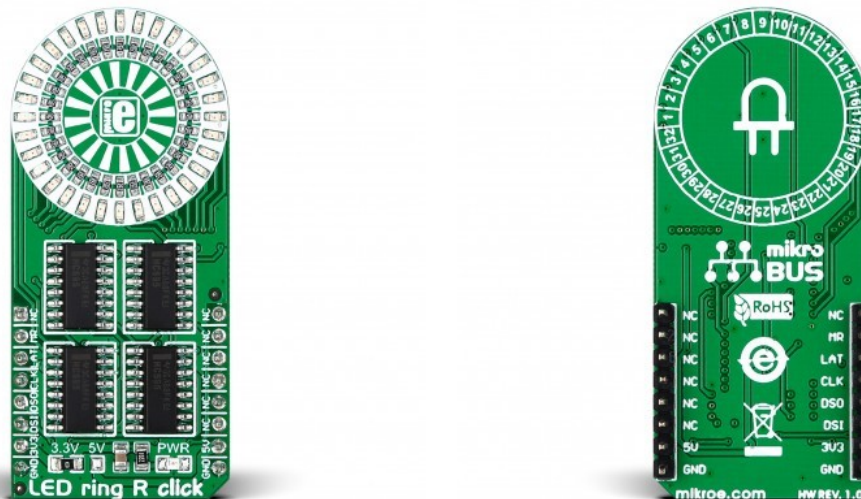


Led Ring R Click



PID: MIKROE-2153

LED Ring R Click is a compact add-on board with a ring of 32 red LEDs. This board features four SN74HC595, an 8-bit serial-in, parallel-out 3-state shift register output latches from [Texas Instruments](#). The 32 LEDs are arranged in a 25mm circle, forming a ring of LEDs. The SN74HC595 shift registers allow addressing each LED individually or all of them at the same time. Using 8-bit shift registers to drive an array of LEDs is a good practice. It leaves more available pins on the target MCU, allowing you to either use a cheaper, lower pin count main MCU or use the leftover pins for other purposes. This Click board™ makes the perfect solution for developing indicator lights or decorative installations.

LED Ring R 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?

LED Ring R Click is based on four SN74HC595, an 8-bit serial-in, parallel-out 3-state shift register output latches from Texas Instruments. The SN74HC595s are connected in a daisy chain from one's serial data output pin to another serial data input pin. Both the shift and storage registers have separate clocks. The data in the shift register is transferred to the storage register on a LOW-to-HIGH transition of the LAT pin. If both clocks are logic state timed together, the shift register will always be one clock pulse ahead of the storage register. Data in the storage register appears at the output whenever the output enable pin (OE) is LOW (in this case, always since the OE pin is connected to GND and is always low).

The LED Ring R Click uses an SPI serial interface to communicate with the host MCU via the

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mikroBUS™ socket. The CLK pin serves as a shift register clock input, while the LAT pin serves as a storage register clock input for all four SN74HC595. The MR pin is a master reset pin with active LOW and will reset all four SN74HC595 shift registers at once. All four SN74HC595 outputs are enabled by default, as they are pulled down, and the enabling feature on this Click board™ is not given to the user.

This Click board™ can operate with either 3.3V or 5V logic voltage levels selected via the 3.3V 5V jumper. This way, both 3.3V and 5V capable MCUs can use the communication lines properly. However, the 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	LED Matrix
Applications	Can be used for the development of an indicator lights or decorative installations
On-board modules	SN74HC595 - 8-bit serial-in or parallel-out 3-state shift register output latches from Texas Instruments
Key Features	Ring of 32 red LEDs, 25mm in diameter, four SN74HC595 shift registers allows addressing each LED individually or all at the same time, reset all shift registers at once, low power consumption, direct reset of shift registers, and more
Interface	GPIO, SPI
Feature	No ClickID
Compatibility	mikroBUS™
Click board size	L (57.15 x 25.4 mm)
Input Voltage	3.3V or 5V

Pinout diagram

This table shows how the pinout on Led ring R 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			
Master Reset	MR	2	RST	INT	15	NC			
Latch Signal	LAT	3	CS	RX	14	NC			
SPI Clock	SCK	4	SCK	TX	13	NC			
SPI Data OUT	SDO	5	MISO	SCL	12	NC			
SPI Data IN	SDI	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		

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Onboard settings and indicators

Label	Name	Default	Description
LDP	PWR	-	Power LED Indicator
J1A	-	Left	Logic Level Voltage Selection 3V3/5V: Left position 3V3, Right position 5V

Led ring R Click electrical specifications

Description	Min	Typ	Max	Unit
Supply Voltage	3.3	-	5	V

Software Support

We provide a library for the Led ring R 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 Led ring R Click driver.

Key functions

- Generic write function.
- Turn On LED by position.
- Set led.

Example Description

LED ring R click is a mikroBUS™ add-on board with a ring of 32 red LEDs driven.

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.LedringR

Additional notes and informations

Depending on the development board you are using, you may need [USB UART click](#), [USB UART](#)

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[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

[LED ring R click example on Libstock](#)

[SN74HC595 datasheet](#)

[Led ring R click 2D and 3D files](#)

[Led ring R click schematic](#)

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