

ANNA-B56 series



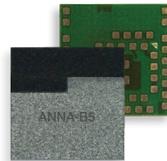
Stand-alone Bluetooth® LE module

Bluetooth LE module for size-constrained applications

- Ultra-compact SiP (6.5 x 6.5) with integrated antenna
- Qualified against Bluetooth Core 6.0, with Channel Sounding
- u-connectXpress software for accelerated time to market
- Advanced protection against security threats
- Global certification



6.5 × 6.5 × 1.2 mm



Product description

The ANNA-B56 module series is an ultra-compact, high-performance, stand-alone Bluetooth LE module. The System-in-Package (SiP) module measures only 6.5 x 6.5 mm including a fully integrated antenna. The small size allows Bluetooth to be integrated into devices with size constraints.

The module is built on the Nordic Semiconductor nRF54L15 wireless System-on-Chip. It is delivered with u-connectXpress software that provides support for u-blox Bluetooth LE Serial Port Service, GATT client and server, beacons, Bluetooth Channel Sounding, Bluetooth long range (LE Coded), and simultaneous peripheral and central roles. u-blox u-connectXpress software allows hosts to easily configure connectivity using AT commands over a UART interface.

The ANNA-B56 series provides top-grade security, thanks to secure boot, which ensures that the modules only start up with authenticated u-connectXpress software. Qualified against Bluetooth Core 6.0 including Channel Sounding, the ANNA-B56 module series can be used for secure and accurate distance measurement between devices.

ANNA-B565 comes with an internal antenna for ease of integration in the end-product while ANNA-B561 has an antenna pin for use with an external antenna of choice. The ANNA-B56 series is globally certified — reducing time, cost, and effort for customers integrating Bluetooth technology in their designs. To ensure operation in harsh professional environments, the module is designed and manufactured according to u-blox professional grade requirements.

Key markets include industrial automation, medical and healthcare, smart home and buildings, and telematics.

	ANNA-B561	ANNA-B565
Grade		
Automotive		
Professional	•	•
Standard		
Radio		
Chip inside	nRF54L15	nRF54L15
Qualified against Bluetooth Core	6.0	6.0
Bluetooth low energy	•	•
Bluetooth output power [dBm]	8	8
Max range [meters]	TBD	TBD
Antenna type (see footnotes)	pin	chip
Application software		
u-connectXpress	•	•
Interfaces		
UART	2	2
Features		
Low Energy Serial Port Service	•	•
Throughput [Mbit/s]	0.8	0.8
Maximum Bluetooth connections	3	3
Secure boot	•	•
Simultaneous GATT server and client	•	•
Bluetooth Channel Sounding	•	•
Bluetooth long range	•	•

pin = Antenna pin
chip = Internal chip antenna

ANNA-B56 series



Features

Bluetooth	Qualified against Bluetooth® Core 6.0
Bluetooth PHY rates	2 Mbit/s, 1 Mbit/s, 125 kbit/s
Max output power, conducted	8 dBm
Receiver sensitivity, conducted	Bluetooth LE, 125 kbit/s: -102 dBm Bluetooth LE, 1 Mbit/s: -98 dBm
Antennas	ANNA-B561: External antenna (pin) ANNA-B565: Internal chip antenna

u-connectXpress software

The ANNA-B56 modules are pre-flashed with u-connectXpress and bootloader software that interfaces through an AT command interpreter to control customer application software running on host MCUs.

Configuration	AT commands
Bluetooth	u-blox Low Energy Serial Port Service (SPS) GATT server and client Beacons 2 Mbit/s modulation 125 kbit/s modulation long range functionality Advertising extensions
Data modes	Data in AT mode Transparent data mode
Host interface	UART
Operating modes	Central role Peripheral role Simultaneous central and peripheral roles LE 1M PHY LE 2M PHY LE CODED PHY Advertising extensions LE data length extension Channel Sounding
Security	Secure boot Secure Simple Pairing 128-bit AES encryption Bluetooth Low Energy secure connections
Throughput over UART	0.8 Mbit/s
Support tool	s-center 2

Electrical data

Power supply	1.7 to 3.6 VDC
Power consumption	Bluetooth LE TX, 1 Mbps, 0 dBm: 5 mA Bluetooth LE RX, 1 Mbps: 3.3 mA Idle mode, full RAM retention: 3.0 µA System off: 0.6 µA

Package

Dimensions	6.5 x 6.5 x 1.2 mm
Weight	< 0.1 g
Mounting	Machine mountable Solder pins, 52-pin LGA

Environmental data, quality & 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

Certifications and approvals*

Type approvals	Europe (ETSI RED), Great Britain (UKCA), US (FCC), Canada (IC RSS), Japan (MIC), Taiwan (NCC), South Korea (KCC), Australia / New Zealand (ACMA)
Health and safety	EN 62479, EN 62368-1
Medical Electrical Equipment	IEC 60601-1-2
Bluetooth qualification	Qualified against Bluetooth Core 6.0

* Certifications pending

Support products

EVK-ANNA-B565	Evaluation kit for ANNA-B565 with u-connectXpress software
---------------	--

Product variants

ANNA-B561	Bluetooth LE module with u-connectXpress software and antenna pin for external antenna connection
ANNA-B565	Bluetooth LE module with u-connectXpress software and internal 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.

Legal Notice:

u-blox or third parties may hold intellectual property rights in the products, names, logos and designs included in this document. Copying, reproduction, or modification of this document or any part thereof is only permitted with the express written permission of u-blox. Disclosure to third parties is permitted for clearly public documents only.

The information contained herein is provided "as is". No warranty of any kind, either express or implied, is made in relation to the accuracy, reliability, fitness for a particular purpose or content of this document. This document may be revised by u-blox at any time. For most recent documents and product statuses, please visit www.u-blox.com.