JZ871 Mini Power Wireless Module

User's Manual
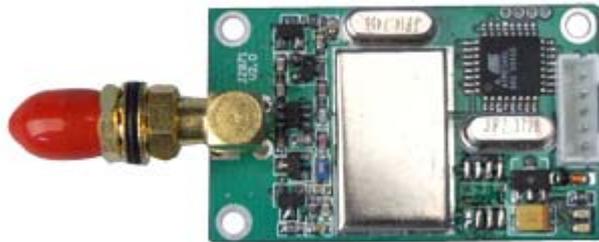
SHEN JIZHUO TECHNOLOGY CO., LTD

About JZ871

JZ871, a Mini power wireless module, is used as the wireless data transmission in short distance.

With the characteristics of small size, light weight, low power consumption, good stability and reliability, it can provide bidirectional data transmission, test and control for users.

It is used for Wireless meter reading, such as water meter, electric meter and gas meter, parking meter, intellective 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.

If necessary, we can provide USB interface to make it easy to settle the question of Power Supply for Mini computer and PC users.

Features:

1.Ultra low power transmission

The highest transmission power is 100mW, high receiving sensitivity: -121dbm,

Size: 44mm*27mm*8mm

2. ISM frequency band, not requiring on application of frequency point

Carrier frequency of 433MHz   also capable of 868/915MHz.

3. 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 ~ 10-6 can be achieved when channel bit error rate is 10-2.

4. Long transmission distance

Within the range of visibility, the reliable transmission distance is   BER=10-3/1200bps   >800m when the antenna is higher than 3M.

5. Transparent data transmission

Transparent data interface is offered, which can be fit for 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 change time for receiving and sending <10ms.

6. Multi-channel and speed

The JZ871 provides 8 channels to meet the multiple communication combination mode of the users. The JZ861 Module can provide many kinds of correspondence baud rate such as 1200bps, 2400bps, 4800bps, 9600bps, 19200bps and 38400bps.

The wireless transmission speed and the connection baud rate are proportional, to satisfies the customer equipment of different baud rate.

7. High speed wireless communication and Large data buffer

When the RF baud rate is bigger than the COM baud rate, allowing to transmit unlimited data at one time, and when the RF baud rate is smaller than or was equal to the COM baud rate ,may transmit 255 bytes data

8. 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. JZ871 will automatically complete the other operations,

such as transmission/receiving conversion in the air, control, etc.

9. 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.

10. Low power consumption, two kinds of sleep mode.

Receiving current <30mA, transmitting current <100mA;

Sleeping mode (The user's should asked for it):

a. Awaken from Hardware

b. Awaken from Interface.

The user can set it according to the software.

10. Watchdog monitor

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

11. Antenna choose

Users can choose the antenna according to user's different need .

