

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.



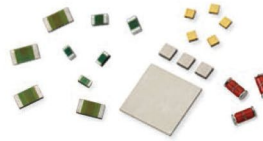
### NTC and PTC Thermistors

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 device 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?

### 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	<b>Leaded:</b> <ul style="list-style-type: none"> <li>Glass Encapsulated Axial Leads</li> <li>Epoxy Coated-Radial Leads</li> <li>Glass Coated-Radial Leads</li> <li>Encapsulated in a Probe Assembly</li> </ul> <b>SMT:</b> <ul style="list-style-type: none"> <li>End-Banded Chip</li> <li>Top/Bottom Terminated Chip</li> <li>Glass Encapsulated MELF</li> </ul>	<ul style="list-style-type: none"> <li>Cost efficient</li> <li>Excellent long-term stability</li> <li>Fast thermal response</li> <li>Wide range of styles available</li> </ul>
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	<ul style="list-style-type: none"> <li>Radial Leaded</li> <li>SMT</li> <li>Encapsulated in a Probe Assembly</li> </ul>	<ul style="list-style-type: none"> <li>Nearly linear output</li> <li>High accuracy</li> <li>High temperature capability</li> </ul>

### Typical Applications

HVAC/R	Food Service	Alternative Energy	Medical	White Goods	Industrial
<ul style="list-style-type: none"> <li>Residential &amp; Commercial A/C</li> <li>Chilled Water Systems</li> <li>Outdoor Temperature Sensors</li> <li>Condenser, Evaporator &amp; Duct Sensors</li> <li>Instant Water Heaters</li> </ul>	<ul style="list-style-type: none"> <li>Commercial Coffee Makers</li> <li>Hot/Cold Beverage Dispensers</li> <li>Food Thermometers</li> <li>Walk-in &amp; Reach-in Refrigerators/Freezers</li> <li>Temperature Controlled Display Cases</li> </ul>	<ul style="list-style-type: none"> <li>Hydrogen Fuel Cell Sensors</li> <li>Battery Fuel Gauges</li> <li>Solar Panel</li> <li>Geothermal</li> </ul>	<ul style="list-style-type: none"> <li>Blood Analysis Equipment</li> <li>Infant Incubators</li> <li>Skin Temperature Monitors</li> <li>Blood Dialysis Equipment</li> <li>Patient Warming</li> </ul>	<ul style="list-style-type: none"> <li>Oven Temperature Control</li> <li>Consumer Refrigerators/Freezers</li> <li>Washing Machines</li> <li>Clothes Dryers</li> <li>Water Heaters</li> </ul>	<ul style="list-style-type: none"> <li>Fluid Flow Measurement</li> <li>Crystal Ovens</li> <li>Welding Equipment</li> <li>Industrial Process Controls</li> </ul>
