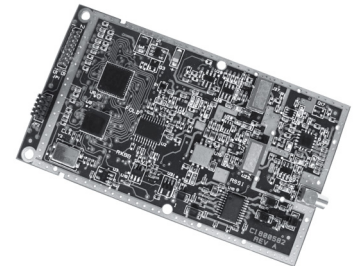




# WIT910M

## 900 MHz FHSS Transceiver Module



Shown with shield removed

### Features:

- *Fast, low latency wireless serial data transmission*
- *Robust 900 MHz frequency hopping spread spectrum technology*
- *More than 20 mile outdoor range with omni-directional antennas*
- *3.3 volt operation, low power consumption*
- *Small size, light weight*
- *Certified for unlicensed operation in the USA and Canada*

### Benefits:

- *Suitable for point-to-point and point-to-multipoint networks*
- *Supports large number of nodes*
- *High immunity to interference and multipath fading*
- *Supports long range applications*
- *Easy to integrate*
- *Ideal for battery powered devices*

WIT910M transceiver modules are designed to transmit serial data using highly robust 900 MHz frequency hopping spread spectrum (FHSS) technology. WIT910M modules employ RFM's beacon-synchronized TDMA at an RF data rate of 172.8 kb/s to achieve low transmission latency. WIT910M transceivers are suitable for both point-to-point and point-to-multipoint networks. FHSS technology provides strong immunity to both interference and multipath fading. The small size, light weight and low power consumption of these transceiver modules make them suitable for a wide variety of applications. WIT910M modules are certified for unlicensed operation in the USA, Canada, Australia, Israel and New Zeland.

### General Specifications

RF Frequency	902 to 927 MHz																								
Radio Certifications	FCC Part 15, Canadian RSS-210																								
Operating Range	Indoor - 1000 ft, Outdoor - more than 20 miles with omni-directional antenna																								
Network Topologies	Point-to-point and point-to-multipoint (star)																								
Network Protocol	Dynamically assigned TDMA																								
Error Detection and Correction	24-bit CRC and ARQ																								
Serial Data Interface	Asynchronous (UART) CMOS signals, 3.3 V, 5 V tolerant																								
Serial Data Rate	up to 115.2 kb/s, software selectable																								
Channel Data Rate	172.8 kb/s																								
Number of Frequency Channels	54																								
RF Bandwidth	460 kHz																								
Transmit Power Output	10, 20, 27 or 29 dBm, software selectable																								
Receiver Sensitivity	-103 dBm for 10-5 BER																								
Supply voltage	3.3 to 10 V for up to 27 dBm transmit power, 5 to 10 V for 29 dBm transmit power																								
Current Consumption 29 dBm Transmit Power, 57.6 kb/s Serial Data Rate	<table border="0"> <tr> <td>Remote</td> <td>Sleep</td> <td>250 <math>\mu</math>A</td> <td>Base Station</td> <td>Receive</td> <td>125 mA</td> </tr> <tr> <td>Operation:</td> <td>Standby</td> <td>43 mA</td> <td>Operation:</td> <td>Transmit</td> <td>800 mA</td> </tr> <tr> <td></td> <td>Receive</td> <td>100 mA</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>Transmit</td> <td>800 mA</td> <td></td> <td></td> <td></td> </tr> </table>	Remote	Sleep	250 $\mu$ A	Base Station	Receive	125 mA	Operation:	Standby	43 mA	Operation:	Transmit	800 mA		Receive	100 mA					Transmit	800 mA			
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Operation:	Standby	43 mA	Operation:	Transmit	800 mA																				
	Receive	100 mA																							
	Transmit	800 mA																							
Size	80.2 x 46.5 x 8.6 mm																								
Weight	35 g																								
Operating Temperature	-40 C to +80 C																								
Humidity	20% to 90% (non-condensing)																								

## Long Operating Range

With 29 dBm of transmit power and a receive sensitivity of -103 dBm, the WIT910M can achieve ranges in excess of 20 miles using 3 dBi omni-directional antennas. When long range isn't needed, the WIT910M, measuring just 80.2 x 46.5 x 8.6 mm and weighing just 35 grams, is a powerful performer at low power, consuming only 100 mA at 3.3 volts. With the same size and mounting dimensions of the industry-leading WIT2410M4G module, the WIT910M can be used in place of the WIT2410M4G in existing designs, creating a 900 MHz product with little development effort.

## Reliable

The WIT910M provides both reliable communication and reliable operation. Using robust frequency hopping spread spectrum technology, the WIT910M provides immunity to jamming as well as immunity to multipath fading. Using a 24-bit CRC for error detection, automatic retransmit request (ARQ) and a 512 byte data buffer, error-free transparent communication is automatic. Built-in data scrambling adds a measure of security. Reliable operation is assured through RFM's stringent QA processes. All WIT910Ms are manufactured in an ISO9000 certified facility.

## Simple

Simple to integrate and use, the WIT910M's default parameter settings work for most applications. For other applications, software control makes changing parameter settings easy. The WIT910M, with its small size and low power consumption, is simple to integrate into your product. The WIT910M's RS-232 style interface with standard 3.3 volt CMOS signal levels makes integration easy. Since WIT910M modules are certified for license free operation in the USA and Canada, your WIT910M based product does not have to repeat radio regulatory approval.

