Littelfuse®

Expertise Applied | Answers Delivered

Thermal Sensing Solutions: **Thermistors, RTDs, Probe Assemblies**

Littelfuse offers a broad range of thermistors, RTDs, probes and assemblies for demanding temperature sensing applications worldwide. Recognized for their accuracy and long-term reliability, Littelfuse thermistors and RTDs are the sensor of choice for diverse markets such as Industrial Controls, Medical Electronics, HVAC-R, Aerospace, White Goods and Food Handling.

Thermistor Probes and Assemblies

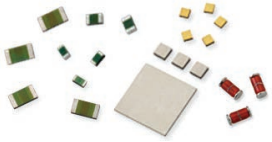
Littelfuse probe assemblies are invaluable for sensing temperature in a variety of industries. Standard and customized probe assemblies offer very precise and extremely reliable thermal monitoring in the most demanding applications.

NTC and PTC Thermistors

Littelfuse leaded thermistor options include the highly accurate precision interchangeable thermistors as well as high temperature axial leaded glass encapsulated thermistors and glass coated radial leaded chip thermistors.

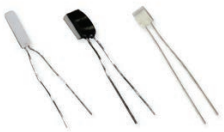
Chip and MELF Style Thermistors

Littelfuse surface mount thermistors are manufactured using the most advanced equipment and technology available. They are available in a variety of sizes and configurations suitable for mounting using solder, wire bond or epoxy.



Temperature Sensor RTDs

Littelfuse leaded RTDs exhibit a nearly linear temperature-resistance curve as well as high accuracy over a very wide temperature range. Their unique characteristics result in a devise especially suitable for use in extreme environmental conditions.



CAPABILITIES

- Custom Probe Assemblies
- High Precision Thermistors
- Custom R-T Curves
- R-T Curve Matching
- Moisture Resistant Sensors
- Prototyping
- Extensive Quality Testing
  Including:
  Salt Water Immersion
  Freeze/Thaw Temp Cycling
  Thermal Shock
  Sinusoidal Vibration

KEY CONSIDERATIONS

- Operating Temperature
- Operating Environment
- Base Resistance Value
- Tolerance/Accuracy
- Interchangeability
- Thermal Response Time
- R-T Characteristics
- Beta

ARE YOU SENSING TEMPERATURE?

>> What is your application?
>> Are you currently using a temperature sensor?
>> Do you have a drawing or part number to cross?
>> What style part do you require (SMT, Leaded, Probe)?
>> What is the environment to which the sensor will be exposed?
>> What is the operating temperature range of your application?
>> What base resistance value is required?
>> What tolerance or accuracy is needed?

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LITTELFUSE TEMPERATURE SENSOR SELECTION CHART

SENSOR ELEMENT TYPE	CHARACTERISTICS	TYPICAL OPERATING TEMPERATURE RANGE	TYPICAL RESISTANCE VALUE OPTIONS	ACCURACY OPTIONS	PACKAGE STYLES	KEY ADVANTAGES
NTC Thermistors	Exhibit a decrease in electrical resistance when subjected to an increase in body temperature	-80°C TO +300°C	100Ω up to 5MΩ @ 25°C	±0.05°C to ±1.0°C over wide temp ranges ±1% to ±10% at 25°C or other specified temp	**Leaded:** • Glass Encapsulated Axial Leads • Epoxy Coated-Radial Leads • Glass Coated-Radial Leads • Encapsulated in a Probe Assembly **SMT:** • End-Banded Chip • Top/Bottom Terminated Chip • Glass Encapsulated MELF	• Cost efficient • Excellent long-term stability • Fast thermal response • Wide range of styles available
Pt-RTDs	Exhibit a positive, predictable and nearly linear change in resistance when subjected to a corresponding change in their body temperature	-50°C TO +500°C	100Ω, 500Ω, 1000Ω @ 0°C	± 0.06% to ±0.24% at 0°C	• Radial Leaded • SMT • Encapsulated in a Probe Assembly	• Nearly linear output • High accuracy • High temperature capability

TYPICAL APPLICATIONS

HVAC/R
Residential & Commercial A/C
Chilled Water Systems
Outdoor Temperature Sensors
Condenser, Evaporator & Duct Sensors
Instant Water Heaters

FOODSERVICE
Commercial Coffee Makers
Hot/Cold Beverage Dispensers
Food Thermometers
Walk-in & Reach-in Refrigerators/Freezers
Temperature Controlled Display Cases

ALTERNATIVE ENERGY
Hydrogen Fuel Cell Sensors
Battery Fuel Gauges
Solar Panel
Geothermal

MEDICAL
Blood Analysis Equipment
Infant Incubators
Skin Temperature Monitors
Blood Dialysis Equipment
Patient Warming

WHITE GOODS
Oven Temperature Control
Consumer Refrigerators/Freezers
Washing Machines
Clothes Dryers
Water Heaters

INDUSTRIAL
Fluid Flow Measurement
Crystal Ovens
Welding Equipment
Industrial Process Controls