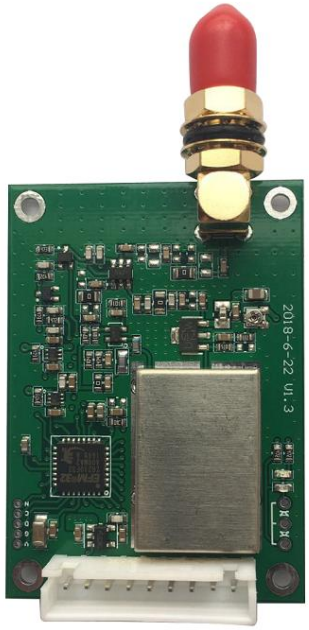
LS-LR1000 1W Lora Module User Manual



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1. General Introduction

LS-LR1000 is a wireless serial port module, operates at 433MHz default (or 868MHz/915MHz), default 16 channels. It uses SX1278/SX1276 chip from Semtech, supports transparent data transmission. LS-LR1000 adopts LORA spread spectrum technology. Its transmission distance is longer than conventional radio. FEC algorithm technology ensures LS-LR1000 has high coding efficiency and good correction performances.

2. Application Field

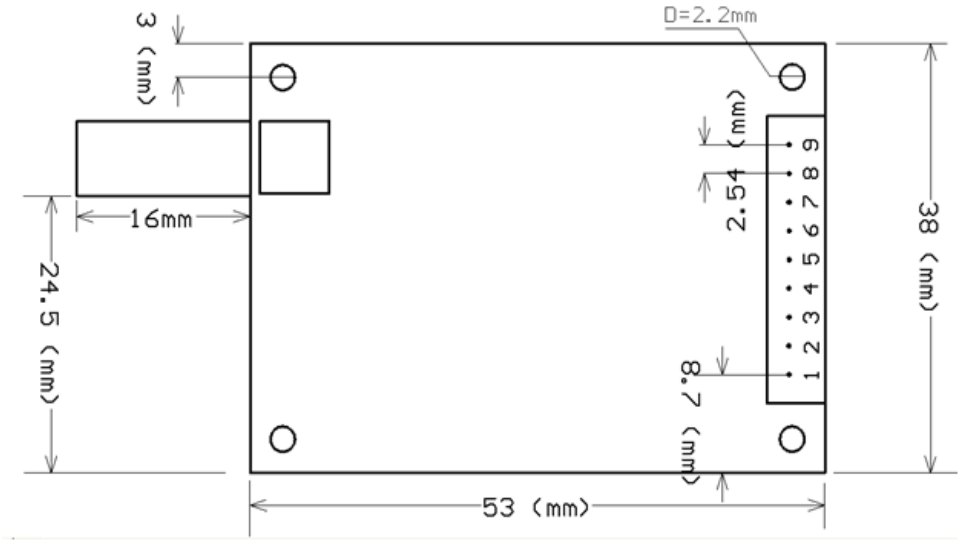
- Hotel electronic door locks, biometric access control management system
- Medical and electronic instrumentation automation control
- Intelligent teaching equipment, baby care, medical ward call system
- Home appliances and intelligent lighting control
- Anti-theft alarm smart card, railway locomotive remote detection
- Water, electricity, gas, heating automatic meter reading system or reactive power compensation and power grid monitoring
- LED screen wireless transmission of text, pictures and wireless control
- Wireless crane scale, vehicle monitoring, aging equipment testing
- Industrial equipment data wireless transmission and industrial environmental monitoring
- Video monitoring PTZ control, access control attendance card reader
- Weather / oil / water equipment information collection and natural environment detection street lamp detection control
- Mine attendance positioning system, gas detection alarm

