

Negative-Common Opto-Isolated Digital Output for PCI
DO-128RL-PCI



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

Features

Opto-coupler isolated output (current source type)

This product has opto-coupler isolated output 128channels (current source type) whose response time is 200μsec. Common terminal provided per 16channels, capable of supporting a different external power supply. Supporting driver voltages of 12 - 24 VDC for I/O.

Opto-coupler bus isolation

As the PCI bus (PC) is isolated from the input and output interfaces by opto-couplers, this product has excellent noise performance.

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.

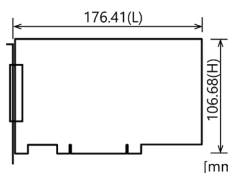
Zener diode for surge voltage protection and the circuit for overcurrent protection

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.

Included Items

Product [DO-128RL-PCI] ...1
Please read the following ... 1

External Dimensions



The standard outside dimension (L) is the distance from the end of the board to the outer surface of the slot cover.

This product is a PCI bus-compliant interface board for output of digital signals.

This product is a negative-common typed PCI bus-compliant interface board used to provide a digital signal I/O function on a PC. This product can input and output digital signals at 12 - 24VDC.

This product features 128 opto-coupler isolated outputs (current source type). Equipped with the output transistor protection circuit (surge voltage protection and overcurrent protection). 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 August, 2023.

Specifications

Function specifications

Item		Specifications
Output	Type	Opto-isolated (Compatible with current source output)(Positive logic *1)
	Number of Channels	128ch (One common power supply per 16 channels)
	Output rated voltage	12 - 24VDC(±10%)
	Output rated current	100mA/channel (Max.)
	Residual voltage with output on	1.5V or less
	Surge protector	Zener diode RD47FM(Renesas) or equivalent
Common	Response time	200μsec within
	Connecting distance	50m(Typ.) (depending on wiring environment)
	I/O address	Any 32-byte boundary
	Interrupt level	not use
	Boards in one system	Maximum of 16 boards can be install in a same system.
	Isolated voltage	250Vrms
	External circuit power supply	12 - 24VDC (±10%)
	Power consumption	5VDC 650mA (Max.)
	PCI bus specification	32bit, 33MHz, Universal key shapes supported *2
	Dimension (mm)	176.41(L) x 106.68(H)
Weight	215g	

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

*2 This product requires power supply at +5V from an expansion slot (it does not work on a machine with a +3.3-V power supply alone).

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, CE Marking (EMC Directive Class A, RoHS Directive), FCC Class A, UKCA

Support Software

You can use CONTEC support software according to your purpose and development environment.

For more details on the supported OS, applicable languages, or to download the latest version of software, visit the CONTEC Web site.

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
Shield Cable with 100-Pin Connector at Both Ends	PCB100PS-0.5	0.5m
	PCB100PS-1.5	1.5m
	PCB100PS-3	3m
	PCB100PS-5	5m
Connection Conversion Shield Cable (100Pin→96Pin)	PCB100/96PS-1.5	1.5m
	PCB100/96PS-3	3m
	PCB100/96PS-5	5m
	PCA100P-1.5	1.5m
Distribution Shield Cable with 100-Pin Connector	PCA100P-3	3m
	PCA100P-5	5m
Distribution Shield Cable with 100-Pin Connector (100Pin→37Pin x 2)	PCB100WS-1.5	1.5m
	PCB100WS-3	3m
	PCB100WS-5	5m
Screw Terminal Unit (M3 x 100P)	EPD-100A	*1 *2 *5
Screw Terminal Unit (M3 x 96P)	EPD-96A	*1 *3 *5
Screw Terminal Unit (M3.5 x 96P)	EPD-96	*3 *5
Screw Terminal Unit (M3 x 37P)	EPD-37A	*1 *4 *6
Screw Terminal Unit (M3.5 x 96P)	EPD-37	*4 *6
Digital I/O 64CH Series Terminal Panel (M3 x 96P)	DTP-64A	*3 *5
Termination Panel (M3)	DTP-3C	*4 *6
Termination Panel (M2.5)	DTP-4C	*4 *6
Connector Conversion Board (96-Pin→37-Pin x 2)	CCB-96	*3 *5

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

*2 PCB100PS optional cable is required separately.

*3 PCB100/96PS optional cable is required separately.

