

# Nano Series - n920



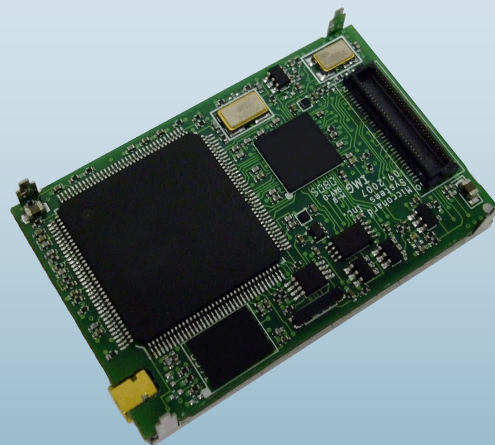
## Miniature 900 MHz Wireless Modem

*For size conscious consumers, consider the Nano Series with its small footprint and design flexibility. The Nano Series offers the reliability, features, and performance of our larger modems, yet can fit almost anywhere! Fully compatible with MHX series radio modems!*

### Applications

- Robotics
- Remote Telemetry, DGPS
- Electric, Oil & Gas Sensors/Detection
- Display Signs
- Small Enclosure Communication Devices
- Industrial Communications

**Weights only 18 grams!**



**2" X 1.25" X 0.25"**

**Features an Input IP3  
with more linearity  
than most spectrum  
analyzers!**

The Nano Series features robust, high speed, low latency, secure data communications. The n920 has full serial and diagnostics data capabilities and is 'radio compatible' with 910/910A and 920/920A modems! The n920 offers excellent noise figure, superior interference rejection, agile frequency synthesis, digital modulation, and matched filter detection. The n920 can support 1.2Mbps and higher!

### Features of the n920

- Supports up to 1.2Mbps (higher rates available, contact Microhard for details)
- Quad Filter Stage provides Extreme Noise & Interference Rejection
- Supports Point-to-Point, Point-to-Multipoint, Store and Forward Repeater, TDMA
- Maximum allowable transit power (1W)
- Low Power consumption in Sleep and Sniff modes
- 32 bits of CRC, selectable Forward Error Correction with retransmit
- Separate diagnostics port—transparent remote diagnosis and online network control
- Very Small Footprint
- MHX910 and MHX920A compatible interface card available

### Interface Options

#### Enclosed Solution



#### Motherboard Solution

# Nano n920

# Specifications

<b>Frequency</b>	902-928 MHz	<b>Power Consumption (3.3V +/- 0.3V)</b>	Sleep	< 1mA
<b>Spreading Method</b>	Frequency Hopping / DTS		Idle	20mA
<b>Band Segments</b>	Selectable via Freq Restriction		Rx:	140mA to 280mA
<b>Forward Error Detection</b>	Hamming BCH Golay Reed-Solomon		Tx :	1000mA to 1500mA
<b>Error Detection</b>	32 bits of CRC, ARQ	<b>(12V with Development board/Enclosed Unit)</b>	Sleep	< 1mA
<b>Encryption</b>	Optional (see -AES option)		Rx:	50mA to 95mA
<b>Range</b>	60+ miles (100+ km)	<b>Connectors:</b>	Master Avg Tx/Rx:	140mA
<b>Sensitivity</b>	<b>n920T</b> -100 dBm @ 10 <sup>-4</sup> <b>n920F</b> -108 dBm @ 10 <sup>-6</sup>		<b>OEM</b> Antenna Data	Slave Avg Tx/Rx:
<b>Output Power</b>	100mW - 1W (20-30dBm)	<b>Enclosed</b> Antenna Data	Tx :	300mA to 450mA
<b>Serial Interface</b>	TTL	<b>Environmental</b>	MMCX 60 Pin OEM Header	
<b>Serial Baud Rate</b>	- Up to 230.4 kbps asynchronous - Up to 3.2 Mbps synchronous		RP-SMA Female Bulkhead Female DB9 x2	
<b>Link Rate</b>	Up to 1.3824 Mbps (higher rates available, contact Microhard for details)	<b>Weight</b>		-40°C - +85°C (All units are fully tested over the entire temperature Range)
<b>Operating Modes</b>	Point-to-Point, Point-to-Multipoint, Store & Forward Repeater, Peer-to-Peer	<b>OEM</b>	Approx. 18 grams	
<b>Signals Interface</b>	RxD1, TxD1, RTS, CTS DCD, DSR, DTR, RxD2, TxD2, RSSI LEDs, Tx/Rx LEDs, Reset, Config, Wake-up, RSmode	<b>Enclosed</b>	Approx. 210 grams	
<b>Input IP3 (Antenna Connector)</b>	+12 dBm	<b>Dimensions</b>		<b>OEM</b> Approx. 1.25" x 2.0" x .25" (32mm x 51mm x 6.35mm) <b>Enclosed</b> Approx. 2.25" x 3.85" x 1.50" (57mm x 98mm x 38mm)
<b>RF Selectivity</b>	<b>Adjacent Channel</b> 60 dB <b>Alternate Channel</b> 75 dB <b>Out of Band</b> >90 dB	<b>Approvals</b>		FCC Part 15.247 IC RSS210 RoHS Compliant
<b>Remote Diagnostics</b>	VSWR, Battery Voltage, Temperature, RSSI, Packet Statistics	<b>Order Options</b>		
<b>Core Voltage</b>	<b>OEM</b> 3.3VDC Nominal (+/- 0.3V) <b>Enclosed</b> 7-30VDC	<b>MHS113060(OEM)/MHS114060(ENC)</b>	n920LC - Low Cost (115 kbps)	
		<b>MHS113020(OEM)/MHS114020(ENC)</b>	n920F - Fast	
		<b>MHS113040(OEM)</b>	n920T - Turbo	
		<b>-AES</b>	128-bit AES Encryption (requires permit for export outside of Canada and USA.)	
		<b>-AES256</b>	256-bit AES Encryption (requires permit for export outside of Canada and USA.)	
		<b>-C1D2</b>	Class 1 Div 2 (for use in hazardous environments) ( <i>Enclosed models only</i> )	
		<b>-869</b>	869.4 MHz - 869.65 MHz Operation	
		<b>-865</b>	865 MHz - 867 MHz Operation	

## Contact Information

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