MIKROELEKTRONIKA D.O.O, Batajnički drum 23, 11000 Belgrade, Serbia
VAT: SR105917343 Registration No. 20490918
Phone: + 381 11 78 57 600 Fax: + 381 11 63 09 644 E-mail: office@mikroe.com
www.mikroe.com

Opto 7 Click

PID: MIKROE-5923

Opto 7 Click is a compact add-on board that provides uncomplicated safety isolation from high voltage. This board features two ISOM8710, high-speed single-channel opto-emulators from Texas Instruments. The ISOM8710 opto-emulator has a diode-emulator input and digital output. It has a robust isolation barrier capable of withstanding up to 3750VRMS and a surge capability of up to 10KV. This Click board™ makes the perfect solution for the development of power supplies, grids, electricity meters, motor drives, factory automation and control, building automation, and more.

Opto 7 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.

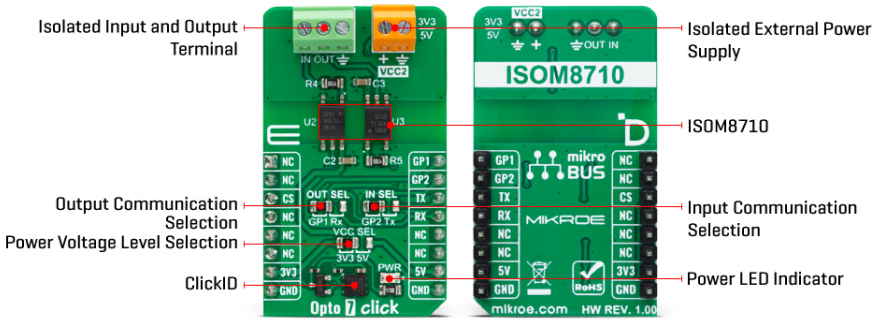
How does it work?

Opto 7 Click is based on two ISOM8710s, high-speed single-channel opto-emulators from Texas Instruments. It can transmit data rates of up to 25Mbps and can output 3.3V and 5V signals with a CMOS-compatible output. Compared to an optocoupler, the ISOM7810 has a high common mode transient immunity, low propagation delay, small pulse with distortion, low power consumption, and more. Opto 7 Click is equipped with two of those opto-emulators, for receiving and transmitting data. The external power supply can be connected to a VCC2 terminal and must be 3.3V or 5V. The three-pin terminal is used to connect input and output data lines, along with the common ground.

Mikroe produces entire development toolchains for all major microcontroller architectures.
Committed to excellency, we are dedicated to helping engineers bring the project development up to speed and achieve outstanding results.

ISOQAR REGISTERED
UKAS MANAGEMENT SYSTEMS
ISO 27001: 2013 certification of informational security management system.
ISO 14001: 2015 certification of environmental management system.
OHSAS 18001: 2008 certification of occupational health and safety management system.
TÜV SÜD ISO 9001
ISO 9001: 2015 certification of quality management system (QMS).

MIKROELEKTRONIKA D.O.O, Batajnički drum 23, 11000 Belgrade, Serbia
VAT: SR105917343 Registration No. 20490918
Phone: + 381 11 78 57 600 Fax: + 381 11 63 09 644 E-mail: office@mikroe.com
www.mikroe.com



Opto 7 Click can use general-purpose IO to communicate with the host MCU over the GP1 and GP2 pins. It can also be used for a standard UART communication isolation with commonly used UART RX and TX pins. The selection can be made over the OUT SEL and IN SEL jumpers. Both should be in a proper position for the communication to work.

This Click board™ can operate with either 3.3V or 5V logic voltage levels selected via the VCC 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	Optocoupler
Applications	Can be used for the development of power supplies, grids, electricity meters, motor drives, factory automation, and control, building automation, and more
On-board modules	ISOM8710 - high-speed single-channel opto-emulator from Texas Instruments
Key Features	Single-channel diode-emulator input, CMOS output, high data rate, robust isolation barrier, low power consumption, tight process controls result in small part-to-part skew, low propagation delay, small pulse width distortion, high common mode transient immunity, and more
Interface	GPIO,UART
Feature	ClickID
Compatibility	mikroBUS™
Click board size	M (42.9 x 25.4 mm)
Input Voltage	3.3V or 5V,External

Pinout diagram

Mikroe produces entire development toolchains for all major microcontroller architectures.
Committed to excellency, we are dedicated to helping engineers bring the project development up to speed and achieve outstanding results.

ISO 27001: 2013 certification of informational security management system.
ISO 14001: 2015 certification of environmental management system.
OHSAS 18001: 2008 certification of occupational health and safety management system.

