



## THERMOCOUPLE METERS

These Digital Panel Meter (DPM) models provide highly accurate, stable, and repeatable temperature indication for signals from Type J, K, T, E, N, R, and S thermocouples. The model-numbering system is as follows:

Model #	TC Type	Temp. Units	Model #	TC Type	Temp. Units
2110-1	J	°C	2113-2	E	°F
2110-2	J	°F	2114-1	N	°C
2111-1	K	°C	2114-2	N	°F
2111-2	K	°F	2115-1	S	°C
2112-1	T	°C	2115-2	S	°F
2112-2	T	°F	2116-1	R	°C
2113-1	E	°C	2116-2	R	°F

Thermocouple range and resolution (1° or 0.1°) are selectable from the front panel or via special commands issued over the optional serial interface. Data display in units of degrees Kelvin or Rankine can be selected by offsetting the Celsius or Fahrenheit range, respectively. Cold junction compensation automatically corrects for temperature variations at the thermocouple reference junction at the meter. Open sensor indication is standard, and may be set to indicate either upscale or downscale. All ranges for all temperature sensor types are digitally calibrated at the factory to NIST standards, thus eliminating the need to recalibrate in the field for potentiometer-related drift errors.

2000 Series options applying to thermocouple meters include

- **Isolated Relay Outputs: Dual 10-Amp Contact Relays or Dual Solid-State Relays**
- **Isolated Analog Output: Isolated 0-20 mA and 0-10 mV**
- **RS232 or RS485 Interface: Communication via 4 or 6 conductor phone cable RJ-11**
- **Low AC/DC Power: 9-32 VDC, 8-28 VAC**

# PANEL METER

THERMOCOUPLE  
[2000 SERIES]

## SPECIFICATIONS

TC Type	Range	Error at 25°C
J	-210° C to +760° C	0.01% full scale ± 0.09° C
J	-347° F to +1400° F	0.01% full scale ± 0.16° F
K	-244° C to +1372° C	0.01% full scale ± 0.10° C
K	-408° F to +2501° F	0.01% full scale ± 0.17° F
T	0° C to +400° C	0.01% full scale ± 0.03° C
T	-257° C to 0° C	0.01% full scale ± 0.2° C
T	+32° F to +752° F	0.01% full scale ± 0.05° F
T	-430° F to +32° F	0.01% full scale ± 0.36° F
E	-240° C to +1000° C	0.01% full scale ± 0.18° C
E	-400° F to +1830° F	0.01% full scale ± 0.32° F
N	-244° C to +1372° C	0.01% full scale ± 0.10° C
N	-408° F to +2501° F	0.01% full scale ± 0.17° F
S	-46° C to +1768° C	0.01% full scale ± 0.12° C
S	-51° F to +3213° F	0.01% full scale ± 0.22° F
R	-45° C to +1768° C	0.01% full scale ± 0.17° C
R	-49° F to +3214° F	0.01% full scale ± 0.31° F

**Calibration:** NIST Monograph 125 (IPTS-68)

**Input Resistance:** 1 G  $\Omega$

**Input Current:** 100 pA

**Max. Lead Resistance for Rated Accuracy:** 1 k $\Omega$

**Span Temperature Coefficient:**  $\pm 0.003\%$  of reading/ $^{\circ}$ C

**Reference Junction Temperature Coefficient:**  $\pm 0.02$  deg/deg

**Overvoltage Protection:** 125 V-AC

**Normal-Mode Rejection at 50/60 Hz:** 80 dB plus selectable digital filter from 80 ms to 9.6 s time constant

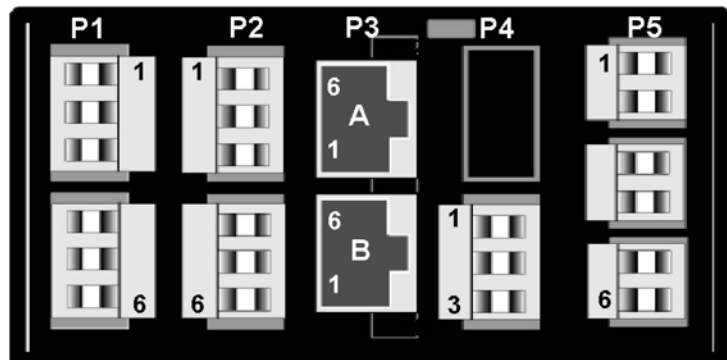
**Common-Mode Rejection from DC to 60 Hz:** 120 dB with 500  $\Omega$  imbalance

**Common-Mode Voltage from DC to 60 Hz:** 250 V-AC from power and earth ground

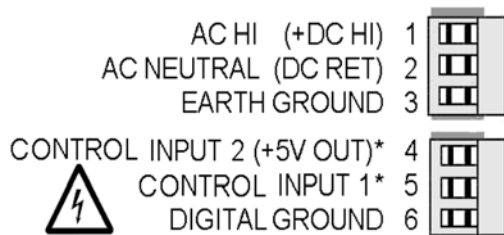
**Open Sensor Indication:** Flashes full-scale

## CONNECTORS

Connectors for signal and power are U/L rated screw-clamp terminal blocks that plug into mating jacks on the printed circuit board. Communication connectors are a single RJ11 plug for RS232, dual RJ11 plugs for RS485, dual RJ45 plugs for RS485 Modbus, and a 30-pin, mass termination connector for parallel BCD.



### P1 - POWER AND DIGITAL CONTROLS



### THERMOCOUPLE

