



# PCI Bus Digital I/O Board Selection Guide

| Digital I/O Channel | Type                     | TTL Level |           |                            |           |                            |           |                   |
|---------------------|--------------------------|-----------|-----------|----------------------------|-----------|----------------------------|-----------|-------------------|
|                     | Bi-direction Digital I/O | 144       | 96        | -                          | 24        | 48                         | 24        | -                 |
|                     | D/I                      | -         | -         | 32                         | 16        | -                          | -         | 16                |
|                     | D/O                      | -         | -         | 32                         | 16        | -                          | -         | 16                |
| Driving Capacity    | Sink (mA)                | 64mA      | 64mA      | 24mA                       | 64mA      | 64mA                       | 64mA      | 0.4mA             |
|                     | Source(mA)               | 32mA      | 32mA      | 15mA                       | 32mA      | 32mA                       | 32mA      | 16mA              |
| Timer / Counter     | Channel                  | -         | -         | 4 x 16 bits<br>1 x 32 bits | -         | 1 x 16 bits<br>1 x 32 bits | -         | 2 x 16 bits       |
|                     | Clock Source             | -         | -         | 4MHz                       | -         | 4MHz<br>16.732KHz          | -         | 4MHz<br>16.732KHz |
| Connector           | 37-pin D-sub             | 1         | 1         | -                          | 1         | 1                          | 1         | 1                 |
|                     | 50-pin Header            | 5         | 3         | -                          | -         | 1                          | -         | -                 |
|                     | 20-pin Header            | -         | -         | 5                          | 2         | -                          | -         | 2                 |
| Dimensions(mm)      |                          | 170 x 105 | 180 x 105 | 156 x 105                  | 143 x 105 | 156 x 105                  | 143 x 105 | 150 x 105         |
| Page                |                          | 27        | 28        | 29                         | 30        | 31                         | 32        | 33                |

Distribué par :



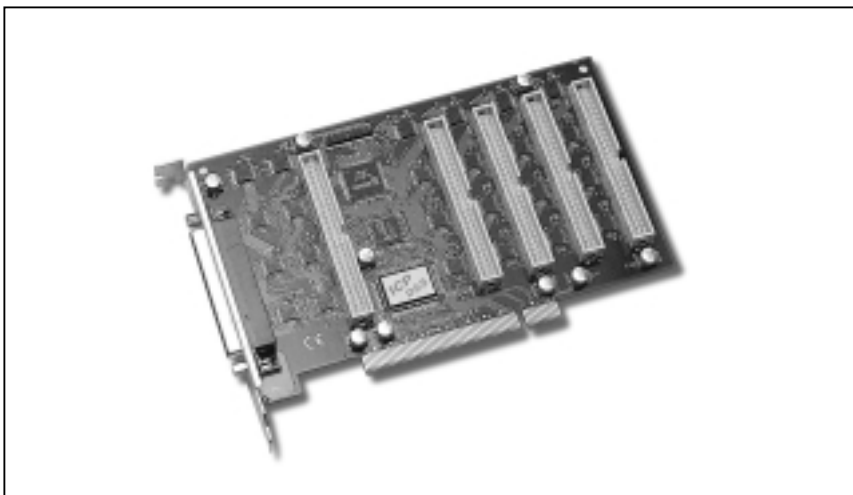
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# PIO-D144

## PCI BUS 144-BIT OPTO-22 DIO BOARD



- DB-24RD: 24 channel relay board
- DB-24PRD: 24 channel power relay board
- DB-16P8R: 16 channel isolated D/I and 8 channel relay output board
- DB-24POR: 24 channel PhotoMos Relay output board
- DB-24SSR: 24 channel Solid State Relay output board
- DB-24C: 24 channel open-collector output board
- PCI-DIO LabVIEW Development Toolkit for Win95
- PCI-DIO LabVIEW Development Toolkit for WinNT

### Functional Description

The PIO-D144 provides 144 TTL digital I/O lines. The PIO-D144 consists of six 24-bit bi-direction ports. Each 24-bit port supports three 8-bit groups A, B and C. Each 8-bit group can be configured to function as either inputs or latched outputs. All ports are configured as inputs upon power-up or reset.

