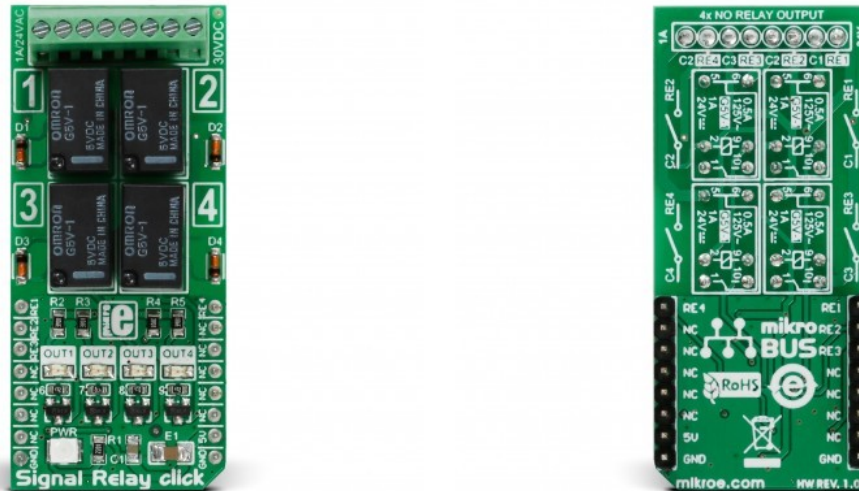


Signal Relay Click



PID: MIKROE-2154

Signal Relay Click is a compact add-on board with four relays that any host microcontroller can control. This board features four [G5V-1](#), an ultra-miniature, highly sensitive single-pole double-throw (SPDT) relay for signal circuits from [Omron](#). The Signal Relay Click comes equipped with the 8-pin screw terminal, two for each relay. Through them, the relays can be used to switch up to 30V DC or up to 1A/24VAC. This Click board™ makes the perfect solution for developing ON/OFF control in various home automation devices, like alarm units, lamps, heaters, and more. It can also energize bigger relay coils and contactors in industrial AC schemes (12/24V).

Signal Relay 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?

Signal Relay Click is based on four G5V-1s, an ultra-miniature, highly sensitive single-pole double-throw (SPDT) relays for signal circuits from Omron. The G5V-1 relays feature wide switching power of up to 1A, high sensitivity with 150mW of nominal coil power consumption, and are of fully-sealed construction, thus offering environmental resistance. The relay internal single-type contact is made as a single crossbar of gold and silver alloy. The relay output markings of the screw terminal are labeled at the bottom of this Click board™ with additional info. Every relay has its LED for visual presentation, labeled OUT1-4.

To communicate with the host microcontroller, the Signal Relay Click uses four mikroBUS™ pins labeled RE1, RE2, RE3, and RE4. All relays are driven through small amplifier

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transistors as a safe solution for the relays' current and their impact on the host MCU. The Signal Relay Click also features small signal fast switching diodes on each relay to prevent electrical noise. One thing to note, the relays' coils are 5-volts driven.

This Click board™ can only be operated with a 5V 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	Relay
Applications	Can be used for the development of ON/OFF control in various home automation devices, like alarm units, lamps, heaters, or for energizing coils of bigger relays and contactors in industrial AC schemes (12/24V)
On-board modules	G5V-1 - single-pole double-throw (SPDT) relay from Omron
Key Features	Power switching from 1mA to 1A, maximum contact resistance 100mΩ, 150mW nominal coil power consumption, four independent driven signal relays with screw terminal with 2-pins for each, 5 volts driven coils, and more
Interface	GPIO
Feature	No ClickID
Compatibility	mikroBUS™
Click board size	L (57.15 x 25.4 mm)
Input Voltage	5V

Pinout diagram

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

Notes	Pin					Pin	Notes
Relay 1 Control Signal	RE1	1	AN	PWM	16	RE4	Relay 4 Control Signal
Relay 2 Control Signal	RE2	2	RST	INT	15	NC	
Relay 3 Control Signal	RE3	3	CS	RX	14	NC	
	NC	4	SCK	TX	13	NC	
	NC	5	MISO	SCL	12	NC	
	NC	6	MOSI	SDA	11	NC	
	NC	7	3.3V	5V	10	5V	Power Supply
Ground	GND	8	GND	GND	9	GND	Ground

Onboard settings and indicators

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Label	Name	Default	Description
LD1	PWR	-	Power LED Indicator
LD2-LD5	OUT1-OUT4	-	Relay ON/OFF LED Indicator

Signal Relay Click electrical specifications

Description	Min	Typ	Max	Unit
Supply Voltage	-	5	-	V
Coil Voltage	-	5	-	V
Coil Resistance	-	167	-	Ω
Switching AC Voltage	-	24	-	VDC
Switching DC Voltage	-	30	-	VDC
Switching Current	-		1	V

Software Support

We provide a library for the Signal Realy 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 Signal Realy Click driver.

Key functions

- Relays state

Example Description

Demo application is used to shows basic controls Signal Relay click.

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.SignalRealy

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

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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™](#)

[Click board™ Catalog](#)

[Click Boards™](#)

Downloads

[Signal Relay click example on Libstock](#)

[G5V-1 datasheet](#)

[Signal Relay click schematic](#)

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