CONPROSYS nano Series
Digital Output Module
CPSN-DO-08L
Digital Output Module Built-in power supply
CPSN-DO-08BL

This product is an expansion module that adds a digital output interface to the CPU unit or USB I/O Unit - Module Type of the CONPROSYS nano series.

CPSN-DO-08L has the opto-coupler isolated Output 8 channels (current sink output) whose response speed is 200μsec or less. This product can also be used with an external circuit power supply of 12 to 24 V.

CPSN-DO-08BL has the opto-coupler isolated Output 8 channels (current sink output) whose response speed is 200μsec or less. This product's internal circuit also has a built-in power supply, so no external circuit power supply is necessary.

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

* 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 2023.

Features

Opto-coupler isolated Output (supporting current sink output)
This product has the opto-coupler isolated Output 8 channels (current sink output) whose response speed is 200μsec or less.

Internal circuit power supply (CPSN-DO-08BL only)
The CPSN-DO-08BL's internal circuit has a built-in power supply, so no external circuit power supply is necessary.

Output circuits include zener diodes for surge voltage protection.
Zener diodes are connected to the output circuits to protect against surge voltages.
The rated output is 35VDC, 500mA to the maximum per channel.

Easy installation and removal
This product can be installed in and removed from the CPU unit or USB I/O Unit - Module Type without any tools.

Adaptable to a wide range of temperature between -20 and +60°C
The product is capable of operating in the temperature between -20 and + 60°C. It can be installed in the various environments.

Equipped with the LED for an operation check
The product has the LED for an operation check, which helps you visually confirm the communication status of each interface.

No electrolytic capacitor
Without an electrolytic capacitor, which has a limited life, we are creating the product with a longer life.

List of Options

Product Name	Model type	Description
CPU unit	CPSN-MCB271-S1-041	Remote I/O CPU unit *1
	CPSN-MCB271-1-041	Remote I/O CPU unit LAN HUB model *1
	CPSN-PCB271-S1-041	CODESYS Modbus Master CPU unit
USB I/O Unit - Module Type	CC-USB271-CPSN4	USB I/O Unit - Module Type (4 slot) *1
DIN rail fitting power supply	CPS-PWD-30AW24-01	Fitting power supply 30W (Input: 100 - 240VAC, Output: 24VDC 1.3 A)
	CPS-PWD-90AW24-01	Fitting power supply 90W (Input: 100 - 240VAC, Output: 24VDC 3.8 A)

*1 Available with our device driver API-TOOL.

*   Visit the Contec website regarding information on the optional products.

Specifications

Function specifications

Item		CPSN-DO-08L	CPSN-DO-08BL
Output			
Output type		Opto-coupler Isolation Open Collector Output (Current sink type) (negative logic) *1	
Isolation		Opto-coupler Isolation	
Voltage Resistance		AC1000Vrms	AC500Vrms
Output rating	Output Voltage	35VDC (Max.)	
	Output Current	500mA (Max.)	
Residual Voltage with Output ON		0.5V or less (Output current ≤ 50mA)	
Response time		Within 200μsec	
Number of output signal channels		8 (shared common)	
LED		DO0 - DO7 (Green)	
Common			
Connector		2 pieces 3.81mm pitch 10-pin terminal	
Applicable		AWG28 - 16	
External circuit power supply*2		12 - 24VDC (±10%)	
Internal circuit power supply		12VDC 42mA (Max.)	
Electricity consumption		- 3.3V 0.09A (Max.)	5V 0.13A (Max.) 3.3V 0.09A (Max.)
Physical dimensions (mm)		25.6 (W) x 52.6(D) x 84(H) (Not include projection)	
Weight		50g	

*1   Data "0" and "1" correspond to the Low and High levels, respectively.
*2   The digital output circuit is equipped with a fuse for preventing overcurrent. Use a power supply that has overcurrent protection or a 300 W or higher power supply.
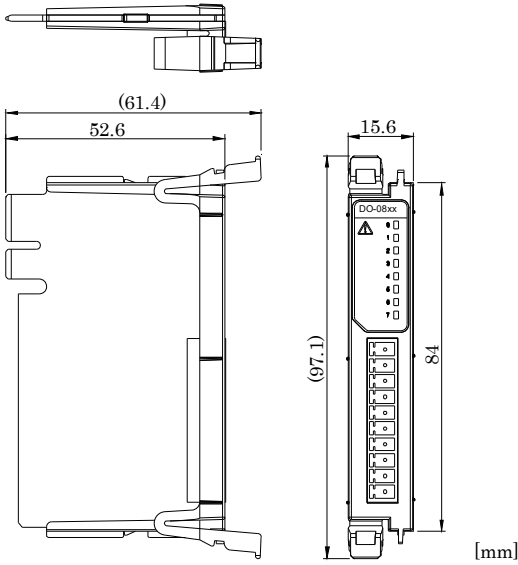
Installation Environment Requirements

