

Description

Specifically designed for 12 Volt DC applications, the RB-8R-12V is a relay board equipped with eight relays each one capable of switching up to 10 Amp current. Inputs are opto- insulated therefore there is complete separation between inputs, outputs and the circuitry driving the relays.

Main parameters

Vcc = +12 volt

Input Voltage = - 24 to + 24 Volt

Relay Output Current = 10 Amp/each

Benefits

Wide input voltage range

Separate input circuits

Switching of up to 80 Amp current all relays combined

Mix and match of floating and common reference inputs

Compact size

Battery inversion protected

Typical applications

Automotive

Lamp, alarm, sound drive

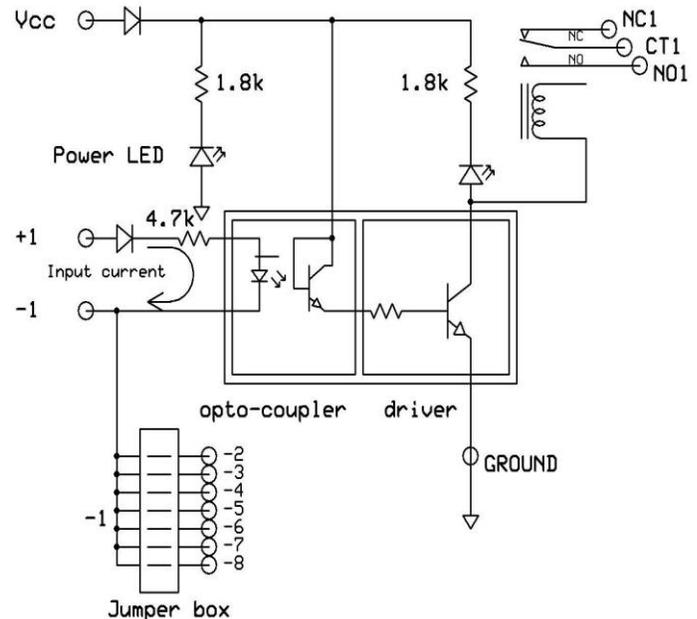
Emergency switch

Battery power main switch

Motor direction control

Electric brake

Schematic
One channel shown



Absolute Maximum Ratings

Parameter	Min Limit	Max Limit	Units
Supply Voltage	+ 10	+ 15	Volt
Input Voltage	- 24	+ 24	Volt
Relay Current each relay		10	Amp
Relay Voltage across relay contacts DC		24	Volt
Relay Voltage across relay contacts AC		240	Volt

Operating Parameters

	Parameter	Min	Typ	Max	Unit
V _{cc}	Supply Voltage	9.5	12	15	Volt
I _{cc}	Supply Current All Relays ON	0.3	0.45	0.6	Amp
I _{cc}	Supply Current All Relays OFF		10		milliAmp
V _{in-high}	Input Voltage High Level	3.5	12	24	Volt
V _{in-low}	Input Voltage Low Level	-24	0	1.0	Volt
I _{in-high}	Input High Current (NOTE1)	0.5	1	5	mAmp
I _{output}	Relay current at 12 DC Volt and 125 AC Volt			10	Amp

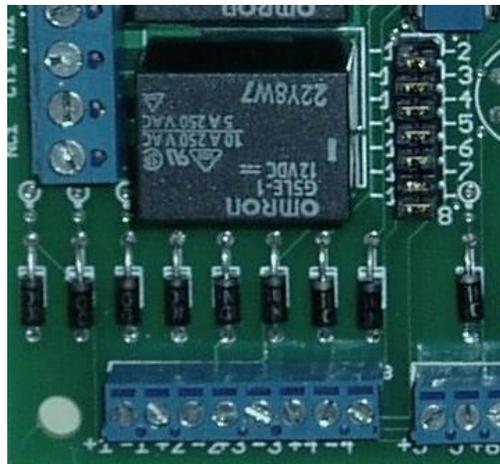
NOTE 1 : Input high current increases with the high input voltage applied.

Application Information

The RB-8R-12V relay board has opto-insulated inputs so it can be used:

- With all inputs loops separate and independent from each other.
- With all inputs sharing connection - 1 as an independent common reference.
- With all inputs sharing a common ground reference.
- With any mix of separate loops and common reference loops.

