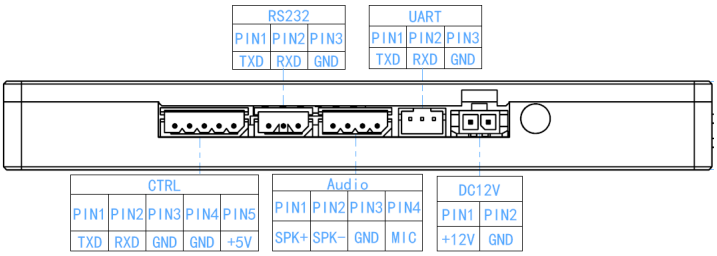
Audio 4pin cable

Audio switching board（optional）

Pushto Talk（optional）

3. Product connection

3.1. Distal/proximal Connection diagram



3.2. Distal/proximal Connection

- Step 1: Connect antenna.

  The SMA is connected to the antenna, with the RX antenna on the left and the TX antenna on the right.

- Step 2: Connect power.

  The power supply to the device is DC9~15V, with a typical value of +12V@1A.

- Step 3: Connect CTRL.

  The device parameters are configured through the upper computer software or the small LCD screen.

- Step 4: Connect the serial port.

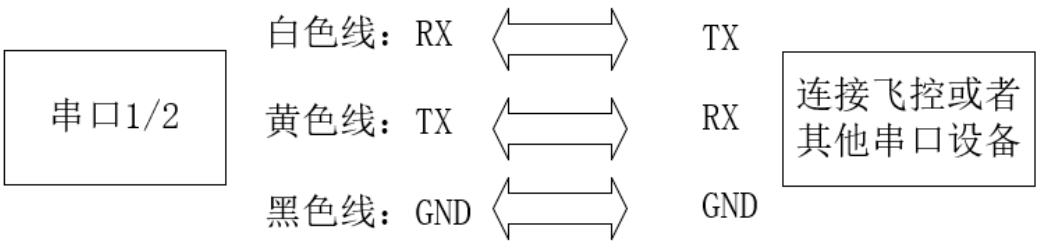
  Can be connected to flight control equipment or other serial devices. Pay attention to the serial port level.

- Step 5: Connect the voice.

  The audio interface can be connected to pushto_talk or microphone or headset.

- Step 6: Connect network port.

  Single - or dual-network connection cameras are used for network transparent transmission.

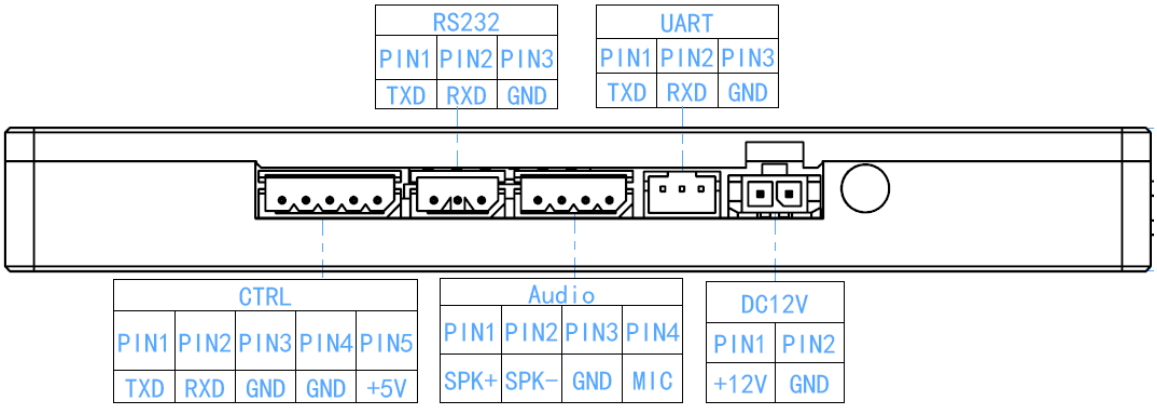


4. Product use

4.1. Power supply

IP Radio devices use DC 9 to 15V power supply. The typical value is +12V@1A. The maximum current under normal operation of 12V voltage is about 0.7A. The power consumption is less than 10W.

4.2. Product interface



The IP Radio device uses the Molex interface. There are 6 types of interfaces, including 1 power supply, 1 TTL serial port, 1 RS232 serial port, 1 audio interface, 1 configuration serial port, and 2 100 Mbit/s network ports at the bottom. The audio interface can be used as two-way voice and can also be connected to the voice switching board to connect to the external Pushto Talk.

