



The LUMITHERM<sup>®</sup> 104 and 104/O precision thermometers have very high accuracy and precision, far exceeding the capabilities of conventional sensors such as thermocouples and RTDs.



Quartz oscillator technology, used in many electronics applications such as high precision timing, gives the unit its high resolution and accuracy. For watches and other electronics timing applications, the cut of the quartz crystal eliminates oscillation frequency changes with temperature, making these timepieces very accurate and stable. For the LT-104, the crystal is cut differently, so that it has a dramatic frequency shift with temperature, thus enabling very precise measurement of temperature.

Two versions are available, which differ only in the cabling and power to the probe: the standard LT-104 has an electrical cable between the probe and the unit (for power and digital signals), while the optical LT-104/O has a fiberoptic cable and a battery in the probe. These different telemetry options allow the unit

## LUMITHERM<sup>®</sup> 104 HIGH PRECISION THERMOMETER

- Very High Resolution: up to 0.001 C
- Very High Accuracy:  $\pm 0.3$  C
- Miniature Sensing Tip
- Fast Response
- Four Channel Capability
- Range from -20 to 80 °C (-5 to 175 °F)
- Reliable in high-EMI environments
- NIST Traceable Calibration
- Small Footprint Chassis

to be used in high-EMI environments, where other systems are inoperable.

With four channel capability and extremely thin probes (diameter approx. 1.7 mm), the LT-104 enables rapid, precise thermal profiling and mapping, as well as in-situ measurement, with minimal thermal loading. Each probe is individually calibrated and this calibration data is stored in a small module that plugs into the rear panel of the main unit. The front panel continuously reads out all 4 channels at 0.3-second intervals. Rear panel RS-232 and analog outputs are provided for data logging, interfacing, and process control.



Primary applications include temperature metrology, analysis of chemical reactions, measurements of thermal currents in fluids, food storage, calibration of equipment and other sensors, or any application that requires resolution and accuracy that other systems cannot deliver.

## TYPICAL APPLICATIONS

### Biomedical

- ❑ Soil sampling protocols.
- ❑ Digestive calorimetry
- ❑ Endpoint assay monitoring

### Chemical

- ❑ Battery manufacture and testing.
- ❑ Propellant extrusion and packaging.
- ❑ Chemical/petroleum processing.

### Electronics

- ❑ Direct temperature measurement of operating PC board components.
- ❑ monitoring power supplies for thermal loading..

### Food Industry

- ❑ Food storage monitoring and control.
- ❑ Processing – canning, etc.
- ❑ Heating treatments

## SPECIFICATIONS

### All Probes

Range: -20 to 80 °C (-5 to 175 °F)  
Accuracy: ±0.3 °C  
Resolution: 0.01 °C (FAST mode)  
0.001 °C (HI-RES mode)  
Sampling Rate: 3.3 Hz  
Sheath Outer Diam.: 1.7 mm (0.07")  
Pod Length: 63.5 mm (2.5")

### Outputs

Digital: RS-232  
Analog: 0-5V,  
2 channel (user assignable)

### Probe Lengths

-P1 option (standard): 125.0 mm (5")  
-P2 option: 150.0 mm (6")  
-P3 option: 254.0 mm (10")

### Environmental

Pod Operating Temp: -20 to 40 °C  
Storage Temp: 0 to 55 °C  
Input Voltage: 110 VAC or 220 VAC  
Power Consumption: 8 W  
Dimensions: 190x95x230 mm  
7.6x3.8x9.2 inches  
Electrically-cabled unit: LT-104  
Optically-cabled unit: LT-104/O

## CONTACT INFORMATION



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