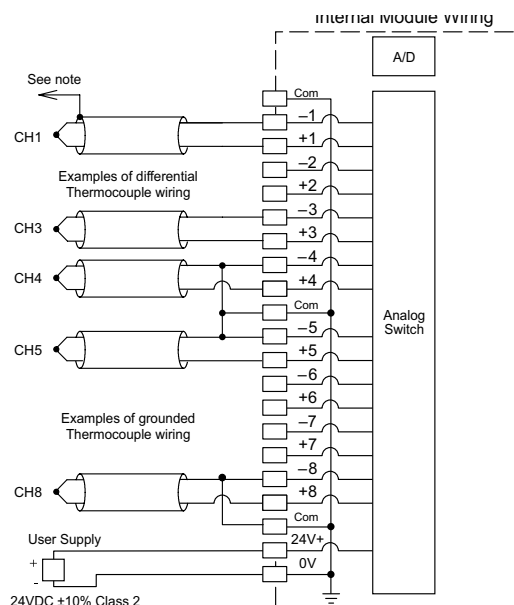


# Temperature Input Modules

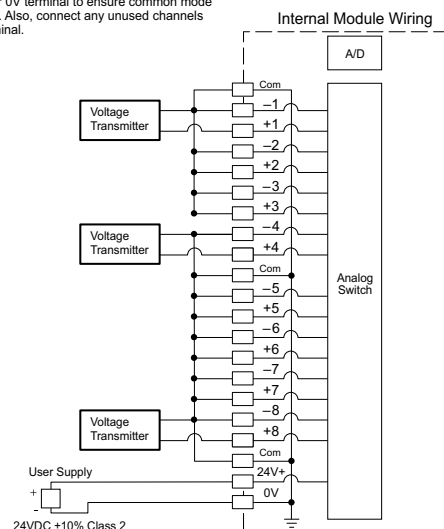
| F4-08THM 8-Channel Thermocouple Input \$1,096.00 |                                                                            |                                                                       |                                          |
|--------------------------------------------------|----------------------------------------------------------------------------|-----------------------------------------------------------------------|------------------------------------------|
| General Specifications                           |                                                                            | Thermocouple Specifications                                           |                                          |
| <b>Number of Channels</b>                        | 8, differential                                                            | <b>Input Ranges*</b>                                                  | Type J -190 to 760°C -310 to 1400°F      |
| <b>Common Mode Range</b>                         | ± 5VDC                                                                     |                                                                       | Type E -210 to 1000°C -346 to 1832°F     |
| <b>Common Mode Rejection</b>                     | 90dB min. @ DC, 150dB min. @ 50/60Hz.                                      |                                                                       | Type K -150 to 1372°C -238 to 2502°F     |
| <b>Input Impedance</b>                           | 1MΩ                                                                        |                                                                       | Type R 65 to 1768°C 149 to 3214°F        |
| <b>Absolute Maximum Ratings</b>                  | Fault-protected inputs to ± 50VDC                                          |                                                                       | Type S 65 to 1768°C 149 to 3214°F        |
| <b>Accuracy vs. Temperature</b>                  | ± 5ppm/°C maximum full scale calibration (including maximum offset change) |                                                                       | Type T -230 to 400°C -382 to 752°F       |
| <b>PLC Update Rate</b>                           | 8 channels per scan max                                                    |                                                                       | Type B 529 to 1820°C 984 to 3308°F       |
| <b>Digital Inputs</b>                            | 16 binary data bits, 2 channel ID bits, 4 diagnostic bits                  | <b>Display Resolution</b>                                             | ± 0.1°C or ± 0.1°F                       |
| <b>Input Points Required</b>                     | 32 points (X) input module                                                 | <b>Cold Junction Compensation</b>                                     | Automatic                                |
| <b>Terminal Type (included)</b>                  | Removable                                                                  | <b>Conversion Time</b>                                                | 100ms per channel                        |
| <b>External Power Supply</b>                     | 60mA maximum, 18 to 26.4VDC                                                | <b>Warm-Up Time</b>                                                   | 30 minutes typically ± 1°C repeatability |
| <b>Power Budget Requirements</b>                 | 110mA max., 5VDC (supplied to base)                                        | <b>Linearity Error (End to End)</b>                                   | ± .05°C maximum, ± .01°C typical         |
| <b>Operating Temperature</b>                     | 0° to 60°C (32° to 140°F)                                                  | <b>Maximum Inaccuracy</b>                                             | ± 3°C (excluding thermocouple error)     |
| <b>Storage Temperature</b>                       | -20° to 70°C (-4° to 158°F)                                                | Voltage Input Specifications                                          |                                          |
| <b>Relative Humidity</b>                         | 5 to 95% (non-condensing)                                                  | <b>Voltage Ranges</b>                                                 | 0-5 V, ± 5V, 0-156.25 mV, ± 156.25 mVDC  |
| <b>Environmental Air</b>                         | No corrosive gases permitted                                               | <b>Resolution</b>                                                     | 16 bit (1 in 65535)                      |
| <b>Vibration</b>                                 | MIL STD 810C 514.2                                                         | <b>Full Scale Calibration Error (Offset error Included)</b>           | ± 13 counts typical, ± 33 maximum        |
| <b>Shock</b>                                     | MIL STD 810C 516.2                                                         | <b>Offset Calibration Error</b>                                       | ± 1 count maximum, @ 0V input            |
| <b>Noise Immunity</b>                            | NEMA ICS3-304                                                              | <b>Linearity Error (End to End)</b>                                   | ± 1 count maximum                        |
|                                                  |                                                                            | <b>Maximum Inaccuracy</b>                                             | ± 02% @ 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            |                                          |
|                                                  |                                                                            | NOTE 3: This module is not compatible with the ZIPLink wiring system. |                                          |

