

Ezi-IO[®]

Input/Output Module

- EtherCAT Based Analog Input Module
- All EtherCAT Synchronization Modes Supported
- CiA 401 Profile Supported
- Simple and Easy Wiring
- Input Mode and Range Configurable
- Moving Average Filtering

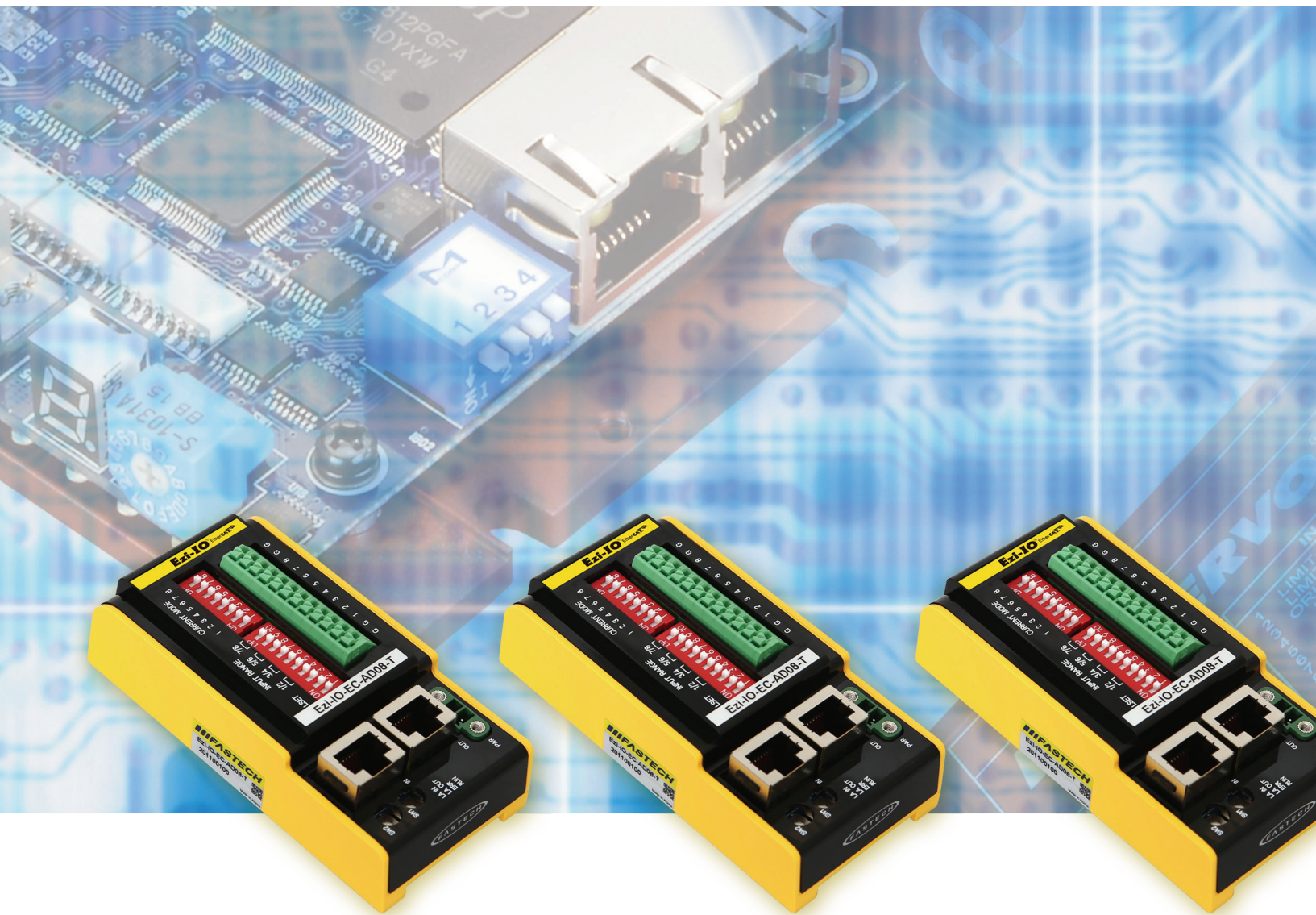
EtherCAT[®]
AD



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Ezi-IO[®]
Input/Output Module

