

FP7 series Temperature input units released High-speed, high-accuracy and multi-channel input

Temperature input units **NEW**



Thermocouple multiple analog input unit
AFP7TC8

Resistance temperature detector input unit
AFP7RTD8

Easy to perform high-accuracy measurement

Equipped with a variety of functions required for temperature measurement
Easy to obtain measurement results

Averaging processing	Cycle, time, moving
Insulation	Channels are insulated from one another and from the internal circuit.
Simple setting	Initial settings can be completed on the configuration screen.

Capable of high-speed and high-accuracy temperature input

	High-speed conversion	High-accuracy
Thermocouple multiple analog input unit	5 ms/channel (high-speed mode) 25 ms/channel (normal mode)	±0.1 % F.S. (at 25 °C 77 °F) ±0.3 % F.S. (at 0 to 55 °C 32 to 131 °F)
Resistance temperature detector input unit	25 ms/channel (normal mode)	

Multi-channel input

One unit can control the input of up to 8 channels.
With so many channels, the unit eliminates the need to purchase additional units, reducing required space and costs.
The thermocouple multiple analog input unit can also control voltage and current inputs.



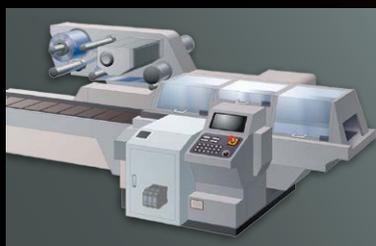
Thermocouple multiple analog input unit

Resistance temperature detector input unit

Applications



◎ Resin molding machine



◎ Packaging machine

Food industry

- ◎ Refrigerating machine
- ◎ Food tank
- ◎ Oven for professional use
- ◎ Packaging machine / Sealing machine

Electricity / Electronic industry

- ◎ Wire bonder
- ◎ Environmental testing equipment
- ◎ Chilling device
- ◎ Semiconductor / Washing tank / Diffusion furnace

Plant

- ◎ Boiler
- ◎ Incinerator
- ◎ Piping

SPECIFICATIONS

Specifications for the thermocouple multiple analog input unit

Part No.		AFP7TC8
Number of channels		8 channels
Input range (resolution)	Thermocouple (resolution: 0.1 °C 32.18 °F)	K1: -100.0 to 600.0 °C -148.0 to 1112.0 °F / K2: -200.0 to 1000.0 °C -328.0 to 1832.0 °F J1: -100.0 to 400.0 °C -148.0 to 752.0 °F / J2: -200.0 to 750.0 °C -328.0 to 1382.0 °F T: -270.0 to 400.0 °C -270.0 to 752.0 °F / N: -270.0 to 1300.0 °C -270.0 to 2372.0 °F R: 0.0 to 1760.0 °C 32.0 to 3200.0 °F / S: 0.0 to 1760.0 °C 32.0 to 3200.0 °F B: 0.0 to 1820.0 °C 32.0 to 3308.0 °F / E: -270.0 to 1000.0 °C -270.0 to 1832.0 °F PL1: 0.0 to 1390.0 °C 32.0 to 2534.0 °F / WRe5-26: 0.0 to 2315.0 °C 32.0 to 4199.0 °F
	Voltage	-10 to 10 V DC (resolution: 1/62,500) 0 to 5 V DC (resolution: 1/31,250) 1 to 5 V DC (resolution: 1/25,000) (Note 1) -100 to 100 mV DC (resolution: 1/62,500) Resolution: max. 16 bits
	Current	0 to 20 mA (resolution: 1/31,250) 4 to 20 mA (resolution: 1/25,000) (Note 1) Resolution: max. 16 bits
Conversion speed		5 ms/channel + 5 ms (Note 2) 25 ms/channel + 25 ms Add the drift compensation measuring time to the number of measuring channels.
Overall accuracy		±0.1 % F.S. or less (at 25 °C 77 °F) ±0.3 % F.S. or less (at 0 to +55 °C +32 to +131 °F)
Reference contact compensation accuracy		±1.0 °C 33.8 °F (with thermocouple input)
Input impedance		Voltage / current 1 MΩ / 250 Ω
Insulation method	Between input terminals and internal circuit	Photocoupler and isolated DC/DC converter
	Between channels	PhotoMOS relay
Conversion execution / non-execution channel setting		Selectable per channel unit
Input range change method		Selectable per channel
Digital processing	Averaging	Cycle, time, moving
	Scale conversion setting	Any value within ±30,000 (Voltage and current range only)
	Offset setting	Any value within ±3,000
	Gain setting	±10 %
Comparison of upper and lower limit values		Selectable for one channel
Max. and min. value holding		Selectable for one channel
Broken wire detection		Available
Connection method		Connector type terminal block
Current consumption		80 mA or less
Net weight		145 g approx.

