

Digital Output Terminal for USB2.0
DO-16TY2-USB



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

Features

Unisolated open-collector output

DO-16TY2-USB has the 16ch of unisolated open-collector output whose response speed is 200nsec. The output rating is max. 28VDC, 40mA per ch.

Compatible to USB 2.0/USB 1.1 and not necessary to power this product externally as the bus power is used

Compatible to USB 2.0/USB 1.1 and capable to achieve high speed transfer at High Speed (480 Mbps). Not necessary to power this product externally as the bus power of USB is used.

Surge absorption diodes are built in the output circuit for surge voltage protection

DO-16TY2-USB has a surge absorption diode connected to the +5V output pin at each output point to protect against surge voltages.

Easy-to-wire terminal connector adopted

Adoption of terminal connector (with screws) enables to achieve easy wiring.

Windows/Linux support device driver

Using the device driver API-TOOL 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.

Functions and connectors are compatible with Digital Output Terminal for USB 2.0 DO-16TY-USB.

The functions same with Digital Output Terminal for USB 2.0 DO-16TY-USB is 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 USB 2.0 compliant terminal that extends the digital signal output functions of a PC.

Being bus-powered, it does not need an external power supply. DO-16TY2-USB has the 16ch of unisolated open-collector output. In addition, it uses a protection circuit (surge protection) as its Output circuit as well as an easily-wired terminal connector. Windows/Linux device driver is supported with this product.

- * The contents in this document are subject to change without notice.
- * Visit the CONTEC website to check the latest details in the document.
- * The information in the data sheets is as of December, 2025.

Specifications

Function specification

Item		Specifications
Output	Type	Unisolated open collector output (Negative logic*1)
	Number of Channels	16ch (1 common)
	Output rated voltage	28VDC (Max.)
	Output rated current	40mA (per point) (Max.)
	Surge protector	Diodes for Surge Absorption HZC30 (RENESAS) or equivalent
	Response time	200nsec within *2
+ 5V output section	Output voltage	4.75 - 5.25V
	External supply capable current	5VDC 100mA (Max.)
	Surge protector	ESD Noise-Clipping Diodes NNCD6.8J (NEC) or equivalent
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	Allowable distance of signal extension	Approx. 1.5m (depending on wiring environment)
	Number of terminals used at the same time	16 terminals (Max.)
	Current consumption	5VDC 350mA (Max.)
	Physical 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

*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).

Installation Environment Requirements

Item	Specifications
Operating ambient temperature	0 - 50°C
Operating ambient humidity	10 - 90%RH (No condensation)
Floating dust particles	Not to be excessive
Corrosive gases	None
Standard	VCCI Class A, FCC Class A, CE Marking (EMC Directive Class A, RoHS Directive), UKCA

Support Software

Name	Contents	How to get
Windows Version Digital I/O Driver software API-DIO(WDM)	The Windows device driver is provided as a form of Windows API functions. Various sample programs such as C# and Visual Basic .NET, Visual C++, Python etc. and diagnostic program useful for checking operation is provided.	Download from the CONTEC website *1
Linux Version Digital I/O Driver software API-DIO(LNX)	The Linux device driver is provided as a shared library. The software includes various sample programs such as gcc (C, C++) and Python programs, as well as a configuration tool to configure the device settings.	Download from the CONTEC website *1
Software Development Tool Kits (SDK) and Support Software	In addition to the device drivers, we offer many software programs for using CONTEC devices in an easier manner.	Download from the CONTEC website *2

*1 Download the files from the following URL.

<https://www.contec.com/download/>

*2 For supported software, search the CONTEC website for this product and view the product page.

<https://www.contec.com/>

Optional Products

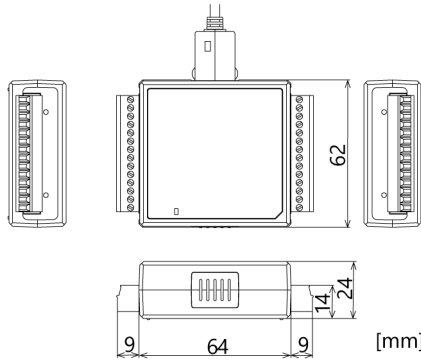
Product Name	Model type	Description
14pin Screw Terminal Connector Set	CN6-Y14	6 pieces
Bracket for USB I/O Terminal products	BRK-USB-Y	

Visit the CONTEC website for the latest optional products.