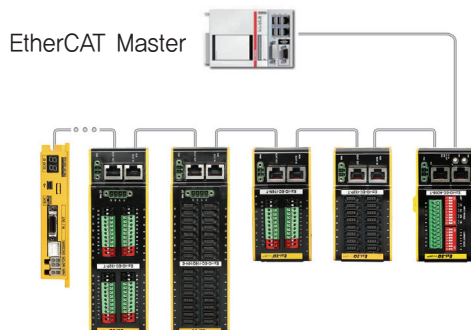
Ether**CAT**[®]
AD



1 EtherCAT Based Analog Input Module

Ezi-IO EtherCAT AD is an analog input module which supports EtherCAT, a fieldbus based on high speed Ethernet (100Mbps, Full-Duplex).

Ezi-IO EtherCAT AD is an EtherCAT Slave module which supports CoE(CAN Application layer over EtherCAT). It supports CiA 401 profile, and can be connected to the EtherCAT master without topology limitation.



2 Simple and Easy Wiring

Ezi-IO EtherCAT AD uses a push-in type terminal block. The push-in type terminal block can be easily connected to various devices using ferrule terminals, making the wiring much simpler and easier.

3 EtherCAT Synchronization Modes

Ezi-IO EtherCAT AD supports all EtherCAT synchronization modes. You can select from Free Run, SM Event, DC SYNC Event synchronization mode according to the purpose of use.

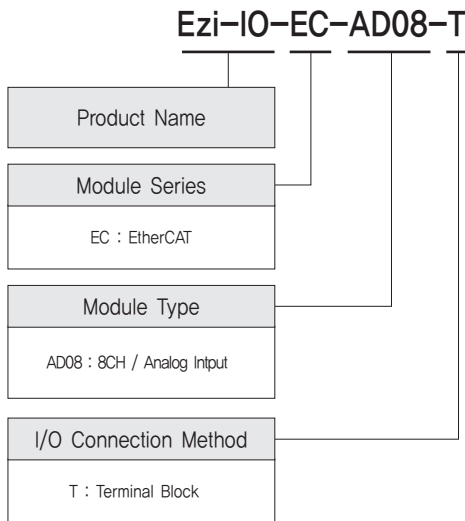
4 Easy Setup with Switches

Ezi-IO EtherCAT AD can easily set EtherCAT ID with rotary switches and identify EtherCAT address easily. In addition, the voltage or current input mode can be easily selected with the DIP switches, and the input signal range can be easily set in the voltage input mode.

5 Moving Average Filtering

Ezi-IO EtherCAT AD provides the moving average filter to remove the noise mixed in the analog signal and suppress the fluctuation of the analog input value. The range of the moving average filter can be set between 0~100ms.

