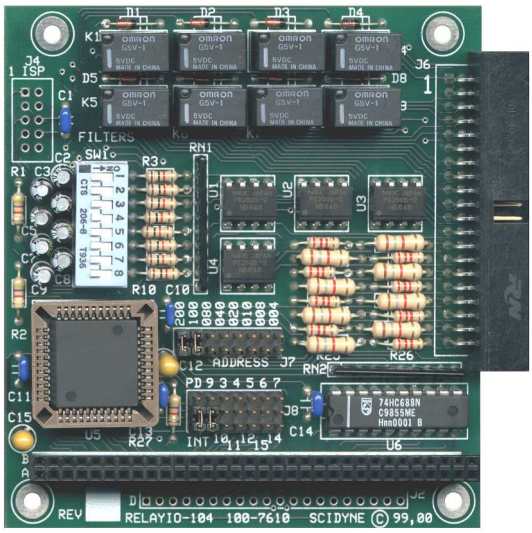
SCIDYNE®	Product Bulletin Relay Output / Isolated Input PC/104 Module	PB7610 RELAYIO-104

FEATURES

- Eight SPDT (form C) relay outputs
- Eight optically isolated AC/DC digital inputs
- Input filters for reliable sensing of AC signals
- Interrupt feature catches momentary input events
- 250V isolation between PC/104 bus and I/O signals



APPLICATIONS

- Industrial Automation and Process Control
- Scientific Apparatus and Instrumentation
- Embedded SCADA Systems
- Automated Test Equipment
- Security and Telecommunications

PRODUCT DESCRIPTION

The RELAYIO-104 is an 8-bit digital I/O peripheral module offering electrical isolation between the host and externally connected devices. It conforms to the PC/104 standard and operates on a single +5V power supply. A single 40-pin I/O header is used for all external wiring.

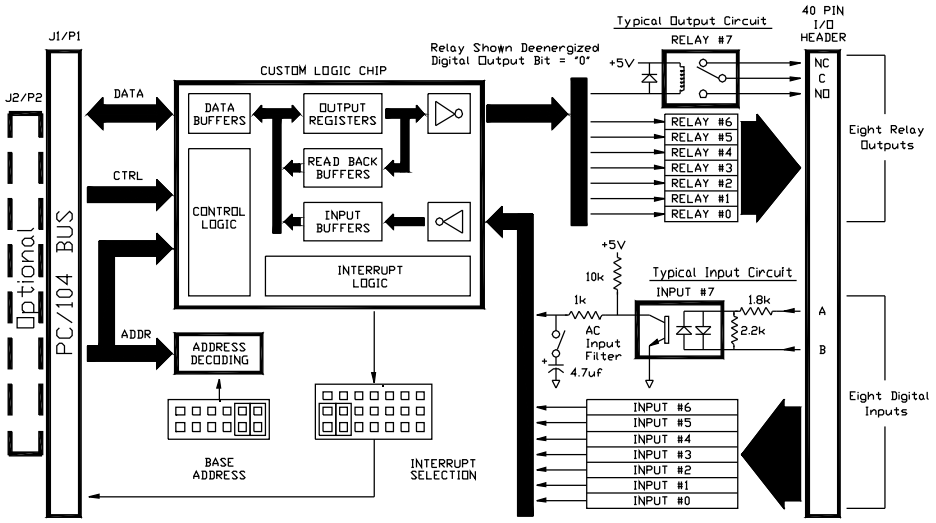
Relay Outputs: Eight SPDT (form C) relays are used for the digital outputs. Independent access to each relay's Normally-Closed, Normally-Open and Common terminals eases wiring constraints and permits flexible mixing of AC and DC signals. Each output is capable of controlling loads up to 1A @ 24Vdc or 0.5A @ 125V_{RMS}. They also feature short-preventing break-before-make operation. A single output register controls the on/off state of the eight relays. All relays are de-activated and in their Normally-Closed state during power-off and system reset. A relay is activated by writing a "1" to its corresponding bit within the output register. Writing the same bit as "0" de-activates that relay. The output register is readable and writable, permitting read-modify-write software bit manipulations to be used.

