

F&eIT Series
Isolated Digital Output Module
DO-32(FIT)GY



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

Features

A different external power supply can be used for each common pin as it is shared by 16 signal points.

This product can perform 32-points digital signal output. The output section is a high sink current, open collector type using high-capacitance transistors. 150 mA/24 VDC or 50 mA/48 VDC max. (per channel)

Isolated output operations using an optocoupler improves noise immunity.

A rotary switch allows you to set device IDs, making it easy to keep track of device numbers.

Like other F&eIT series products, the module has a 35mm DIN rail mounting mechanism as standard. A connection to a controller module can be effected on a lateral, stack basis in a unique configuration, which permits a simple, smart system configuration without the need for a backplane board.

Included Items

- Module [DO-32(FIT)GY] ...1
- Please read the following ... 1
- Interface connector plug ...1

Specifications

Function specification

Item	Specifications	
Output section		
Output format	Opto-isolated open collector output (current sink type)	
Ratings	Output voltage	12 - 48 VDC (±15%)
	Output current	150 mA (12 - 24V) (per channel) (Max.) 50 mA (36 - 48V) (per channel) (Max.)
Number of output signal points	32 points (16 points/common)	
Response time	Within 1msec	
Common section		
External circuit power supply	12 - 48 VDC (±15%)	
Internal current consumption	5 VDC(±5%); 150 mA(Max) *1	
Allowable distance of signal extension	Approx. 50m (depending on wiring environment)	
Physical dimensions (mm)	25.2(W) x 64.7(D) x 94.0(H) (exclusive of protrusions)	
Weight of the module itself	100g	
Module connection method	Stack connection by means of a connection mechanism standard with the system	
Module installation method	One-touch connection to 35mm DIN rails (standard connection mechanism provided in the system)	
Applicable wire	AWG28 - 16	
Applicable plug	FMC 1.5/18-ST-3.5(made by Phoenix Contact Corp.)	

*1 The stack connector accepts currents of up to 3.0A (Max).

This product is an expansion module (device module) that adds digital signal I/O interfaces to one of various types of controllers. The product is used in combination with the I/O controller module

< CPU-CAXx(FIT)GY > (*1) or BOX-PC < BX-300-DC5xxx > (*1) or microcontroller unit < CPU-SBxx(FIT)GY > (*1) in the F&eIT Series.

This product can perform a maximum of 32 points of opto-isolated output per module. (Output: 12 - 48 VDC specified)

*1 This module is available in different product models. "x" in each model number represents a blank or one alphanumeric character. This is applicable to the rest of this document.

- * 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 July, 2024.

Installation Environment Requirements

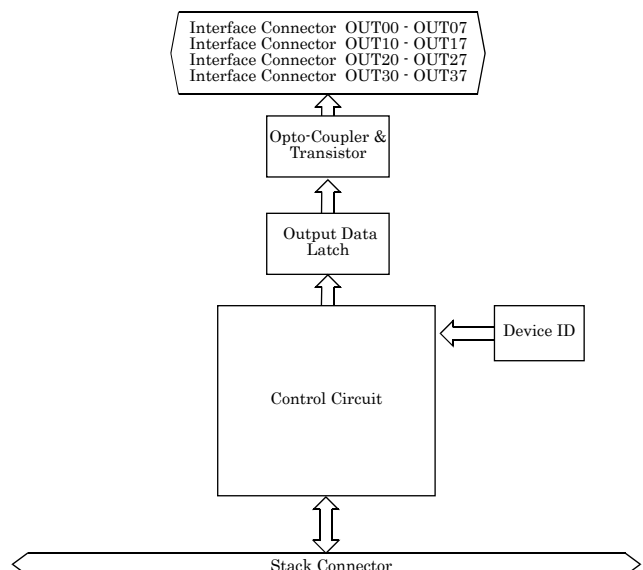
Item	Requirement description	
Operating temperature	0 - 50°C	
Storage temperature	-10 - 60°C	
Operating humidity	10 - 90%RH (No condensation)	
Floating dust particles	Not to be excessive	
Corrosive gases	None	
Noise immunity	Line-noise *1	AC line/2kV, Signal line/1kV (IEC1000-4-4Level 3, EN61000-4-4Level 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 80minutes each in X, Y, and Z directions (JIS C0040-compliant, IEC68-2-6-compliant)
	Impact resistance	15G half-sine shock for 11ms in X, Y, and Z directions (JIS C0041-compliant, IEC68-2-27-compliant)
Standard	VCCI Class A, FCC Class A, CE Marking (EMC Directive Class A, RoHS Directive), UKCA	

