F&eIT Series
Isolated Up Counter Module

CNT16-8(FIT)GY



This product is an expansion module (device module) that up-counts pulse signals input from an external device. 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&eIT Series.

Module can count a maximum of eight pulse signals. The pulse signals are input via opto-couplers. The external power supply can be in the range 12 - 24 VDC.

*1 The "x" in a model code represents a single digit (or no digit) indicating different products. (The same convention applies below).

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

Features

Performs a 16-bit up-count for eight channels.

Isolated from each other by an opto-coupler, offering good noise immunity.

A digital filter is included to prevent miscounting due to chattering on the input pulses.

A rotary switch allows you to set device IDs to help you 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.

Specification

Specifications

Item		Specification
Counter input section		
	Channel count	8 (8 points/common)
	Counting system	Up/down counting
	Max. count	FFFFH (binary data)
	Response frequency	5kHz (Max.) Duty 50% (Max.)
	Input format	Opto-isolated input (Compatible with both current sinking output and courrent source output)
	Input resistance	3kΩ
	Input ON /OFF current	3.4 mA(Min.) / 0.16 mA (Max.)
	External circuit power supply	12 - 24 VDC (±15%) (4 mA/12 V - 8 mA/24 V per channel)
	Digital filter	0.25μsec - 131.072μsec
	Interrupt	The interrupts for all eight channels are combined as a single interrupt output signal. An interrupt is generated when a count carry-up occurs.
Common section		
	Interrupt level	Using CPU-SBxx(FIT)GY: IRQ 5, 7, or 9
	Internal power consumption	5 VDC(±5%) 150 mA (Max.) *1
	Allowable distance of signal xtension	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 the connector that is provided with the side of module
	Module installation method	One-touch connection to 35mm DIN rails (standard connection mechanism provided in the system)
	Applicable wire	AWG 28 - 16
	Applicable plug	FRONT-MC1,5/12-STF-3,81 (made by Phoenix Contact Corp.)

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

Installation Environment Requirements

Parameter	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

⚠ CAUTION

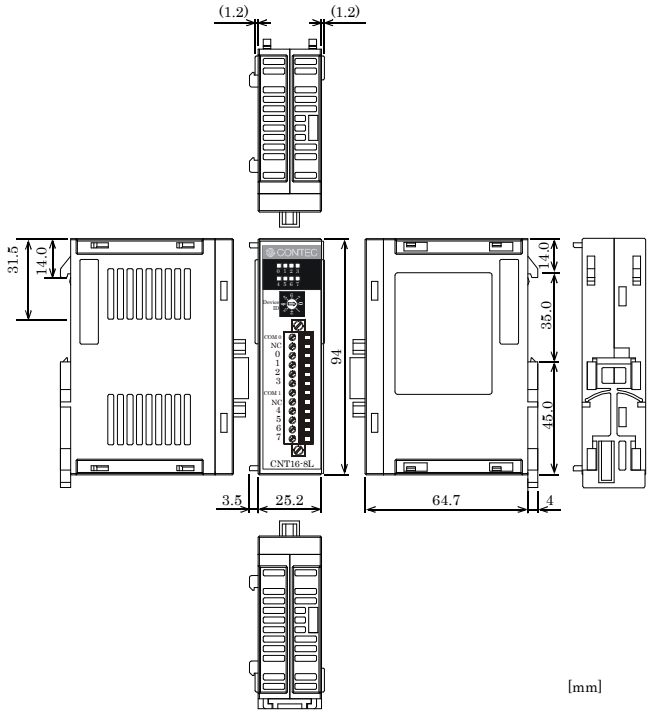
When connecting the Module to a controller module, the internal power consumption should be taken into account. If the total current exceeds the capacity of the power supply unit, the integrity of the operation cannot be guaranteed. For further details, please see the Controller Module manual.

Packing List

Module [CNT16-8(FIT)GY] …1
First Step Guide …1
CD-ROM [F&eIT Series Setup Disk] *1 …1
Interface connector plug ...1

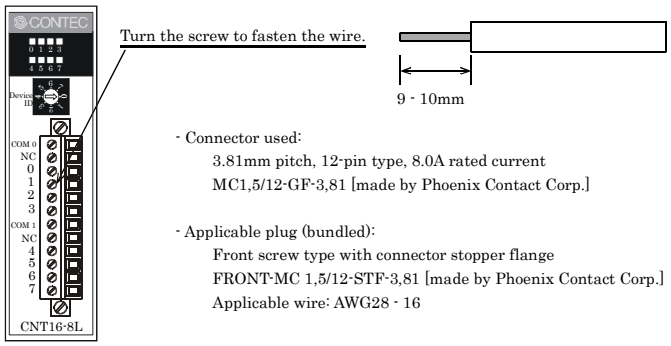
*1 The CD-ROM contains various software and User's Manual.