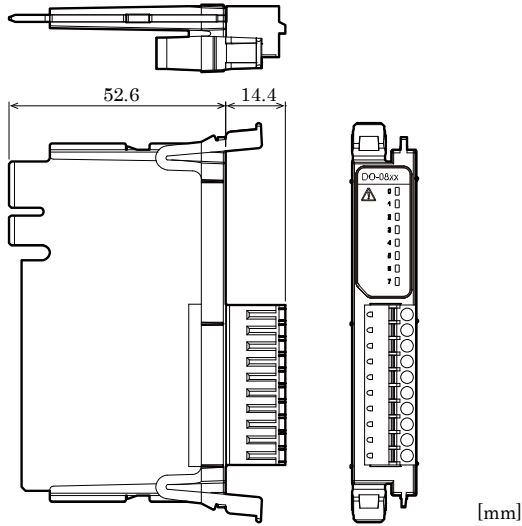| Item		CPSN-DO-08L	CPSN-DO-08BL
Operating ambient temperature *3		-20 - +60°C (Wall installation at an angle of 0°) -20°C to +55°C with a vertical installation at an angle of 90° to the left/right or with a plane installation	
Operating ambient humidity		10 - 90%RH (No condensation)	
Non-operating ambient temperature		-20 - +60°C	
Non-operating ambient humidity		10 - 90%RH (No condensation)	
Floating dust particles		Not to be excessive	
Corrosive gases		None	
Line-noise resistance	Line noise	Signal Line /±1kV (IEC61000-4-4 Level 3, EN61000-4-4 Level 3)	
	Static electricity resistance	Touch /±4kV (IEC61000-4-2 Level 2, EN61000-4-2 Level 2) Air /±8kV (IEC61000-4-2 Level 3, EN61000-4-2 Level 3)	
Vibration resistance	Sweep resistance	10 - 57Hz *4/ semi-amplitude vibration 0.15mm, 57 - 150Hz/2.0G 40 minutes each in X, Y, and Z directions (JIS C60068-2-6-compliant, IEC60068-2-6-compliant)	
Impact resistance		15G half-sine shock for 11ms in X, Y, and Z directions (JIS C60068-2-27-compliant, IEC60068-2-27-compliant)	
Standard		VCCI Class A, FCC Class A, CE Marking (EMC Directive Class A, RoHS Directive), UKCA	

*3   Output current derating is required.
*4   With the optional DIN rail fitting power supply : 10-55Hz (for details, see the specification of the optional power supply)
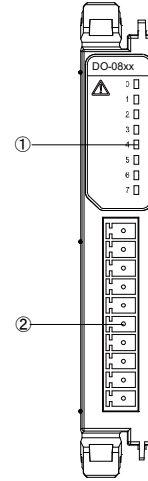
Physical Dimensions

(61.4)
52.6
15.6
(97.1)
84
[mm]

With the connector attached

52.6   14.4

[mm]

Packing List

Product [CPSN-DO-08L] ...1
10-pin power connector...1
Please read the following ... 1

Product [CPSN-DO-08BL] ...1
10-pin power connector...1
Product Guide & Warranty Certificate ... 1
Serial Number Label ...1

Name of each parts

(1) LED : Displays the digital output status.
(2) Digital Output : Use the 10-pin connector, included in this package.

Isolation Digital Output Connector

This product has 8 channels of digital output. Use the 10-pin connector, included in this package.

Connector type : DEGSON 15EDGKC-3.81-10P-13 (or equivalent)

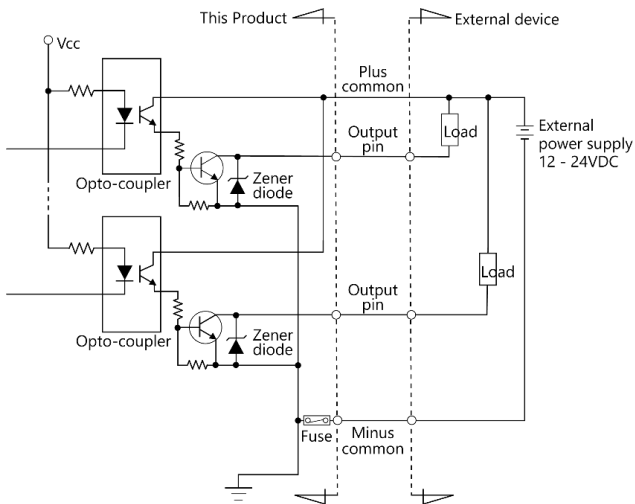| Pin No.	Signal Name	Meaning
1	PCOM	This connects the positive-side of the external power. It shares with 8 channels of output signal (DO0 - DO7).
2	MCOM	This connects the negative-side of the external power. It shares with 8 channels of output signal (DO0 - DO7).
3 - 10	DO0 - DO7	This indicates the output signals. It connects the input signals from the other devices.

