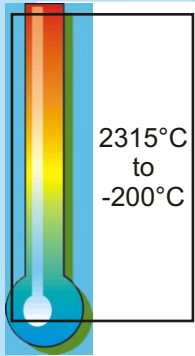


High Accuracy PRT and Thermocouple Thermometer



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 for money.

Dual Channel input allows a probe on Channel B to 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 inbuilt 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 LEMO 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.

High accuracy, highest accuracy is for Pt100 inputs, 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 and useful 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, again a point to check against other instruments which can have significantly less performance.

For more details please ask for our Buyers Guide or download from <http://www.isotech.co.uk/tti-7>

Features

- Accuracy to 0.01C, 0.001C Resolution (Pt100 Inputs)
- PRT and Thermocouple Inputs True Dual Input
- 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 (°C) | Resistance (Ohm) | Current | Resolution °C °F K | Uncertainty 1 year @ 20 ±5°C |
|------------------|------------------|---------|--------------------|------------------------------|
| -200 ... -100 | 18 ... 60 | 1mA | 0.001 | 0.02°C |
| -100 ... +500 | 60 ... 280 | 1mA | 0.001 | 0.01°C |
| +500 ... +800 | 280 ... 450 | 1mA | 0.001 | 0.02°C |

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

* Apply to readings above 600°C

| | | | | | |
|--------------------------|---|--|----------------------------|--|---------|
| Model No. | TTI-7 | | Inputs | Thermocouples via sub miniature and standard connectors. Reference Junction Compensation - Automatic with internal sensor, or with external Pt100 probe. PRTs Lemo Socket. | |
| Temperature Range | Depending on Sensor -200 to 2315°C | | Working Temperature | 0 ... 40°C rel. humidity 80% max non condensing | |
| Indicator units | °C, °F, K | | Storage Temperature | -20 ... +50°C. | |
| Display | LCD Graphics Panel, 240 x 64 Dot with LED backlight contrast control via keyboard | | Mains Supply | 100/120/220/240 Volts +10% -13% 47 ... 63Hz max. 40VA | |
| Maths | Displays Min / Max, Peak to Peak and Standard Deviation | | Dimensions | Height | 110.3mm |
| PC Interface | RS232 and Software Included | | | Width | 219mm |
| 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. | | | Depth | 315mm |
| | The stored values can be recalled to the instrument display, downloaded to a PC file or printer. | | Weight | 8kg | |
| | | | Battery | Sealed lead acid, rechargeable cell giving approximately 10 hours continuous operation. Internal battery charger. | |