

Digital Input Board with Optocoupler Isolation for PCI

PI-128L(PCI)H



\* Specifications, color and design of the products are subject to change without notice.

Features

- Opto-coupler isolated input (compatible with current sink output) and opto-coupler isolated open-collector output (current sink type)  
PI-128L(PCI)H has the 128ch of opto-coupler isolated input (compatible with current sink output) whose response speed is 200μsec. Common terminal provided per 16channels, capable of supporting a different external power supply. Supporting driver voltages of 12 - 24 VDC for I/O.
- Opto-coupler bus isolation  
As the PC is isolated from the input and output interfaces by opto-couplers, this product has excellent noise performance.
- You can use 16 input signals as interrupt request signals. You can use 16 input signals as interrupt request signals and also disable or enable the interrupt in bit units and select the edge of the input signals, at which to generate an interrupt.
- Windows/Linux compatible driver libraries are attached. Using the attached driver library API-PAC(W32) makes it possible to create applications of Windows/Linux. In addition, a diagnostic program by which the operations of hardware can be checked is provided.
- This product has a digital filter to prevent wrong recognition of input signals from carrying noise or a chattering. This product has a digital filter to prevent wrong recognition of input signals from carrying noise or a chattering. All input terminals can be added a digital filter, and the setting can be performed by software.
- LabVIEW is supported by a plug-in of dedicated library. Using the dedicated library makes it possible to make a LabVIEW application.

Packing List

- Board [PI-128L(PCI)H] ... 1
- First step guide ... 1
- Disk \*1 [API-PAC(W32)] ... 1
- Warranty Certificate... 1
- Serial Number Label... 1

\*1 The bundled disk contains the driver software and User's Guide.

This product is a PCI bus-compliant interface board used to provide a digital signal I/O function on a PC.

This product can input and output digital signals at 12 - 24VDC.

PI-128L(PCI)H features 128 opto-coupler isolated inputs. You can use 16 input signals as interrupt inputs. In addition, the digital filter function to prevent wrong recognition of input signals is provided.

Windows/Linux driver is bundled with this product.

Possible to be used as a data recording device for LabVIEW, with dedicated libraries.

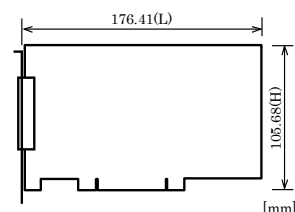
- \* The contents in this document are subject to change without notice.
- \* Visit the CONTEC website to check the latest details in the document.
- \* The information in the data sheets is as of April, 2018.

Specification

Item	Specifications
<b>Input</b>	
Type	Optocoupler Isolated Input (for current sinking output) (Negative logic *1)
Number of Channels	128 channels (16 of these 128 can be used as interrupt signal) (16 channels share a positive common)
Resister	4.7kΩ
Current required to turn ON	2.0mA(Min.)
Current required to turn OFF	0.16mA(Max.)
Interrupts	Combine four interrupt signals to one interrupt request signal as the INTA. Either rising edge or falling edge of input signal can generate interrupt.
Response time	200μsec(Max.)
<b>Common</b>	
I/O address	Any 32-byte boundary
Interrupt level	1 level use
Boards in one system	Maximum of 16 boards can be install in a same system.
Isolated voltage (I/O-to-system) *2	250Vrms
External power supply	12 - 24VDC(±10%)
Power consumption	5VDC 500mA(Max.)
Operating condition	0 - 50°C, 10 - 90%RH (No condensation)
Connecting distance	50m(Typ.)(depending on wiring environment)
PCI bus specification	32bit, 33MHz, Universal key shapes supported *3
Dimension (mm)	176.41(L) x 106.68(H) *4
Weight	215g
Standard	VCCI Class A, CE Marking (EMC Directive Class A, RoHS Directive)

\*1 Data "0" and "1" correspond to the High and Low levels, respectively.  
 \*2 There was no electrical breakdown after having impressed the specification voltage with AC50/60Hz and DC for one minute to the insulation part.  
 \*3 This board requires power supply at +5V from an expansion slot (it does not work on a machine with a +3.3V power supply alone).  
 \*4 The size of board No.7230 is 176.41 (L) x 106.68 (H) mm.

Board Dimensions



The standard outside dimension (L) is the distance from the end of the board to the outer surface of the slot cover.

## Support Software

### Windows version of digital I/O driver API-DIO(WDM)/API-DIO(98/PC)

#### [Stored on the bundled disk driver library API-PAC(W32)]

The API-DIO(WDM) is the Windows version driver library software that provides products in the form of Win32 API functions (DLL). Various sample programs such as Visual Basic and Visual C++, etc and diagnostic program \*1 useful for checking operation is provided.

For more details on the supported OS, applicable language and new information, please visit the CONTEC's Web site.

### Linux version of digital I/O driver API-DIO(LNX)

#### [Stored on the bundled disk driver library API-PAC(W32)]

The API-DIO(LNX) is the Linux version driver software which provides device drivers (modules) by shared library and kernel version. Various sample programs of gcc are provided.

