

Proximity 19 Click



PID: MIKROE-6062

Proximity 19 Click is a compact add-on board designed for precise proximity sensing in various applications. This board features the RPR-0720, a digital optical proximity sensor from ROHM Semiconductor. The RPR-0720 integrates an infrared VCSEL (IrVCSEL) and an IC with an I2C interface, featuring a detection range adjustable from 1 to 15mm and an ambient light canceling function. The board uses a 2-wire I2C interface for communication, supporting up to 400kHz frequency clock, allowing control over sensor functions such as operating mode, interrupt system, and offset/threshold adjustments. This Click board™ is ideal for wearable devices, AR/VR systems, smart home applications, and industrial automation.

How does it work?

Proximity 19 Click is based on the RPR-0720, a miniature digital optical proximity sensor from ROHM Semiconductor that integrates an infrared VCSEL (IrVCSEL) and an IC with an I2C interface in a tiny package. This IC includes a built-in infrared receiver and VCSEL driver, enabling the sensor to detect human presence or objects by reflecting IrVCSEL light. The detection range of the proximity sensor is adjustable from approximately 1 to 15mm. Additionally, it is equipped with an ambient light canceling function, making it ideal for use in wearable and AR/VR devices, among other applications.

Mikroe produces entire development toolchains for all major microcontroller architectures.

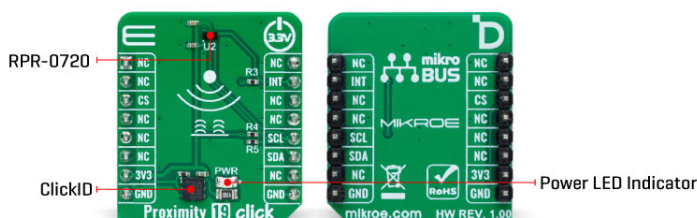
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ISO 9001: 2015 certification of quality management system (QMS).



Proximity 19 Click uses a standard 2-wire I2C interface to communicate with the host MCU, supporting Standard mode with up to 400kHz of frequency clock. The I2C interface and registers allow for controlling various sensor functions, such as operating mode control, interrupt system management for interrupt signals available on INT pin, and adjusting offset and threshold values for proximity sensor data. This flexibility ensures precise and customizable operations tailored to specific application needs.

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. Also, it comes equipped with a library containing functions and an example code that can be used as a reference for further development.

Specifications

Type	Proximity
Applications	Ideal for wearable devices, AR/VR systems, smart home applications, and industrial automation
On-board modules	RPR-0720 - digital optical proximity sensor from ROHM Semiconductor
Key Features	Combining an infrared VCSEL (IrVCSEL) and an IC in one package, adjustable detection range from 1 to 15mm, ambient light canceling function, control over various sensor functions such as operating mode, interrupt system, and offset/threshold adjustments, operates exclusively with a 3.3V logic voltage level, and more
Interface	I2C
Feature	ClickID
Compatibility	mikroBUS™
Click board size	S (28.6 x 25.4 mm)
Input Voltage	3.3V

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Pinout diagram

This table shows how the pinout on Proximity 19 Click corresponds to the pinout on the mikroBUS™ socket (the latter shown in the two middle columns).

Notes	Pin	mikroBUS				Pin	Notes
	NC	1	AN	PWM	16	NC	
	NC	2	RST	INT	15	INT	Interrupt
ID COMM	CS	3	CS	RX	14	NC	
	NC	4	SCK	TX	13	NC	
	NC	5	MISO	SCL	12	SCL	I2C Clock
	NC	6	MOSI	SDA	11	SDA	I2C Data
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

Proximity 19 Click electrical specifications

Description	Min	Typ	Max	Unit
Supply Voltage	-	3.3	-	V
Distance Measurement Range	1	-	15	mm

Software Support

We provide a library for the Proximity 19 Click as well as a demo application (example), developed using MIKROE [compilers](#). The demo can run on all the main MIKROE [development boards](#).

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

Library Description

This library contains API for Proximity 19 Click driver.

Key functions

- `proximity19_get_distance` This function reads the distance measured by the sensor in millimeters by using the I2C serial interface.
- `proximity19_set_ps_gain` This function adjusts the gain of the sensor's sensitivity to light reception.
- `proximity19_set_period` This function sets the desired data measurement period value.

Example Description

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This example demonstrates the use of the Proximity 19 Click board™ by measuring and displaying the distance data.

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

Other MIKROE Libraries used in the example:

- MikroSDK.Board
- MikroSDK.Log
- Click.Proximity19

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 MIKROE [compilers](#).

mikroSDK

This Click board™ is supported with [mikroSDK](#) - MIKROE 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™](#)

[ClickID](#)

Downloads

[Proximity 19 click example on Libstock](#)

[Proximity 19 click 2D and 3D files v100](#)

[RPR-0720 datasheet](#)

[Proximity 19 click schematic v100](#)

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