● Ezi-IO EtherCAT AD Part Numbering



● Ezi-IO EtherCAT AD Part Number

Part Number

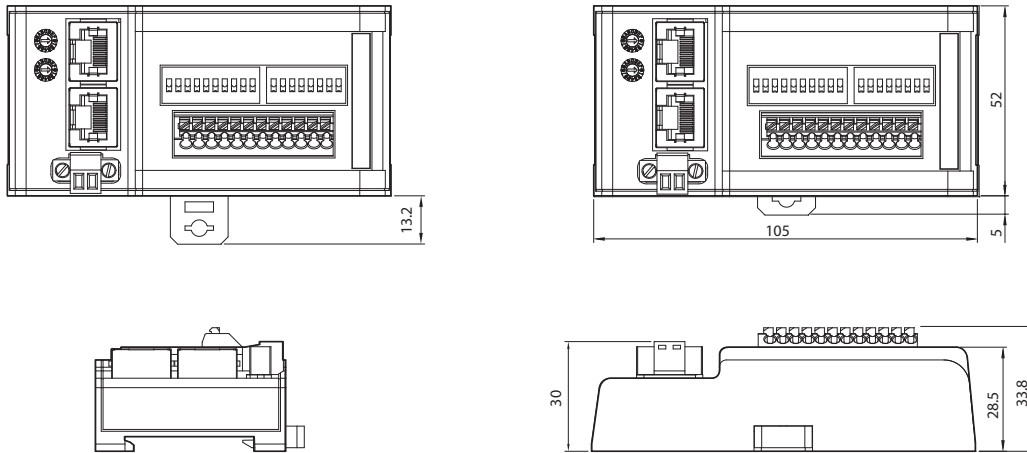
Ezi-IO-EC-AD08-T

● Specifications of Module

Model		Ezi-IO-EC-AD08-T		
Input Mode		Voltage Input	Current Input	
Input Voltage		DC24V ±10%		
Current Consumption		Max, 120mA		
Operating Condition	Ambient Temperature	<ul style="list-style-type: none"> · In Use: 0~50°C · In Storage: -20~70°C 		
	Humidity	<ul style="list-style-type: none"> · In Use: 35~85% RH (Non-Condensing) · In Storage: 10~90% RH (Non-Condensing) 		
	Vib. Resist.	0,5g		
Function	Number of Input Channels	8CH		
	Max. Signal Input	±15V	±30mA	
	Input Range	<ul style="list-style-type: none"> · -10~10V · -5~5V · -2,5~2,5V · 0~10V 	· 0~20mA	
	Input Range Setting Method	<ul style="list-style-type: none"> · SDO Communications (Separate settings for CH1~8) · DIP Switch (Separate settings for CH1/CH2, CH3/CH4, CH5/CH6, CH7/CH8) 		
	Input Impedance	1MΩ	249Ω	
	Max. Resolution	1/8,191 (Full Scale)		
	Accuracy	25°C	±0,3% (Full Scale)	±0,3% (Full Scale)
		0~50°C	±0,4% (Full Scale)	±0,6% (Full Scale)
	Analog Conversion Cycle	200μs/8CH		
	A/D Converted Data	<ul style="list-style-type: none"> · -10~10V : -4,096~4,095 · -5~5V : -4,096~4,095 · -2,5~2,5V : -4,096~4,095 · 0~10V : 0~8,191 	· 0~20mA: 0~8,191	
Isolation Method	Between analog input and communication connections : Digital isolation (Between channels : Non-isolated)			
LED Display		<ul style="list-style-type: none"> · Power Status (PWR) · EtherCAT Status (RUN) · Operation Error (ERR) · EtherCAT Connection (LA IN, LA OUT) 		
EtherCAT	Protocol	CoE (CiA 401 I/O Profile), FoE (Firmware Download)		
	Synchronization	Free Run, SM Event, DC SYNC Event		
	Bus Interface	2×RJ45 Connector		
	Cable	STP (Shielded Twisted Pair) Cable, Category 5e or higher / Max. 100m		