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

MIKROELEKTRONIKA D.O.O, Batajnički drum 23, 11000 Belgrade, Serbia
VAT: SR105917343 Registration No. 20490918
Phone: + 381 11 78 57 600 Fax: + 381 11 63 09 644 E-mail: office@mikroe.com
www.mikroe.com

This table shows how the pinout on Opto 7 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	**GP1**	General-Purpose I/O
	NC	2	RST	INT	15	**GP2**	General-Purpose I/O
ID COMM	**CS**	3	CS	RX	14	**TX**	UART TX
	NC	4	SCK	TX	13	**RX**	UART RX
	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	VCC SEL	Left	Power/Logic Voltage Level Selection 3V3/5V: Left position 3V3, Right position 5V
JP2	IN SEL	Left	Input Communication Selection GP2/Tx: Left position GP2, Right position Tx
JP3	OUT SEL	Left	Output Communication Selection GP1/Rx: Left position GP1, Right position Rx

Opto 7 Click electrical specifications

Description	Min	Typ	Max	Unit
Supply Voltage	3.3	-	5	V
Data Rate	-	-	25	Mbps
Isolation Rating	-	-	3750	V_{rms}

Software Support

We provide a library for the Opto 7 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 way), downloaded from our LibStock™ or found on Mikroe github account.

Library Description

This library contains API for Opto 7 Click driver.

Mikroe produces entire development toolchains for all major microcontroller architectures.
Committed to excellency, we are dedicated to helping engineers bring the project development up to speed and achieve outstanding results.

ISOQAR REGISTERED
UKAS MANAGEMENT SYSTEMS
ISO 27001: 2013 certification of informational security management system.
ISO 14001: 2015 certification of environmental management system.
OHSAS 18001: 2008 certification of occupational health and safety management system.
TÜV SÜD ISO 9001
ISO 9001: 2015 certification of quality management system (QMS).

MIKROELEKTRONIKA D.O.O, Batajnički drum 23, 11000 Belgrade, Serbia
VAT: SR105917343 Registration No. 20490918
Phone: + 381 11 78 57 600 Fax: + 381 11 63 09 644 E-mail: office@mikroe.com
www.mikroe.com

Key functions

- opto7_generic_write Opto 7 data writing function.
- opto7_set_gp1_pin Opto 7 set GP1 pin function.
- opto7_get_gp2_pin Opto 7 get GP2 pin function.

Example Description

This example demonstrates the use of Opto 7 Click board™ by processing the incoming data and displaying them on the USB UART.

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.Opto7

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

Opto 7 click example on Libstock

Mikroe produces entire development toolchains for all major microcontroller architectures.
Committed to excellency, we are dedicated to helping engineers bring the project development up to speed and achieve outstanding results.

ISO 27001: 2013 certification of informational security management system.
ISO 14001: 2015 certification of environmental management system.
OHSAS 18001: 2008 certification of occupational health and safety management system.

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

MIKROELEKTRONIKA D.O.O, Batajnički drum 23, 11000 Belgrade, Serbia
VAT: SR105917343 Registration No. 20490918
Phone: + 381 11 78 57 600 Fax: + 381 11 63 09 644 E-mail: office@mikroe.com
www.mikroe.com

Opto 7 click 2D and 3D files

ISOM8710 datasheet

Opto 7 click schematic

Mikroe produces entire development toolchains for all major microcontroller architectures.
Committed to excellency, we are dedicated to helping engineers bring the project development up to speed and achieve outstanding results.

ISO 27001: 2013 certification of informational security management system.
ISO 14001: 2015 certification of environmental management system.
OHSAS 18001: 2008 certification of occupational health and safety management system.

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

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for Optical Sensor Development Tools ***category:***

Click to view products by MikroElektronika ***manufacturer:***

Other Similar products are found below :

MT9V034C12STCH-GEVB ISL29112IROZ-EVALZ TCS3430-DB TSL2520-DB SX9210EVKA MIKROE-5421 MIKROE-2103 MT9M114EBLSTCZDH-GEVB SEN0043 SEN0162 TMD2672EVM 1918 LV0111CFGEVB BH1790GLC-EVK-001 SEN0097 SEN0212 SEN0228 MIKROE-2677 AS7262 Demo Kit SEN0144 TMD2725-EVM IRDET-01 LA0151CSGEVB AP0100AT2L00XUGAH3-GEVB AS722X/1X DEMO KIT SEN-14351 SEN-14347 PIR-01 PIEZO-01 MIKROE-3330 MT9M114EBLSTCZD3-GEVK SI1102EK 1980 1981 2748 3779 4162 4698 5610 5758 5940 ALS-GEVB ZTPD-EVM-KIT AS7264N DEMO KIT AS7265x Demo Kit Housing AS7265X DEMO KIT V3.0 AS73211-AB5 AS7341 EVAL KIT AS7341 EVK REFLECTIO AS7343 EVK ALS