DEVELOPER KIT (Info: click here)



### Features:

- 2.4GHz Frequency Hopping Spread Spectrum Technology
- 1.23Mbps over the air data rate
- 921Kpbs (USB only) and 115Kbps I/O data rates
- 64 Hopping Patterns
- FCC Certified and CE marked
- · Integral 6dB patch antenna
- RS-232 asynchronous or USB serial interface

#### Benefits:

- Exceptional immunity to multipath fading and jamming
- Supports high speed applications needing long range
- Co-location of multiple networks without interference
- · License-free application worldwide
- · Cost-effective, simple installation
- Connects to PC Serial ports

**HN-211** 

2.4GHz
Frequency
Hopping
Wireless Data
Modem



The HN-211 is a versatile, low cost, multi-purpose 2.4 GHz frequency-hopping wireless data modem. Built around the WIT2411 radio, the HN-211 has an integral 6dB patch antenna creating a "single piece" modem. Communication with the HN-211 is through a 921.6kbps (USB version only) or 115.2Kbps (USB or RS-232 versions) asynchronous serial port supporting a standard RS-232 interface. The HN-211 communicates over the air at 1.23Mbps and supports both point-to-point and point-to-multipoint networks.

## **Specifications**

Product	HN-211U_X	HN-211R_X	HN-211EU_R_X	
Frequency Band	2401 - 2471 MHz (USA) — 2448 - 2480 MHz (France, Spain)			
	2473 - 2495 MHz (Japan) — 2452 - 2478 MHz (Canada)			
Licensing	Unlicensed under FCC Part 15, ETSI 300.328			
Number of Channels	64 - US; France			
Hopping Patterns	User configurable, 43 patterns (networks) available			
I/O Data Rates	Up to 921.8 Kbps Asynchronous			
RF Channel Rate	1.23 Mbps			
Line of Site Range	> 5 Miles			
RF Bandwidth	750 KHz			
Modulation Type	GFSK			
Output Impedance	50 ohms			
Network Protocol	Dynamically Assigned TDMA with ARQ			
Transmit Power		18dBm, +8dBm		
Receive Sensitivity	-99dBm for 10-5 BER			
Power Requirements	9 Vdc			
	160mA typ. 750mA surge			
Serial Data Interface	Async. RS-232 or USB			

# **Mechanical Specifications**

	Internal Antenna	External Antenna	
Antenna	Integrated 6dB Patch	n/a	
Case Materials	Polycarbonate, NEMA 4X		
Dimensions (mm)	130 x 79 x 35 (excl. flange)		
Weight excl. cable	235g		
Antenna Connector	n/a	Reverse Polarity TNC	
Data Connector	9-Pin D/USB B		
Power Connector	2 Pin DIN		

# **Environmental Specifications**

Temperature Range	-30°C to +70°C (radio enclosure)
Humidity	95% at +40°C, Non-condensing





### Versitility

The HopNet 211 family of modems are a versatile, low cost, multi-purpose 2.4 GHz frequency-hopping wireless data modem. Built around the WIT2411 radio, the HN-211 has an integral 6dB patch antenna creating a "single piece" modem. Communication with the HN-211 is through an asynchronous, 115.2Kbps serial port supporting a standard RS-232 interface or a 921.6Kbps USB version is also available. The HN-211 communicates over the air at 1.23Mbps in both point-to-point and point-to-multipoint networks.

### **Simplicity**

With a NEMA 4X weatherproof enclosure and aluminum mounting flange, the HN-211 is simple to install on the side of a building or attached to a mast. With no antenna to connect, the HN-211 is simply mounted where the antenna would ordinarily be mounted. This removes the need for long antenna cable runs, expensive both in terms of cost and performance.

#### Useability

The HN-211 comes with a 50-foot cable that connects to an indoor Serial Adapter Box (included) that provides a standard RS-232 serial 9-pin D connection. The HN-214 comes with just a 4-foot cable when long cable runs are not needed. The Serial Adapter Box also provides power to the HN-211 through a universal 110/220 50/60 wall-mount power supply (also included). The integral 6dB patch antenna provides a line-of-site range of several miles, making the HN-211 ideal for a variety of "last mile" applications. For applications requiring more antenna gain, the HN-211X replaces the built-in patch antenna with an external TNC connector.

When paired with the RFM SNAP2411 family of products, the HN-211 provides a cost-effective link from remote devices to Ethernet/IP-based applications. These applications include Intranet-based applications as well as Internet access. The HN-211 also is ideal for use in SCADA applications as remote modems in multipoint configurations and is an extremely cost-effective solution for point-to-point installations. Selectable transmit power levels of 8mW and 65mW allow the HN-211 to be used worldwide even with the gain of the patch antenna.

Based on the third generation RFM WIT2411 spread spectrum frequency-hopping radio, the HN-211 has exceptional multipath fade rejection as well as immunity to jamming. The WIT2411 is a field proven performer that delivers robust, reliable real-world performance.

The HN-211 is both FCC and CE marked. Combined with its operation in the 2.4GHz ISM band, the HN-211 can be deployed around the world without a license.