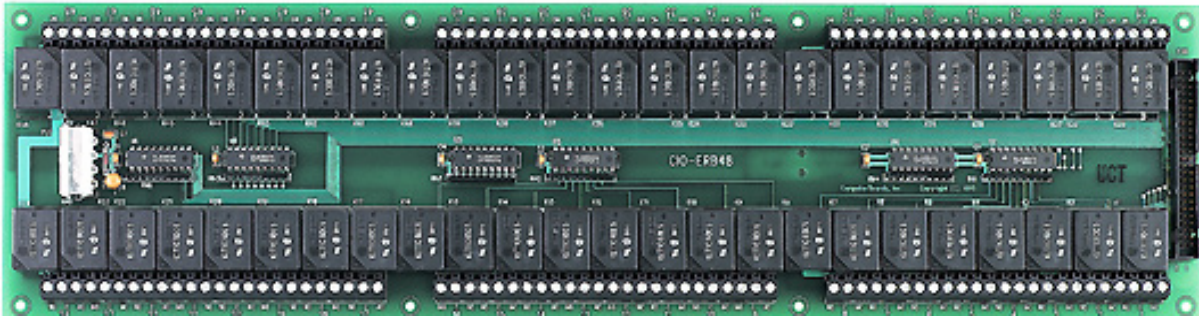# CIO-ERB48 and CIO-SERB48

48 Electromechanical (Form C) Relay Mounting & Interface Rack

Product overview

The CIO-ERB48 provides 48 single pole, double throw (SPDT) Form C electromechanical relays on a 17" x 4.5" circuit board. A single connector scheme allows interfacing to any Measurement Computing Corporation (MCC) digital I/O board with 50-pin or 100-pin connectors.

The CIO-SERB48 provides similar functionality, but includes 10-amp, socketed/removable relays in place of the standard 5-amp relays on the CIO-ERB48.

Interface to DIO boards

The CIO-ERB48 and CIO-SERB48 are compatible with the following MCC digital I/O boards such as the USB-DIO96H/50

- PCI-DIO48H, PCI-DIO96H
- PCI-DDA08/12, PCI-DDA04/12, PCI-DDA02/12
- CIO-DIO48, CIO-DIO96, CIO-DIO192
- CIO-DO48H, CIO-DO96H, CIO-DIO192H
- PC104-DIO48, PC104-DO48H

Powered from the PC

The CIO-ERB48 and CIO-SERB48 do not require 110 VAC power. Both boards run 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.
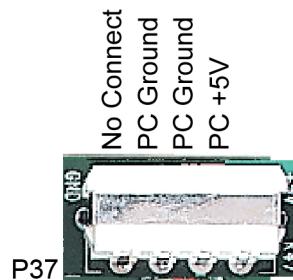

Figure 1. Molex connector (P37) pin assignments

Screw terminal wiring

The CIO-ERB48/CIO-SERB48 has screw terminals for connecting 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. Wire gages 12-22 AWG are recommended.

The CIO-ERB48 has a maximum current of 4.3 A.

The CIO-SERB48 has a maximum current of 7.5 A.

Figure 2. Typical relay channel

CIO-ERB48/CIO-SERB48 50-pin connector

The CIO-ERB48/CIO-SERB48 are designed for high-density applications. Because 48 electromechanical relays fit on one board, all 48 digital I/O lines of a DIO48 are needed to switch the relays. It is not practical to use a CIO-ERB48/CIO-SERB48 with a 24-bit digital I/O board, so there is no provision for 37-pin connectors.

The 50-pin connector is laid out in the style of all MCC 50-pin and 100-pin digital connectors, so you can use the CIO-ERB48 with a large variety of digital I/O boards.