Application of JZ871
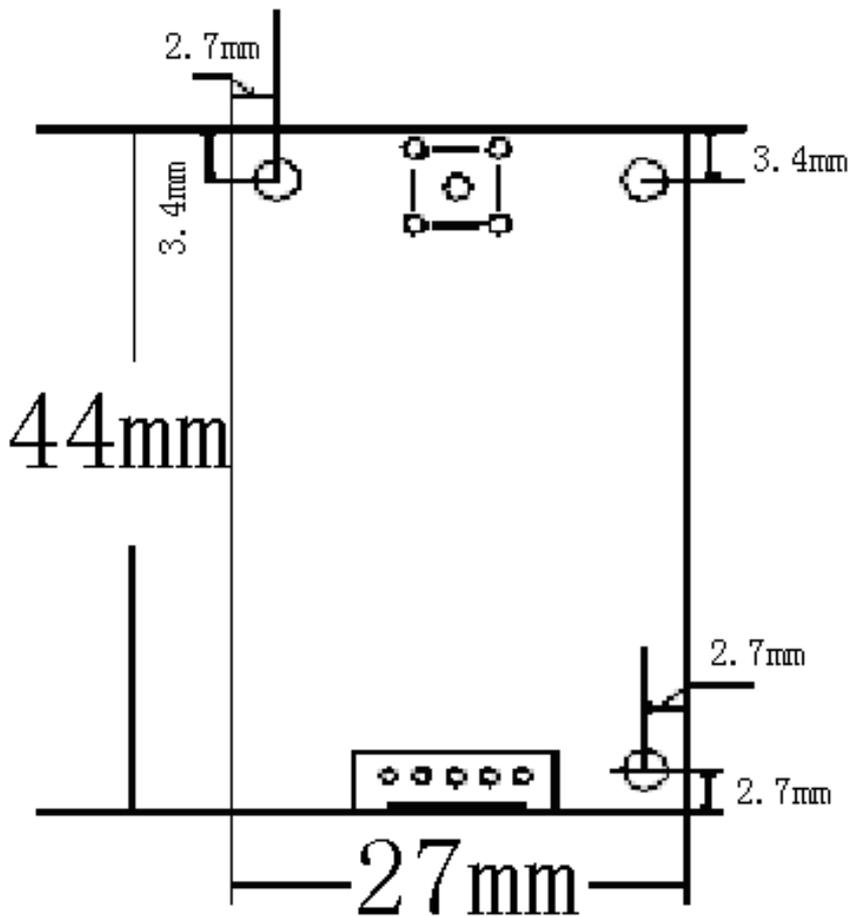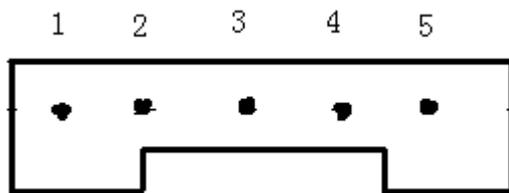
1. Dimensional drawing

Fig1. JZ871 interface chart

Remarks: The space between each pin is 2.0 mm.

2. JZ871 interface definition

JZ871 can supply one 5-pin connector (JP1), and its definitions as well as connection method for terminals are shown in Table 1.

Table 1: Definition of connecting pins and connection method

Item no	PIN	Description Level Connected to the terminal	User terminal	Remarks .
1	VCC	+5± 0.5V	+5± 0.5V	TTL 3V user's choose
2	GND	Power supply/Ground	DGND/AGND	RS232 interface: GND of Power and Data must be united.
3	RXD/ B (RS-485)	Serial data receiving end	TXD/ B (RS-485)	
4	TXD/ A (RS-485)	Serial data transmitting end	RXD/ A (RS-485)	
5	SLE	Sleep control (input) end		High level to sleep, Low level awake(sleep version is aviavailability)

Note: No sleeping is default, The Pin 5 of no-sleeping version is not be used, pin 5 must be hung.
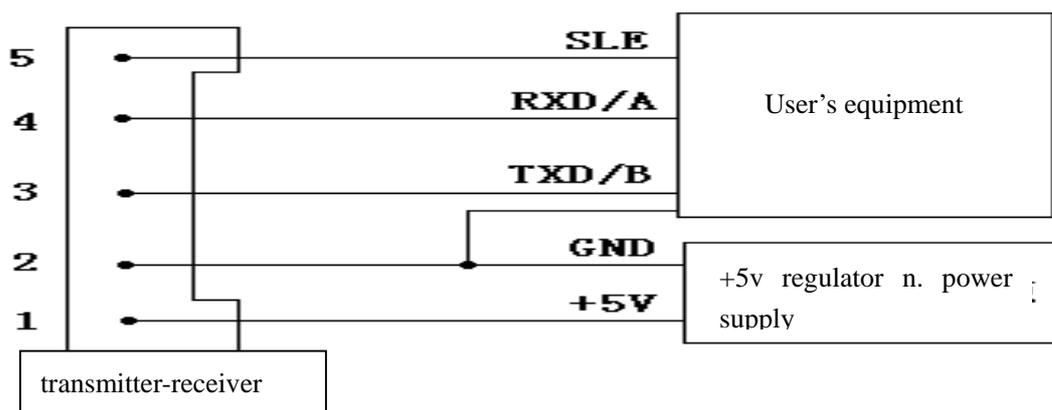
Remarks: To avoid connecting the interface reversely and can not communicate, please check and assure the voltage of 3 and 4 pin is existing by using multimeter. If there is one pin that has the voltage, another has not voltage, which means the interface is connected reversely, pls. Change the connection wires between pin 3 and 4.

