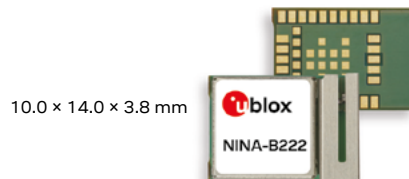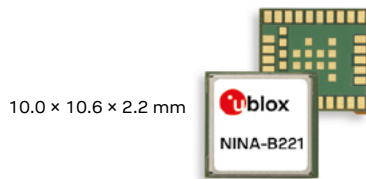# Product Summary
NINA-B2 series

Stand-alone dual-mode Bluetooth modules

S

Secure industrial dual-mode Bluetooth made easy

- Simultaneous dual-mode Bluetooth
- Superior security functionality with built-in secure boot
- u-connect software for accelerated time to market
- Small footprint and multiple antenna options
- Pin compatible with other NINA modules
- Global certification

Standard

Professional

Automotive

10.0 × 10.6 × 2.2 mm   NINA-B221

10.0 × 14.0 × 3.8 mm   NINA-B222

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 pre-flashed with u-connectXpress 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. This software is easy to use and reduces the time, risk and cost to add Bluetooth connectivity to the end product.

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.

	NINA-B221	NINA-B222
Grade		
Automotive		
Professional	•	•
Standard		
Radio		
Bluetooth qualification	v4.2	
Bluetooth profiles	S, G	
Bluetooth BR/EDR	•	•
Bluetooth low energy	•	•
Bluetooth output power EIRP [dBm]	9	9
Max range [meters]	200	200
Antenna type	p	i
Application software		
u-connectXpress software	•	•
Interfaces		
UART	1	1
GPIO pins	13	13
Features		
AT command interface	•	•
GATT server and client	•	•
Extended Data Mode	•	•
Low Energy Serial Port Service	•	•
Throughput [Mbit/s]	1.0	1.0
Maximum Bluetooth connections	7	7
Secure boot	•	•

S = SPP   G = GATT   p = Antenna pin   i = Internal antenna

u-blox

NINA-B2 series

Features

Bluetooth	v4.2 (Bluetooth BR/EDR and Bluetooth low energy)
Range	200 m
Output power	Bluetooth low energy: 9 dBm EIRP Bluetooth BR/EDR: 9 dBm EIRP
Conducted sensitivity	-88 dBm (Bluetooth BR/EDR 1 Mbit/s) -88 dBm (Bluetooth low energy)

u-connectXpress software

This section describes the NINA-B2 features integrated in the u-connectXpress 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
Throughput	Bluetooth low energy 350 kbit/s Bluetooth BR/EDR 1.0 Mbit/s

Electrical data

Power supply	3.0 V to 3.6 V
Power consumption	Bluetooth BR/EDR Tx: 147 mA Bluetooth low energy Tx: 57 mA Idle mode: 36 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), Brazil (Anatel), Australia (ACMA)[1], New Zealand[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 Bluetoothlow energy)

1 = Pending approvals

Support products

EVK-NINA-B221	Evaluation kit for NINA-B221 with antenna pin
EVK-NINA-B222	Evaluation kit for NINA-B222 with internal antenna

Product variants

NINA-B221	Bluetooth module with antenna pin
NINA-B222	Bluetooth module with 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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