Bi-Directional Digital I/O Unit with Opto-Isolation for USB
DIO-128SLX-USB

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

This product is an USB2.0-compliant digital I/O unit used to provide a digital signal I/O function on a PC.

This product features 128 channels of Optocoupler isolated inputs (compatible with current sink output) and 128 channels of Optocoupler isolated open-collector outputs (current sink type). The input point and the output point are common. Therefore each I/O pin can use as an input pin or an output pin. 24VDC external circuit power supply is required to drive a photo coupler. You can use 16 input signals as interrupt request signals. Equipped with the digital filter function and output transistor protection circuit (overcurrent protection).

Windows driver is bundled with this product. Possible to be used as a data recording device for LabVIEW, with dedicated libraries.

* 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 April 2021.

Features

- Bidirectional signal control is possible, because digital input point and a digital output point are common.
The I/O pin can use as an input pin or an output pin without changing the wire connection.

- 128 channels of Optocoupler isolated inputs (compatible with current sink output) and 128 channels of Optocoupler isolated open-collector outputs (current sink type)
This product has the 128 channels of Optocoupler isolated inputs (compatible with current sink output) and the 128 channels of Optocoupler isolated open-collector outputs (current sink type) whose response speed is 200μsec. Supporting driver voltages of 24 VDC for I/O.   (24VDC external circuit power supply is required separately.)

- Compatible to USB1.1/USB2.0
Compatible to USB1.1/USB2.0 and capable to achieve high speed transfer at HighSpeed (480 Mbps).

- USB HUB function
This product has the USB HUB function. Max. 4 DIO-128SLX-USB can be used in 1 USB port of PC. *3   When you use 4 or more DIO-128SLX-USB, you can do by connecting DIO-128SLX-USB to the another USB port of PC side.
Also, you can connect the CONTEC's USB device other than DIO-6464LX-USB to the USB port of DIO-6464LX-USB.   *1*2
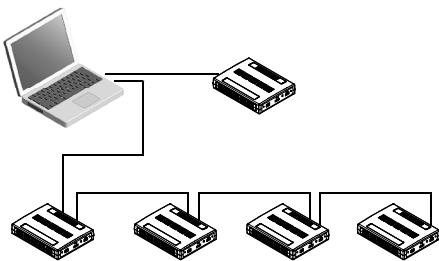
- Common terminal provided per 16 channels
Compatible with Common terminal provided per 16 channels, capable of supporting a different external power supply.

- Optocoupler bus isolation
As the USB (PC) is isolated from the input and output interfaces by Optocouplers, this product has excellent noise performance.

- You can use 16 input signals as interrupt request signals.
You can use 16 input signals as interrupt request signals and also disable or enable the interrupt in bit units and select the edge of the input signals, at which to generate an interrupt.

- This product has a digital filter to prevent wrong recognition of input signals from carrying noise or a chattering.
This product has a digital filter to prevent wrong recognition of input signals from carrying noise or a chattering.   All input terminals can be added a digital filter, and the setting can be performed by software.

- Output circuits include overcurrent protection circuit.
Overcurrent protection circuits are fitted to each group of 8ch outputs. The output rating is max. 24VDC, 100mA per channel.

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

- 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.

*1   Do not connect the device other than that of CONTEC's USB to the USB port included on the DIO-128SLX-USB.   Otherwise, this may cause a failure or malfunction.
*2   When connecting multiple units with USB HUB function and set up them, do one at a time and complete setup for the previous unit before starting to do the next unit.
*3   This product cannot be stacked up for installation.

Packing List

Unit [DIO-128SLX-USB] …1
AC adapter …1
AC Cable (for 125VAC) …1
USB cable (1.8m) …1
USB cable attachment on the main unit's side (For Mini B connector side) …1
Clamps for prevention of cable on the main unit's side …1
First step guide … 1
Power connector MC1,5/3-ST-3,5 …1
Ferrite core …1
Warranty Certificate …1
Serial number label …1

*1   Driver software (API-USBP(W32)), User's Guide (this guide)

