

EPS Hardware Reference Manual



4CHANNEL Resistance temperature detector & Thermocouple MODULE

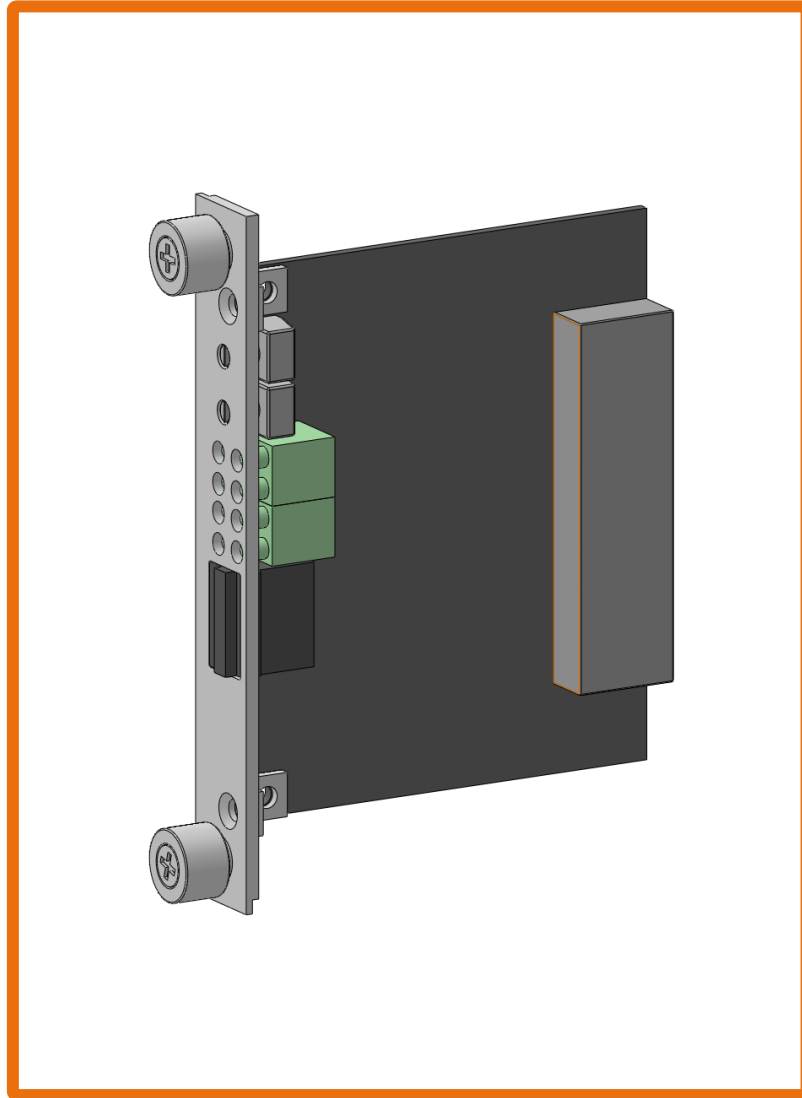
EPS-AI04RnT

FEB 2016
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개요

EPS - AI04RnT (Analog Input 4ch RTD & TC)

EPS-AI04RnT는 커미조아의 EtherCAT 기반 제어기의 4채널 Analog 입력 모듈입니다.

1, 2 채널은 PT100과 PT1000 모두를 지원하며, 2선식과 3선식 입력을 받을 수 있습니다.

3, 4 채널은 B-, J-, E-, K-, N-, R-, S- 그리고 T-Type Thermocouple 센서 입력을 받을 수 있습니다.

본 매뉴얼은 EPS-AI04RnT의 하드웨어 구성과 기능에 대해 설명하는 하드웨어 매뉴얼입니다.