The PIO-D144 has one D-Sub connector and five 50-pin flat-cable headers. Each header can be connected to a 50-pin flat-cable. The flat-cable can be connected to ADP-37/PCI or ADP-50/PCI adapter. The adapter can be fixed on the chassis. It can be installed in a 5 V PCI bus and can support truly "Plug & Play".

### Features

- PCI Bus, Double side SMD, short card, power saving
- Connects directly to DB-24PD, DB-24RD, DB-24PRD, DB-16P8R, DB-24POR, DB-24SSR, DB-24C or any OPTO-22 compatible daughterboards
- Up to 144 channels of Digital I/O
- Interrupt source: 4 channels
- High output driving capability
- one D-Sub connector, five 50-pin flat cable connector
- Automatically detected by Windows 95/98/NT
- No base address or IRQ switches to set

### Applications

- Factory automation
- Laboratory automation
- Communication switching
- Industrial automation

### Specifications

- All inputs are TTL compatible  
Logic high voltage: 2.4V ( Min. )  
Logic low voltage: 0.8V ( Max. )
- All outputs are TTL compatible  
Sink current: 64 mA ( Max. )  
Source current: 32 mA ( Max. )
- Power consumption: +5V / 1.1 A

### Environmental

- Operating Temperature: 0 to 60 °C
- Storage Temp.: -20 °C to 80 °C
- Humidity: 0 to 90 % non-condensing
- Dimension: 180 mm x 105 mm

### Software

- PCI-DIO Development Toolkit for DOS
- PCI-DIO Development Toolkit for Win95
- PCI-DIO Development Toolkit for WinNT

### Order Description

- PIO-D144: PCI bus 144-bit opto-22 DIO board

### Options

- DB-24PD: 24 channel isolated D/I board

### Pin Assignment

#### CON1

|      |    |   |    |      |
|------|----|---|----|------|
| PA_0 | 37 | ● | 19 | GND  |
| PA_1 | 36 | ● | 18 | Vcc  |
| PA_2 | 35 | ● | 17 | GND  |
| PA_3 | 34 | ● | 16 | N.C. |
| PA_4 | 33 | ● | 15 | GND  |
| PA_5 | 32 | ● | 14 | N.C. |
| PA_6 | 31 | ● | 13 | GND  |
| PA_7 | 30 | ● | 12 | N.C. |
| PC_0 | 29 | ● | 11 | GND  |
| PC_1 | 28 | ● | 10 | PC_0 |
| PC_2 | 27 | ● | 09 | PC_1 |
| PC_3 | 26 | ● | 08 | PC_2 |
| PC_4 | 25 | ● | 07 | PC_3 |
| PC_5 | 24 | ● | 06 | PC_4 |
| PC_6 | 23 | ● | 05 | PC_5 |
| PC_7 | 22 | ● | 04 | PC_6 |
| GND  | 21 | ● | 03 | PC_7 |
| Vcc  | 20 | ● | 02 | N.C. |
|      |    | ● | 01 | N.C. |

#### CON2, CON3, CON4, CON5 & CON6

|      |    |   |    |     |
|------|----|---|----|-----|
| PC 7 | 1  | ● | 2  | GND |
| PC 6 | 3  | ● | 4  | GND |
| PC 5 | 5  | ● | 6  | GND |
| PC 4 | 7  | ● | 8  | GND |
| PC 3 | 9  | ● | 10 | GND |
| PC 2 | 11 | ● | 12 | GND |
| PC 1 | 13 | ● | 14 | GND |
| PC 0 | 15 | ● | 16 | GND |
| PB 7 | 17 | ● | 18 | GND |
| PB 6 | 19 | ● | 20 | GND |
| PB 5 | 21 | ● | 22 | GND |
| PB 4 | 23 | ● | 24 | GND |
| PB 3 | 25 | ● | 26 | GND |
| PB 2 | 27 | ● | 28 | GND |
| PB 1 | 29 | ● | 30 | GND |
| PB 0 | 31 | ● | 32 | GND |
| PA 7 | 33 | ● | 34 | GND |
| PA 6 | 35 | ● | 36 | GND |
| PA 5 | 37 | ● | 38 | GND |
| PA 4 | 39 | ● | 40 | GND |
| PA 3 | 41 | ● | 42 | GND |
| PA 2 | 43 | ● | 44 | GND |
| PA 1 | 45 | ● | 46 | GND |
| PA 0 | 47 | ● | 48 | GND |
| Vcc  | 49 | ● | 50 | GND |