Specifications

Specifications

| Item		Specification
Input section		
Number of input signal channels		128 channels (16 channels available for interrupts) (1 common in 16 channels unit)
Input format		Optocoupler isolated input (Compatible with current sink output) (Negative logic *1)
Input resistance		30kΩ
Input ON current		0.7mA or more
Input OFF current		0.16mA or less
Interrupt		16 interrupt input signals are arranged into a single output of interrupt request signal INTA. An interrupt is generated at the rising edge (HIGH-to-LOW transition) or falling edge (LOW-to-HIGH transition) (set by software).
Response time		200μsec within *2
Output section		
Number of output signal channels		128 channels (1 common in 16 channels unit)
Output format		Optocoupler isolated open collector output (current sink type) (Negative logic*1)
Output rating	Output voltage	24VDC (Max.)
	Output current	100mA (per channel) (Max.)
Residual voltage with output on		0.5V or less (Output current≤50mA), 1.0V or less (Output current≤100mA)
Response time		200μsec within *2
USB section		
Bus specification		USB Specification 2.0/1.1 standard
USB transfer rate		12Mbps (Full-speed), 480Mbps (High-speed) *3
Power supply		Self-power
Common section		
Number of terminals used at the same time		127 terminals (Max.) *4
Dielectric strength		250Vrms
External circuit power supply*5		24VDC (±10%)
Current consumption (Max.)		5VDC 900mA
Operating conditions *6		0 - 40℃, 10 - 90%RH (No condensation)
Allowable distance of signal extension		Approx. 50m (depending on wiring environment)
Physical dimensions (mm)		180(W) x 140(D) x 34(H) (No protrusions)
Weight		380g (Not including the USB cable, attachment)
Connector		100 pin 0.8mm pitch connector [F (female) type] x 2 HDRA-E100W1LFDT1EC-SL+[HONDA TSUSHIN KOGYO CO., LTD.] or equivalent to it
Attached cable		USB cable 1.8m
Standard		VCCI Class A, CE Marking (EMC Directive Class A, RoHS Directive)

*1   Data "0" and "1" correspond to the High and Low levels, respectively.
*2   The Optocoupler's response time comes.
*3   This depends on the 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 unit.
*5   External circuit power supply is required separately.
*6   To suppress the heating, ensure that there are spaces for ventilation (about 5cm) around this product.

AC adapter environmental condition (environmental specification)

Item	Specification
Input voltage range	90 - 264VAC
Rated input current	300mA
Number of frequency	50 - 60Hz
Rated output voltage	5.0VDC
Rated output current	2.0A (Max.)
Dimension (mm)	47.5(W) x 75(D) x 27.3(H) (No protrusions)
Weight	175g
Operating temperature	0 - 40℃
Operating humidity	20 - 80%RH(No condensation)
Life expectancy	4 years at the ambient temperature 40℃ (When 100VAC is input and 1.3A is output)
Allowable time of short interruption	15ms (Max.) (When 100VAC is input and 1.3A is output) *1
Floating dust particles	Not to be excessive
Corrosive gases	None
Voltage corresponding to the attached AC cable	125VAC 7A

*1   When the short interruption occurs and the defective operation of the equipment is generated, please insert the power supply of the equipment after pulling out it.

Block Diagram

Physical Dimensions

[mm]
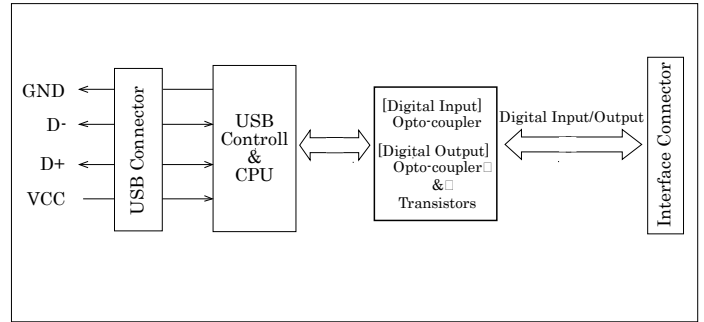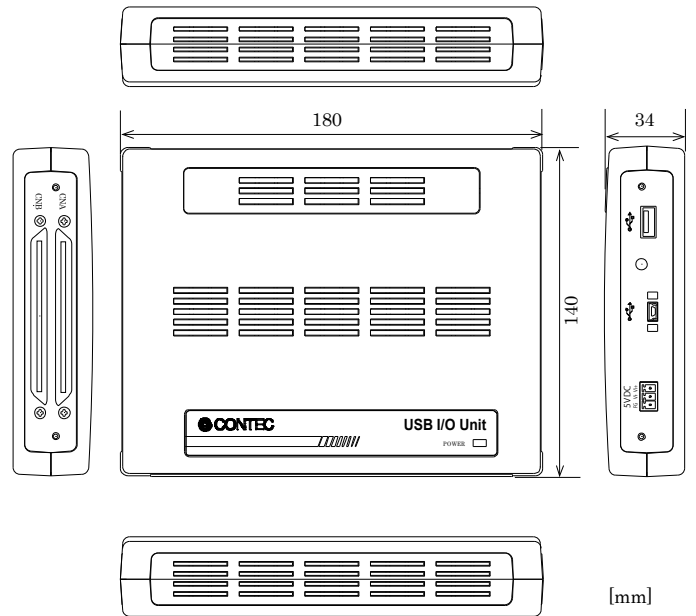
Physical dimensions of attached AC adapter (POA200-20-2)

