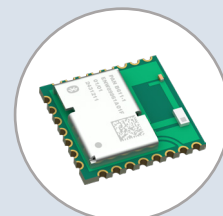New Product Introduction

PAN B611-1x Series Bluetooth® Low Energy Bluetooth 6.0 & 802.15.4 Module

The **PAN B611-1 Series** is a Bluetooth 6.0 Low Energy (LE) module based on the Nordic nRF54L15 single chip controller.

This new Bluetooth Low Energy Modules features a 128 MHz Arm Cortex M33 processor with 1.5 MB non-volatile memory and 256 KB RAM. The PANB611-1x Module has a hybrid layout with castellated holes and bottom pads. It is available in 3 variants and is also available with either chip antenna or bottom pad for external antennas for each variant

- **Premium** – w/Additional 32 kHz Crystal and 32Mbit Flash
- **Standard** – w/Additional 32 kHz crystal
- **Economy** – Base Version

The all-in-one SoC including a superset of the most prominent nRF54 Series features combined with more performance and memory, while minimizing current consumption. In addition, the ultra-low current consumption of the **PAN B611-1 Series** makes the module an ideal choice for battery powered devices. The small size hybrid castellated holes & LGA footprint design offers the possibility for optical outgoing inspection, 2-layers designs and fast prototyping with hand soldering, while still offering more GPIOs on the bottom if needed.

The module is certified for CE RED, FCC, ISED and MIC.

General Features and Benefits

- Regional Certifications Saves Customers Time and Money
- Onboard or External Antenna Gives Customers More Options
- BLE 6.0, Mesh, Zigbee, Thread Support Allows for a Variety of Protocols Concurrently
- Hybrid Layout Offers Easier Prototyping

PAN B611-1x Series Features

- Surface Mount Type with Castellated Holes, Dimensions:10.35 mm × 9.8 mm × 1.9 mm
- Nordic nRF54L15 featuring a 128 MHz Arm Cortex M33 processor, 1.5 MB non-volatile Memory, and 256 KB RAM
- Bluetooth 6.0 LE including LE 2M and LE Coded PHY
- Supports 802.15.4 - ZigBee® and Thread
- 128-bit AES/ECB/CCM/AAR co-processor
- Up to 32× General Purpose I/Os (GPIO) at 1.7 V to 3.6 V, which are shared by SPI, I^2C, UART, PWM, ADC (up to 14-bit), NFC, QSPI

Bluetooth®

- Channel Sounding
- LE 2M and LE Coded
- LE Audio and Isochronous Channels
- Extended Advertising and Channel Sounding
- Mesh Networking

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Characteristics

- Typical sensitivity: 96 dBm (at 1 Mbps) and 104 dBm (at 125 kbps)
- Programmable from: -8 dBm to +8 dBm in 1 dB steps
- Typical Sleep current consumptions: 0.6 μA
  (System OFF, Wake on pin, 0KB RAM retained) 3.7 μA
  (System ON, Wake on pin + GRTC, LFRC, 256 KB RAM retained)
- Typical Radio current consumptions:
- 3.3 mA (Radio RX @ 1 Mbps, HFXO
- 4.8 mA (Radio TX @ 0 dBm, HFXO
- 9.8 mA (Radio TX @ 8dBm, HFXO
- On module DC DC and LDO regulators with automated low current modes
- Wide temperature ranges from -40 °C to 85 °C
- Voltage range: 1.7 V to 3.6 V

Industries

- Smart Home/Building
- Medical
- Commercial Electronics
- Industrial IoT

Applications

- Home Automation, Lighting Control
- Patient Monitoring, Environmental Monitoring
- Wireless Connectivity
- Asset Monitoring

| Part Numbers	Description	Series Name
ENW-89861D01F	PAN B611 Bottom Pad Premium	PAN B611-1B
ENW-89861E01F	PAN B611 Bottom Pad Standard	PAN B611-1B
ENW-89861F01F	PAN B611 Bottom Pad Economy	PAN B611-1B
ENW-89861A01F	PAN B611 Chip Antenna Premium	PAN B611-1C
ENW-89861B01F	PAN B611 Chip Antenna Standard	PAN B611-1C
ENW-89861C01F	PAN B611 Chip Antenna Economy	PAN B611-1C
ENW89861AXKF	PAN B611-1C Evaluation Kit	PAN B611-1C EVB
ENW89861DXKF	PAN B611-1B Evaluation Kit	PAN B611-1B EVB

Evaluation Kits

PANB611-1C

The PAN B611-1C Evaluation Board (ENW89861AXKF) features a PAN B611-1x Bluetooth® Low Energy (LE) module which is based on the Nordic Semiconductor nRF5415L single-chip controller.

The PAN B611-1C module (ENW89861C01F) comes without additional flash memory and 32 kHz crystal and has an on-board chip antenna ("Economy"). However, the evaluation board has a 8 MB flash memory and a 32 kHz crystal externally mounted.

You can access all the different module interfaces like USB, UART, NFC, and GPIOs easily, which makes the evaluation board ideally suited for the evaluation of the module and rapid prototyping of products.
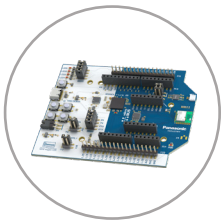
PANB611-1B

The PAN B611-1B Evaluation Board (ENW89861DXKF) features a PAN B611-1B Bluetooth® Low Energy (LE) module which is based on the Nordic Semiconductor nRF5415L single-chip controller.

The PAN B611-1B module (ENW89861F01F) comes without additional flash memory and 32 kHz crystal and has a bottom pad ("Economy"). However, the evaluation board has a 8 MB flash memory and a 32 kHz crystal externally mounted.

You can access all the different module interfaces like USB, UART, NFC, and GPIOs easily, which makes the evaluation board ideally suited for the evaluation of the module and rapid prototyping of products.

Block Diagram