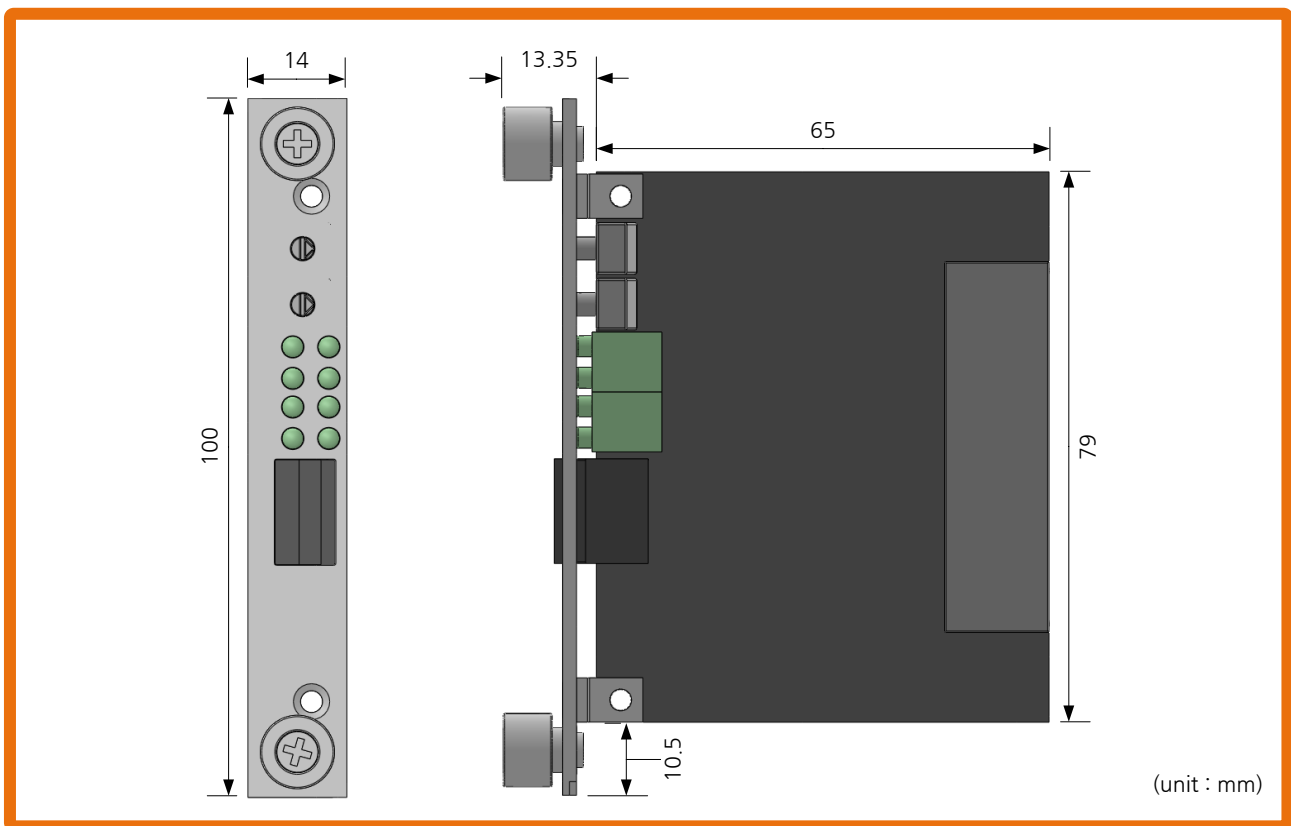
- EtherCAT Slave Module
- CiA Standard 401 and ETG.5001 Modular Device Profile
- Supports Terminal Device ID
- 24bit Resolution
- Analog Input 4 (RTD & TC)
- Independent System Power

