

Nano Series - n2420



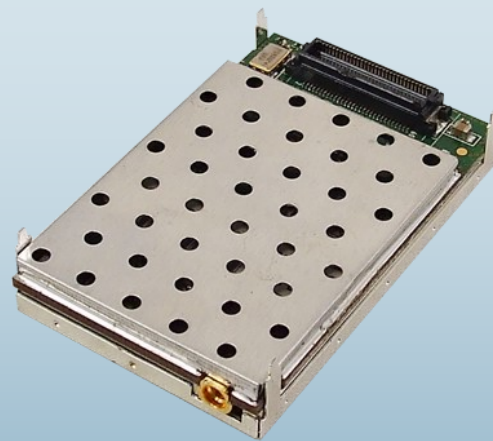
Miniature 2.4 GHz Wireless Modem

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 19 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 n2420 has full serial and diagnostics data capabilities and is 'radio compatible' with 2420 modems! The n2420 offers excellent noise figure, superior interference rejection, agile frequency synthesis, digital modulation, and matched filter detection. The n2420 can support 230 kbps and higher!

Features of the n2420

- Supports up to 230 kbps Wireless Link Rate
- 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
- MHX2400 and MHX2420 compatible interface card available

Interface Options

Enclosed Solution



Motherboard Solution

n2420

Specifications

Frequency	2.4000 - 2.4835 GHz	Input Voltage	OEM Enclosed 3.3VDC Nominal (+/- 0.3V) 7-30VDC
Spreading Method	Frequency Hopping / DTS	Power Consumption (OEM: 3.3V +/- 0.3V)	Sleep < 1mA Rx: 90mA to 140mA Idle: 20mA Tx: 1000mA to 1300mA
Band Segments	Selectable via Freq Restriction	Connectors:	OEM Antenna Data Enclosed MMCX 60 Pin OEM Header RP-SMA Female Bulkhead Data Female DE9 (x2)
Forward Error Detection	Hamming BCH Golay Reed-Solomon	Environmental	Temperature -40°F to +185°F (-40°C to +85°C) Humidity 5-95%, non-condensing
Error Detection	32 bits of CRC, ARQ	Weight	OEM Enclosed Approx. 19 grams Approx. 210 grams
Encryption	Optional (see -AES option)	Dimensions	OEM Enclosed Approx. 1.25" x 2.0" x .25" (32mm x 51mm x 6.35mm) Approx. 2.25" x 3.85" x 1.50" (57mm x 98mm x 38mm)
Range	30+ miles (50+ km)	Approvals	FCC Part 15.247 IC RSS210 CE ETSI EN 300 328 V1.8.1 (2012-06) Japan MIC (n2420BF)
Sensitivity	n2420F -107 dBm @ 10 ⁻⁶	Order Options	
Output Power	100mW - 1W (20-30dBm)	n2420BF-F1	2.390 - 2.400 GHz*
Serial Interface	OEM Enclosed TTL RS232/RS485/RS422	n2420BF-F2	2.245 - 2.290 GHz*
Serial Baud Rate	Up to 230.4 kbps asynchronous	n2420BF-F3	2.200 - 2.245 GHz*
Link Rate	115 kbps to 230.4 kbps	*No FCC/IC for these versions*	
Operating Modes	Point-to-Point, Point-to-Multipoint, Store & Forward Repeater, Peer-to-Peer	-AES	128-bit AES Encryption (requires permit for export outside of Canada and USA.)
Signals Interface	RxD1, TxD1, RTS, CTS DCD, DSR, DTR, RxD2, TxD2, RSSI LEDs, Tx/Rx LEDs, Reset, Config, Wake-up, RSmode	-AES256	256-bit AES Encryption (requires permit for export outside of Canada and USA.)
Input IP3 (Antenna Connector)	+12 dBm		
RF Selectivity	Adjacent Channel 60 dB Alternate Channel 75 dB Out of Band >90 dB		
Remote Diagnostics	Battery Voltage, Temperature, RSSI, Packet Statistics		

Contact Information

Copyright 2018 Microhard Systems Inc.
Specifications subject to change without notice.

For more information please contact:



BOCK OPTRONICS INC.

