

# KYL-200L Wireless Transceiver Module



KYL-200L low power wireless transceiver module is a small size, low power consumption radio module. With high performance chip CC1020, it has good stability and reliability. This module can be connected with micro-controller, PC, RS485 equipments and other devices with UART port directly. It is widely used in remote control, industry automation, and wireless telemetry and so on.

## I. Technical specification

<b>PERFORMANCE</b>	
Power Output:	500mW(Default), (800mW, 1W optional)
RF Line-of-sight Range:	3Km@1200bps; 2Km@9600bps
Air baud rate(fixed)	1200/2400/4800/9600/19200bps (choose one)
Port rate(programmable)	1200/2400/4800/9600/19200/38400bps
Space Channel:	1MHz(Default) (others Customized )
Receiver Sensitivity:	-123dBm@1200bps (1% BER)
<b>NETWORKING</b>	
Networking Topology:	Point-to-point, point-to-multipoint
<b>COMPATIBILITY</b>	
KYL-200 series and KYL-300 series	
<b>POWER</b>	
Power Supply:	5V DC (Default); (7.5, 9V,12V optional for 1W module)
Transmit Current:	<400mA
Receive Current:	<28mA

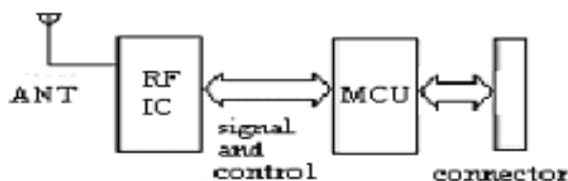
Sleep current:	<20uA
<b>GENERAL</b>	
Communication Mode:	Half-duplex
Frequency Band:	433MHz (400/450/470MHz optional)
Channel:	8(default),16/32/64(optional)
Interface:	TTL or RS232 or RS485 or USB
<b>PHYSICAL PROPERTIES</b>	
Size:	53mm×38mm×10mm (excluding antenna base and data pin)
Weight:	22g
Antenna Base:	50Ω, SMA
Operating Temperature:	Industrial:-40℃~+80℃(TCXO)
Frequency Stability:	±2.5ppm Industrial

## II. Application Field

- \* Automatic Meter Reading (AMR);
- \* Wireless alarm and security systems;
- \* Building automation, security systems, wireless monitor;
- \* Wireless data transmission, automatic data collection system;
- \* Wireless POS, PDA wireless smart terminal;
- \* RF transmitter, Wireless electronic display screen and Queuing machine;
- \* Wireless telemetry; remote control and access control system;
- \* Wireless modem automobile inspection and four-wheel orientation;
- \* Wireless sensor, Industrial wireless remote control;
- \* Data communication in the aspects of railway, oil field, dock and army.
- \* LED display in thruway and public place;
- \* Point to multi-point wireless network.