Some or all input returns can be joined together by setting jumpers, which will short selected return inputs to the return of input 1, sharing return -1 as a common reference.



Jumpers allow connecting terminals from -2 to -9 to terminal -1.

Terminal -1 therefore acts as a common reference return path.

Fig-1 Jumpers

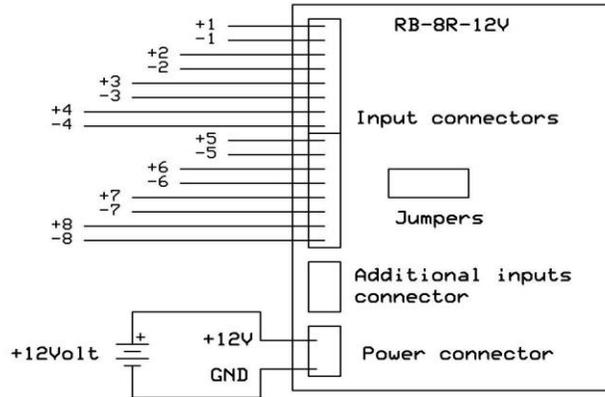


Fig-2 Eight independent input loops.

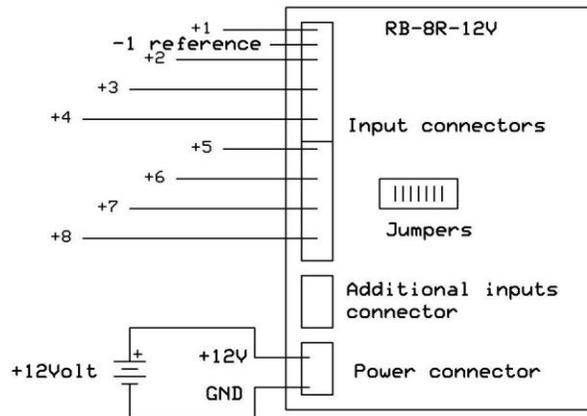


Fig-3 Eight inputs sharing a common reference (return input -1)

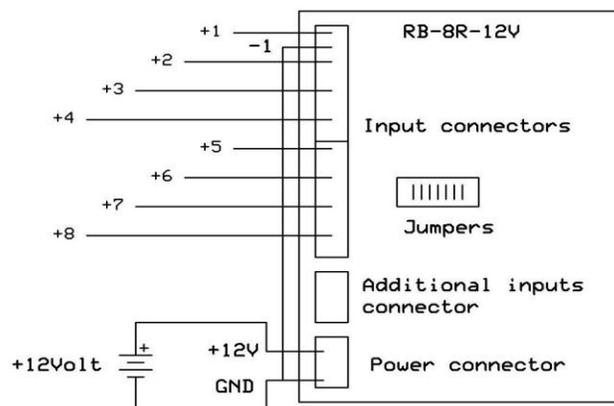


Fig-4 Eight inputs sharing a common ground

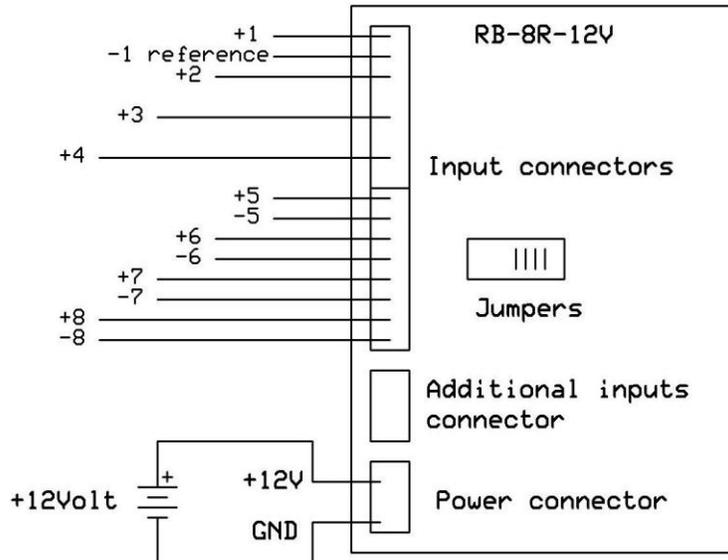


Fig-5 Four common reference inputs (1 to 4) and four independent (5 to 8)

Logic levels

The input voltage is considered logic High if higher than 3.5 Volt and logic Low if lower than 1.0 Volt.