3. Technical specification

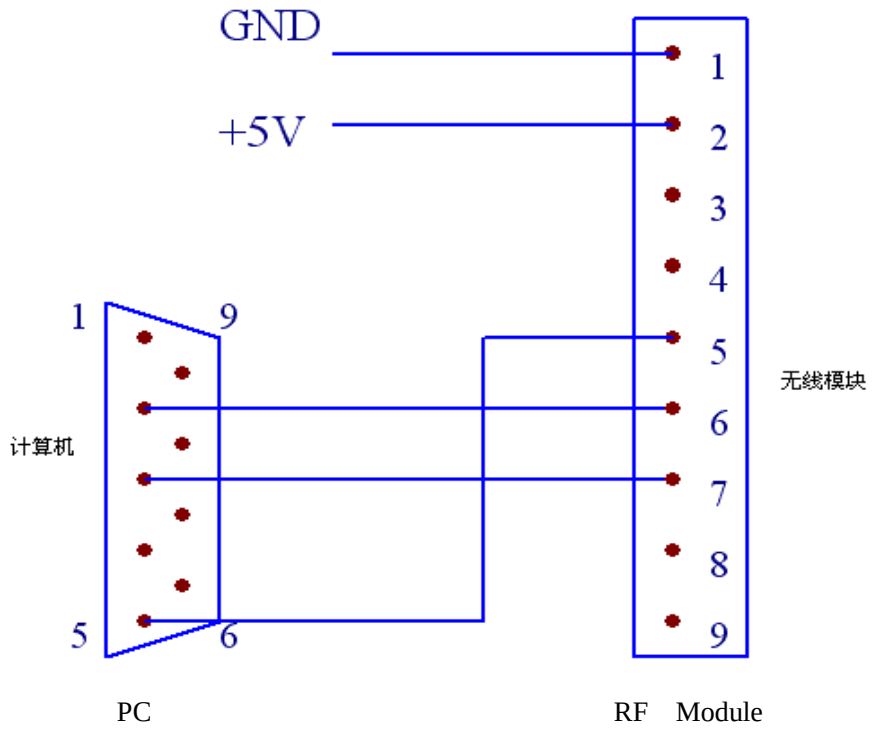
PERFORMANCE	
Power Output:	1W
RF Line-of-sight Range:	5km @2400bps Test condition: clear and open area, maximum power, air rate: 2400bps, antenna gain 2.5dBi, antenna height>2m
RF air baud rate:	1200/2400/4800/9600/19200bps
Space Channel:	1MHz(Default)
Bandwidth:	<25KHz
Receiver Sensitivity:	-123dBm@1200bps, -118dbm(9600bps)
Data format:	8N1, 8E1, 8O1
COMPATIBILITY	
LS-LR series	
POWER	
Supply Voltage:	5V DC
Transmit Current:	<650mA
Receive Current:	<30mA
Sleep current:	<20uA
GENERAL	
Communication Mode:	Half-duplex
Frequency Band:	433MHz or 450MHz, 470MHz, 868MHz, 915MHz choose one
Channel:	16 channels default
Interface:	TTL, RS232, RS485 (choose one)
PHYSICAL PROPERTIES	
Size:	53mm×38mm×10mm (excluding antenna base and data pin)
Weight:	35g
Antenna Base:	50Ω, SMA
Operating Temperature:	Industrial:-40℃~+85℃(TCXO)
Frequency Stability:	±2.5ppm Industrial

4. How to Use It

1) Install Dimension



2) How to connect LS-LR1000 with PC.



3) Pin Definition (9 pin)

Pin No.	Signal Name	Function	Level	Connection with terminal	Remarks

1	GND	Grounding of power supply		Ground	
2	VCC	Power supply DC	5V DC		
3	RxD/TTL	Data receiving	TTL	TxD	
4	TxD/TTL	Data transmitting	TTL	RxD	
5	SGND	Signal			
6	A (TXD)	A of RS-485 (TxD of RS-232)		A(RxD)	
7	B (RXD)	B of RS-485 (RxD of RS-232)		B(TxD)	
8	SLEEP	Sleep control	TTL	Sleep signal	Low level valid
9	TEST	Factory testing			

LS-LR1000 provide RS232, RS485 or TTL interface, please choose one when you place order.

4). The Function of LED indicator

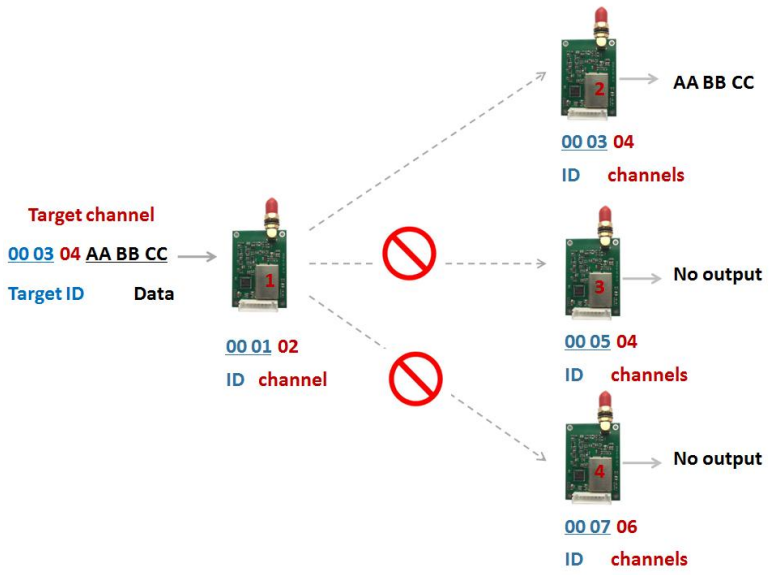
a. The LED indicator flashes red for 0.5S when power supply on.
b. The LED indicator blinking blue when receiving data.
c. The LED indicator blinking Red when transmitting data.
d. The LED indicator keeps dark when the module is in sleep mode.