14 Steinway Blvd., Unit 7
Toronto, Ontario M9W 6M6

Tel: (416) 674-2804
sales@bockoptronics.ca
www.bockoptronics.ca



www.microhardcorp.com

Nano Series - n3420

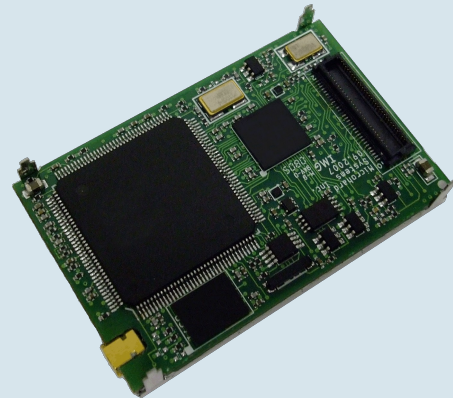


Miniature Wireless Modem

For size conscious consumers, consider the Nano Series with its small footprint and design flexibility. Operating in the 3.3 - 3.5 GHz range, the n3420 offers the reliability, features, and performance of our larger modems, yet can fit almost anywhere!

Applications

- Licensed Band SCADA
- WiMAX Band Operation
- GPS Vehicle Data/Tracking, DGPS
- Unmanned Vehicles / Drones
- Robotics
- Wireless Video, Telemetry
- Research & Development



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

The Nano Series features robust, high speed, low latency, secure data communications. The n3420 has full serial and diagnostics data capabilities. The n3420 offers excellent noise figure, superior interference rejection, agile frequency synthesis, digital modulation, and matched filter detection.

Features

- Supports up to 230 kbps Wireless Link Rate
- Customizable to meet different emission bandwidths
- Quad Filter Stage provides Extreme Noise & Interference Rejection
- Supports Point-to-Point, Point-to-Multipoint, Store and Forward Repeater, TDMA
- Adjustable transmit 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
- Wide temperature specification

Interface Options

Enclosed Solution



Motherboard Solution

n3420

Specifications

Frequency	3.3 - 3.5 GHz	Input Voltage	OEM Enclosed	3.3VDC Nominal (+/- 0.3V) 7-30VDC
Channel Bandwidth	50kHz to 400kHz	Connectors:	OEM Antenna Data Enclosed Antenna Data	MMCX 60 Pin OEM Header RP-SMA Female Bulkhead Female DE9 (x2)
Synthesizer Step	200Hz			
Spreading Method	Frequency Hopping			
Error Detection	32 bits of CRC, ARQ	Environmental		-40°F - +185°F (-40°C - +85°C) 5-95% humidity, noncondensing
Encryption	Optional (See -AES option)	Weight	OEM Enclosed	Approx. 19 grams Approx. 210 grams
Range	40+ miles (70+ km) (dependant on link rate and line of sight)	Dimensions	OEM Enclosed	Approx. 1.25" x 2.0" x .25" (32mm x 51mm x 6.35mm) Approx. 2.25" x 3.85" x 1.50" (57mm x 98mm x 38mm)
Sensitivity	-108dBm @ 172 kbps			
Output Power	100mW - 1W (20-30dBm)	Approvals		Pending
Serial Interface	OEM Enclosed TTL RS232/RS485/RS422	Order Options		
Serial Baud Rate	300 bps to 230.4 kbps asynchronous	n3420F	115 - 230 kbps	
Link Rate	115 to 230.4kbps	-AES	128-bit AES Encryption (NOT AVAILABLE for export outside of Canada and USA.)	
Operating Modes	Point-to-Point, Point-to-Multipoint, Store & Forward Repeater, Peer-to-Peer	-AES256	256-bit AES Encryption (NOT AVAILABLE for export outside of Canada and USA.)	
Signals Interface	RxD1, TxD1, RTS, CTS DCD, DSR, DTR, RxD2, TxD2, RSSI LEDs, Tx/Rx LEDs, Re-set, Config, Wake-up, RSmode			
Diagnostic Port	RS232: RxD, TxD			
Diagnostics	Battery Voltage, Temperature, RSSI, Real-time event logging and remote diagnostics			
Rejection	Quad Filter Stage provides excellent strong signal interference & rejection characteristics			

Contact Information

Copyright 2015 Microhard Systems Inc.
Specifications subject to change without notice.



For more information please contact:

BOCK OPTRONICS INC.
14 Steinway Blvd., Unit 7
Toronto, Ontario M9W 6M6

Tel: (416) 674-2804
sales@bockoptronics.ca
www.bockoptronics.ca



www.microhardcorp.com

Miniature OEM 900 MHz Wireless Modem

For size conscious consumers, consider the powerful and robust Nano Series n920X2, with its small footprint and design flexibility, it can be integrated into any application. Operating in the 902 - 928 MHz ISM Band, the Nano Series n920X2 offers the reliability, features, and performance of our larger modems, yet can fit almost anywhere!

