# WB-NS-1

Industrial LTE Cat M1/NB-IoT (NB1, NB2)

WB-NS-1 is an industrial LTE CAT M1/NB2 module, which is designed for low-data throughput IoT applications and has optimized power consumption with enhanced quality of coverage.

WB-NS-1 uses the advanced Monarch2 GM02SP IoT module from Sequans®. This module combines a 32-bit CPU core with an LTE radio in one package.

WB-NS-1 is pin compatible with other popular wireless devices and has fully backed by a 3-year warranty, technical support and application assistance from BiPOM Electronics, Inc.

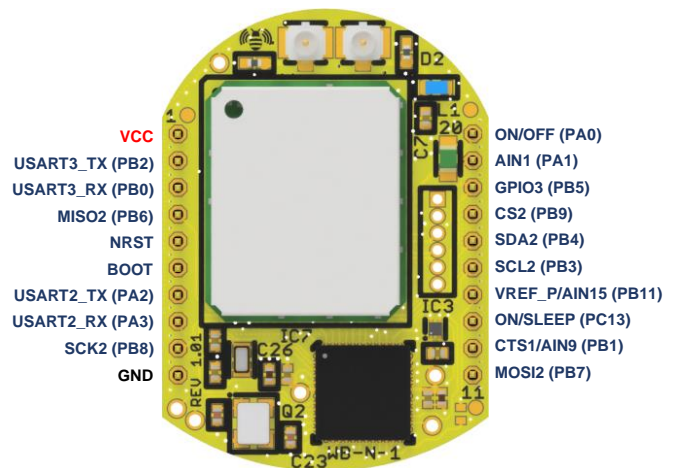
1.36"

0.96"

Top View

0.35"
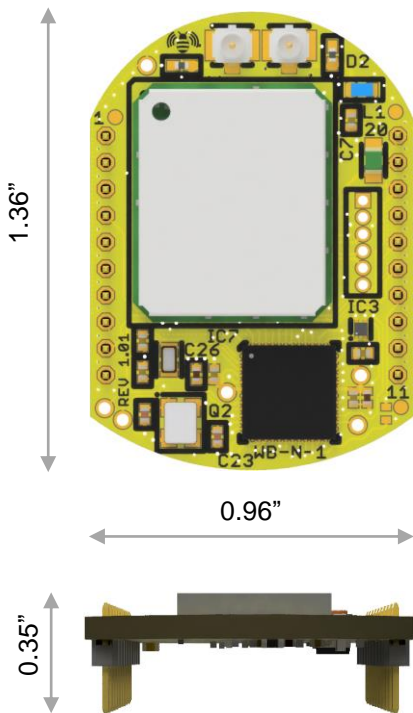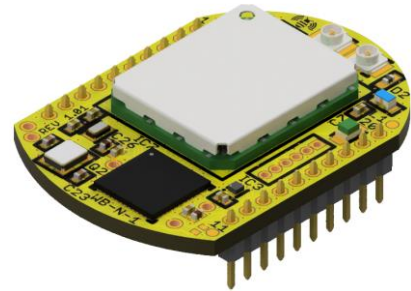
Rear View

Sequans® Module Features:

- Sequans Monarch GM02SP worldwide module
- Both LTE-M1 and NB-IoT (NB1, NB2) support
- Low Power for battery operation
- Configurable power output
- Compliant with 3GPP Release 14 upgradeable to 17
- Maximum output power: 23 dBm
- 4G Bands: B1, B2, B3, B4, B5, B8, B12, B13, B14, B17, B18, B19, B20, B25, B26, B27, B28, B66, B70, B71, B85. All major worldwide carriers.
- CAT M1: up to 590 kbps DL and 1.1 Mbps UL
- CAT NB1/NB2: up to 120.7 kbps DL and 160 kbps UL
- Integrated SIM/eSIM
- GNSS (GPS, GLONASS, Beidou, Galileo), L1 Band
- Very low-power consumption per GNSS fix (with configurable performance vs. power levels)

WillowBee Specifications:

- Pin compatible with popular modules
- u.FL Connectors for cellular and GNSS
- RF Shield
- Dual Power option: Battery or DC Power
- 2.2V to 5.5V supply voltage range
- Temperature Range: -40°C to +85°C
- Dimensions 1.36" x 0.96" x 0.36" (34.54 mm x 24.38 mm x 9.14 mm)
- 2-MB Serial Flash
- Configurable 15 I/O Pins
- ADC, SPI, UART, I2C interfaces
- Part number: WB-NS-1

Left Pins	Right Pins
VCC	ON/OFF (PA0)
USART3_TX (PB2)	AIN1 (PA1)
USART3_RX (PB0)	GPIO3 (PB5)
MISO2 (PB6)	CS2 (PB9)
NRST	SDA2 (PB4)
BOOT	SCL2 (PB3)
USART2_TX (PA2)	VREF_P/AIN15 (PB11)
USART2_RX (PA3)	ON/SLEEP (PC13)
SCK2 (PB8)	CTS1/AIN9 (PB1)
GND	MOSI2 (PB7)

WiPOM

Wireless Point of Monitoring

WiPOM is a software application package that adds sophisticated data logging, remote terminal, and PLC-like capabilities to the WB-NS-1 board. WiPOM can run on STM32 family of processors. WiPOM manages all aspects of Industrial IoT applications development, including I/O management, tags, alarms, events, SMS/email handling, MODBUS master and slave capability, modem detection, management and Cloud portal support. WiPOM runs directly on WB-NS-1 board. Coupled with the WiPOM Client running on a Windows PC or on a web server, programming the WB-NS-1 board is reduced to a series of configuration selections to build a complete IoT system. WiPOM takes software out of the equation for faster time to market. Creating remote monitoring and control systems and sensors has not been easier.

WillowBee Development Board

Windows PC

Serial, USB or over the air

WiPOM Firmware running on the board

WiPOM Client running on Windows PC or a web browser (local or remote)