

F&IT 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&IT 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.

Packing List

Module [DO-32(FIT)GY] ...1
First step guide ... 1
CD-ROM[F&IT Series Setup Disk] *1...1
Interface connector plug ...1

*1 The CD-ROM contains various software and User's Manual.

This product is an expansion module (device module) that adds digital signal output 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 microcontroller unit < CPU-SBxx(FIT)GY > (*1) in the F&IT 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.

Specification

Specifications

Item	Specifications
Output section	
Output format	Opto-isolated open collector output (current sink type)
Ratings	Output voltage
	12 - 48 VDC ($\pm 15\%$)
	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 ($\pm 15\%$)
Internal current consumption	5 VDC($\pm 5\%$) 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.).

Installation Environment Requirements

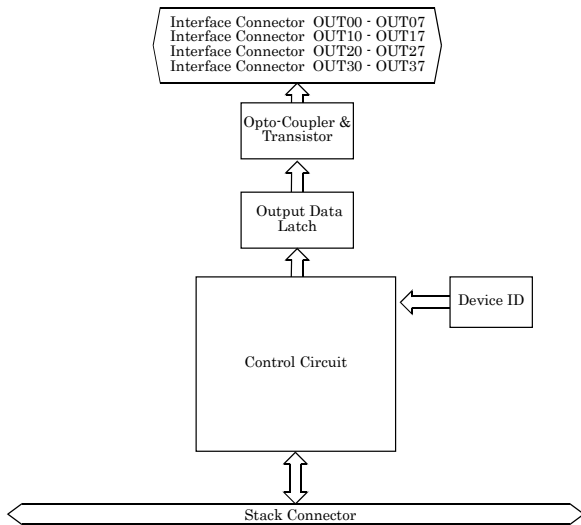
Item	Requirement description
Operating temperature	0 - 50°C
Storage temperature	-10 - 60°C
Operating humidity	10 - 90%RH (No condensation)
Floating dust particles	Not to be excessive
Corrosive gases	None
Noise immunity	Line-noise *1
	AC line/2kV, Signal line/1kV (IEC1000-4-4Level 3, EN61000-4-4Level 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

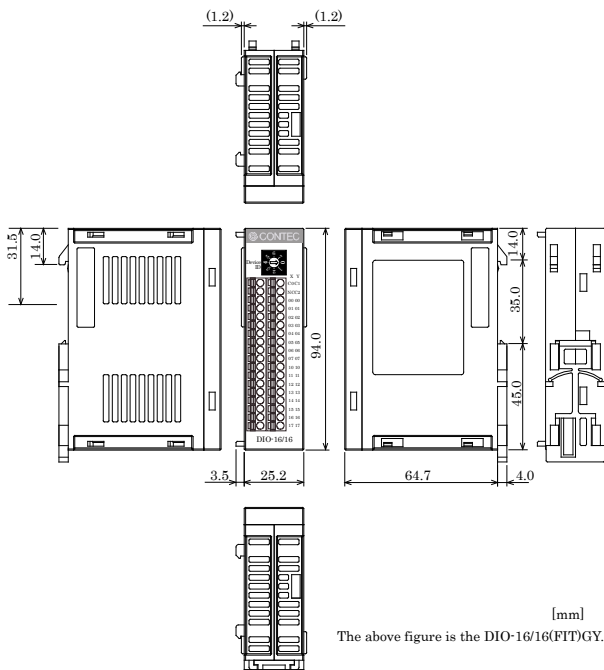
CAUTION

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



Functions and control method by controller connected

This product can be connected to a variety of controllers.

Supported controllers

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

O: Permitted
x: Not permitted

	CPU-SBxx(FIT)GY	CPU-CAxx(FIT)GY	SVR-MMF2(FIT)	SVR-MMF2(FIT)GY
DIO-16/16(FIT)GY	O	O	O	x
DI-32(FIT)GY	O	O	O	x
DO-32(FIT)GY	O	O	O	x
Device ID setting range	0 - 7	0 - 7	0 - 7	0 - 7

Control method by controller connected

	CPU-SBxx(FIT)GY	CPU-CAxx(FIT)GY	SVR-MMF2(FIT)	SVR-MMF2(FIT)GY
Control using the I/O address map	O			
Control using the memory address map		O		
Control via the Windows driver *				
FIT Protocol		O		
API-CAP(W32)		O		
API-SBP(W32)	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 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.