For more details on the supported OS, applicable language and new information, please visit the CONTEC's Web site.

### LabVIEW-support data acquisition library DAQfast for LabVIEW

#### (Available for downloading (free of charge) from the CONTEC web site.)

This is a data collection library to use in the LabVIEW by National Instruments. With Polymorphic VI, our design enables a LabVIEW user to operate seamlessly. Our aim is that the customers to perform easily, promptly what they wish to do.

For more details on the library and download of DAQfast for LabVIEW, please visit the CONTEC's Web site.

### Data acquisition library for LabVIEW VI-DAQ (Available for downloading (free of charge) from the CONTEC web site.)

This is a VI library to use in National Instruments LabVIEW. VI-DAQ is created with a function form similar to that of LabVIEW's Data Acquisition VI, allowing you to use various devices without complicated settings.

For more details on the library and download of VI-DAQ, please visit the CONTEC's Web site.

## Cable & Connector (Option)

### Shielded Cable With Two 100pin Connector

- : PCB100PS-0.5 (0.5m)
- : PCB100PS-1.5 (1.5m)
- : PCB100PS-3 (3m)
- : PCB100PS-5 (5m)

### Connection Conversion Shield Cable (100P→96P)

- : PCB100/96PS-1.5 (1.5m)
- : PCB100/96PS-3 (3m)
- : PCB100/96PS-5 (5m)

### Flat Cable with One 100-Pin Connector

- : PCA100P-1.5(1.5m)
- : PCA100P-3(3m)
- : PCA100P-5(5m)

### Connection Conversion Shield Cable

- (100pin→37pin D-SUB x 2) : PCB100WS-1.5(1.5m)
- : PCB100WS-3(3m)
- : PCB100WS-5(5m)

## Accessories (Option)

- Screw Terminal Unit (M3 x 100P) : EPD-100A \*1\*4\*6
- Screw Terminal Unit (M3 x 96P) : EPD-96A \*2\*4\*6
- Screw Terminal Unit (M3.5 x 96P) : EPD-96 \*2\*4
- Terminal Unit for Cables (M2.5 x 96P) : DTP-64A \*2\*4
- Connector Conversion Board (96-Pin→37-Pin x 2) conversion terminal : CCB-96 \*2\*4
- Signal Monitor for Digital I/O(64Bits) : CM-64L \*2\*4
- Screw Terminal Unit (M3 x 37P) : EPD-37A \*3\*5\*6
- Screw Terminal Unit (M3.5 x 37P) : EPD-37 \*3\*5
- General Purpose Terminal (M3 x 37P) : DTP-3A \*3\*5
- Screw Terminal (M2.6 x 37P) : DTP-4C \*3\*5

\*1 PCB100PS optional cable is required separately.

\*2 PCB100/96PS optional cable is required separately.

\*3 PCB100WS optional cable is required separately.

\*4 If using both the CNA and CNB connectors, two each of the terminal block and cable sets are required.

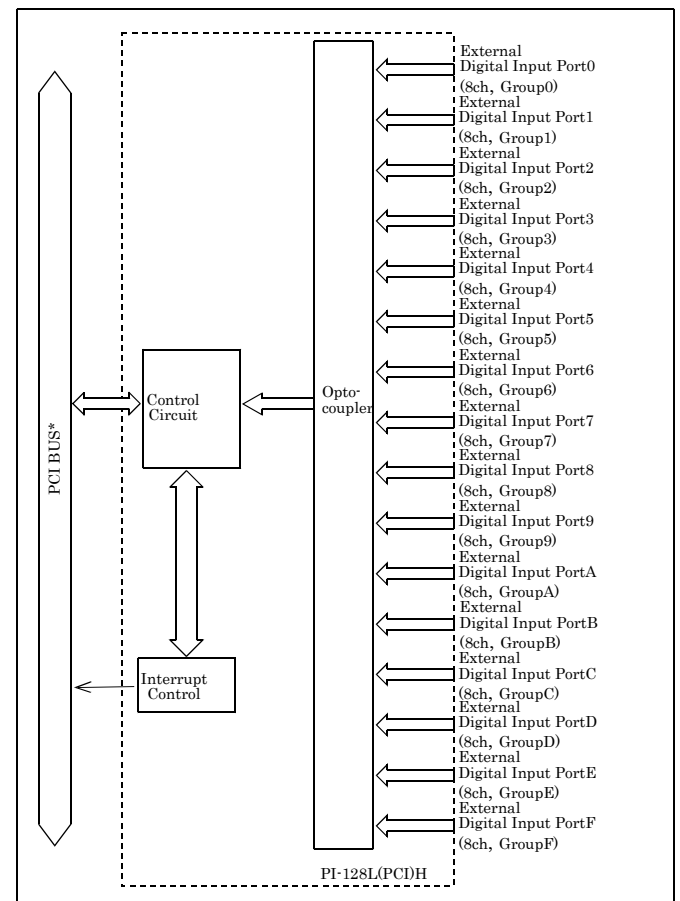
\*5 If using both the CNA and CNB connectors, two cable sets are required.