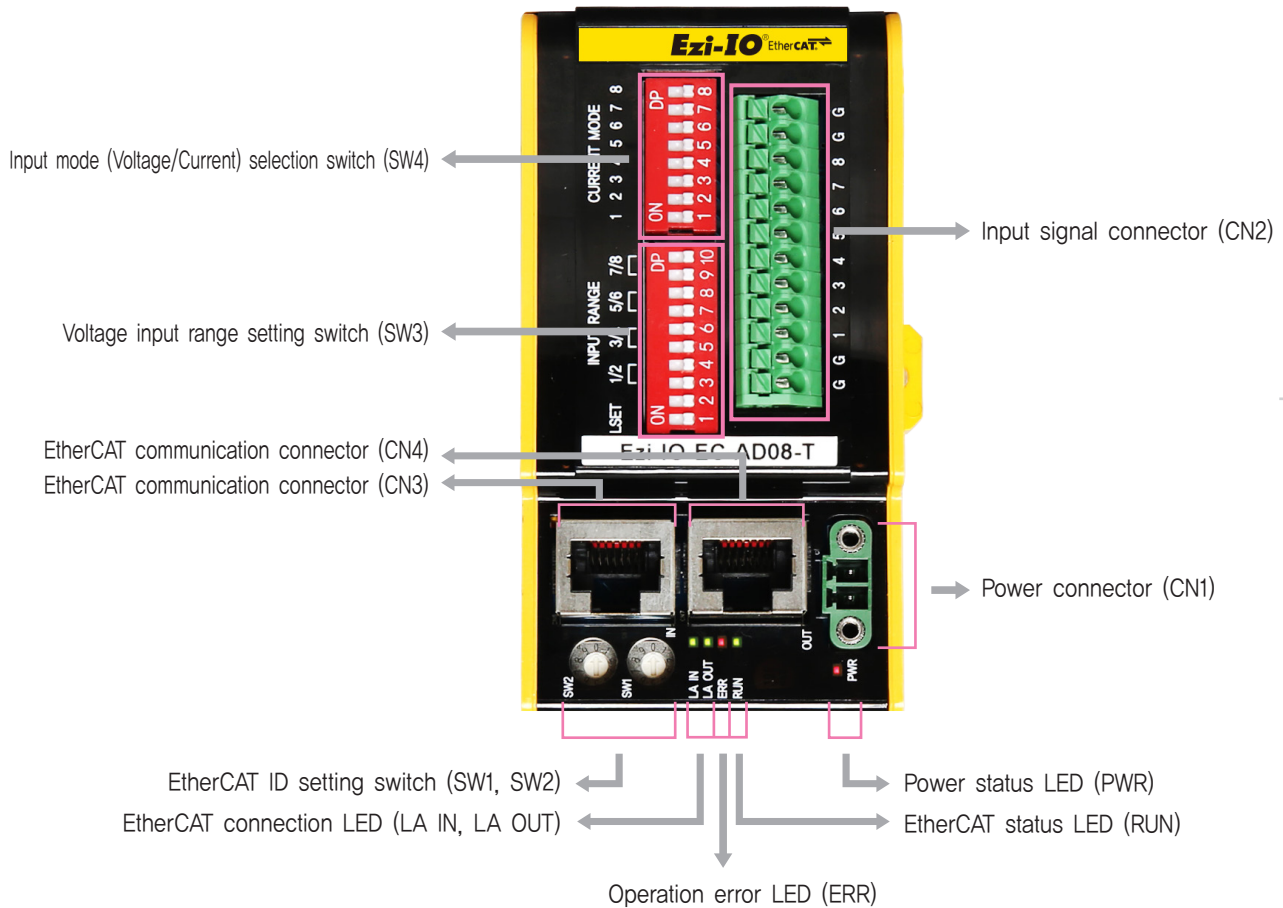
● Dimensions of Module [mm]

◆ Ezi-IO-EC-AD08-T



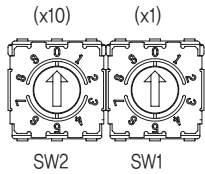
* Install the product on a din rail with a width of 35 mm.

● Settings and Operation [Ezi-IO-EC-AD08-T]

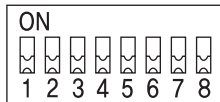


1. EtherCAT ID Setting Switch (SW1, SW2)

They are switches to set the EtherCAT ID (ECAT Device ID) node address, and they represent a decimal number. SW1 indicates the units digit ($\times 1$), and SW2 indicates the tens digit ($\times 10$).



2. Input Mode (Voltage/Current) Selection Switch (SW4)

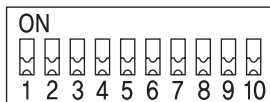


SW4 is a switch that selects voltage/current mode for each channel. Refer to the following chart for how to use SW4.

Mode	Switch	CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8
		SW4.1	SW4.2	SW4.3	SW4.4	SW4.5	SW4.6	SW4.7	SW4.8
Voltage Input		OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Current Input		ON	ON	ON	ON	ON	ON	ON	ON

* Select the input mode for each channel with the Input Mode Selection Switch (SW4) before supplying power to the module.

3. Voltage Input Range Setting Switch (SW3)



SW3 is a switch for setting the input range. You can set the range with the combination of the switches.

• Selecting Input Setting Method

You can select the input setting method with the LSET (SW3,1) switch as follows.

Setting Method	Switch	Description
	LSET SW3,1	
DIP Switch	ON	Setting voltage input range with DIP switches (SW3,3~SW3,10)
SDO Communication	OFF	Setting voltage/current input range with EtherCAT SDO communication

* If you use any channels in current input mode, select the SDO Communication for setting method (SW3,1=OFF).

* Set SW3,1 before supplying power to the module.

* SW3,2 is not used.

