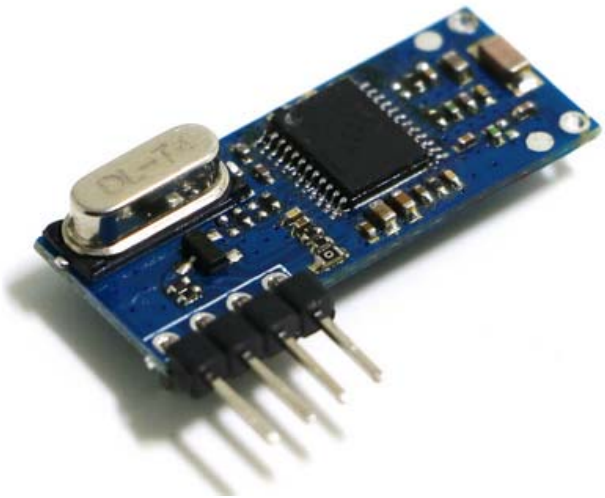
Ultra-high Sensitivity Wireless Receiving Module

SPECIFICATION

Model No.: DL-RXB3

Version: V1.0



Before using this module, please read this document carefully, and pay attention to the following important matters:

This module is an electrostatic sensitive product. Please operate it on an anti-static workbench during installation and testing.

The module uses an external antenna by default. The antenna can be a wire antenna or a standard UHF antenna. You can choose a specific antenna according to the actual situation. If the terminal product uses a metal shell, be sure to install the antenna outside the metal shell. Otherwise, the RF signal will be seriously attenuated, which will affect the effective distance.

Metal objects and wires should be kept away from the antenna as much as possible.

When installing the module, nearby objects should be kept at a sufficient safety distance from the module to prevent short circuit damage.

This module should be used in a dry environment. Please do not make any liquid substance come into this module.

Please use an independent voltage regulator circuit to supply power to this module, and avoid sharing with other circuits. The tolerance of the power supply should not be less than 5%.

Limitations:

This module is intended to be embedded in the customer's terminal product application, and does not provide a casing itself. It is not recommended that the customer directly resell this module as a final product without permission.

This series of modules are in accordance with commonly used international standards. If there is any special certification needed, we can adjust certain indicators according to your needs.

This module cannot be applied to life rescue, life-support systems, or any occasion where personal injury or life threatening may cause by equipment failure. Any organization or individual carrying out the above-mentioned applications shall bear all risks at their own.

We will not be responsible for any direct or indirect damage, injury or loss of profits caused by products that use this module.

DL-RXB3 series RF module is a universal wireless receiving module for ASK and FSK modulation, which adopts imported industrial grade radio frequency wireless data receiving chip. It has high receiving sensitivity, and very strong anti-interference ability.

It can realize wireless signal input to data signal output without any external circuit. Its superior performance makes it a good choice as RF receiving module for the automotive RKE & BCM system. Users can easily develop wireless products by simply adding a data decoding circuit.

1. Features:

- The receiving sensitivity can reach **-118dBm**;
- Working frequency: 315Mhz, 433Mhz (other frequencies can be customized);
- Working voltage range: 3.6~5.5V;
- Low power consumption: 6mA;
- Power consumption can be as low as 10nA in power enabled mode;
- Common use of ASK mode and FSK mode
- Good selectivity and stray radiation suppression, easy to pass safety test;
- Good local radiation suppression, can work together with multiple modules (one to many) and will not interfere with each other, the receiving distance also not been affected;
- Temperature range: -40~85 C (industrial grade), can work well even in harsh environment.

2. Applications:

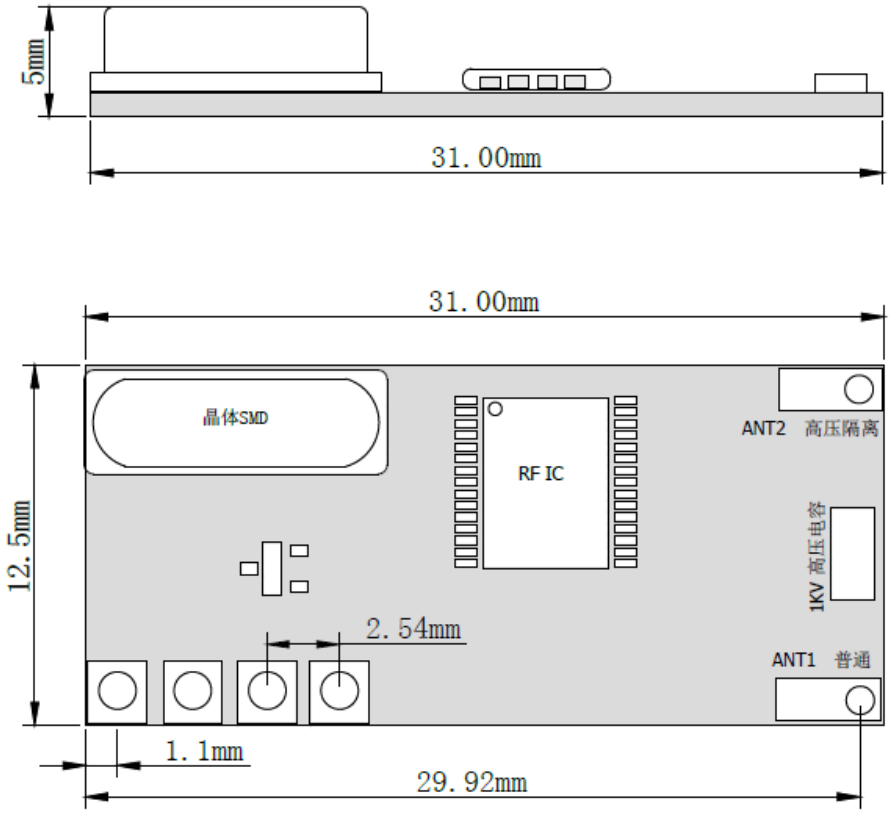
- Wireless sensor terminal device, Home automation data sending, Wireless data sending, Automatic industrial control, Industrial remote control, Telemetry;