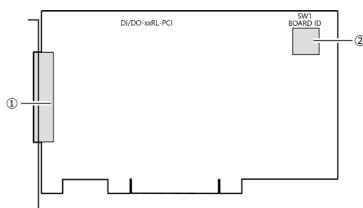
*4 PCB100WS optional cable is required separately.

*5 If using both the CNA and CNB connectors, two each of the terminal block and cable sets are required.

*6 If using both the CNA and CNB connectors, two cable sets are required. You will also require sufficient terminal blocks for the number of I/O points you are using.

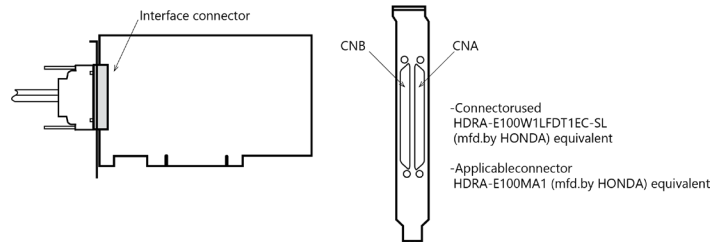
* Visit the CONTEC website for the latest optional products.

Component Name



No.	Name
1	Interface Connector (page エラー! ブックマークが定義されていません。)
2	Board ID Setting Switch

Connecting an Interface Connector



Layout on the Interface Connector(CNA, CNB)

CNB				CNA				
Common plus pin for +E/+F output ports	P-E/F 100	50	P-A/B	NC	1	51	NC	
	P-E/F 99	49	P-A/B	NC	2	52	NC	
	O-F7 98	48	O-B7	NC	3	53	NC	
	O-F6 97	47	O-B6	NC	4	54	NC	
	O-F5 96	46	O-B5	NC	5	55	NC	
	O-F4 95	45	O-B4	NC	6	56	NC	
	O-F3 94	44	O-B3	O-00	7	57	O-40	
	O-F2 93	43	O-B2	O-01	8	58	O-41	
	O-F1 92	42	O-B1	O-02	9	59	O-42	
	O-F0 91	41	O-B0	O-03	10	60	O-43	
	O-E7 90	40	O-A7	O-04	11	61	O-44	
	O-E6 89	39	O-A6	O-05	12	62	O-45	
	O-E5 88	38	O-A5	O-06	13	63	O-46	
	O-E4 87	37	O-A4	O-07	14	64	O-47	
	O-E3 86	36	O-A3	O-10	15	65	O-50	
	O-E2 85	35	O-A2	O-11	16	66	O-51	
	O-E1 84	34	O-A1	O-12	17	67	O-52	
	O-E0 83	33	O-A0	O-13	18	68	O-53	
	NC 82	32	NC	O-14	19	69	O-54	
	NC 81	31	NC	O-15	20	70	O-55	
	NC 80	30	NC	O-16	21	71	O-56	
	NC 79	29	NC	O-17	22	72	O-57	
	NC 78	28	NC	Common plus pin for +0/+1 output ports	P-0/1	23	73	Common plus pin for +4/+5 output ports
	NC 77	27	NC	P-0/1	24	74	P-4/5	
	NC 76	26	NC	NC	25	75	NC	
	NC 75	25	NC	NC	26	76	NC	
	Common plus pin for +C/+D output ports	P-C/D 74	24	P-8/9	Common plus pin for +8/+9 output ports	NC	27	NC
	P-C/D 73	23	P-8/9	NC	28	78	NC	
	O-D7 72	22	O-97	NC	29	79	NC	
	O-D6 71	21	O-96	NC	30	80	NC	
	O-D5 70	20	O-95	NC	31	81	NC	
	O-D4 69	19	O-94	NC	32	82	NC	
	O-D3 68	18	O-93	O-20	33	83	O-60	
	O-D2 67	17	O-92	O-21	34	84	O-61	
	O-D1 66	16	O-91	O-22	35	85	O-62	
	O-D0 65	15	O-90	O-23	36	86	O-63	
	O-C7 64	14	O-87	O-24	37	87	O-64	
	O-C6 63	13	O-86	O-25	38	88	O-65	
	O-C5 62	12	O-85	O-26	39	89	O-66	
	O-C4 61	11	O-84	O-27	40	90	O-67	
	O-C3 60	10	O-83	O-30	41	91	O-70	
	O-C2 59	9	O-82	O-31	42	92	O-71	
	O-C1 58	8	O-81	O-32	43	93	O-72	
	O-C0 57	7	O-80	O-33	44	94	O-73	
	NC 56	6	NC	O-34	45	95	O-74	
	NC 55	5	NC	O-35	46	96	O-75	
	NC 54	4	NC	O-36	47	97	O-76	
	NC 53	3	NC	O-37	48	98	O-77	
	NC 52	2	NC	Common plus pin for +2/+3 output ports	P-2/3	49	99	P-6/7
	NC 51	1	NC	P-2/3	50	100	P-6/7	