Physical Dimensions



How to Connect an Interface Connector

When connecting the Module to an external device, you can use the supplied connector plug.
To wire the Module, strip the sheath about 9 - 10mm from an end of the wire and insert the exposed wire into an opening. Tighten the screw to fasten the inserted wire. Applicable wires are AWG28 - 16.



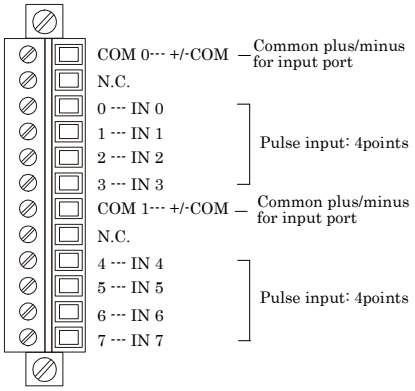
- Connector used:
  3.81mm pitch, 12-pin type, 8.0A rated current
  MC1,5/12-GF-3,81 [made by Phoenix Contact Corp.]

- Applicable plug (bundled):
  Front screw type with connector stopper flange
  FRONT-MC 1,5/12-STF-3,81 [made by Phoenix Contact Corp.]
  Applicable wire: AWG28 - 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 a 12-pin connector that is provided on the Module face.

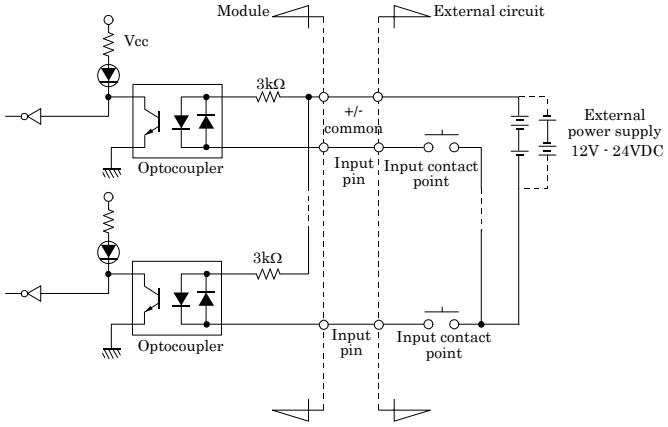


External I/O Circuits

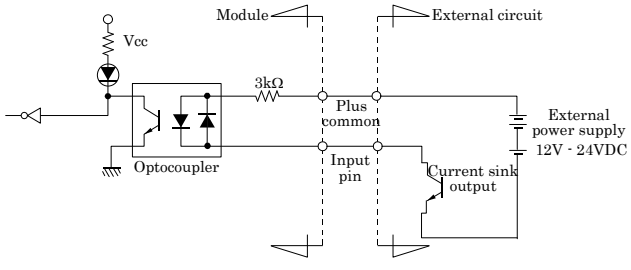
Input section

Figure below shows the input equivalent circuit for the interface section.
The signal input section consists of an opto-isolated input (compatible with both current sink output and current source output). An external power supply is therefore required to drive the input section of this module. The power requirement for this product about 8 mA per input channel at 24 VDC (about 4 mA at 12 VDC).

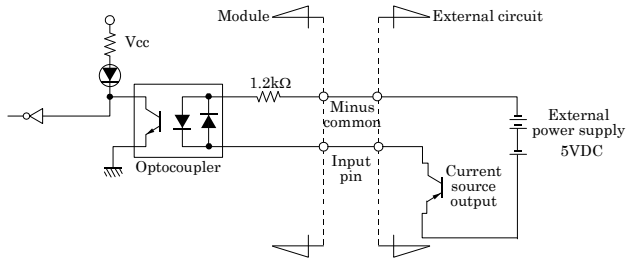
Input Circuit



Example of a Connection to Current Sink Output



Example of a Connection to Current Source Output



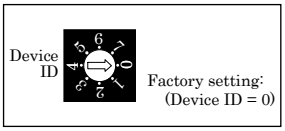
Setting a Device ID

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.



Block Diagram