5). Parameter setting by our software

You can use our software to read or set the parameter on computer. When you connect RF module to PC by the testing cable, please remember to connect the DB9 as well as USB port to computer.

5. Function description. Set by Lensen software

1) Fixed transmission mode



For example

Module 1: close transparent mode, set ID 1 (0x01 in HEX), choose channel 2, ID can channel can set freely

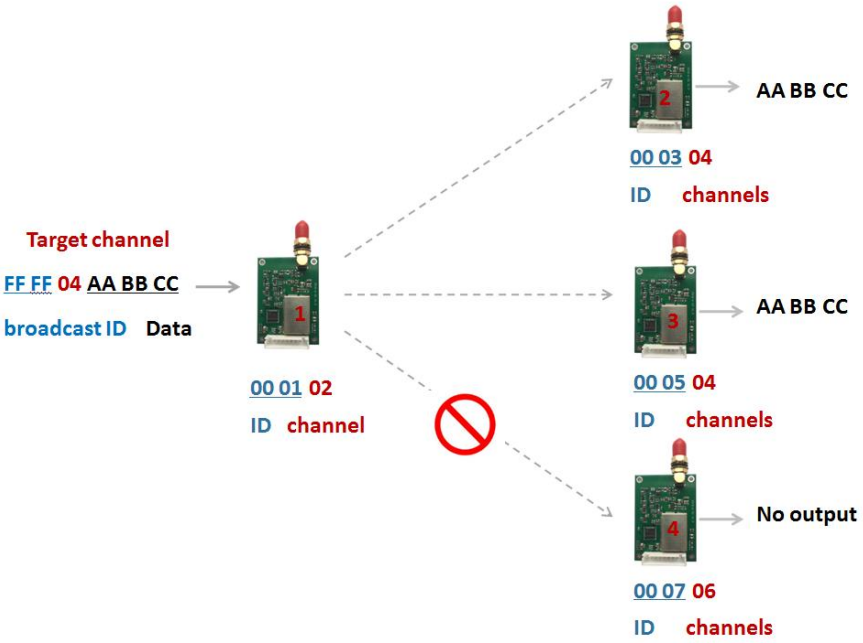
Module 2: close transparent mode, set ID 3 (0x03 in HEX), choose channel 4,

Module 3, close transparent mode, set ID 5 (0x05 in HEX), choose channel 4,

Module 4, close transparent mode, set ID 7 (0x07 in HEX), choose channel 6

when module 1 sends data with the format 00 03 04 AA BB CC, only module 2 can receive. Other two modules cannot.

2) Broadcasting transmission mode



For example

Module 1: close transparent mode, set ID 1(in HEX 0x01), choose channel 2, ID can channel can set freely

Module 2: close transparent mode, set ID 3(in HEX, 0x03), choose channel 4

Module 3: close transparent mode, set ID 5(in HEX, 0x05), choose channel 4

Module 4, close transparent mode, set ID 7(in HEX, 0x07), choose channel 6

When module 1 sends with the format FF FF 04 AA BB CC (can also replace FF FF by 00 00), both module 2 and module 3 can receive data. Module 4 cannot.

3) Transparent transmission mode

For example, set module 1 at any ID, channel 2. Open transparent mode via software. When module 1 transmits, all the other modules on channel 2 can all receive data, no matter which ID.

4) Monitoring ID mode

For example, set module 1 with ID 0 (in HEX 0x00) or ID 65535 (in HEX 0xFF FF), choose channel 4, close

transparent mode via software. When module 1 is receiver, it can receive all data send from other modules on the same channel, no matter transmitter's ID.

6) Repeater mode

a. Open module's transparent mode via software. And short connect TxD and RxD pin, it will work as a repeater.

b. Open module's transparent module and repeater module. It will work as a repeator. No need to short connect pin.

6. Accessories

1) Antenna

2) Standard unit

a. LS-LR1000 RF module 1pc
b. PIN cable 1pc
c. magnetic antenna 1pc (A3)

3) Other accessories you may be interested in

a. Power supply D.C. (5V, 3A)
b. RS232 program cable (for module with RS232 interface, use this to connect PC)
c. TTL program cable (for module with TTL interface, use this to connect PC)
d. RS232-RS485 converter (for module with RS485 interface, if you need to program module on PC, you need a converter)
e. Higher gain antenna (to reach longer distance, you may consider to use high gain antenna)
f. Antenna connector (to extend antenna connector)
g. Lightning arrest (to Prevent Lightning Strikes)

Notes:

1.To keep good communication effects, please use power supply D.C. with lower ripple coefficient whose max current need to be higher than 1.5*module's max current. (Suggest 5V, 3A)
2. TTL, RS232, RS485 interface, please choose one when you place order.
3. Baud rate: air baud rate and interface rate are programmable by our software.