

# ETS Hardware Reference Manual



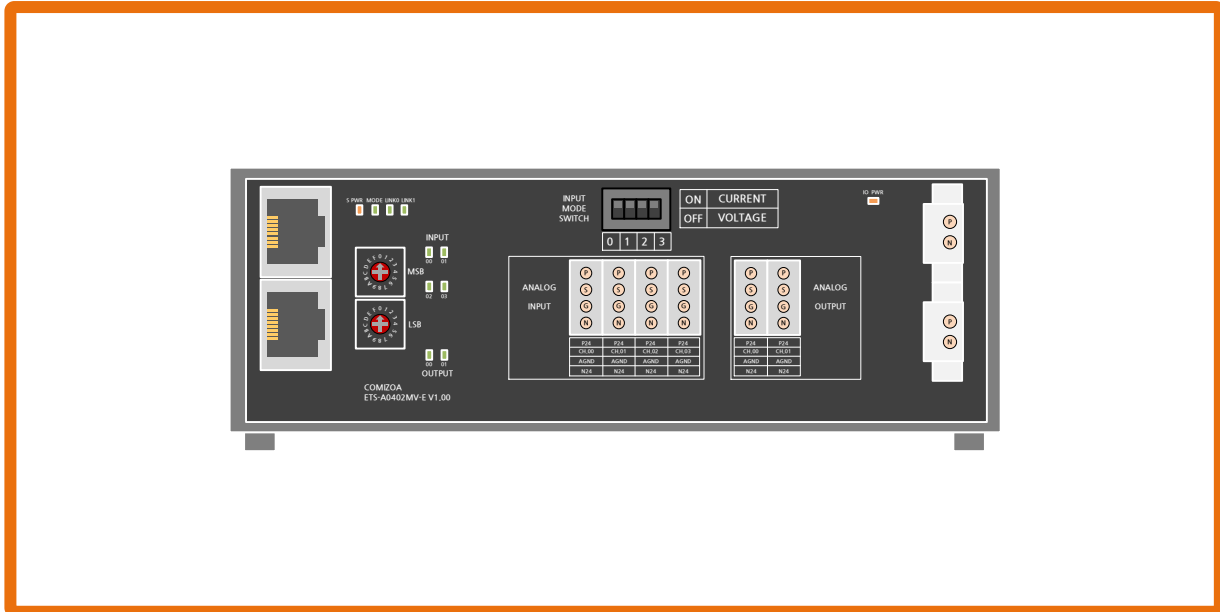
4CHANNEL ANALOG INPUT /  
2CHANNEL ANALOG VOLTAGE OUTPUT MODULE

ETS-A0402MV-E

OCT 2017  
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**개요**

**ETS - A0402MV - E ( Analog Input 4ch / Voltage Output 2ch )**

ETS-A0402MV-E는 커미조아의 EtherCAT 기반 제어기의 4채널 Analog 입력 /

2채널 Analog 전압 출력 모듈입니다.

Analog Input 0 ~ 3 채널은 최대  $-10.24V \sim +10.24V$ 의 전압 혹은  $4 \sim 20mA$ ,  $4 \sim 24mA$ ,  $0 \sim 20mA$ 의 전류를 선택적으로 입력 받을 수 있습니다.

Analog Output 0 ~ 1 채널은  $0 \sim 5V$  /  $0 \sim 10V$  /  $0 \sim 10.8V$  /  $\pm 5V$  /  $\pm 10V$  /  $\pm 10.8V$ 의 전압 출력 범위를 선택 가능합니다.

본 매뉴얼은 ETS-A0402MV-E의 하드웨어 구성과 기능에 대해 설명하는 하드웨어 매뉴얼입니다.