*1 When using a POW-AD22GY

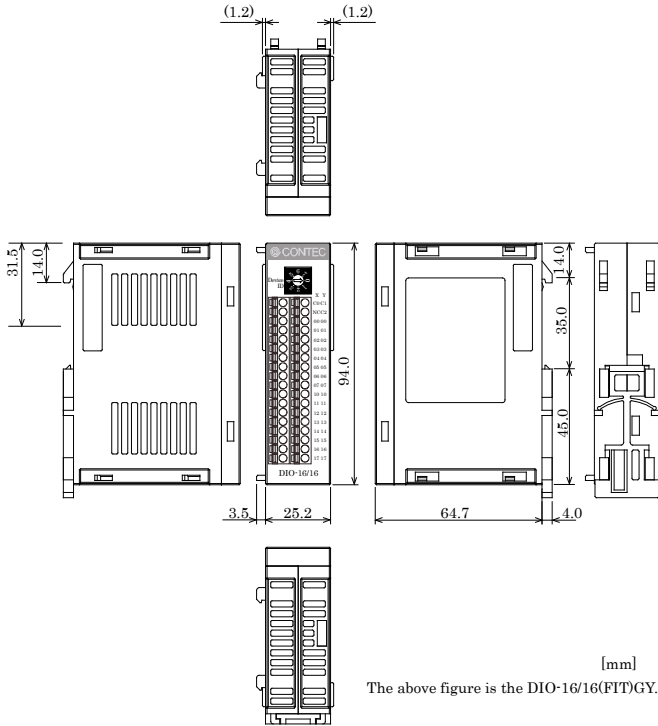
CAUTION

When connecting one of the modules to a controller module, the internal current consumption should be taken into account. If the total current exceeds the capacity of the power supply unit, the integrity of the operation cannot be guaranteed. For further details, please see the Controller Module manual.

Block Diagram



Physical Dimensions



[mm]
The above figure is the DIO-16/16(FIT)GY.

Functions and control method by controller connected

This product can be connected to a variety of controllers.

Supported controllers

- BOX-PC : BX-300-DC5xxx
- Microcontroller Unit : CPU-SBxx(FIT)GY
- I/O Controller Module : CPU-CAxx(FIT)GY
- Monitoring & Control Server Unit : SVR-MMF2(FIT)

Check each controller to which the module can be connected as well as the method of controlling the module when connected to that controller.

Connections to controllers

	BX-300-DC5xxx	CPU-SBxx(FIT)GY	CPU-CAxx(FIT)GY	SVR-MMF2(FIT)	SVR-MMF2(FIT)GY
O: Permitted x: Not permitted					
DIO-16/16(FIT)GY	O	O	O	O	x
DI-32(FIT)GY	O	O	O	O	x
DO-32(FIT)GY	O	O	O	O	x
Device ID setting range	0 - 7	0 - 7	0 - 7	0 - 7	0 - 7

Control method by controller connected

	BX-300-DC5xxx	CPU-SBxx(FIT)GY	CPU-CAxx(FIT)GY	SVR-MMF2(FIT)	SVR-MMF2(FIT)GY
Control using the I/O address map	O	O			
Control using the memory address map			O		
Control via the Windows driver*	FIT Protocol		O		
	API-CAP(W32)				
	API-SBP(W32)	O	O		
	API-USBP(WDM)				
Control over the web (as set from within the browser)				O	

* The API-SBP(W32) is included in the development kit [DTK-SBxx(FIT)GY]; the other drivers are bundled with each controller.

Control using the I/O address map

When connected to the BX-300-DC5xxx, the CPU-SBxx(FIT)GY, the module can receive I/O instructions directly from the controller module.

Control using the memory address map

When connected to the CPU-CAxx(FIT)GY, the module can be accessed from the host computer over the network. The module is assigned with its device ID in the memory managed by the controller module. The application running on the host computer controls the module by reading/writing the memory managed by the controller module.

Control via the Windows driver

For the functions and settings available when using the Windows driver, refer to the reference manual and online help for each module.

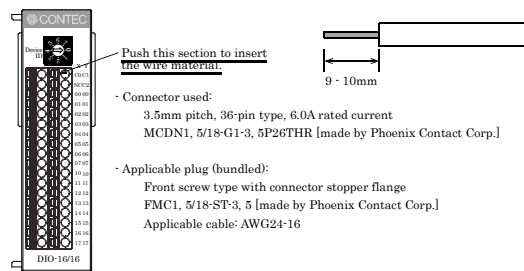
Control over the web – Connecting to the SVR-MMF2(FIT)

You can monitor collected data and manage the log over the web. You can use your familiar browser to easily make various settings. For details, refer to the reference manual for the SVR-MMF2(FIT).