[mm]

Support Software

Windows version of digital I/O driver API-DIO(WDM) [Stored on the bundled media driver library API-USBP(WDM)]

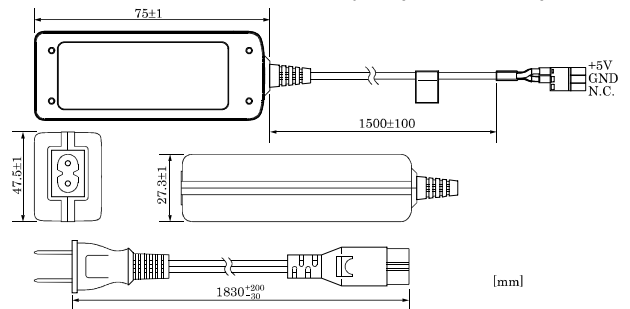The API-DIO(WDM) is the Windows version driver library software that provides products in the form of Win32 API functions (DLL).   Various sample programs such as Visual Basic and Visual C++, etc and diagnostic program useful for checking operation is provided. For more details on the supported OS, applicable language and how to download the updated version, 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. For more details on the supported OS, applicable language and new information, please visit the CONTEC's Web site.

Cable & Connector

Shielded cable with Two 100pin Connector
  : PCB100PS-0.5 (0.5m), PCB100PS-1.5 (1.5m), PCB100PS-3 (3m), PCB100PS-5 (5m)

Connection Conversion Shield Cable (100P→96P)
  : PCB100/96PS-1.5(1.5m), PCB100/96PS-3 (3m), PCB100/96PS-5 (5m)

Flat Cable with One 100-Pin Connector
  : PCA100P-1.5 (1.5m), PCA100P-3 (3m)

Connection Conversion Shield Cable (100P→37P D-SUB x 2)
  : PCB100WS-1.5 (1.5m), PCB100WS-3 (3m), PCB100WS-5 (5m)

*   If using both the CNA and CNB connectors, two cable sets are required.

Accessories

Screw Terminal Unit (M3 x 100P)	: EPD-100A *1*4*6
Screw Terminal Unit (M3 x 96P)	: EPD-96A *2*4*6
Screw Terminal Unit (M3.5 x 96P)	: EPD-96 *2*4
Connector Conversion Board (96-Pin→37-Pin x 2)	
	: CCB-96 *2*4
Signal monitor Accessory for Digital I/O (64P)	: CM-64L *2*4
Screw Terminal Unit (M3 x 37P)	: EPD-37A *3*5*6
Screw Terminal Unit (M3.5 x 37P)	: EPD-37 *3*5
General Purpose Terminal (M3 x 37P)	: DTP-3C *3*5
Screw Terminal (M2.5 x 37P)	: DTP-4C *3*5
AC adapter (input: 90 - 264VAC, output: 5VDC 2.0A)	
	: POA200-20-2 *7
USB I/O Unit Bracket for X Series	: BRK-USB-X
AC-DC power supply unit (input: 85 - 264VAC, output: 5VDC 5.0A)	
	: PWD-25AWD5
AC-DC power supply unit (input: 85 - 264VAC, output: 5VDC 2.0A)	
	: POW-AD22GY
DC-DC power supply unit (input: 10 - 30VDC, output: 5VDC 3.0A)	
	: POW-DD10GY

*1   PCB100PS optional cable is required separately.
*2   PCB100/96PS optional cable is required separately.
*3   PCB100WS optional cable is required separately.
*4   If using both the CNA and CNB connectors, two each of the terminal block and cable sets are required.
*5   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.
*6   "Spring-up" type terminal is used to prevent terminal screws from falling off.
*7   It is the same as the one appended to the product. Please buy it necessary for maintenance.

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

Connecting Input/Output Signals

- When the input/output pin is used as input pin.

