



MicroSmart Pentra PID Module

Features

- Precise, stable and accurate PID control with less than a 0.2% error
- Available in two models:
 - Built-in 2 analog inputs, 2 x 4-20mA/0-10VDC outputs
 - Built-in 2 analog inputs, 2 x relay outputs
- Each input individually configured to accept different signal types
- Up to seven modules can be mounted on the MicroSmart Pentra
- Maximum 14 PID loops with auto-tuning
- 14-bit resolution
- ARW (anti-reset windup)
- Accepts many different input types including:
 - Type K, J, R, S, B, E, T, C, PL-II and N thermocouples
 - RTD
 - 0-20 mA and 4-20 mA
 - 0-1V, 0-5V, 1-5V, and 0-10V DC
- Numerous control methods including:
 - Cascade
 - External set point
 - Heating and cooling control action
 - Difference input control

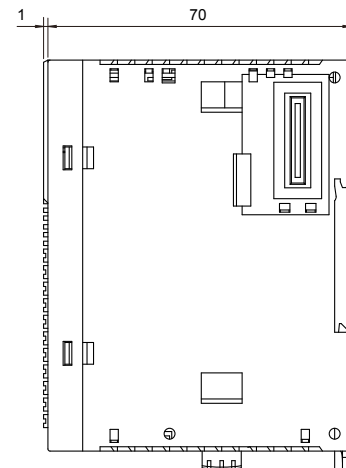
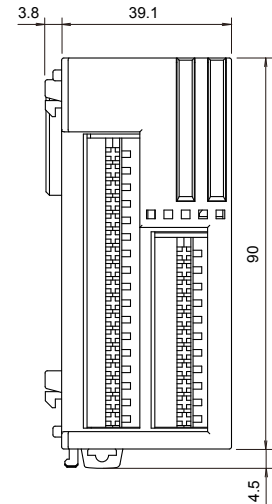


Specifications

		FC5A-F2MR2 / FC5A-F2M2			
		Type	Measurement Range	Input Value of LSB	
Rated Scale	Thermocouple	K	-200 to 1370°C	-328 to 2498°F	1°C (°F)
		K (with decimal point)	-200.0 to 400.0°C	-328.0 to 752.0°F	0.1°C (°F)
		J	-200 to 1000°C	-328 to 1832°F	1°C (°F)
		R	0 to 1760°C	32 to 3200°F	1°C (°F)
		S	0 to 1760°C	32 to 3200°F	1°C (°F)
		B	0 to 1820°C	32 to 3308°F	1°C (°F)
		E	-200 to 800°C	-328 to 1472°F	1°C (°F)
		T	-200.0 to 400.0°C	-328.0 to 752.0°F	0.1°C (°F)
		N	-200 to 1300°C	-328 to 2372°F	1°C (°F)
		PL-II	0 to 1390°C	32 to 2534°F	1°C (°F)
	C(W/Re5-26)	0 to 2315°C	32 to 4199°F	1°C (°F)	
	Resistance Thermometer	Pt100	-200 to 850°C	-328 to 1562°F	1°C (°F)
		Pt100 (with decimal point)	-200.0 to 850.0°C	-328.0 to 1562.0°F	0.1°C (°F)
		JPt100	-200 to 500°C	-328 to 932°F	1°C (°F)
JPt100(with decimal point)		-200.0 to 500.0°C	-328.0 to 932.0°F	0.1°C (°F)	
Current/Voltage	4 to 20mA DC	-2000 to 10000 (12000 increments) *1	1.333μ		
	0 to 20mA C	-2000 to 10000 (12000 increments) *1	1.666μA		
	0 to 1V DC	-2000 to 10000 (12000 increments) *1	0.083mA		
	0 to 5V DC	-2000 to 10000 (12000 increments) *1	0.416mA		
	1 to 5V DC	-2000 to 100 0 (12000 increments) *1	0.333mA		
	0 to 10V DC	-2000 to 10000 (12000 increments) *1	0.833mA		
Input	Thermocouple	K, J, R, S, B, E, T, N, PL-II, C (W/Re5-26) External resistance: 100Ω maximum However, B input, External resistance: 40Ω maximum			
		Pt100, JPt100, 3-wire type Allowable conductor resistance (per wire): 10Ω maximum Sensor (detection) current: 0.2A			
	Current	0 to 20mA DC, 4 to 20mA DC Input impedance: 50Ω Maximum permanent allowed overload (No damage): 50mA maximum			
		0 to 1V DC, Input impedance: 1MΩ minimum Maximum permanent allowed overload (No damage): 5V DC maximum Allowable output impedance: 2kΩ maximum			
Voltage	0 to 5V DC, 1 to 5V DC, 0 to 10V DC, Input impedance: 100kΩ minimum Maximum permanent allowed overload (No damage): 15V DC maximum Allowable output impedance: 100Ω maximum				
	24V DC (External power), 5V DC (Internal power)				
Power Supply Voltage		24V DC (External power), 5V DC (Internal power)			
Allowable Voltage Range		20.4 to 28.8V DC			

