

HXJZ-878 RF Data Radio

User's Manual



About HXJZ-878

HXJZ-878, the Middle power wireless Radio, is used as the wireless data transmission and power consumption and good stability and reliability,

It has the function of bi-directional data sign transmission, test and control. It is used for Wireless meter reading, such as water meter, electric meter and gas meter, parking meter, intellectual card, electronic weighing apparatus, meter for checking on work attendance, queue wireless meter, building control, shipping company control, alarm system, intelligent equipment, Automatic data collecting system; Industrial remote control and remote test building automation, safety and security, powerhouse equipment wireless monitor, entrance control system, etc.

HXJZ-878 Feature

1. Power and receiving sensitivity

transmission power :5W, high receiving sensitivity: -123dbm.

2. Low consumption

RX current: < 45mA, TX current:1.5A.

3. Modulation mode and Frequency

Modulation mode: GFSK, Frequency: 433MHz.

4.High anti-interference and low BER (Bit error Rate)

Based on the GFSK modulation mode, it adopts the efficient communication protocol. The actual bit error rate of $10^{-5} \sim 10^{-6}$ can be achieved when channel bit error rate is 10^{-2} .

5. Long transmission distance

when the antenna is higher than 8m ,Within the range of visibility, the reliable transmission distance is (BER= 10^{-3} /1200bps) >20KM, (BER= 10^{-3} /9600bps) >10KM .

6. Transparent data transmission

Transparent data interface is offered to suit any standard or nonstandard user protocol. Any false data generated in the air can be filtrated automatically (What has been received is exactly what has been transmitted). The charge time for receiving and sending <10ms.

7. Multi-channel and speed

The standard HXJZ-878 configuration provides 16 channels to meet the multiple communication combination mode of the users. It has baud rate to be chosen such as 1200bps、2400bps、4800bps、9600bps、19200bps、38400bps. The wireless transmission rate is direct ratio with baud rate of interface to meet user's equipment requirement.

8. High speed wireless communication and large data buffer

When the speed rate in the air is quicker than interface's, allowing to transmit unlimited length data at one time, when the speed rate is slower or equal the interface's, allowing the transmission of 255 Bytes long data frames at one time for more flexible programming by users.

9. Intelligent data control and the user doesn't need to prepare excessive programs

Even for semi duplex communication, the user doesn't need to prepare excessive programs, only receiving/transmitting the data from the interface. HXJZ-878 will automatically complete the other operations, such as transmission/receiving conversion in the air, control, etc.

10. High reliability, small and light

Single chip radio- frequency integrated circuit and single chip MCU are used for lessened peripheral circuits, high reliability, and low failure rate.

11. Watchdog monitor

Watchdog monitors the inner function, so that change the traditional product structure and improve the product reliability.

Main Parameters

1. Integration Parameters

Frequency range: 433MHZ

Channel interval: 25KHz

Frequency stabilization: +2.5PPM

Modulation mode: GFSK

RF Baud Rate: 1200/2400/4800/9600/19200/38400bps

Channel amount: 16

Antenna impedance: 50Ω

Temperature: -20 ~ 85°C

Working humidity : 10% ~ 90% relative humidity without condensation

Weight: 200g

Size: 109mm*79mm*30mm (not include antenna and Data interface)