Signal name	Description
O-00 - O-F7	128 output signal pins. Connect this pin to the input signal pins of the external device.
P-0/1	Connect the positive side of the external power supply. This pin is common to 16 output signal pins. Both pins must be connected to the external power supply.
P-2/3	Connect the positive side of the external power supply. This pin is common to 16 output signal pins. Both pins must be connected to the external power supply.
P-4/5	Connect the positive side of the external power supply. This pin is common to 16 output signal pins. Both pins must be connected to the external power supply.
P-6/7	Connect the positive side of the external power supply. This pin is common to 16 output signal pins. Both pins must be connected to the external power supply.
P-8/9	Connect the positive side of the external power supply. This pin is common to 16 output signal pins. Both pins must be connected to the external power supply.

Signal name	Description
P-A/B	Connect the positive side of the external power supply. This pin is common to 16 output signal pins. Both pins must be connected to the external power supply.
P-C/D	Connect the positive side of the external power supply. This pin is common to 16 output signal pins. Both pins must be connected to the external power supply.
P-E/F	Connect the positive side of the external power supply. This pin is common to 16 output signal pins. Both pins must be connected to the external power supply.
N.C.	This pin is left unconnected.

CAUTION

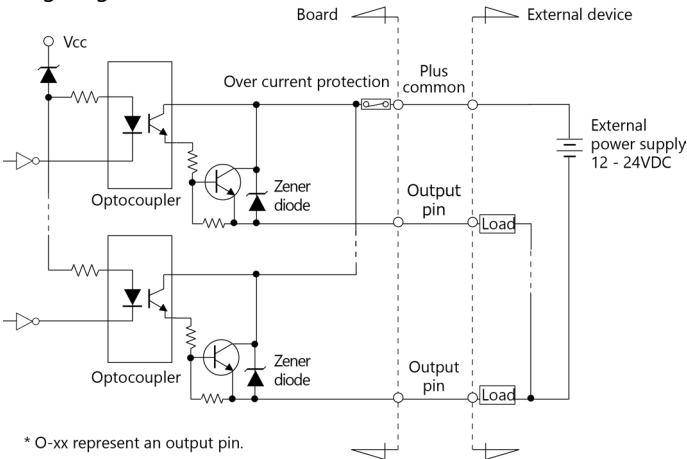
To perform input/output using this product with the CONTEC device driver, specify logical ports and logical bits when calling each function. For details, refer to the "Relationships between API-TOOL Logical Ports/Bits and Connector Signal Pins" of Reference Manual.

Connecting Output Signals

Output Circuit

Connect the output signals to a current-driven controlled device such as a relay or LED.

The connection requires an external power supply to feed currents. The product controls turning on/off the current-driven controlled device using a digital value.

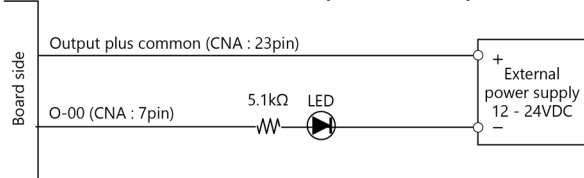


The output circuits of interface blocks of the DO-128RL-PCI is illustrated in the figure above. The signal output section is an opto-coupler isolated, open-collector output (Current source type). This product therefore requires the external power supply to drive the output section of this product. The rated output current per channel is 100mA at maximum. A zener diode is connected to the output transistor for protection from surge voltages. An overcurrent protection component is provided for every 8 output transistors.

CAUTION

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

Connection to the LED (An Example to use Output O-00)



When outputting 1 to the corresponding bit, LED is ON.
When outputting 0 to the corresponding bit, by contrast, LED is off.

