

Operating instructions

for the user



NINA-B301
(5930316650000)

Publisher

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1 General user notes

The NINA-B301 module are small stand-alone Bluetooth 5 low energy modules featuring full Bluetooth 5 support, a powerful Arm® Cortex® -M4 with FPU, and state-of-the-art power performance. The embedded low power crystal improves power consumption by enabling optimal power save modes. With 1 MB flash and 256 kB RAM, they offer the best-in-class capacity for customer applications on top of the Bluetooth low energy stack. NINA-B301 has a pin for use with an external antenna.

E.g you can use this module for wireless-connected and configurable equipment applications.

1.1 Technical description

The module are pre-flashed with u-blox connectivity software. The u-blox connectivity software enables use of the u-blox Low Energy Serial Port Service, controlled by AT commands over the UART interface. The module can be configured using the ublox s-center evaluation software, which can be downloaded from the u-blox website and is available free of charge.

Much more information on the features and capabilities of the u-blox connectivity software and how to use it can be found in the u-blox Short Range AT Commands Manual [2].

The module has to be labeled like this.

FCC-ID:

2BESP SCU101916

IC: 32248-

101916SCUNA

5930316650000

1.2 RF exposure considerations

The conducted/radiated output power of the device is far below the FCC and ISED radio frequency exposure limits. Nevertheless, the device should be used in such a manner that the potential for human contact during normal operation is minimized.

This application is for mobile devices only and may not be used for portable devices. Portable usage requires a new equipment authorization procedure.

This equipment complies with FCC and ISED radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of **25 cm** between the radiator and your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Cet équipement est conforme aux limites d'exposition aux rayonnements ISED établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de **25 cm** de distance entre la source de rayonnement et votre corps.

Ce transmetteur ne doit pas être placé au même endroit ou utilisé simultanément avec un autre transmetteur ou antenne.

1.3 Antennas

Only those antennas listed in the table below may be used in conjunction with the module:

Name/Part Number	Manufacturer	Frequency Band	Antenna Type	Peak Gain
u-blox LILY antenna	ProAnt	2.4 GHz	PIFA	+3 dBi
GW.26.0111	Taoglas	2.4 GHz	Monopole	+2 dBi
Ex-IT 2400 RP-SMA 28-001	ProAnt	2.4 GHz	Monopole	+3 dBi

1.4 Label and compliance information

The host product must be labeled with:

Contains FCC ID: 2BESPSCU101916

Contains IC: 32248-101916SCUNA

Guidelines for labeling and user information may be found in [KDB 784748](#) and [RSS-GEN](#).

1.5 Information on test modes and additional testing requirements

- Not applicable
- It is strongly recommended to proceed further investigations of the worst case configurations as listed in this filing (see KDB 996369 D04):
 - Radiated Spurious Emissions for Channel 1 of BLE 2.4 GHz (indicated as worst case in this filing)
 - Band Edge Compliance for BLE 2.4 GHz (indicated as worst case in this filing)

1.6 Additional testing, Part 15 Subpart B disclaimer

This modular transmitter is only FCC/ISED authorized for the specific rule part/radio standards specification listed on the grant/certificate. The host product manufacturer is responsible for compliance to any other FCC rules/ISED radio standards specifications that apply to the host not covered by the modular transmitter grant of certification.

If the host product manufacturer markets their product as being Part 15 Subpart B compliant (when it also contains unintentional-radiator digital curcuitry), then the host product manufacturer shall provide one of the following notices (whichever is applicable in the user manual):

Class A:

For a Class A digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to

provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Class B (use in a residential environment):

For a Class B digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

2 ISED Certification information

CERTIFICATION NUMBER:

32248-101916SCUNA

PMN: (Product Marketing Name) NINA-B301

HMN: (Host Marketing Name) N/A

HVIN: (Hardware Version Identification Number) 5930316650000

FVIN: (Firmware Version Identification Number) N/A

3 §15.19 & RSS-GEN/CNR-GEN, 8.4

3.1 FCC + ISED, combined notice

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s) and complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

1. L'appareil ne doit pas produire de brouillage.
2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

4 Further Part 15 notices (FCC only)

§15.21

Changes or modifications made to this equipment not expressly approved by **RAFI GmbH & Co. KG** may void the FCC authorization to operate this equipment.