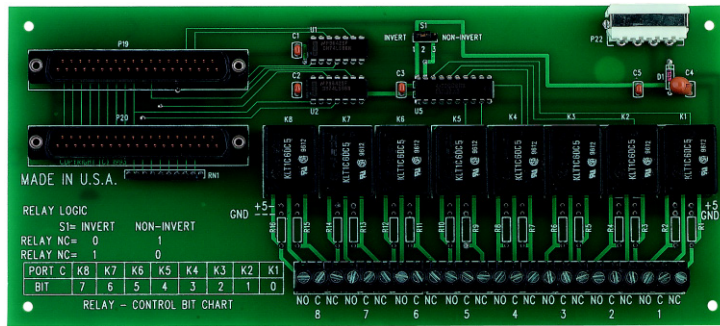# CIO-ERB08

Electromechanical Relay Accessory, Form C, 5.6 A (SPDT) for Digital I/O Boards

Functional Description

The CIO-ERB08 provides eight single pole, double throw (SPDT) Form C electromechanical relays. The CIO-ERB08 is an 8-channel relay accessory for Measurement Computing Corporation (MCC) digital I/O boards.

Interface to DIO boards

The CIO-ERB08 is compatible with MCC digital I/O boards such as the USB-DIO24 Series.

Powered from the PC

The CIO-ERB08 does not require 110 VAC power. The board runs from the 5 V computer power supply or from an external 5 V supply. Power is connected through a four-pin MOLEX connector, just like that found on all PC power supplies.
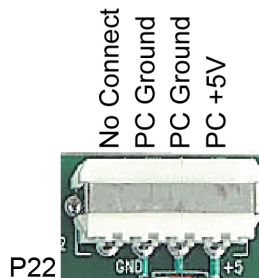

Figure 1. Molex connector (P22) pin assignments

Screw terminal wiring

The CIO-ERB08 has screw terminals for connecting your field wiring to the relays. Each relay has three terminals: Common, Normally Open and Normally Closed. The screw terminals are high-quality jaw types that do not bind when removing wires. Use 12-22 AWG wire gauge.

Figure 2. Typical relay channel

The screw terminal/module numbers correspond to 8255 ports:

- 1 to 4 correspond to PORTC Low bits 0 to 3
- 5 to 8 correspond to PORTC High bits 4 to 7

The CIO-ERB08 has a maximum current of 5.6 A.

MEASUREMENT COMPUTING

All Form C relays

The CIO-ERB08 has single pole, double throw (SPDT) Form C relays, with each relay having three terminals.

- The center terminal is the Common terminal (C). This terminal is switched between the other two.
- The Normally Closed terminal (NC) is in contact with the Common terminal whenever the CIO-ERB08 is powered up or when a 0 is written to the controlling bit of the digital I/O board.
- The Normally Open terminal (NO) is in contact with the Common terminal when the controlling bit is logic high and switch S1 is set for inverting logic.

Relay control logic polarity jumper (S1)

Use jumper (S1) to select inverting or non-inverting logic to control the relays. The jumper is set by default for inverting logic.

When set to INVERT, the relay activates when the output of the DIO board is high. When set to NON-INVERT, the relay activates when the output of the DIO board is low.

Figure 3. Relay logic polarity jumper S1

I/O Connectors

The CIO-ERB08 has two 37-pin connectors (P19 and P20) that are wired 1:1. Use C37FF-x cables to connect with compatible MCC digital I/O boards, such as the USB-DIO24/37. The 2nd connector is provided to access the remaining board connections.

