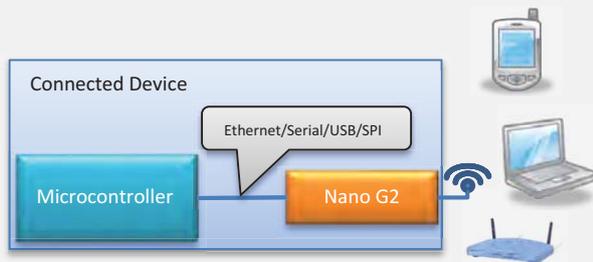


Nano WiReach G2 N1

Miniature embedded secured 802.11b/g/n WiFi module

General Description :

Nano WiReach™ G2 N1 is a secure embedded Wireless LAN module that easily connects embedded devices to 802.11b/g/n Wireless LAN. It includes the iChip™ CO2144 IP Communication Controller™ chip and a Broadcom BM43362 WiFi baseband. It is packaged in a 33.76X18mm RoHS-compliant low profile module with 30 PIN Board to Board connector and UFL connector for external antenna.



Nano WiReach G2 N1 makes adding Internet connectivity to embedded devices a breeze. It does not require any kind of WiFi driver development on the host CPU, and its multiple interfaces (UART, SPI, RMII and USB 1.1) minimize the need to redesign the host device hardware. Connect One's high-level AT+i™ API eliminates the need to add WiFi, LAN or cellular drivers, security and networking protocols or communication tasks to the host application.

Nano WiReach G2 supports the SSL3/TLS1 protocol for secure sockets, HTTPS and FTPS, WPA/WPA2 WiFi encryption.

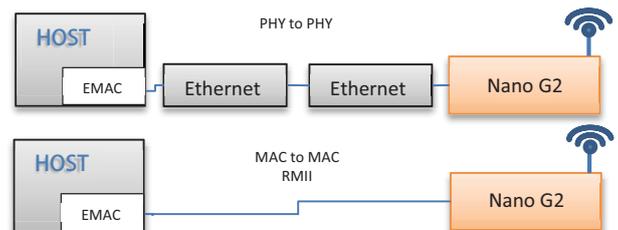
Nano WiReach G2 firmware and configuration parameters are stored in on-board flash memory. The module is power-efficient: the core operates at 1.2V, while I/Os operate at 3.3V. Power Save mode further reduces power consumption.

Typical applications :

- Adding WiFi to serial embedded devices
- Replacing LAN cable using WiFi (bridge)
- Adding SSL security to M2M solutions

Nano WiReach G2 N1 supports several operation modes:

- LAN to WiFi Bridge - allowing transparent bridging of LAN station over WiFi, using direct RMII connection to existing MAC hardware or direct PHY-to-PHY connection.



- SerialNet™ Serial to WiFi Bridge - allowing transparent bridging of Serial over WiFi, using fast UART. This is a true plug-and-play mode that eliminates any changes to the host application.
- PPP modem emulation – allowing existing (e.g. modem) designs currently using PPP to connect transparently over WiFi.
- Embedded Access Point – WiFi access point. Includes a DHCP server, NAT and port forwarding.
- Embedded Router – Providing routing facilities between a wired LAN subnet a WiFi subnet. Includes a DHCP server, NAT and port forwarding.
- Full Internet Controller mode – allowing simple MCU to use the Nano WiReach G2's rich protocol and application capabilities to perform complex Internet operations such as E-mail, FTP, SSL, embedded web server and others. Using our NAT function creates a buffer which providing a security gap between the application and the network.

Hardware Description:

- Size: 33.76 X 18.00 X 5.5 mm
- Core CPU: 32-bit RISC ARM7TDMI, low-leakage, 0.13 micron, at 48MHz
- Operating Voltage: +3.3V+/-10%
- Operating Humidity: 90% maximum (non-condensing)
- Operating Temperature Range: -30°C to +85°C
-22°F to 185°F
- Power Consumption (max):
 - Transmit – 350mA@11Mbps, 310mA@54Mbps, 310mA@72Mbps
 - Receive – 130mA
- U.FL RF Connector
- Connection: Low profile 30 pin
- Host Interface: Serial, SPI, USB Device
- 10/100 BaseT LAN Interface: RMII (w/ext. PHY)
- RoHS-compliant; lead-free

Wireless Specifications:

- Standards supported: IEEE 802.11b/g/n
- Frequency
 - Europe: 2.412-2.472GHz
 - USA: 2.412-2.462GHz
 - Japan: 2.412–2.484GHz
- Channels
 - Europe: 13 channels
 - USA: 11 channels
 - Japan: 14 channels

Performance Specifications:

- Host Data Rates:
 - UART: Up to 3Mbps
 - SPI: Up to 12Mbps
 - USB 1.1: Up to 6Mbps
- Serial Data Format (AT+i mode): Asynchronous character; binary; 8 data bits; no parity; 1 stop bit
- Serial Data Format (SerialNET mode): Asynchronous character; binary; 7 or 8 data bits; odd, even, or no parity; 1 stop bit
- Flow Control: Hardware (RTS, CTS) and software flow control.

