

Temperature Input Modules

F2-04THM 4-Channel Thermocouple In \$529.00

General Specifications

Number of Channels	4, differential
Common Mode Range	±5VDC
Common Mode Rejection	90dB min. @ DC, 150dB min. @ 50/60 Hz.
Input Impedance	1 MΩ
Absolute Maximum Ratings	Fault-protected inputs to ±50 VDC
Accuracy vs. Temperature	±5 ppm/°C maximum full scale calibration (including maximum offset change)
PLC Update Rate	4 channels per scan max. D2-262 CPU
Digital Input Points Required	32 (X) input points (16 binary data bits, 2 channel ID bits, 4 diagnostic bits)
External Power Supply	60mA maximum, 18 to 26.4 VDC
Base Power Required 5VDC	110mA
Operating Temperature	32° to 140°F (0° to 60°C)
Storage Temperature	-4° to 158°F (-20° to 70°C)
Relative Humidity	5 to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	MIL STD 810C 514.2
Shock	MIL STD 810C 516.2
Noise Immunity	NEMA ICS3-304
Terminal Type (included)	Non-removable

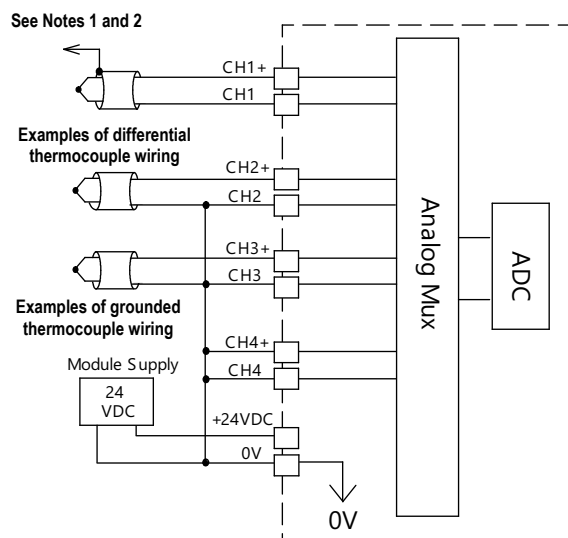
Thermocouple Specifications

Input Ranges	Type J -190 to 760°C	-310 to 1400°F
	Type E -210 to 1000°C	-346 to 1832°F
	Type K -150 to 1372°C	-238 to 2502°F
	Type R 65 to 1768°C	149 to 3214°F
	Type S 65 to 1768°C	149 to 3214°F
	Type T -230 to 400°C	-382 to 752°F
	Type B 529 to 1820°C	984 to 3308°F
	Type N -70 to 1300°C	-94 to 2372°F
	Type C 65 to 2320°C	149 to 4208°F
Display Resolution	±0.1°C or ±0.1°F	
Cold Junction Compensation	Automatic	
Conversion Time	100ms per channel	
Warm-Up Time	30 minutes typically ± 1°C repeatability	
Linearity Error (End to End)	±.05°C maximum, ±.01°C typical	
Maximum Inaccuracy	±3°C (excluding thermocouple error)	
Voltage Input Specifications		
Voltage Ranges	0-5V, ±5V, 0-156.25 mV, ±156.25 mVDC	
Resolution	16-bit (1 in 65535)	
Full Scale Calibration Error (Offset Error Included)	±13 counts typical ±33 maximum	
Offset Calibration Error	±1 count maximum, @ 0V input	
Linearity Error (End to End)	±1 count maximum	
Maximum Inaccuracy	±.02% @ 25°C (77°F)	

CPU Firmware Required

CPU	Firmware Required
D2-250	V1.06
D2-250-1	All firmware versions work
D2-262	Version 1.0 or later

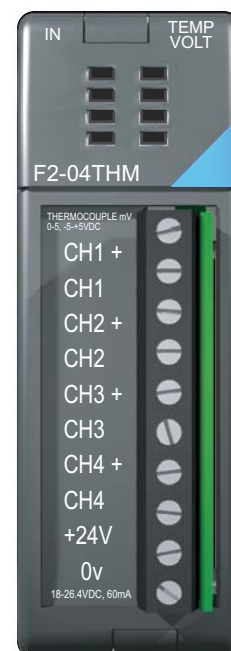
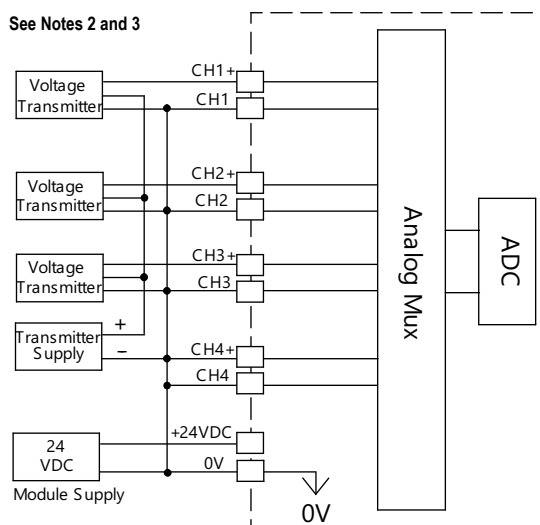
Thermocouple input wiring diagram



Notes:

- 1: Terminate shields at the respective signal source.
- 2: Connect unused channels to a common terminal (0V, CH4+, CH4).
- 3: When using 0-156 mV and 5V ranges, connect (-) or (0) volts terminal to 0V to ensure common mode range acceptance.
- 4: This module is not compatible with the ZIPLink wiring system.