Connect the input signals to a device which can be current-driven, such as a switch or transistor output device. The connection requires an external power supply to feed currents. This product inputs the ON/OFF state of the current-driven device as a digital value.

- When the input/output pin is used as output pin.

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. This product controls turning on/off the current-driven controlled device using a digital value.

Input/Output Circuit
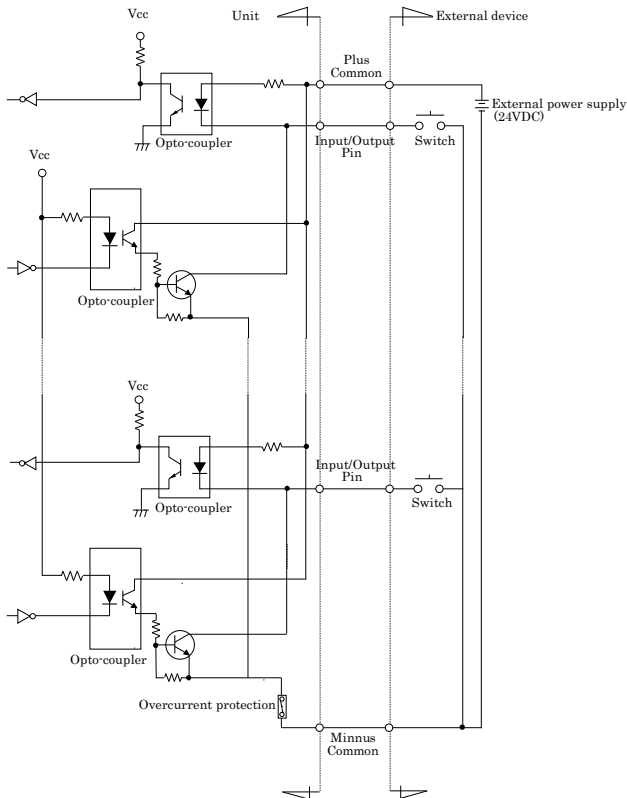
* I/O-xx represents the Input/Output pin.

The signal inputs are isolated by Optocouplers (compatible with current sink output). The signal output section is an Optocoupler isolated, open-collector output (current sink type). The input point becomes "ON" when output is turned on, because the input point and the output point are common.

This product therefore requires an external power supply to drive the inputs/ outputs.   The power requirement for each input pin is about 0.8mA and output pin is about 4mA at 24VDC

The rated output current per channel is 100mA at maximum.The residual voltage (low-level voltage) between the collector and emitter with the output on is 0.5V or less at an output current within 50mA or at most 1.0V at an output current within 100mA.

The overcurrent protector is provided for every 8 output transistors.

⚠ CAUTION
This product can't be connected with a TTL level input/output equipment.
When the PC is turned on, all output are reset to OFF.

Connecting a Switch (When input/output pin is used as input.)
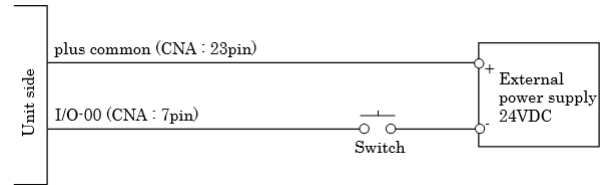
When the switch is ON, the corresponding bit contains 1.
When the switch is OFF, by contrast, the bit contains 0.

Connection to the LED (When input/output pin is used as output.)
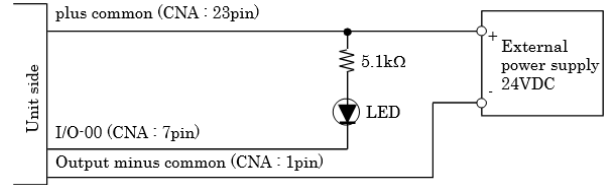
When "1" is output to a relevant bit, the corresponding LED comes on.
When "0" is output to the bit, in contrast, the LED goes out.