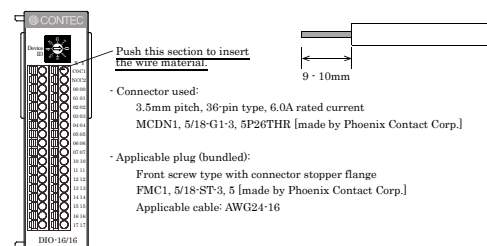
Control over the web – Connecting to the SVR-MMF2(FIT)

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
Y			Y		
C0 C2	C0	COM(+)	C2	C2	COM(+)
C1 C3	C1	COM(-)	C3	C3	COM(-)
00 20	00	OUT00	20	OUT20	
01 21	01	OUT01	21	OUT21	
02 22	02	OUT02	22	OUT22	
03 23	03	OUT03	23	OUT23	
04 24	04	OUT04	24	OUT24	
05 25	05	OUT05	25	OUT25	
06 26	06	OUT06	26	OUT26	
07 27	07	OUT07	27	OUT27	
10 30	10	OUT10	30	OUT30	
11 31	11	OUT11	31	OUT31	
12 32	12	OUT12	32	OUT32	
13 33	13	OUT13	33	OUT33	
14 34	14	OUT14	34	OUT34	
15 35	15	OUT15	35	OUT35	
16 36	16	OUT16	36	OUT36	
17 37	17	OUT17	37	OUT37	

External Output Circuits

Output section

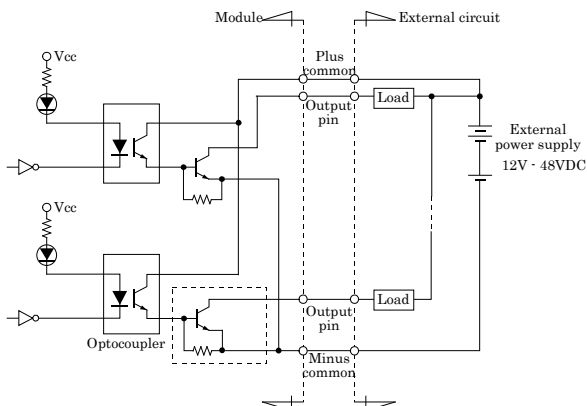
Figure below shows the output circuit for the interface section of this product. The signal output section consists of an opto-isolated open collector output (current sink type). An external power supply is therefore required to drive the output section of this module.

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

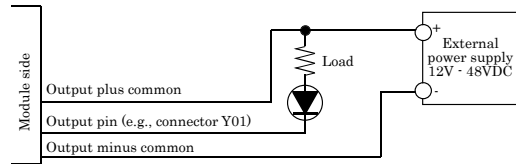
When the power is turned on, all output will be OFF.

Output Circuit

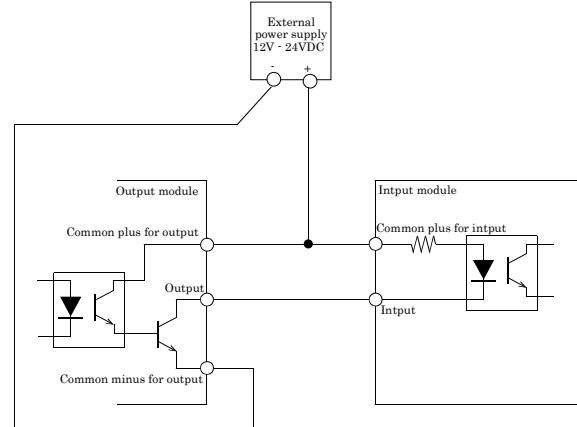


Connection example:

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.

