

Ethernet Remote I/O F&EIT N Series Isolated Digital Output Unit

DO-32LN-FIT



The photograph is DIO-1616LN-FIT.

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

This product is an isolated digital output unit of F&EIT remote I/O system that realizes monitoring and control of devices scattered remotely, through PCs connected to Ethernet. Since existing network infrastructure can be used, the system can be built easily by just connecting with LAN cables. It is possible to connect external devices, such as adjacent switches, lamps and LEDs, to perform output of digital signals. Compact design not restricting installation location (188.0(W) x 78.0(D) x 30.5(H)) makes it easy to install the product within the panel or device using DIN rail mounting jigs, or on the floor or wall.

Windows driver library is supplied. It is possible to confirm the operations through the diagnosis monitor without any programming.

This product has the 32ch of Optocoupler isolated open-collector outputs (12 - 48VDC specification). The output rating is max. 24VDC, 150mA or 48VDC, 50mA per ch.

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* Visit the CONTEC website to check the latest details in the document.

* The information in the data sheets is as of July, 2024.

Features

Optocoupler isolated open-collector outputs (current sink type)

This product has the 32ch of Optocoupler isolated open-collector outputs (current sink type). The output rating is max. 24VDC, 150mA or 48VDC, 50mA per ch.

Common terminal provided per 8ch, capable of supporting a different external power supply.

You can check the digital output by using the LED indicator.

Optocoupler bus isolation

As the controller (PC) side is isolated from the output interfaces by Optocouplers, this product has excellent noise performance.

Fail safe function

When communication failure occurs, such as LAN cable disconnection, it is possible to notify the external devices by outputting a specific user-defined signal pattern.

Compact design not restricting installation location (188.0(W) x 78.0(D) x 30.5(H))

Compact design of 188.0(W) x 78.0(D) x 30.5(H) does not require special installation location.

Compatible with a wide range of power supplies : 5 to 24VDC

Compatible with a wide range of power supplies : 5 to 24VDC, and can be used in various environments.

An FG terminal is also provided in the power connector. Furthermore, it is possible to screw fit the power connector on to the body to prevent detachment.

Can be used as digital output of Ethernet base remote I/O

As the control (monitoring and control) of digital output is performed via Ethernet, remote control can be easily performed.

Diverse installations such as screw fastening, magnet, DIN rail are possible

Installation on the floor / wall / ceiling is possible by screw fastening, magnet, rubber feet, etc.

In addition, DIN rail mounting mechanism is equipped as standard with the product, making it easy to install the product within the panel or the device.

Windows compatible driver libraries are attached.

Using the attached driver library makes it possible to create applications of Window. As the driver library was designed taking into consideration compatibility with the API functions [API-PAC(W32)] of the measurement control and communication interface board, if you have experience in these applications, smooth programming is possible.

In addition, a diagnostic program by which the operations of hardware can be checked is provided.

In addition, using generic socket functions makes it possible to implement control under OS other than Windows, such as UNIX machine.

Specification

Specifications < 1 / 2 >

Item		Specifications
Output section		
Output format		Optocoupler isolated open collector output (current sink type)
Ratings	Output voltage	12 - 48VDC (±15%)
	Output current	150 mA (12 - 24V) (per channel) (Max.) 50 mA (36 - 48V) (per channel) (Max.)
	Number of output signal channels	32 channels (8 channels / common)
Response time		Within 1msec
Common section		
Allowable distance of signal extension		Approx. 50m (depending on wiring environment)
Applicable wire		AWG28 - 16
Applicable plug		AK1550 / 10-3.5-GREEN (mfd. by PTR)

Item	Specifications
LAN	10/100BASE-TX(IEEE802.3u)
Power voltage	5 - 24VDC \pm 10% supply from 2-piece power input detachable type connector It is recommended that you use F&EIT series power unit or stabilized power product on the market. Maximum extension between power device and the product : 1.5m
Current consumption (Max.)	5VDC 0.61A, 12VDC 0.27A, 24VDC 0.14A
FG pin	Power supply connector equipped with a FG pin.
Power input connector	2-piece power input detachable type connector with an FG terminal supplied Uses connector : MC1,5/3-GF-3,5 (mfd by Phoenix Contact) The dedicated plug, with screw fastening that can be operated from the side, is supplied as standard Compatible connector : MC1,5/3-STF-3,5 (mfd by Phoenix Contact) Compatible cable : AWG28-16
Physical dimensions (mm)	188.0(W) x 78.0(D) x 30.5(H) (No protrusions)
Weight	220g (Only the unit)
Installation method	One-louch connection to 35mm DIN rails DIN rail mounting mechanism as a standard feature. Mounting to the wall using the screws Mounting to a metal surface using the magnets Mounting to the floor using the rubber feet