JZ871 Power supply and sleep mode

1. Power supply

JZ871 uses DC power supply with voltage of +5V. 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.

2. Sleeping function

JZ871 had sleeping and no-sleeping version.

The current ofJZ871 in the sleeping state is 1Ua. Users must tell which version will be chosen before place the order in advance (No sleeping is default).

For sleeping version, users can open and close the sleeping function by themselves. JZ871 with the sleeping function has two awakening way, one is hardware awakening way, another is interface awakening way (air awakening will be reserved) Hardware awakening is achieved by the Pin 5 input to the high level and input low level to awake.

Awaken from Interface is achieved by users send designate protocol data by JZ871 interface to open or awake. JZ871 with the function of sleeping is default in close state before leaving factory, so users must set by JZ871 software to set the awakening mode to hardware awakening or interface awakening. Users can also tell us to set in advance.

If users use JZ871 with the sleeping function, but hope not to apply the sleeping function, the users can set by JZ871 software to set for no-sleeping state or make JZ871 pin 5 to connect the ground in the mode of hardware awaken.

JZ871 parameters setting

JZ871 have one interface of   TTL   RS232   RS485, You must specify the interface when you buy. JZ871 main parameters: COM baud rate and verify   RF baud rate, Channel and frequency   You can change these parameters by our RF Module soft. When RF baud rate is faster than COM baud rate   One frame Can transmit limitless data. When RF baud rate is not faster than COM baud rate   One frame Can transmit 255 bytes most. You can set the rate according your need.   The general Power supply is 5V DC.

Two JZ871 communicate must have condition as follow:

1.Their channels (i.e. frequency) are same.

2.Their RF rates are same.

3. RF Module Com baud rate and verify is agree with its equipment or PC that it connects with.

Parameters default value:

Channel NO.   1

Interface speed rate   9600BPS

Interface verify   none

Speed rate in air   2400BPS

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 JZ871

Modulation mode: GFSK
Working frequency: 420--470MHZ
Transmission power: <100mW
Receiving sensitivity: -121dBm
Transmitting current::   <100mA
Receiving current: <30mA
Sleeping current: <15uA
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: 5± 0.5V   RS232/RS485   2.7--3.6V or 3.6--5.5V   TTL   DC
Working temperature:-20   85
Working humidity: 10%   90% relative humidity without condensation
Dimension: 44mm*27mm*8mm
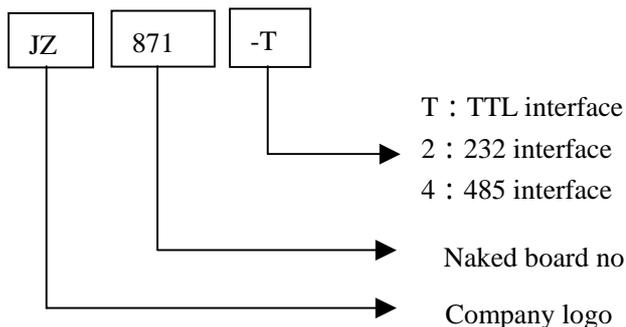Attachable Communication with Model: JZ871/JZ872/JZ873/JZ878/JZ875

Another style you can choose:
Transmission power: <10mW
Transmitting current: 35mA
 Receiving current: 30mA

Model and name

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┌─────┐  ┌─────┐  ┌─────┐
│ JZ  │  │ 871 │  │ -T  │
└─────┘  └─────┘  └─────┘
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T   TTL interface

2   232 interface

4   485 interface

Naked board no

Company logo

Optional Antenna:

spillikin   Flagelliform   Small acetabula antenna

Trouble and solve ways:

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