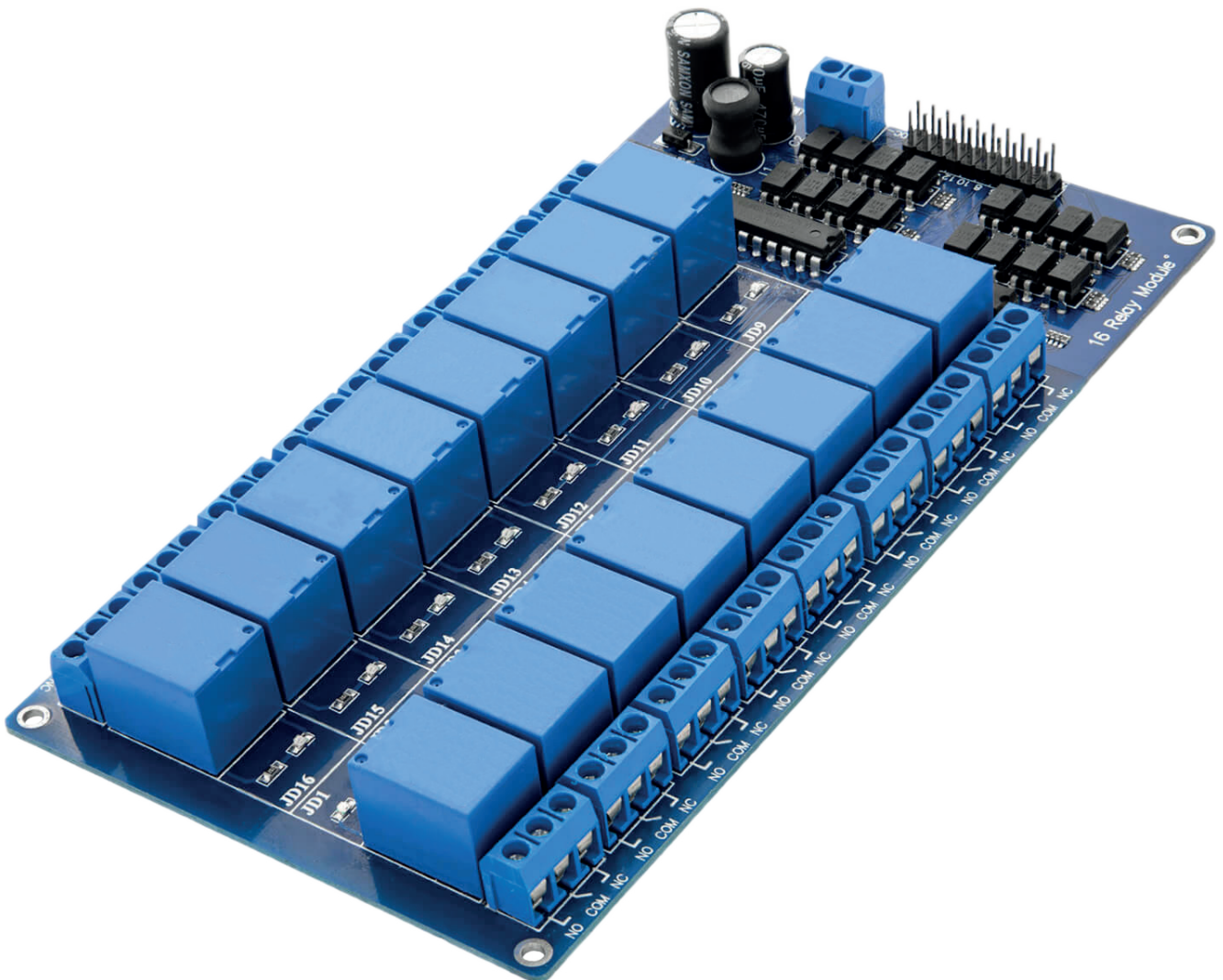


16-Relais Modul Datenblatt



Content:

