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IR Eclipse 2 Click

PID: MIKROE-6047

IR Eclipse 2 Click is a compact add-on board that adds photo interrupter ability to any application. This board features the EE-SX1330, a transmissive photomicrosensor with a phototransistor output from OMRON. This compact interrupter sensor senses objects or object positions with an optical beam. It can sense any object less than 3mm as it is the space between the photomicrosensor and phototransistor in which an object can fit. This Click board™ makes the perfect solution for printers, laser-level line tools, and other applications requiring photo interrupter ability, detecting a moving part, or even a rotation speed.

IR Eclipse 2 Click is fully compatible with the mikroBUS™ socket and can be used on any host system supporting the mikroBUS™ standard. It comes with the mikroSDK open-source libraries, offering unparalleled flexibility for evaluation and customization. What sets this Click board™ apart is the groundbreaking ClickID feature, enabling your host system to seamlessly and automatically detect and identify this add-on board.

How does it work?

IR Eclipse 2 Click is based on the EE-SX1330, a transmissive photomicrosensor with a phototransistor output from OMRON. It consists of one infrared transmitter and receiver facing each other and spaced apart by a 3mm slit. The sensor activates when an object in the gap, like a piece of paper, eclipses the transmitter beam. The object intercepts the optical beam of the emitter, thus reducing the amount of the optical energy reaching the detector. Some smaller objects do not fully intercept the optical beam emitted by LED; therefore, some parts of the beam come to the detector and allow current flow from the phototransistor (considered noise).

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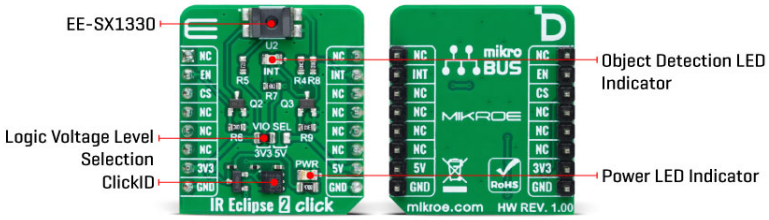

The IR Eclipse 2 Click communicates with the host MCU using only the INT and EN pins of the mikroBUS™ socket. The EN pin provides a standard device enable feature, while the INT pin provides information to the MCU about the presence of an object in the gap and the sensor's activity. Also, the INT LED serves as a visual indicator of the activated sensor (object detection indicator).

This Click board™ can operate with either 3.3V or 5V logic voltage levels selected via the VIO SEL jumper. This way, both 3.3V and 5V capable MCUs can use the communication lines properly. Also, this 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 printers, laser-level line tools, and other applications requiring photo interrupter ability, detecting a moving part, or even a rotation speed
On-board modules	EE-SX1330 - transmissive photomicrosensor with a phototransistor output from OMRON
Key Features	Photo interrupter ability for any application, up to 3mm detection space, detection through digital signal, device enable feature, object detection LED indicator, board compatible with both 3.3V and 5V capable MCUs, and more
Interface	GPIO
Feature	ClickID
Compatibility	mikroBUS™
Click board size	S (28.6 x 25.4 mm)
Input Voltage	3.3V or 5V

Pinout diagram

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This table shows how the pinout on IR Eclipse 2 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	
Device Enable	**EN**	2	RST	INT	15	**INT**	Object Detection Interrupt
ID COMM	**CS**	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	**5V**	Power Supply
Ground	**GND**	8	GND	GND	9	**GND**	Ground

Onboard settings and indicators

Label	Name	Default	Description
LD1	PWR	-	Power LED Indicator
LD2	INT	-	Object Detection LED Indicator
JP1	VIO SEL	Left	Logic Voltage Level Selection 3V3/5V: Left position 3V3, Right position 5V

IR Eclipse 2 Click electrical specifications

Description	Min	Typ	Max	Unit
Supply Voltage	3.3	-	5	V
Sensing Slot Width	-	3	-	mm
Detector Wavelength	-	940	-	nm

Software Support

We provide a library for the IR Eclipse 2 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 IR Eclipse 2 Click driver.

Key functions

- ireclipse2_get_state This function detecting eclipse states.
- ireclipse2_enable This function enables the transmitter of the photo-microsensor.

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- ireclipse2_disable This function disables the transmitter of the photo-microsensor.

Example Description

This example demonstrates the use of the IR Eclipse 2 Click board by detecting eclipse states.

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.IREclipse2

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™

Downloads

IR Eclipse 2 click example on Libstock

EE-SX1330 datasheet

IR Eclipse 2 click 2D and 3D files v100

IR Eclipse 2 Click schematic v100

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