PCI Express-compliant
Digital I/O board

DO-32T-PE

This product is a PCI Express bus-compliant interface board used to provide a digital output function on a PC.
The < DO-32T-PE > features 32 unisolated open-collector outputs.
Windows/Linux driver is bundled with this product.
Possible to be used as a data recording device for LabVIEW, with dedicated libraries.

Features

Unisolated open-collector output
The < DO-32T-PE > has the 32ch of unisolated open-collector output whose response speed is 200nsec. The output rating is max. 30VDC, 40mA per ch.

Windows/Linux compatible driver libraries are attached.
Using the attached driver library API-PAC(W32) makes it possible to create applications of Window/Linux. In addition, a diagnostic program by which the operations of hardware can be checked is provided.

Functions and connectors are compatible with PCI compatible board DO-32T2-PCI.
The functions same with PCI compatible board DO-32T2-PCI 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.

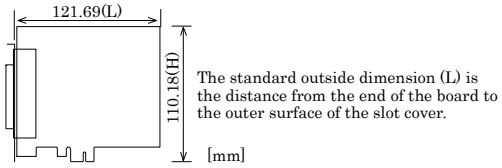
LabVIEW is supported by a plug-in of dedicated library VI-DAQ.
Using the dedicated library VI-DAQ makes it possible to make a LabVIEW application.

Specifications

Item			Specification
Output			
	Output format		Unisolated open collector output (Negative logic *1)
	Number of output signal channels		32channels (1 common)
	Output rating	Output voltage	30VDC (Max.)
		Output current	40mA (per channel) (Max.)
	Response time		Within 200nsec (change by pull-up registor value)
Common			
	External supply capable current (Max.)		5VDC 350mA
	Allowable distance of signal extension		Approx. 1.5m (depending on wiring environment)
	I/O address		Any 32-byte boundary
	Interrupt Level		None
	Max. board count for connection		16 boards including the master board
	Power consumption (Max.)		3.3VDC 550mA
	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) x 110.18(H)
	Connector		37 pin D-SUB connector [F (female) type] DCLC-J37SAF-20L9E [mfd. by JAE] equivalent to it
	Weight		100g

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

Board Dimensions



Support Software

Windows version of digital I/O driver API-DIO(WDM) / API-DIO(98/PC)
[Stored on the bundled CD-ROM driver library API-PAC(W32)]

The API-DIO(WDM) / API-DIO(98/PC) 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 useful for checking operation is provided.

< Operating environment >

OS	Windows Vista, XP, Server 2003, 2000
Adaptation language	Visual Basic, Visual C++, Visual C#, Delphi, C++ Builder

You can download the updated version from the CONTEC's Web site (http://www.contec.com/apipac/). 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 CD-ROM 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.

< Operating environment >

OS	RedHatLinux, TurboLinux (For details on supported distributions, refer to Help available after installation.)
Adaptation language	gcc

You can download the updated version from the CONTEC's Web site (http://www.contec.com/apipac/). For more details on the supported OS, applicable language and new information, please visit the CONTEC's Web site.

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

Flat Cable with 37-Pin D-sub Connectors at either Ends
: PCB37P-1.5 (1.5m)
Shield Cable with 37-Pin D-sub Connector at either Ends (Mold Type)
: PCB37PS-0.5P (0.5m)
: PCB37PS-1.5P (1.5m)

Flat Cable with 37-Pin D-sub Connector at One End
: PCA37P-1.5 (1.5m)
Shield Cable with 37-Pin D-sub Connector at One End (Mold Type)
: PCA37PS-0.5P (1.5m)
: PCA37PS-1.5P (1.5m)

D-SUB37P Male Connector Set (5 Pieces)
: CN5-D37M

Accessories

Screw Terminal Unit (M3 x 37P)	: PCB37P-1.5 (1.5m)
Screw Terminal Unit (M3.5 x 37P)	: EPD-37 *1
General Purpose Terminal (M3 x 37P)	: DTP-3A *1
Screw Terminal (M2.6 x 37P)	: DTP-4A *1
Signal Monitor / Output Accessory for Digital I/O (32P)	: CM-32(PC)E *1

*1 A PCB37P-1.5 or PCB37PS-0.5P, 1.5P optional cable is required separately.
*2 "Spring-up" type terminal is used to prevent terminal screws from falling off.

