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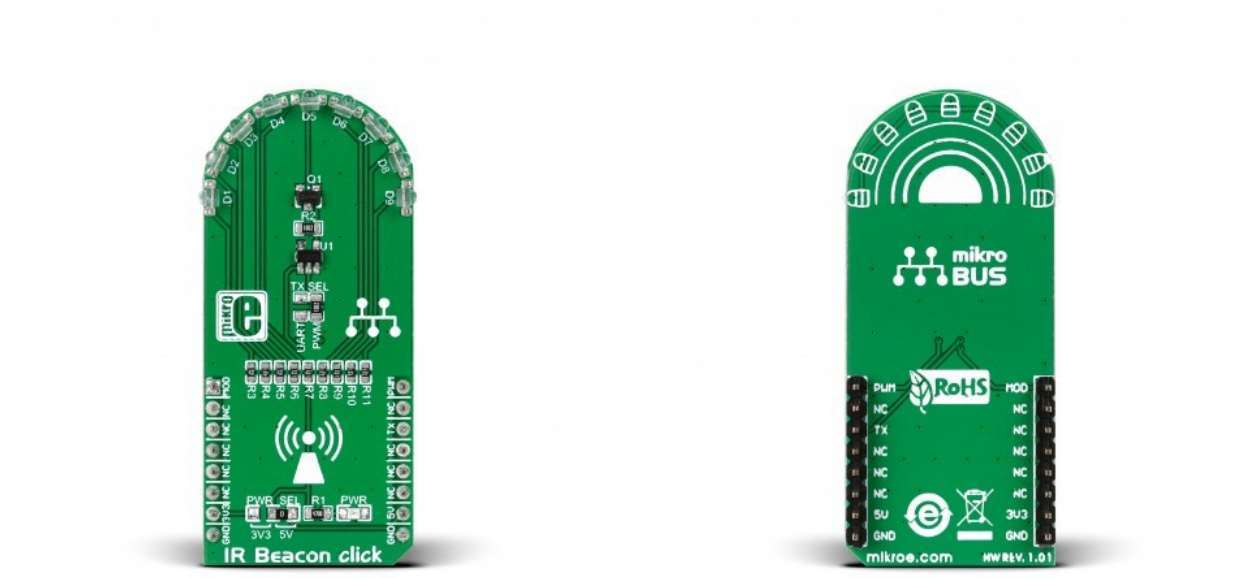
IR Beacon Click



PID: MIKROE-1939

IR Beacon Click is a compact add-on board that provides a beaconing capability to your application. This board features nine VSMB2948SLs, high-speed infrared emitting diodes from Vishay Semiconductors. This board functions as a beacon device, transmitting infrared rays at a wide angle over nine VSMB2948SL LEDs, which nearby infrared receivers, such as the one on IR Click, can detect. The IR LEDs are packed in a half-circle way allowing the transmitted infrared rays to cover a broader space in front of this Click board™. This Click board™ makes the perfect solution for high pulses current operation, such as remote controls, robots, and more.

IR Beacon 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?

IR Beacon Click is based on the nine VSMB2948SLs, high-speed infrared emitting diodes from Vishay Semiconductors. The VSMB2948SL is a 940nm wavelength infrared emitting diode in a GaAlAs multi-quantum well (MQW) technology with high radiant power, high radiant intensity, and high speed molded in a clear untinted package with a lens. This kind of architecture allows the IR wave to have a half-intensity angle of ±25 degrees and a range of up to half of a meter that can be increased by stacking multiple IR Beacon Clicks onto the same mikroBUS™ socket.