### Thermocouple Input Wiring Diagram



### Voltage Input Wiring Diagram

Note 3: When using 0-156mV and 5V ranges, connect CH- terminal to Com or 0V terminal to ensure common mode range acceptance. Also, connect any unused channels to Com or 0V terminal.

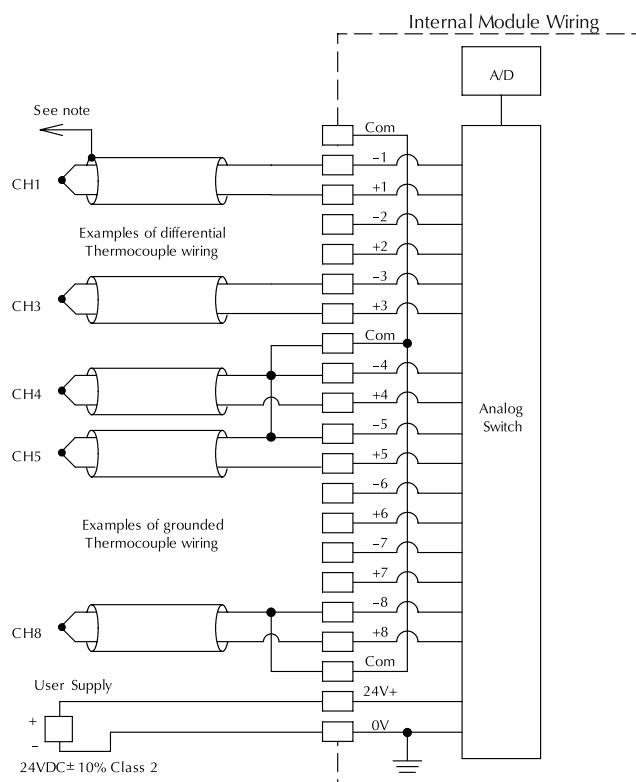


# Temperature Input Modules

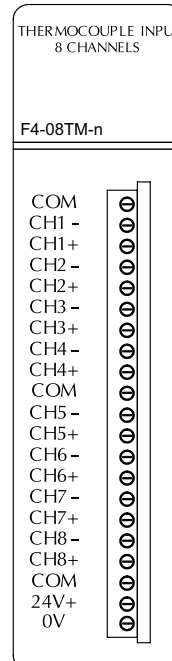
| <b>F4-08THM-J-n 8-Channel Thermocouple Input</b><br><b>\$1,144.00</b>                                                                                              |                                                     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|
| 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. |                                                     |
| <b>Number of channels</b>                                                                                                                                          | 8, differential inputs                              |
| <b>Input Ranges</b>                                                                                                                                                | Type J -210/760°C, -350/1390°F                      |
| <b>Resolution</b>                                                                                                                                                  | 12 bit (1 in 4,096)                                 |
| <b>Input Impedance</b>                                                                                                                                             | 27kΩ                                                |
| <b>Absolute Maximum Ratings</b>                                                                                                                                    | Fault protected input, 130 Vrms or 100VDC           |
| <b>Cold Junction Compensation</b>                                                                                                                                  | Automatic                                           |
| <b>Conversion Time</b>                                                                                                                                             | 15ms per channel, minimum<br>1 channel per CPU scan |
| <b>Converter Type</b>                                                                                                                                              | Successive Approximation, 574                       |

