

## HN-294D

## 900MHz Frequency Hopping Wireless Data Modem

### Features:

- 900MHz Frequency Hopping Spread Spectrum Technology
- 172.8Kbps over the air and 115Kbps I/O data rates
- 54 Hopping Patterns
- FCC Certified
- Integral 3dB 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
- Cost-effective, simple installation
- Connects to PC Serial ports

The HN-294D is a versatile, low cost, multi-purpose 900MHz frequency-hopping wireless data modem. Built around the WIT910 radio, the HN-294D has an integral 5dB patch antenna creating a "single piece" modem. Communication with the HN-294D is through a 115.2Kbps asynchronous serial port supporting a standard RS-232 interface. The HN-294D communicates over the air at 172.8Kbps and supports both point-to-point and point-to-multipoint networks.



HN-291D

### Specifications

	HN-291D	HN-291DX	HN-294D
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	-108 dBm for 10-5 BER
Supply Voltage	9-30Vdc		

## Mechanical Specifications

Product	HN-291D	HN-291DX	HN-294D
Antenna	Integrated 5dB Patch	n/a	Integrated 5dB Patch
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	n/a
Data Connector	9-Pin D		
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**

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## **Simplicity**

With a NEMA 4X weatherproof enclosure and aluminum mounting flange, the HN-291D is simple to install on the side of a building or attached to a mast. With no antenna to connect, the HN-291D 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-291D 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-294D comes with just a 4-foot cable when long cable runs are not needed. The Serial Adapter Box also provides power to the HN-291D 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-291D ideal for a variety of long range applications. For applications requiring more antenna gain, the HN-291DX replaces the built-in patch antenna with an external reverse TNC connector.

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

Based on RFM's WIT910 spread spectrum frequency-hopping radio, the HN-291D 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-291D is FCC and IC certified and operates in the license-free 900MHz band.