Internet Protocols :

- ARP, ICMP, IP, UDP, TCP, DHCP, DNS, NTP, SMTP, POP3, MIME, HTTP, FTP and TELNET
- Security protocols: SSL3/TLS1, HTTPS, FTPS, RSA, AES-128/256, 3DES, RC-4, SHA-1, MD-5, WPA/WPA2
- Protocols accelerated in hardware: AES, 3DES and SHA

Application Program Interface:

- AT+i protocol for Internet Controller mode
- SerialNET mode for transparent serial data-to-Internet bridging
- LAN-WiFi transparent bridging
- PPP operation mode for Modem-WiFi conversion
- LAN -WiFi Routing

Warranty:

- One year

Certifications: (Pending Approvals)

Radio & EMC:

- USA
 - FCC Modular Approval
 - CFR Title 47 FCC Part 15, Subpart B and C
- Canada
 - Industry Canada Module Approval
 - Industry Canada ICES-003, RSS-Gen, RSS-210
- EU
 - EN 300 328
 - EN 301 489

Safety:

- UL 60950
- CAN/CSA-C22.2 No. 60950
- EN 60950, Low Voltage Directive

Installation Requirements:

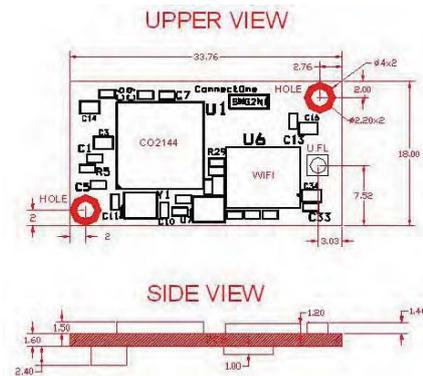
- The Nano WiReach G2 N1 must be installed within a full-enclosure device that is safety certified.

Pin Assignments:

Pin	Signal	Type	Description	Pin	Signal	Type	Description
1.	VDD	PWR	POWER	16.	Readiness	Output	iChip Ready
2.	GND	PWR	Ground	17.	DDP	Analog	USB Device Positive
3.	RXD0	Input	UART0 Receive	18.	DDM	Analog	USB Device negative
4.	TXD0	Output	UART0 Transmit	19.	VDD	PWR	POWER
5.	nCTS0	Input	UART0 Clear to Send	20.	GND	PWR	Ground
6.	nRTS0	Output	UART0 Request to Send	21.	ETX EN	Output	RMII Transmit Enable
7.	DATA RDY	Output	Data Ready	22.	RMII REFCL	Output	RMII Reference Clock
8.	MSEL	Input	Mode Select	23.	CRSDV	Input	RMII Carrier sense and DATA Valid
9.	nRESET	Input	Reset Module	24.	ERXER	Input	RMII Receive Error
10.	nRF LED	Output	RF LedIndicator	25.	EMDIO	I/O	Management Data I/O
11.	nSPI1 CS	Input	SPI1 Chip-Select for Host	26.	EMDC	Output	Management Data Clock
12.	SPI1 CL	Input	SPI1 Clock for Host	27.	ETX1	Output	RMII Transmit Data 1
13.	SPI1 MISO	Output	SPI1 Slave out for Host master in	28.	ERX1	Input	RMII Receive Data 1
14.	SPI1 MOSI	Input	SPI1 Slave in for Host master out	29.	ETX0	Output	RMII Transmit Data 0
15.	SPI1 INT	Output	SPI1 Have data on his buffer	30.	ERX0	Input	RMII Receive Data 0

Bottom Side Mechanical View :

All measurements are in millimeters:



Ordering Information

Part Number	Description
iW-SMG2N1	Nano WiReach module
D 360-N	Evaluation board for Nano WiReach G2-N1 module
UFL-SMA	Miniature coaxial pigtail cable.U.FL-SMA connectors.130mm length
T X2400C	2.4GHz WiFi antenna,4.15dBi,50Ω ,Omni-directional,110mm