

F&eIT  
Series Isolated Digital Output Module  
**DO-16(FIT)GY** 12 - 48VDC specification



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

**Features**

Isolated output operations using an opto-coupler improves noise immunity.

This product can perform 16-point digital signal output, treating 8 points as a group and handling two groups per operation.

The output section is a high sink current, open collector type using high-capacitance transistors.  
150mA/24VDC (par channel)(Max.),  
50mA/48VDC (par channel)(Max.)

A rotary switch allows you to set device IDs to help you keep track of device numbers.

The system incorporates a screwless connector plug that allows you to easily attach and detach wires without using any special tools.

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.

The Module, which is an interface module that sends and receives digital signals to and from external devices, can be used by connecting it to F&eIT series controller modules <CPU-CA10(FIT)GY, CPU-SB10(FIT)GY etc>. This product can be connected to the DO-16(USB)GY respectively, to increase the number of output channels. Since an opto-coupler is used to insulate the CPU controlling the Module and external signals, it does not produce external electric effects directly on the host computer. This product can perform a maximum of 16 points of output per module.

\*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	
<b>Output section</b>		
Output format	Opto-isolated open collector output (current sinking type)	
Output rating	Output voltage	12 - 48VDC (±15%)
	Output current	12 - 24V: 150mA (Max. )(par channel) , 36 - 48V: 50mA(Max. )(par channel)
Number of output signal points	16 points (8 points/common)	
Response time	1msec (Max. )	
<b>Common section</b>		
External circuit power supply	12 - 48VDC (±15%)	
Internal current consumption	5VDC (±5%) 150mA (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 that is provided in the system as a standard item	
Module installation method	One-touch connection to 35mm DIN rails (standard connection mechanism provided in the system)	
Applicable wire	AWG 28 - 20	
Applicable plug	FK-MC0,5/9-ST-2,5 (made by Phoenix Contact Corp.) 2.5 mm-pitch, nominal current: 4A (Max.)	

\*1 Allowable current for the stack connector: 3.0A (Max.)

**CAUTION**

When connecting one of the modules to a controller module, the internal power 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.

**Installation Environment Requirements**

Parameter	Requirement description	
Operating temperature	0 - 50°C	
Storage temperature	-10 - 60°C	
Humidity	10 - 90%RH (No condensation)	
Floating dust particles	Not to be excessive	
Corrosive gases	None	
Line-Noise resistance	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 C004-compliant, IEC68-2-27-compliant)
Standard	VCCI Class A, FCC Class A, CE Marking (EMC Directive Class A, RoHS Directive), UKCA	

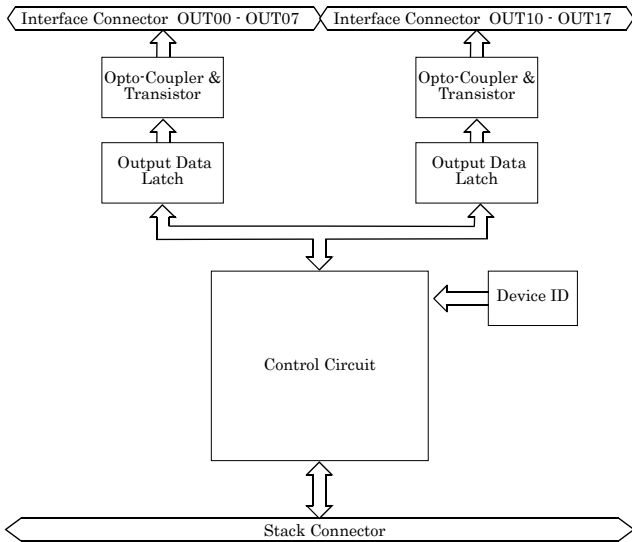
\*1 When using a POW-AD22GY

## Packing List

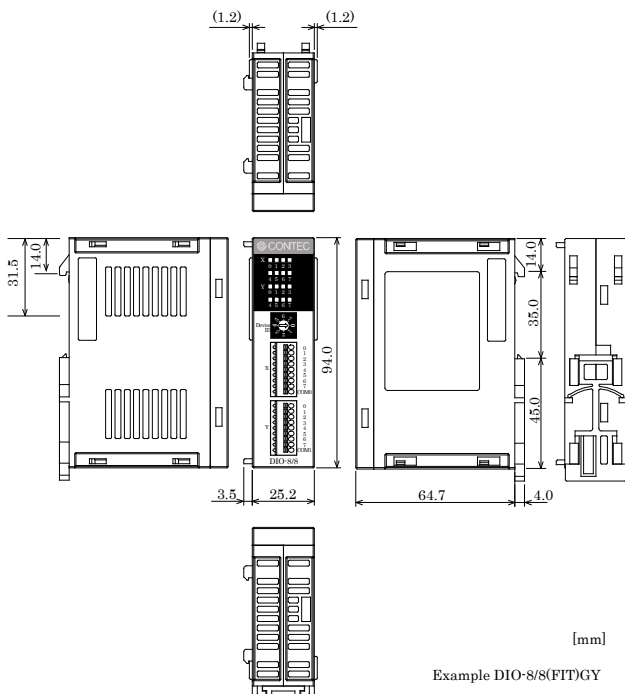
- Module [DO-16(FIT)GY] ...1
- First step guide ... 1
- CD-ROM [F&eIT Series Setup Disk] \*1...1
- Interface connector plugs...2

