

## Miniature OEM Wireless Ethernet/Serial/USB Gateway

The Nano IP Series adds Ethernet capability to the miniature, yet powerful Nano platform. This incredibly small Ethernet Bridge and Serial Gateway provides robust wireless communication of simultaneous serial data and IP/Ethernet packets to extend serial data and IP networks.

### Applications

- IP/Ethernet Wireless Extension
- Legacy Networks/Devices Migration
- Video/Voice over IP
- SCADA (PLCs, Modbus, HART)
- GPS Vehicle Data/Tracking, DGPS

Microhard Systems Inc.'s proprietary radio technology excels in the most demanding RF and physical environments.



**Weighs only 25 grams!**

**2" X 1.25" X 0.5"**

**World's Smallest Ethernet /Serial/USB Gateway!**

The Nano IP platform is the smallest form factor (2" x 1.25" x .5", weighing only 25 grams) available which offers a full Ethernet/Serial/USB bridge and routing functionality. The Nano IP OEM module can be directly integrated into OEM systems or applications using a variety of interface options. With the LAN out interface ready to wire directly to CAT5 cable OEMs can integrate this unit quickly and efficiently. The Nano IP Series also features flexible maintenance utilities, secure firewall features and network management facilities. Robust Frequency Hopping with excellent receiver sensitivity and interference rejection allow for

### Features of the Nano IP Series

- Low Power Consumption
- Up to 1.2 Mbps Wireless Link Rate
- Master, Slave, Repeater operation in a single unit
- 2 Serial Com Ports, 1 USB Port, and 1 Ethernet Port
- Supports Point-to-Point, Point-to-Multipoint, Repeater, Peer-to-Peer
- Adjustable transmit power (100mW - 1W)
- Radius Server Support
- Full VLAN Support (for separate management and Data networking)
- User interface through local console, telnet, and web browser
- Network management capability with SNMP V1, V2, V3
- Local and remote wireless firmware upgrading through FTP
- QoS Routing on Serial, IP, or Logic Ports

### Interface Options

#### Enclosed Solution



#### Motherboard Solution

# IPn920

# Specifications

<b>Frequency</b>	902 - 928 MHz	<b>Input Voltage</b>	OEM Enclosed Interface Card	3.3VDC Nominal (+/- 0.3V) 7-30VDC 7-30VDC
<b>Spread Method</b>	Frequency Hopping / DTS	<b>Power Consumption (Typical with n920F @ 12V with Motherboard)</b>		Sleep: < 1mA Idle: 35mA Rx: 110mA to 145mA Tx: 350mA to 500mA
<b>Link Rate</b>	Up to 1.2Mbps (See Order Options)	<b>Connectors:</b>	OEM Antenna Data Enclosed Antenna Data	OEM - MMCX OEM - 60 Pin OEM Header x2 RPSMA Female Bulkhead RJ-45 (Ethernet) Female DB9 Mini-USB
<b>Error Detection</b>	32 bits of CRC, ARQ	<b>Environmental</b>	Temperature Humidity	-40°F to 185°F (-40°C to +85°C) 5-95%, non-condensing
<b>Encryption</b>	128-bit WEP/WPA (Canada & USA only. NOT AVAILABLE for export, see -AES option)	<b>Weight (Including Radio)</b>	OEM Enclosed w/ Interface Board	Approx. 25 grams Approx. 250 grams Approx. 70 grams
<b>Range</b>	Up to 30+ miles (50+ km) @ 1.2Mbps Up to 60+ miles (100+ km) @ 172kbps	<b>Dimensions</b>	OEM Enclosed	Approx. 1.25" x 2.0" x .50" (32mm x 51mm x 13mm) Approx. 2.25" x 3.85" x 1.50" (57mm x 98mm x 38mm)
<b>Sensitivity</b>	-108dBm@172kbps link rate -106dBm @ 230kbps link rate -97dBm @ 1.2Mbps link rate	<b>Approvals</b>		FCC Part 15.247 IC RSS210
<b>Output Power</b>	100mW - 1W (20-30dBm)	<b>Order Options</b>		
<b>Serial Interface</b>	RS232, RS485, RS422	<b>-C1D2</b>		Class 1 Div 2 (for use in hazardous environments)
<b>Serial Baud Rate</b>	300bps to 921kbps	<b>-AES</b>		128/256-bit AES Encryption, Secure Shell, HTTPS (Canada & USA only. NOT AVAILABLE for export)
<b>USB</b>	USB 2.0 USB Console Port USB to Serial Data Routing USB to Ethernet Data Routing	<b>-EXP</b>		Export Version, removes encryption
<b>Ethernet</b>	10/100 BaseT, Auto - MDI/X IEEE 802.3	<b>-869</b>		869.4 - 869.65 MHz Operation
<b>Network Protocols</b>	TCP, UDP, TCP/IP, TFTP, ARP, ICMP, DHCP, HTTP, HTTPS*, SSH*, SNMP, FTP, DNS, Serial over IP, QoS (* Only available in -AES)	<b>IPn920T IPn920X2</b>		345kbps - 1.2Mbps 19.2kbps - 345kbps
<b>Operating Modes</b>	Point-to-Point, Point-to-Multipoint, Store & Forward Repeater, Peer-to-Peer			
<b>Management</b>	Local Serial Port Console, Telnet, WebUI, SNMP, FTP & Wireless Upgrade, RADIUS authentication, VLAN			
<b>Diagnostics</b>	Battery Voltage, Temperature, RSSI, and remote diagnostics			
<b>Rejection</b>	Excellent strong signal interference & rejection characteristics			
<b>Input IP3 (Antenna Connector)</b>	+12 dBm			

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