USB 2.0-compliant
Bi-Directional Digital I/O terminal

DIO-24DY-USB

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

DIO-24DY-USB is an digital I/O terminal that connects to a computer contains USB port. This product is USB 2.0-compliant, capable of bi-directional digital signal (LVTTL 3.3V). Users can use up to 24 channels including both input and output (eight channels, three groups).
With the included driver library "API-USBP(WDM)", users can configure the application software for Windows using the programming languages that support Win32API functions.

Features

- 24 bi-directional digital I/O (eight channels, three groups)
- Non-isolated LVTTL level I/O (positive logic)
- USB2.0/USB1.1-compliant, high-speed (480Mbps)
- Bus-powered for convenience and portability
- Adjustable I/O setting via software
- Screw-type connector for easy wiring

Optional Connector

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

Packing List

- USB terminal [DIO-24DY-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.

Specifications

Item		Specifications
I/O		
	Number of I/O channels	24 channels
	I/O format	LVTTL-level (Positive logic)
	Input resistance	33Ω
	Output rating	3.3VDC 8mA
	Response time	Within 250μsec *1
USB		
	Bus specification	USB Specification 2.0/1.1 standard
	USB transfer rate	12Mbps(Full-speed), 480Mbps(High-speed) *1
	Power supply	Bus power
Common		
	Connector	14 pin (screw-terminal) plug header
	Number of terminals used at the same time	127 terminals (Max.) *2
	Current consumption (Max.)	5VDC 250mA
	Operating conditions	0 - 50ºC, 10 - 90%RH(No condensation)
	Allowable distance of signal extension	Approx. 1.5m (depending on wiring environment)
	External 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 This depends on the host PC environment used (OS and USB host controller).
*2 As a USB hub is also counted as one device, you cannot just connect 127 USB terminals.

Supported Software

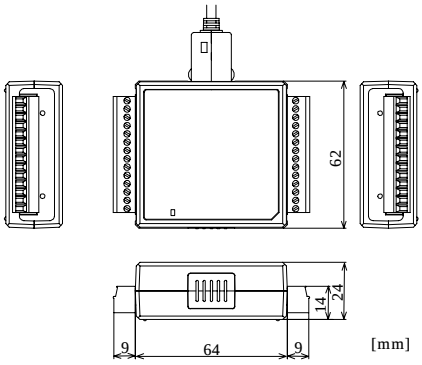
■Driver Library API-USBP(WDM) (Included)

Users can use the included 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++.
It 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-

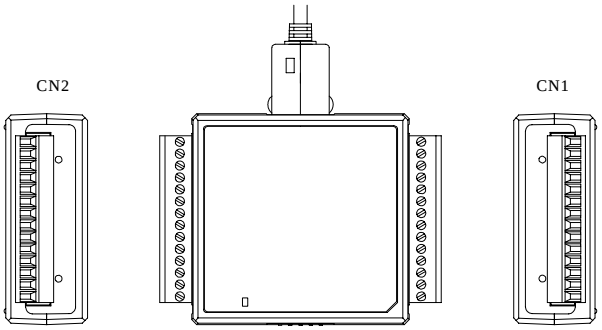
This is a VI library to use in National Instruments LabVIEW.
VI-DAQ is created with a function form similar to that of LabVIEW's Data Acquisition VI, allowing you to use various devices without complicated settings.
See http://www.contec.com/vidaq/ for details and download of VI-DAQ.

Physical Dimension



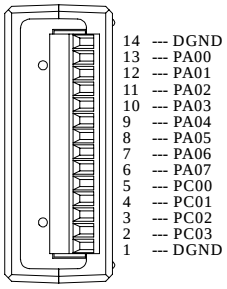
How to Connect the On-terminal Connector

◆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.

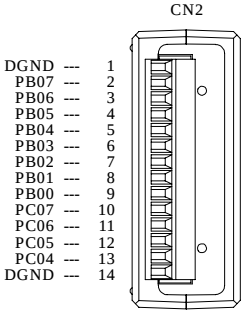


◆Connector Pin Assignment

CN1



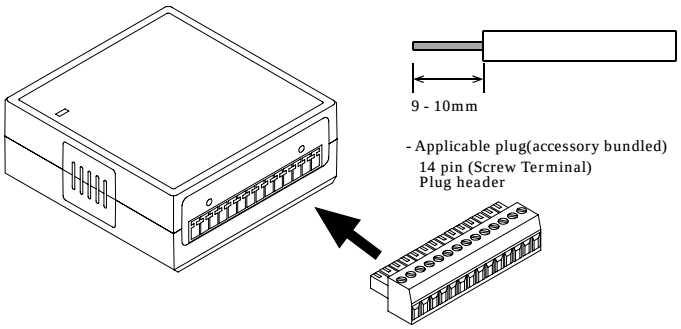
CN2



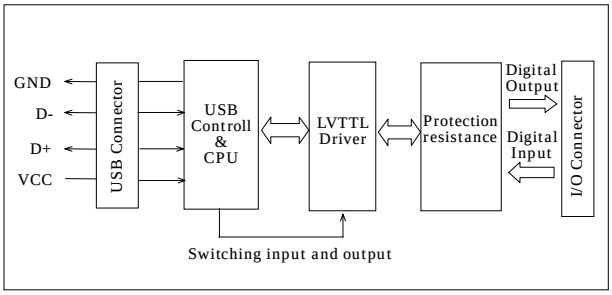
Cable Wiring

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.



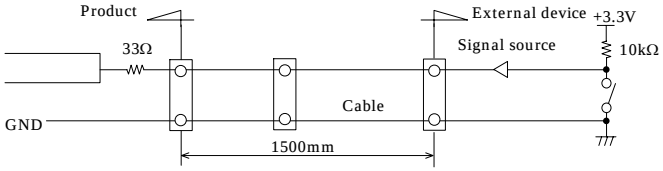
Block Diagram



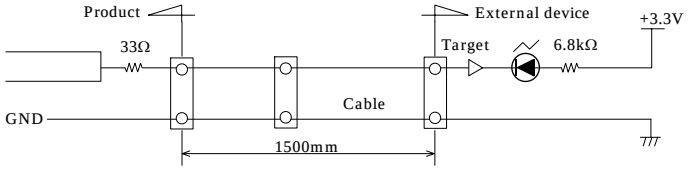
Input/Output Signal Connection

◆Input Circuit

As I/O signals are LVTTL (3.3V) level signals, the total cable length should be within 1.5 m.
The input is provided with an input protective resistor (33Ω).
GND is common to all I/O pins.



◆Output Circuit



If the signal source is affected by noise or distant from the product, the product may fail to input accurate data depending on the connection.
I/O signals are LVTTL-level active high signals. When the external input signal is LVTTL level, the Low level represents logic 0 and the High level represents logic 1. When the program outputs 0 and 1, the product outputs the Low and High level signals, respectively.

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