

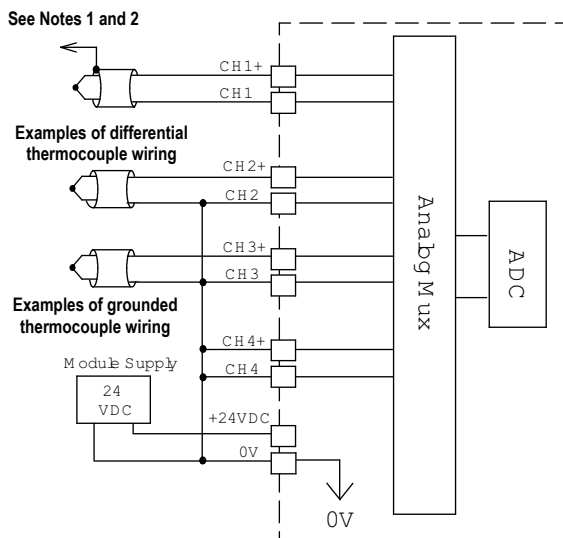
Temperature Input Modules

| 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 |

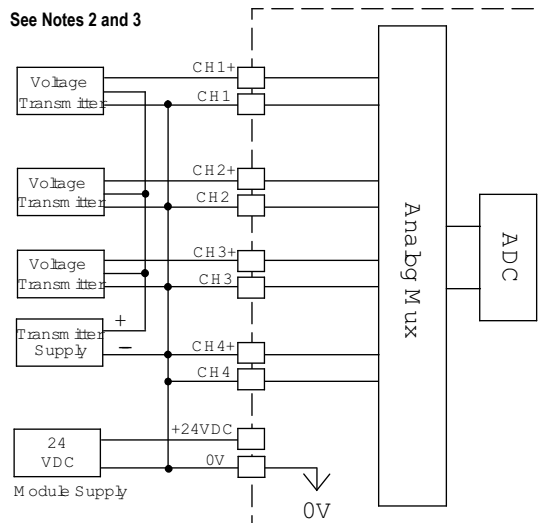
| Thermocouple Specifications | |
|--|--|
| Input Ranges | Type J -190 to 760°C -310 to 1400°F |
| | Type E -210 to 1000°C -346 to 1832°F |
| | Type K -150 to 1372°C -238 to 2502°F |
| | Type R 65 to 1768°C 149 to 3214°F |
| | Type S 65 to 1768°C 149 to 3214°F |
| | Type T -230 to 400°C -382 to 752°F |
| | 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 |
| | 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

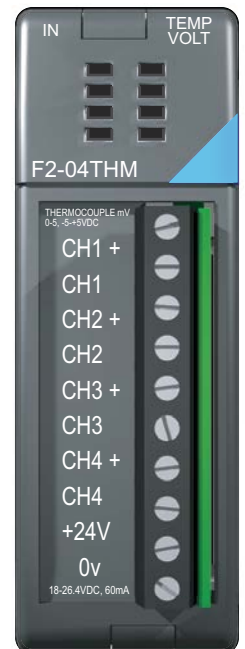


Voltage input wiring diagram



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.



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) |

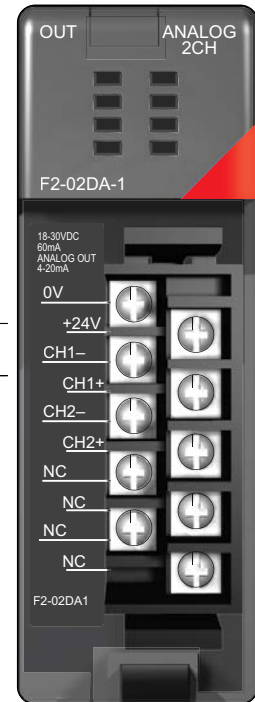
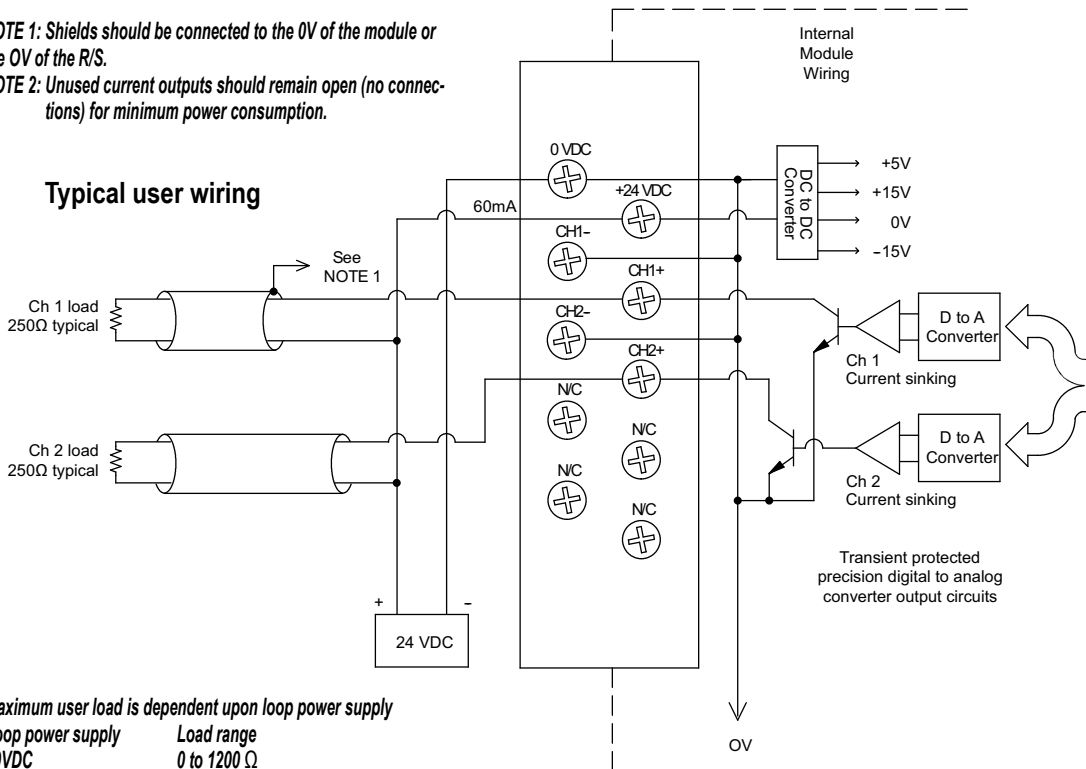
| | |
|---------------------------------|--|
| Accuracy vs. Temperature | ± 50 ppm/ $^{\circ}$ C full scale calibration change (including maximum offset change of 2 counts) |
| Maximum Inaccuracy | 0.1% @ 77°F (25°C) 0.3% @ 32° to 140°F (0° to 60°C) |
| Base Power Required 5VDC | 40mA |
| External Power 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 |

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



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 |