# Product summary
NORA-B20 series

Stand-alone Bluetooth 5.4 Low Energy modules

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Bluetooth LE 5.4 module for ultra-low power IoT applications

- Professional grade modules supporting Thread, Zigbee, and Matter
- High performance ARM Cortex-M33 for demanding applications
- Designed for PSA Certified Level 3 security with tamper detection
- Direction finding support for indoor positioning
- Variants with antenna pin and embedded antenna
- Global certification

10.4 × 11.2 × 1.9 mm   NORA-B201

10.4 × 14.3 × 1.9 mm   NORA-B206
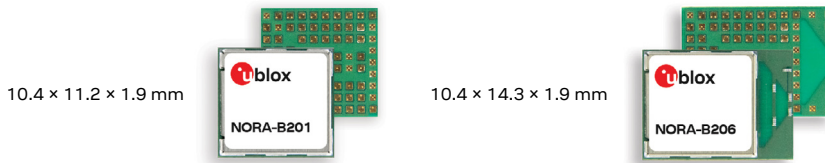
Product description

NORA-B20 series are small, stand-alone Bluetooth Low Energy, wireless MCU modules that comply with the Bluetooth 5.4 specification. The modules are built on the latest generation of Nordic Semiconductor's nRF54L15 chip as an open CPU solution where customer applications run on Arm® Cortex®-M33 processor with integrated non-volatile memory and RAM memory. The modules also include NFC, IEEE 802.15.4 radio, and are capable of supporting Thread, Zigbee and Matter protocols.

NORA-B20's powerful MCU can be used for high-performance applications while being clocked up to 128 MHz. The module scores an impressive 505 on EEMBC CoreMark tests making it twice as powerful as the previous generation of Bluetooth LE modules, while it consumes up to 50% less current when compared to the previous generations.

NORA-B20 supports Bluetooth 5 features such as Angle-of-Arrival (AoA), Angle-of-Departure (AoD), Bluetooth long range communication (CODED PHY), Bluetooth high data-rate (2M PHY), Periodic Advertising with Response (PAwR), and Bluetooth mesh. NORA-B206 comes with an internal PCB antenna that provides a robust low-profile solution with high performance and an extensive range. NORA-B201 comes with an antenna pin and provides the option to use an external antenna of choice.

Key market segments are industrial automation, medical and healthcare, telematics, smart cities and buildings. Specific applications include connected tools, advanced medical wearables, smart lighting, asset tracking, indoor location, low power sensors, as well as wireless-connected and configurable equipment. Both variants come designed for PSA Certified Level 3 IoT security making the modules ideal for security sensitive applications like point-of-sales terminals and medical devices. The NORA-B20 modules are globally certified for use with the internal antenna or a range of external antennas. This greatly reduces time, cost, and effort for integrating Bluetooth Low Energy in designs.

	NORA-B201	NORA-B206
Grade		
Automotive		
Professional	•	•
Standard		
Radio		
Chip inside	nRF54L15	
Bluetooth qualification	v5.4	v5.4
Bluetooth low energy	•	•
802.15.4 / Thread / Zigbee / Matter	•	•
Bluetooth output power EIRP [dBm]	10	10
Max range [meters]	TBD	TBD
Antenna type (see footnotes)	pin	pcb
Application software		
Open CPU for embedded applications	•	•
Interfaces		
NFC	♦	♦
SPI	♦	♦
UART	♦	♦
QDEC	♦	♦
I2C	♦	♦
Timer / PWM	♦	♦
GPIO pins	31	31
AD converters [number of bits]	14	14
SWD	♦	♦
RTC	♦	♦
Features		
MCU	Arm Cortex-M33	
RAM [kB]	256	
NVM [kB]	1524	
Matter	♦	♦
Maximum Bluetooth connections	TBD	TBD
Direction Finding support (AoA/AoD)	♦	♦
Bluetooth LE long range (coded PHY)	♦	♦
Bluetooth LE 2 Mbit/s	♦	♦
Arm TrustZone®	♦	♦
Secure boot	♦	♦
Secure FOTA	♦	♦
Simultaneous GATT server and client	♦	♦

pin = Antenna pin
pcb = Internal PCB antenna

♦ = Feature enabled by HW. The actual support depends on the open CPU application SW.

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NORA-B20 series

Features

Chip inside	nRF54L15
Bluetooth	v5.4 (Bluetooth low energy)
Bluetooth PHY rate	125 kbit/s, 500 kbit/s, 1 Mbit/s, 2 Mbit/s
802.15.4	Thread Zigbee Matter Nordic Proprietary 2.4 GHz protocol
Max. conducted output power	+7 dBm
Output power, radiated (EIRP)	+10 dBm with internal antenna +10 dbm with external antenna
Receiver sensitivity, conducted	Bluetooth LE, 125 kbit/s: TBD Bluetooth LE, 500 kbit/s: TBD Bluetooth LE, 1 Mbit/s: –98 dBm Bluetooth LE, 2 Mbit/s: TBD 802.15.4, 250 kbit/s: TBD
Antenna	NORA-B201: Antenna pin for connecting to an external antenna NORA-B206: Internal PCB antenna
Range	TBD

Open CPU for customer application

Customers develop and embed their own apps on NORA-B20 modules using the Nordic Connect Software SDK (open CPU concept). This section describes the hardware features that NORA-B20 modules can enable.

MCU system	Arm® Cortex® -M33 application processor at 128 MHz 1.5MB NVM and 256 KB RAM
Hardware interfaces [2]	31 x GPIO 1 x Software defined peripheral (RISC-V) 2 x RTC, 1 x GRTC 1 x SWD 5 x serial interface (UART or I2C or SPI) 7 x Timers 1 x NFC 2 x QDEC
Security	Arm® TrustZone® technology Secure key management Immutable boot loader partitions Physical tamper detection Hardware crypto-accelerator Debug access port protection
Development environment	Nordic Connect Software SDK

2 = Not all simultaneously

Package

Dimensions	NORA-B201: 10.4 x 11.2 x 1.9 mm NORA-B206: 10.4 x 14.3 x 1.9 mm
Weight	< 1.0 g
Mounting	Machine mountable; solder pins

Environmental data, quality and reliability

Operating temperature	–40 °C to +85 °C
Storage temperature	–40 °C to +85 °C
Humidity	RH 5 – 90% non-condensing
RoHS directive	RoHS 2 and RoHS 3

Electrical data

Power supply	1.71 to 3.60 V
Power consumption	TBD

Certifications and approvals [1]

Type approvals	Europe (RED), Great Britain (UKCA), US (FCC), Canada (ISED), Japan (MIC), South Korea (KCC), Taiwan (NCC), Australia (ACMA), New Zealand
Health and safety	EN 62479, EN 62368-1
Medical Electrical Equipment	IEC 60601-1-2
Bluetooth qualif.	Bluetooth Low Energy 5.4

1 = Certifications are pending

Support products

EVK-NORA-B201	Evaluation kit for professional grade NORA-B201 with open CPU and pin for external antenna
EVK-NORA-B206	Evaluation kit for professional grade NORA-B206 with open CPU and internal PCB antenna

Product variants

NORA-B201	Professional grade Bluetooth low energy module with open CPU and pin for external antenna
NORA-B206	Professional grade Bluetooth low energy module with open CPU and internal PCB antenna

Further information

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

For more product details and ordering information, see the product data sheet.