Wireless-Tag WT-100T

Ultra Low Power Data Radio Module

DATASHEET

Description

WT-100T is a low-cost sub-1 GHz transceiver module designed for operations in the unlicensed ISM (Industrial Scientific Medical) and LPRD bands. GFSK (Frequency Shift Keying) odulation/demodulation, multi-channel operation, high bandwidth efficiency and anti-blocking performance make WT-100T modules easy to realize the robust and reliable wireless link.

WT-100T integrates 256 bytes buffer. When the buffer is empty, users can transfer 256 bytes data per time and even limitless data transfer can be achieved as long as RF data rate (RF module to RF module) is configured to be faster than UART data rate (MCU to RF module). The module provides standard UART/TTL interface for selection. Users can choose seven data rates and three parity checks which make WT-100T possibly tailor-made for different applications. WT-100T operates at 3.4~5.5V with extra low standby current which makes it suitable for battery powered-up applications.

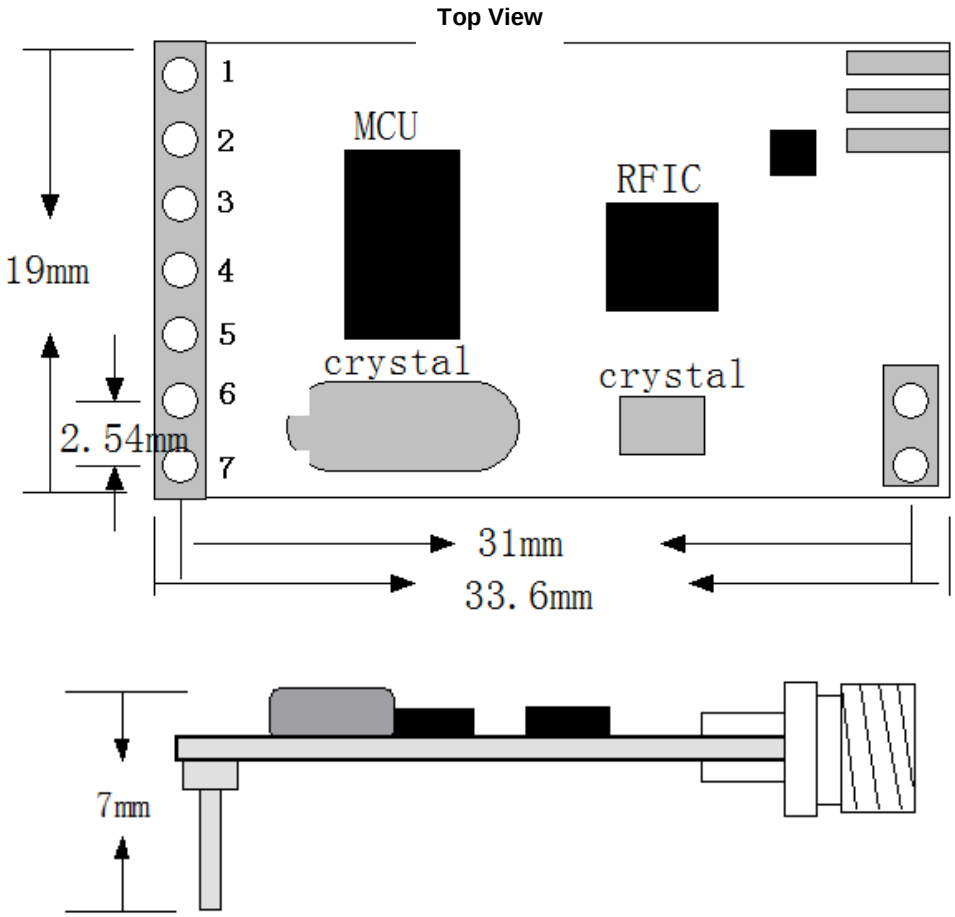
Features

- GFSK transceiver Module
- 433/868/915Mhz ISM frequency band (optional)
- 9.6K bps FSK data rate
- Multiple channels
- 20dBm Max. output power
- Baud rate configurable
- Standby current < 5uA
- Supply voltage 3.4~5.5V
- High receive sensitivity

Applications

- Smart home, intelligent transportation, sensor networks; Home automation
- Automatic meter reading
- Contactless access
- Wireless data logger
- Remote motor control
- Wireless sensor network
- Security alarm
- Telemetry

1. Mechanical Data



2. Pin Functions

PIN	NAME	FUNCTION	DESCRIPTION
1	GND	ground	Ground(0V)
2	VCC	power	Power supply
3	SLEEP	input	Sleep (<1.6V); Active(>1.6V)
4	RXD	input	UART input TTL level
5	TXD	output	UART output TTL level
6	AUX	NC	No Connection
7	SET	input	Parameter setting pin; setting(<1.6V);working(>1.6V)

3. Electrical Specifications

Symbol	Parameter(condition)	Min.	Typ.	Max.	Units
VCC	Supply Voltage	3.4		5.5	V
Temp	Operating temperature range	-30	25	85	℃
RH	Operating relative humidity	10		90	%
Freq	Frequency range	420		930	MHZ
F_{DEV}	Modulation deviation		20k		KHZ
Mod	Modulation type		GFSK		
I_{DD}	Receive mode		30		mA
	Transmit mode @ 20dBm		100		mA
	Sleep mode			5	uA
Pout	Out power			20	dBm
Sen	Receiving sensitivity @ 9.6kbps		-116		dBm
DR_{FSK}	GFSK data rate	1.2		57.6	Kbps
DR_{IN}	UART data rate	1.2		57.6	Kbps
Ts	Switching time	`	5		ms
CH_{BW}	Channel spacing		200		kHZ
Z_{ANT}	Antenna Impedance		50		Ohm