# PIO-D96

## PCI BUS 96-BIT OPTO-22 DIO BOARD



PCI-Bus

### Functional Description

The PIO-D96 provides 96 TTL digital I/O lines. The PIO-D96 consists of four 24-bit bi-direction ports. Each 24-bit port supports three 8-bit groups A, B and C. Each 8-bit group can be configured to function as either inputs or latched outputs. All groups are configured as inputs upon power-up or reset. The PIO-D96 has one D-Sub connector and three 50-pin flat-cable headers. Each header can connect to a 50 pin flat cable. The flat cable can be connected to ADP-37/PCI or ADP-50/PCI adapter. The adapter can be fixed on the chassis. It can be installed in a 5 V PCI bus and can support truly " Plug & Play".

### Features

- PCI Bus, SMD, short card
- Connects directly to DB-24PD, DB-24RD, DB-24PRD, DB-16P8R, DB-24POR, DB-24SSR, DB-24C or any OPTO-22 compatible daughter board
- 96 digital I/O lines
- Interrupt source: 4 channels
- High output driving capability
- One D-Sub connector, three 50-pin flat-cable header

### Applications

- Factory automation
- Laboratory automation
- Communication switching
- Industrial automation

### Specifications

- All inputs are TTL compatible  
Logic high voltage: 2.4V ( Min. )  
Logic low voltage: 0.8V ( Max. )
- All outputs are TTL compatible  
Sink current: 64 mA ( Max. )  
Source current: 32 mA ( Max. )
- Power consumption: +5V / 600mA

### Environmental

- Operating Temperature: 0 to 60 °C
- Storage Temp.: -20 °C to 80 °C
- Humidity: 0 to 90 % non-condensing
- Dimension: 180 mm x 105 mm

### Software

- PCI-DIO Development Toolkit for DOS
- PCI-DIO Development Toolkit for Win95
- PCI-DIO Development Toolkit for WinNT

### Order Description

- PIO-D96: PCI bus 96-bit opto-22 DIO board

### Options

- DB-24PD: 24 channel isolated D/I board
- DB-24RD: 24 channel relay board
- DB-24PRD: 24 channel power relay board
- DB-16P8R:16 channel isolated D/I and 8 channel relay output board
- DB-24POR: 24 channel PhotoMos relay output board
- DB-24SSR: 24 channel Solid State relay output board
- DB-24C: 24 channel open-collector output board
- DN-37: I/O connector block with DIN-Rail mounting and two 37-pin D-sub connectors
- ADP-37/ PCI adapter: 50-pin opto-22 ports to DB-37 for PCI Bus I/O board
- ADP-50/PCI: Extender, extends 50-pin flat-cable connectors to PC slot windows, for PCI Bus I/O board

- PCI-DIO LabVIEW Development Toolkit for Win95
- PCI-DIO LabVIEW Development Toolkit for WinNT

### Pin Assignment CN1

|      |    |   |    |      |
|------|----|---|----|------|
| PA_0 | 37 | ● | 19 | GND  |
| PA_1 | 36 | ● | 18 | Vcc  |
| PA_2 | 35 | ● | 17 | GND  |
| PA_3 | 34 | ● | 16 | N.C. |
| PA_4 | 33 | ● | 15 | GND  |
| PA_5 | 32 | ● | 14 | N.C. |
| PA_6 | 31 | ● | 13 | GND  |
| PA_7 | 30 | ● | 12 | N.C. |
| PC_0 | 29 | ● | 11 | GND  |
| PC_1 | 28 | ● | 10 | PC_0 |
| PC_2 | 27 | ● | 09 | PC_1 |
| PC_3 | 26 | ● | 08 | PC_2 |
| PC_4 | 25 | ● | 07 | PC_3 |
| PC_5 | 24 | ● | 06 | PC_4 |
| PC_6 | 23 | ● | 05 | PC_5 |
| PC_7 | 22 | ● | 04 | PC_6 |
| GND  | 21 | ● | 03 | PC_7 |
| Vcc  | 20 | ● | 02 | N.C. |
|      |    | ● | 01 | N.C. |

