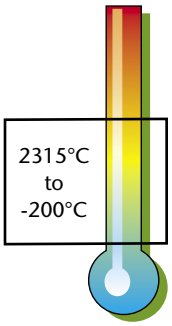
High-Accuracy PRT and TC Thermometer

TTI-7



The TTI-7 is a very high accuracy multi purpose digital thermometer for both platinum resistance thermometers and thermocouples. Laboratory users will welcome the features to eliminate Thermal EMF Errors and Self Heating Errors along with provision to store the calibration data of up to 20 PRT probes. The rugged aluminum case, internal battery pack and integrated power supply ensure reliable portable field use for demanding measurement applications all at great value.

Dual Channel input allows a probe on Channel B to be calibrated against a standard on Channel A — directly compare any combination of PRT and Thermocouple. The TTI-7 supports ten thermocouple Types, B,C, D, E, J, K, N, R, S and T and Pt100 thermometers. Connect up to 16 sensors via the optional switchboxes, Model 954 and 958.

Data Logging and Statistical Analysis

The TTI-7 includes an built-in data logger internally storing up to 4,000 date and time stamped readings. Recall the data from the front panel or send to a PC or Printer via the PC interface which is included as standard. The powerful math function enables statistical analysis of the captured data, mean, max, min, peak and standard deviation.

Usability

Ease of use, password protected digital calibration and a large clear backlit LCD graphics panel ensure the TTI-7 is a delight to use. Resistance thermometer connections are via DIN connectors. Both sub miniature thermocouple and standard thermocouple plugs are accepted directly into the thermocouple inputs with no need for further adapters.

Why the TTI-7?

The TTI-7 has the features you need for high accuracy temperature measurement. With resistance thermometers used at high temperatures unwanted thermal EMFs are generated, the TTI-7 can take two measurements switching the polarity then computing the average to eliminate this error source. Many other instruments lack the ability to eliminate thermal EMFs. The thermal EMF error can be greater than the quoted accuracy of an instrument, if you need small measurement uncertainty for high-temperature PRT work you need this feature.

The TTI-7 Uncertainty of Measurement (1 Year) in the range -100°C to 500°C is 0.01°C. Watch for specifications that quote the value at -100°C and then get larger as the temperature rises. The TTI-7 is optimized over the most frequently used temperature range. For thermocouple measurements the automatic CJC is far better than 0.1°C at 20°C. Great design care was taken, both thermocouple inputs are measured with separate Pt100 sensors. This approach gives outstanding CJC performance.

Key Features

- **Accuracy to 0.01°C**
- **-0.001°C Resolution (Pt100 Inputs)**
- **PRT and Thermocouple Inputs**
- **Eliminate Unwanted Thermal EMFs with Current Reversal**
- **Store 4000 Measurements**
- **PC Interface and Software Included, RS232**
- **Portable 10 Hours Use from Internal Battery**

Uncertainty of Measurement

Pt100 Range	Resistance	Current	Resolution °C °F K	Uncertainty 1 year @20°C ±5°C
-200 to -100°C	18 to 60Ω	1mA	0.001	0.02°C
-100 to +500°C	60 to 280Ω	1mA	0.001	0.01°C
+500 to +800°C	280 to 450Ω	1mA	0.001	0.02°C

Type	Temperature Range	Resolution °C °F K	Display Resolution	Uncertainty 1 Year @20°C ±5°C	Uncertainty 60 Days @20°C ±5°C	Temperature Coefficient/°C
B	250 to +1820°C	0.01	1.0 µV	±(0.025% Rdg + 0.006%FS)	±(0.02% Rdg + 0.006%FS)	7ppm Rdg + 6ppm FS
C	0 to +2315°C	0.01	1.0 µV	±(0.075% Rdg + 0.005%FS)	±(0.05% Rdg + 0.005%FS)	7ppm Rdg + 6ppm FS
D	0 to +2315°C	0.01	1.0 µV	±(0.075% Rdg + 0.005%FS)	±(0.05% Rdg + 0.005%FS)	7ppm Rdg + 6ppm FS
E	-200 to +1000°C	0.01	1.0 µV	±(0.026% Rdg + 0.004%FS)	±(0.01% Rdg + 0.004%FS)	7ppm Rdg + 6ppm FS
J	-210 to +1200°C	0.01	1.0 µV	±(0.03% Rdg + 0.005%FS)	±(0.008% Rdg + 0.005%FS)	7ppm Rdg + 6ppm FS
K	-200 to +1372°C	0.01	1.0 µV	±(0.035% Rdg + 0.006%FS)	±(0.01% Rdg + 0.006%FS)	7ppm Rdg + 6ppm FS
N	-200 to +1300°C	0.01	1.0 µV	±(0.035% Rdg + 0.005%FS)	±(0.01% Rdg + 0.005%FS)	7ppm Rdg + 6ppm FS
R	-50 to +1768°C	0.01	1.0 µV	±(0.02% Rdg + 0.015%FS)	±(0.005% Rdg + 0.015%FS)	7ppm Rdg + 6ppm FS
S	-50 to +1768°C	0.01	1.0 µV	±(0.02% Rdg + 0.015%FS)	±(0.005% Rdg + 0.015%FS)	7ppm Rdg + 6ppm FS
T	-200 to +400°C	0.01	1.0 µV	±(0.025% Rdg + 0.015%FS)	±(0.005% Rdg + 0.015%FS)	7ppm Rdg + 6ppm FS

TC input for external CJC, automatic CJC is better than 0.1°C at 20°C, typically 0.01°C / °C over the range 0°C to 100°C

INDUSTRIAL

SPECIFICATIONS

Temperature Range	-200 to 2315°C, depending on Sensor
Indicator Units	°C, °F, K
Display	LCD Graphics Panel, 240 x 64 Dot with LED backlight contrast control via keyboard
Maths	Display Min / Max, Peak to Peak and Standard Deviation
PC Interface	RS232 and Software Included
Data Logging	Includes a data logging function, enabling up to 4000 single channel (2000 dual channel) readings to be stored together with a date and time stamp.
Inputs	Thermocouples via sub miniature and standard connectors.
Working Temperature	0°C to 40°C relative humidity 80% max non-condensing
Storage Temperature	-20°C to +50°C
Main Supply	110 VAC ±10% (50 / 60 Hz) 40VA
Dimensions	110.3mm x 219mm x 315mm (HxWxD)
Weight	17.6 lbs (8kg)
Battery	Sealed lead acid, rechargeable cell giving approximately 10 hours continuous operation. Internal battery charger.

TTI-7 4-Channel PRT Scanner Card

TTI-7 4-Channel TC Scanner Card

ACCESSORIES

TTI-7-PRT4	4-Channel PRT scanner card
TTI-7-TC4	4-Channel TC scanner card
TTI-7-E	Automation Software

HOW TO ORDER

TTI-7	2-Channel Reference Thermometer