4. Absolute Maximum Ratings

Symbol	Parameter	Min.	Max.	Units
VCC	Supply voltage	-0.3	5.5	V
Vi	Input voltage	-0.3	VCC+0.3	V
Vo	Output voltage	-0.3	VCC+0.3	V
Tst	Storage temperature	-55	125	℃

5. Parameters Setting

A. Default Values

Parameters	Option	Default Value	Unit
UART data rate	1.2 2.4 4.8 9.6 19.2 38.4 57.6	9.6	Kbps
Parity Check	No check, Even parity,Odd parity	No check	
Frequency	420MHZ ~ 460MHZ	433.0782	MHz
GFSK data rate	2.4 4.8 9.6 19.2	9.6	Kbps
Output Power	0 ~ 7 levels	7(20dBm)	

B. Parameter Setting

Users can configure the parameters (frequency, data rate, output power, etc.) of RF modules by PC

or MCU. BY PC. The interface of WT-100T is UART/TTL. If connecting it to PC, users need to use a USB TO TTL or RS232 TO TTL level converter which is supply by our company to transform the different levels. If by MCU, please see the the protocol between and the module and MCU. Users can set the WT-100T power , working frequency and the air rate when PC software detect the radio

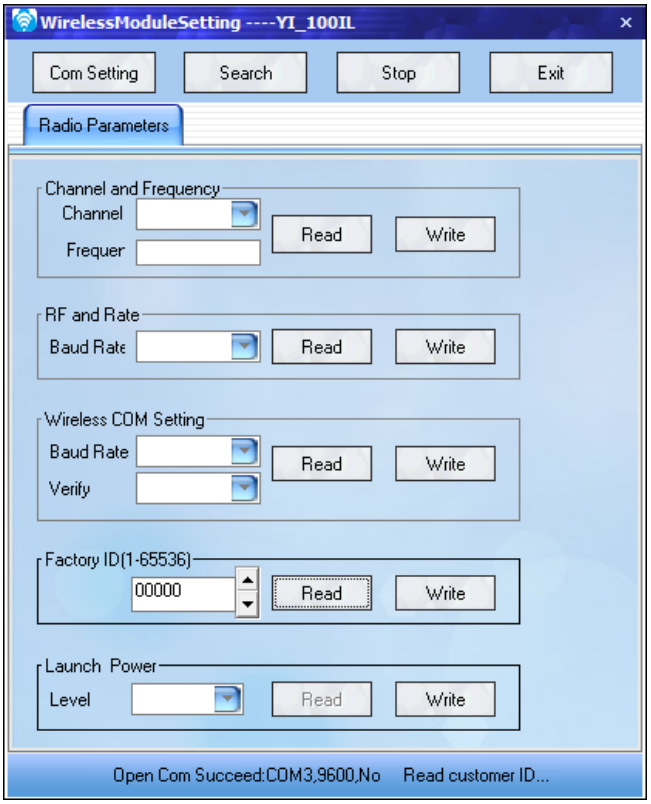


Figure2: The setting parameters

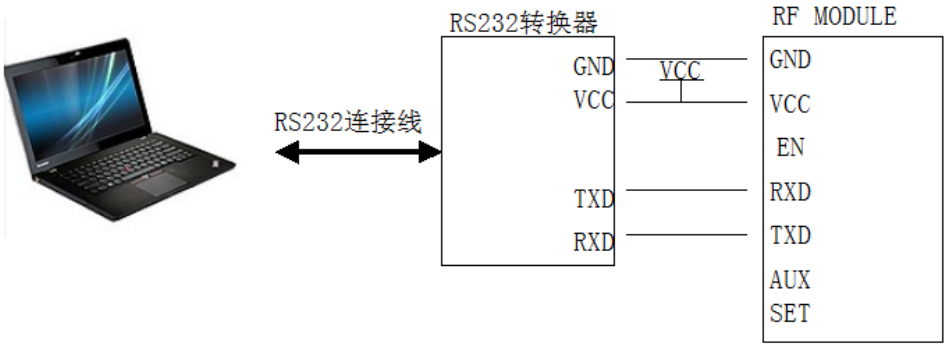


Figure 3: Connecting Diagram

6. Typical Application

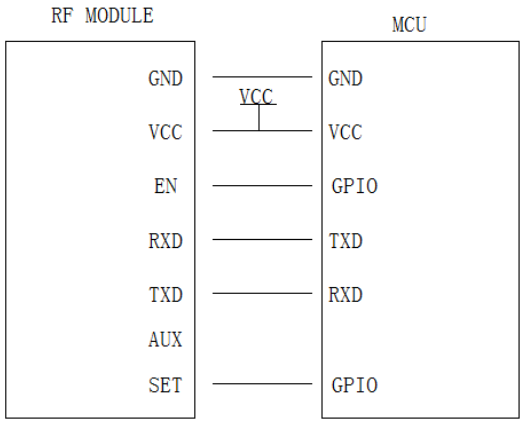


Figure 4: connect module and terminal

APPLICATION NOTE:

WT-100T series are half-duplex wireless modules which can be used in point-to-point or point-to-multi points applications. In the latter application, users need to set one module as the host and others as client modules. Each module must have a unique ID and the coordination of communication is controlled by the host which sends data and commands including ID. If the client module finds that the ID contained in the received message is the same as its own, it will continue to receive the remaining data; otherwise it will discard the coming message. In order to avoid any interference, only one module is allowed to work in transmitting mode at any time.

7. Technical Support

For technical support, please send e-mail to: technical@wireless-tag.com

Disclaimer: We reserve the final interpretation and modification rights to update the product manuals without notice at any time!