

## BT-EZ Click



PID: MIKROE-4038

The **BT-EZ click** is a Click board™ which provide BLE connectivity for any embedded application. BT-EZ click based on the [CYBT-343026-01](#) module, from [Infineon](#). This Click board™ is a fully integrated bluetooth low energy module, mentioned for easy integration into various electronic devices. Given its features, this click can be used for health, sports, and wellness devices as well as Industrial, home, and building automation; and smart phone, tablet, and PC accessories.

BT-EZ 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?

The BT-EZ click is a Click board™ features the CYBT-343026-01, a module from Infineon that has some impressive features including the fact that it includes a royalty-free bluetooth stack with Bluetooth 5.0 and BLE supported. Besides that, low power mode enables the module to consume as low as 2.69µA in deep sleep mode, which is ideal for portable, wearable and various other battery powered devices and applications.

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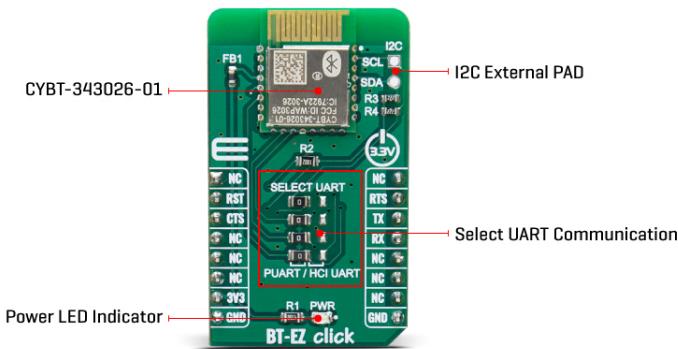
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The BT-EZ Click is fully integrated Bluetooth smart ready wireless module which includes an onboard crystal oscillator, passive components, flash memory, and the CYW20706 silicon device from Infineon. The CYBT-343026-01 module also includes Cortex-M3 32-bit processor and 512 KB of onboard serial flash memory and is designed for standalone operation, while the integrated power amplifier is used in order to achieve Class I or Class II output power capability. The BT-EZ click board uses UART communication and GPIO pins for communication with the main MCU.

The BT-EZ click is a Click board™ supports two UART communication modes. HCI UART interface is a standard, 4-wire interface (RX, TX, RTS, and CTS), with adjustable baud rates from 38400 bps to 4 Mbps. During initial boot, UART speeds may be limited to 750 kbps. The baud rate may be selected via a vendor-specific UART HCI command. The UART clock default setting is 24 MHz, and can be configured to run as high as 48 MHz to support up to 4 Mbps. The baud rate of the CYBT-343026-01UART module is controlled by two values: clock divisor (set in the DLBR register) that divides the UART clock by an integer multiple of 16, and the baud rate adjustment (set in the DHBR register) that is used to specify a number of UART clock cycles to stuff in the first or second half of each bit time.

The BT-EZ click has a second UART (PUART) mode, that may be used to interface to other peripherals. This peripheral UART is accessed through the optional I/O ports, which can be configured individually and separately for each signal.

The external I2C pad provides a 2-pin master I2C interface, which can be used to retrieve configuration information from an external EEPROM or to communicate with peripherals such as track-ball or touch-pad modules, and motion tracking ICs used in mouse devices. This interface is compatible with I2C slave devices. I2C does not support multmaster capability or flexible wait-state insertion by either master or slave devices.

This Click Board™ is designed to be operated only with 3.3V logic level. A proper logic voltage level conversion should be performed before the Click board™ is used with MCUs with logic levels of 5V.

## Specifications

Type	BT/BLE
Applications	Health/Medical Devices, Sports Activity/Fitness Meters, Beacon Applications, Internet of

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	Things (IoT) Sensor Tag, Remote Control, Wearable Smart Devices and Accessories, Smart Energy/Smart Home, Industrial Control
On-board modules	CYBT-343026-01, Bluetooth 5 low energy module from Cypress
Key Features	Bluetooth 5 low energy compliant, integrated antenna, Cortex-M3 32-bit processor
Interface	UART
ClickID	No
Compatibility	mikroBUS™
Click board size	M (42.9 x 25.4 mm)
Input Voltage	3.3V

## Pinout diagram

This table shows how the pinout on BT-EZ click corresponds to the pinout on the mikroBUS™ socket (the latter shown in the two middle columns).

Notes	Pin	mikro™ BUS				Pin	Notes
	NC	1	AN	PWM	16	NC	
Reset	<b>RST</b>	2	RST	INT	15	<b>RTS</b>	UART request to send
UART clear to send	<b>CTS</b>	3	CS	RX	14	<b>TX</b>	UART Transmit
	NC	4	SCK	TX	13	<b>RX</b>	UART Receive
	NC	5	MISO	SCL	12	NC	
	NC	6	MOSI	SDA	11	NC	
Power Supply	<b>3.3V</b>	7	3.3V	5V	10	NC	
Ground	<b>GND</b>	8	GND	GND	9	<b>GND</b>	Ground

## Onboard settings and indicators

Label	Name	Default	Description
LD1	PWR	-	Power LED Indicator
J1-J4	UART SEL	Left	Select UART communication: Left position PUART, right position HCI UART

## Software Support

We provide a library for the BT-EZ Click on our [LibStock](#) page, as well as a demo application (example), developed using MikroElektronika [compilers](#). The demo can run on all the main MikroElektronika [development boards](#).

## Library Description

The library contains basic functions for click-on communication.

Key functions:

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- void btez\_send\_cmd ( char \*cmd\_text ) - Function to send a single command
- void btez\_device\_reset ( void ) - Device reset

## Examples description

The application is composed of three sections :

- System Initialization - Initializes the uart module and all the necessary gpio pins
- Application Initialization - Initializes the driver init, resets the module and starts basic commands
- Application Task - Sends a message to the connected device
- Note - We used the BLUE-SPP application for the test .. We connect to the BT-EZ click through the application and send the message "MikroE". Also the app receives a click message every 10s.

The full application code, and ready to use projects can be found on our [LibStock](#) page.

Other mikroE Libraries used in the example:

- UART Library
- Conversions Library

## Additional notes and informations

Depending on the development board you are using, you may need [USB UART click](#), [USB UART 2 click](#) or [RS232 click](#) to connect to your PC, for development systems with no UART to USB interface available on the board. The terminal available in all MikroElektronika [compilers](#), or any other terminal application of your choice, can be used to read the message.

## mikroSDK

This Click board™ is supported with [mikroSDK](#) - MikroElektronika Software Development Kit. To ensure proper operation of mikroSDK compliant Click board™ demo applications, mikroSDK should be downloaded from the [LibStock](#) and installed for the compiler you are using.

For more information about mikroSDK, visit the [official page](#).

## Resources

[mikroBUS™](#)

[mikroSDK](#)

[Click board™ Catalog](#)

[Click Boards™](#)

## Downloads

[BT-EZ click schematic](#)

[BT-EZ click 2D and 3D files](#)

[CYBT-343026-01 datasheet](#)

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[BT-EZ click example on Libstock](#)

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