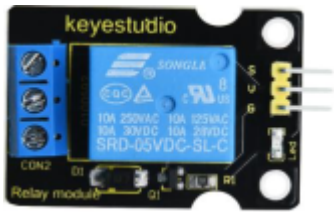
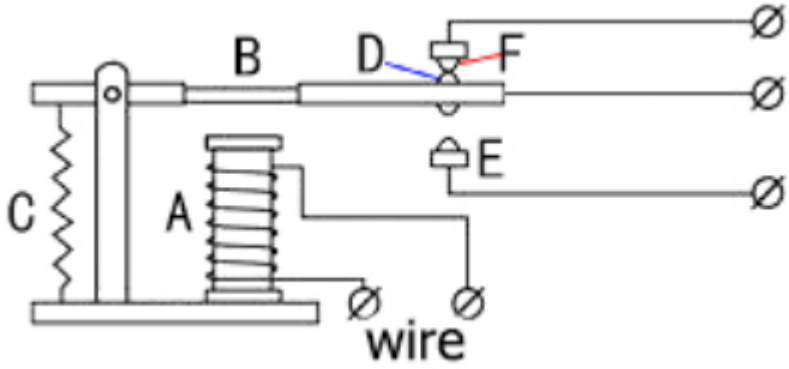
Project 05 Relay



1. Description

This is an Arduino dedicated module, compatible with Arduino sensor expansion board. It includes a control system (an input loop) and a controlled system (an output loop).
Commonly used in automatic control circuits, the relay module is an "automatic switch" that controls a larger current and a lower voltage with a smaller current and a lower voltage.
Therefore, it plays the role of automatic adjustment, safety protection and conversion in the circuit. It allows Arduino to drive loads below 3A, such as LED light strips, DC motors, miniature water pumps, solenoid valve interface.
Its main internal components are electromagnet A, armature B, spring C, moving contact D, static contact(normally open contact)E, and static contact(normally closed contact)F, as shown in the figure.



As long as a certain voltage is applied to both ends of the coil, a certain current will flow through it. This will generate electromagnetic effects, and the armature will attract the iron core against the pulling force of the return spring under the action of electromagnetic force attraction, thereby driving the moving contact and the normally-open contact to attract each other.
When the coil is disconnected, the electromagnetic suction will disappear, and the armature will return to the original position under the reaction force of the spring, releasing the moving contact and the original normally-closed contact. And this achieves the purpose of turning on and off in the circuit.

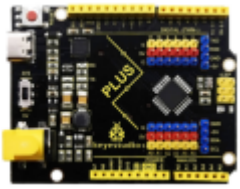
To distinguish the "normally open and closed" contacts:
When the relay coil is powered off, static contacts on disconnected state are called "normally open contacts", while those on connected state are called "normally closed contact".

The module comes with 2 positioning holes for you to fix the module to other devices.