- [1. Brief Data](#)
- [2. Module Pinout](#)
- [3. Operating Principle](#)
- [4. Input](#)
- [5. Output](#)
- [6. Testing Setup](#)
- [7. Connection Diagram](#)

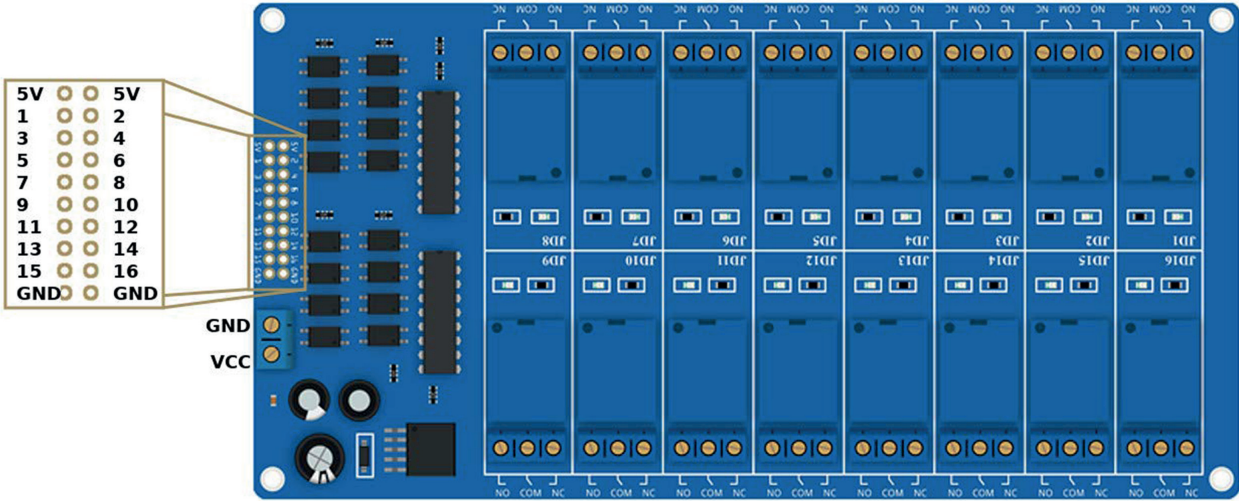
1. Brief Data

- Relay Maximum output: DC 30V/5A, AC 50V/5A.
- 16 Channel Relay Module with Opto-coupler. LOW Level Trigger expansion board.
- Standard interface that can be controlled directly by microcontroller (8051, AVR, *PIC, DSP, ARM, ARM, MSP430, TTL logic).
- Relay of high quality low noise relays SPDT. A common terminal, a normally open, one normally closed terminal.
- Opto-Coupler isolation, for high voltage safety and prevent ground loop with microcontroller.

Specs:

- 12V Powered, 5V Controlled (requires external 12VDC power source to energize all relays coil)
- Maximum AC: 5A 50V
- Maximum DC: 5A 30V
- Contact Type: Both: Normally Closed – NC, Normally Opened - NO
- Dimensions: 180 mm x 90 mm

2. Module Pinout



3. Operating Principle

There are two fixed contacts, a normally closed one and a normally open one.

When the coil is not energized, the normally open contact is the one that is off, while the normally closed one is the other that is on.

Supply voltage to the coil and some currents will pass through the coil thus generating the electromagnetic effect. So the armature overcomes the tension of the spring and is attracted to the core, thus closing the moving contact of the armature and the normally open (NO) contact or you may say releasing the former and the normally closed (NC) contact. After the coil is de-energized, the electromagnetic force disappears and the armature moves back to the original position, releasing the moving contact and normally closed contact. The closing and releasing of the contacts results in power on and off of the circuit.