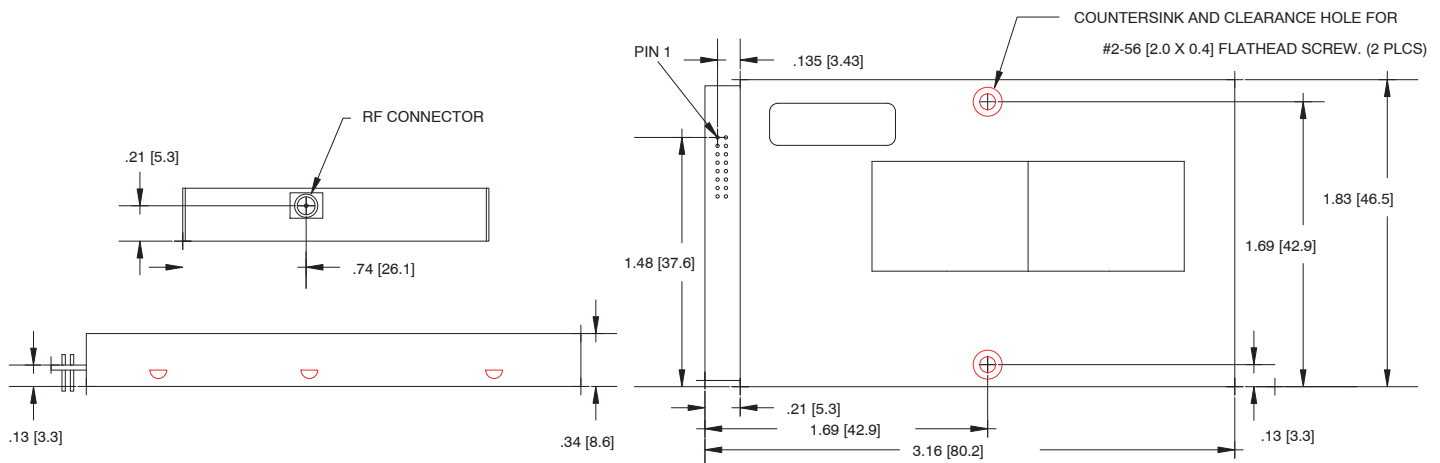
## Versatile

WIT910M operating parameters are configurable under software control. Even the transmitter power level can be selected using a straightforward command set. Both point-to-point and point-to-multipoint modes are supported. Baud rates from 1.2 to 115.2 kb/s are provided for serial communication between a WIT910M and its host.

## Connector Pinout

Pin	Signal	Type	Description
1	Gnd	-	Signal and chassis ground
2	TxD	Input	Data input to be transmitted
3	RxD	Output	Received data output
4	CFG	Input	Configuration select, used to switch radio between data and control mode
5	RTS	Input	Request to send input, used for receive flow control by the host
6	Sleep/DTR	Input	Module sleep/DTR input, sleep is active high
7	DCD	Output	Data carrier detect, indicates FHSS synchronization on remotes
8	CTS	Output	Clear to send output, used for receive flow control by the radio
10	Power Down	Input	Low power mode input, active low
16	Vcc		Positive supply - minimum 3.3 V, 5 V minimum for 29 dBm transmit power, maximum 10.0 V

## Physical Specifications - dimensions in inches (mm)



## **Powerful**

With a full 1/2 Watt transmit power and a receive sensitivity of -103dBm, the WIT910M can achieve ranges in excess of 20 miles using 3dB omni-directional antennas. When long range isn't needed, the WIT910M, measuring just 80.2mm x 46.5mm x 8.6mm and weighing just 35 grams is a powerful performer at low power, consuming less than 100mA at 3.3 volts.

With the same size and mounting dimensions of the industry-leading WIT2410 module, the WIT910M can be used in place of the WIT2410 in existing designs, creating a 900MHz product with practically no development effort.

## **Versatile**

All of the module parameters are configurable under software control. Even transmit power can be selected through a straightforward command set. Point-to-point and point-to-multipoint modes are supported. Standard communication rates between the 910 and the host are supported between 1200 bps and 57.6 Kbps. Non-standard rates are supported as well.

## **Reliable**

The WIT910M provides both reliable communication and reliable operation. With Frequency Hopping Spread Spectrum technology, the WIT910M provides immunity to jamming as well as immunity to multipath fading. Using Automatic Retransmit Request (ARQ) in addition to a 512 byte buffer, transparent error-free communication is automatic. The built-in data scrambling adds a measure of security.

Reliable operation is assured through our stringent QA processes. All WIT910Ms are manufactured in an ISO9000 certified facility; another reason CIRRONETTM is the choice of hundreds of designers.

## **Simple**

Simple to use and simple to integrate. Although the WIT910M offers great flexibility, the factory default settings work for many applications. For those other applications, software control makes changing settings simple.

The WIT910M, with its small size and low power consumption, is simple to integrate into your product. The RS-232 style interface with standard CMOS signal levels makes the electronic integration easy. Since the WIT910M is FCC certified, your 910-based product does not have to repeat the FCC type approval.