How to Connect an Interface Connector

When connecting the Module to an external device, you can use the supplied connector plug.

When wiring the Module, strip off approximately 9 - 10mm 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 24 - 16.



CAUTION

Removing the connector plug by grasping the cable can break the wire.

Signal Layout on the Interface Connector

The Module can be connected to an external device using two 18-pin connectors that is provided on the Module face.

Pin No.	Signal name	Meaning	Pin No.	Signal name	Meaning
C0	COM(+)	Plus common for Output+0, +1 group	C2	COM(+)	Plus common for Output+2, +3 group
C1	COM(-)	Minus common for Output+0, +1 group	C3	COM(-)	Minus common for Output+2, +3 group
00	OUT00	Output+0 group	20	OUT20	Output+2 group
01	OUT01		21	OUT21	
02	OUT02		22	OUT22	
03	OUT03		23	OUT23	
04	OUT04	Output+1 group	24	OUT24	Output+3 group
05	OUT05		25	OUT25	
06	OUT06		26	OUT26	
07	OUT07		27	OUT27	
10	OUT10	Output+0 group	30	OUT30	Output+2 group
11	OUT11		31	OUT31	
12	OUT12		32	OUT32	
13	OUT13		33	OUT33	
14	OUT14	Output+1 group	34	OUT34	Output+3 group
15	OUT15		35	OUT35	
16	OUT16		36	OUT36	
17	OUT17		37	OUT37	

External Output Circuits

Output section

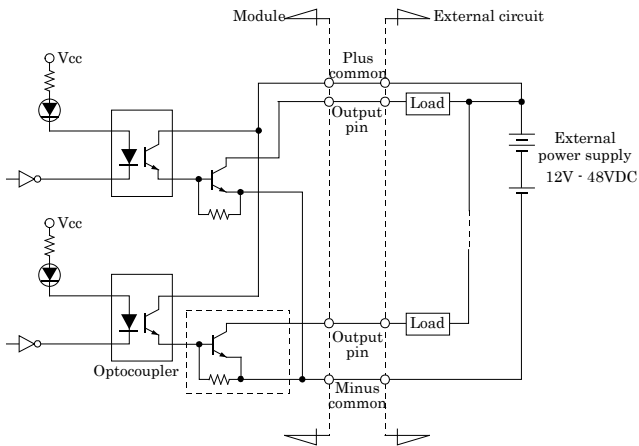
Figure below shows the output circuit for the interface section of this product. The signal output section consists of an opto-isolated open collector output (current sink type). An external power supply is therefore required to drive the output section of this module.

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

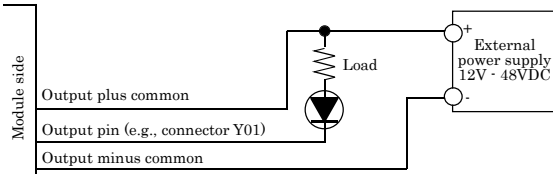
CAUTION

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

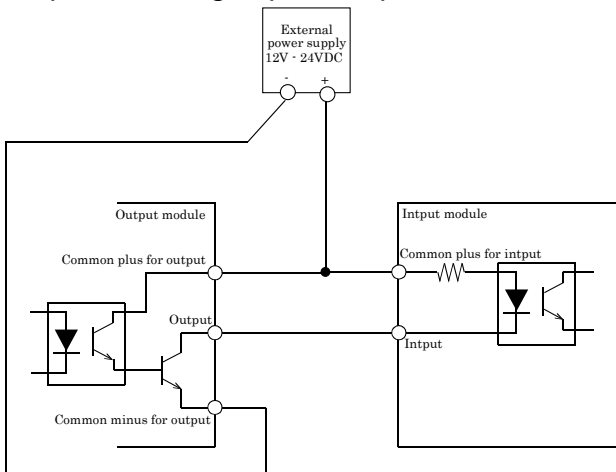
Output Circuit



Connection example: Using Outputs Y0



Example of Connecting Outputs and Inputs



Setting a Device ID

The controller module distinguishes and keeps track of the modules that are connected to it by assigning device IDs to them. Each module, therefore, should be assigned a unique ID.

A Device ID can be assigned in a 0 - 7 range, so that a maximum of eight modules can be distinguished.

The factory setting for the Device ID is [0].

Setup Method

A Device ID can be set by turning the rotary switch that is located on the module face.

A Device ID can be assigned by turning the switch.

