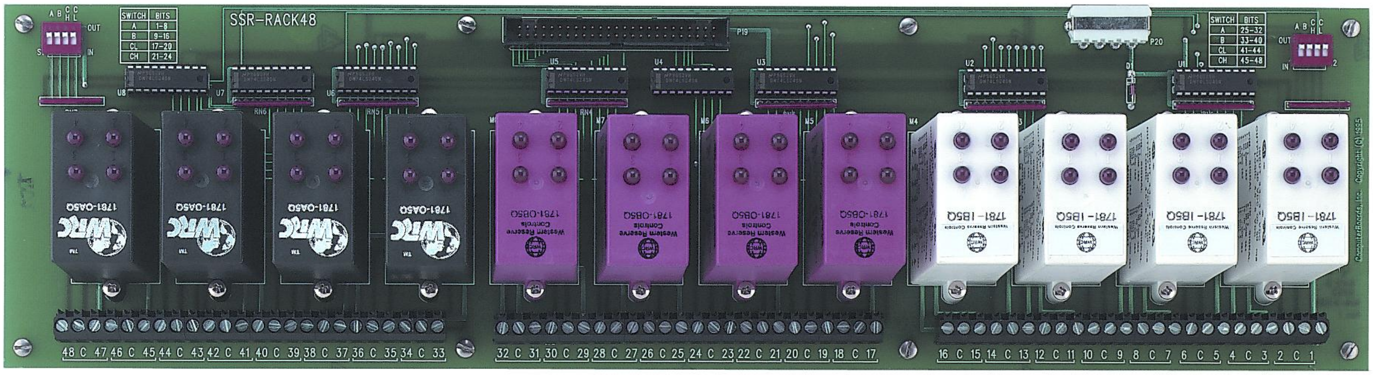
SSR-RACK48

48 Channel Solid State Relay (OPTO22, Gordos) Mounting & Interface Rack



Description

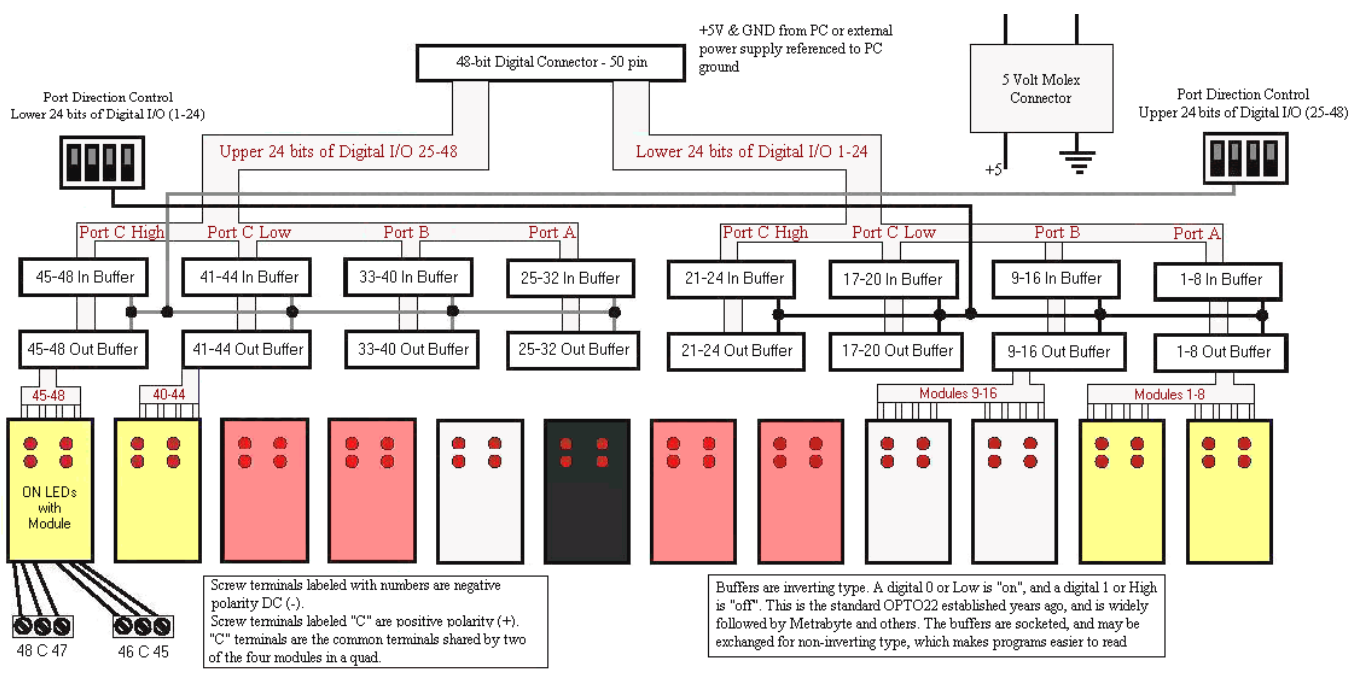
The SSR-RACK48 is a high-density mounting and interface rack for use with quad-type solid-state relays. The SSR-RACK48 is the perfect means of interfacing quad solid state relays (SSR) modules to any 48, 96, or 192-line digital I/O board with 50-pin connectors

