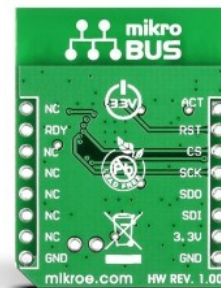


BLE P Click



PID: MIKROE-1597

BLE P Click is a compact add-on board with a low-energy Bluetooth transceiver designed for operation in the peripheral role. This board features the nRF8001, a Bluetooth 4.0 transceiver from Nordic Semiconductor. The nRF8001 combines Radio, Link Layer, and Host into a single product with built-in stack features such as low-energy PHY layer, link layer slave, low-energy host, and more. It also has a PCB trace antenna designed for the 2400-2483.5 MHz frequency band that allows a maximum range of 40 meters in open space. This Click board™ is suitable for general data transmission applications such as thermometers, blood pressure monitors, weight scales, toys, pet supplies, IoT sensor nodes, and more.

BLE P Click is supported by a [mikroSDK](#) compliant library, which includes functions that simplify software development. This [Click board™](#) comes as a fully tested product, ready to be used on a system equipped with the [mikroBUS™](#) socket.

How does it work?

BLE P Click is based on the nRF8001, a Bluetooth 4.0 transceiver from Nordic Semiconductor. The nRF8001 has an on-chip non-volatile memory for storing service configuration used through an integrated Application Controller Interface (ACI), a logical interface between this IC and the application. This storage is used to select and combine the necessary services, thus reducing the application's requirements on the host MCU for handling the real-time operations of the Bluetooth low-energy communication protocol. In addition, the nRF8001 includes a power supply voltage monitor and temperature sensor that further reduces the requirements of the application controller and, thus, the number of the board's components.

Mikroe produces entire development toolchains for all major microcontroller architectures.

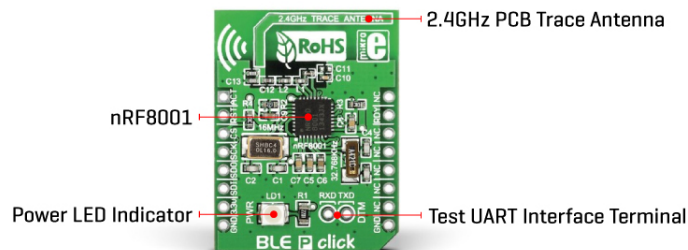
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ISO 27001: 2013 certification of informational security management system.
ISO 14001: 2015 certification of environmental management system.
OHSAS 18001: 2008 certification of occupational health and safety management system.



ISO 9001: 2015 certification of quality management system (QMS).



BLE P Click uses a standard SPI serial interface to establish communication between ACI and the host MCU over the mikroBUS™ socket. The nRF8001 can receive new data over the air at any time, but it can also be busy processing connection events or new data. For the best possible indication of this state, beside an SPI CS pin, there is an RDY pin that serves as an ACI-ready indication (handshaking, active low). This Click board™ also features an RST pin for resetting the nRF8001 and an ACT pin, an optional output signal (ACTIVE) activated before the radio becomes active. This timing signal enables controlling the peak current drain of your application, avoiding overload of the power supply, thus making this Click board™ a perfect solution for projects that require work on small battery capacity. A separate UART interface on RXS/TXD pins of unpopulated terminal gives access to the Bluetooth low energy Direct Test Mode (DTM), allowing testing RF parameters of the BLE P Click's radio design.

If you want to get started with BLE, check out our [BLE Android app](#) that works on all devices with hardware and software support for BLE. All you have to do is to make sure you use it on Android devices.

This Click board™ can be operated only with a 3.3V logic voltage level. The board must perform appropriate logic voltage level conversion before using MCUs with different logic levels. However, the Click board™ comes equipped with a library containing functions and an example code that can be used, as a reference, for further development.

Specifications

Type	BT/BLE
Applications	Can be used for general data transmission applications such as thermometers, blood pressure monitors, weight scales, toys, pet supplies, IoT sensor nodes, and more
On-board modules	nRF8001 - Bluetooth 4.0 transceiver from Nordic Semiconductor
Key Features	Low power consumption, BLE PHY, link layer features, GAP features, main SPI interface, an additional UART pins (RXD/TXD) for Direct Test Mode interface, RF activity indicator, security manager, and more
Interface	GPIO, SPI

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Feature	No ClickID
Compatibility	mikroBUS™
Click board size	S (28.6 x 25.4 mm)
Input Voltage	3.3V

Pinout diagram

This table shows how the pinout on BLE P Click corresponds to the pinout on the mikroBUS™ socket (the latter shown in the two middle columns).

Notes	Pin					Pin	Notes
RF Activity Indicator	ACT	1	AN	PWM	16	NC	
Reset	RST	2	RST	INT	15	RDY	ACI Ready Indicator
SPI Chip Select	CS	3	CS	RX	14	NC	
SPI Clock	SCK	4	SCK	TX	13	NC	
SPI Data OUT	SDO	5	MISO	SCL	12	NC	
SPI Data IN	SDI	6	MOSI	SDA	11	NC	
Power Supply	3.3V	7	3.3V	5V	10	NC	
Ground	GND	8	GND	GND	9	GND	Ground

Onboard settings and indicators

Label	Name	Default	Description
LD1	PWR	-	Power LED Indicator

BLE P Click electrical specifications

Description	Min	Typ	Max	Unit
Supply Voltage	-	3.3	-	V
Operating Frequency Range	2402	-	2480	MHz
On-air Data Rate	-	1	-	Mbps

Resources

[mikroBUS™](#)

[BLE P click Learn Tutorial](#)

[Click board™ Catalog](#)

[Click Boards™](#)

Downloads

[BLE P click example on Libstock](#)

[nRF8001 datasheet](#)

[BLE P click 2D and 3D files](#)

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[BLE P click schematic](#)

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