제품사양

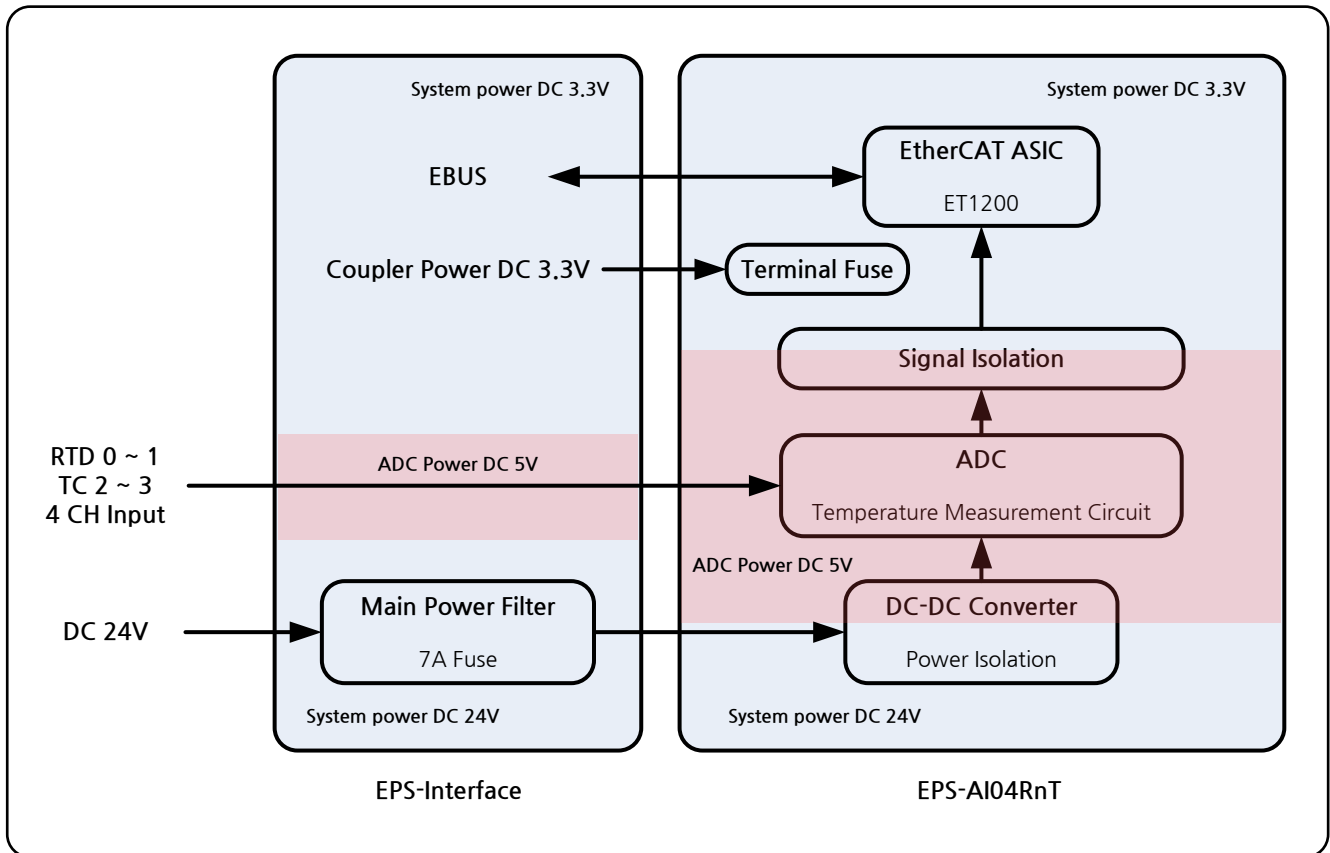
Contents	Details
Dimension	78.35 * 100 * 14 (mm)
Operating Temperature	0°C ~ 50°C
Storage Temperature	-20°C ~ 80°C
Humidity	5% ~ 90%, non-condensing
Power consumption	Power supply input +3.3V DC ± 5%, 135mA max

