Isolated Digital I/O board for PCI Express

DIO-1616B-LPE

This product is a PCI Express bus-compliant interface board that extends the digital signal I/O functions of a PC.
This product is a 12 - 24VDC opto-coupler isolated type with opto-coupler isolated input 16ch and opto-coupler isolated open-collector output 16ch. You can use all of the input signals as interrupt inputs. Equipped with the power for opto-coupler operation (12DVC) supplied and the digital filter function and output transistor protection circuit (surge voltage protection and overcurrent protection).
This product supports a Low Profile size slot and, if replaced with the supplied bracket, supports a standard size slot, too.
Windows/Linux driver is bundled with this product.
Using the dedicated library VI-DAQ makes it possible to create each application for LabVIEW.

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

Features

Opto-coupler isolated input (supporting current sink output) and opto-coupler isolated open-collector output (current sink type)

This product has the opto-coupler isolated input 16ch (supporting current sink output) whose response speed is 200µsec and opto-coupler isolated open-collector output 16ch (current sink type).
Common terminal provided per 16ch, capable of supporting a different external power supply Supporting driver voltages of 12 - 24 VDC for I/O

Opto-coupler bus isolation

As the PCI Express bus (PC) is isolated from the input and output interfaces by opto-couplers, this product has excellent noise performance.

Power for opto-coupler operation (12VDC 240mA) supplied internally

As the power to run the opto-couplers is supplied internally, no external power supply is required. The use of jumpers allows you to decide whether you want to use the internal or external power supply for every 16 points.

You can use all of the input signals as interrupt events.

You can use all of the input signals as interrupt events and also disable or enable the interrupt in bit units and select the interrupt edge.

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 input signals from carrying noise or a chattering.

This product has a digital filter to prevent 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.

Output circuits include zener diodes for surge voltage protection and overcurrent protection circuit.

Zener diodes are connected to the output circuits to protect against surge voltages. Similarly, overcurrent protection circuits are fitted to each group of 8ch outputs.

Functions are compatible with PCI Express compatible board DIO-1616B-PE and PCI compatible board PIO-16/16B(PCI)H.

Using the dedicated library VI-DAQ makes it possible to create each application for LabVIEW.

Functions and connectors are compatible with PCI compatible board PIO-16/16B(LPCI)H series.

The functions same with PCI compatible board PIO-16/16B(LPCI)H are provided.
In addition, as there is compatibility in terms of connector shape and pin assignments, it is easy to migrate from the existing system.

LabVIEW is supported by a plug-in of dedicated library VI-DAQ.

Using the dedicated library VI-DAQ makes it possible to create each application for LabVIEW.

Specification

Item		Specification
Input		
Input format		Opto-coupler isolated input (Compatible with current sink output) (Negative logic *1)
Number of input signal channels		16ch (all available for interrupts) (1 common in 16ch)
Input resistance		4.7kΩ
Input ON current		2.0mA or more
Input OFF current		0.16mA or less
Interrupt		16 interrupt input signals are arranged into a single output of interrupt signal INTA. An interrupt is generated at the rising edge (HIGH-to-LOW transition) or falling edge (LOW-to-HIGH transition).
Response time		Within 200μsec
Output		
Output format		Opto-coupler isolated open collector output (current sink type) (Negative logic *1)
Number of output signal channels		16ch (1 common)
Output rating	Output voltage	35VDC (Max.)
	Output current	100mA (par channel) (Max.)
Residual voltage with output on		0.5V or less (Output current≤50mA), 1.0V or less (Output current≤100mA)
Surge protector		Zener diode RD47FM(NEC) or equivalent to it
Response time		Within 200μsec
Common		
Built-in power		120VDC 240mA*2
Allowable distance of signal extension		Approx. 50m (depending on wiring environment)
I/O address		Any 32-byte boundary
Interruption level		1 level use
Max. board count for connection		16 boards including the master board
Isolated Power		500Vrms
External circuit power supply		12 - 24VDC(±10%)
Power consumption		When using the internal power supply : 3.3VDC 350mA, :12VDC 350mA When using the external power supply : 3.3VDC 350mA
Operating condition		0 - 50°C, 10 - 90%RH (No condensation)
Bus specification		PCI Express Base Specification Rev. 1.0a x1
Dimension (mm)		121.69(L) × 67.90(H)
Connector		50-Pin Mini-Ribbon connector 10250-52A2JL[mfd.by 3M]
Weight		55g
Certification		RoHS,CE,VCCI

*1   Data "0" and "1" correspond to the High and Low levels, respectively.
*2   When using the internal power supply, the input section consumes up to 40mA and the SW section of output channel consumes up to 30mA, so the output current that can be supplied to the external device is 170mA.

Board Dimensions

121.69(L)
67.90(H)
[mm]
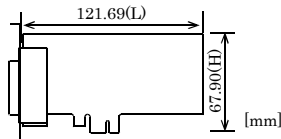
The standard outside dimension (L) is the distance from the end of the board to the outer surface of the slot cover.

Packing List

Board [DIO-1616B-LPE] …1
Standard-sized bracket …1
First step guide … 1
Disk*1 [API-PAC(W32)] …1
Product Registration Card & Warranty Certificate …1
Serial number label …1
*1   Driver software and (API-PAC(W32)), User's Guide (this guide)

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 *1useful for checking operation is provided.
For more details on the supported OS, applicable language and new information, please visit the CONTEC's Web site. (http://www.contec.com/apipac/).

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. (http://www.contec.com/apipac/).

Data acquisition VI 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.
See http://www.contec.com/vidaq/ for details and download of VI-DAQ.

Cable & Connector

Cable & Connector (Option)

Shield Cable with Two 50-Pin Mini-Ribbon Connector
:PCB50PS-0.5P(0.5m)
:PCB50PS-1.5P(1.5m)
:PCB50PS-3P(3m)
:PCB50PS-5P(5m)
Shield Cable with One 50-Pin Mini-Ribbon Connector
:PCA50PS-0.5P(0.5m)
:PCA50PS-1.5P(1.5m)
:PCA50PS-3P(3m)
:PCA50PS-5P(5m)
Connection Conversion 0.5m Shield Cable
(50-Pin Ribbon->37-Pin D-SUB)
:PCE50/37PS-0.5P(0.5m)

Accessories

Accessories (Option)

Screw Terminal Unit(M3 terminal block, 50 points)
:EPD-50A [*1] [*2]
Screw Terminal Unit(M3 terminal block, 37 points)
:EPD-37A [*1] [*3]
Screw Terminal Unit(M3.5 terminal block, 37 points) :EPD-37[*3]
Termination Panel (M3)   :DTP-3A [*3]
Termination Panel   :DTP-4C [*3]
Signal Monitor for Digital I/O   :CM-32L [*3]
*1 "Spring-up" type terminal is used to prevent terminal screws from falling off.
*2 PCB50PS-*P optional cable is required separately.
*3 PCE50/37PS-0.5P and PCB37P or PCB37PS optional cable is required separately.
*   Check the CONTEC's Web site for more information on these options.