4. Input

VCC : Connected to positive supply voltage 5V

GND : Connected to supply ground

IN1: Signal triggering terminal 1 of relay module

IN2: Signal triggering terminal 2 of relay module

IN3: Signal triggering terminal 3 of relay module

IN4: Signal triggering terminal 4 of relay module

IN5: Signal triggering terminal 5 of relay module

IN6: Signal triggering terminal 6 of relay module

IN7: Signal triggering terminal 7 of relay module

IN8: Signal triggering terminal 8 of relay module

IN9: Signal triggering terminal 9 of relay module

IN10: Signal triggering terminal 10 of relay module

IN11: Signal triggering terminal 11 of relay module

IN12: Signal triggering terminal 12 of relay module

IN13: Signal triggering terminal 13 of relay module

IN14: Signal triggering terminal 14 of relay module

IN15: Signal triggering terminal 15 of relay module

IN16: Signal triggering terminal 16 of relay module

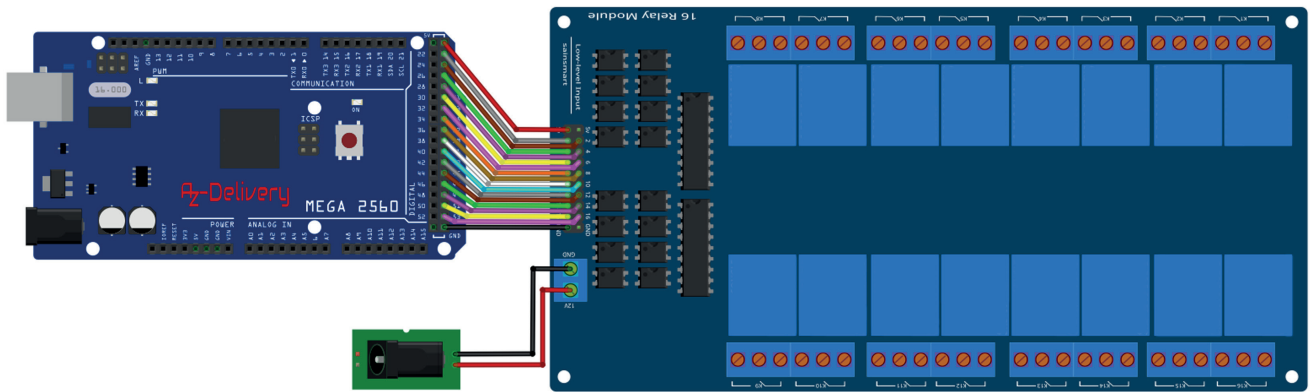
5. Output

Each module of the relay has one NC (normally close), one NO (normally open) and one COM (Common) terminal. So there are 16 NC, 16 NO and 16 COM of the channel relay in total. NC stands for the normal close port contact and the state without power. NO stands for the normal open port contact and the state with power. COM means the common port. You can choose NC port or NO port according to whether power or not.

6. Testing Setup

When a low level is supplied to signal terminal of the 16-channel relay, the LED at the output terminal will light up. Otherwise, it will turn off. If a periodic high and low level is supplied to the signal terminal, you can see the LED will cycle between on and off.

7. Connection Diagram



Module Pin	Mega Microcontroller Pin
IN1	Pin 23 - Grey Wire
IN2	Pin 25 - Brown Wire
IN3	Pin 27 - Green Wire
IN4	Pin 29 - Violet Wire
IN5	Pin 31 - Yellow Wire
IN6	Pin 33 - Pink Wire
IN7	Pin 35 - Orange Wire
IN8	Pin 37 - Light Brown Wire
IN9	Pin 39 - White Wire
IN10	Pin 41 - Light Blue Wire
IN11	Pin 43 - Grey Wire
IN12	Pin 45 - Brown Wire
IN13	Pin 47 - Green Wire
IN14	Pin 49 - Violet Wire
IN15	Pin 51 - Yellow Wire
IN16	Pin 53 - Pink Wire
DC+	12V - Red Wire
DC-	GND - Black Wire
GND	GND - Black Wire
VCC	VCC - Red Wire



SAFETY WARNING!

When doing projects that are connected to mains voltage, misuse may lead to serious electrical shock!

For the sake of your own safety, be 100% sure what you are doing! Otherwise, ask someone who knows!

According to Current regulations, working with mains voltage is reserved for qualified electricians only!