

# YS-C30L / YS-320L RF Data Radio



YS-320/30L series data radio designed for Serial (UART data) to RF in industrial applications with high reliability and stability. They work on ISM frequency band, half duplex integrated receiving and transmitting. Modules can connect directly with monolithic processors, PC, RS485 devices, and other UART components with RS-232, RS-485 and UART/TTL level interface port. Transparent data interface and wide temperature design handles most industrial applications.

## 1. Main features

- \* Carrier frequency: 433/450 MHz or ISM
- \* Interface: Standard RS232, optional RS485, TTL
- \* Multi-channels: 8 channels, expandable for 16/32 channels
- \* Baud rate: 1200/2400/4800/9600/19200
- \* Transparent data transmission: What has been received is exactly what has been transmitted
- \* Compliant with EN300220 and ARIB STD-T67
- \* 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 Bit error rate (BER)
- \* Half duplex: Integration of receiver and transmitter
- \* Low power consumption and sleep function
- \* Temperature: -35 ~ +75°C (-31~167 F)
- \* Working humidity: 10%~90% relative humidity without condensation
- \* Impedance: 50Ω (SMA antenna port, multiple antenna options available)

## 2. Application areas

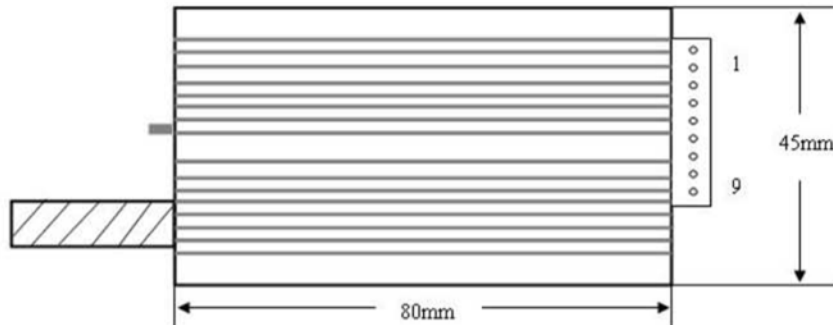
- \* Automatic meter reading(AMR) and home automation
- \* Wireless smart terminal: POS, PDA
- \* Wireless electronic display screen, LED displays
- \* Wireless remote control, Environment monitor, telemetry systems
- \* Check attendance system, Queue-management system and positioning
- \* RS-485 wire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

## 3. Specifications

- \* RF power:  $\leq 500\text{mW} / 27\text{dBm}$
- \* Receiving current:  $< 25\text{mA}$
- \* Transmitting current:  $< 400\text{mA}$

- \* Sleep current: <20uA
- \* Power supply: DC 5V
- \*Receiving sensitivity: -118 dBm (@9600bps)  
-123 dBm (@1200bps)
- \* Size: 80x45x19mm (without antenna port )
- \* Range:  $\leq 2\text{Km}$  (BER= $10^{-3}$ @9600bps, when antenna is 2m above ground in open area)  
 $\leq 3\text{Km}$  (BER= $10^{-3}$ @1200bps, when antenna is 2m above ground in open area)

#### 4. Dimensions



#### 5. Interface definition

| Terminal no. | DB9 (female)pin no. | Description                       | Level | Remarks                |
|--------------|---------------------|-----------------------------------|-------|------------------------|
| 1            | Not conn. to DB9    | Grounding of power supply         |       | Via USB cable          |
| 2            | Not conn. to DB9    | Power supply DC                   | 5V    | Via USB cable          |
| 3            | Not conn. to DB9    | Serial data receiving end (RX)    | TTL   |                        |
| 4            | Not conn. to DB9    | Serial data transmitting end (TX) | TTL   |                        |
| 5            | Pin 5               | Digital grounding (GND)           |       |                        |
| 6            | Pin 2               | A of RS-485 or TXD of RS-232      |       |                        |
| 7            | Pin 3               | B of RS-485, RXD of RS-232        |       |                        |
| 8            | Not conn. to DB9    | Sleep control (input)             | TTL   | Low level sleep        |
| 9            | Not conn. to DB9    | Reset (input)                     | TTL   | Negative impulse reset |

**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.

#### 6. Setting of channel, interface, and data format

Parameter settings can be configured with the included software.

##### 1) 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 |

Channel 6 is default

## 7. Accessories

Different types of antennas can be used with the RF modem. Please ask our sales office for further information.



### Notes:

- ▲ Modules can share DC power supply with other equipment, Ensure the supply is stable (ideally <math><10\text{mVpk}</math> ripple).
- ▲ Keep the module away from other EMF generating components.
- ▲ Match  $50\Omega$ ,  $1/4$ wave 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.

## 8. Power supply

The unit must be powered with 5VDC via external power supply.