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## III. How to Use It

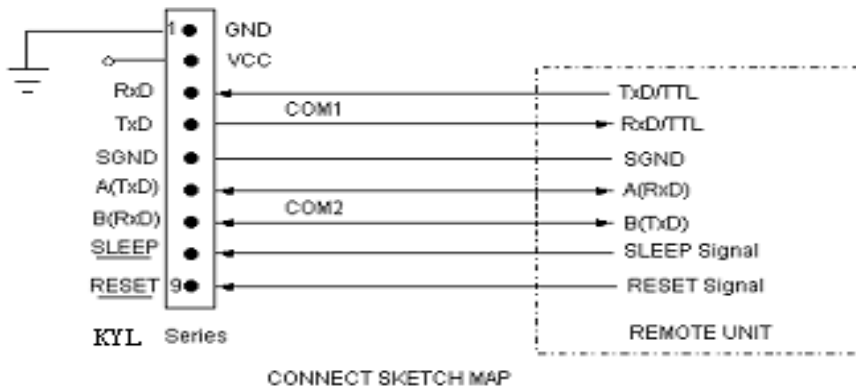


KYL-200L Principle map

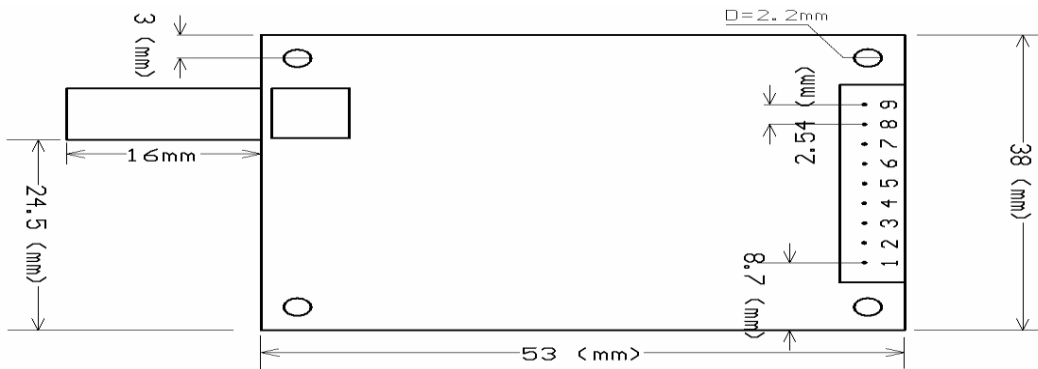
1. Default 5V Power supply
2. PIN Definition (9pin)

Pin No.	Signal Name	Function	Level	Connection with terminal	Remarks
1	GND	Grounding of power supply		Ground	
2	Vcc	Power supply DC	5V		
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	TTL		

**3. The connection schematic between computer and the RF module**



**4. Installation dimension:**



**5. The Function-indicator light**

- a. The LED indicator blinks red for 0.5S when power on.
- b. The LED indicator turns green continually when receiving data.
- c. The LED indicator blinks red continually when transmitting data
- d. The LED indicator keeps dark when the module is in sleep mode.

**6. Sleep function**

In order to reduce power consumption, KYL-200L transceivers support sleep function. In sleep mode, the current consumption is around 10uA. (need to specify when you place order)

**a. How to use sleep function:**

The Pin8 ‘SLP’ is sleep control pin. At high level, transceiver stays in working mode. At low level (<0.5V), transceiver stays in sleep mode. The SLP signal can convert transceiver from working to sleep mode in about 10mS after falling edge. If the Sleep signal arrives when the transceiver is transmitting data, the module will move to sleep mode after finishing transmission. From sleep to working, it takes about 10ms after rising edge.

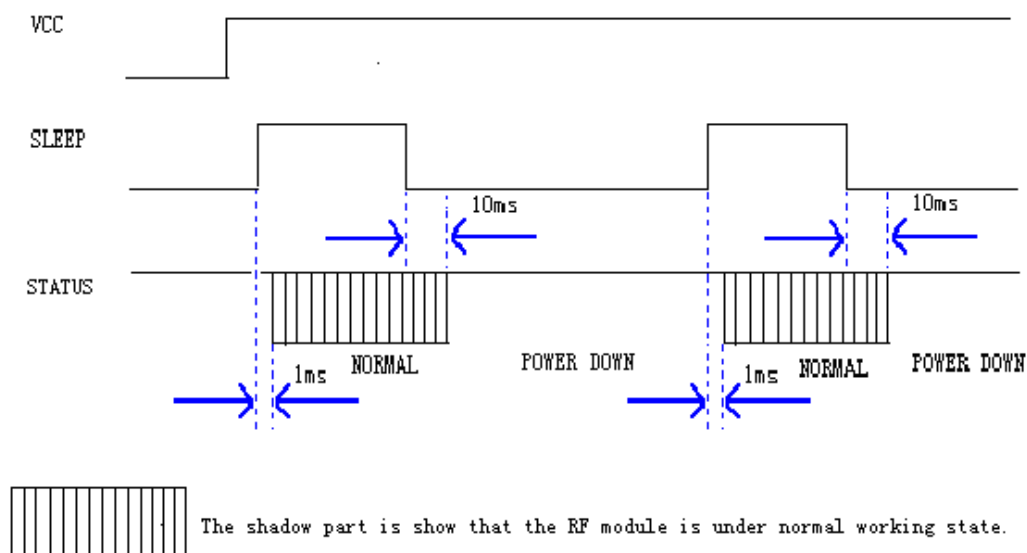
To disable the opened sleep function of KYL-200L, the SLP (SLEEP) pin should be connected with VCC or keep it no connection.