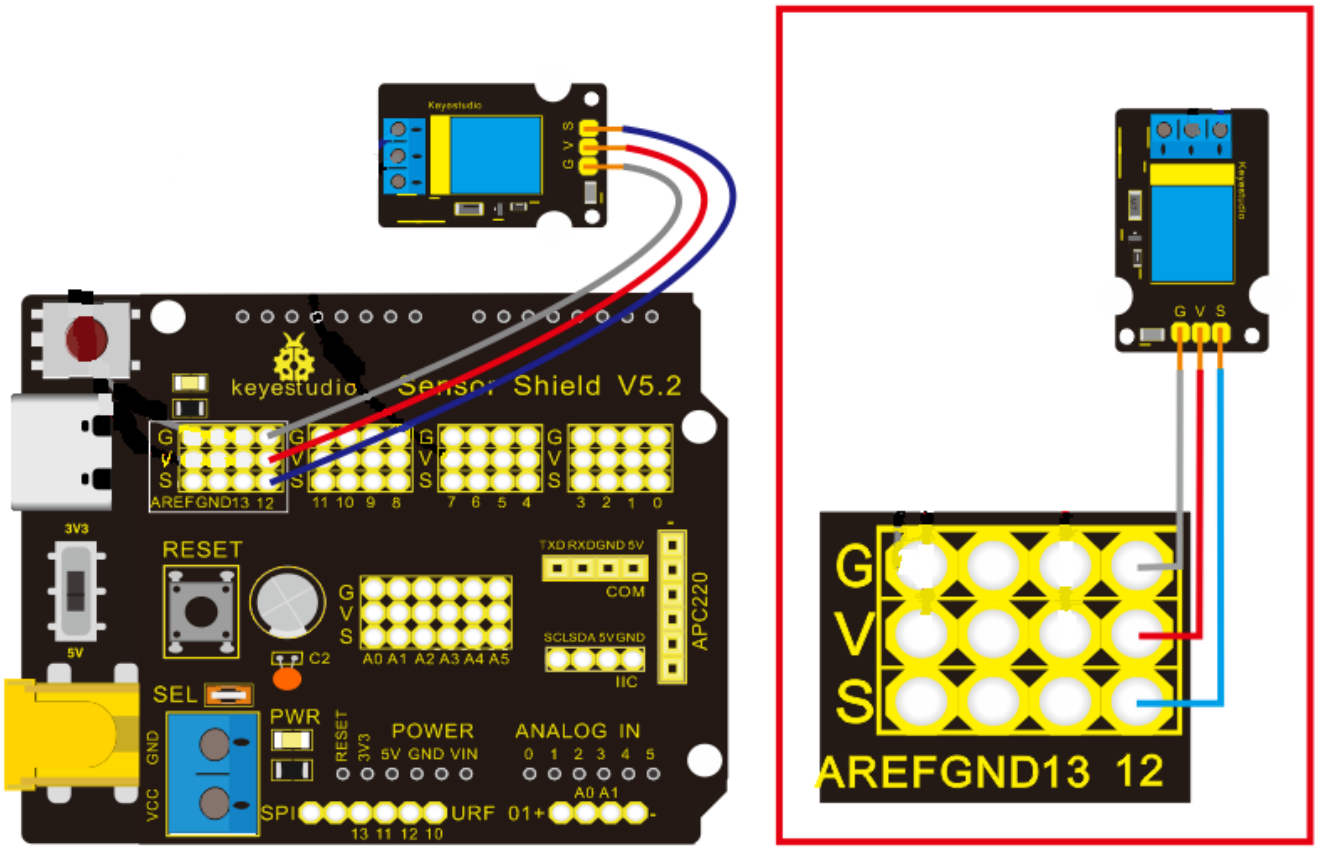
2. Parameters

- Working voltage: 5V (DC)
- Input signal: digital signal (high level 1, low level 0)
- Contact: static contact (normally-open contact, normally-closed contact) and moving contact

3. Needed Components

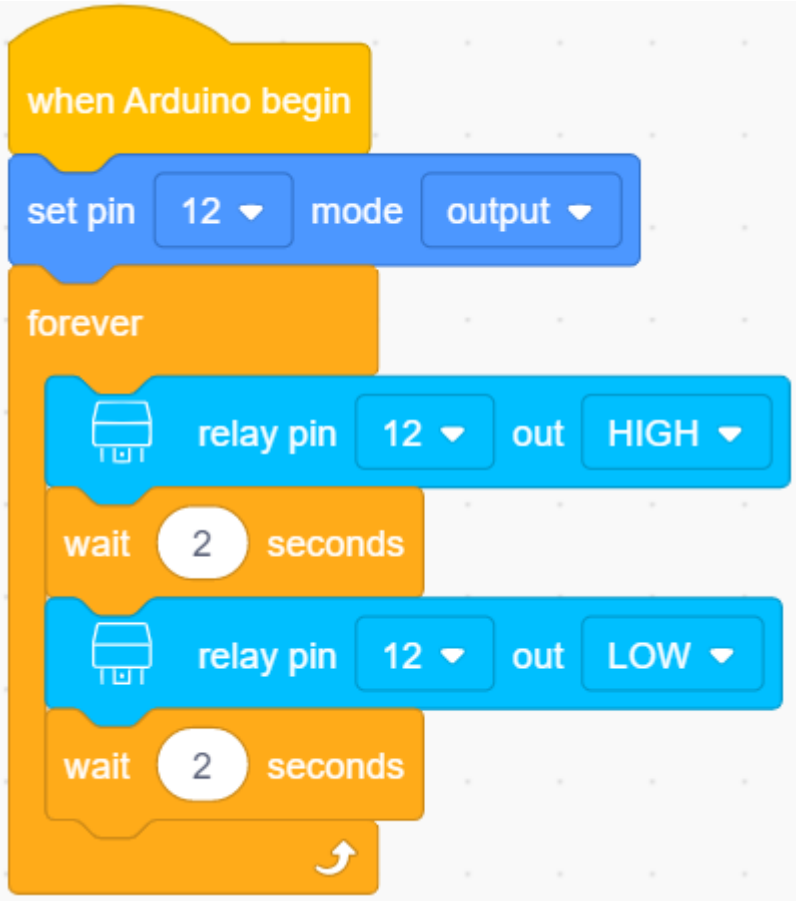
PLUS control board*1	Expansion board*1	Relay module*1	USB cable*1	3Pin F-F Dupont wire*1
				