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

## Block Diagram

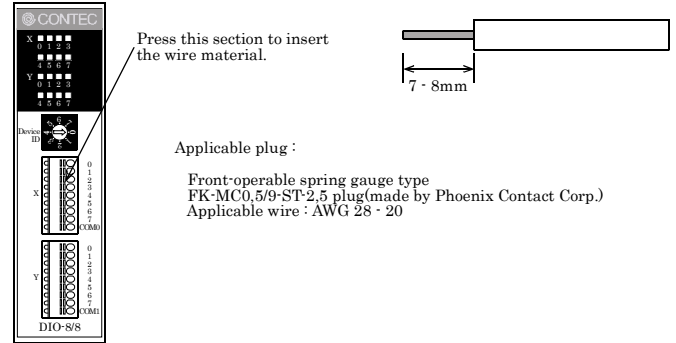


## Physical Dimensions



## 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 7 - 8 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 - 20.

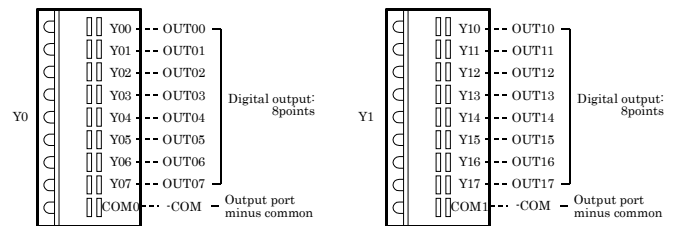


### CAUTION

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 a 9-pin connector that is provided on the Module face.



## External Output Circuits

### Output section

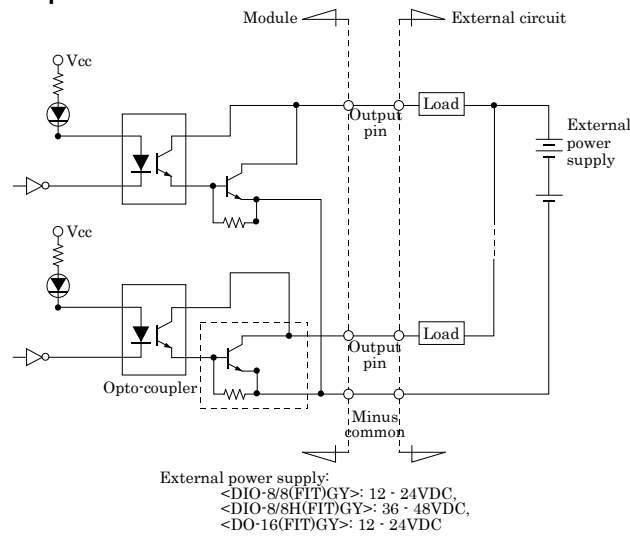
Figure below shows the output circuit for the interface section of this product. The signal output section consists of an opto-isolated open collector method (current sink type). The maximum output current rating per channel is 150mA for this product (at 12 - 24VDC) or 50mA for this product (at 36 - 48VDC).

A surge voltage protection circuit is not provided on the output transistors. Therefore, when driving relays, lamps, and other induction loads using this Module, a surge voltage countermeasure should be provided on the load side.

#### ⚠ CAUTION

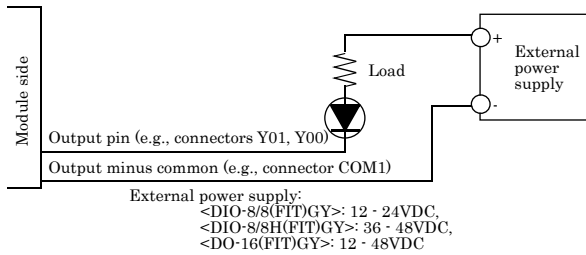
When the power is turned on, all output will be OFF.

### Output section

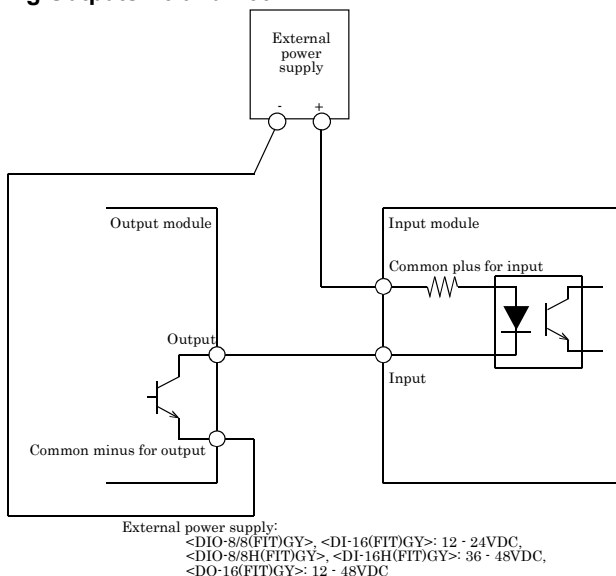


### Connection example:

#### Using Outputs Y0 and Y00



#### Using Outputs Y0 and Y00



## 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.

To connect the module to the USB module, assign a device ID between 1 and 3. 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.

