

KYL-220 High Speed Rate RF Transceiver Module



Shenzhen KYL Communication Equipment Co., Ltd

Add: 3705-3707, Building C, Huangdu Square (South of Shenzhen Exhibition Center), Yitian Road, Futian District, Shenzhen, Guangdong, China 518048

Tel: 86-755-82943662

Fax: 86-755-83408785

Skype: KYL-Sunny

Yahoo: KYL_Sunny@yahoo.com

MSN: KYL-Sunny@hotmail.com

Email: sales02@rf-data.com

Web: www.rf-data.com

I: About KYL-220

KYL-220 is a kind of low power wireless transceiver data module. With small size, low power consumption as well as good stability and reliability, it is widely used as wireless data transceiver in long-ranges.

II: Technical Specification

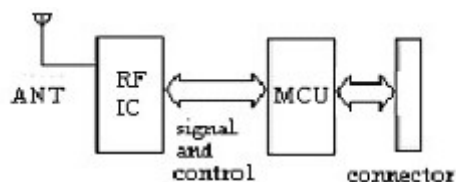
PERFORMANCE	
Power Output:	10mW
RF Line-of-sight Range:	100m
RF Effective Rate:	1200/2400/4800/9600/19200/38400/100kbps
Space Channel:	1MHz(Default), (12.5/25KHz/other Customization)
Bandwidth:	<25KHz
Receiver Sensitivity:	-118dBm@1200bps (1% BER)
NETWORKING	
Networking Topology:	Point-to-point, point-to-multipoint
COMPATIBILITY	
KYL-210	
POWER	
Supply Voltage:	5V DC
Transmit Current:	<25mA
Receive Current:	<20mA
Sleep current:	<20uA
GENERAL	
Communication Mode:	Half-duplex
Frequency Band:	400-470MHz, 868MHz, 915MHz
Channel:	8(default),16/32/64(optional)
Interface:	USB
PHYSICAL PROPERTIES	
Size:	40mm×22mm×6mm (excluding antenna base and data pin)
Weight:	20g
Antenna Base:	50Ω, SMA
Operating Temperature:	commercial:-35℃~+75℃(TCXO)
Frequency Stability:	±2.5ppm

III: Application of KYL-220:

- * Automatic Meter Reading (AMR);
- * Wireless alarm and security systems;
- * Building automation, security systems, wireless monitor, remote control and access control system;
- * Wireless data transmission, automatic data collection system;
- * Radio modem can be used for Sports training & competition;
- * Wireless dishes ordering;
- * Wireless POS, PDA wireless smart terminal;
- * RF module can be used for electronic bus station and intelligent traffics;
- * RF transmitter, Wireless electronic display screen and Queuing machine;
- * Wireless telemetry; charging for parking, parking lot;
- * Wireless modem automobile inspection and four-wheel orientation;
- * Data communication in the aspects of railway, oil field, dock and army.
- * LED display in thruway and public place;

IV: How to use the KYL-220

KYL-220 provides USB interface which can be directly connected with PC. Please find the schematic diagram below:



1. Power supply

The factory setting is +5V. Using better ripple factor, KYL-220 transceivers can also share power supply with other equipment. If possible, a voltage-stabilizing chip with 5V voltage is much recommended than Switch power supply. But if only switch power supply is available, the jam caused by switch pulse should be avoided. In addition, the reliable grounding must be used if there is other device in the system equipment. In case of failing to connect with the ground, it can form its own grounding but must be absolutely separated from the municipal electric supply.

2. Setting of channel, interface, and data format

Before using KYL-220, the user needs to make simple configuration to determine the channel, interface mode and data format based on his own needs. You can view or change the module's interface baud rate, channel and address code, parameter setting or reading as per the testing software.

3. Supported protocol and Transmit capability

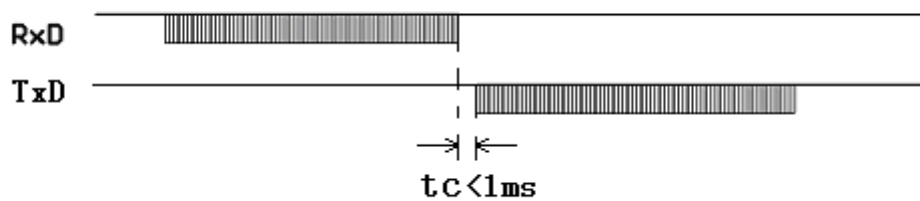
KYL-220 standard transceiver offers transparent protocol to support various applications and protocols. If you need to decrease his cost or ease the workload of terminal CPU, we can add other specific functions based on the transparent protocol, such as addressing, data acquisition, command interpretation, etc.

4 The attentions of data transmission

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

Timing diagram:

KYL SERIES

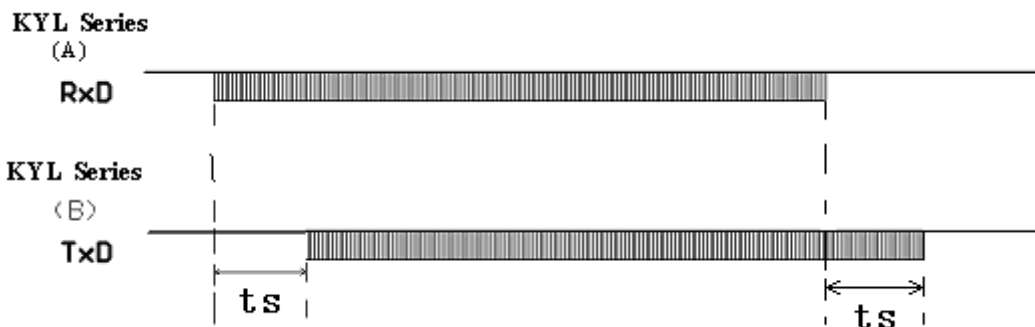


b. The delay time of transceivers between the first bit sent by TxD to the first bit received by RxD.

Delay time:

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:



c. Error dealing procedure:

To enhance the reliability and stability of user's systems, a verify bit or a Cyclic Redundancy Check (CRC) mode is highly recommended to prevent wrong information while using KYL-220 modules.

d. Large-number data transmission

In theory, when the interface data rate is faster than the RF data rate, KYL-220 transceivers can sent unlimited-long data package, but long packages more than 120B are not recommended. The length of each package should be between 60~100B. We also recommend our users to use Automatic Error Request Equipment (ARQ) to prevent wrong information.

Reasons:

What if the actual transmission BER (Bit Error Rate) is 10^{-4} , 1 packet with 1KB data which is about 10-thousand bits, is sent, theoretically, at least 1 bit will be received wrongly, then the 1KB information will never be received correctly.

But if we package the data into 10 packets with 100B for each, when all 10 packets are sent, there will be only 1 packet wrong according to this probability. After that, resend this wrong packet using ARQ mode. So by resending one more packet and the efficiency rate is reduced 10%, all data will be absolutely received correctly.

5. Antenna configuration:

Many appropriate antennas for low power RF modules are selected to meet different user antenna configurations. Please ask our Sales office for further information about the antenna's dimension and performance. The standard antenna for KYL-220 is the 2nd one---28mm antenna.