• Voltage Input Setting

When using the DIP Switch for setting (SW3,1 = ON), the voltage input is set as shown in the table below.

Input Range	Switch	CH1/CH2		CH3/CH4		CH5/CH6		CH7/CH8	
		SW3,3	SW3,4	SW3,5	SW3,6	SW3,7	SW3,8	SW3,9	SW3,10
-10~10V		OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
-5~5V		OFF	ON	OFF	ON	OFF	ON	OFF	ON
-2.5~2.5V		ON	OFF	ON	OFF	ON	OFF	ON	OFF
0~10V		ON	ON	ON	ON	ON	ON	ON	ON

4. Status LED

• Power Status LED

Name	Color	Status	Description
PWR	Red	OFF	Power is OFF
		ON	Power is ON

• EtherCAT Status LED

Name	Color	Status	Description
RUN	Green	OFF	State INIT or Power OFF
		Blinking	State PRE-OPERATIONAL
		Single Flash	State SAFE-OPERATIONAL
		ON	State OPERATIONAL
		Flickering	State BOOTSTRAP

• Operation Error LED

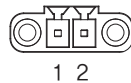
Name	Color	Status	Description
ERR	Red	OFF	No Error or Power OFF
		Blinking	Invalid Configuration
		Single Flash	Local Error
		Double Flash	Watchdog Time Out

• EtherCAT Connection LED

Name	Color	Status	Description
Link / Activity	Green	OFF	Link not Established
		ON	Link Established
		Flickering	Link Established and in Operation

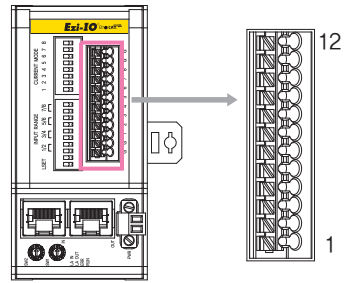
5. Power Connector (CN1)

No.	Function	I/O
1	DC24V	Input
2	GND	Input



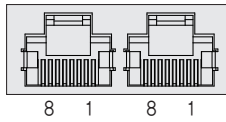
6. Input Signal Connector (CN2)

No.	Name	Function	I/O
1	G	Analog GND	Input
2	G	Analog GND	Input
3	1	Analog In 1	Input
4	2	Analog In 2	Input
5	3	Analog In 3	Input
6	4	Analog In 4	Input
7	5	Analog In 5	Input
8	6	Analog In 6	Input
9	7	Analog In 7	Input
10	8	Analog In 8	Input
11	G	Analog GND	Input
12	G	Analog GND	Input