- Automatic direction control, Smart smoke alarm linkage system, Smart weather forecast and temperature monitoring of security monitoring camera;

- Security alarms for motorcycles and electric vehicles, Fishing and fishing monitoring alarms;

- Intelligent building data monitoring, Intelligent community emergency rescue alarm system, Kitchen and sanitation linkage control system, Lighting switch control system, Smart home control

3. Product Size & Pins Definition:



The DL-RXB3BV module has 4 pins, which are defined in the following table

Pin	Name	Description	Remark
1	GND	Grounding, common ground with the MCU system	
2	DATA	Data output; Can communicate with decoding unit	
3	DE/DATA	Data output; Can communicate with decoding unit	
4	VCC	Positive power supply, 3.6V-5.5V	

Table 1: Pins Definition of DL-RXB3BV Module

Remarks: DL-RXB3BV = 4PINs; DL-RXB3AV = 8PINs

4. Technical Parameter

RF characteristics (under the Power supply of 5V, Ta = 25 ℃, frequency 315MHz test conditions)

No	Characteristics	Technical Parameter			Unit
		Min.	Typi.	Max.	
1	Frequency range	314.90	315.00	315.00	MHz
2	Modulation mode		ASK/FSK		
3	Receive sensitivity		-117		dBm
4	Receiving bandwidth		200		KHz
5	Working voltage	3.6	5.0	5.75	V
6	Working current			4.6	mA
7	Mirror frequency suppression		20@336.4Mhz		dB
8	Wake up time		9		mS
9	Decoding Output Max. Voltage	3.5	3.75	5	V
10	Decoding Output Min. Voltage			0.5	V
11	Working temperature	-40		85	℃

Table 2: High frequency characteristic table under 315Mhz

RF characteristics (under the Power supply of 5V, Ta = 25 ℃, frequency 433.92MHz test conditions)

No	Characteristics	Technical Parameter			Unit
		Min.	Typi.	Max.	
1	Frequency range	433.82	433.92	434.02	MHz
2	Modulation mode		ASK/FSK		
3	Receive sensitivity		-118		dBm
4	Receiving bandwidth		200		KHz
5	Working voltage	3.6	5.0	5.75	V
6	Working current			4.6	mA
7	Mirror frequency suppression		20@412.52Mhz		dB
8	Wake up time		9		mS
9	Decoding Output Max. Voltage	3.5	3.75	5	V

10	Decoding Output Min. Voltage			0.5	V
11	Working temperature	-40		85	℃

Table 2: High frequency characteristic table under 433.92Mhz

5. Connection between module and terminal equipment (TTL electrical level)

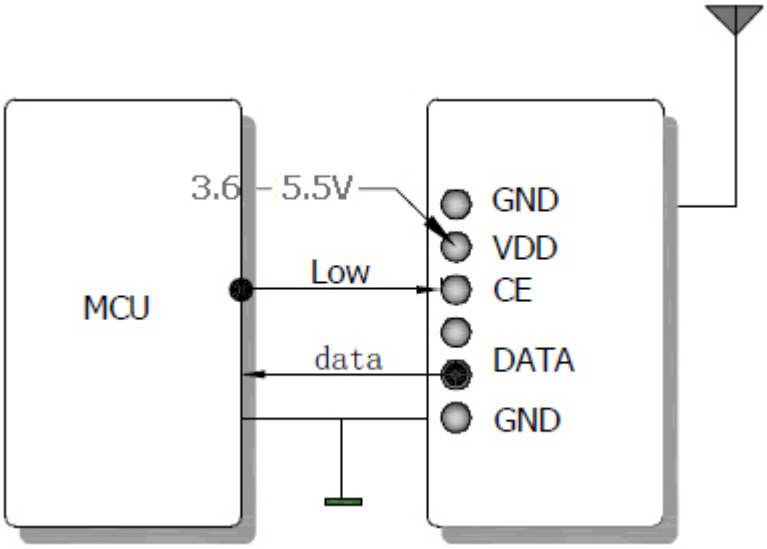


Figure 2: Wiring diagram for module application

6. Notices in module application

Considering the complexity of data transmission over the air, the radio frequency modulation method of the data, and some inherent characteristics of electromagnetic waves, the following issues should be considered during the application process.

1. The electromagnetic interference of the application environment will affect the actual distance of the remote control. Electromagnetic wave interference is divided into mainboard power supply interference, TFT screen data cable interference, Flash data exchange interference; and airborne carrier frequency interference, noise interference, high-power signal source interference, etc.
2. Factors such as product size, internal space, and coating of the shell will cause the attenuation of the wireless signal, which will affect the remote-control distance. Usually the narrow internal space of the product is not conducive to the extension of the antenna.

The outer shell should avoid metal or metal plating as much as possible.

3. To choose a proper antenna is very important. The antenna is an important part of the communication system, and its performance directly affects the indicators of the communication system. We must pay attention to its performance (antenna type, antenna electrical performance) when selecting the antenna. Please feel free to contact us for consultation or recommendation, if you need.

7. Contact us

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★ Data collection, Smart home, Internet of Things applications, Wireless remote-control technology, Remote active RFID, Antennas ★

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