

# 250 Series High-Power FHSS RF Transceiver Module



The 250 Series RF transceiver module is designed for reliable bi-directional transfer of digital data over distances of up to 4 miles (6.4km, line of sight). Operating in the 902 to 928MHz frequency band, the module is capable of generating +23.5dBm into a 50-ohm load and achieves an outstanding typical sensitivity of -105dBm. This high output power gives the module exceptional range and also helps overcome noisy environments at shorter ranges.

The module implements a Frequency Hopping Spread Spectrum (FHSS) protocol along with networking and assured delivery features. It has a Universal Asynchronous Receiver Transmitter (UART) serial interface that can be connected directly to microcontrollers, RS-232 converters or USB adaptors. The module automatically handles all radio functions resulting in a UART-to-antenna wireless link. All configuration settings and data are accessed through the UART interface.

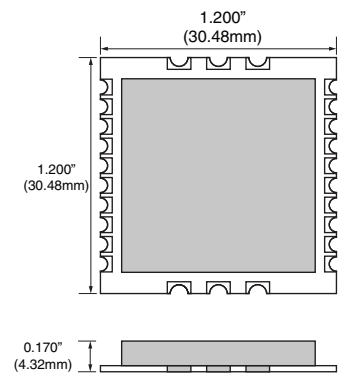
**Interface:** The transceiver has a UART serial interface and is designed to create a UART-to-antenna wireless solution.

**Power:** Low power modes as well as adjustable transmitter output power allow the designer to optimize the current consumption for the available power supply in the application.

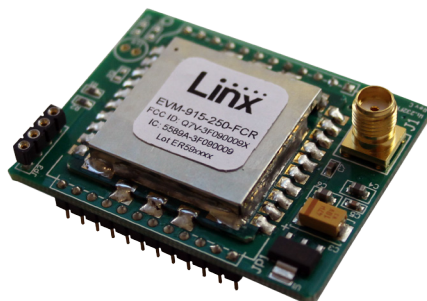
**Configuration:** The transceiver contains several registers that control its configuration and operation. The registers are accessed through the UART and enable a great deal of optimization.

**Protocol:** The transceiver has a robust built-in protocol. A Carrier Sense Multiple Access (CSMA) algorithm makes sure the channel is clear before sending data. Networking and assured delivery enable many system configurations.

**Evaluation Module:** An evaluation module is available that has the module on a board with an antenna connector and voltage regulator. There are variants with United States FCC, Industry Canada, Brazil ANATEL and Mexico COFETEL certifications. This greatly reduces the expense and time to implement a wireless solution.



Specifications	
Operating Voltage	2.7 to 3.6V
TX Supply Current	
@ 23.5dBm	190mA
@ 8dBm	54mA
RX Supply Current	25mA
Standby Current	1.5mA
Deep Sleep Current	3µA
TX Output Power	+8 to +23.5dBm
Max RX Sensitivity	-105dBm
Max Data Rate	115.2kbps
Operating Temperature Range	-40 to +85°C

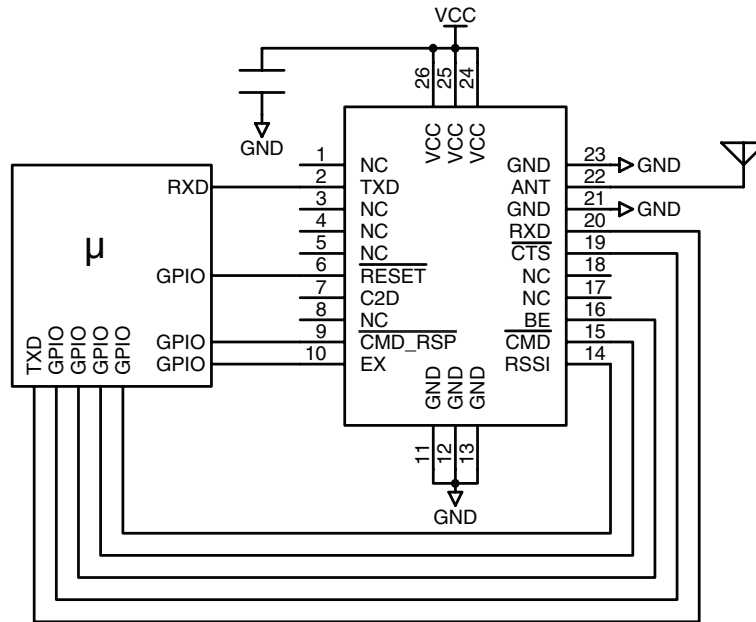


## Applications

- Direct RS-232/422/485 Wire replacement
- Asset tracking
- Automated meter reading
- Industrial / home automation
- Remote data logging
- Wireless sensors
- Long range data links

## Typical Applications

The figure below shows the 250 Series transceiver connected to a microcontroller.



The 250 Series Transceivers are configured through a UART interface.

## Configuration Options

- Set the frequency hop pattern
- Configure the transmitter output power level
- Configure the data rate
- Configure the module address and network mode
- Configure the power state
- Configure the packet size and parameters

### Ordering Information

Product Part No.	Description	Radiotronics Part No.
TRM-915-R250	900MHz 250 Series FHSS Data Transceiver	Wi.232FHSS-250-R
EVM-915-250-FCx	900MHz 250 Series FHSS Data Transceiver Evaluation Module	Wi.232FHSS-250-FCC-xx-R
EVM-915-250-CFx	900MHz 250 Series FHSS Data Transceiver Evaluation Module, Mexico	Wi.232FHSS-250-FCC-CFTC-xx-R

x = 'R' for right angle connector, 'S' for straight connector