



#### Features:

- **2.4GHz Frequency Hopping Spread Spectrum Technology**
- **1.23Mbps over the air data rate**
- **921Kbps (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**

The HN-250 is a versatile, low cost, multi-purpose 2.4 GHz frequency-hopping wireless data modem. Built around the WIT2450 radio, the HN-250 has an integral 6dB patch antenna creating a "single piece" modem. Communication with the HN-250 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-250 communicates over the air at 1.23Mbps and supports both point-to-point and point-to-multipoint networks.

## HN-250

## 2.4GHz Frequency Hopping Wireless Data Modem



HN-250

#### Specifications

	HN-250	HN-250X	HN-254
Frequency Band	2401 - 2471 MHz (USA) 2452 - 2478 MHz (Canada)		
Licensing	Unlicensed under FCC Part 15, ETSI 300.328		
Number of Channels	86 USA; 50 Canada, software selectable		
Hopping Patterns	User configurable, 64 patterns (networks) available		
I/O Data Rates	Up to 115.2 Kbps Asynchronous		
RF Channel Rate	460 Kbps		
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	EIRP: +16dBm/+24dBm		
Receive Sensitivity	-99dBm for 10-5 BER	-93 dBm for 10-5 BER	-99dBm for 10-5 BER
Power Requirements	9 Vdc 160mA typ. 750mA surge		
Serial Data Interface	Async. RS-232		

## Mechanical Specifications

	HN-250	HN-250X	HN-254
Antenna	Integrated 6dB Patch	n/a	Integrated 6dB Patch
Case Materials	Polycarbonate, NEMA 4X		
Dimensions (mm)	130 x 79 x 35 (excl. flange)		
Weight excl. cable	235g		
Antenna Connector	n/a	Rev. TNC Male	n/a
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



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## **Versatility**

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. 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 Cirronet 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.

## **Useability**

Based on the third generation Cirronet 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.

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