4.3. Interface definition

No	Pin name	Interface definition	Interface description	Signal direction
1	LED	LED	Indicator light	O
2	PWR	Supply voltage DC 9~15V	Power positive	I
3	GND		Power Negative	I
4	TXD	UART TTL	Serial transmission	O
5	RXD		Serial reception	I
6	GND		GND	O
7	SPK+	Audio interface Audio	Headset talk +	O
8	SPK-		Headset talk -	I
9	GND		GND	O
10	MIC		Microphone play	I
11	TXD	Data serial port RS232	Serial transmission	O
12	RXD		Serial reception	I
13	GND		GND	O
14	TXD_C	Control serial port and set device parameters. Fixed baud rate 115200bps	Serial transmission	O
15	RXD_C		Serial reception	I
16	GND		GND	O
17	GND		Display power GND	O
18	+5V		Display 5V input	O
19	Ethernet1	RJ45	100 M network port 1	IO
20	Ethernet2	RJ45	100 M network port 2	IO

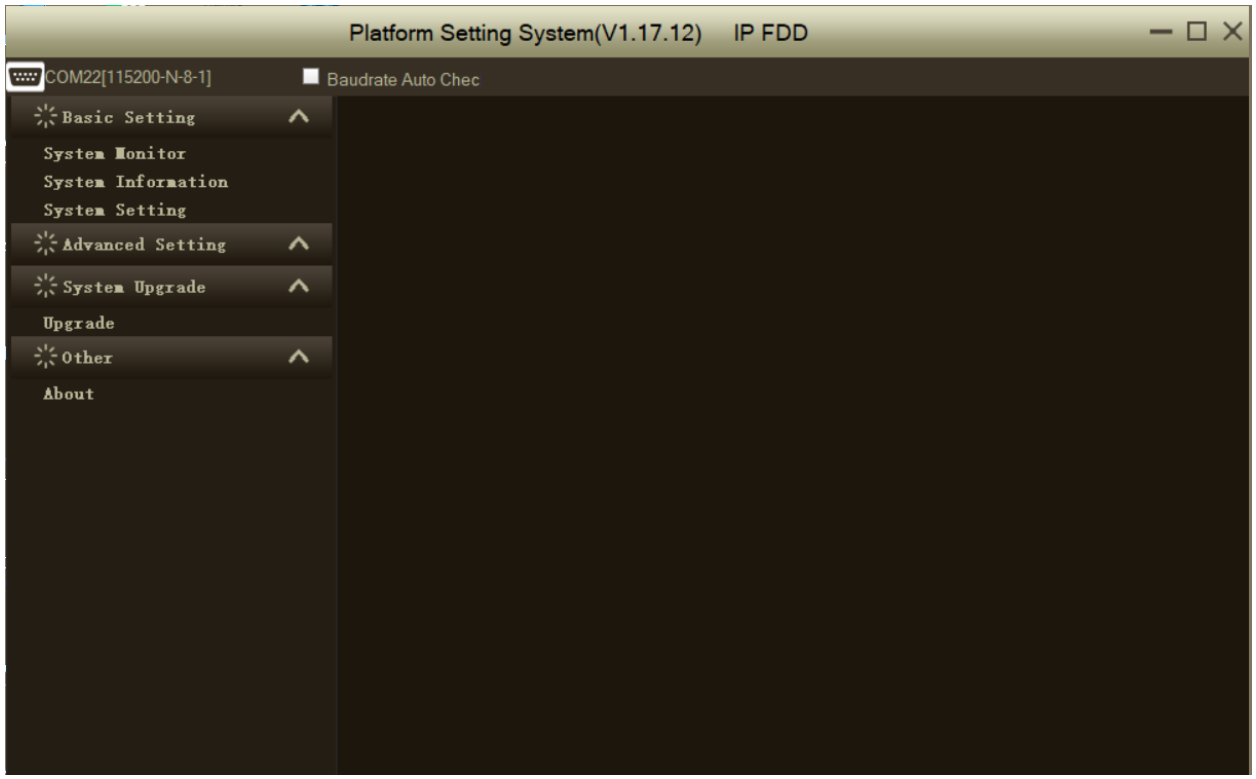
Remark 1: When the communication between near and far devices is abnormal, the green light blinks slowly.

Remark 2: When the communication between near and far devices is normal, the green light blinks at short intervals.