4. Wiring Diagram



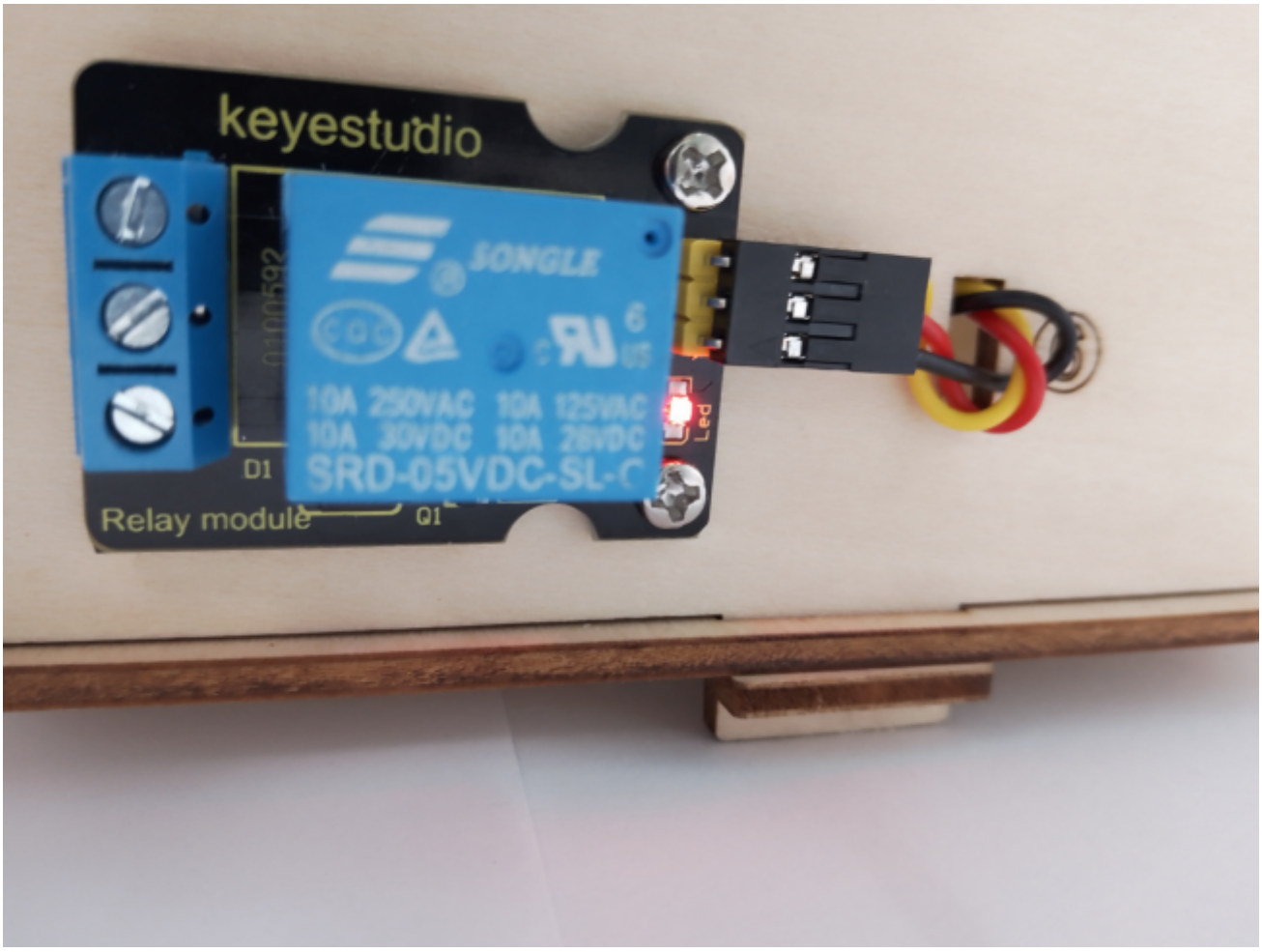
Note: On the expansion board, the G, V, and S pins of 1-channel relay module are connected to G, V, and 12 respectively.

5. Test Code



6. Test Result

After the code is uploaded, when the relay is connected, the white LED will light on; conversely, when it is disconnected, the LED will go off.


keyestudio
SONGLE
10A 250VAC 10A 125VAC
10A 30VDC 10A 28VDC
SRD-05VDC-SL-C
Led
D1
Relay module
Q1