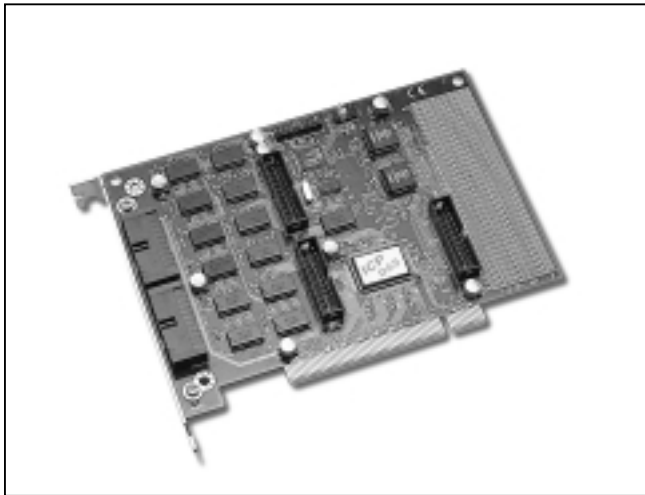
### CN2, CN3 & CN4

|      |    |   |    |     |
|------|----|---|----|-----|
| PC 7 | 1  | ● | 2  | GND |
| PC 6 | 3  | ● | 4  | GND |
| PC 5 | 5  | ● | 6  | GND |
| PC 4 | 7  | ● | 8  | GND |
| PC 3 | 9  | ● | 10 | GND |
| PC 2 | 11 | ● | 12 | GND |
| PC 1 | 13 | ● | 14 | GND |
| PC 0 | 15 | ● | 16 | GND |
| PB 7 | 17 | ● | 18 | GND |
| PB 6 | 19 | ● | 20 | GND |
| PB 5 | 21 | ● | 22 | GND |
| PB 4 | 23 | ● | 24 | GND |
| PB 3 | 25 | ● | 26 | GND |
| PB 2 | 27 | ● | 28 | GND |
| PB 1 | 29 | ● | 30 | GND |
| PB 0 | 31 | ● | 32 | GND |
| PA 7 | 33 | ● | 34 | GND |
| PA 6 | 35 | ● | 36 | GND |
| PA 5 | 37 | ● | 38 | GND |
| PA 4 | 39 | ● | 40 | GND |
| PA 3 | 41 | ● | 42 | GND |
| PA 2 | 43 | ● | 44 | GND |
| PA 1 | 45 | ● | 46 | GND |
| PA 0 | 47 | ● | 48 | GND |
| Vcc  | 49 | ● | 50 | GND |



# PIO-D64

## PCI BUS 64-BIT DIO Board With Timer/Counter



### Functional Description

The PIO-D64 provides 32 digital input channels, 32 output channels and 6 counter/timer channels. The PIO-D64 consists of two 16-bit input ports and two 16-bit output ports. The user can use the DB-16P to connect the input ports (CN2, CN4) for isolation purpose, or use DB-16R to interface to the output ports (CN1, CN3) for relay control. There are four clock sources, 2M, 1M, 500K, and 250K on the board. The user can choose one of them through jumper setting. The user can use the clock source from the soldering pad. One timer/counter provides 3 channels for frequency measurement, event counting and pulse generation. Another 8254 provide 3 channels for interrupt function. It can be installed in a 5 V PCI bus and can support truly " Plug & Play".

### Features

- 2 digital input lines
- 32 digital output lines
- 3 independent programmable 16-bit counters
- One 16-bit counter, one 32-bit timer with a 4 MHz time base
- Interrupt source: 3 channels
- Breadboard area for add-on circuitry

### ApplicationS

- Factory automation
- Laboratory automation
- Communication switching
- Industrial automation

### Specifications

- All inputs are TTL compatible  
Logic high voltage: 2.4V (Min.)  
Logic low voltage: 0.8V (Max.)
- All outputs are TTL compatible  
Sink current: 24 mA ( Max. )  
Source current: 15 mA (Max.)