Connecting the Sink Type Output and Sink Output Support Input

The following example shows a connection between a sink type output (output side) and a sink output support input (input side). Refer to this connection example when you connect such this product to each other.
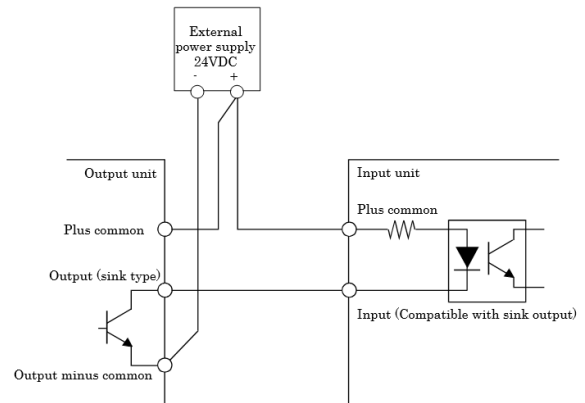
Connection with 5VDC Power Supply for Self-power

This product must be connected with 5VDC power supply (in a self-powered state). Connect with 5VDC power supply by using +5VDC input pin.
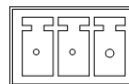
Vi+   Power supply (5V)
Vi-   Power supply (GND)
FG   Frame ground
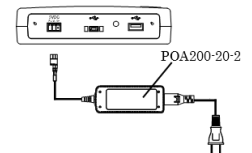
When using the attached AC adapter [POA200-20-2], please connect directly to the input terminals.

When the accompanying power connector (MC1,5/3-ST-3,5, suitable cable: AWG28 - 16) is used to supply power to this unit, strip the end of the suitable cable and insert it to the power connector before firmly securing it using a screw.

⚠ CAUTION
- Connect 5VDC power supply to the main unit.   Next, connect the USB cable to the PC.   Do not turn it on or off when using.   If you remove, USB cable is first and then 5VDC power supply.
- When the USB module is not used, leave the AC adapter unplugged.
- Continuously using the AC adapter heated affects its life.
- Use the AC adapter not in a closed place but in a well-ventilated place not to be heated.
- Do not remove the power connector [MC1,5/3-ST-3,5] attached to the AC adapter.

Using the Connectors

Connecting to a Connector

To connect an external device to this product, plug the cable from the device into the interface connector (CNA, CNB) of unit shown below.
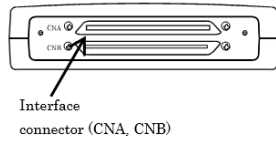
- Connector used
  HDRA-E100W1LFDT1EC-SL+
  [mfd by HONDA TSUSHIN KOGYO CO., LTD.]
  or equivalent to it

- Applicable connector
  HDRA-E100MA1
  [mfd by HONDA TSUSHIN KOGYO CO., LTD.]

Interface connector (CNA, CNB)

Connector Pin Assignment

Pin Assignments of Interface Connector (CNA, CNB)

CNB

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

CNA

Description	Signal	Pin		Pin	Signal	Description
Common minus pin for +0/+1 ports	N-0/1	1		51	N-4/5	Common minus pin for +4/+5 ports
	N-0/1	2		52	N-4/5	
	N-0/1	3		53	N-4/5	
	N-0/1	4		54	N-4/5	
	N-0/1	5		55	N-4/5	
	N-0/1	6		56	N-4/5	
+0 port (Input/Output)	* I/O -00	7		57	I/O -40	+4 port (Input/Output)
	* I/O -01	8		58	I/O -41	
	* I/O -02	9		59	I/O -42	
	* I/O -03	10		60	I/O -43	
	* I/O -04	11		61	I/O -44	
	* I/O -05	12		62	I/O -45	
	* I/O -06	13		63	I/O -46	
	* I/O -07	14		64	I/O -47	
+1 port (Input/Output)	* I/O -10	15		65	I/O -50	+5 port (Input/Output)
	* I/O -11	16		66	I/O -51	
	* I/O -12	17		67	I/O -52	
	* I/O -13	18		68	I/O -53	
	* I/O -14	19		69	I/O -54	
	* I/O -15	20		70	I/O -55	
	* I/O -16	21		71	I/O -56	
	* I/O -17	22		72	I/O -57	
Common plus pin for +0/+1 ports	P-0/1	23		73	P-4/5	Common plus pin for +4/+5 ports
	P-0/1	24		74	P-4/5	
	N.C.	25		75	N.C.	
	N.C.	26		76	N.C.	
Common minus pin for +2/+3 ports	N-2/3.	27		77	N-6/7	Common minus pin for +6/+7 ports
	N-2/3	28		78	N-6/7	
	N-2/3	29		79	N-6/7	
	N-2/3	30		80	N-6/7	
	N-2/3	31		81	N-6/7	
	N-2/3	32		82	N-6/7	
+2 Port (Input/Output)	I/O -20	33		83	I/O -60	+6 port (Input/Output)
	I/O -21	34		84	I/O -61	
	I/O -22	35		85	I/O -62	
	I/O -23	36		86	I/O -63	
	I/O -24	37		87	I/O -64	
	I/O -25	38		88	I/O -65	
	I/O -26	39		89	I/O -66	
	I/O -27	40		90	I/O -67	
+3 Port (Input/Output)	I/O -30	41		91	I/O -70	+7 Port (Input/Output)
	I/O -31	42		92	I/O -71	
	I/O -32	43		93	I/O -72	
	I/O -33	44		94	I/O -73	
	I/O -34	45		95	I/O -74	
	I/O -35	46		96	I/O -75	
	I/O -36	47		97	I/O -76	
	I/O -37	48		98	I/O -77	
Common plus pin for +2/+3 ports	P-2/3	49		99	P-6/7	Common plus pin for +6/+7 ports
	P-2/3	50		100	P-6/7	