- EtherCAT Slave Module
- CiA Standard 401 and ETG.5001 Modular Device Profile
- Supports Terminal Device ID
- 16bit(2's Compliment) Resolution
- Analog Input 8(Voltage/Current)
- Independent System Power

**제품사양**

Contents	Details
Dimension	134 * 53 * 41 (mm)
Operating Temperature	0°C ~ 50°C
Storage Temperature	-20°C ~ 80°C
Humidity	5% ~ 90%, non-condensing
Power consumption	System Power : 62 mA @ DC 24V ± 5% Analog Power : mA @ DC 24V ± 5%

**Environmental Specification**

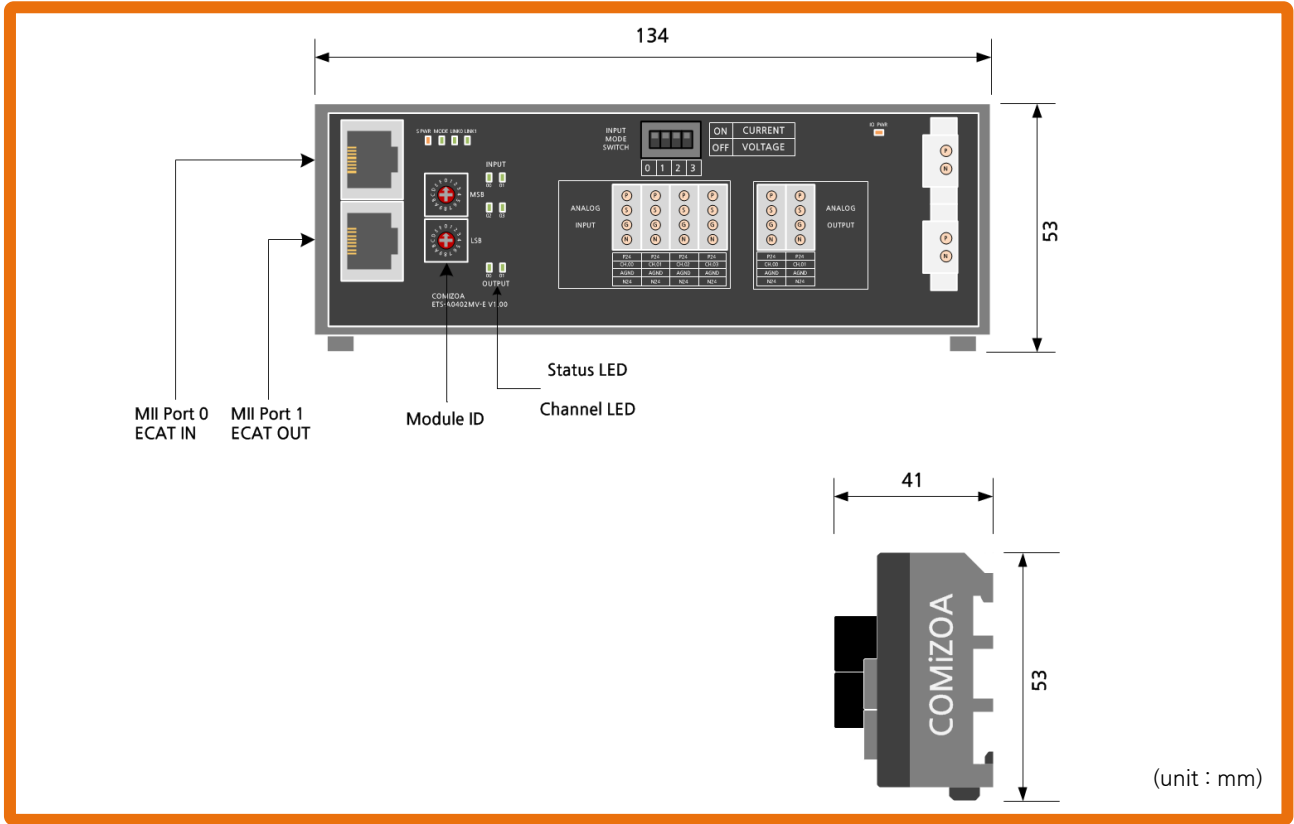
Contents	Details
Number of Inputs	4 Input
Input type	Single-ended
Isolation	I/O to Logic : Photo-coupler ( $V_{iso} = 3,000V_{rms}$ )
Resolution	16bit(2's Compliment)
Voltage Input Range	$\pm 10,24V, \pm 5,12V, \pm 2,56V, 0 \sim 10,24V, 0 \sim 5,12V$
Current Input Range	4 ~ 20mA, 0 ~ 20mA, 4 ~ 24mA
Error	Offset Error : $\pm 0,01V, 0,05mA$ Gain Error : $\pm 0,45\%$
Wiring Contact	I/O : 4-Pin E-CON / Power : USL-3FBS-2P

