

**Features:**

- *2.4GHz frequency hopping spread spectrum technology*
- *460Kbps over the air and 115Kbps I/O data rates*
- *64 hopping patterns*
- *FCC certified and CE marked*
- *Integral 6dB patch antenna*
- *RS-232 asynchronous 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-210D

## 2.4GHz Frequency Hopping Wireless Data Modem

The HN-210D is a versatile, low cost, multi-purpose 2.4 GHz frequency-hopping wireless data modem. The HN-210D communicates through a serial port and over the air at 460.8Kbps and supports both point-to-point and point-to-multipoint networks.



**Specifications**

	HN-210D	HN-210DX	HN-214D
Frequency Band	2401 - 2471 MHz (USA) 2448 - 2480 MHz (France, Spain)		
Licensing	Unlicensed under FCC Part 15, ETSI 300.328		
Number of Channels	75 - US & ETSI, 25 France		
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	+18dBm	EIRP: +16dBm/+24dBm
Receive Sensitivity	-99dBm for 10 <sup>-5</sup> BER	-93 dBm for 10 <sup>-5</sup> BER	-99dBm for 10 <sup>-5</sup> BER
Power Requirements	9 Vdc 160mA typ. 750mA surge		
Serial Data Interface	Async. RS-232		

## Mechanical Specifications

	HN-210D	HN-210DX	HN-214D
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	TNC male	n/a
Data Connector	9-Pin D		
Power Connector	2 terminal connector		

## Environmental Specifications

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



HN-210D with 50 feet of cable



Serial adapter box



Power supply

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Built around the WIT2410 radio, the HN-210D has an integral 6dB patch antenna creating a "single piece" modem. Communication with the HN-210D is through a 115.2Kbps asynchronous serial port supporting a standard RS-232 interface. The HN-210D communicates over the air at 460.8Kbps and supports both point-to-point and point-to-multipoint networks.

With a NEMA 4X weatherproof enclosure and aluminum mounting flange, the HN-210D is simple to install on the side of a building or attached to a mast. With no antenna to connect, the HN-210D is simply mounted where the antenna would ordinarily be mounted. This removes the need for long antenna cable runs, expensive in terms of both cost and performance.

The HN-210D comes with a 50-foot cable that connects to a DIN-rail mount serial adapter box (standard RS-232 serial 9-pin D connection) making installation in equipment cabinets simple. The HN-214D comes with a 4-foot cable for use when long cable runs are not needed. The serial adapter box also provides power to the HN-210D 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-210D ideal for a variety of "last mile" applications. For applications requiring more antenna gain, the HN-210DX replaces the built-in patch antenna with an external TNC connector.

When paired with the Cirronet SNAP2410 family of products, the HN-210D 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-210D 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 10mW and 100mW allow the HN-210D to be used worldwide, even with the gain of the patch antenna.

Based on the Cirronet WIT2410 spread spectrum frequencyhopping radio, the HN-210D has exceptional multipath fade rejection as well as immunity to jamming. The WIT2410 is a field proven performer that delivers robust, reliable, real-world performance.

The HN-210D is both FCC and CE marked. Operating in the 2.4GHz ISM band, the HN-210D can be deployed around the world without a license.