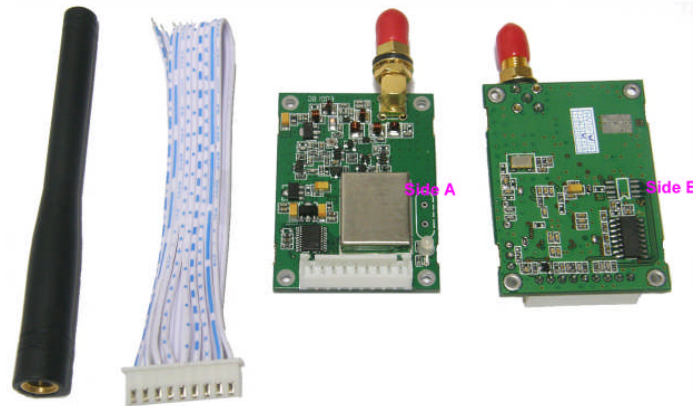




YS-C20K RF Data Transceiver



YS-C20 series Low power RF modules design for professional UART data transmission, embedded ISM wireless solution in short range. YS-C20 adapts Texas Instruments (Chipcon) CC1020 RF IC and Philips MCU , works on ISM frequency band, half duplex integrated receiving and transmitting. Modules could directly connect with monolithic processors, PC, RS485 devices, and other UART components with RS-232, RS-485 and UART/TTL level interface port. Transparent data interface, nakedness, and wide temperature design handles most industrial application though indoor/outdoor environments.

1. Specifications

- * RF power: $\leq 1\text{W} / 30\text{dBm}$;
- * Receiving current: $< 25\text{mA}$;
- * Transmitting current: $< 350\text{mA}$;
- * Sleep current: $< 20\mu\text{A}$;
- * Power supply: DC 7.5 V;
- * Receiving sensitivity: -118 dBm (@9600bps)
 -123 dBm (@1200bps)
- * Size: 53x38x10mm (without antenna port).
- * Range: $\leq 3\text{Km}$ ($\text{BER}=10^{-3}$ @9600bps, when antenna is 2m above ground in open area),
 $\leq 4\text{Km}$ ($\text{BER}=10^{-3}$ @1200bps, when antenna is 2m above ground in open area);

2. Products Main Features

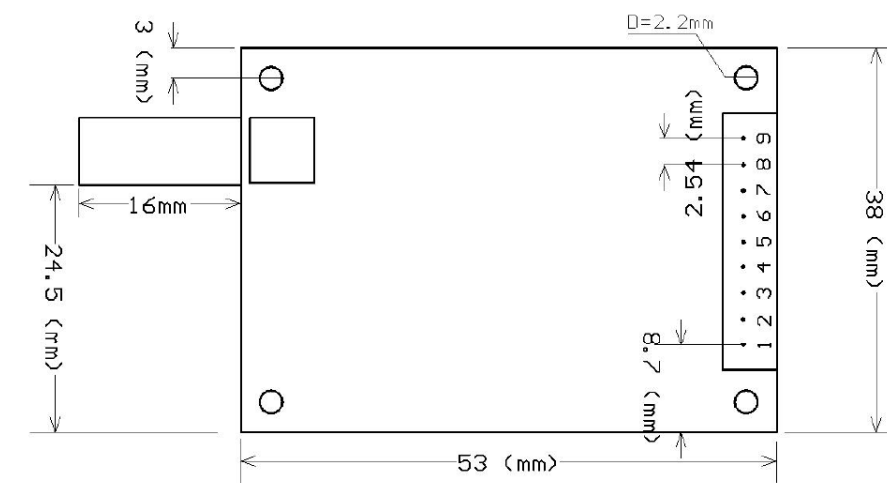
- * Carrier frequency: 433/450/868MHz or ISM others optional;
- * Interface: RS-232/ RS-485/ TTL optional;
- * Multi-channels: 8 channels, expandable for 16/32 channels;
- * Baud rate in air: 1200/2400/4800/9600/19200bps, set before delivery;
- * Transparent data transmission: What has been received is exactly what has been transmitted, suitable for any standard or non-standard user protocols;
- * Interface format: 8N1/8E1/801 user-defined, or customization for other format interface;
- * Modulation: GFSK. Based on the Gaussian Frequency Shift Keying (GFSK) modulation, High anti-interference and Low BER (Bit error Rate);
- * Half duplex: Integration of receiver and transmitter, 10ms auto change for receiving and sending;
- * Low power consumption and sleep function;

- * Widen Temperature: -35 ~ +75°C (-31~167 F);
- * Working humidity: 10%~90% relative humidity without condensation;
- * Impedance: 50Ω (SMA antenna port, multiple antenna options available);
- * Complying with EN 300220 and ARIB STD-T67.