**b. Attentions about using sleep function:**

When the sleep function enabled, or any supply glitches, such as switch dithering, fire striking or quick switching on and off, may cause the transceiver switch to wrong sleep mode.

After switching on, users can avoid this error by making a compulsive restoration once after the CPU delays 100ms.

**Sleep Timing Diagram:**

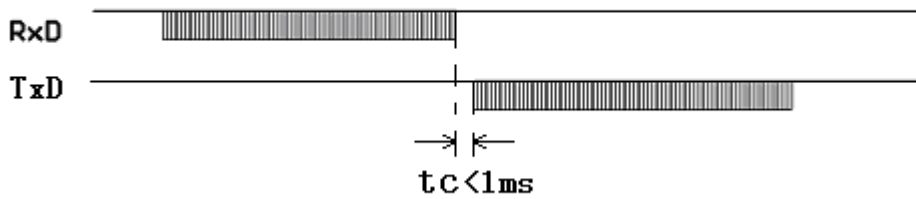


**7. Attentions about data transmission**

- a. The delay time (tc) of conversion between transmitting and receiving is less than 1ms.

Timing diagram:

**KYL SERIES**

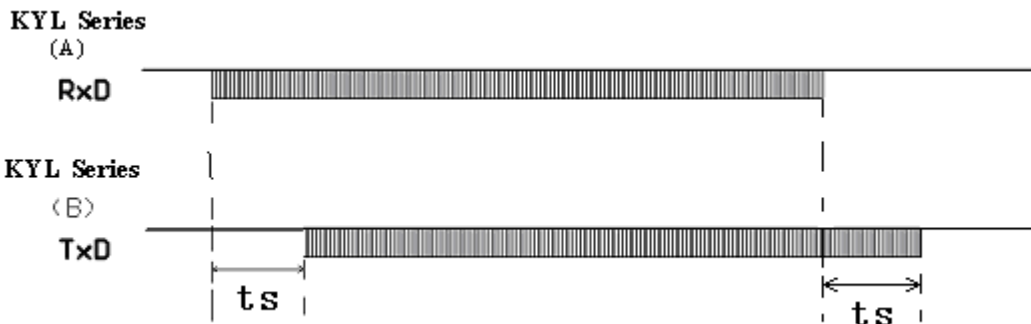


**b. The delay time of transceivers between the first bit sent by TxD to the first bit received by RxD.**

when RxD of a KYL-200L 'A' receives the data, then transmits it, the other KYL-200L 'B' will have a delay ( $t_s$ ) to receive and transmit by TxD. Different RF data rate causes different delay time. Please see the specific delay time below:

RF Date Rate (bps)	Delay Ts(mS)	RF Date Rate (bps)	Delay Ts(mS)
1200	90	9600	16
2400	48	19200	10
4800	30		

**Timing diagram:**



**8. Parameter setting by our software**

You can use our software KYLCOM.exe 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.

Corresponding frequency for each channel:

Channel No.	Frequency	Channel No.	Frequency
1	429.0325MHZ	5	433.0325MHZ
2	430.0325MHZ	6	434.0325MHZ
3	431.0325MHZ	7	435.0325MHZ
4	432.0325MHZ	8	436.0325MHZ

**Note: Each channel has fixed frequency. You can change frequency via adjusting the channels. If you need special frequency point, please tell us when you place order.**

### 8. About antenna

We usually allocate KYL-200L RF module with the following antenna. If you have any special needs about the antenna, please specify. You are welcomed to visit our web for more choice about the antenna: <http://www.rf-data.com/product2.asp?BigClassName=Antennas>. Moreover, we also provide OEM&ODM service.



A standard unit includes one module, one antenna and one 9-pin cable like the 1<sup>st</sup> picture.

When you place order, please make sure what frequency, baud rate, and interface do you use. Air baud rate is fixed, interface baud rate is programmable. Any more questions, please contact and confirm with our sales department freely.