- Power consumption: +5V / 580mA

### Environmental

- Operating Temperature: 0 to 60°C
- Storage Temperature: -20°C to 80°C
- Humidity: 0 to 90% non-condensing
- Dimension: 156mm x 105mm

### Software

- PCI-DIO Development Toolkit for DOS
- PCI-DIO Development Toolkit for Win95
- PCI-DIO Development Toolkit for WinNT

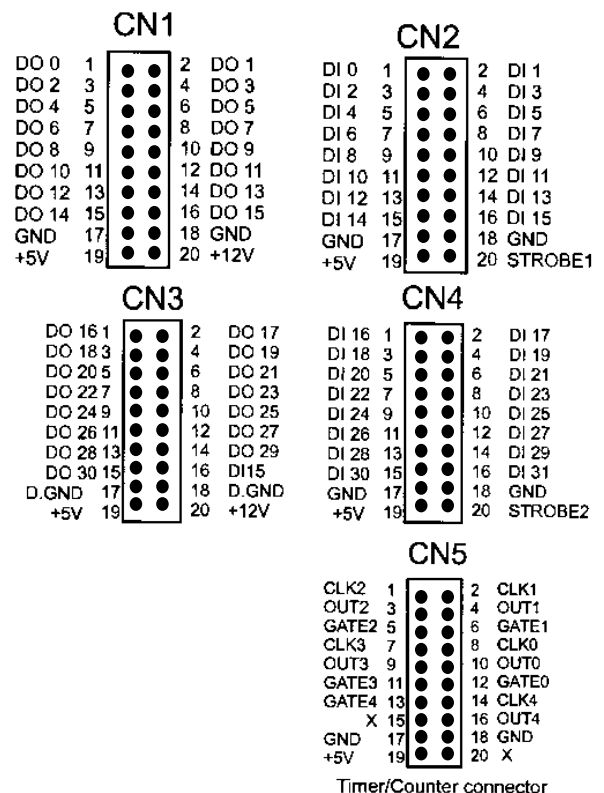
### Order Description

- PIO-D64: PCI bus 64-bit DIO board with timer/Counter

### Options

- DB-16P: 16 channel opto-isolated input board
- DB-16R: 16 channel relay terminal board
- DB-24PR: 24 channel power relay board
- DB-24POR: 24 channel PhotoMos relay board
- DB-24C : 24 channel open-collector output board
- DN-20: I/O connector block with DIN-Rail mount
- DN-20/N: DN-20 without DIN-Rail mount
- ADP-20/PCI: 20-pin extender
- PCI-DIO LabVIEW Development Toolkit for Win95
- PCI-DIO LabVIEW Development Toolkit for WinNT

### Pin Assignment





# PIO-D56

## PCI BUS 56-BIT DIO BOARD



PCI-Bus

### Functional Description

The PIO-D56 provides 56 TTL digital I/O lines. The PIO-D56 consists of one 24-bit port (CON3), one 16-bit input port (CON2) and one 16-bit output port (CON1). The 24-bit port supports three 8-bit groups A, B, C. Each 8-bit group can be configured to function as either inputs or latched outputs. All groups are configured as inputs upon power-up or reset. The user can use the DB-16P to connect the input ports (CON2) for isolation purpose, or use DB-16R to interface to the output ports (CON1) for relay control. The PIO-D56 has one D-Sub connector and two 20-pin flat-cable headers. The header can be connected to 20-pin flat-cable. The flat-cable can be connected to ADP-20/PCI adapter. The adapter can be fixed on the chassis. It can be installed in a 5 V PCI bus and can support truly " Plug & Play".

### Features

- Double side SMD, short card, power saving
- Connects directly to DB-24PD, DB-24RD, DB-24PRD, DB-24POR, DB-24SSR, DB-24C or any OPTO-22 compatible daughter board
- 56 digital I/O lines
- Interrupt source: 4 channels
- High output driving capability
- one D-Sub connector, two 20-pin flat-cable header

### Applications

- Factory automation
- Laboratory automation
- Communication switching
- Industrial automation

### Specifications

- All inputs are TTL compatible  
Logic high voltage: 2.4V ( Min. )  
Logic low voltage: 0.8V ( Max. )
- All outputs are TTL compatible
- **OPTO-22 output (CON3)**  
Sink current: 64mA (Max.)  
Source current: 32mA (max.)
- **16-channel output (CON1)**  
Sink current: 8mA (Max.)  
Source current: 0.4mA (max.)
- Power consumption: +5V / 530m A

### Environmental

- Operating Temperature: 0 to 60 °C
- Storage Temp.: -20 °C to 80 °C
- Humidity: 0 to 90 %  
non-condensing
- Dimension: 143 mm x 105 mm