3. Application areas

- * Automatic meter reading(AMR) and home automation ;
- * Wireless smart terminal: POS, PDA,
- * Wireless electronic display screen, LED display;
- * Wireless remote control, Environment monitor, telemetry system;
- * Check attendance system, Queue-management system and positioning in coal mine;
- * RS-485 wire multi-drop system changeover wireless system;
- * Industrial automatic data collection, Wireless Data Acquisition, Wireless sensor, SCADA.

4. Installation dimension



5. Interface definition

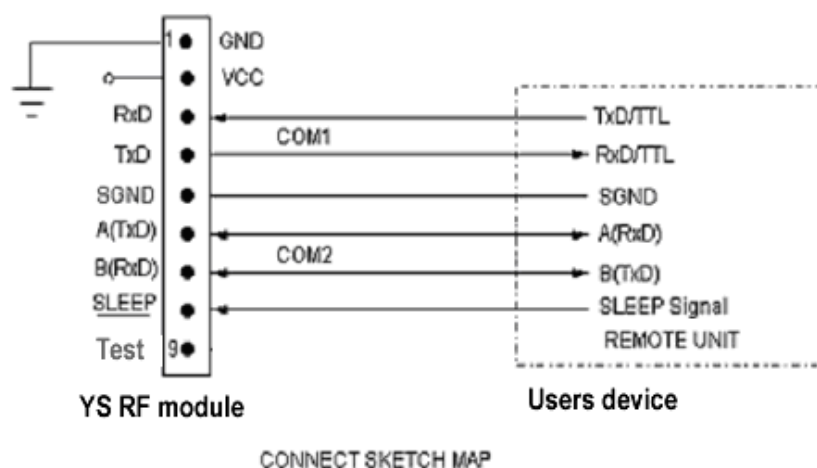
Pin No.	Pin name	Description	Level	Connection with terminal	Remands
1	GND	Grounding of power supply		Ground	
2	Vcc	Power supply DC	+7.5V		
3	RXD/TTL	Serial data receiving end	TTL	TxD	
4	TXD/TTL	Serial data transmitting end	TTL	RxD	
5	DGND	Digital grounding			
6	A(TXD)	A of RS-485 or TXD of RS-232		A(RxD)	
7	B(RXD)	B of RS-485 or RXD of RS-232		B(TxD)	
8	Sleep	Sleep control (input)	TTL	Sleep signal	Low level sleep
9	Test	Ex-factory testing			

NOTE: Generally the module is in receiving status, if the Sleep pin (No.8) continuously connects low level (>200millisecond), the module will be in sleep status, modules can not receive or transmit any data when sleep. Only when the Sleep pin set in the state of high level ($V_H < 3.5V$) or hangs/empty, module can be in receiving



status again. The delay time for conversion between sleeping and receiving is less than 150mS.

Connection schematic diagram



6. Setting of channel, interface, and data format

User can change or view the module's parameter setting (interface baud rate and channel) by testing software "YSPRG.EXE" in the CD (Free). Channel 6 is default value.

Corresponding frequency points at 433MHz of 1~8 channels

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	429.0325MHZ	2	430.0325MHZ	3	431.0325MHZ	4	432.0325MHZ
5	433.0325MHZ	6	434.0325MHZ	7	435.0325MHZ	8	436.0325MHZ

7. Antenna configuration

Many appropriate antennas for low power RF modules are selected for meeting different user antenna configurations. Please ask our Sales office for further information about the antenna's dimension and performance. The main options of antennas are exterior flagelliform rubber antenna with helical SMA joint, magnetic car antenna.



Standard package: one module+ A0# Helical SMA antenna+ L0# 9pin line

Notes:

- ▲ Modules can share DC power supply with other equipment, Ensure the supply is stable (ideally <10mVpk ripple).
- ▲ Keep the module away from other EMF generating components.
- ▲ Match 50Ω, 1/4wave antenna, high mount the antenna as close to the module as possible. Set antenna more than 2m above ground in open area to reach optimal range.