Environmental Specification

Contents	Details
Number of Inputs	4 inputs (RTD 2ch, TC 2ch)
Input type	2- and 3-wire RTD sensor input
	Thermocouple sensor input
Isolation	I/O to Logic : Photo-coupler ($V_{iso} = 3,000V_{rms}$)
AD resolution	24bit
RTD Sensor type	PT1000 and PT100
TC Sensor type	B-, J-, E-, K-, N-, R-, S- and T-Type
Wiring contact (TE Connectivity)	INTERFACE : 1-1827875-5 CABLE : 1-1827864-5

Analog Input Specification

Dimension

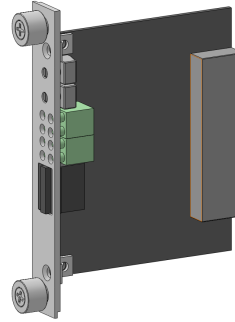
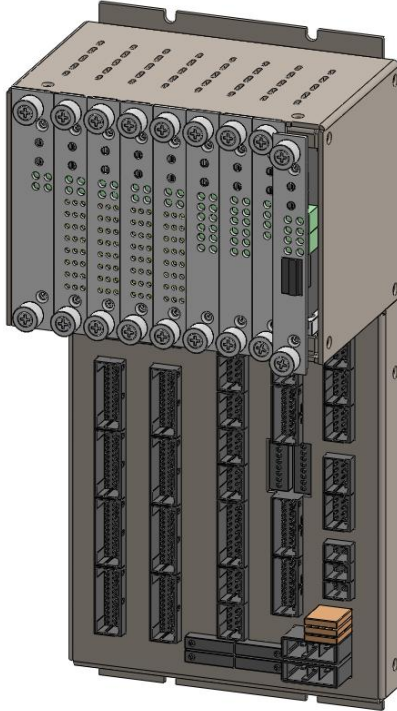
Block diagram



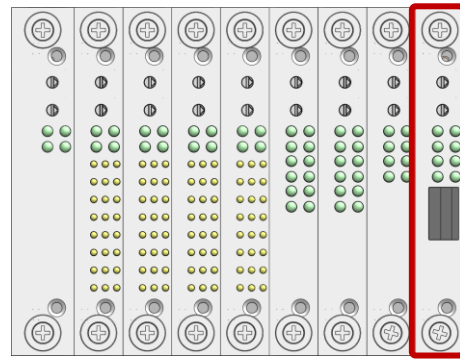
EPS-AI04RnT Block diagram

Interface

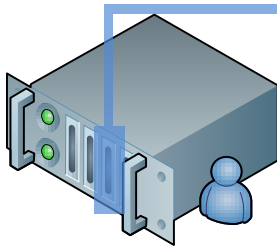
■ EPS-CHAMBER Connect



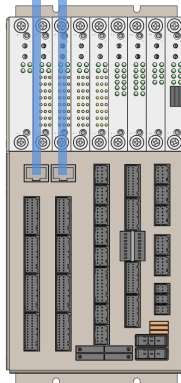
EPS-AI04RnT



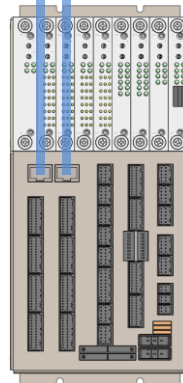
■ Slave Connect



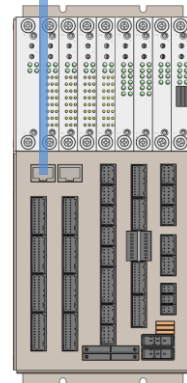
EtherCAT Master



EPS-CHAMBER (1)