Negative input voltages are acceptable up to -24 Volt and considered logic Low.

Positive input voltages between 1.0 and 3.5 Volt need to be avoided, since they cannot be interpreted neither high nor Low.

In order to enhance noise immunity, each input loop has a resistance of 4.7 k Ohm, so the input drive needs to be able to supply the relevant input current (0.5 to 5 milliAmp according to the value of the input voltage).

A High input will energize the relevant relay; a green LED will visually indicate it..

Each relay is has a SPDT (Single Pole Double Through) configuration and it is connected to a three terminals screw-in connector, which poles are indicated NC (Normally closed), CT (Center Tap) and NO (Normally Open).

Due to the double insulation (opto and magnetic) the power output loops are separate from the controlling input loops and the relay control circuitry.

Power connector

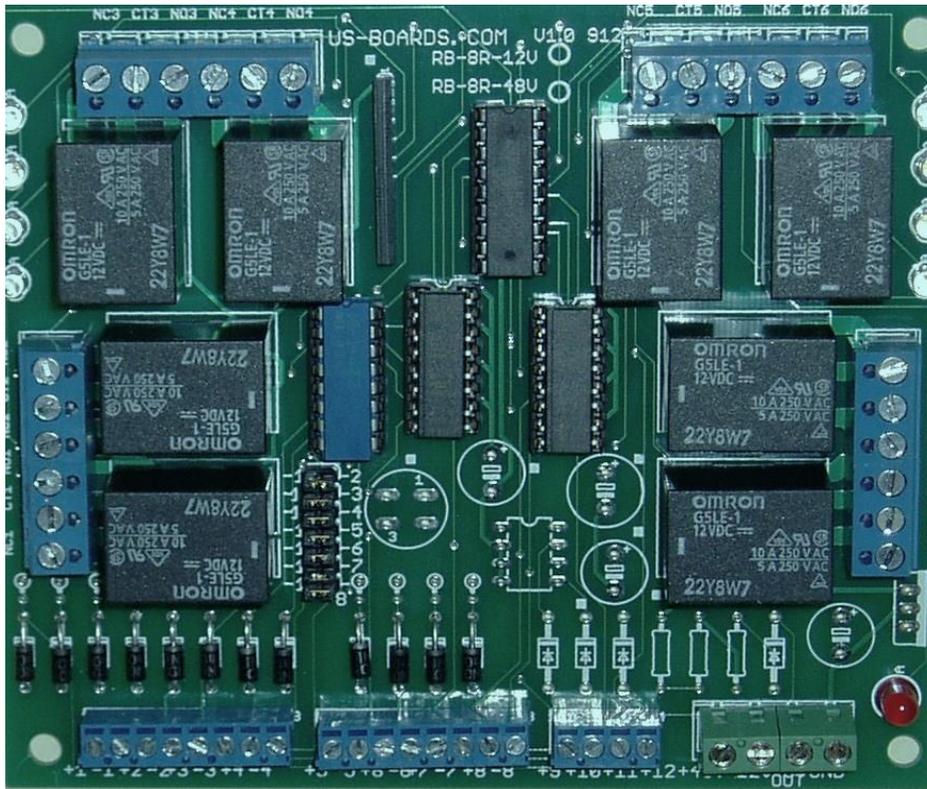
The Vcc input (marked +12V on the board) is protected by a diode against wrong battery connection (inverted battery connection).

The positions marked +5V and +48V are unconnected.

Mechanical

Dimensions: 5 x 4.3 inches / 127 x110 millimeters

Weight: 0.5 lbs / 220 grams



Input connector 1 to 4	Input connector 5 to 8	Power connector +12V GND
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Fig-6 Relay board RB-8R-12V

Ordering instructions

Part number: **RB-8R-12V** 12Volt board

Shipping: boards are shipped with all eight jumpers installed so with all return paths are connected together as common return path -1. Remove jumpers as needed to implement other input configurations.