* I-00 - I-17 can be used as interrupt signal.

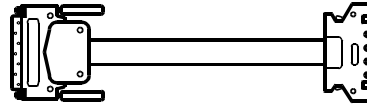| I/O -00 - I/O -F7	128 input/ output signal pins.
P-0/1 - P-E/F	Connect the positive side of the external power supply. These pins are common to 16 input/ output signal pins.
N-0/1 - N-E/F	Connect the negative side of the external power supply. These pins are common to 16 input/ output signal pins. One pin permissible current of the connector is 0.3A. Please connect necessary number of pins for the corresponding total current of the input/ output 16 channels. When 16 channels are used by the output full ratings (100mA per 1 channel), it is necessary to connect six all.
N.C.	This pin is left unconnected.

Pin assignments for connecting to the PCB100/96PS or PCB100WS

The figure below shows the correspondence between the option cable pins and signals.

< Pin assignments for connecting a PCB100/96PS or PCB100WS to the DIO-128SLX-USB >
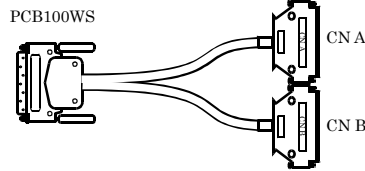
Pin Assignments of PCB100/96PS

PCB100/96PS

For connecting the board CNB

Description	Signal	Pin		Pin	Signal	Description
Common minus pin for +C/+D ports	N-C/D	B01		A01	N-8/9	Common minus pin for +8/+9 ports
	N-C/D	B02		A02	N-8/9	
+C port (Input/Output)	I/O -C0	B03		A03	I/O -80	+8 port (Input/Output)
	I/O -C1	B04		A04	I/O -81	
	I/O -C2	B05		A05	I/O -82	
	I/O -C3	B06		A06	I/O -83	
	I/O -C4	B07		A07	I/O -84	
	I/O -C5	B08		A08	I/O -85	
	I/O -C6	B09		A09	I/O -86	
	I/O -C7	B10		A10	I/O -87	
+D port (Input/Output)	I/O -D0	B11		A11	I/O -90	+9 port (Input/Output)
	I/O -D1	B12		A12	I/O -91	
	I/O -D2	B13		A13	I/O -92	
	I/O -D3	B14		A14	I/O -93	
	I/O -D4	B15		A15	I/O -94	
	I/O -D5	B16		A16	I/O -95	
	I/O -D6	B17		A17	I/O -96	
	I/O -D7	B18		A18	I/O -97	
Common plus pin for +C/+D ports	P-C/D	B19		A19	P-8/9	Common plus pin for +8/+9 ports
	P-C/D	B20		A20	P-8/9	
Unconnected	N.C.	B21		A21	N.C.	Unconnected
	N.C.	B22		A22	N.C.	
	N.C.	B23		A23	N.C.	
	N.C.	B24		A24	N.C.	
	N.C.	B25		A25	N.C.	
	N.C.	B26		A26	N.C.	
	N.C.	B27		A27	N.C.	
	N.C.	B28		A28	N.C.	
Common minus pin for +E/+F ports	N-E/F	B29		A29	N-A/B	Common minus pin for +A/+B ports
	N-E/F	B30		A30	N-A/B	
+E port (Input/Output)	I/O -E0	B31		A31	I/O -A0	+A port (Input/Output)
	I/O -E1	B32		A32	I/O -A1	
	I/O -E2	B33		A33	I/O -A2	
	I/O -E3	B34		A34	I/O -A3	
	I/O -E4	B35		A35	I/O -A4	
	I/O -E5	B36		A36	I/O -A5	
	I/O -E6	B37		A37	I/O -A6	
	I/O -E7	B38		A38	I/O -A7	
+F port (Input/Output)	I/O -F0	B39		A39	I/O -B0	+B port (Input/Output)
	I/O -F1	B40		A40	I/O -B1	
	I/O -F2	B41		A41	I/O -B2	
	I/O -F3	B42		A42	I/O -B3	
	I/O -F4	B43		A43	I/O -B4	
	I/O -F5	B44		A44	I/O -B5	
	I/O -F6	B45		A45	I/O -B6	
	I/O -F7	B46		A46	I/O -B7	
Common plus pin for +E/+F ports	P-E/F	B47		A47	P-A/B	Common plus pin for +A/+B ports
	P-E/F	B48		A48	P-A/B	