Item		Requirement description
Operating temperature		0 - 50°C *1
Operating humidity		10 - 90%RH (No condensation)
Floating dust particles		Not to be excessive
Corrosive gases		None
Noise immunity	Line-noise *2	AC line / 2kV, Signal line / 1kV (IEC1000-4-4Level 3, EN61000-4-4Level 3)
	Static electricity resistance	Contact discharge / 4kV (IEC1000-4-2Level 2, EN61000-4-2Level 2) Atmospheric discharge / 8kV (IEC1000-4-2Level 3, EN61000-4-2Level 3)
Vibration resistance	Sweep resistance	10 - 57Hz / semi-amplitude 0.15mm, 57 - 150Hz / 2.0G 40minutes 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)
Grounding		Class D grounding (previous class 3 grounding)
Standard		VCCI Class A, FCC Class A, CE Marking (EMC Directive Class A, RoHS Directive), UKCA

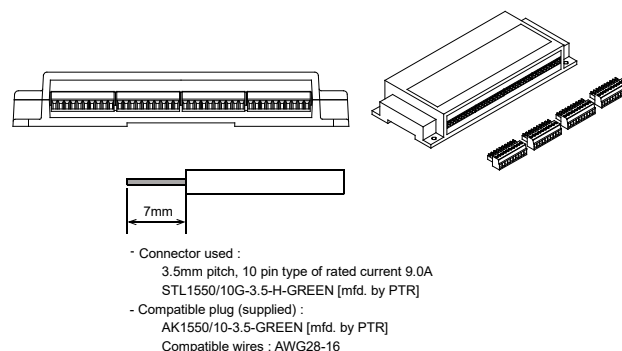
*2 When using a POA201-10-2

The API-CAP(W32) is the Windows version driver library software that provides products in the form of Win32 API functions (DLL). Various programming languages such as Visual Basic and Visual C++ can be used to create high-speed application software which maximizes the features of the F&EIT module. In addition, a diagnostic program, which is useful for operation verification, is also provided. For more details on the supported OS, applicable language and how to download the updated version, please visit the CONTEC's Web site.

POA201-10-2 : AC adapter (12VDC 1A)
POA200-20-2 : AC adapter (5VDC 2A)
POW-DD10GY : DC-DC power unit
(input : 10 - 30VAC, output : 5VDC 3.0A)

Technical drawing of the power supply unit showing three views: top, side, and front. The top view shows a rectangular unit with a width of 75 ± 1 mm and a total length of 1500 ± 100 mm. The side view shows a height of 47.5 ± 1 mm. The front view shows a depth of 27.3 ± 1 mm. The unit has a power cord with a 3-pin IEC connector and a 5V GND N.C. output connector.

When connecting the unit to an external device, you can use the supplied connector plug. When wiring the unit, strip off approximately 7 mm of the covering for the cable, and insert the bare wire by pressing the orange button on the connector plug. Releasing the orange button after the wire is inserted fixes the cable. Compatible wires are AWG 28 - 16.

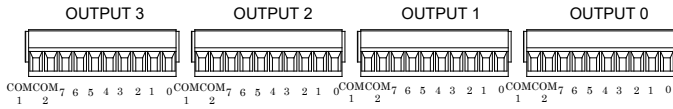


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Signal Layout on the Interface Connector

The unit can be connected to an external device using 10-pin connectors that is provided on the unit face.

