

MOTION Click



PID: MIKROE-1589

Motion Click is a compact add-on board representing a motion detector sensitive only to live bodies. This board features the [PIR500B](#), a pyroelectric sensor from Shenzhen Haiwang Sensor Co., which generates a voltage when exposed to infrared radiation emitted by live bodies. The signal from the PIR500B is further processed by a [BISS0001](#), a PIR (Passive Infra-Red) controller, manufactured by CMOS process with analog mixing digital design technique. In addition to the possibility of visual detection of the presence of a body, it is also possible to adjust the sensor's detection range (up to 1.7m) using the onboard potentiometer. This Click board™ is suitable for alarm systems, light switch controllers, and similar systems where human presence needs to be detected.

Motion 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?

Motion Click is based on the PIR500B, an infrared motion detector from Shenzhen Haiwang Sensor Co., perfect for all human detection designs such as alarm systems or light switch controllers. The PIR500B comes with a white plastic Fresnel lens covering the sensor that filters visible light. It generates a voltage when exposed to infrared radiation emitted by live bodies. A BISS0001 further processes the signal from the PIR500B, a high-performance PIR (Passive Infra-Red) controller manufactured by CMOS process with analog mixing digital design technique. The BISS001 sends information about motion detection to the MCU through the mikroBUS™ OUT pin (INT pin of the mikroBUS™ socket) alongside visual detection of the motion through an onboard red LED.

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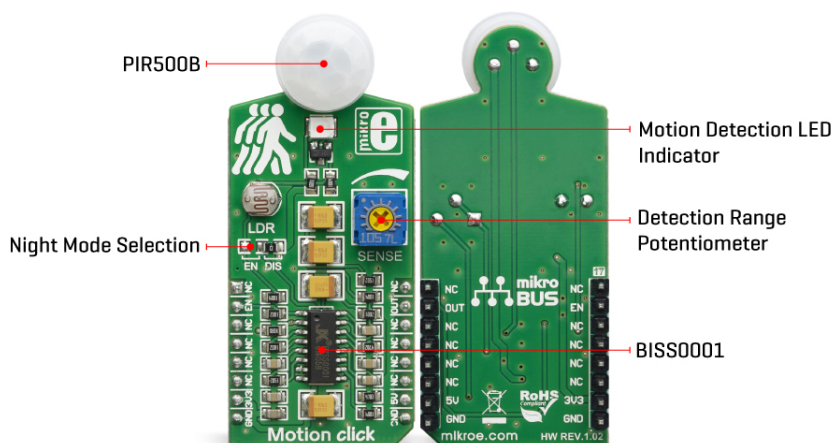
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ISO 9001: 2015 certification of quality management system (QMS).



It is also possible to adjust the sensor detection range (up to 1.7m) using the onboard potentiometer marked as SENSE and the possibility of using the "Night-Only" operating mode. Selection can be performed by the onboard SMD jumper, placing it in an appropriate position marked as EN or DIS. Resoldering an SMD jumper to the EN position activates the onboard photo resistor LDR, which acts as a light-sensitive switch. Also, users can enable or disable the sensor through the EN pin routed to the CS pin of the mikroBUS™ socket; hence, offering a switch operation to turn the sensor ON/OFF.

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	Motion,Optical,PIR
Applications	Can be used for alarm systems, light switch controllers, and similar systems where human presence needs to be detected
On-board modules	PIR500B - infrared motion detector from Shenzhen Haiwang Sensor Co. BISS0001 - high-performance PIR (Passive Infra-Red) controller
Key Features	Low power consumption, sensitivity, high performance, adjustable detection range, visual motion detection, night-only mode, PIR controller with excellent noise immunity, and more
Interface	GPIO
Feature	No ClickID
Compatibility	mikroBUS™
Click board size	L (57.15 x 25.4 mm)
Input Voltage	3.3V

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Pinout diagram

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

Notes	Pin					Pin	Notes
	NC	1	AN	PWM	16	NC	
Enable	EN	2	RST	INT	15	OUT	Motion Detection
	NC	3	CS	RX	14	NC	
	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	NC	
Ground	GND	8	GND	GND	9	GND	Ground

Onboard settings and indicators

Label	Name	Default	Description
LD2	-	-	Motion Detection LED Indicator
JP1	-	Right	Night-Only Mode Selection EN/DIS: Left position EN, Right position DIS

Motion Click electrical specifications

Description	Min	Typ	Max	Unit
Supply Voltage	-	3.3	-	V
Detection Range	-	-	1.7	m

Software Support

We provide a library for the Motion 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 Motion Click driver.

Key functions

- Motion detected function
- Set states of the enable pin

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Example Description

This application detects any motion around it and shows message

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.Motion

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™](#)

[Click board™ Catalog](#)

[Click Boards™](#)

Downloads

[MOTION click example on Libstock](#)

[BISS0001 PIR datasheet](#)

[PIR500B datasheet](#)

[MOTION click 2D and 3D files](#)

[MOTION Click schematic](#)

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