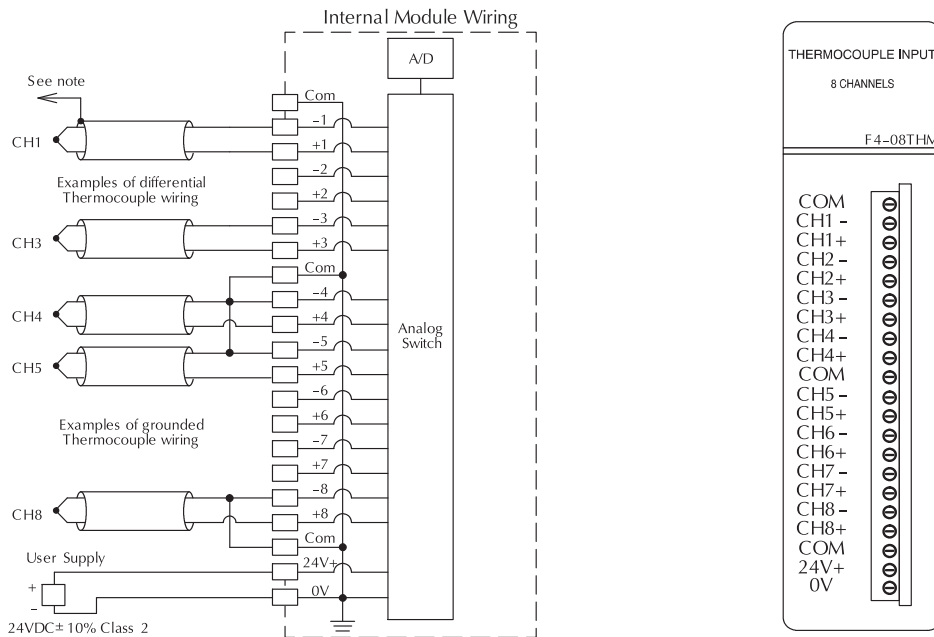


Temperature Input Modules

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- DL405 PLC**
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F4-08THM 8-Channel Thermocouple Input <--->	
General Specifications	
Number of Channels	8, differential
Common Mode Range	± 5VDC
Common Mode Rejection	90dB min. @ DC, 150dB min. @ 50/60Hz.
Input Impedance	1M Ω
Absolute Maximum Ratings	Fault-protected inputs to ± 50VDC
Accuracy vs. Temperature	± 5ppm/°C maximum full scale calibration (including maximum offset change)
PLC Update Rate	8 channels per scan max
Digital Inputs	16 binary data bits, 2 channel ID bits, 4 diagnostic bits
Input Points Required	32 points (X) input module
Terminal Type (included)	Removable (D4-16IOCON)
External Power Supply	60mA maximum, 18 to 26.4VDC
Power Budget Requirements	110mA max., 5VDC (supplied to base)
Operating Temperature	0° to 60°C (32° to 140°F)
Storage Temperature	-20° to 70°C (-4° to 158°F)
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

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, 0-156.25mV, ± 156.25mVDC		
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	± 0.2% @ 25°C (77°F)		
NOTE 1: Terminate shields at the respective signal source NOTE 2: Leave unused channels open (no connection) *Thermocouple type is selected by setting internal jumpers			



