

I024 RELAY BOARD

FEATURES

- 8 X 250VAC/30V @ 5A Relay
- 2 x ULN2803 Relay Drivers
- Screw Terminal Connections
- Easy connection to the I/O port via a 10-way box header that suits a standard IDC connector.
- 72mm Standard width for DIN Rail Modules



GENERAL DESCRIPTION

The I024 Relay Board is an accessory board that allows the implementation of much higher voltages and currents to be controlled from a single port on the existing I/O 24 Range. The Elexol I/O 24 Range consists of Ether I/O 24 R, Ether I/O 24 DIP R, USB I/O 24 R and the USB I/O 24 DIP R.

The board consists of eight relays with both normally open and normally closed contacts. The relay coils are powered from an external 12V DC power supply that is capable of producing at least 700mA (each relay consumes about 80mA when active). The relay coils are controlled using the ULN2803 via the I/O port of the module.

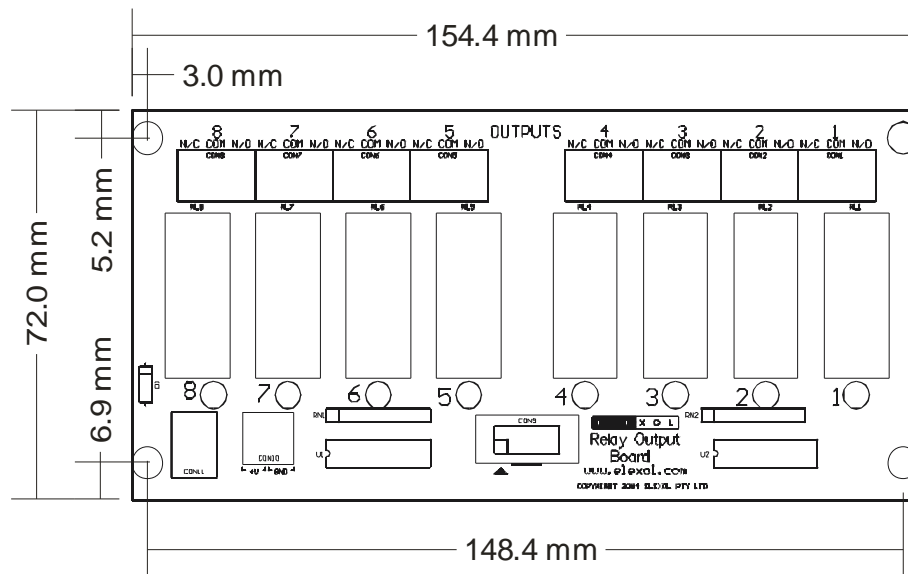
Each of the output channels has a LED to indicate whether the relay is in an active state.

The connections for each of the relay output channels are Normally Open (N/O), Normally Closed (N/C) and Common (COM). These connections are by screw terminals that will accept cables from 0.5mm-2mm in diameter

The connection between the I/O 24 module and the I024 Relay board is via a 30 cm IDC connection cable. This cable is provided with the board.

The board has been designed to a 72mm standard width so that it can easily be mounted in DIN rail mounting modules.

LAYOUT AND MECHANICALS

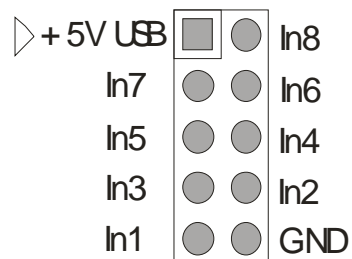


Dimensions: 6.1 X 2.8 X 1 inches (154.5 X 72 X 25.4mm)

PINOUTS AND BOARD CONNECTIONS

10 PIN BOX HEADER

Shown in the diagram below is the I/O port Connector for the interface to the Relay module.



Note: Pin1 Marked on I/O Accessory with ▷

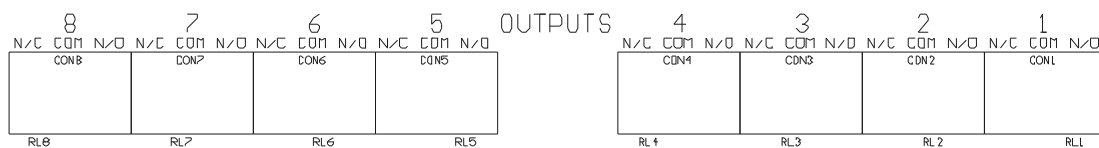
I/O 24 BOX HEADER CONNECTIONS

PIN #	SIGNAL	TYPE	DESCRIPTION
1	+5V	PWR	+3.3V to +5V drawn from I/O module powers (Supplies power to the connected I/O Board)
2	I/O 7	I	Input pin to control Relay 8
3	I/O 6	I	Input pin to control Relay 7
4	I/O 5	I	Input pin to control Relay 6
5	I/O 4	I	Input pin to control Relay 5
6	I/O 3	I	Input pin to control Relay 4
7	I/O 2	I	Input pin to control Relay 3
8	I/O 1	I	Input pin to control Relay 2
9	I/O 0	I	Input pin to control Relay 1
10	GND	PWR	Ground signal from I/O module

DC JACK

The 12V DC Connector on the relay board configuration is as follows:
Positive Centre pin with ground sleeve.

RELAY OUTPUT TERMINALS



The table below outlines each of the terminal connections to the relay.

PIN #	DESCRIPTION
N/C	Normally Closed (N/C) connection is connected to COM when the relay is not activated, when the relay is activated the connection to COM is no longer
COM	Common (COM) connection is the connection of the relay that is common to both the N/O and N/C connection
N/O	Normally Open (N/O) connection is connected to COM when the relay is activated, when the Relay is not activated the connection to COM is no longer

OPERATIONS

SETTING UP THE PORT ON THE I/O 24 FOR CONNECTION TO RELAY BOARD

To operate the Relay Board, an external 12V DC power supply needs to be connected to the DC Jack. This power supply is used to power the relay coils. Once the external power has been connected it is only a matter of applying voltage to the input of the 10 pin box header to activate the relay. This can be done by configuring the I024 port direction to all output and switching the output pins to high.

I/O 24 COMMAND	DESCRIPTION
!A 0x00	Initialise PORT Direction on I/O 24
A 0xFF	Activate all relays
A 0x00	De activate all relays

The minimum voltage required on the input pin to activate the relay is 1.6V DC. Most applications will have a TTL logic signal on the input pin to activate the relay.

SPECIFICATIONS

Power Input Requirements to Relay Board

10 to 16 VDC @ 500 mA max.

Relays

Number of Channels 8
 Contact Rating 5 A @ 250 VAC 5A @ 30 VDC
 Max. Allowable Power Force 1250 VA/150 W
 Max. Allowable Voltage 240 V AC/110 V DC
 Max. Carrying Current 5 A (AC), 5 A (DC) (standard)
 Relay Form - Form C, Double-Pole Double-Throw (DPDT)
 Output Terminals Normally Open (NO), Common (COM) Normally Closed (NC)
 Relay Life (mech.) 10 million operations minimum
 Relay Life (load dependent) 100 thousand operations minimum
 Operating Time 15 mSec. Max.
 Release Time 8 mSec max
 Coil Nominal Operating 44mA +/- 10% 20C
 Coil Resistance 270 ohm +/- 10% 20C

Environment

Operating temperature -30° to 55° C
 Storage Temperature -20° to 70° C
 Operating Humidity 45% to 85% RH

DOCUMENT REVISION HISTORY

- I024 Relay Board Datasheet Revision 1 – Initial document created