2. RX parameters:

Receive sensitivity: -123dbm

Next channel Power: ≥ 65dB

Modulate frequency: ≤ ±5.0KHz

3. TX parameters

RF Power : 5W

Neighbour channel Power : ≥ 65dB

Change time for receiving and sending : <10ms

4. RS-232/RS485 interface

Baud rate : 1200/2400/4800/9600/19200/38400bps

Data format : 8N1

5. Power supply

9-15V DC, Standard: 12V

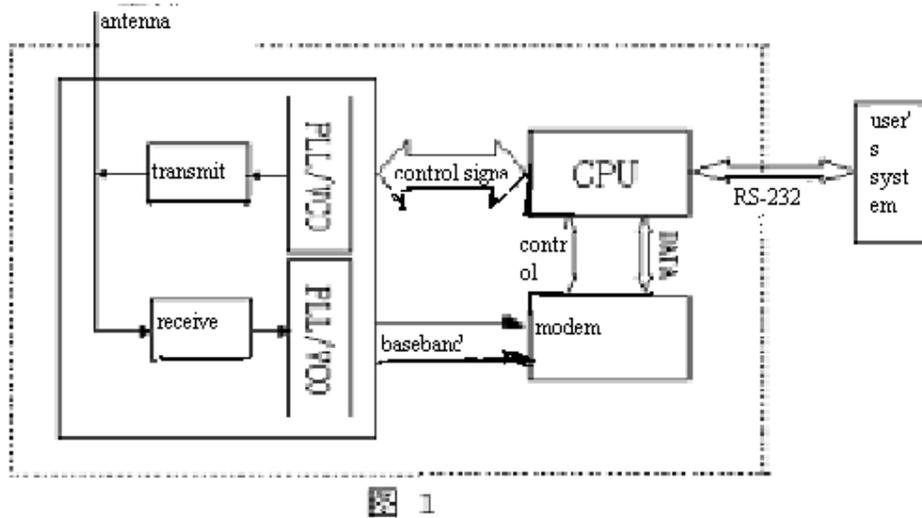
6. Power consumption

RX current : ≤ 45mA

TX current : ≤ 1.5A

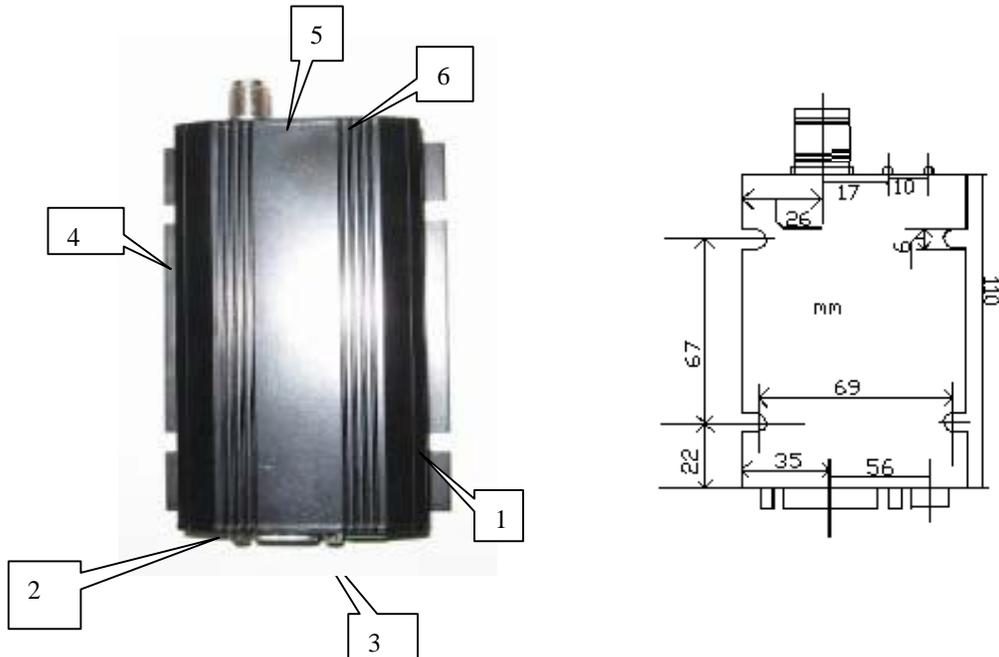
HXJZ-878

HXJZ-878 consists of transmitter, receiver, base band, Modem, CPU、RS-232 as follows:



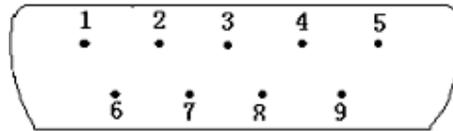
Interface:

1、 HXJZ-878 interface:

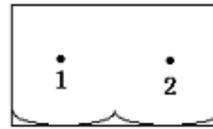


- (1) Install orifice: Install and fixation HXJZ-878.
- (2) User interface: DB9 male Plug;
- (3) Power Plug: 2nd pin, right pin is anode, the left pin is cathode;
- (4) Antenna interface: N type TNC tie-in, female core , screw thread outside, impedance is 50Ω .
- (5) TX/RX indicator light: Red light blink when TX, Green light blink when RX.
- (6) Power indicator light: Green blink.

2、 HXJZ-878 Interface define:



Data interface



Power integerface

1) User interface:

HXJZ-878 have one interface of TTL/RS232/RS485, user can choose one

Item no	PIN	Description	User terminal	Remarks
1	Null			
2	TXD/A	Serial data transmitting end	RXD/ A (RS-485)	
3	RXD/B	Serial data receiving end	TXD/ B (RS-485)	
5	GND	Ground	DGND/AGND	
4,6,7,8,9	Null			

Item no	PIN	Description	Level Connected	User terminal	Remarks
1	GND	Ground			
2	+12V	+12V DC		9-15V DC	Standard: 12V

Remarks: To avoid to connect the interface reverse and can not communicate, please check and assure the voltage of 3 and 4 pin is existing by using multimeter. If there is one pin that has the voltage, another has not voltage, which means the interface is connected reverse, please change the connection wires between pin 3 and 4.

2) Power supply

HXJZ-878 power supply is 9-15V DC, Representative value is +12V DC, the current greater than 3A. It can also share power supply with other equipment, however, the high quality power supply with desirable ripple factor should be selected.