Connector : 4



Pin No.	Signal name	Logical bit	Logical port	Contents
0	OUT00	0		
1	OUT01	1		
2	OUT02	2		
3	OUT03	3		
4	OUT04	4		
5	OUT05	5		
6	OUT06	6		
7	OUT07	7		
COM0	COM(-)	-	-	Minus common for OUTPUT0
COM1	COM(+)	-	-	Plus common for OUTPUT0
0	OUT10	8		
1	OUT11	9		
2	OUT12	10		
3	OUT13	11		
4	OUT14	12		
5	OUT15	13		
6	OUT16	14		
7	OUT17	15		
COM0	COM(-)	-	-	Minus common for OUTPUT1
COM1	COM(+)	-	-	Plus common for OUTPUT1

Pin No.	Signal name	Logical bit	Logical port	Contents
0	OUT20	16		
1	OUT21	17		
2	OUT22	18		
3	OUT23	19		
4	OUT24	20		
5	OUT25	21		
6	OUT26	22		
7	OUT27	23		
COM0	COM(-)	-	-	Minus common for OUTPUT2
COM1	COM(+)	-	-	Plus common for OUTPUT2
0	OUT30	24		
1	OUT31	25		
2	OUT32	26		
3	OUT33	27		
4	OUT34	28		
5	OUT35	29		
6	OUT36	30		
7	OUT37	31		
COM0	COM(-)	-	-	Minus common for OUTPUT3
COM1	COM(+)	-	-	Plus common for OUTPUT3

OUT00 - 37	32 output signal pins. Connect these pins to the input signal pins of the external device.
COM0	Connect the negative side of the external signal. These pins are common to 8 output signal pins.
COM1	Connect the positive side of the external signal. These pins are common to 8 output signal pins.

Connecting Output Signals

Output Circuit

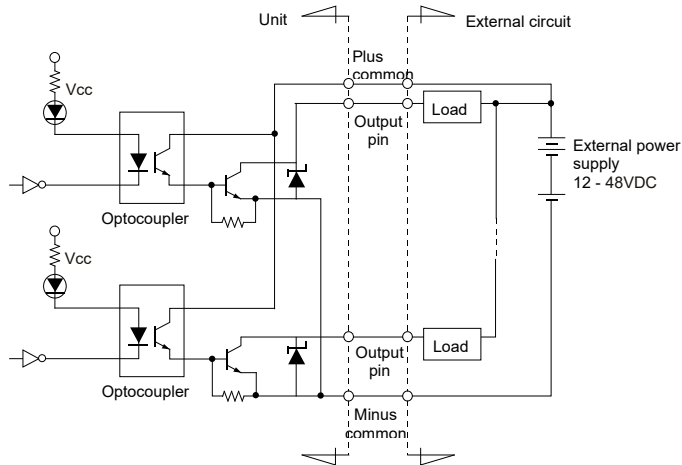


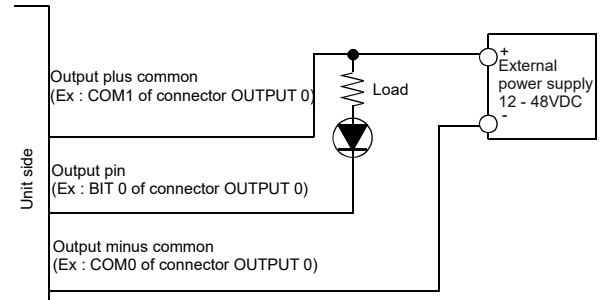
Figure above shows the output circuit for the interface section of this product. The signal output section consists of an Optocoupler isolated open collector output (current sink type). An external power supply is therefore required to drive the output section of this unit.

The maximum output current rating per channel is 150 mA (at 12 - 24 VDC) or 50 mA (at 36 - 48 VDC). A surge voltage protection circuit (zener diode) is provided for the output transistors of this unit. When the unit drives relays, lamps, and other induction loads, however, another surge voltage countermeasure should be provided on the load side.

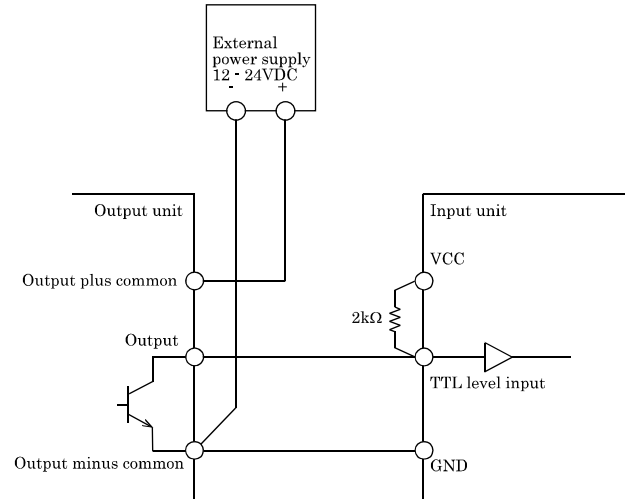
CAUTION

When the power is turned on, all output will be OFF.