**Analog Input Specification**

Contents	Details
Number of Outputs	2 Output
Output type	Single-ended
Isolation	I/O to Logic : Isolator ( $V_{iso} = 2,500V_{rms}$ )
Resolution	16bit(2's Compliment)
Voltage Output Range	DC 5V, 10V, 10.8V, $\pm 5V, \pm 10V, \pm 10.8V$ Selectable
Error	Offset Error : $\pm 6 mV$ Gain Error : $\pm 0,3 \%$
Load Resistance	Min. 5K $\Omega$
Conversion Time	Min. 200us / All Channels
Wiring Contact	I/O : 4-Pin E-CON / Power : USL-3FBS-2P

**Analog Output Specification**

제품사양

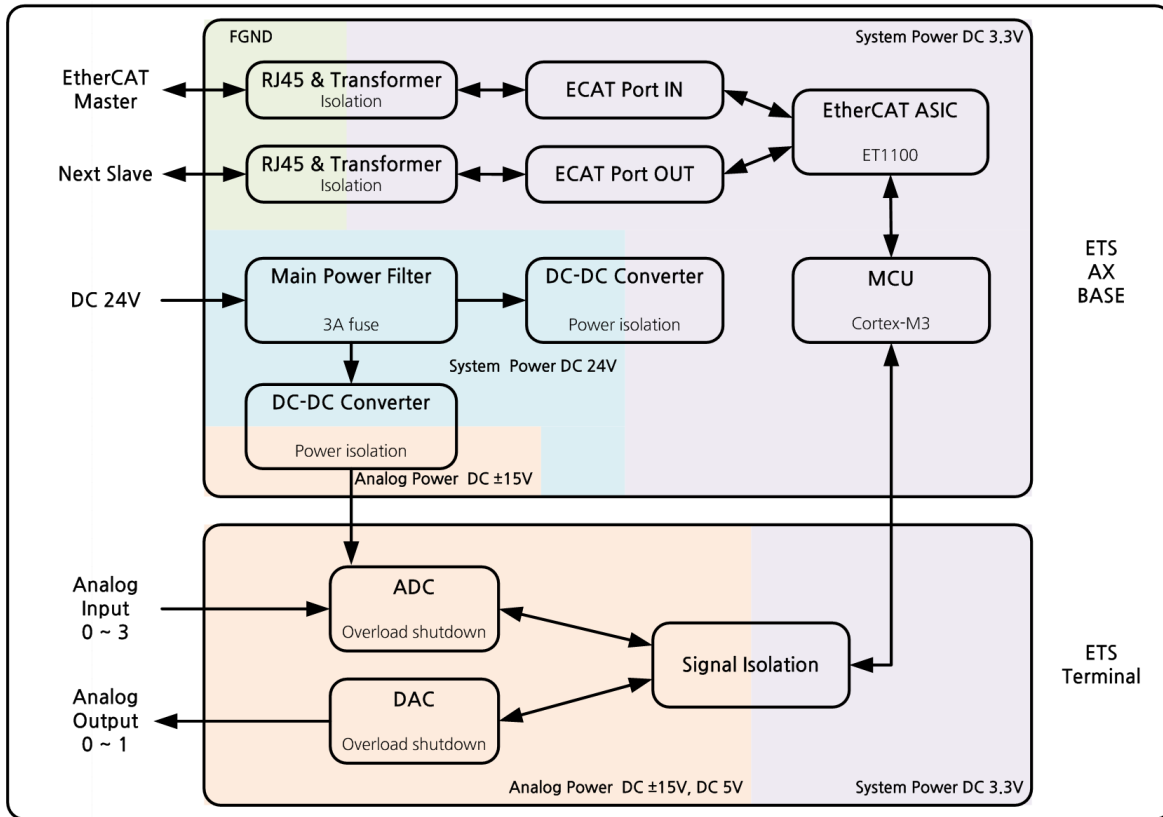


Dimension

Device ID Setting

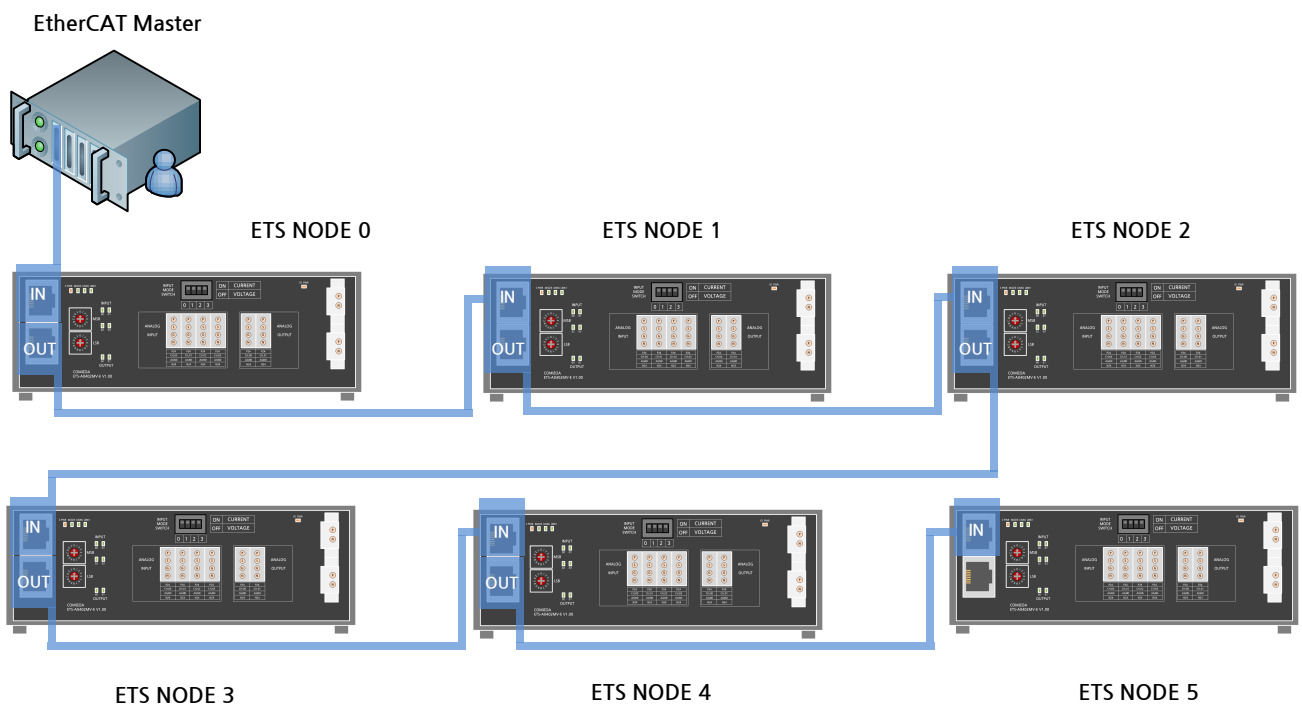
	NODE ID setting	$I.P = MSB * 16 + LSB$
	NODE ID range	1 ~ 256