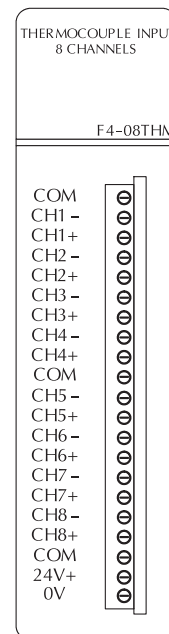
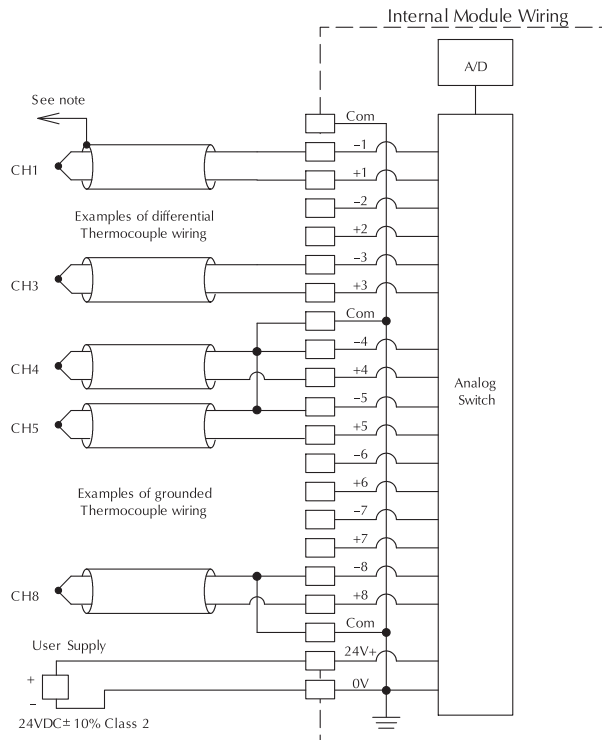
Temperature Input Modules

F4-08THM-n 8-Channel Thermocouple Input <---->																																		
When you order the module, replace the "n" with the type of Thermocouple needed. For example, to order a Type J thermocouple module, order part number F4-08THM-J or part number F4-08THM-K for a Type K module.																																		
Number of channels	8, differential inputs																																	
Input Ranges	<table style="width: 100%; border-collapse: collapse;"> <tr> <td>Type B</td> <td>529/1820°C</td> <td>984/3308°F</td> </tr> <tr> <td>Type C</td> <td>65/2320°C,</td> <td>149/4208°F</td> </tr> <tr> <td>Type E</td> <td>270/1000°C,</td> <td>-450/1832°F</td> </tr> <tr> <td>Type J</td> <td>-210/760°C,</td> <td>-350/1390°F</td> </tr> <tr> <td>Type K</td> <td>-270/1372°C,</td> <td>-450/2502°F</td> </tr> <tr> <td>Type R</td> <td>0/1768°C,</td> <td>32/3214°F</td> </tr> <tr> <td>Type S</td> <td>0/1768°C,</td> <td>32/3214°F</td> </tr> <tr> <td>Type T</td> <td>-270/400°C,</td> <td>-450/752°F</td> </tr> <tr> <td></td> <td>-1: 0-50 mV</td> <td></td> </tr> <tr> <td></td> <td>-2: 0-100 mV</td> <td></td> </tr> <tr> <td></td> <td>-3: 0-25mV</td> <td></td> </tr> </table>	Type B	529/1820°C	984/3308°F	Type C	65/2320°C,	149/4208°F	Type E	270/1000°C,	-450/1832°F	Type J	-210/760°C,	-350/1390°F	Type K	-270/1372°C,	-450/2502°F	Type R	0/1768°C,	32/3214°F	Type S	0/1768°C,	32/3214°F	Type T	-270/400°C,	-450/752°F		-1: 0-50 mV			-2: 0-100 mV			-3: 0-25mV	
Type B	529/1820°C	984/3308°F																																
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	-2: 0-100 mV																																	
	-3: 0-25mV																																	
Resolution	12 bit (1 in 4,096)																																	
Input Impedance	27KΩ																																	
Absolute Maximum Ratings	Fault protected input, 130 Vrms or 100VDC																																	
Cold Junction Compensation	Automatic																																	
Conversion Time	15ms per channel, minimum 1 channel per CPU scan																																	
Converter Type	Successive Approximation, 574																																	

Linearity Error	± 1 count (0.03% of full scale) maximum
Full Scale Calibration Error	± 0.35% of full scale
Maximum Inaccuracy*	± 1°C for type E, J, K, and T ± 3°C for type B, C, R, and S
PLC Update Rate	1 ch. per scan min., 8 per scan max.
Digital Input Points Required	16 (X) input points (12 binary data bits, 3 channel ID bits, 1 sign bit)
Base Power Required 5V	120mA
Terminal Type (included)	Non-removable
External Power Supply	24VDC ±10%, 50mA current
Operating Temperature	32 to 140°F (0 to 60°C)
Storage Temperature	-4 to 158°F (-20 to 70° C)
Accuracy vs Temperature*	57 ppm/°C maximum full scale
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