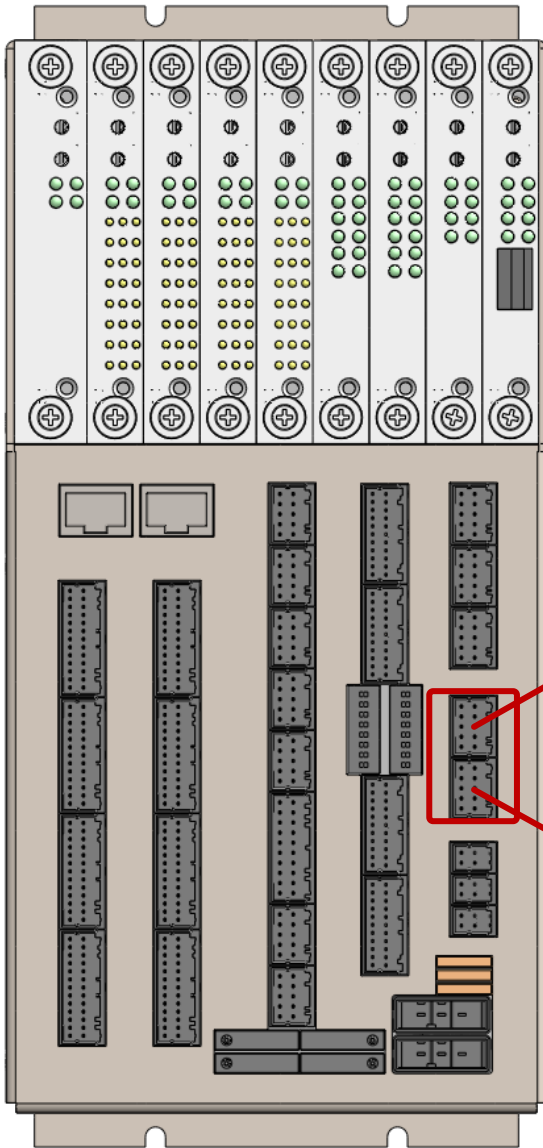


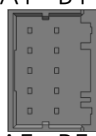
EPS-CHAMBER (2)

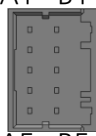


EPS-CHAMBER (n)

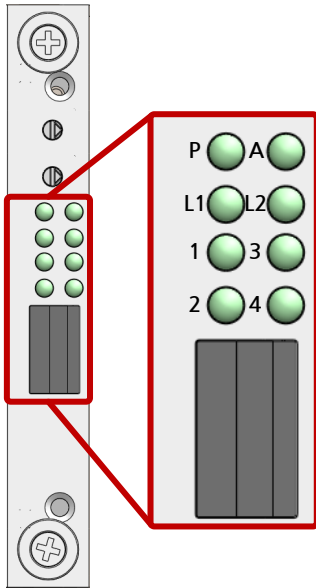
Connector



A1 B1	Pin #	A	B
 A5 B5 1-1827875-5(TC)	1	AGND	-
	2	TC 0-	TC 0+
	3	AGND	-
	4	TC 1-	TC 1+
	5	-	-

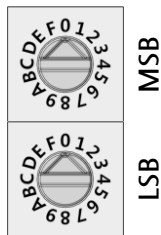
A1 B1	Pin #	A	B
 A5 B5 1-1827875-5(RTD)	1	AGND	EX 0(B-)
	2	RTD 0-(A)	RTD 0+(B)
	3	AGND	EX 1(B-)
	4	RTD 0-(A)	RTD 1+(B)
	5	-	-

Status LED



P	BOX POWER LED	ON	BOX POWER(3.3V DC) ON
		OFF	BOX POWER(3.3V DC) OFF
A	EtherCAT AL STATE LED	OFF	INIT
		Blinking(slow)	PRE-OP
		Single Flash	SAFE-OP
		ON	OP
		Flickering(fast)	BOOTSTRAP
L1	E-BUS 0 STATE LED	Blinking(slow)	E-BUS Port 0 OPEN
		OFF	E-BUS Port 0 Closed
L2	E-BUS 1 STATE LED	Blinking(slow)	E-BUS Port 1 OPEN
		OFF	E-BUS Port 1 Closed
Analog Input	INPUT STATE LED 1~4ch	ON	INPUT READY
		OFF	INPUT UNREADY