|                                      |                                                                          |
|--------------------------------------|--------------------------------------------------------------------------|
| <b>Linearity Error</b>               | ± 1 count (0.03% of full scale) maximum                                  |
| <b>Full Scale Calibration Error</b>  | ± 0.35% of full scale                                                    |
| <b>Maximum Inaccuracy*</b>           | ± 1°C for type J                                                         |
| <b>PLC Update Rate</b>               | 1 ch. per scan min., 8 per scan max.                                     |
| <b>Digital Input Points Required</b> | 16 (X) input points (12 binary data bits, 3 channel ID bits, 1 sign bit) |
| <b>Base Power Required 5V</b>        | 120mA                                                                    |
| <b>Terminal Type (included)</b>      | Non-removable                                                            |
| <b>External Power Supply</b>         | 24VDC ±10%, 50mA current                                                 |
| <b>Operating Temperature</b>         | 32 to 140°F (0 to 60°C)                                                  |
| <b>Storage Temperature</b>           | -4 to 158°F (-20 to 70°C)                                                |
| <b>Accuracy vs Temperature*</b>      | 57 ppm/°C maximum full scale                                             |
| <b>Relative Humidity</b>             | 5 to 95% (non-condensing)                                                |
| <b>Environmental Air</b>             | No corrosive gases permitted                                             |
| <b>Vibration</b>                     | MIL STD 810C 514.2                                                       |
| <b>Shock</b>                         | MIL STD 810C 516.2                                                       |
| <b>Noise Immunity</b>                | NEMA ICS3-304                                                            |

Note 1: Terminate shields at the respective signal source  
Note 2: Leave unused channels open (no connection)  
Note 3: This module is not compatible with the Z/PLink wiring system.



**\*Max. Inaccuracy is not guaranteed for temperatures lower than: -200°C for type J**



# Temperature Input Modules

| F4-08RTD 8-Channel RTD Input \$867.00 |                                                                                                                                                                     |
|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Number of Channels</b>             | 8                                                                                                                                                                   |
| <b>Input Ranges</b>                   | Type Pt100: -200/850°C,<br>-328/1562°F<br>Type Pt1000: -200/595°C,<br>-328/1103°F<br>Type jPT100: -38/450°C, -36/842°F<br>Type CU-10/25W: -200/260°C,<br>-328/500°F |
| <b>Resolution</b>                     | 16 bit (1 in 65535)                                                                                                                                                 |
| <b>Input Impedance</b>                | 27kΩ                                                                                                                                                                |
| <b>Display Resolution</b>             | ± 0.1°C, ±0.1°F (±3276.7)                                                                                                                                           |
| <b>RTD Excitation Current</b>         | 200μA                                                                                                                                                               |
| <b>Input Type</b>                     | Differential                                                                                                                                                        |
| <b>Notch Filter</b>                   | >100db notches at 50/60Hz<br>-3db=13.1 Hz                                                                                                                           |
| <b>Maximum Settling Time</b>          | 100 msec (full-scale step input)                                                                                                                                    |
| <b>Common Mode Range</b>              | 0-5 VDC                                                                                                                                                             |

|                                      |                                                                                        |
|--------------------------------------|----------------------------------------------------------------------------------------|
| <b>Absolute Maximum Ratings</b>      | Fault protected inputs to ±50 VDC                                                      |
| <b>Converter Type</b>                | Charge Balancing                                                                       |
| <b>Linearity Error</b>               | ± 1°C maximum, ±0.1°C typical                                                          |
| <b>Full Scale Calibration Error</b>  | ± 1°C                                                                                  |
| <b>PLC Update Rate</b>               | 1 ch. per scan min., 8 per scan max.                                                   |
| <b>Digital Input Points Required</b> | 32 (X) input points (15 binary data bits, 3 channel ID bits, 1 sign bit, 8 fault bits) |
| <b>Base Power Required 5V</b>        | 80mA @ 5VDC                                                                            |
| <b>Terminal Type (included)</b>      | Removable                                                                              |
| <b>Operating Temperature</b>         | 32° to 140°F (0 to 60°C)                                                               |
| <b>Storage Temperature</b>           | -4 to 158°F (-20 to 70° C)                                                             |
| <b>Relative Humidity</b>             | 5 to 95% (non-condensing)                                                              |
| <b>Environmental Air</b>             | No corrosive gases permitted                                                           |
| <b>Vibration</b>                     | MIL STD 810C 514.2                                                                     |
| <b>Shock</b>                         | MIL STD 810C 516.2                                                                     |
| <b>Noise Immunity</b>                | 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.
3. This module is not compatible with the ZIPLink wiring system.