5. Parameter configuration

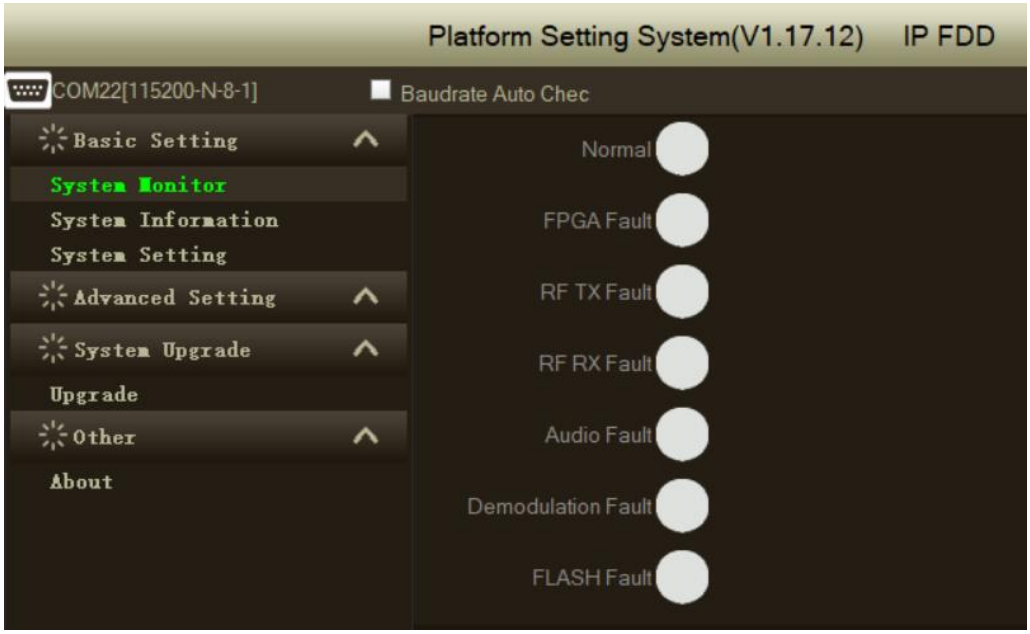
5.1. CTRL Serial port

After the device is powered on, connect the 3-pin serial port pins of the CTRL 5PIN port on the device through the serial cable to communicate with each other. The CTRL serial port has a fixed baud rate of 115200. You can configure device parameters and query device status by connecting to FDD.exe. It can also be directly connected to the small LCD screen for parameter configuration. Connecting the small LCD screen requires 5 pins to connect.