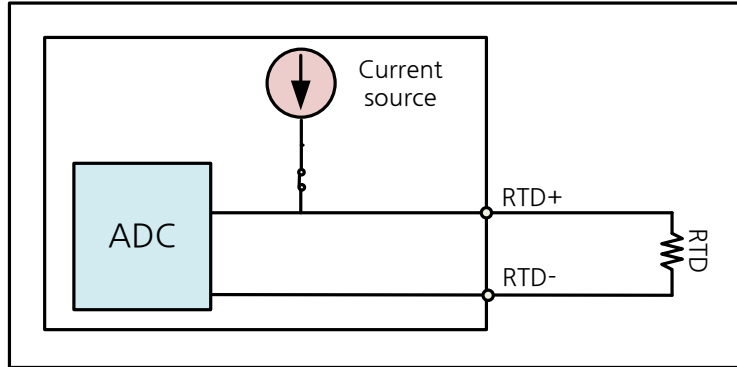
Device ID Setting



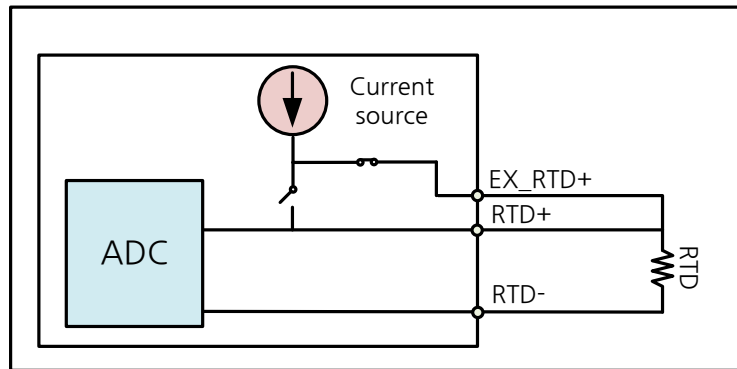
ID. Setting	$ID = MSB * 16 + LSB$
ID. Range	1 ~ 254

* 각 Terminal의 ID는 Digital Input PDO로 입력됨.

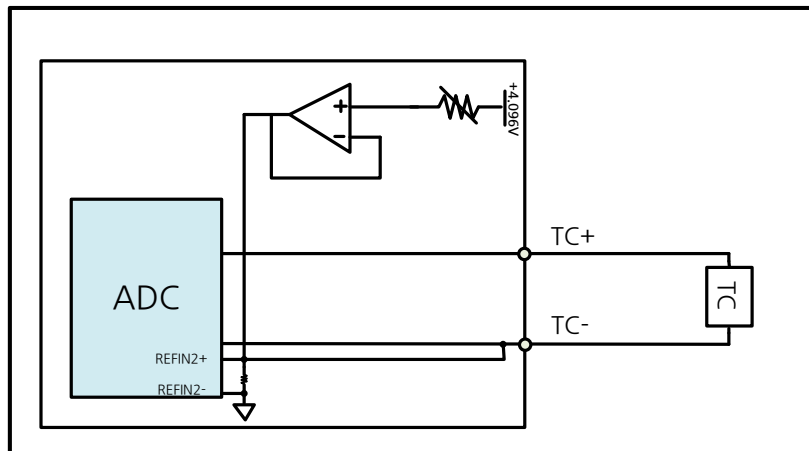
Circuit Diagram (Analog Input)



RTD 2-Wire



RTD 3-Wire



TC

Hardware Reference Manual Update List

No.	Version	Date	Changes in
1	1.00	2015.05.29	First Edition
2	1.01	2016.02.26	글꼴변경 (나눔고딕, 굴림)

EPS Reference Manual

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