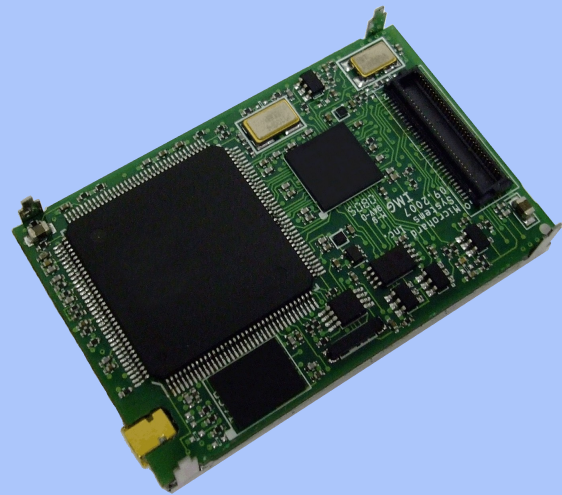# nL400

Miniature OEM Licensed Narrowband Modem

The Nano L Series is a long range, licensed, narrowband wireless modem which is configured to operate in the 410-480 MHz frequency range. The small size of the nL400 make it ideal to integrate into applications where space is at a premium.

Applications

- *SCADA (PLCs, MODBUS), Telemetry*
- *Commercial Communications*
- *GPS Vehicle Data/Tracking, DGPS*
- *Electric, Oil & Gas Sensors/Detection*
- *Robotics*
- *Display Signs*
- *Transparent Low Latency Communication*

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

The nL400 features robust, low latency, secure data communications. The nL400 is equipped with a fully supported serial port and a separate diagnostics port for real-time diagnostics without interrupting data communications. The nL400 offers excellent noise figure and superior interference rejection.

Features of the nL Series

- User-selectable frequency from within wide operating band
- Communicates with virtually all PLCs, RTUs, and serial devices
- Industrial Grade - robust 19.2kbps wireless link rate
- Supports Point-to-Point, Point-to-Multipoint, Peer-to-Peer, Store and Forward Repeater
- Programmable transmit power: 100mW - 2W
- Programmable bandwidth: 6.25, 12.5, or 25kHz
- 32 bits of CRC, selectable Forward Error Correction with retransmission
- Separate diagnostics port - transparent remote diagnostics and online network control
- RoHS Compliant

Interface Options

Enclosed Solution

Motherboard Solution

nL400

Specifications

Frequency	410 - 480 MHz* * Band use may be limited by country or operating zone/regulatory body
Occupied Bandwidth	6.25, 12.5, or 25kHz
Modulation Type	GMSK
Error Detection	32 bits of CRC, ARQ
Encryption	Optional (see –AES option)
Range	60+ miles (100+ km) (dependant on link rate and line of sight)
Sensitivity	-115dBm @ 2400bps link rate -114dBm @ 4800bps link rate -110dBm @ 9600bps link rate
Output Power	100mW - 2W
Serial Interface	RS232/RS485/RS422 TTL Driver Level (see –HV option)
Signals Interface	RxD1, TxD1, RTS, CTS, DCD, DSR, DTR, RxD2, TxD2, RSSI LEDs, Tx/Rx LEDs, Reset, Config, Wake-up, RSmode
Serial Baud Rate	300bps to 230.4kbps
Link Rate	19.2 kbps
Operating Modes	Point-to-Point, Point-to-Multipoint, Store & Forward Repeater, Peer-to-Peer
Diagnostics	Battery Voltage, Temperature, RSSI, and remote diagnostics
Rejection	Excellent strong signal interference & rejection characteristics

Core Voltage		
	OEM	3.3VDC Nominal (+/- 0.3V)
	Enclosed	7-30VDC
Connectors:		
OEM		
	Antenna	MMCX
	Data	60 Pin OEM Header
Enclosed		
	Antenna	RP-SMA Female
	Data	Female DB9 x2
Environmental		-40°F - +185°F (-40°C - +85°C) 5-95% humidity, noncondensing (All units are fully tested over the entire temperature Range)
Weight		
	OEM	Approx. 19 grams
	Enclosed	Approx. 220 grams
Dimensions		
	OEM	Approx. 1.25" x 2.0" x .25" (32mm x 51mm x 6.35mm)
	Enclosed	Approx. 2.25" x 3.85" x 1.70" (57mm x 98mm x 43mm)
Approvals		FCC Part 90 IC RSS119 CE RoHS

Order Options

-C1D2	Class 1 Div 2 (for use in hazardous environments)
-AES	128 BIT AES Encryption (Requires Export Permit outside Canada & USA)
-CE	CE Certification

Contact Information

Microhard Systems Inc.
150 Country Hills Landing N.W.
Calgary, AB, Canada T3K 5P3

Email: info@microhardcorp.com
Tel: (403) 248-0028
Fax: (403) 248-2762

microhard SYSTEMS INC.

www.microhardcorp.com