B01 [96] [48] A01 / B48 [49] [1] A48

For connecting the board CNA

Description	Signal	Pin		Pin	Signal	Description
Common minus pin for +4/+5 ports	N-4/5.	B01		A01	N-0/1	Common minus pin for +0/+1 ports
	N-4/5	B02		A02	N-0/1	
+4 port (Input/Output)	I/O -40	B03		A03	I/O -00	+0 port (Input/Output)
	I/O -41	B04		A04	I/O -01	
	I/O -42	B05		A05	I/O -02	
	I/O -43	B06		A06	I/O -03	
	I/O -44	B07		A07	I/O -04	
	I/O -45	B08		A08	I/O -05	
	I/O -46	B09		A09	I/O -06	
	I/O -47	B10		A10	I/O -07	
+5 port (Input/Output)	I/O -50	B11		A11	I/O -10	+1 port (Input/Output)
	I/O -51	B12		A12	I/O -11	
	I/O -52	B13		A13	I/O -12	
	I/O -53	B14		A14	I/O -13	
	I/O -54	B15		A15	I/O -14	
	I/O -55	B16		A16	I/O -15	
	I/O -56	B17		A17	I/O -16	
	I/O -57	B18		A18	I/O -17	
Common plus pin for +4/+5 ports	P-4/5	B19		A19	P-0/1	Common plus pin for +0/+1 ports
	P-4/5	B20		A20	P-0/1	
Unconnected	N.C.	B21		A21	N.C.	Unconnected
	N.C.	B22		A22	N.C.	
	N.C.	B23		A23	N.C.	
	N.C.	B24		A24	N.C.	
	N.C.	B25		A25	N.C.	
	N.C.	B26		A26	N.C.	
	N.C.	B27		A27	N.C.	
	N.C.	B28		A28	N.C.	
Common minus pin for +6/+7 ports	N-6/7	B29		A29	N-2/3	Common minus pin for +2/+3 ports
	N-6/7	B30		A30	N-2/3	
+6 port (Input/Output)	I/O -60	B31		A31	I/O -20	+2 port (Input/Output)
	I/O -61	B32		A32	I/O -21	
	I/O -62	B33		A33	I/O -22	
	I/O -63	B34		A34	I/O -23	
	I/O -64	B35		A35	I/O -24	
	I/O -65	B36		A36	I/O -25	
	I/O -66	B37		A37	I/O -26	
	I/O -67	B38		A38	I/O -27	
+7 port (Input/Output)	I/O -70	B39		A39	I/O -30	+3 port (Input/Output)
	I/O -71	B40		A40	I/O -31	
	I/O -72	B41		A41	I/O -32	
	I/O -73	B42		A42	I/O -33	
	I/O -74	B43		A43	I/O -34	
	I/O -75	B44		A44	I/O -35	
	I/O -76	B45		A45	I/O -36	
	I/O -77	B46		A46	I/O -37	
Common plus pin for +6/+7 ports	P-6/7	B47		A47	P-2/3	Common plus pin for +2/+3 ports
	P-6/7	B48		A48	P-2/3	

B01 [96] [48] A01 / B48 [49] [1] A48

* [ ] shows pin numbers specified by HONDA TSUSHIN KOGYO CO., LTD.

