

USB 2.0-compliant Isolated
Digital I/O terminal

DIO-0808LY-USB



Driver Library [API-USBP(WDM)]: Included

Features

- Eight opto-isolated inputs, 8 opto-isolated open collector outputs (Output ratings can handle up to 35VDC and 100mA per channel)
- USB2.0/USB1.1-compliant, high-speed (480Mbps)
- Bus-powered for convenience and portability
- USB and I/O interface are opto-isolated to prevent noises
- Output transistor has built-in circuit protection (voltage surge, over-current)
- Screw-type connector for easy wiring

Optional Connector

CN6-Y14, six sets of 14-pin terminal connector (screw-type)

Packing List

- USB terminal [DIO-0808LY-USB]...1
- Interface connector plugs...2
- First step guide...1
- CD-ROM *1 [API-USBP(WDM)]...1
- USB Cable(1.8m)...1
- USB Cable Attachment...1

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

DIO-0808LY-USB is an USB2.0-compliant digital (12-24VDC) I/O terminal that connects to a computer contains USB port. This product includes eight inputs and eight outputs.

With the included driver library "API-USBP(WDM)", users can configure the application software for Windows using the programming languages that support Win32API functions.

Specifications

Item	Specifications	
Input section		
Number of input signal points	8 channels (2 common)	
Input format	Opto-isolated input (Compatible with current sink output) (Negative logic *1)	
Input resistance	4.7 kΩ	
Input ON current	2.0mA or more	
Input OFF current	0.16mA or less	
Response time	300μsec within *2	
Output section		
Number of output signal points	8 points (2 common)	
Output format	Opto-isolated open collector output (current sink type) (Negative logic*1)	
Output rating	Output voltage	35VDC (Max.)
	Output current	100mA (per point) (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	
Response time	300μsec within *2	
USB		
Bus specification	USB Specification 2.0/1.1 standard	
USB transfer rate	12Mbps (Full-speed), 480Mbps (High-speed) *3	
Power supply	Bus power	
Common		
Connector	14 pin (screw-terminal) plug header	
Number of terminals used at the same time	127 terminals (Max.) *4	
Dielectric strength	1000Vrms	
External circuit power supply	12 – 24VDC (±10%)	
Current consumption (Max.)	5VDC 250mA	
Operating conditions	0 - 50°C, 10 - 90%RH (No condensation)	
Allowable distance of signal extension	Approx. 50m (depending on wiring environment)	
Dimensions (mm)	64(W) x 62(D) x 24(H) (exclusive of protrusions)	
Weight	70g (Not including the USB cable, attachment)	
Attached cable	USB cable 1.8m	
Compatible wires	AWG28 - 16	

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

*2 The opto-coupler's response time comes.

*3 This depends on the host PC environment used (OS and USB host controller).

*4 As a USB hub is also counted as one device, you cannot just connect 127 USB terminals.

Supported Software

Driver Library API-USBP(WDM) (Included)

API-USBP(WDM) is the library software that provides the commands for CONTEC hardware products in the form of Windows standard Win32 API functions (DLL). It makes it easy to create high-speed application software taking advantage of the CONTEC hardware using various programming languages that support Win32 API functions, such as Visual Basic and Visual C++. This driver can also be used by the installed diagnosis program to check hardware operations. CONTEC provides download services (at <http://www.contec.com/apipac/>) to supply the updated drivers and differential files.

For details, read Help on the bundled CD-ROM or visit the CONTEC Web site.

< Operating environment >

OS: Windows XP, Server 2003, 2000, Me, 98, etc..

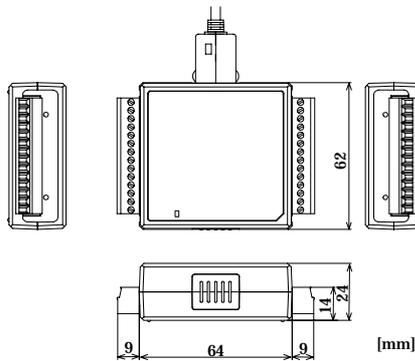
Language: Visual C++ .NET, Visual C# .NET, Visual Basic .NET, Visual Basic, Delphi, C++Builder etc.

Data acquisition VI library for LabVIEW VI-DAQ

-Available at 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.