### Order Description

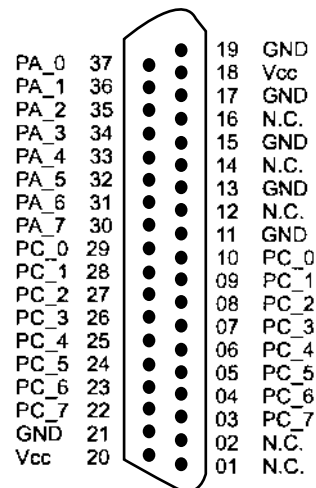
- PIO-D56: PCI bus 56-bit DIO board

### Options

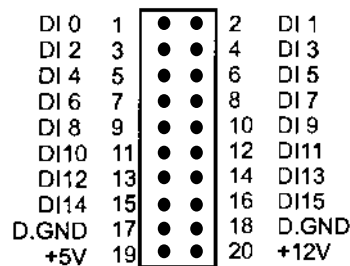
- DB-24PD: 24 channel isolated D/I board
- DB-24RD: 24 channel relay board
- DB-24PRD: 24 channel power relay board
- DB-16P8R: 16 channel isolated D/I and 8 channel relay output board
- DB-24POR: 24 channel PhotoMos relay output board
- DB-24SSR: 24 channel Solid State relay output board
- DB-24C: 24 channel open-collector output board
- DB-16P: 16 channel opto-isolated input board
- DB-16R: 16 channel relay terminal board
- ADP-20/PCI: 20-pin extender
- DN-20: I/O connector block with DIN-Rail mounting and two 20-pin header
- DB-16R: 16 channel relay

- DN-37: I/O connector block with DIN-Rail mounting and two 37-pin D-sub connectors:
- PIO-DIO Development Toolkit for Win95
- PIO-DIO Development Toolkit for WinNT

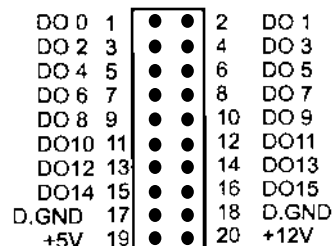
### Pin Assignment CON3



### Pin Assignment CON2



### Pin Assignment CON1





# PIO-D48

## PCI BUS 48-BIT OPTO-22 COMPATIBLE DIO BOARD



### Functional Description

The PIO-D48 provides 48 TTL digital I/O lines. The PIO-D48 consists of two 24-bit bi-direction ports. Each 24-bit port supports three 8-bit groups A, B, C. Each 8-bit group can be configured to function as either inputs or latched outputs. All groups are configured as inputs upon power-up or reset. Outputs of the I/O buffers are pulled up through 10K resistors to +5VDC. Outputs can be changed to pull down by jumper selection on the board. This pull-up/pull-down mechanism assures that there are no erroneous outputs at power-up until the board is initialized by application software.

The PIO-D48 has one D-Sub connector and one 50-pin flat-cable header. The header can be connected to a 50-pin flat-cable. The flat-cable can be connected to ADP-37/PCI or ADP-50/PCI adapters. The adapter can be fixed on the chassis. It can be installed in a 5 V PCI bus and can support truly " Plug & Play".

### Features

- PCI Bus
- Up to 48 channels of digital I/O
- All I/O lines buffered on the board
- Eight-bit groups independently selectable for I/O on each 24-bit port
- Tri-stateable I/O ports under software control
- SMD, short card, power saving
- Connects directly to DB-24PD, DB-24RD, DB-24PRD, DB-24POR, DB-24SSR, DB-24C or any OPTO-22 compatible daughter boards

- One 32-bit programmable internal pacer timer
- One 16-bit event counter
- Interrupt source : 4 channels
- Pull-up or pull-down resistors on I/O lines
- Emulate two industrial-standard 8255 mode 0
- high output driving capability
- One D-Sub connector, one 50-pin flat-cable heade
- Automatically detected by Windows 95/98/NT
- No base address or IRQ switches to set

### Applications

- Factory automation
- Laboratory automation
- Communication switching
- Industrial automation

### Specifications

- All inputs are TTL compatible  
Logic high voltage: 2.4V ( Min. )  
Logic low voltage: 0.8V ( Max. )
- All outputs are TTL compatible  
Sink current: 64 mA ( Max. )  
Source current: 32 mA ( Max. )
- Power consumption: +5V / 500mA