Note 1: Terminate shields at the respective signal source
Note 2: Leave unused channels open (no connection)

*Max. inaccuracy is not guaranteed for temperatures lower than:
 -220°C for types E & T
 -200°C for types J & K
 +100°C for types R & S

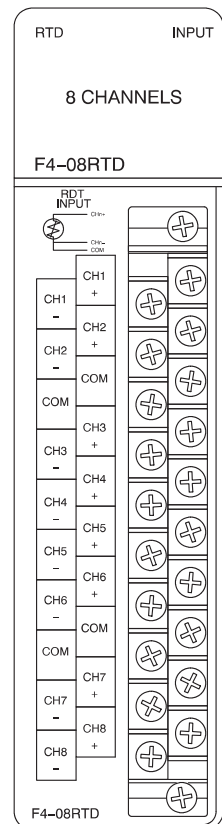
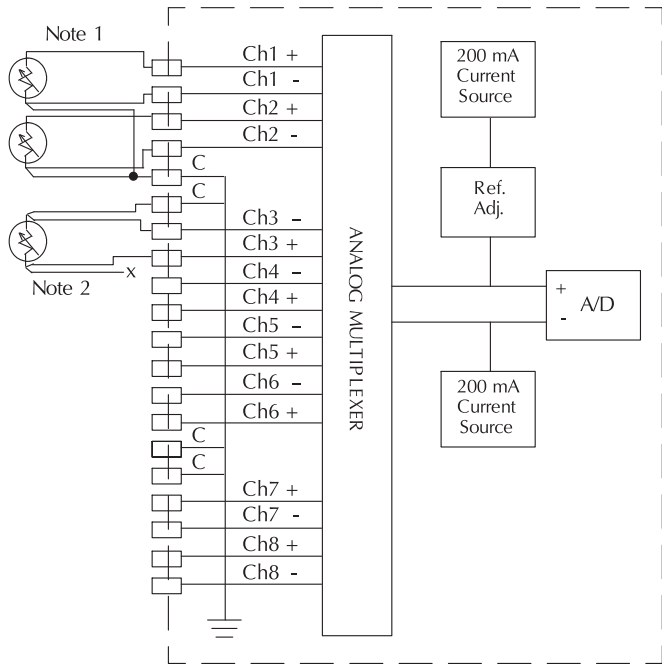


Temperature Input Modules

F4-08RTD 8-Channel RTD Input <---->	
Number of Channels	8
Input Ranges	Type Pt100: -200/850°C, -328/1562°F Type Pt1000: -200/595°C, -328/1103°F Type jPT100: -38/450°C, -36/842°F Type CU-10/25W: -200/260°C, -328/500°F
Resolution	16 bit (1 in 65535)
Input Impedance	27K Ω
Display Resolution	± 0.1°C, ±0.1°F (±3276.7)
RTD Excitation Current	200µA
Input Type	Differential
Notch Filter	>100db notches at 50/60Hz -3db=13.1 Hz
Maximum Settling Time	100msec (full-scale step input)
Common Mode Range	0-5 VDC

Absolute Maximum Ratings	Fault protected inputs to ±50 VDC
Converter Type	Charge Balancing
Linearity Error	± 1°C maximum, ±0.1°C typical
Full Scale Calibration Error	± 1°C
PLC Update Rate	1 ch. per scan min., 8 per scan max.
Digital Input Points Required	32 (X) input points (15 binary data bits, 3 channel ID bits, 1 sign bit, 8 fault bits)
Base Power Required 5V	80mA @ 5VDC
Terminal Type (included)	Removable (D4-16IOCON)
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

Notes:
 1. The three wires connecting the RTD to the module must be the same type and length. Do not use the shield or drain wire for the third connection.
 2. If an RTD sensor has 4 wires, the plus sense wire should be left unconnected as shown.



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