I/O 24 Combo Board

The I/O 24 Combo Board shown below in diagram 1 is a very useful accessory which allows much higher voltages and currents to be controlled by the I/O24 modules compared to the normal inputs and outputs.

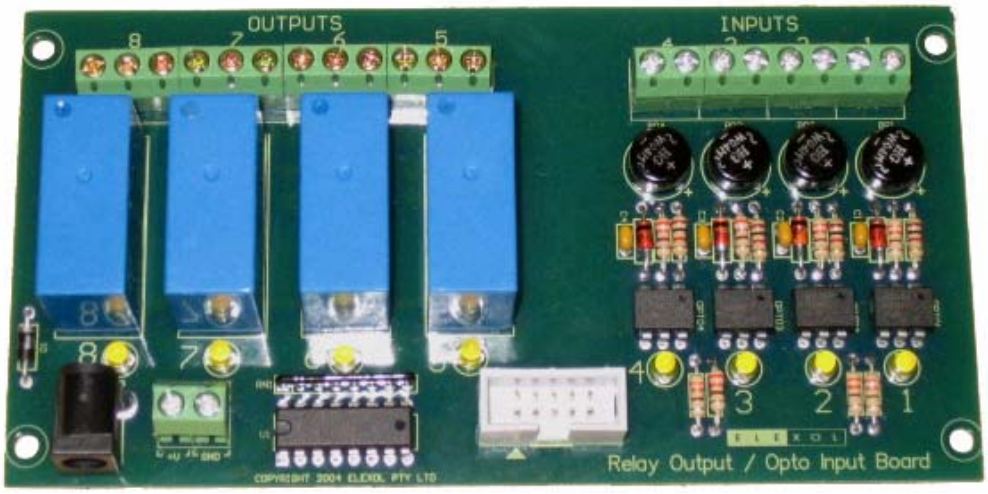


Diagram 1

The board consists of 4 Relay Outputs and 4 optically isolated input channels.

The relay outputs have both Normally Open (N/O) and Normally Closed (N/C) contacts rated to 250V AC or 30V DC, both at 5 Amps. The relays' coils are powered by an external 12VDC power supply that is capable of producing approx 350mA (need about 80mA per active relay). The power supply is not provided with the board. The relay coils are controlled using a ULN via the I/O ports of the module. Each of the output port channels has an LED to indicate the relay output status.

The input channels are bridged wet contacts which are electrically isolated from all other channels and the I/O24 module. Each input channel has a LED to indicate when a signal is present on the channel.

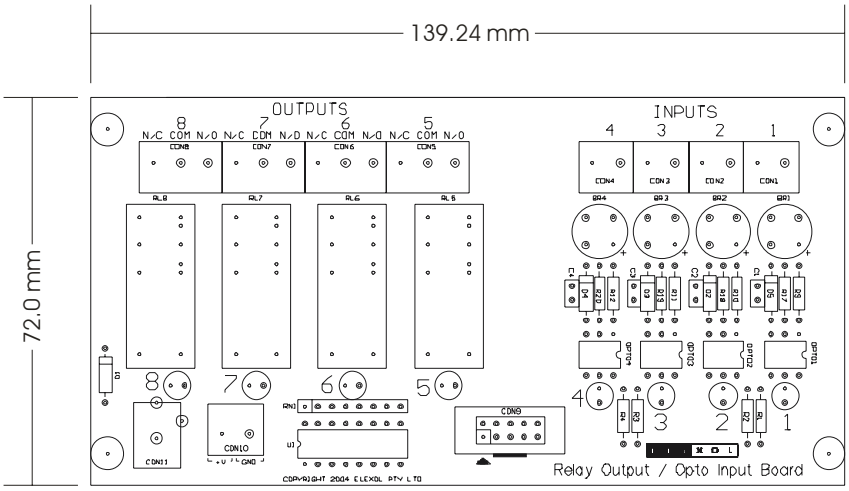
The input channels / relay output connections are by screw terminals that will accept cables 0.5 – 2mm. The connection between the I/O24 module and the Combo board is via a 30 cm IDC connection cable provided with the board.