Digital Inputs: Eight separate inputs using non-polarized optical isolators are provided, allowing any combination of DC or AC signals to be monitored. Their wide input voltage range, 3-24V, is suitable for a diverse range of applications. Each input has an associated low-pass filter that can be individually enabled for the reliable measurement of AC signals as low as 40hz. The on/off states of the inputs are held in a single read-only register. An activated input appears as a "1" in its corresponding bit position. Digital Input #0 has the added capability of optionally generating a host interrupt the moment it becomes activated. The event is latched in an interrupt status register so that even a short duration input will not go unrecognized. Applications which do not need full interrupt capability can still use this function by simply polling the interrupt status register. The status register is cleared during system reset or by writing any value to it.

BENEFITS

Embedded applications often involve the controlling and sensing of various external AC and DC signals while also requiring electrical isolation for the host computer. Solid state relay racks or similar devices are frequently considered but can be too bulky and costly in many situations. The RELAYIO-104 allows field signals to be brought directly to the PC/104 system without intermediate circuitry. It has the flexibility to connect to any combination of AC and DC signals and offers 250V host-to-field isolation in a single compact PC/104 module.

Simplified Block Diagram



Input/Output Header Connections

Pin	Description	Pin	Description
1	OUT7 COM	2	OUT7 NO
3	OUT7 NC	4	OUT6 NO
5	OUT6 NC	6	OUT6 COM
7	OUT5 COM	8	OUT5 NO
9	OUT5 NC	10	OUT4 NO
11	OUT4 NC	12	OUT4 COM
13	OUT3 COM	14	OUT3 NO
15	OUT3 NC	16	OUT2 NO
17	OUT2 NC	18	OUT2 COM
19	OUT1 COM	20	OUT1 NO
21	OUT1 NC	22	OUT0 NO
23	OUT0 NC	24	OUT0 COM
25	IN7 A	26	IN7 B
27	IN6 A	28	IN6 B
29	IN5 A	30	IN5 B
31	IN4 A	32	IN4 B
33	IN3 A	34	IN3 B
35	IN2 A	36	IN2 B
37	IN1 A	38	IN1 B
39	IN0/INT A	40	IN0/INT B

NC = Normally Closed
NO = Normally Open
COM = Relay Contact Common

SPECIFICATIONS

General:

I/O connections:	40 Position IDC type header
Isolation (All I/O):	250V DC or AC, input-to-board or board-to-output. Isolation between I/O signals: 100V maximum
Power requirement:	+5Vdc ±5% @ 80mA typical. Additional 30ma required for each activated relay
Dimensions:	PC/104 compliant, 3.55"W x 3.775"L. 8-bit stack-through, optional 16-bit stack-through
Addressing:	8-bit PC/104 bus. Occupies any consecutive 4-byte block in host's I/O map, 0x000 through 0x3fc
Environmental:	Operating temperature: -20°C to 70°C Non-condensing relative humidity: 5% to 95%
Compliance:	Contains lead / RoHS compliant by exception
Product Origin:	Designed, Engineered, and Assembled in USA by SCIDYNE® Corporation

Relay Outputs:

General:	Eight SPDT (Form C) sealed electromechanical relays, Break-Before-Make operation
Power handling:	
DC:	1 Ampere @ 30Vdc maximum
AC:	0.5 Ampere @ $125V_{RMS}$ maximum (resistive load)
Switching capacity:	1ma, 5Vdc minimum, 62.50 VA, 30W maximum
Contact resistance:	100mΩ maximum, Ag (Au clad) contacts
Operate time:	5ms maximum (activate or release)
Service life:	5×10^6 operations minimum

Digital Inputs:

General:	Eight independent non-polarized optically isolated inputs
Input voltages:	
DC:	3V minimum, 24V maximum, non-polarized
AC:	$3V_{PP}$ minimum, $24V_{PP}$ maximum, 40hz to 1khz
Switching time:	Typical @ 5V, Filter Disabled: On: 40μs Off: 100μs Filter Enabled: On: 20ms Off: 85ms
Input impedance:	1.8kΩ minimum
AC input filter:	RC type low-pass. Selectable on a per input basis

Interrupt: One interrupt, Jumper selectable IRQ 3, 4, 5, 6, 7, 9, (10, 11, 12, 14, 15)* or Disable. Fully supports sharing. Associated with digital input #0 activation, positive edge sensitive

Ordering Information:

100-7610,	RELAYIO-104, Relay output and optically isolated input module for PC/104
104-0025,	Optional 20 position J2/P2 stack-through connector * Required for upper IRQs
100-7625/40,	IDC-STB/40, 40-Position IDC ribbon cable to Screw-Terminal-Board

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