*1: Linear conversion possible

Dimensions (mm)

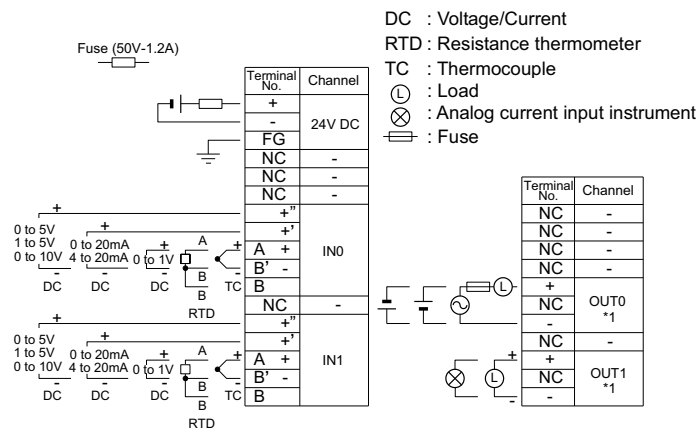
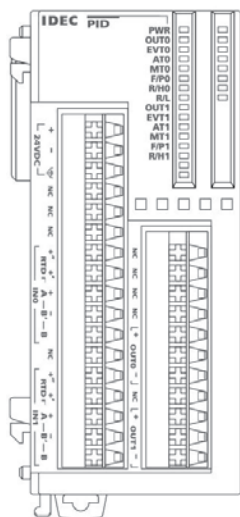


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			FC5A-F2MR2	FC5A-F2M2
General	Connector	Connector on Mother Board	Input: F6018-17P (Fujicon) Output: F6018-11P (Fujicon)	
Input	Maximum Error at 25°C	Thermocouple	±0.2% of full scale or ±2°C (4°F), whichever is greater However, R, S inputs, 0 to 200°C (0 to 400°F): ±6°C (12°F) B input, 0 to 300°C (0 to 600°F): Accuracy is not guaranteed. K, J, E, T, N inputs, Less than 0°C (32°F): ±0.4% of full scale	
		Resistance Thermometer	±0.1% of full scale or ±1°C (2°F), whichever is greater	
		Voltage, Current	±0.2% of full scale	
	Input Accuracy (at 0 to 55°C)	Thermocouple	±0.7% of full scale However, R, S input, 0 to 200°C (0 to 400°F): ±6°C (12°F) B input, 0 to 300°C (0 to 600°F): Accuracy is not guaranteed. K, J, E, T, N inputs, Less than 0°C (32°F): ±0.9% of full scale	
		Resistance Thermometer	±0.6% of full scale	
		Voltage, Current	±0.7% of full scale	
	Data Accuracy	Maximum error at 25°C±Minimum digital resolution of each input range		
Cold Junction Temperature Compensation Accuracy	±1°C at 0 to 55°C			
Sampling Period	125 ms			
Output	Control Output	Relay output: 1a Rated load: 5A 250V AC (resistive load) 5A 30V DC (resistive load) 3A 250V AC (inductive load cosφ=0.4)		Non-contact voltage (for SSR drive) 12V DC±15% Current: 4 to 20mA DC
		Time Setting Accuracy	±0.5% of setting time	
Program Control	Progressing Time Error	Maximum 6 minutes (after power is restored)		
	Non-volatile Memory Write Limit	1,000,000 times		
Isolation	Photocoupler-isolated between input and internal circuit Photocoupler-isolated between input and power circuit Photocoupler-isolated between input and internal circuit Photocoupler-isolated between output and internal circuit			
Dielectric Strength	Output terminal - External power: 1500kV AC 5mA for 1 minute Output terminal - Internal power:1500kV AC 5mA for 1 minute Input power - Output power: 1500kV AC 5mA for 1 minute FG - External power: 548V AC 5mA for 1 minute Input terminal - External power: 548V AC 5mA for 1 minute Input terminal - Internal power 548V AC 5mA for 1 minute Output terminal - External power: 2500V AC 5mA for 1 minute Output terminal - Internal power: 2500V AC 5mA for 1 minute External power -Internal power: 548V AC 5mA for 1 minute Input terminal - Output terminal: 548V AC 5mA for 1 minute		FG - External power: 548V AC 5mA for 1 minute I/O terminal - External power: 548V AC 5mA for 1 minute I/O terminal - Internal power: 548V AC 5mA for 1 minute External power - Internal power: 548V AC 5mA for 1 minute Input terminal - Output terminal: 548V AC 5mA for 1 minute	
	Power Consumption	Approx. 3.5W maximum		
Module Power	5V DC	65mA		
Consumption (Interior)	24V DC	0mA		
Ambient Temperature	0 to 55°C (No icing)			
Ambient Humidity	10 to 95%RH (Non-condensing)			
Weight	Approx. 140g			
Environmental Specifications	Conforms to RoHS directive.			
Recommended Cable	Twisted pair cable			

Terminal Arrangement



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