


Signal Relay click

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Signal Relay click	
IC/Module	PCB GV5-1 datasheet ^[1]
Interface	AN, RST, CS and PWM
Power supply	5V
Product page	shop.mikroe.com/click/miscellaneous/signal-relay ^[2]
Schematic	Signal Relay click schematic ^[3]

Signal Relay click carries four ultra-small GV5-1 PCB relays from Omron and runs on a 5V power supply. The click communicates with the target MCU over the following mikroBUS pins: AN, RST, CS and PWM.

Features and usage notes

Maximum continuous current

The relay contacts are designed for a maximum of 1A of continuous current. The Signal Relay click board is configured so that the switch circuit supply a maximum of 24VAC/30VDC voltage of a power supply source.

LED

Each GV5-1 relay has its own LED on the board that signalizes whether the relays is switched on or off.

Application


ON/OFF control in various home automation devices, like alarm units, lamps, heaters, etc. It can also be used for energizing coils of bigger relays and contactors in industrial AC schemes (12/24V).

Key features

- GV5-1 relay
 - Power switching from 1 mA to 1 A
 - 150 mW nominal coil power consumption
 - Maximum contact resistance 100 mΩ
- 4 pairs of screw terminals
- Interface: AN, RST, CS and PWM pin
- 5V power supply

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	 mikroBUS tm					Pin	Notes
GPIO for switch ON/OFF RELAY 1	RE1	1	AN		PWM	16	RE4	GPIO for switch ON/OFF RELAY 4
GPIO for switch ON/OFF RELAY 2	RE2	2	RST		INT	15	NC	Not connected
GPIO for switch ON/OFF RELAY 3	RE3	3	CS		TX	14	NC	Not connected
Not connected	NC	4	SCK		RX	13	NC	Not connected
Not connected	NC	5	MISO		SCL	12	NC	Not connected
Not connected	NC	6	MOSI		SDA	11	NC	Not connected
Not connected	NC	7	+3.3V		+5V	10	5V	Power supply
Ground	GND	8	GND		GND	9	GND	Ground

LEDs and connectors

The table below explains onboard LEDs and connectors.

Designator	Name	Type (LED, BUTTON...)	Description
LD1	PWR	LED	Power LED
LD2	OUT1	LED	INDICATOR OUTPUT 1 ON (RELAY1 ON)
LD3	OUT2	LED	INDICATOR OUTPUT 2 ON (RELAY2 ON)
LD4	OUT3	LED	INDICATOR OUTPUT 3 ON (RELAY3 ON)
LD5	OUT4	LED	INDICATOR OUTPUT 4 ON (RELAY4 ON)
CN1	OUTPUT TERMINAL	8-POLE TERMINAL BLOCK CONNECTOR 2.54MM PITCH	RELAY1 CONTACT ENDS (RE1 - CE1) RELAY2 CONTACT ENDS (RE2 - CE2) RELAY3 CONTACT ENDS (RE3 - CE3) RELAY4 CONTACT ENDS (RE4 - CE4)

Programming

This demo turns relays ON or OFF using 4 buttons from the development board.

- Max. switching voltage: 125 VAC, 60 VDC
- Max. switching current: 1 A

This code snippet initializes the TFT display, draws a frame and checks for button toggling in an endless loop, which sets the relay ON or OFF.

```
void main()
{
    Display_Init();
    DrawFrame();

    while(1)
    {
        // Relay 1
        if (Button(&GPIOC_IDR, 9, 1, 1))
        {

            if (!oldC9)           // detect zero-to-one transition
            {
                Delay_ms( 200 );
                oldC9 = 1;
                GPIOA_ODR.B4 = 1;
            }

            else                 // detect one-to-zero transition
            {
                Delay_ms( 200 );
                oldC9 = 0;
                GPIOA_ODR.B4 = 0;
            }
        }
    }
}
```

Resources

- Signal Relay click schematic ^[3]
- PCB GV5-1 datasheet ^[1]
- Libstock Library ^[4]
- mikroBUS™ standard specifications ^[5]

References

- [1] http://www.omron.com/ecb/products/pdf/en-g5v_1.pdf
 - [2] <https://shop.mikroe.com/click/miscellaneous/signal-relay>
 - [3] http://cdn-docs.mikroe.com/images/2/22/Signal_Relay_click.pdf
 - [4] <http://libstock.mikroe.com/projects/view/1977/signal-relay-click>
 - [5] <http://download.mikroe.com/documents/standards/mikrobus/mikrobus-standard-specification-v200.pdf>
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