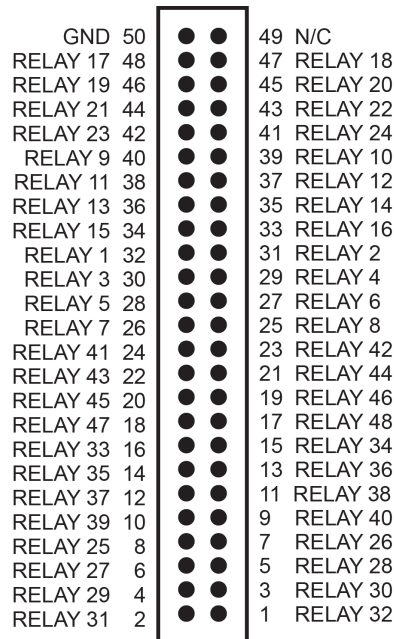|			
GND	50	49	N/C
RELAY 17	48	47	RELAY 18
RELAY 19	46	45	RELAY 20
RELAY 21	44	43	RELAY 22
RELAY 23	42	41	RELAY 24
RELAY 9	40	39	RELAY 10
RELAY 11	38	37	RELAY 12
RELAY 13	36	35	RELAY 14
RELAY 15	34	33	RELAY 16
RELAY 1	32	31	RELAY 2
RELAY 3	30	29	RELAY 4
RELAY 5	28	27	RELAY 6
RELAY 7	26	25	RELAY 8
RELAY 41	24	23	RELAY 42
RELAY 43	22	21	RELAY 44
RELAY 45	20	19	RELAY 46
RELAY 47	18	17	RELAY 48
RELAY 33	16	15	RELAY 34
RELAY 35	14	13	RELAY 36
RELAY 37	12	11	RELAY 38
RELAY 39	10	9	RELAY 40
RELAY 25	8	7	RELAY 26
RELAY 27	6	5	RELAY 28
RELAY 29	4	3	RELAY 30
RELAY 31	2	1	RELAY 32

Figure 3. 50-pin connector pinout

All Form C relays

The CIO-ERB48/CIO-SERB48 has SPDT Form C relays, with each relay having three terminals.

- The center terminal is the Common terminal. This terminal is switched between the other two.
- The Normally Closed terminal is in contact with the Common terminal whenever the CIO-ERB48/CIO-SERB488 is powered up, reset, or when a 0 is written to the controlling bit of the digital I/O board.
- The Normally Open terminal is in contact with the Common terminal whenever a 1 is written to the controlling bit of the digital I/O board.

Buffers and pull-downs

The CIO-ERB48/CIO-SERB48 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.
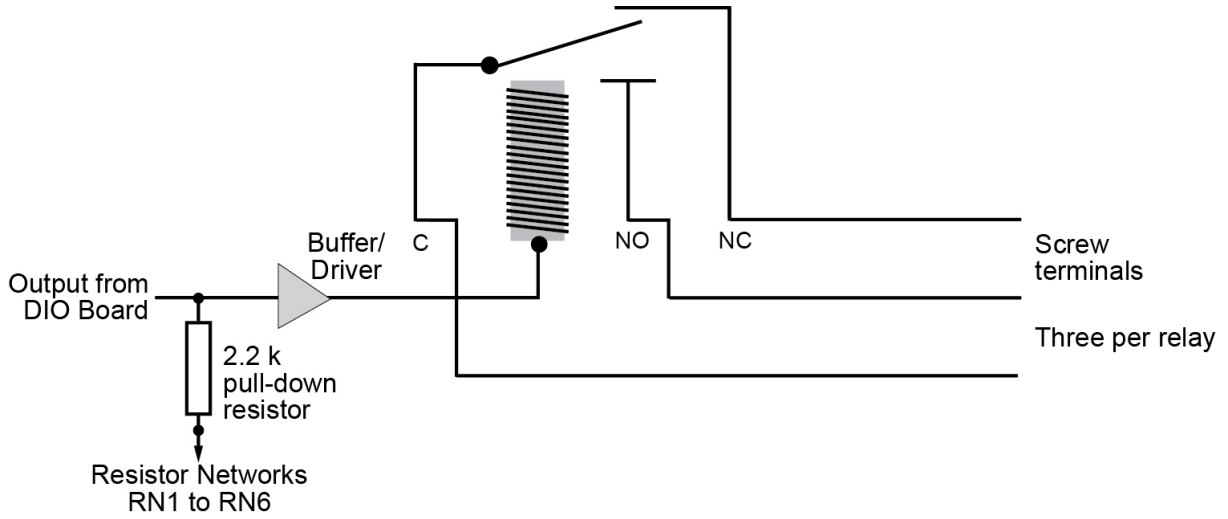

Figure 4. CIO-ERB48/CIO-SERB48 relay configuration

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