

Opto-Isolated Digital I/O for PCI Express
16 ch type
DIO-1616H-PE



* 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)
DIO-1616H-PE has the opto-coupler isolated input 16channels (supporting current sink output) whose response speed is 200μsec and opto-coupler isolated open-collector output 16channels (current sink type).

Common terminal provided per 16channels, capable of supporting a different external power supply. Supporting driver voltages of high voltages (24 - 48 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.

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You can use all of the 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.

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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.

The output circuit, has a built-in Zener diode and the overcurrent protection circuit of the surge voltage protection.

Zener diodes are connected to the output circuits to protect against surge voltages. In addition, the output circuit, it attaches the overcurrent protection circuit at the output 8-channel unit. The output rating is max. 60VDC, 100mA per channel.

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

DIO-1616H-PE : The functions same with PCI compatible board PIO-16/16H(PCI)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.

This product is a PCI Express bus-compliant interface board used to provide a digital signal I/O function on a PC. The product can input and output digital signals at high voltages (24 - 48VDC).

DIO-1616H-PE features 16 opto-coupler isolated inputs and 16 opto-coupler isolated open-collector outputs. You can use 16 input signals as interrupt inputs. Equipped with the digital filter function to prevent wrong recognition of input signals is provided and output transistor protection circuit (surge voltage protection and over current protection).

Windows/Linux driver is bundled with this product.

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

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

Using the dedicated library makes it possible to make a LabVIEW application.

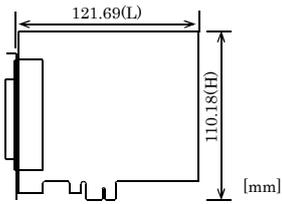
Specification

Item	Specifications
Input	
Input format	Opto-isolated input (Compatible with current sink output) (Negative logic *1)
Number of input signal channels	16 channels (all available for interrupts) (1 common)
Input resistance	15kΩ
Input ON current	1.36mA 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 falling edge (HIGH-to-LOW transition) or rising edge (LOW-to-HIGH transition).
Response time	Within 200μsec
Output	
Output format	Opto-isolated open collector output (Compatible with current sink) (Negative logic *1)
Number of output signal channels	16 channels (1 common)
Output rating	Output voltage 60VDC (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 RD68FM(NEC) or the equivalence for it
Response time	Within 200μsec
Common	
I/O address	Any 32-byte boundary
Interruption level	1 level use
Max. board count for connection	16 boards including the master board
Dielectric strength	1000Vrms
External circuit power supply	24 - 48VDC (±10%)
Power consumption	3.3VDC 310mA (Max)
Operating condition	0 - 50°C, 10 - 90%RH (No condensation)
Allowable distance of signal extension	Approx. 50m (depending on wiring environment)
Bus specification	PCI Express Base Specification Rev. 1.0a x1
Dimension (mm)	121.69(L) x 110.18(H)
Connector	37 pin D-SUB connector [F (female) type] DCLC-J37SAF-20L9E [mfd by JAE] or equivalent to it
Weight	80g
Standard	VCCI Class A, CE Marking (EMC Directive Class A, RoHS Directive), UKCA

*1 Data "0" and "1" correspond to the High and Low levels, respectively.

*2 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).

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 & Service

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 how to download the updated version, 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 how to download the updated version, please visit the CONTEC's Web site (<http://www.contec.com/apipac/>).

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.

See https://www.contec.com/products/daq_util/daqfast.php for details and download of DAQfast for LabVIEW.

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.

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

Packing List

- Board (DIO-1616H-PE) ...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 guide)

Cable & Connector (Option)

- Flat Cable with Two 37-pin D- SUB Connectors : PCB37P-1.5 (1.5m)
- Shielded Cable with Two 37-pin D- SUB Connectors : PCB37PS-0.5P (0.5m)
: PCB37PS-1.5P (1.5m)
: PCB37PS-3P (3m)
: PCB37PS-5P (5m)
- Flat Cable with One 37-pin D- SUB Connector : PCA37P-1.5 (1.5m)
: PCA37P-3 (3m)
- Shielded Cable with One 37-pin D- SUB Connector : PCA37PS-0.5P (0.5m)
: PCA37PS-1.5P (1.5m)
: PCA37PS-3P (3m)
: PCA37PS-5P (5m)

Accessories (Option)

- Screw Terminal (M3 x 37P) : EPD-37A *1 *2
- Screw Terminal (M3.5 x 37P) : EPD-37 *1
- General Purpose Terminal : DTP-3C *1
- Screw Terminal : DTP-4C *1

*1 A PCB37P or PCB37PS optional cable is required separately.

*2 "Spring-up" type terminal is used to prevent terminal screws from falling off.