You will also require sufficient terminal blocks for the number of I/O points you are using.

\*6 "Spring-up" type terminal is used to prevent terminal screws from falling off.\*2 A PCB100WS optional cable is required separately.

\* Check the CONTEC's Web site for more information on these options.

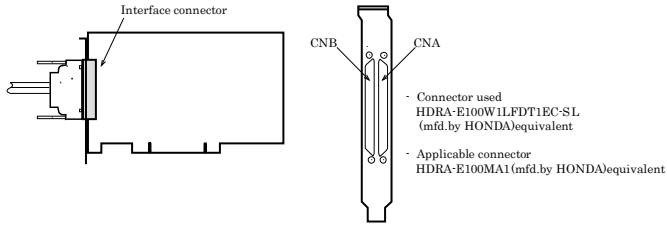
## Block Diagram



## Using the On-board Connectors

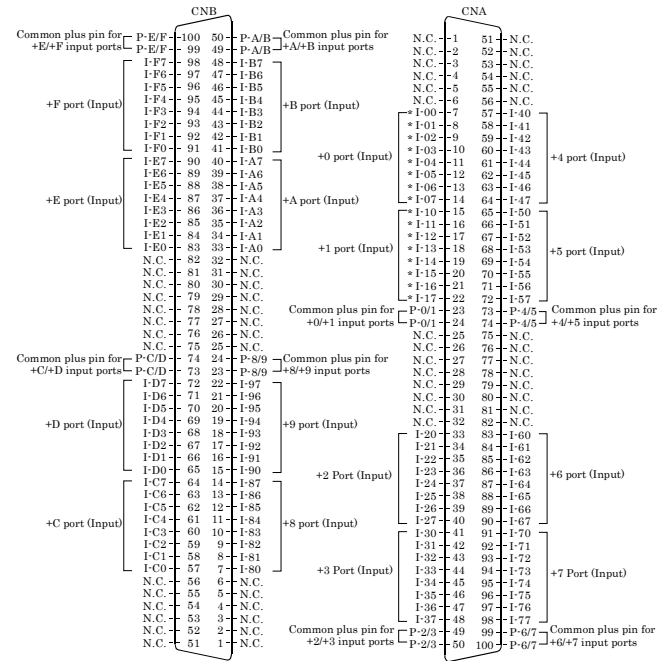
### Connecting a Device to a Connector

To connect an external device to this board, plug the cable from the device into the interface connector (CNA, CNB) shown below.



### Connector Pin Assignment

#### Pin Assignments of Interface Connector



\* I-00 - I-17 can be used as interrupt signal.

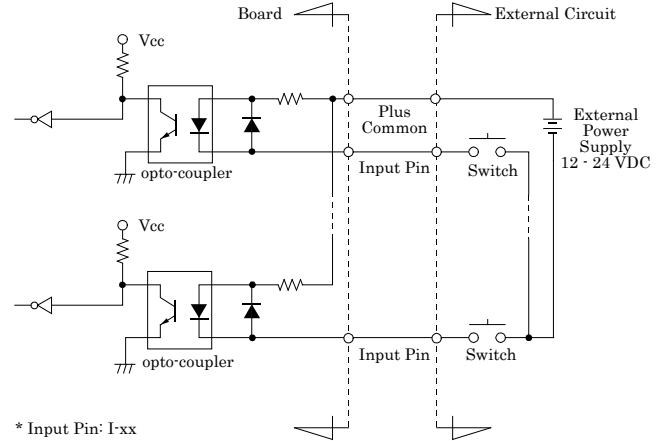
I-00 - I-F7	128 input signal pins. Connect output signals from the external device to these pins.
P-0/1 - P-E/F	Connect the positive side of the external power supply. These pins are common to 16 input signal pins.
N.C.	This pin is left unconnected.

## Connecting Input Signals

Connect the input signals to a device which can be current-driven, such as a switch or transistor output device. The connection requires an external power supply to feed currents.

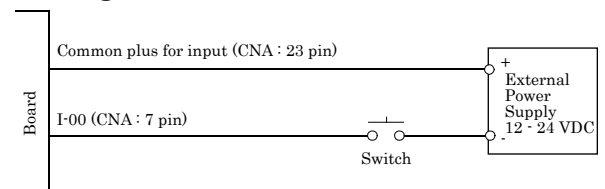
The board inputs the ON/OFF state of the current-driven device as a digital value.

### Input Circuit



The input circuit of this board is illustrated in the image above. The on-board Optocoupler isolated internal input circuits from outside devices. The input channels are to be connected with current sinking output signals. Driving these Optocoupler isolated circuits require an additional power supply isolated from the PC system. When a 12VDC external power is used, each input channel will consume about 2.6mA current; when a 24VDC external power supply is selected, each input channel will consume about 5.1mA current.

### Connecting a Switch



## Connecting the Sink Type Output and Sink Output Support Input

The following example shows a connection between a sink type output (output board) and a sink output support input (input board). Refer to this connection example when you connect such boards to each other.