Notes: 1) The full scale (F.S.) ranges of accuracy are 1 to 5 V DC for voltage and 0 to 20 mA for current input, respectively.
2) The AC noise removal is disabled.

Specifications for the resistance temperature detector input unit

Part No.		AFP7RTD8
Number of channels		8 channels
Input range (resolution)	Resistance temperature detector (resolution: 0.1 °C 32.18 °F)	Pt100 (1): -100.0 to 200.0 °C -148.0 to 392.0 °F Pt100 (2): -200.0 to 650.0 °C -328.0 to 1202.0 °F JPt100(1): -100.0 to 200.0 °C -148.0 to 392.0 °F JPt100(2): -200.0 to 650.0 °C -328.0 to 1202.0 °F Pt1000: -100.0 to 100.0 °C -148.0 to 212.0 °F
	Conversion speed	25 ms/channel + 25 ms Add the drift compensation measuring time to the number of measuring channels.
Overall accuracy		±0.1 % F.S. or less (at 25 °C 77 °F) ±0.3 % F.S. or less (at 0 to +55 °C +32 to +131 °F)
Allowable signal source resistance		R.T.D. input: 30 Ω (three wires balanced)
Insulation method	Between input terminals and internal circuit	Photocoupler and isolated DC/DC converter
	Between channels	PhotoMOS relay
Conversion execution / non-execution channel setting		Selectable per channel unit
Input range change method		Selectable per channel
Digital processing	Averaging	Cycle, time, moving
	Offset setting	Any value within ±3,000
	Gain setting	±10 %
Comparison of upper and lower limit values		Selectable for one channel
Max. and min. value holding		Selectable for one channel
Broken wire detection		Available
Connection method		Connector type terminal block
Current consumption		65 mA or less
Net weight		145 g approx.

The temperature input units are compatible with the FP7 CPU units listed below with firmware of Ver. 2.0 or later.
The compatible version of **Control FWIN GR7** is 2.2 or later.

Introduction of other analog units and add-on cassettes

Analog input and output units

Product name	Specifications	Number of channels	Part No.
FP7 analog input unit (High-speed and high-accuracy type)	Voltage / current, conversion rate: 25 μs/channel, resolution: max. 16 bits, accuracy: ±0.05 % F.S. or less (at 25 °C 77 °F) / ±0.1 % F.S. or less (0 to 55 °C 32 to 131 °F), between channels insulation	4 channels	AFP7AD4H
FP7 analog output unit (High-speed and high-accuracy type)	Voltage / current, conversion rate: 25 μs/channel, resolution: max. 16 bits, accuracy: ±0.1 % F.S. or less (at 25 °C 77 °F) / ±0.3 % F.S. or less (0 to 55 °C 32 to 131 °F), between channels insulation	4 channels	AFP7DA4H

Add-on cassettes

Product name	Specifications	Part No.
FP7 function cassettes	Analog input, 2 channels, voltage / current	AFP7FCAD2
	Analog input and output, input: 2 channels, output: 1 channel	AFP7FCA21
	Thermocouple input, 2 channels K / J	AFP7FCTC2

Introduction of CPU Units

CPU units

Product name		Standard program capacity	Max. program capacity	Operation speed	Ethernet function	Encryption function	Part No.
FP7 CPU units	Standard model	196 k steps	234 k steps	From 11 ns	Built-in	–	AFP7CPS41E
		120 k steps	120 k steps	From 11 ns	Built-in	–	AFP7CPS31E
		120 k steps	120 k steps	From 11 ns	–	–	AFP7CPS31
	Security enhanced type	196 k steps	234 k steps	From 11 ns	Built-in	Built-in	AFP7CPS41ES
		120 k steps	120 k steps	From 11 ns	Built-in	Built-in	AFP7CPS31ES
		120 k steps	120 k steps	From 11 ns	–	Built-in	AFP7CPS31S

Notes: 1) One end unit is attached to the CPU unit. 2) When exporting to China, please use a CPU that does not have an encryption function.