DEVELOPER KIT (Info: click here)



#### Features:

- 900MHz Frequency Hopping Spread Spectrum Technology
- 172.8Kbps over the air and 115Kbps I/O data rates
- 54 Hopping Patterns
- FCC Certified
- Integral 5dB 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
- · Cost-effective, simple installation
- Connects to PC Serial ports

HN-291 HN-291X

900MHz
Frequency
Hopping
Wireless Data
Modem



The HN-291/HN291X are versatile, low cost, multi-purpose 900MHz frequency-hopping wireless data modems. Built around the WIT910 radio, the HN-291 has an integral 5dB patch antenna creating a "single piece" modem. Communication with the HN-291 is through a 115.2Kbps asynchronous serial port supporting a standard RS-232 interface. The HN-291 communicates over the air at 172.8Kbps and supports both point-to-point and point-to-multipoint networks.

## **Specifications**

	HN-291	HN-291X
Frequency Band	902 to 927 MHz	
Operating Range	Indoor: 1000'+ Outdoor: >20 miles with omni-directional antenna	
Licensing	FCC Part 15.247, license free	
Number of Channels	54	
Error Detection and Correction	24 bit CRC and ARQ	
I/O Data Rates	Up to 115.2 Kbps, software selectable	
RF Channel Rate	172.8 Kbps	
Serial Data Interface	Async. RS-232/USB	
RF Bandwidth	172 KHz	
Modulation Type	GFSK	
Output Impedance	50 ohms	
Network Protocol	Dynamically Assigned TDMA with ARQ	
Transmit Power	500mW, 100mW, 10mW, software selectable	
Receive Sensitivity	-108 dBm for 10-5 BER	-103 dBm for 10-5 BER
Supply Voltage	3.3 v to 10v, 5 v nominal	

# **Mechanical Specifications**

	HN-291	HN-291X
Antenna	Integrated 5dB 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 TNC Male
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 291 (HN-291) is a versatile, low cost, multi-purpose 900MHz frequency-hopping wireless data modem. Built around the WIT910 radio, the HN-291 has an integral 5dB patch antenna creating a "single piece" modem. Communication with the HN-291 is through a 115.2Kbps asynchronous serial port supporting a standard RS-232 interface, a USB version is also available. The HN-291 communicates over the air at 172.8Kbps and supports both point-to-point and point-to-multipoint networks.

## **Simplicity**

With a NEMA 4X weatherproof enclosure and aluminum mounting flange, the HN-291 is simple to install on the side of a building or attached to a mast. With no antenna to connect, the HN-291 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-291 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-294 comes with just a 4-foot cable when long cable runs are not needed. The Serial Adapter Box also provides power to the HN-291 through a universal 110/220 50/60 wall-mount power supply (also included). The integral 5dB patch antenna provides a line-of-site range of 20 miles, making the HN-291 ideal for a variety of long range applications. For applications requiring more antenna gain, the HN-291X replaces the built-in patch antenna with an external reverse TNC connector.

When paired with the RFM SNAP910 family of products, the HN-291 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-291 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. The HN-291 has software-selectable transmit power levels of 10mW, 100mW, 250mW and 500mW.

Based on RFM's WIT910 spread spectrum frequency-hopping radio, the HN-291 has exceptional multipath fade rejection as well as immunity to jamming. The WIT910 is based on field proven technology that delivers robust, reliable real world performance.

The HN-291 is FCC certified and operates in the license-free 900MHz band.