Block diagram



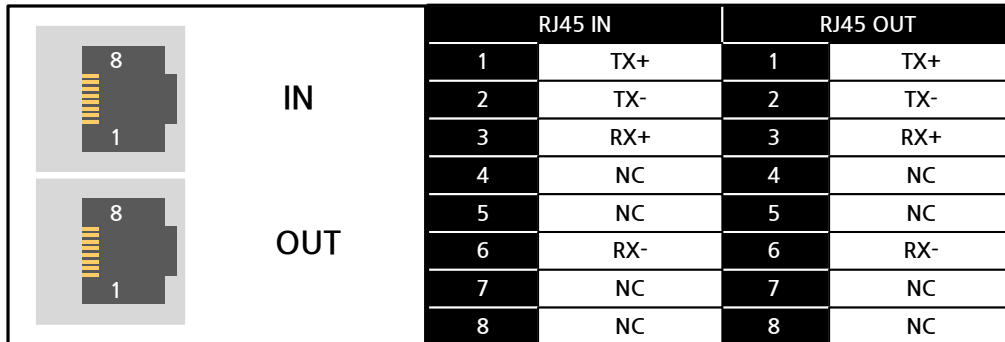
ETS-A0402MV-E Block diagram

Interface Connect



Connector

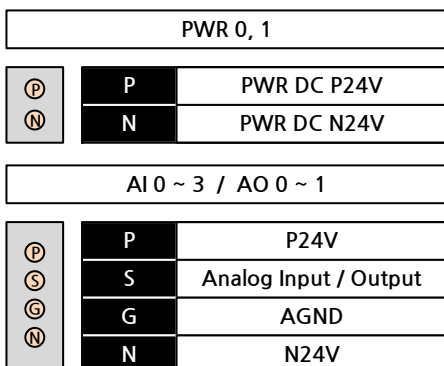
■ RJ45 Connector



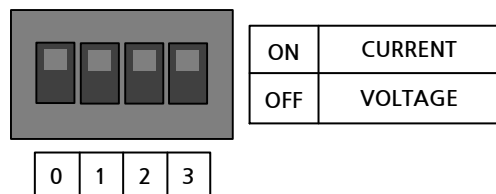
■ Contact Number



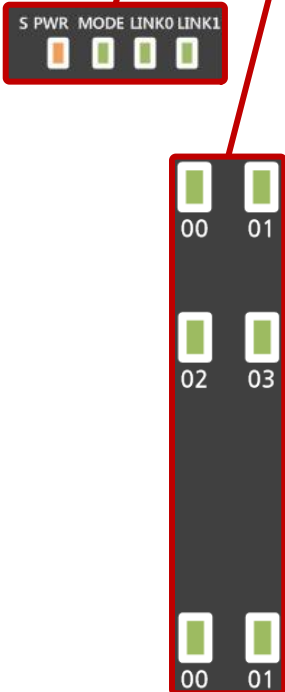
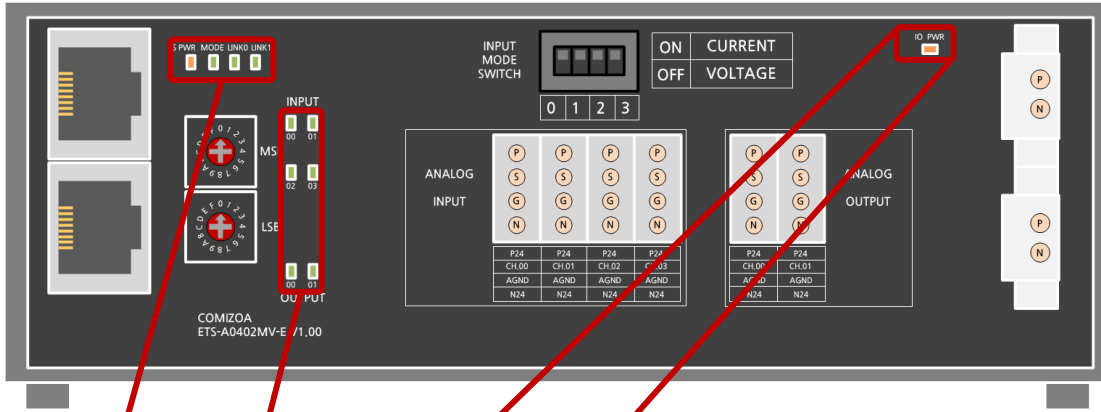
■ PIN MAP



