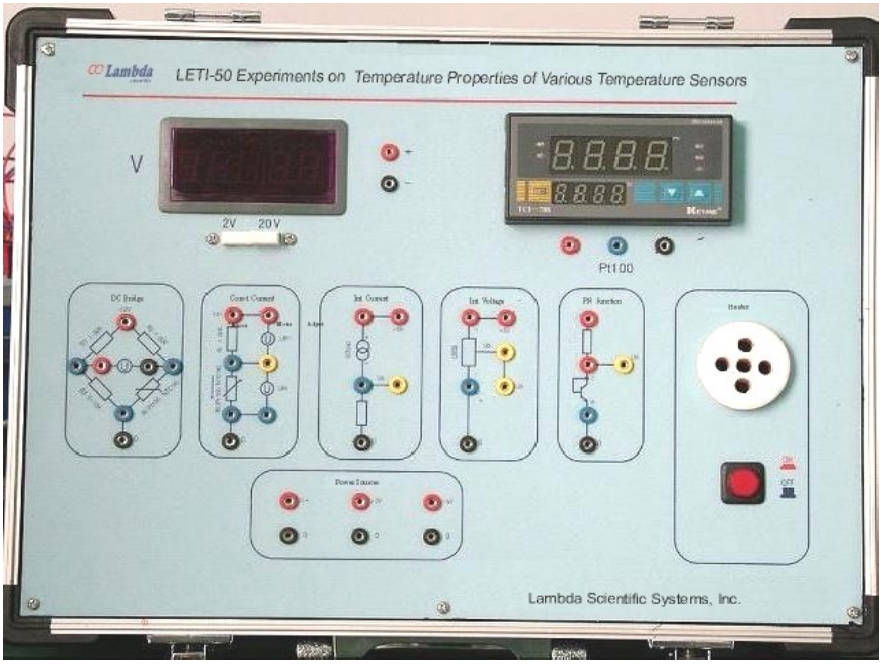
*Construct, Conduct & Comprehend Physics Experiments*

# LETI-50 Temperature Properties of Various Temperature Sensors




- *Multiple experiments*
- *Cost effective*
- *Reliable*

Temperature plays an important role in scientific research and industrial production process where temperature sensing and control is widely required. Temperature sensors are made of materials such as metals and semiconductors based on their temperature-related properties.

This apparatus consists of a precise temperature control system, a constant-current source, a DC bridge, DC power supplies, a digital Voltmeter, and a set of temperature sensors including Pt100 temperature sensor, NTC1K thermistor, PN-junction temperature sensor, AD590 current-mode integrated temperature sensor, and LM35 voltage-mode integrated temperature sensor.

# Experimental Contents

1. Learn to use constant current method to measure thermal resistance;
2. Learn to use DC bridge method to measure thermal resistance;
3. Measure temperature properties of a platinum resistance temperature sensors (Pt100);
4. Measure temperature properties of a thermistor NTC1K (negative temperature coefficient) ;
5. Measure temperature properties of a PN-junction temperature sensor;
6. Measure temperature properties of a current-mode integrated temperature sensor (AD590);
7. Measure temperature properties of a voltage-mode integrated temperature sensor (LM35).

# Specifications

| | |
|---|---|
| Bridge source | +2 V ± 0.5%, 0.3 A |
| Constant current source | 1 mA ± 0.5% |
| Voltage source | +5 V, 0.5 A |
| Digital voltmeter | 0 ~2 V ± 0.2%, resolution, 0.0001V; 0 ~20 V ± 0.2%, resolution 0.001V |
| Temperature controller | resolution: 0.1 °C |
| | stability: ± 0.1 °C |
| | range: 0 ~ 100 °C |
| | accuracy: ± 3% (± 0.5% after calibration) |
| Heating cavity | room temperature to 100 °C |
| Power consumption | 100 W |

# Part List

| | |
|---|---|
| Main Unit | 1 |
| Temperature sensor | 6 (Pt100 x2, NTC1K, AD590, LM35, PN Junction) |
| Connection wire | 6 |
| Power cord | 1 |
| Manual of temperature controller | 1 |
| Experimental instruction manual | 1 |

**Note: above product information is subject to change without notice.**

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