HR-1005 Mini Power Wireless Module

User Manual

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Respectable Customers:

Thank you for you to use our HR-1005 Module, before using HR-1005 Module, please read the user's manual carefully, our products with ISM frequency band will be easily to use. Any question in technicals, you can contact us. Tel: 86 755 81782516 Cell: 86 15813856667

一、About HR-1005

HR-1005, the mini power wireless module Enveloped with Epoxy, is used as the wireless data transmission in short distance. With the small size, weight and power consumption and good stability and reliability, it has the function of bidirectional data sign transmission, test and

control.

It is used for Wireless meter reading, such as Water Meter, Ammeter 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.

二、HR-1005 Feature

1. **Ultra low power transmission**

    Transmission power less than of 100mW, High receiving sensitivity: -110dbm,
    Size: 47mm*33mm*14mm.

2. **Low power consumption**

    Receiving current<15 mA, transmission current<100mA.

3. **ISM frequency band, not requiring on application of frequency point**

    Carrier frequency of 433MHz，also capable of providing 868/915MHz carrier frequency.

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

    Based on the FSK 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.

5. **Long transmission distance**

    Within the range of visibility, the reliable transmission distance is（BER=10-3/1200bps）>500m when the antenna height is greater than 200m (BER=10-3/9600bps).

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 HR-1005 configuration provides 8 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. 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. HR-1005 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.

12. Antenna choose

Users can choose various antenna setting project and antenna according to user's different need to achieve a optimal effect.

13.Encapsulation Structure，dustproof , waterproof and static proof

Comprised by plastic DOS shell，epoxy encapsulation，dustproof , waterproof and static proof，good anti-jamming.

三、Application of HR-1005

1、Size and weight

Size：47mm*33mm*14mm（not include antenna）

Weight：19g（not include antenna）

2、HR-1005 User interface

HR-1005 provide USB interface.

User must install the USB driver before using HR-1005. After installing the driver , PC can build one virtual serial port , User's soft can operate the serial port(for example COM4).

View the serial port: Desktop—Click 'My computer' on right button —Attribute---Hardware---device manager---COM and LPT, you can see the increased COM port in the branch, such as COM7 in the bellow picture.
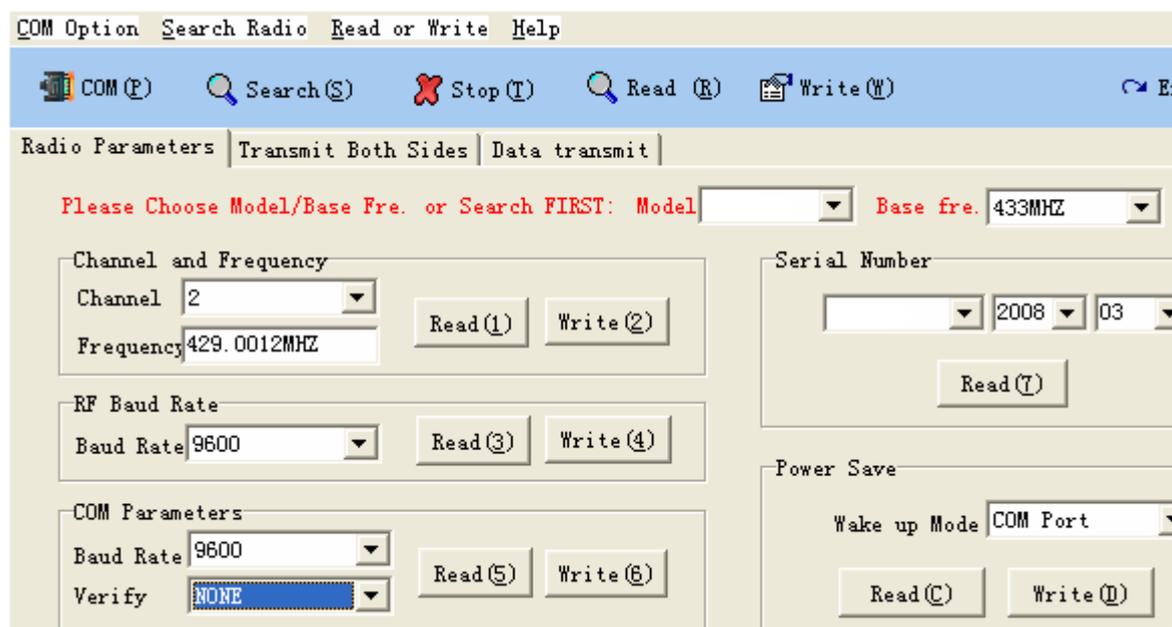
Notice:

1. you must install the USB driver before you use it , then plug HR-1005 into the PC's USB port, here the virtual serial port can display in Device Manager.

2. After using , Please Close the program in advance, then draw out HR-1005.

3、 Using testing software to check and set parameters

A. HR-1005 connect with the computer well, choose needed interface.

B. Radio test, when testing radio (software can indicate successful test), then single data can be read or set

C. When you choose your needed data, need to set, after finished setting, continue to read, and check the data of module whether you need.

Note: 1、Two or multi modules can communicate, the frequency and baud rate must be same of all modules

    2、Modules and user equipment can communicate, the parameters of modules and

user equipment must be same.

4、 Description normal working lights

Wireless data transmission module is a two-color work lights, transmit data at the red light , receive data at the green light.

5、 Interoperable Model

HR-1005 module can communicate all HR-100X modules, you will only need to note:

A．Choose all the same mutual communication module channel (HR-100X modules want to communicate with HR-1005 module, choose one of the channels of modules 2～4 channels).

B．The air baud rates must be same

C．Confirm access interface connected well

The following table is HR-1005 module 1～8 channel frequency parameter:

Num Channel	Frequency	Num Channel	Frequency
1	428.0028MHZ	5	432.1500MHZ
2	429.0012MHZ	6	431.4588MHZ
3	433.3020MHZ	7	430.0764MHZ
4	433.9164MHZ	8	433.5308MHZ

6、 HR-1005 Ordinary parameter

Channel: 1 channels

Serial date rate: 9600bps

Serial parity bit: 8N1

Air date rate: 9600bps

四、HR-1005 technical direction

The detailed technical direction

Modulation: FSK

Working frequency: 433MHz

Transmitting power: 100mW(20 dB)

Receiving sensitivity:-110dBm

Transmitting current:: ＜100mA，

Receiving current: ＜10mA

Channel speed rate: 1200/2400/4800/9600/19200 Bit/s The user can set.

Interface speed rate: 1200/2400/4800/9600/19200 Bit/s The user can set.

Interface data format：8E1/8N1/8O1

Working Power SuPPLY：DC 5±5.5V

Working temperature： -20℃～85℃

Working humidity：10%～90% The relative humidity, does not have the condensation

Outside Size：47mm×33mm×14mm（excluding antenna and cable）

Inter-Communication：HR-1000

Note: We retained without notice at any time updates on the power of final interpretation of this statement and the right to amend!

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.