SSR-RACK48 provides positions for 12 quad relays, and has screw terminals for each module. The screw terminals allow you to connect signals via 12-22 AWG wire. Signals are routed through the SSRs to the 50-pin, 48-line connector.

The SSR-RACK48 is 100% connector-compatible with the following Measurement Computing Corporation (MCC) boards:

▪ PCI-DIO48H	▪ CIO-DI48
▪ PCI-DIO48H-RT	▪ CIO-DI96
▪ PCI-DIO96H	▪ CIO-DI192
▪ CIO-DIO48	▪ CIO-DO48
▪ CIO-DIO96	▪ CIO-DO96
▪ CIO-DIO192	▪ CIO-DO192

By using any of these products with the SSR-RACK48, you can construct a digital control system with the highest possible density.



SSR-RACK has on-board buffers

Because most manufacturers of SSR racks do not supply output buffers on the SSR rack, simple digital I/O boards such as the CIO-DIO24, 48, and 96, and other manufacturer's 82C55-based digital I/O boards do not have the power to switch the SSRs. For example, to use an OPTO22 PB16 rack, you need to use a high-drive DIO board such as the CIO-DIO24H or CIO-DUAL-AC5.

In order to be usable with all common TTL output boards, the SSR-RACK48 is designed with buffers on board. With these buffers, you can plug directly into the SSR-RACK48 from your CIO-DIO 48, 96 or 192 or any other manufacturer's 82C55-based digital I/O board.

Choosing solid state relays

AC or DC, input (sense) or output (switch)

An SSR module performs *one* of the following functions:

- AC input
- AC output
- DC input
- DC output

The SSR *senses* (input) and *switches* (output) AC and DC voltages.

4,000 volt AC isolation

The high voltage AC or DC signal never reaches the DIO board. Instead, the signal is converted to TTL by the SSR (input) or switched by the SSR (output). The DIO board and the PC are protected from up to 4,000 volts (V) AC on the SSR's inputs by the optical isolation circuit in the SSR.

Detect and control voltage and current loads that exceed the capability of TTL

SSR modules can switch loads up to 3.5 A at rated voltages of 280 VAC and 200 VDC (1 A max). A single SSR can start small motors, switch large capacity motor-starter relays, electric appliances, sprinkler valves, alarms, and annunciator beacons.

Quad relays required

SSRs are available as a single-relay circuit in a plastic case, or as four identical relay circuits in a plastic case. The SSR-RACK48 requires quad relays. MCC's SSR-4 series of quad I/O modules are compatible with the SSR-RACK48. Because of the savings in racks, cables, and cabinet space, quad relays are the economic alternative to single-function relays.

Quads have shared commons

Quad relays are constructed with a shared common between each pair of two SSR circuits. This may be important, depending on the relay-to-relay isolation required by your application.

SSR-RACK inverting logic

On an input SSR, the presence of a voltage raises the TTL output of the SSR from TTL low to TTL high. Because the SSR-RACK uses the conventional inverting logic, the completed circuit of SSR and SSR-RACK lowers the signal to the DIO board from TTL high (+5) to TTL low (GND). An output SSR completes a circuit when the DIO board TTL signal to the SSR is low. The circuit through the SSR is open when the signal from the DIO board is high.

Converting the SSR-RACK from inverting logic

The SSR-RACK follows the convention set by OPTO22 and followed by virtually all SSR rack manufacturers — the sense and control logic for the relays is inverted. This means that a 0 output from the digital I/O board causes an output relay to activate (complete the circuit), while a 1 (TTL high) causes the relay to deactivate. The chips which invert the logic are socketed and can be easily replaced with chips that do not invert the logic. Discuss your order with a technical sales engineer if you need non-inverting logic.

