

## 2 Channel Relay - 12V

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### Description:

2 Channel 12V Relay Module is an interface board and can be controlled directly by a wide range of microcontrollers such as Arduino, AVR, PIC, ARM, and so on. With digital outputs to control larger loads and devices like AC or DC Motors, electromagnets, solenoids, and incandescent light bulbs.

This module is designed to be integrated with 2 relays that it is capable of controlling 2 devices.

### Features:

1. It can control both AC and DC appliances such as Solenoids, Motors, lights, fans, etc.
2. High-quality screw terminals (Terminal Block) provided (C, NC, NO) for quick and easy connection.
3. A freewheeling diode to protect your microcontroller.
4. Input Signal Pin connected to Burg stick for easy accessibility.
5. LED status indicators to indicate the relay ON/OFF status.
6. Mounting holes provided.
7. Signal input with a high-level signal, the common and often start conduction.
8. The relay can directly control all kinds of equipment and load.

## Specifications:

- Channel – 2
- Operating Voltage(VDC) – 12V
- Current Capacity at AC250V – 10A
- Current Capacity at DC30V – 10A

## Pin Description:

**VCC:** 12V Power supply

**GND:** Ground

**IN1 and IN2:** Control pins

**VR:** It provides power to the relay's electromagnet. When the jumper is in place, VR shorted to VCC, allowing the electromagnets to be powered. Without the jumper cap, you'd have to connect it to a separate power source.

**C (Common):** This is the commonly terminal. This terminal will be connected to either of other 2 terminals (NO or NC) based on the state of relay.

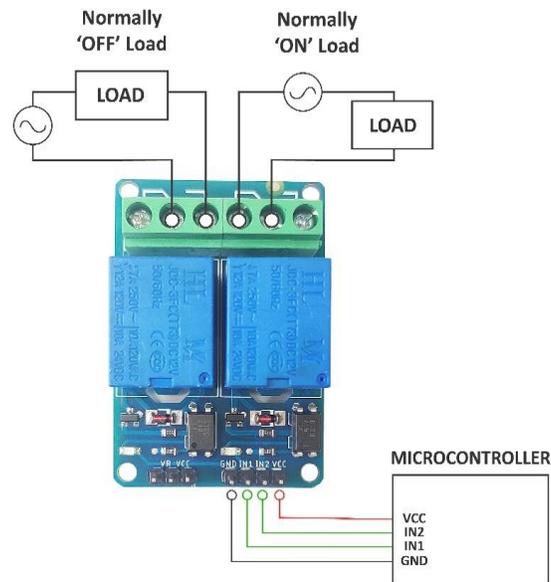
**NO (Normally Open):** As the name indicates this is normally open terminal, ie. if the relay is not energized (not ON), this pin will be open. We can say that the switch is OFF by default and when the relay is energized it will become ON.

**NC (Normally Close):** As the name indicates it is normally closed terminal, ie. if the relay is not energized (not ON), this pin will be closed. We can say that the switch is ON by default and when the relay is energized it will become OFF.

## How to work:

The 2 channel relay module can be used to switch mains powered loads from the pins of microcontroller. Since there are two channels on the same board, two separate loads can be powered. This is useful for home automation.

The loads can be connected as follows:



In this diagram, the relay on the left (channel 1) is connected in a regular fashion with the load and source going between common and normally open, so when the relay is activated, the load is powered. On the right channel (channel 2), the load and source are connected between common and normally closed, which means that the load is powered by default till the relay is activated.

If the load is connected to the normally closed contact, then the input polarity 'reversal' can be fixed – the load is powered on when the input is high, and the load is powered off when the input is low. This method, however, wastes some current since the relay coil draws current when the load is switched off.

### Applications:

- To control high voltage
- To control high current load such as motor
- To control solenoid valves
- To control lamps and AC load