■ SWITCH ( Analog Input Only )



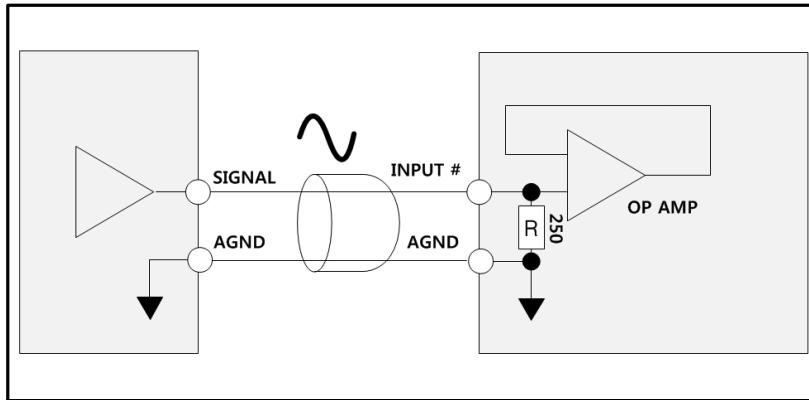
Status LED



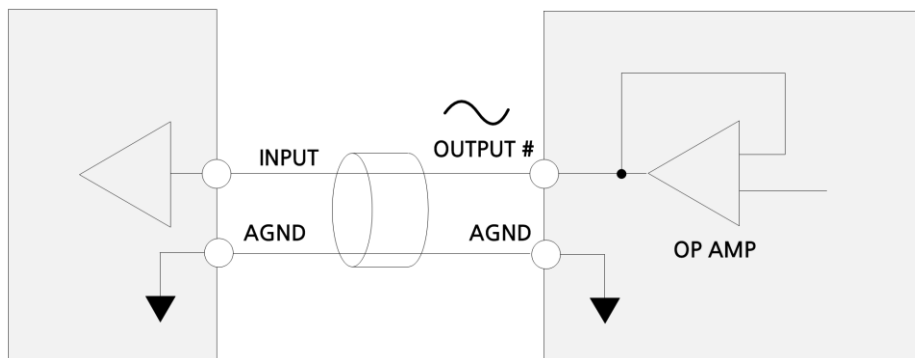
IO PWR	DC 24V POWER LED	ON	DC 24V POWER(P24) ON
		OFF	DC 24V POWER(P24) OFF
S PWR	SYSTEM POWER LED	ON	SYSTEM POWER(3.3V DC) ON
		OFF	SYSTEM POWER(3.3V DC) OFF
MODE	EtherCAT AL STATE LED	OFF	INIT
		Blinking(slow)	PRE-OP
		Single Flash	SAFE-OP
		ON	OP
		Flickering(fast)	BOOTSTRAP
LINK 0(1)	LINK 0(1) STATE LED	Blinking(slow)	MII Port 0(1) OPEN
		OFF	MII Port 0(1) Closed
AI 0 - 3	INPUT STATE LED	ON	Activated
		OFF	Inactivated
AO 0 - 1	OUTPUT STATE LED	ON	Activated
		OFF	Inactivated



Circuit Diagram (Analog Input)



Circuit Diagram (Analog Output)



## Hardware Reference Manual Update List

No.	Version	Date	Changes in
1	1.00	2016.10.25	First Edition
2	1.01	2017.10.24	RJ-45 Connector Update

# ETS Reference Manual

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