I/O connector pin out

Signal name	Pin	Pin	Signal name
GND	50	49	N/C
FIRSTPORTC Bit 0	48	47	FIRSTPORTC Bit 1
FIRSTPORTC Bit 2	46	45	FIRSTPORTC Bit 3
FIRSTPORTC Bit 4	44	43	FIRSTPORTC Bit 5
FIRSTPORTC Bit 6	42	41	FIRSTPORTC Bit 7
FIRSTPORTB Bit 0	40	39	FIRSTPORTB Bit 1
FIRSTPORTB Bit 2	38	37	FIRSTPORTB Bit 3
FIRSTPORTB Bit 4	36	35	FIRSTPORTB Bit 5
FIRSTPORTB Bit 6	34	33	FIRSTPORTB Bit 7
FIRSTPORTA Bit 0	32	31	FIRSTPORTA Bit 1
FIRSTPORTA Bit 2	30	29	FIRSTPORTA Bit 3
FIRSTPORTA Bit 4	28	27	FIRSTPORTA Bit 5
FIRSTPORTA Bit 6	26	25	FIRSTPORTA Bit 7
SECONDPORTC Bit 0	24	23	SECONDPORTC Bit 1
SECONDPORTC Bit 2	22	21	SECONDPORTC Bit 3
SECONDPORTC Bit 4	20	19	SECONDPORTC Bit 5
SECONDPORTC Bit 6	18	17	SECONDPORTC Bit 7
SECONDPORTB Bit 0	16	15	SECONDPORTB Bit 1
SECONDPORTB Bit 2	14	13	SECONDPORTB Bit 3
SECONDPORTB Bit 4	12	11	SECONDPORTB Bit 5
SECONDPORTB Bit 6	10	09	SECONDPORTB Bit 7
SECONDPORTA Bit 0	08	07	SECONDPORTA Bit 1
SECONDPORTA Bit 2	06	05	SECONDPORTA Bit 3
SECONDPORTA Bit 4	04	03	SECONDPORTA Bit 5
SECONDPORTA Bit 6	02	01	SECONDPORTA Bit 7

Pin map

Refer to the following pin mapping table if your digital board is not a Measurement Computing board.

Signal name	Pin
FIRSTPORTA Bit 0	Module 1
FIRSTPORTA Bit 1	Module 2
FIRSTPORTA Bit 2	Module 3
FIRSTPORTA Bit 3	Module 4
FIRSTPORTA Bit 4	Module 5
FIRSTPORTA Bit 5	Module 6
FIRSTPORTA Bit 6	Module 7
FIRSTPORTA Bit 7	Module 8
FIRSTPORTB Bit 0	Module 9
FIRSTPORTB Bit 1	Module 10
FIRSTPORTB Bit 2	Module 11
FIRSTPORTB Bit 3	Module 12
FIRSTPORTB Bit 4	Module 13
FIRSTPORTB Bit 5	Module 14
FIRSTPORTB Bit 6	Module 15
FIRSTPORTB Bit 7	Module 16
FIRSTPORTC Bit 0	Module 17
FIRSTPORTC Bit 1	Module 18
FIRSTPORTC Bit 2	Module 19
FIRSTPORTC Bit 3	Module 20
FIRSTPORTC Bit 4	Module 21
FIRSTPORTC Bit 5	Module 22
FIRSTPORTC Bit 6	Module 23
FIRSTPORTC Bit 7	Module 24
SECONDPORTA Bit 0	Module 25
SECONDPORTA Bit 1	Module 26
SECONDPORTA Bit 2	Module 27
SECONDPORTA Bit 3	Module 28
SECONDPORTA Bit 4	Module 29
SECONDPORTA Bit 5	Module 30
SECONDPORTA Bit 6	Module 31
SECONDPORTA Bit 7	Module 32
SECONDPORTB Bit 0	Module 33
SECONDPORTB Bit 1	Module 34
SECONDPORTB Bit 2	Module 35
SECONDPORTB Bit 3	Module 36
SECONDPORTB Bit 4	Module 37
SECONDPORTB Bit 5	Module 38
SECONDPORTB Bit 6	Module 39
SECONDPORTB Bit 7	Module 40
SECONDPORTC Bit 0	Module 41
SECONDPORTC Bit 1	Module 42
SECONDPORTC Bit 2	Module 43
SECONDPORTC Bit 3	Module 44
SECONDPORTC Bit 4	Module 45
SECONDPORTC Bit 5	Module 46
SECONDPORTC Bit 6	Module 47
SECONDPORTC Bit 7	Module 48