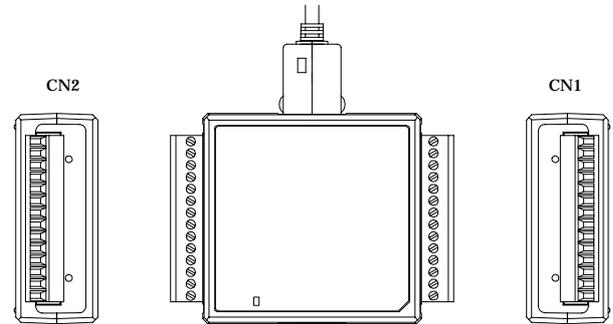
Physical Dimension



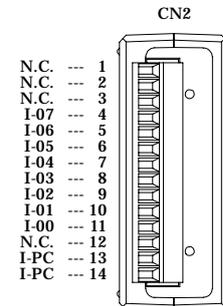
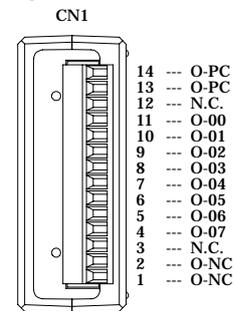
How to Connect the On-terminal Connector

Connecting a terminal to a Connector

To connect an external device to this terminal, plug the cable from the device into the interface connector (CN1, CN2) shown below.



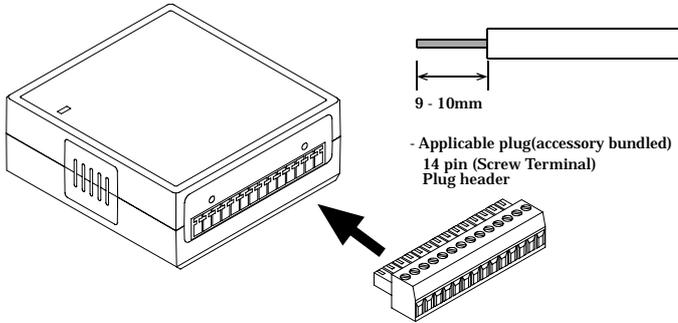
Connector Pin Assignment



Cable Wiring

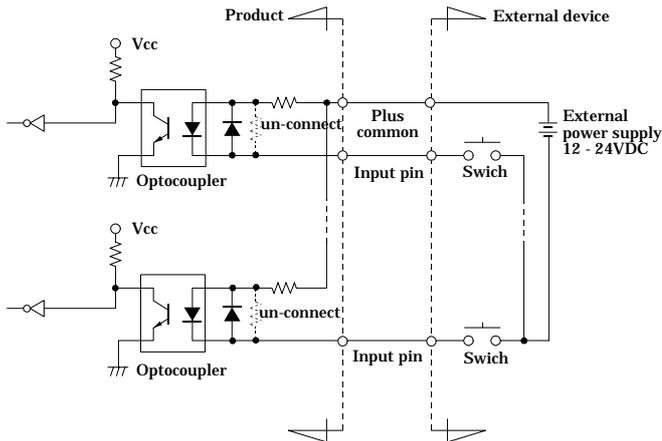
When connecting the product to an external device, you can use the included connector plug.
For wiring, strip off approximately 9 - 10mm of the covered part of a wire rod and then insert it to the opening. After the insertion, secure the wire rod with screws. Compatible wires are AWG 28 - 16.

CAUTION
Removing the connector plug by grasping the cable can break the wire.



Input Signal Connection

Input Circuit

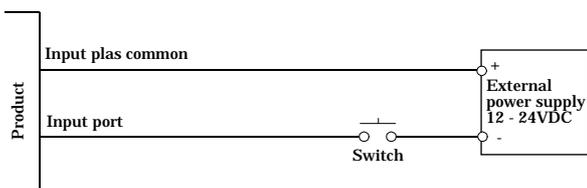


* Input pin represent I-xx.

The input circuit of this product is illustrated in the image above. It is connected to devices such as switch and transistor output devices, which can be powered by an electric current. The ON/OFF state of a device that can be powered by an electric current is entered as a digital value.

The input channels are to be connected with current sinking output signals. Driving these opto-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.

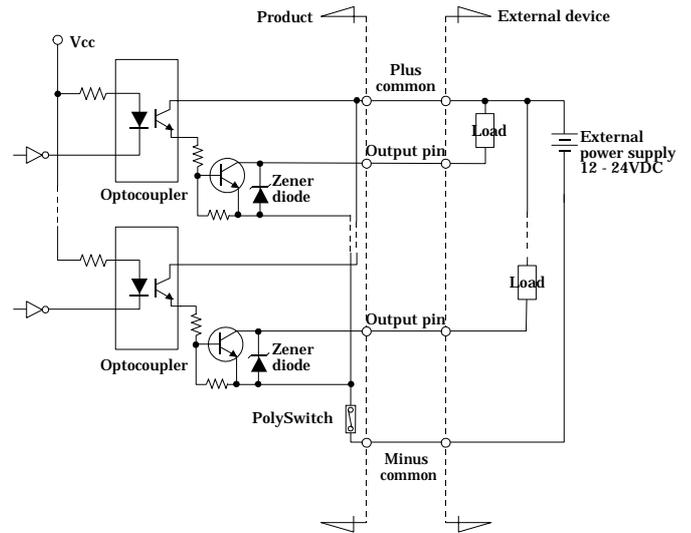
Example: How to connect to switch



When the switch is ON, the corresponding bit contains 1.
When the switch is OFF, by contrast, the bit contains 0

Output Signal Connection

Output Circuit



* Output pin: O-xx

The output circuit of this product is illustrated in the image above. The signal output section is an opto-isolated, open-collector output (current sink type). Driving the output section requires an external power supply.

