

## • Specification



### I/O (AD/DA module)

Item	CM3-SP04EAA	
Number of Analog Input	Input : 2 Channels, Output: 2 Channels	
Analog Input	Voltage	0 ~ 5 V / 1 ~ 5 V / 0 ~ 10 V   -10 ~ 10 V
	Current	0 ~ 20 mA / 4 ~ 20 mA
Digital Output	Selection between 14 bit (0 ~ 16000) / 16 bit (0 ~ 64000)	
Rated Voltage / Current	0V ~ 5 V	78.1 μV
	1V ~ 5 V	62.5 μV
	0V ~ 10 V	156.3 μV
	-10V ~ 10 V	312.5 μV
	0mA ~ 20 mA	312.5 nA
	4mA ~ 20 mA	250 nA
Accuracy	±0.05 % (full scale)	
Conversion Speed	2.1 ms / 4 channels	
Absolute Max. Input	Voltage : ±15V, Current: ±30mA	
Insulation Method	Photocoupler between input terminal and PLC (No insulation between channels)	
Power Supply	24VDC	

- Provides various input types and range.
- High resolution of 16 bit digital conversion is available.
- High reliability demonstrated by ±0.05% error.
- Photocoupler insulation protects operation from interference.

## • Features

- CM3-SP04EAO is the AD module used to input 4 channels of voltage and current.
- CM3-SP04EOAV is the DA module used to output 4 channels of voltage (-10 ~ 10V, 0~10V).
- CM3-SP04EOAI is the DA module used to output 4 channels of current (4 ~ 20mA).
- CM3-SP04EAA is the AD / DA module used to input 2 channels of voltage and current, and output 2 channels of voltage and current.
- The DA module is used to convert digital values into analog signals (voltage or current output). It converts a digital value of 0~16000(-8000~8000) / 0~64000(-32000~32000) into an analog value of 0~20mA, 4~20mA, -10~10V, 0~5V, 0~10V, or 1~5V.
- There are two AD conversion methods that the user can choose: average processing or digital filtering.
- With the Hold/Clear setting the user can select what should happen when the operation mode changes from RUN to STOP mode. The Clear selection will change the output signal of the 4mA or 10V signal to its offset value. The Hold selection will maintain the 4mA or 10V signal at the last known value.
- Channels on which conversion is prohibited output the minimum value in each output mode (0mA, 4mA, -10V, 0V, 1V).
- The LED on during normal condition and blinks at 0.5 second intervals during error condition.

# TEMPERATURE

## • Specification



### RTD Module

Item	CM3-SP04ERO	
Available RTD	PT100, JPT100, PT1000, NI1000 (DIN 43760), NI1000 (TCR 5000)	
Range of Temperature Input	PT100: -200.0°C to 600°C (18.48 to 313.59 Ω) JPT100: -200.0°C to 600°C (17.14 to 317.28 Ω) PT1000: -200.0°C to 600°C (184.8 to 3135.9 Ω) NI1000 (DIN 43760): -50.0°C to 160°C (742.6 to 1986.3 Ω) NI1000 (TCR 5000): -50.0°C to 160°C (790.9 to 1799.3 Ω)	
Digital Output	Digital Value: 0 ~ 16,000 (-8000 ~ 8000) Temp: -200.0°C ~ 600.0°C (floating point x 10)	
Detecting Broken Wires	3 wires for each channel	
Accuracy	± 0.1 % (full scale)	
Max. Conversion Speed	50 ms / 4 Channels	
Number of Temperature Inputs	4 channels	
Insulation Method	Photocoupler between input terminal and PLC (No insulation between channels)	
Power Supply	24VDC	
Internal Current Consumption (mA)	+24V	60
External Current Consumption (mA)	+5V	30

- The module can detect a broken wire or out of range measurement.
- The module supports most resistance temperature detectors.
- The module provides full scale accuracy.
- Digital temperature measurement in 0.1°C increments is possible.
- The temperature value can be converted into a 14-bit digital value.

## • Features

- By using the platinum resistance temperature sensor, Pt100, JPt100 or Pt1000, Ni1000, the temperature value (°C or °F) can be processed as digital values (0~16000) within about one decimal point of accuracy.
- RTD module converts temperature from -200°C to 600°C (PT100/1000/JPT100) or from -50°C to 160°C (Ni1000) into a digital value of 0~16000 (-8000~8000).
- It can show temperature -250°C~650°C(PT100/PT1000/JPT100) or -60°C~170°C(Ni1000). These values are converted into digital values -192~16191(-8192~8191).
- If the operator sets the minimum and the maximum temperature values, it converts the minimum temperature value to 0 (-8000) and the maximum temperature value to 16000 (8000).
- Wire disconnection and exceeding measurement range can be detected by each channel.
- A single module has 4 channels for thermocouples.
- The LED stays on during normal condition and blinks at 0.2 second intervals during error condition.
- Temperature-sensing resistance is a type of sensor that measures temperature in the form of resistance.
- The platinum temperature-sensing resistance PT100 and JPT100 output 100.0Ω for 0°C. PT1000 outputs 1000.00Ω for 0°C. The nickel temperature-sensing resistance Ni1000 outputs 1000.00Ω for 0°C.