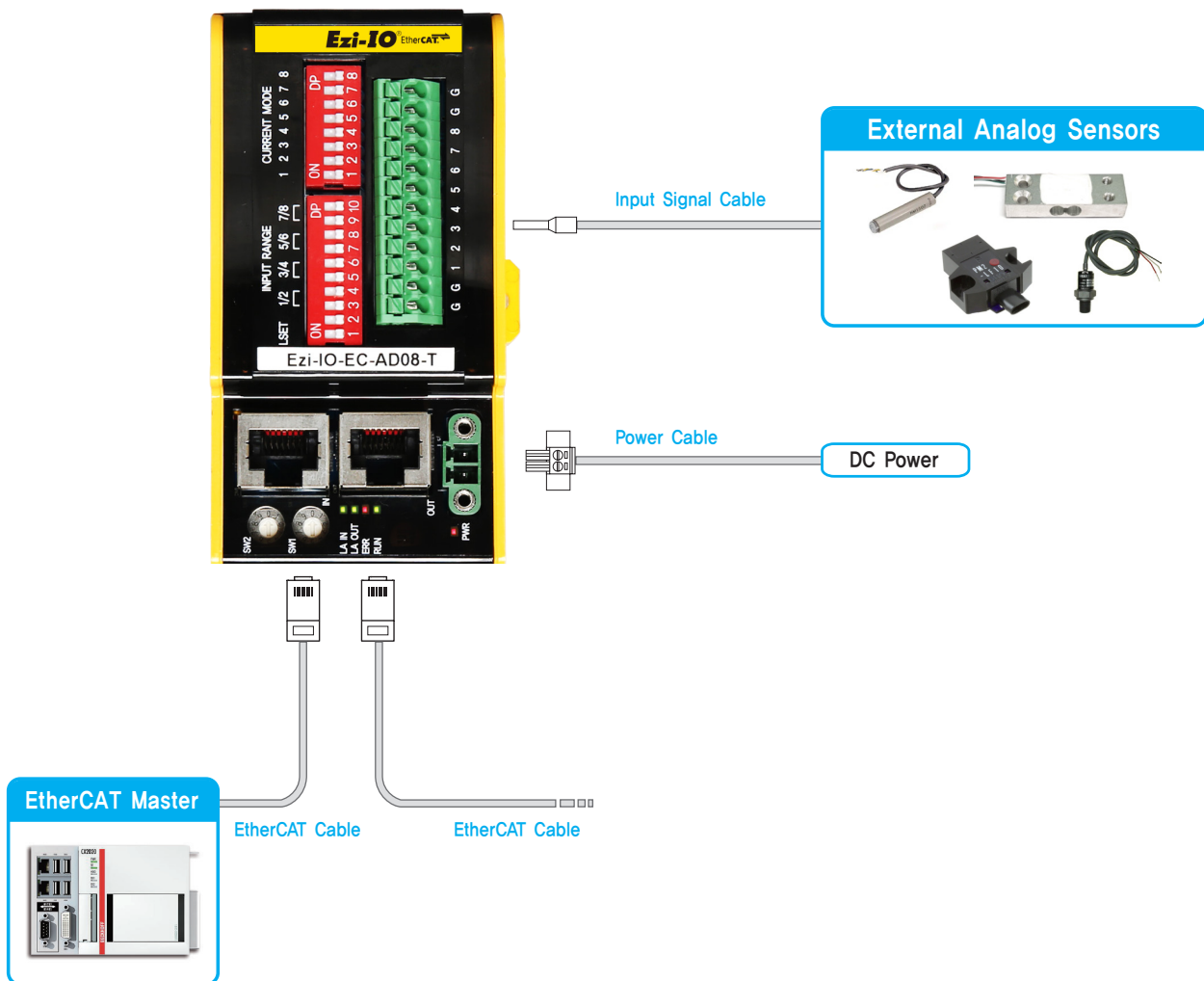


7. EtherCAT Communication Connector (CN3, CN4)

No.	Function
1	TD+
2	TD-
3	RD+
4	----
5	----
6	RD-
7	----
8	----
Connector hood	F,GND



● System Configuration [Ezi-IO-EC-AD08-T]



1. Accessories

● Connectors

Purpose	Item	Part Number	Manufacturer
Power (CN1)	Terminal Block	MC421-38102	DECA

※ The connectors above are supplied with the product. If you are using other parts, please make sure they meet the specifications.

2. Options

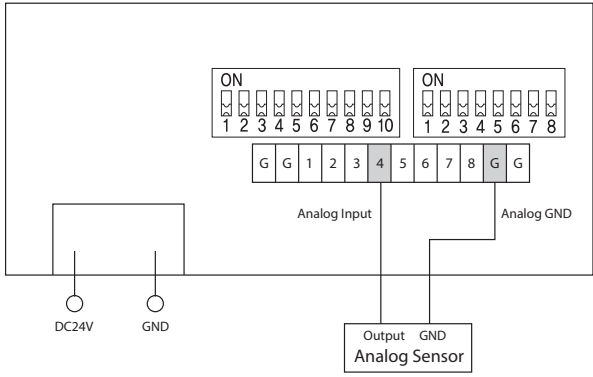
● EtherCAT Cable

Purpose	Part Number	Length [m]	Remarks
EtherCAT Connection (CN3, CN4)	CGNR-EC-001F	1	· STP(Shielded Twisted Pair) Cable · Category 5e or higher · Maximum Length: 100m · Normal Cable
	CGNR-EC-002F	2	
	CGNR-EC-003F	3	
	CGNR-EC-005F	5	

※ If you need cables with length(in units of 1m) not listed on the table or robot cables, please contact FASTECH for more information.

● External Wiring Diagram [Ezi-IO-EC-AD08-T]

1 Ezi-IO-EC-AD08-T



MEMO



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