

NINA-B2 series

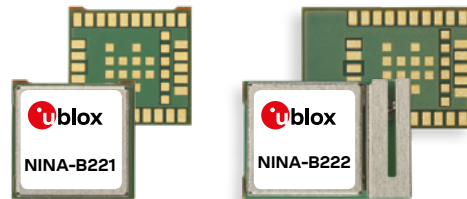


Stand-alone dual-mode Bluetooth modules



Secure industrial dual-mode Bluetooth made easy

- Simultaneous dual-mode Bluetooth
- Superior security functionality with built-in secure boot
- Feature rich, out-of-the-box connectivity software
- Small footprint and multiple antenna options
- Pin compatible with other NINA modules
- Global certification



10.0 × 10.6 × 2.2 mm

10.0 × 14.0 × 3.8 mm

Product description

The NINA-B2 series are small, dual-mode Bluetooth stand-alone modules designed for ease-of-use and integration in professional applications. The modules are delivered with u-blox connectivity software that provides support for both peripheral and central roles, Serial Port Profile, GATT client and server, beacons, u-blox Bluetooth low energy Serial Port Service – all configurable from a host using AT commands.

The NINA-B2 modules provide top grade security, thanks to secure boot, which ensures the module only boots up with original u-blox software. Intended applications include industrial automation, wireless-connected and configurable equipment, point-of-sales, and health devices.

NINA-B222 comes with an internal antenna while NINA-B221 has a pin for use with an external antenna. The internal PIFA antenna is specifically designed for the small NINA form factor and provides an extensive range, independent of ground plane and component placement.

The NINA-B2 series is globally certified for use with the internal antenna or a range of external antennas. This greatly reduces time, cost and effort for customers integrating NINA-B2 in their designs.

Product selector

Model	Radio	Interfaces	Features	Grade
	Bluetooth BR/EDR v4.2 Bluetooth low energy v4.2 Bluetooth profiles Bluetooth BR/EDR output power [dBm] Bluetooth low energy output power [dBm] Maximum range (m) Antenna type	UART GPIO pins	Throughput Bluetooth BR/EDR [Mbit/s] Throughput Bluetooth Low Energy [kbit/s] u-blox Low Energy Serial Port Service GATT server and GATT client Extended Data Mode protocol AT command support Max simultaneous connections Secure boot	Standard Professional Automotive
NINA-B221	uCS ¹ • • SG 10 10 TBD P	• 13	1.0 200 • • • • 7 •	•
NINA-B222	uCS ¹ • • SG 10 10 TBD I	• 13	1.0 200 • • • • 7 •	•

1 = u-blox connectivity software / P = antenna pin / I = internal antenna / S = SPP / G = GATT



Features

Bluetooth	v4.2 (Bluetooth BR/EDR and Bluetooth low energy)
Range	TBD
Output power	Bluetooth low energy: 10 dBm EIRP Bluetooth BR/EDR: 10 dBm EIRP
Conducted sensitivity	-90 dBm (Bluetooth BR/EDR 1 Mbit/s) -90 dBm (Bluetooth low energy)

u-blox connectivity software

This section describes the NINA-B2 features integrated in the u-blox connectivity software. All NINA-B2 modules are delivered with this software and the module is configured using AT commands.

Software features	SPP profile; u-blox Low Energy Serial Port Service (SPS); GATT server and client via AT commands; Central and peripheral roles; Configuration over air; Extended Data Mode (EDM) protocol for simultaneous AT commands and data, and multiple simultaneous data streams; beacons
HW interfaces	UART, GPIO
Configuration	AT Commands
Support tools	s-center
Simultaneous connections	7
Security	Secure boot Secure Simple Pairing Bluetooth privacy
Throughput	Bluetooth low energy 200 kbit/s Bluetooth BR/EDR 1.0 Mbit/s

Electrical data

Power supply	3.0 V to 3.6 V
Power consumption	Active Bluetooth mode: 110 mA

Package

Dimensions	NINA-B221: 10.0 x 10.6 x 2.2 mm NINA-B222: 10.0 x 14.0 x 3.8 mm
Weight	< 1.0 g
Mounting	Machine mountable Solder pins

Environmental data, quality & reliability

Operating temperature	-40 °C to +85 °C
Storage temperature	-40 °C to +85 °C
Humidity	RH 5-90% non-condensing

Certifications and approvals

Type approvals	Europe (ETSI RED), Canada (IC RSS), Taiwan (NCC), US (FCC/CFR 47 part 15 unlicensed modular transmitter approval), Japan (MIC), South Korea (KCC) ¹ , Australia (ACMA) ¹ , New Zealand ¹ , Brazil (Anatel) ¹ , South Africa (ICASA) ¹
Health and safety	EN 62479, EN 60950-1, IEC 60950-1
Medical Electrical Equipment	EN 60601-1-2
Bluetooth qualification	v4.2 (Bluetooth BR/EDR and Bluetooth low energy) ¹

1 = Pending approvals

Support products

EVK-NINA-B221	Evaluation kit for NINA-B221 with u-blox connectivity software and antenna pin
EVK-NINA-B222	Evaluation kit for NINA-B222 with u-blox connectivity software and internal antenna

Product variants

NINA-B221	With u-blox connectivity software and antenna pin
NINA-B222	With u-blox connectivity software and internal antenna

Further information

For contact information, see www.u-blox.com/contact-us.

For more product details and ordering information, see the [product data sheet](#).

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