### Environmental

- Operating Temperature: 0 to 60 °C
- Storage Temp.: -20 °C to 80 °C
- Humidity: 0 to 90 % non-condensing
- Dimension: 156 mm x 105 mm

### Software

- PCI-DIO Development Toolkit for DOS
- PCI-DIO Development Toolkit for Win95
- PCI-DIO Development Toolkit for WinNT

### Order Description

- PIO-D48: PCI bus 48-bit opto-22 DIO board
- PIO-D48/S: PIO-D48 with ADP-37/PCI adapter

### Options

- DB-24PD: 24 channel isolated D/I board
- DB-24RD: 24 channel relay board
- DB-24PRD: 24 channel power relay board
- DB-16P8R: 16 channel isolated D/I and 8 channel relay output board

- DB-24POR: 24 channel PhotoMos relay output board
- DB-24SSR: 24 channel Solid State relay output board
- DB-24C: 24-channel open-collector output board
- ADP-37/ PCI adapter: 50-pin opto-22 ports to DB-37 for PCI Bus I/O board
- ADP-50/PCI: Extender, extends 50-pin flat-cable connectors to PC slot windows, for PCI Bus I/O board
- PCI-DIO LabVIEW Development Toolkit for Win95
- PCI-DIO LabVIEW Development Toolkit for WinNT

Pin Assignment  
CN1

|      |    |   |   |    |      |
|------|----|---|---|----|------|
| PA_0 | 37 | ● | ● | 19 | GND  |
| PA_1 | 36 | ● | ● | 18 | Vcc  |
| PA_2 | 35 | ● | ● | 17 | GND  |
| PA_3 | 34 | ● | ● | 16 | N.C. |
| PA_4 | 33 | ● | ● | 15 | GND  |
| PA_5 | 32 | ● | ● | 14 | N.C. |
| PA_6 | 31 | ● | ● | 13 | GND  |
| PA_7 | 30 | ● | ● | 12 | N.C. |
| PC_0 | 29 | ● | ● | 11 | GND  |
| PC_1 | 28 | ● | ● | 10 | PC_0 |
| PC_2 | 27 | ● | ● | 09 | PC_1 |
| PC_3 | 26 | ● | ● | 08 | PC_2 |
| PC_4 | 25 | ● | ● | 07 | PC_3 |
| PC_5 | 24 | ● | ● | 06 | PC_4 |
| PC_6 | 23 | ● | ● | 05 | PC_5 |
| PC_7 | 22 | ● | ● | 04 | PC_6 |
| GND  | 21 | ● | ● | 03 | PC_7 |
| Vcc  | 20 | ● | ● | 02 | N.C. |
|      |    | ● | ● | 01 | N.C. |

CN2

|      |    |   |   |    |     |
|------|----|---|---|----|-----|
| PC 7 | 1  | ● | ● | 2  | GND |
| PC 6 | 3  | ● | ● | 4  | GND |
| PC 5 | 5  | ● | ● | 6  | GND |
| PC 4 | 7  | ● | ● | 8  | GND |
| PC 3 | 9  | ● | ● | 10 | GND |
| PC 2 | 11 | ● | ● | 12 | GND |
| PC 1 | 13 | ● | ● | 14 | GND |
| PC 0 | 15 | ● | ● | 16 | GND |
| PB 7 | 17 | ● | ● | 18 | GND |
| PB 6 | 19 | ● | ● | 20 | GND |
| PB 5 | 21 | ● | ● | 22 | GND |
| PB 4 | 23 | ● | ● | 24 | GND |
| PB 3 | 25 | ● | ● | 26 | GND |
| PB 2 | 27 | ● | ● | 28 | GND |
| PB 1 | 29 | ● | ● | 30 | GND |
| PB 0 | 31 | ● | ● | 32 | GND |
| PA 7 | 33 | ● | ● | 34 | GND |
| PA 6 | 35 | ● | ● | 36 | GND |
| PA 5 | 37 | ● | ● | 38 | GND |
| PA 4 | 39 | ● | ● | 40 | GND |
| PA 3 | 41 | ● | ● | 42 | GND |
| PA 2 | 43 | ● | ● | 44 | GND |
| PA 1 | 45 | ● | ● | 46 | GND |
| PA 0 | 47 | ● | ● | 48 | GND |
| Vcc  | 49 | ● | ● | 50 | GND |