In addition, the reliable grounding must be used if there is other device in the system equipment. In case of failure to connect with the earth, it can form its own grounding, but it must be absolutely separated from the municipal electric supply.

HXJZ-878 parameters setting

HXJZ-878 have one interface of TTL,RS232,RS485, You must specify the interface when you order. **HXJZ-878**

main parameters: COM baud rate and verify, RF baud rate, Channel and frequency。

You can change these parameters by our RF Module software. When RF baudrate is faster than COM baudrate, One frame Can transmit limitless data. When RF baudrate is not faster than COM baudrate, One frame Can transmit 255 bytes. You can set the rate according your request.

Two HXJZ-878 communication must have conditions as follows:

1. Their channels (i.e. frequency) is same.
2. Their RF rates is same.
3. RF Module Com baud rate and verify is agree with its equipment or PC that it connects with.

The screenshot shows a software interface for configuring the HXJZ-878 module. It consists of three main sections:

- Channel and Frequency:** A dropdown menu for 'Channel' is set to '1', and a text input for 'Frequency' is '430.2000MHZ'. There are 'Read (1)' and 'Write (2)' buttons.
- RF Baud Rate:** A dropdown menu for 'Baud Rate' is set to '9600'. There are 'Read (3)' and 'Write (4)' buttons.
- COM Parameters:** A dropdown menu for 'Baud Rate' is set to '9600', and a dropdown menu for 'Verify' is set to 'NONE'. There are 'Read (5)' and 'Write (6)' buttons.

1) Parameters default value:

Channel : 1
 Interface speed rate : 9600BPS
 Interface verify : none
 Speed rate in air : 9600BPS

2) Channel and frequency list

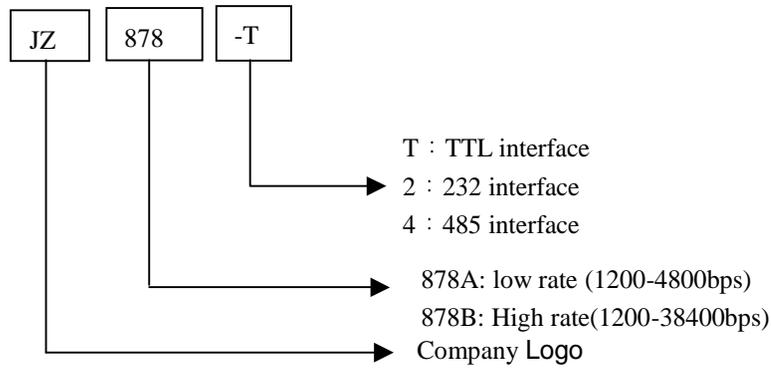
Channel	Frequency	Channel	Frequency
1	430.2000MHZ	9	458.5250MHZ
2	431.4288MHZ	10	459.1250MHZ
3	431.7360MHZ	11	459.5250MHZ
4	430.5072MHZ	12	460.1250MHZ
5	434.6940MHZ	13	460.5250MHZ

6	434.2332MHZ	14	461.1250MHZ
7	433.1580MHZ	15	461.5250MHZ
8	433.9260MHZ	16	462.1250MHZ

Technical specification of HXJZ-878

Modulation mode: GFSK
 Working frequency: 430-470MHZ
 Transmission power: 5W
 Receiving sensitivity: -
 123dBm Transmitting current: <1.5A
 Receiving current: <45mA
 Channel speed rate: 1200/2400/4800/9600/19200/38400Bit/s, User can Choose one
 Interface speed rate: 1200/2400/4800/9600/19200/38400Bit/s, User can Choose one
 Change time for receiving and sending: <10ms
 Interface data format: 8E1/8N1/8O1
 Power supply: 9-15V DC
 Working temperature: -20℃ ~ 65℃
 Working humidity: 10% ~ 90% relative humidity without condensation
 Dimension: 109mm×79mm×30mm (not include antenna and Data interface)
 Attachable Communication with Model: JZ871/JZ872/JZ873/HXJZ-878

Model and name



Trouble and solve ways

NO.	Trouble	Trouble causes and solve ways
1	No shine of Indicator light	a、Power Line(+12V) badness touch . b、Power(+12V) is bad. c、Power line(+12V) meet in reverse, or diode of polarity protect is bad.

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2	No transmit or No receive	a、Radio is badness touch with PC/terminal. b、Radio with TTL/RS232/RS485 not match terminal. c、RX frequency and TX frequency is not same.
3	Bit error rate High	a、antenna not match, or touch bad; b、RF baud rate is not right. c、Power supply ripple is too great.
4	Indicator light twinkling	a、Electromagnetism disturb in circumstance. b、Same frequency disturb in the circumstance.