



HN-211

2.4GHz Frequency Hopping Wireless Data Modem

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-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.



HN-211

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



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.

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.