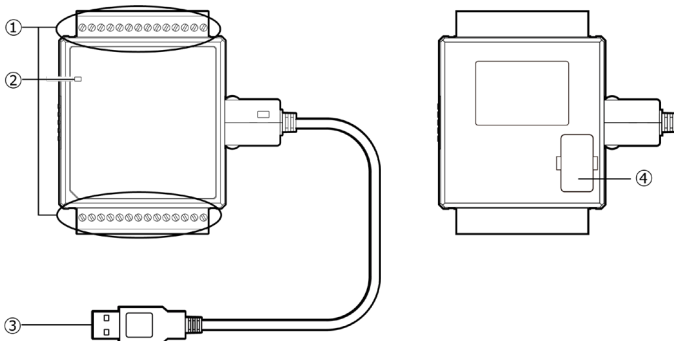
Included Items

- Product [DO-16TY2-USB] ... 1
- Interface Connector Plugs ... 2
- USB Cable (1.8m) ... 1
- USB Cable Attachment ... 1
- Please read the following ... 1

Physical Dimensions



Component Name



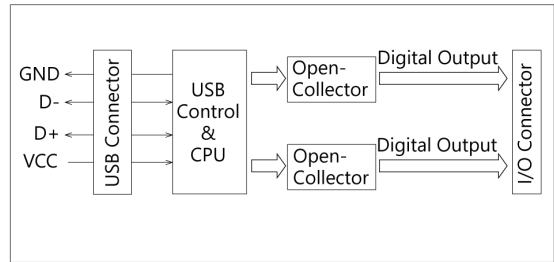
No.	Name	No.	Name
1	Interface Connector	3	USB Type-A connector
2	LINK Status	4	ID Setting Switch

LINK Status

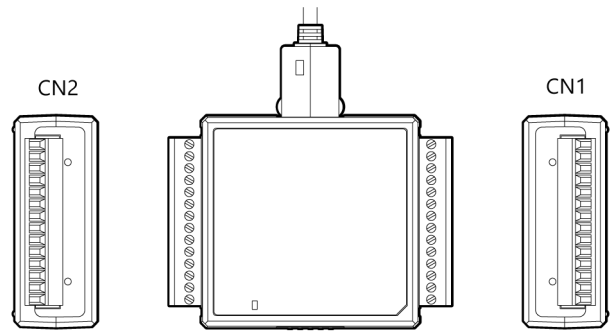
Various communication statuses can be checked.

Name	Function	Indicator color	LED indicator
LINK Status	USB communication status	GREEN	ON : Communication established
	PC connection status		OFF : Communication unestablished
			ON : PC communication established
			OFF : PC communication unestablished

Circuit Block Diagram



Layout on the Interface Connector



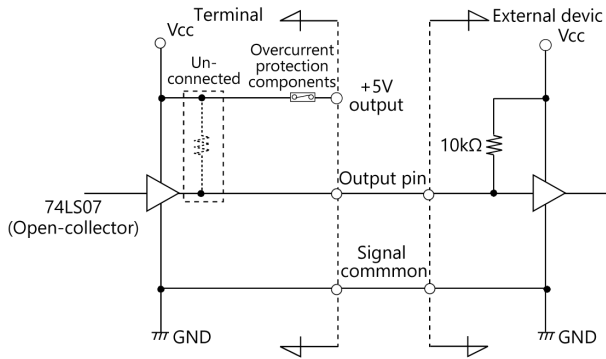
CN2		Pin	
GND	1	1	
GND	2	2	
FG	3	3	
O-07	4	4	
O-06	5	5	
O-05	6	6	
O-04	7	7	
O-03	8	8	
O-02	9	9	
O-01	10	10	
O-00	11	11	
N.C.	12	12	
+5V	13	13	
+5V	14	14	

CN1		Pin	
	14	14	+5V
	13	13	+5V
	12	12	N.C.
	11	11	O-10
	10	10	O-11
	9	9	O-12
	8	8	O-13
	7	7	O-14
	6	6	O-15
	5	5	O-16
	4	4	O-17
	3	3	FG
	2	2	GND
	1	1	GND

Signal name	Description
O-00 - O-17	8 output signal pins. Connect these pins to the input signal pins of the external device.
+5V	This pin outputs power at +5 V. Max. electrical current is 100mA
GND	This pin is connected to the USB-pin's GND.
FG	This pin is connected to the Frame Ground of PC.
N.C.	These pins are left unconnected.

Connecting Output Signals

Output Circuit

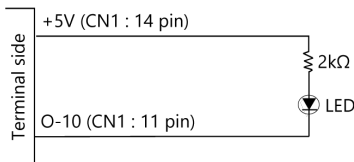


- * O-xx represents an output pin.
- * One PolySwitch is connected to all of the +5V output pins.

Signal outputs are open-collector outputs; individual output signals are sent to the external device as active low signals. Note that each signal output must be pulled up at the external device as it is not pulled up internally.

Surge absorption diodes are connected to the output circuit.

Connection 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.

Differences between this product and our earlier models

When two or more devices of the same product are connected to the same PC, the method of individual recognition differs from the conventional product. For this product, use the rotary switch on the bottom of the unit to select the device ID.

Item	Conventional product	This Product
Individual recognition method	Built-in ID	Set with the rotary switch



How to open the cover

Use a flathead screwdriver or similar to open the cover on the underside of the product. This exposes the setting switches to set the device ID. As shown in Figure below, an easy way to open the cover is to insert the tip of the screwdriver into the slot and then rotate the screwdriver.