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

BOARD FEATURES

- 4 x 12V DPDT 250VAC / 30DC @ 5A Relays
- 4 x Optically Isolated Inputs for each of the I/O24 port pins
- Indication LED's for output status and channel input
- Screw Terminal Blocks for Relay outputs, input channels and 12V Power Input
- Easy connection by 10-way box header to suit standard IDC connector for connection to the I/O port.
- 72mm Standard width for DIN Rail Modules

BOARD LAYOUT AND PHYSICAL DIMENSIONS

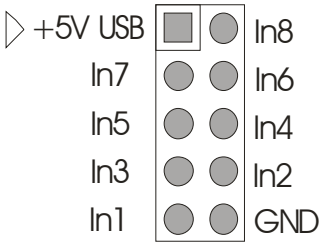


Dimensions – 5.48 X 2.8 X 1 inches (139.3 X 72 X 25.4mm)

BOARD CONNECTIONS

10 pin Box Header Pin out

Shown in the diagram below is the I/O port Connector for each of the Ports on the module.



Note: Pin1 Marked on I/O Accessory with ▷

Listed in Table 1 below are the connections for the 10 Pin Box Header

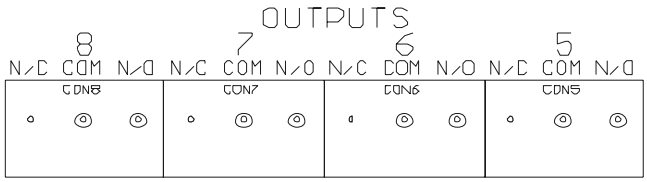
PIN #	SIGNAL	TYPE	DESCRIPTION
1	+5V USB	PWR	+5V drawn from I/O module powers
2	In8	I	Input pin to control relay 8
3	In7	I	Input pin to control relay 7
4	In6	I	Input pin to control relay 6
5	In5	I	Input pin to control relay 5
6	Out4	O	Output pin from Input Channel 4
7	Out3	O	Output pin from Input Channel 3
8	Out2	O	Output pin from Input Channel 2
9	Out1	O	Output pin from Input Channel 1
10	GND	PWR	Ground signal USB BUS and all I/O

DC JACK (2.1mm)
The 12V DC Connector on the relay board configuration is as follows:
Positive Centre pin with ground sleeve.

RELAY OUTPUT TERMINALS

The connections for the output relay channels are as follows:

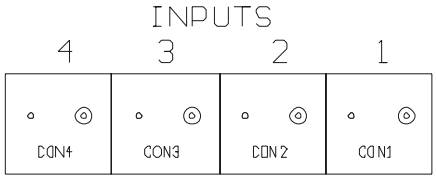
N/C – Normally Closed connection is connected to COM when the relay is not activated, when the relay is activated the connection to COM is no longer.
COM – Common connection is the connection of the relay that is common to both N/O and N/C connection
N/O – Normally Open connection is connected to COM when the relay is activated, when the relay is not activated the connection to COM is no longer.



CHANNEL INPUT TERMINALS

The connections for the input channels are as follows:

Each input channels is made up of two connections. These connections are bridged wet contacts.



OPERATION

To operate the relay board the external 12V power supply needs to be connected to the DC Jack to supply power to the relay coils. Once the external power has been connected it is only a matter of applying voltage to the input pins on the 10 Pin Box header to activate the relay. The minimum voltage required on the input pin to activate the relay is 1.6V DC most cases will have a TTL logic signal on the input pin to activate the relay.

The port on the I/O 24 will have to be set up for both input and output. The direction of the port will have to be set to $0F which will set the pins connected to the relay for output and input for the input channels.

APPLICATIONS

Listed below are just a few applications the Combo board could be used for:

- Power Switching
- On/Off Control
- Home Automation

SPECIFICATIONS

Dimensions

5.48 X 2.8 X 1 inches (139.3 X 72 X 25.4mm)

Power Input Requirements to Relay Board

10 to 16 VDC @ 400 mA max.

Relays

Number of Channels 4
Contact Rating 5 A @ 250 VAC
5 A @ 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

Environment

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

Power Input Requirements to Opto Board

Power drawn from USB +5V @ 80 mA max.

Opto Isolated Input Electrical Characteristics

Number of Channels 4
Logical Input High Voltage 3 to 24V AC or DC
Logical Input High Current 1mA to 12mA
Optically isolated to 7500 VAC (peak)

For further information regarding the release of this product please visit our website at **http://www.elexol.com** or contact us via email at **enquires@elexol.com**