Pin Assignments of PCB100WS

PCB100WS — CN A / CN B

CNA of PCB100WS connecting to the board CNB

	N.C.	19		37	P-A/B	Common plus pin for +A/+B output ports
Common plus pin for +8/+9 output ports	P-8/9	18				
+9 port(Input/Output)	I/O -97	17		36	I/O -B7	+B port (Input/Output)
	I/O -96	16		35	I/O -B6	
	I/O -95	15		34	I/O -B5	
	I/O -94	14		33	I/O -B4	
	I/O -93	13		32	I/O -B3	
	I/O -92	12		31	I/O -B2	
	I/O -91	11		30	I/O -B1	
	I/O -90	10		29	I/O -B0	
+8 port(Input/Output)	I/O -87	9		28	I/O -A7	+A port(Input/Output)
	I/O -86	8		27	I/O -A6	
	I/O -85	7		26	I/O -A5	
	I/O -84	6		25	I/O -A4	
	I/O -83	5		24	I/O -A3	
	I/O -82	4		23	I/O -A2	
	I/O -81	3		22	I/O -A1	
	I/O -80	2		21	I/O -A0	
Common minus pin for +8/+9 output ports	N-8/9	1		20	N-A/B	Common minus pin for +A/+B output ports

CNA of PCB100WS connecting to the board CNA

	N.C.	19		37	P-2/3	Common plus pin for +2/+3 input ports
Common plus pin for +0/+1 input ports	P-0/1	18				
+1 port (Input/Output)	I/O -17	17		36	I/O -37	+3 port (Input)
	I/O -16	16		35	I/O -36	
	I/O -15	15		34	I/O -35	
	I/O -14	14		33	I/O -34	
	I/O -13	13		32	I/O -33	
	I/O -12	12		31	I/O -32	
	I/O -11	11		30	I/O -31	
	I/O -10	10		29	I/O -30	
+0 port (Input/Output)	I/O -07	9		28	I/O -27	+2 port (Input)
	I/O -06	8		27	I/O -26	
	I/O -05	7		26	I/O -25	
	I/O -04	6		25	I/O -24	
	I/O -03	5		24	I/O -23	
	I/O -02	4		23	I/O -22	
	I/O -01	3		22	I/O -21	
	I/O -00	2		21	I/O -20	
Common minus pin for +0/+1 output ports	N-0/1.	1		20	N-2/3.	Common minus pin for +2/+3 output ports

CNB of PCB100WS connecting to the board CNB

	N.C.	19		37	P-E/F	Common plus pin for +E/+F output ports
Common plus pin for +C/+D output ports	P-C/D	18				
+D port(Input/Output)	I/O -D7	17		36	I/O -F7	+F port(Input/Output)
	I/O -D6	16		35	I/O -F6	
	I/O -D5	15		34	I/O -F5	
	I/O -D4	14		33	I/O -F4	
	I/O -D3	13		32	I/O -F3	
	I/O -D2	12		31	I/O -F2	
	I/O -D1	51		30	I/O -F1	
	I/O -D0	10		29	I/O -F0	
+C port (Input/Output)	I/O -C7	9		28	I/O -E7	+E port (Input/Output)
	I/O -C6	8		27	I/O -E6	
	I/O -C5	7		26	I/O -E5	
	I/O -C4	6		25	I/O -E4	
	I/O -C3	5		24	I/O -E3	
	I/O -C2	4		23	I/O -E2	
	I/O -C1	3		22	I/O -E1	
	I/O -C0	2		21	I/O -E0	
Common minus pin for +C/+D output ports	N-C/D	1		20	N-E/F	Common minus pin for +E/+F output ports

CNB of PCB100WS connecting to the board CNA

	N.C.	19		37	P-6/7	Common plus pin for +6/+7 input ports
Common plus pin for +4/+5 input ports	P-4/5	18				
+5 port (Input/Output)	I/O -57	17		36	I/O -77	+7 port (Input/Output)
	I/O -56	16		35	I/O -76	
	I/O -55	15		34	I/O -75	
	I/O -54	14		33	I/O -74	
	I/O -53	13		32	I/O -73	
	I/O -52	12		31	I/O -72	
	I/O -51	11		30	I/O -71	
	I/O -50	10		29	I/O -70	
+4 port (Input/Output)	I/O -47	9		28	I/O -67	+6 port (Input/Output)
	I/O -46	8		27	I/O -66	
	I/O -45	7		26	I/O -65	
	I/O -44	6		25	I/O -64	
	I/O -43	5		24	I/O -63	
	I/O -42	4		23	I/O -62	
	I/O -41	3		22	I/O -61	
	I/O -40	2		21	I/O -60	
Common minus pin for +4+5 output ports	N-4/5.	1		20	N.C.	Common minus pin for +6+7 output ports