

Light 2 Click



PID: MIKROE-6022

Light 2 Click is a compact add-on board designed for accurate and flexible light measurement in various environments. This board features the [ISL76682](#), a high-sensitivity, light-to-digital sensor with an I2C interface from [Renesas](#), made specifically for automotive applications. Key features include a photodiode array that closely mimics the human eye's response, an ADC for flicker rejection, and four selectable light measurement ranges via I2C, enhancing both flexibility and accuracy. With a typical power consumption of 55µA in Standard mode and two power-down modes to minimize energy use, the board is efficient and adaptable to different lighting conditions. It is ideal for automotive interior lighting adjustment, display backlighting control, and light measurement in both industrial and medical settings.

Light 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?

Light 2 Click is based on the ISL76682, an automotive low-power, high-sensitivity, light-to-digital sensor with an I2C interface from Renesas. Designed for precise light measurement, the ISL76682 features a state-of-the-art photodiode array that closely mimics the human eye's response while effectively rejecting UV and infrared light. It includes an ADC that eliminates flickers at 50Hz and 60Hz from artificial lighting. Users can adjust the light measurement range through the I2C interface, with four selectable ranges from as low as 0.015lux up to 64.000lux, enhancing the flexibility and accuracy of light intensity readings. It's ideally suited for

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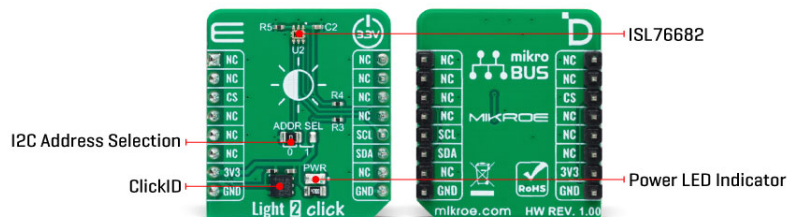


ISO 27001: 2013 certification of informational security management system.
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automotive interior lighting adjustment, display backlighting control, and light measurement in industrial and medical environments.



The ISL76682 operates with low energy consumption, typically around 55µA in its Standard mode. It includes options for further reducing power usage through two power-down modes. The automatic power-down function turns off the sensor after each light measurement cycle when set to polling mode, while a software-controlled mode via the I2C interface can lower the power draw to less than 1µA. The ISL76682 outputs a simple code corresponding to the lux level, offers up to 16-bit resolution, and adapts to various lighting conditions, including direct sunlight.

Light 2 Click uses a standard 2-wire I2C interface to communicate with the host MCU, supporting Standard mode with up to 400kHz of frequency clock. In addition to I2C pins, the device allows the selection of I2C slave address between 0x44 and 0x45 via an SMD jumper marked as ADDR SEL.

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	Ambient Light,Optical
Applications	Ideal for automotive interior lighting adjustment, display backlighting control, and light measurement in both industrial and medical settings
On-board modules	ISL76682 - automotive low-power, high-sensitivity, light-to-digital sensor from Renesas
Key Features	High-sensitivity, automotive-grade, I2C compatible,mimics the human eye's response with excellent UV and IR rejection, flicker rejection at 50Hz and 60Hz minimizing interference from artificial lighting, four adjustable ranges via I2C, low power

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	consumption, variable conversion resolution up to 16 bits, selectable I2C slave address, and more
Interface	I2C
ClickID	Yes
Compatibility	mikroBUS™
Click board size	S (28.6 x 25.4 mm)
Input Voltage	3.3V

Pinout diagram

This table shows how the pinout on Light 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	
	NC	2	RST	INT	15	NC	
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
JP1	ADDR SEL	Left	I2C Address Selection 0/1: Left position 0, Right position 1

Light 2 Click electrical specifications

Description	Min	Typ	Max	Unit
Supply Voltage	-	3.3	-	V
Measurement Range	0.015	-	64.000	lux
Wavelength (ALS/IR)	530/820			nm

Software Support

We provide a library for the Light 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

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This library contains API for Light 2 Click driver.

Key functions

- `light2_read_raw_data` This function reads raw data from the ADC of Light 2 click board.
- `light2_get_cal_const` This function is used to get a calculation constant depending on Light 2 click board configuration.
- `light2_get_light_data` This function is used to read light data of Light 2 click board configuration.

Example Description

This example demonstrates the use of Light 2 click board by measuring the ambient light level in Lux.

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.Light2

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

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[Light 2 click example on Libstock](#)

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

[Light 2 click schematic v100](#)

[ISL76682 datasheet](#)

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