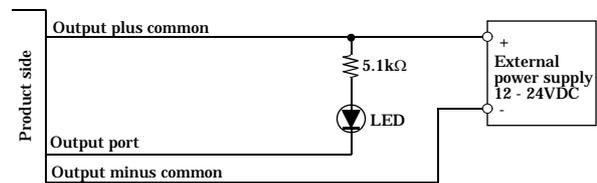
The rated output current per channel is 100 mA at maximum. The output section can also be connected to a TTL level input as it uses a low-saturated transistor for output. The residual voltage (low-level voltage) between the collector and emitter with the output on is 0.5 V or less at an output current within 50 mA or at most 1.0 V at an output current within 100 mA.

A zener diode is connected to the output transistor for protection from surge voltages. A PolySwitch-based over-current protector is provided for every eight output transistors. When the over-current protector works, the output section of the product is temporarily disabled. If this is the case, turn off the power to the PC and the external power supply and wait for a few minutes, then turn them on back.

CAUTION

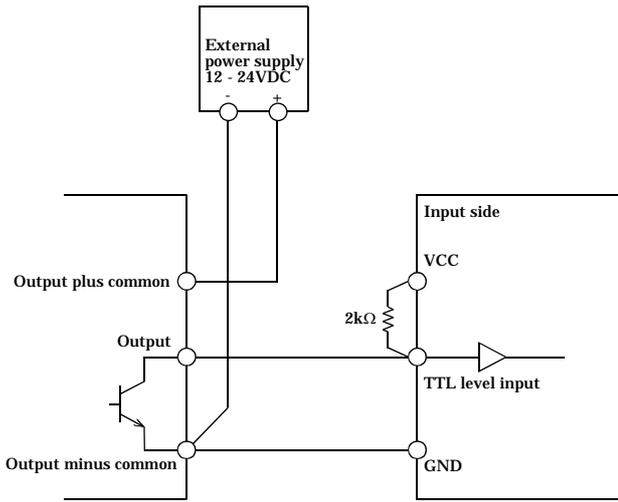
When the PC is turned on, all outputs are reset to OFF.

Example: How to connect to LED



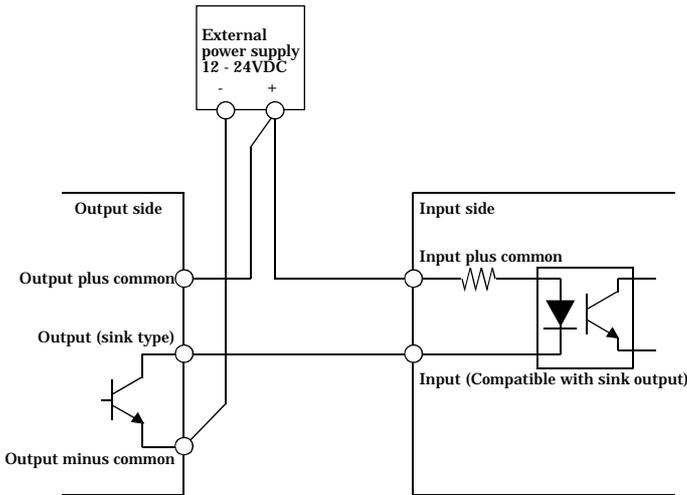
When "1" is output to a relevant bit, the corresponding LED comes on.
When "0" is output to the bit, in contrast, the LED goes out.

Example: How to connect to TTL level Input

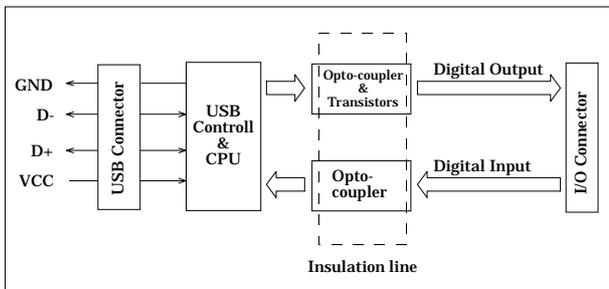


Sink Type Output and Sink Output-compliant Input

The following example shows a connection between a sink type output (output side) and a sink output support input (input side). Use this sample connection as a reference when connecting more than one of these products together.



Block Diagram



*Price, specification, color and design of the products may be changed without notice.