➤ 104-DIO48
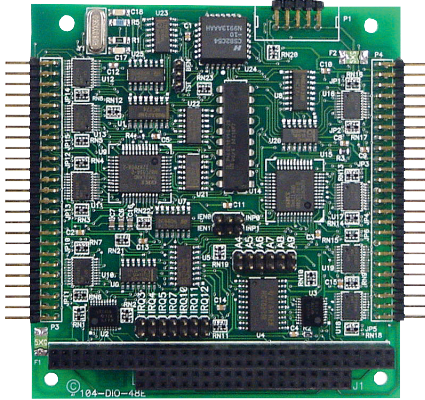## ➤ PC/104 48 digital TTL I/O

➤ Rugged embedded monitoring and control

The 104-DIO48 is a 48-bit parallel digital I/O card designed for use in embedded PC/104 systems. It is programmable to either accept inputs or provide latched outputs on each 24 channel group of three 8-bit ports. The third 8-bit port can be broken into two separate 4-bit ports for either input or output to allow increased configuration flexibility. The default for our 104-DIO48 is mode 0 support of software control of direction but for data transfer functions mode 2 is easily available for higher speed bi-directional capability as a special option.

Each I/O line is buffered and capable of sourcing 32mA or sinking 64mA of current. Tri-state I/O line buffers are configured automatically by hardware logic for input or output according to the 82C55 PPI control register in mode zero. Pull-up resistors on the card assure there are no erroneous outputs at power up until the card is initialized by the system software. Pulldowns are available by special request.

I/O wiring connections are through industry standard 50-pin header connector for each 24 channels. Flat ribbon cables such as the CAB50A Series can be used to connect to screw termination boards such as the Model UTB or Model STB50 while the CAB50 cables can be used to connect to our PB module racks or other industry equivalent I/O mounting racks for use of conditioning modules. Low power circuits are used with an overall consumption as low as 0.25W (quiescent, depends on the I/O current drive selected). To power external racks 5VDC is available on pin 49 of the connector with a 0.5A resettable fuse for this power pin. The 104-DIO48 optionally can be configured with an 82C54 counter/timer which has three 16-bit counters

- ➤ **48 channels of TTL digital I/O**
- ➤ **I/O pulled up to 5V for contact monitoring, pulldown resistors are available as special option**
- ➤ **E2 extended temperature option available**
- ➤ **Compatible with PB module racks**
- ➤ **High sink/source current (64mA/ 32mA)**
- ➤ **Industry standard 50-pin header connectors**
- ➤ **Fused (resetable) 5V available on pin 49**
- ➤ **10-pin header for three 16-bit counter timers option**
- ➤ **DOS, Linux®, Windows®98/NT/ 2000/XP I/O support**

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within one chip. These counters are useful for making frequency outputs, measuring frequency of square waves, pulse width outputs, pulse width measurements, etc. Contact your Sales Engineer for this custom option if needed.

The 104-DIO48 software package includes a setup program detailing all jumper settings, IRQ drivers and samples for DOS and Windows® (including 2000/NT/XP). A Linux® sample is also provided. Full register-level support for use in custom real-time or embedded operating systems is also provided.

Digital I/O (P3 and P4) connector pin assignments

Pin #	Assignment	
1	Port C Hi	PC7
3	Port C Hi	PC6
5	Port C Hi	PC5
7	Port C Hi	PC4
9	Port C Lo	PC3
11	Port C Lo	PC2
13	Port C Lo	PC1
15	Port C Lo	PC0
17	Port B	PB7
19	Port B	PB6
21	Port B	PB5
23	Port B	PB4
25	Port B	PB3
27	Port B	PB2
29	Port B	PB1
31	Port B	PB0
33	Port A	PA7
35	Port A	PA6
37	Port A	PA5
39	Port A	PA4
41	Port A	PA3
43	Port A	PA2
45	Port A	PA1
47	Port A	PA0
49	+5VDC	

Pin #	Assignment
2	Ground
4	Ground
6	Ground
8	Ground
10	Ground
12	Ground
14	Ground
16	Ground
18	Ground
20	Ground
22	Ground
24	Ground
26	Ground
28	Ground
30	Ground
32	Ground
34	Ground
36	Ground
38	Ground
40	Ground
42	Ground
44	Ground
46	Ground
48	Ground
50	Ground

➤ 104-DIO48 - Technical Specifications

Bus
• PC/104
Channels
• 48 ports A, B, & C on each of two PPI
Logic Controller
• 82C55A (PPI)

Digital Inputs
Logic (low)
• -0.5 to 0.8VDC
Logic (high)
• 2 to 5VDC
Input Load (high)
• 20uA
Input Load(low)
• -200uA

Digital Outputs
Logic (low)
• 0.5VDC (min.)
Logic (high)
• 2.5VDC (min.)
Sink Current
• 64mA
Source Current
• 32mA

I/O Addressing
• Jumpered base address 104-DIO48, occupies 16 consecutive addresses between 000-3FF (except 1F0 through 1F8)
Interrupts
• One interrupt per card by jumper if required (IRQ 3-7, 9-12,14-15)
Connectors
• Two 50-pin IDC header type
• Counter option (special), one 10-pin IDC header type

Power Requirements
• +5VAC @ 50mA (min.) with counter option 65mA

Environmental
Operating Temperature
• -20 ° to 70 °C
• -40 ° to 85 °C (E2 option - special order)
Non-Operating Temperature
• -50 ° to 150 °C
Humidity
• 5 to 95% RHNC
MTBF
• >200,000hrs (calculated)

OS Support
• DOS, Linux®, Windows®98/2000/NT/XP full I/O support

Support
• Superior pre- and post sales technical support
• Two year limited warranty

Ordering Guide
104-DIO48
• PC/104 digital 48 line card, manual CD & software CD
• Options: Contact your salesman for custom options such as E2 temp, mode 2, counters, resistor pulldowns
Accessories
STB50
• 50-pin IDC screw termination board
2TK2D-6
• 6-inch section of SNAPTRAK (for mounting STB50)
TKAD
• Din rail mounting clips for SNAPTRAK (two required)
UTB-K
• Universal termination board kit with UTB screw termination board and UTB-B metal enclosure
CAB50A-3
• 50-pin header ribbon cable both ends, 3-foot length
CAB50A-6
• 50-pin header ribbon vable both ends, 6-foot length
CAB50-6
• 50-pin header ribbon cable to PB rack edge connector, 6-foot length