Digital Output

The equivalent circuit of the digital output interface part is shown in the following figure.

Connect this interface to a device that is driven by current such as a relay or an LED. For the connection to the CPSN-DO-08L, an external power supply is required in order to supply the current. The turning ON/OFF of the device that is driven by current is controlled with a digital value.
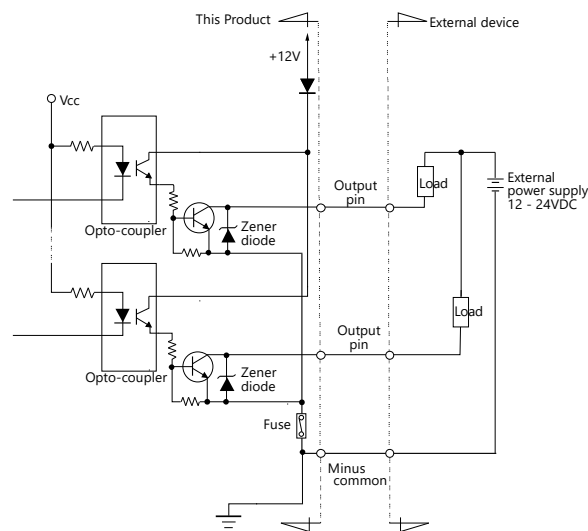
The maximum rated output current is 500 mA per channel.

Digital Output circuit (Current sink type) <CPSN-DO-08L >

CAUTION
-   When supplying power, all output will be OFF.

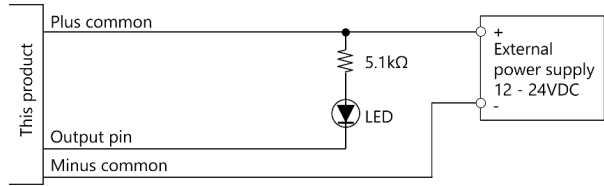Digital Output circuit (Current sink type) <CPSN-DO-08BL >

CAUTION
-   When supplying power, all output will be OFF.

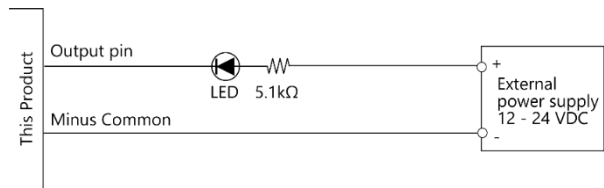## Example of connecting the product to LED
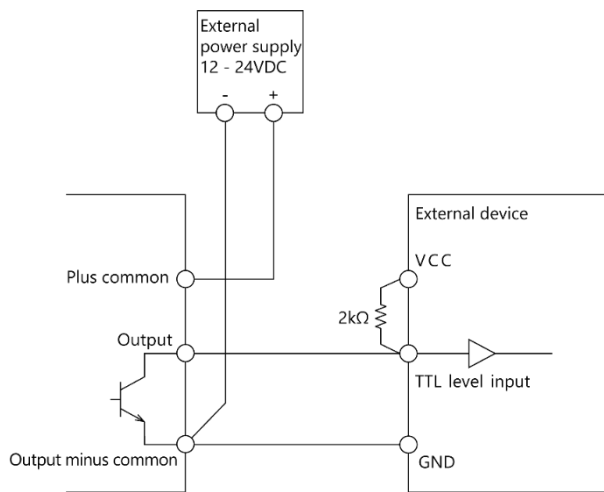
< CPSN-DO-08L > (current sink type)

The corresponding LED will be lit up when you output "1" into the appropriate bit.

The corresponding LED will be turned off when you output "0" into the appropriate bit.

< CPSN-DO-08BL > (current sink type)

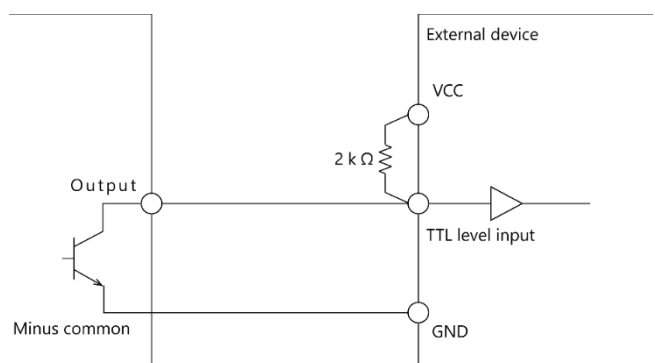The corresponding LED will be lit up when you output "1" into the appropriate bit.

The corresponding LED will be turned off when you output "0" into the appropriate bit.

Example of connecting the product to TTL level input

Example connection of Output and TTL level input (Current sink type) < CPSN-DO-08L >

Example connection of Output and TTL level input (Current sink type) < CPSN-DO-08BL >

Derating

The characteristic of derating by way of the output current is shown in the following figure.

Use this product within the derating range. Failing to do so may lead to malfunctions.