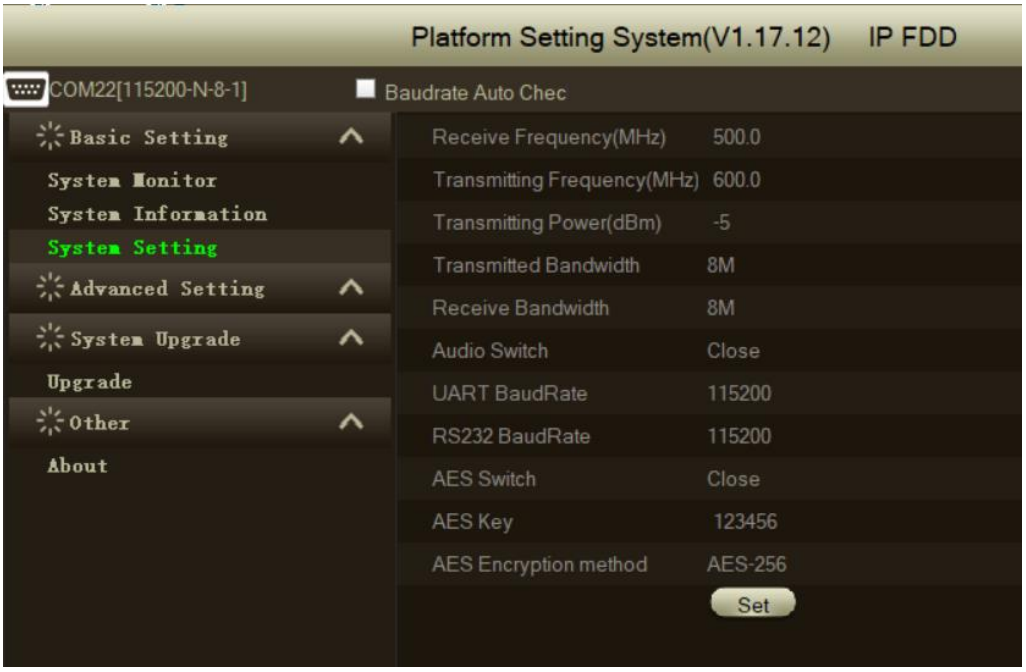
5.2. Basic Setting

5.2.1. System Monitor



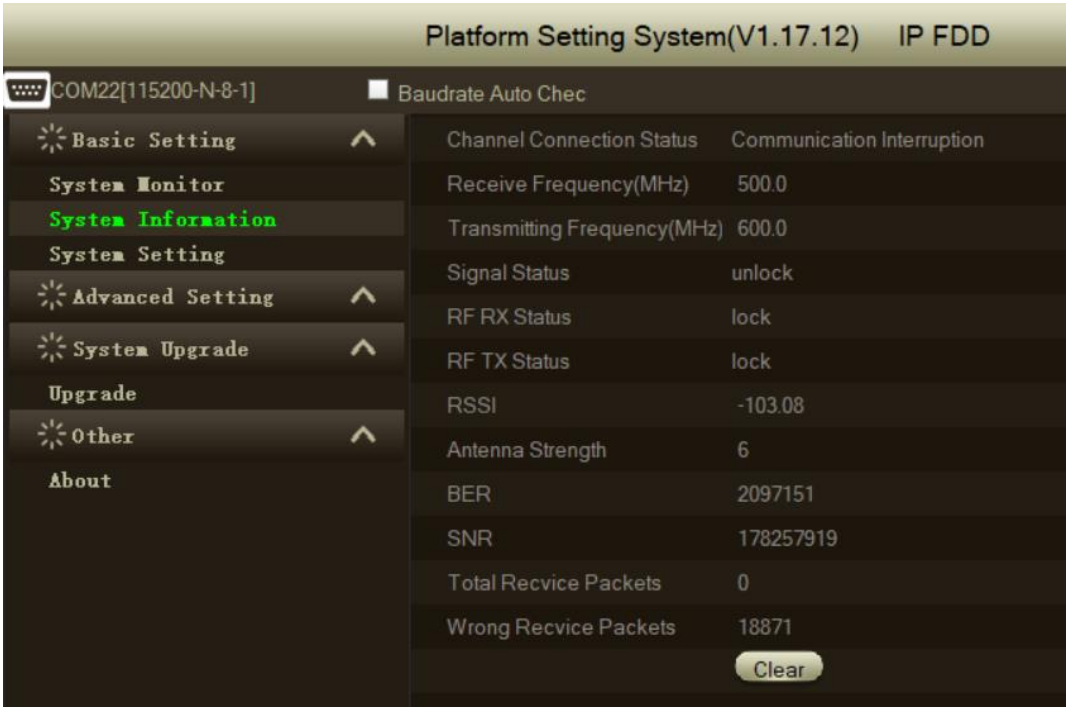
System monitoring: It is mainly used to monitor the normal operation of the device and quickly locate the fault when a fault occurs.

5.2.2. System Setting



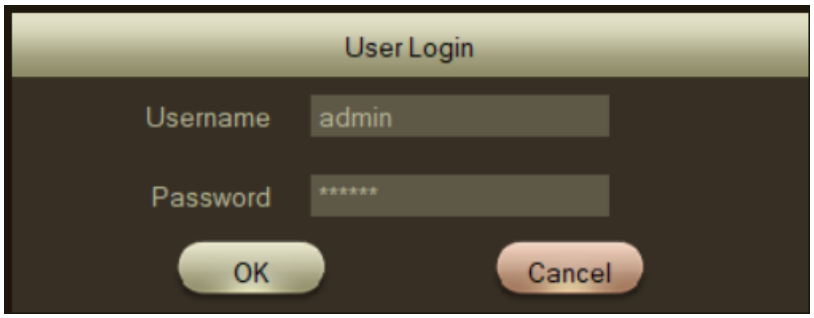
System configuration: Used to configure transceiver frequency, power, bandwidth, voice switch, serial port baud rate, and encryption.

5.2.3. System Information



System information: It is mainly used to view channel sending and receiving information, channel receiving status, receiving energy, and packet statistics.

5.3. Advanced Setting



Advanced Settings: username: admin; Password: 123456.

Mainly used to restore factory settings, transmitter, and receiver parameter configuration.

6. Small LCD display used

6.1. Display connection

The small LCD screen is connected to the device using a 5PIN cable, and the screen is Locked after power-on by default. The screen is locked and cannot be used. You need to hold down the red button in the middle of the LCD for 5s to unlock the screen. You can set parameters only after the account is unlocked.

When you need to switch the upper column system, TX MOD and RX MOD. Press and hold the right key to switch. TX MOD can be used to configure parameters transmitted by the current device, and RX MOD displays the channel information received by the current device.