Connection to the LED

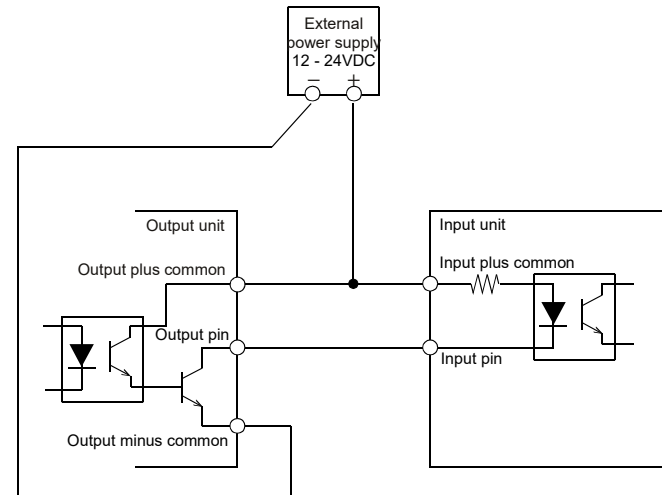


Example of Connection to TTL Level Input



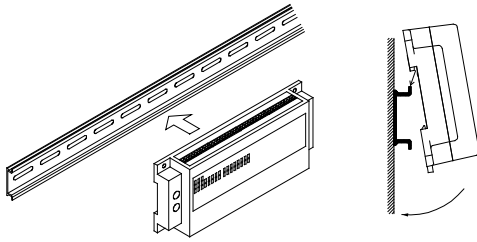
Example of a Connection between Input and Output Unit

Figure below shows the example of a connection between input pin of input unit and output pin of output unit.



Installation Method

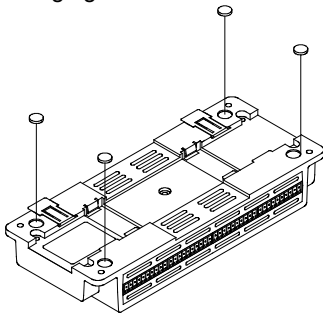
Mounting on a DIN Rail



Desktop Installation

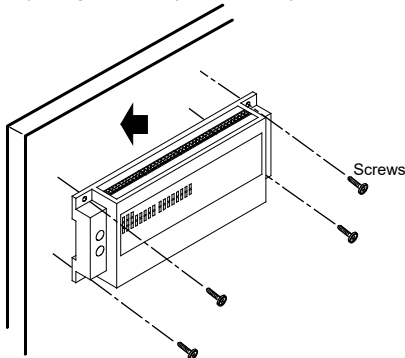
When required to mount the product on the desktop, mount it on a horizontal platform.

The rubber feet can be mounted in their mounting holes as shown in the following figure.



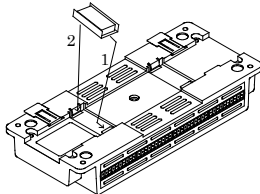
Wall Installation

To mount the product on the wall, purchase the commercially available screw (fitting for $\phi 3.5$) separately.

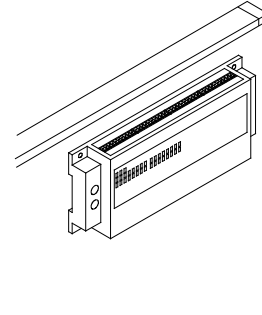


Installation Using the Magnet

Attaching the magnet supplied with the product makes it easy to mount or remove the product on or from a metal surface such as steel desk or partition.



Example of a Mounting on the partition



Installation Condition

Spacing between the system unit and any surrounding objects

Secure a distance of at least 50mm between the top of the main unit (single use) and any surrounding objects. Do not locate the unit in a fully enclosed housing. It is possible to mount it in the orientations shown in the following figure. Other orientations would cause problems in usage, such as inadequate heat dissipation.