19.2 to 345 kbps

Up to 1 Watt

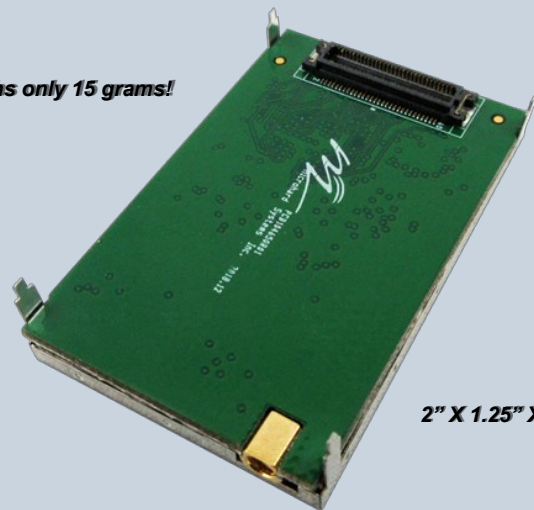
Low Latency

Extended Temperature

Diagnostics Port

RS232/485/422 Port

Weights only 15 grams!



2" X 1.25" X 0.25"

Features

- Supports up to 345 kbps Wireless Link Rate
- Supports Point-to-Point, Point-to-Multipoint, Store and Forward Repeater, TDMA
- Quad Filter Stage provides Extreme Noise & Interference Rejection
- Supports Point-to-Point & Point-to-Multipoint Topologies
- Maximum allowable transit power (up to 1W—Adjustable)
- 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
- Wide temperature specification (-40°C to +85°C)

Interface Options

Enclosed Solution



Motherboard Solution

n920X2

Specifications

Frequency	902 - 928 MHz	Power Consumption* (OEM: 3.3V +/- 0.3V)	AT Command: 80 mA
Spreading Method	Frequency Hopping / DTS		Rx: 102mA
Band Segments	Selectable via Freq Restriction	* power consumption values +/- 10%	Master Tx: 200mA
Forward Error Detection	Hamming BCH Golay Reed-Solomon	Connectors:	Continuous Tx: 1.8 A
Error Detection	32 bits of CRC, ARQ		OEM Antenna Data Enclosed Antenna Data
Encryption	Optional (see -AES option)	Environmental	-40°C - +85°C (All units are fully tested over the entire temperature Range)
Range	60+ miles (100+ km)		Weight
Sensitivity	-108 dBm @ 10 ⁻⁶	Approx. 15 grams Approx. 210 grams	
Output Power	100mW - 1W (20-30dBm)	OEM Enclosed	Approx. 1.25" x 2.0" x .25" (32mm x 51mm x 6.35mm) Approx. 2.25" x 3.85" x 1.50" (57mm x 98mm x 38mm)
Serial Interface	TTL	Approvals	FCC Industry Canada
Serial Baud Rate	300 bps to 230.4 kbps		Order Options
Link Rate	19.2 kbps - 345 kbps (selectable)	MHS113150	n920X2-OEM
Operating Modes	Point-to-Point, Point-to-Multipoint, Store & Forward Repeater, Peer-to-Peer	MHS113160	n920X2-ENC
Signals Interface	RxD1, TxD1, RTS, CTS DCD, DSR, DTR, RxD2, TxD2, RSSI LEDs, Tx/Rx LEDs, Re-set, Config, Wake-up, RSmode	-AES	128-bit AES Encryption (requires permit for export outside of Canada and USA.)
Input IP3 (Antenna Connector)	+12 dBm	-AES256	256-bit AES Encryption (requires permit for export outside of Canada and USA.)
RF Selectivity			
Adjacent Channel	60 dB		
Alternate Channel	75 dB		
Out of Band	>90 dB		
Remote Diagnostics	Battery Voltage, Temperature, RSSI, Packet Statistics		
Core Voltage	OEM 3.3VDC Nominal (+/- 0.3V) Enclosed 7-30VDC		

Contact Information

Copyright 2019 Microhard Systems Inc.
Specifications subject to change without notice.

For more information please contact:



BOCK OPTRONICS INC.

14 Steinway Blvd., Unit 7
Toronto, Ontario M9W 6M6

Tel: (416) 674-2804
sales@bockoptronics.ca
www.bockoptronics.ca

