DATASHEET

TTI-22

Isotech

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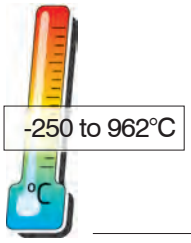

True Temperature Indicator
TTI - 22

- Accuracy to 0.001°C, 1mK
- Warns if calibration due date exceeded
- No mechanical relays, long life

Quite simply the Isotech TTI-22 High Accuracy Thermometer sets new standards in the price to performance ratio for industrial and secondary resistance thermometry. If you need high accuracy at an affordable price you have to look at the TTI-22.

The TTI-22 has an accuracy of 0.001°C and a resolution of 0.0001°C (0.00004 Ohms). It has two input channels, is lightweight (1.8kg) and will operate for more than 10 hours from two small AA cells. It has both RS232 and Ethernet ports.

Simple to use, supporting both Industrial 100 Ohm probe and SPRTs to ITS-90, 25.5 and 100 Ohm. Up to 30 probe calibrations can be stored along with the calibration expiry date so the instrument can warn when the calibration time has been exceeded.

Built in statistics calculation can show you both the measured and average values along with the standard deviation over previous measurements.

The Isotech TTI-22 is ideal as a reference standard alongside liquid calibration baths, for the smallest uncertainty calibration with Dry Blocks or for demanding stand alone measurement applications.

Previously this level of performance was confined to specialist laboratories with expensive thermometry bridges; TTI-22 delivers 5 to 10 times the performance of comparably priced instruments.

- The TTI-22 uses the same patented measurement technique as the earlier TTI-2.
- Each measurement performs a zero point and gain correction.
- The switched polarity DC measuring current (0.4mA) eliminates thermal EMFs.
- Surface mount construction ensures long term reliability.

Simple to use
High Accuracy
High Resolution

Model	**TTI-22**
Inputs	2 channel Pt100 (BS EN 60751 / IEC 751) or 25.5/100Ω SPRT to ITS-90
Measuring Current	0.41mA
Self Heating Test Current	0.29mA (0.41mA / √2)
Measuring Time	1.44 seconds for both channels
Measuring Range	-250 to 960°C (0 to 440 Ohm)
Resolution	Temperature: 0.0001°C, 0.1mK Resistance: 0.00004Ω, 40 μΩ
Uncertainty of Measurement	Temperature: 0.001°C, 1mK 100 Ohm PRT Resistance: 0.4mΩ @ 20°C *Instrument only, uncertainty with sensor dependant on range and sensor type.*
Reference Resistor	Internal 380Ω TCR ±0.3ppm / °C Stability ±5ppm / year
Interface	RS232, Ethernet, built-in web server provides simple temperature display
Ambient Temp. Range	10°C to 30°C
Power Supply	7.5VDC, 250mA power adaptor or 2 x AA batteries (typically >10 hours operating time)
Case Dimensions	Width: 190mm Height: 112mm Depth: 240mm Weight: 1.8kg

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The TTI-22 continually compares the connected sensor to a highly stable precision internal reference resistor. For a Pt100 at 0°C the annual stability for absolute measurement is typically ±1.3mK (5ppm x 100Ω = 0.5mΩ / 1.3mK).

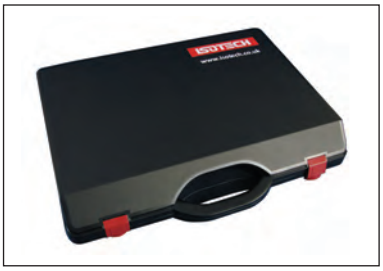
For comparison calibration, when a reference probe is compared to a calibrated standard, the long term stability is not important as any change of value is cancelled in the comparison. The temperature coefficient is 0.3ppm / °C and the measuring time, for both channels, is just 1.44 seconds.

The instrument can be configured to measure ratio of the measured resistance of the two input channels, a technique familiar to users of older style thermometry bridges.

The overall uncertainty of the instrument and probe together will be determined by the model of probe and the temperature range. For the majority of applications the contribution of the instrument uncertainty will be negligible compared to the uncertainty of the calibrated probe.

Recommended probes include the Isotech 909/100 and 670SQ /100, 935-14-16, 935-14-95L and H.

The TTI-22 includes Cal Notepad software for easy monitoring and logging of data. It is fully compatible with Isotech I-Cal Easy which can automate comparison calibration.



931-22-106 Optional Carrying Case

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