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

Packing List

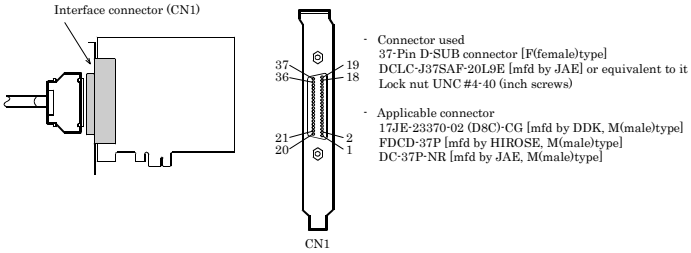
Board [DO-32T-PE] …1
First step guide … 1
CD-ROM *1 [API-PAC(W32)] …1

*1 The CD-ROM contains the driver software and User's Guide.

How to connect the connectors

Connector shape

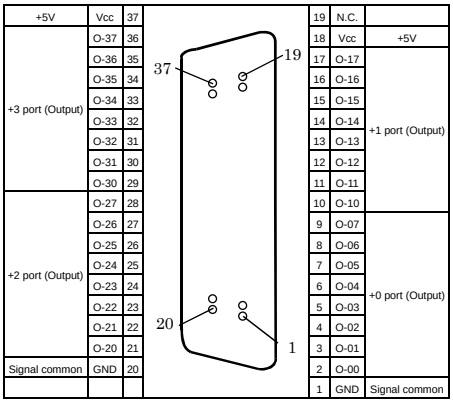
The on-board interface connector (CN1) is used when connecting this product and the external devices.



* Please refer to page 2 for more information on the supported cable and accessories.

Connector Pin Assignment

Pin Assignments of Interface Connector (CN1)

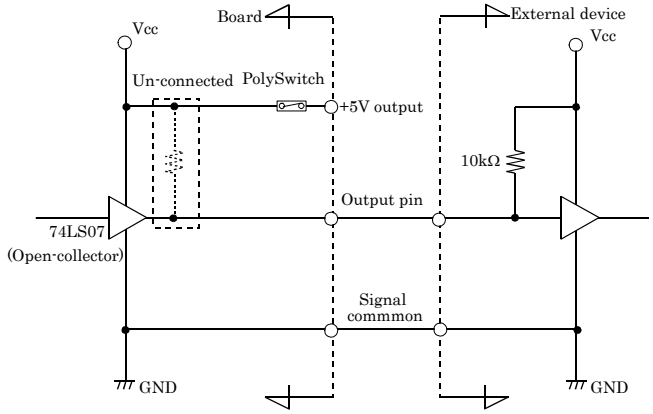


O-00 - O-37	32 output signal pins. Connect these pins to the input signal pins of the external device.
Vcc	Output +5V. Max. electrical current is 350mA.
GND	This pin is connected to GND in the slot.
N.C.	This pin is left unconnected.

How to Connect Output Signals

The output circuit of interface is illustrated in the below figure. Signal outputs are open-collector outputs; individual output signals are sent to the external device as negative logic signals. Note that each signal output must be pulled up at the external device as it is not pulled up internally.

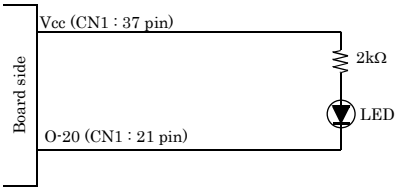
Output Circuit



* O-xx represents an output pin.
One polyswitch is connected for Vcc(+5V) terminal.

⚠ CAUTION
When the PC is turned on, all output are reset to OFF.

Connecting to the LED



When "1" is output to a relevant bit, the corresponding LED comes on.
When "0" is output to the bit, in contrast, the LED goes out.

A Protection Function of the +5V Outputs

A protection function, which prevents excessive current flow from the +5V outputs, is attached to this board. In case of accidental short of the +5V output and GND, for example, the function works, and the board operation may become impossible temporarily. In such a case, you should turn the PC off and wait for several minutes before you use the board again.

Block Diagram