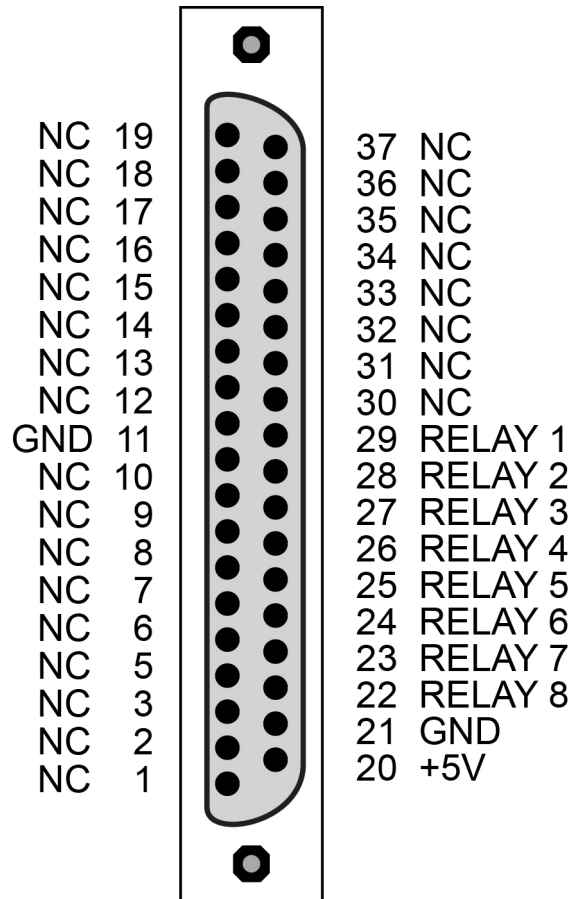|	
NC 19	37 NC
NC 18	36 NC
NC 17	35 NC
NC 16	34 NC
NC 15	33 NC
NC 14	32 NC
NC 13	31 NC
NC 12	30 NC
GND 11	29 RELAY 1
NC 10	28 RELAY 2
NC 9	27 RELAY 3
NC 8	26 RELAY 4
NC 7	25 RELAY 5
NC 6	24 RELAY 6
NC 5	23 RELAY 7
NC 3	22 RELAY 8
NC 2	21 GND
NC 1	20 +5V

Figure 4. 37-pin connector pinout

Buffers and pull-downs

The CIO-ERB08 inputs from the digital I/O board are pulled to a steady state by circuitry on the board, so they do not randomly open or close on power-up. Also, buffer/ drivers on board accept signals from simple 8255 type digital I/O boards.
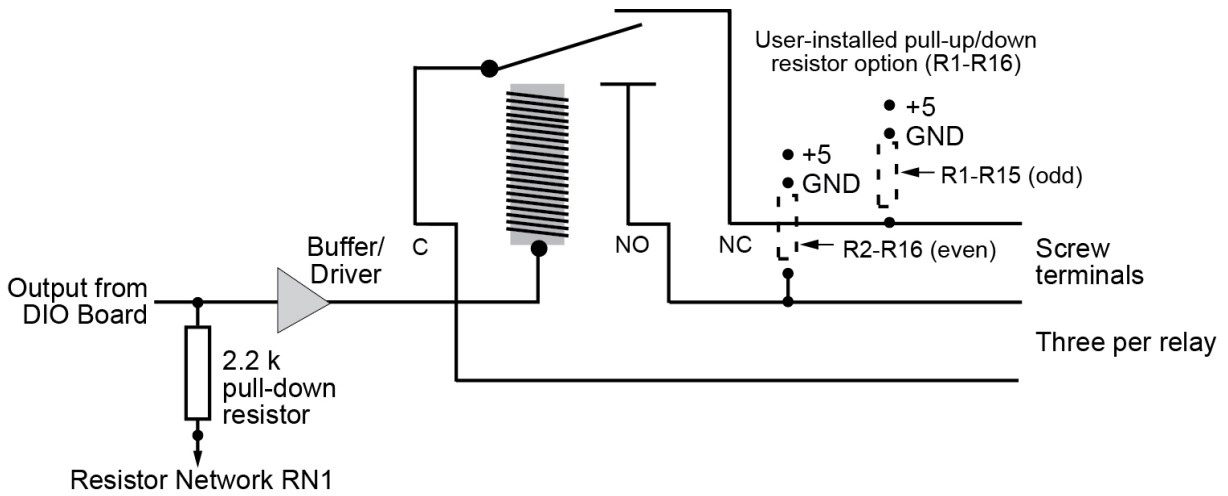
Figure 5. CIO-ERB48/CIO-SERB48 relay configuration