16-Channel 5V Relay Module

Electrical data, terminals and nominal dimensions

1 ELECTRICAL CHARACTERISTICS

PARAMETER	VALUE	UNIT	CONDITIONS / SCOPE
Supply	5	V DC	Module supply; LM2596S step-down regulator fitted
Relay coil current	71.4	mA	Per energised relay, 5 V coil, relay component datasheet
Supply current, all on	about 1.2	A	16 coils plus indicators; use a 5 V supply of 2 A or more
Trigger (relay on)	0 to 2	V	Low-level trigger on IN1 to IN16
Released input	5 max	V	Drive high to the module supply voltage to release
Trigger current	about 3	mA	Per input; controller must sink this
Load limit, AC	10 at 250 / 15 at 125	A at V AC	Fitted relay contacts, per channel
Load limit, DC	10 at 30	A at V DC	Supplier table, relay contacts, per channel
Isolation	Optocoupler		One per input; not a complete-system isolation rating

2 CONNECTIONS

MARKING	FUNCTION
Power terminal	5V DC module supply; follow the polarity printed beside it
Header VCC / GND	5V rail and ground; join GND to the controller ground
IN1 to IN16	Control inputs, one per relay; low switches the relay on
COM	Common load contact on each output group
NO / NC	Normally open / normally closed, relative to the released relay
Indicators	One LED per relay, lit while that relay is on

3 MECHANICAL DATA

PARAMETER	VALUE	SCOPE
PCB outline	178.9 x 90 mm	Nominal; allow terminal and wire clearance
Weight	about 227 g	Supplier figure, board only
Mounting	Four PCB holes	Check actual hole positions before drilling

Load and mains safety. Stay within the load limits above. Motors, lamps and power supplies draw a surge at switch-on, so allow margin for them. Mains voltage can kill: wire mains loads only if you are competent to do so, fully enclose the board and all terminals, and follow NZ electrical safety rules.

16-Channel 5V Relay Module

Connection, expected results and troubleshooting

4 INITIAL CONNECTION AND FUNCTIONAL CHECK

1. **Power the board.** Connect a regulated 5V DC supply rated 2 A or more to the power terminal. Join its ground to the controller ground. Do not run the board from an Arduino 5V pin or USB port: sixteen coils need more current than they can supply.
2. **Set the outputs high first.** The inputs are low-level trigger, so an output pin set low switches its relay on. In your code, write each pin HIGH before setting it as an output, so the relays stay released at start-up.
3. **Test before adding loads.** Keep the contact terminals disconnected. Drive one input low at a time and check the click, its indicator and COM-to-NO continuity. Released, COM connects to NC.
4. **Connect the loads.** Turn power off and wire each load circuit through COM and NO, or COM and NC, within the load limits. Recheck the power-up state before leaving the circuit unattended.

5 CONTACT STATES

RELAY STATE	COM TO NC	COM TO NO
Released	Closed	Open
Energised	Open	Closed



Functional contact diagram, not a physical terminal-order drawing. Follow the labels on your board. Test continuity with all load power disconnected.

6 TROUBLESHOOTING

SYMPTOM	CHECK
Relays click on at power-up	The pins went low before your code ran. Write the pins HIGH before setting them as outputs, and power the controller first.
Relays chatter or the controller resets	The 5V supply is too weak for the relays switched on. Use a separate 5V supply of 2 A or more and keep the grounds joined.
Relay stays on with a 3.3V controller	A 3.3V high does not reliably release a 5V low-trigger input. Use a transistor or level shifter per channel.
Relay clicks but load stays off	Check the separate load supply and COM/NO/NC wiring. The relay contacts do not supply power.

7 REVISION HISTORY

REVISION	DATE	CHANGE
1	2026-10-07	Initial issue for the 5V low-level trigger version.
2	2026-10-07	Corrected supply note: the stocked board has an LM2596S step-down regulator fitted.

Electrical and dimensional values are based on the supplier module parameter sheet, the relay component datasheet and reference photographs. Setup steps describe expected behaviour; they are not a record of Click IT bench testing.