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ISO 27001: 2013 certification of informational security management system.
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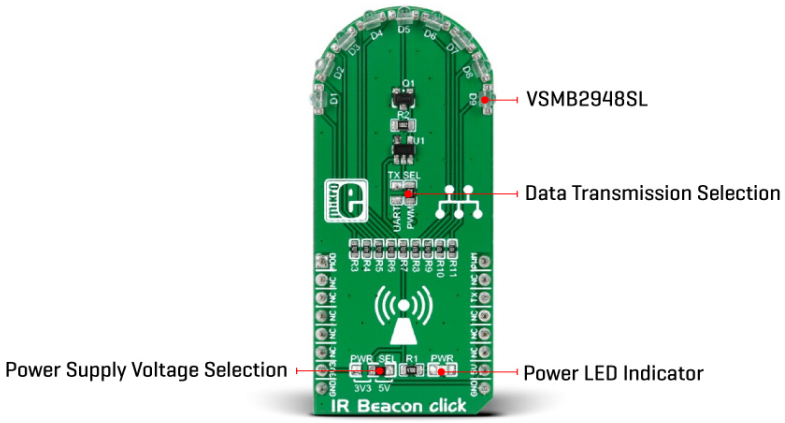

The IR Beacon uses either UART or PWM lines of the mikroBUS™ socket, selected over the TX SEL jumpers, with PWM chosen by default, to allow the host MCU to transmit a signal to a target receiver. The mainboard MCU drives the infrared diodes through the MOD pin, providing a carrier signal which can be adjusted to match the frequency.

This Click board™ can operate with either 3.3V or 5V logic voltage levels selected via the PWR SEL jumper. This way, both 3.3V and 5V capable MCUs can use the communication lines properly. However, the Click board™ comes equipped with a library containing easy-to-use functions and an example code that can be used, as a reference, for further development.

Specifications

Type	Optical
Applications	Can be used for high pulses current operation, such as remote controls, robots, and more
On-board modules	VSMB2948SL - high-speed infrared emitting diodes from Vishay Semiconductors
Key Features	Beaconing capability, transmitting infrared rays in a wide angle, nine high speed IR LEDs with a range of up to 0.5 meter, high radiant power, intensity with a peak wavelengths of 940nm, selectable pin for signal transmission, and more
Interface	GPIO,PWM,UART
Feature	No ClickID
Compatibility	mikroBUS™
Click board size	L (57.15 x 25.4 mm)
Input Voltage	3.3V or 5V

Pinout diagram

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

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Notes	Pin	mikro™ BUS				Pin	Notes
Diodes Enable	**MOD**	1	AN	PWM	16	**PWM**	PWM Control Signal
	NC	2	RST	INT	15	NC	
	NC	3	CS	RX	14	**TX**	TX Control Signal
	NC	4	SCK	TX	13	NC	
	NC	5	MISO	SCL	12	NC	
	NC	6	MOSI	SDA	11	NC	
Power Supply	**3.3V**	7	3.3V	5V	10	**5V**	Power Supply
Ground	**GND**	8	GND	GND	9	**GND**	Ground

Onboard settings and indicators

Label	Name	Default	Description
LD1	PWR	-	Power LED Indicator
JP1	PWR SEL	Left	Logic Level Voltage Selection 3V3/5V: Left position 3V3, Right position 5V
JP2	TX SEL	Right	Data Transmission Selection UART/PWM: Left position UART, Right position PWM

IR Beacon Click electrical specifications

Description	Min	Typ	Max	Unit
Supply Voltage	-	3.3	-	V
IR LED Peak Wavelength	-	-	940	nm
IR Beacon Range	-	-	0.5	m

Software Support

We provide a library for the IR Beacon Click as well as a demo application (example), developed using MikroElektronika compilers. The demo can run on all the main MikroElektronika development boards.

Package can be downloaded/installed directly from NECTO Studio Package Manager(recommended way), downloaded from our LibStock™ or found on Mikroe github account.

Library Description

This library contains API for IR Beacon Click driver.

Key functions

- Enable MOD function
- Disable MOD function
- Reset MOD function

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Example Description

This application sets the brightness on Leds.

The full application code, and ready to use projects can be installed directly from NECTO Studio Package Manager(recommended way), downloaded from our LibStock™ or found on Mikroe github account.

Other Mikroe Libraries used in the example:

- MikroSDK.Board
- MikroSDK.Log
- Click.IrBeacon

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. UART terminal is available in all MikroElektronika compilers.

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™

IR Beacon click Documentation

mikroSDK

Click board™ Catalog

Click Boards™

Downloads

IR Beacon click example on Libstock

IR Beacon schematic

VSMB2948SL datasheet

IR Beacon click 2D and 3D files

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