Voltage input wiring diagram



Analog Current Output Modules

F2-02DA-1 2-Channel 4-20mA Analog Output \$282.00

This module requires a 24VDC user power supply for operation.

Number of Channels	2
Output Ranges	4 to 20 mA
Resolution	12-bit (1 in 4096)
Output Type	Single ended, one common
Digital Output Points Required	16 (Y) output points (12 binary data bits, 2 channel ID bits)
Maximum Loop Supply	30VDC
Peak Output Voltage	40VDC (clamped by transient voltage suppressor)
Load Impedance	Zero Ω minimum
Maximum Load/Power Supply	620 Ω /18V, 910 Ω /24V, 1200 Ω /30V
PLC Update Rate	2 channels per scan maximum (D2-262 CPU)
Linearity Error (end to end)	± 1 count ($\pm 0.025\%$ of full scale) maximum
Conversion Settling Time	100 μ s maximum (full scale change)
Full Scale Calibration Error (offset error included)	± 5 counts max., 20mA @ 77°F (25°C)
Offset Calibration Error	± 3 counts max., 4mA @ 77°F (25°C)

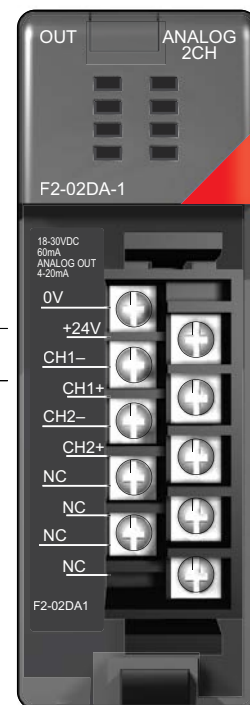
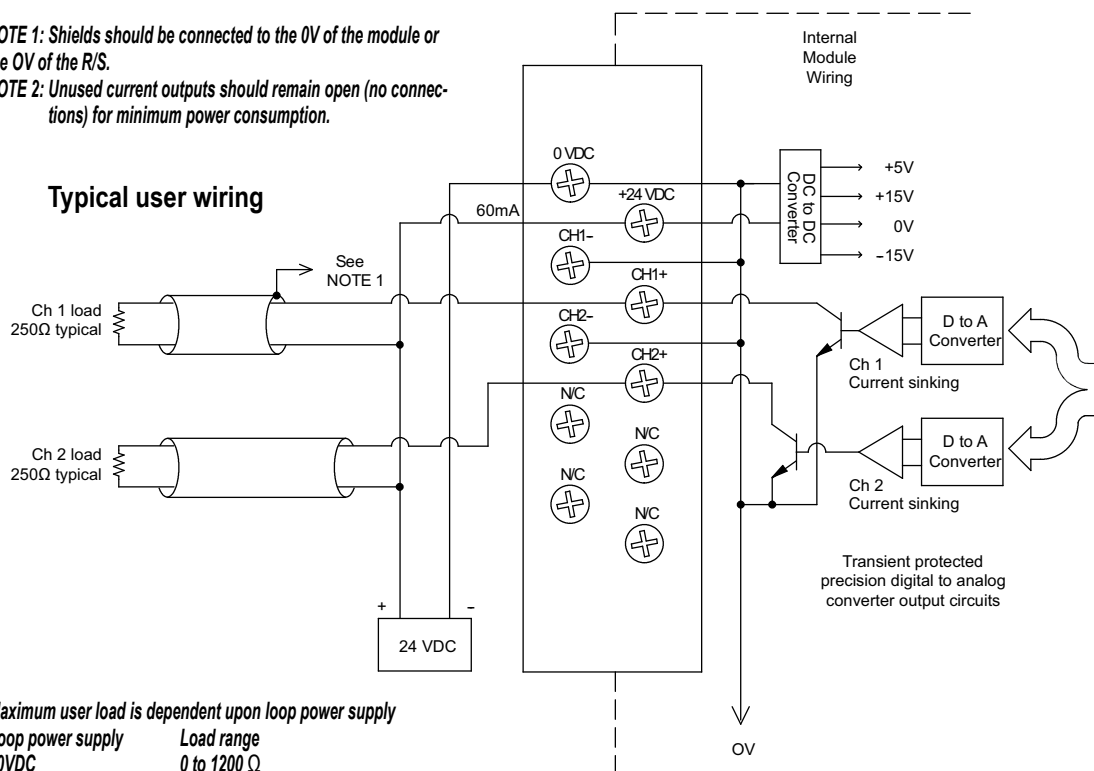
See Wiring Solutions for part numbers of ZIPLink cables and connection modules compatible with this I/O module.



Accuracy vs. Temperature	± 50 ppm/°C full scale calibration change (including maximum offset change of 2 counts)
Maximum Inaccuracy	0.1% @ 77°F (25°C) 0.3% @ 32° to 140°F (0° to 60°C)
Base Power Required 5VDC	40mA
External Power Supply	24VDC, 60mA. (add 20mA for each current loop used)
Operating Temperature	32° to 140°F (0° to 60°C)
Storage Temperature	-4 to 158°F (-20 to 70°C)
Relative Humidity	5% to 95% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	MIL STD 810C 514.2
Shock	MIL STD 810C 516.2
Noise Immunity	NEMA ICS3-304
Terminal Type (included)	Removable; D2-8IOCON

NOTE 1: Shields should be connected to the 0V of the module or the 0V of the R/S.

NOTE 2: Unused current outputs should remain open (no connections) for minimum power consumption.



Maximum user load is dependent upon loop power supply

Loop power supply	Load range
30VDC	0 to 1200 Ω
24VDC	0 to 910 Ω
18VDC	0 to 620 Ω