How Do Negative Temperature Coefficient Sensors Work?

Negative Temperature Coefficient (NTC) Sensors provide solid state temperature sensing for a range of applications and are available in custom engineered probe package configurations for a variety of mounting and connectivity options.

Operating Principle

NTC Sensors are a semiconductor ceramic made with various metal oxides. Their electrical resistance decreases with increasing temperature. This resistance is processed by an electronic circuit to provide temperature measurement. While a bimetallic thermostat provides both temperature sensing and electrical circuit control, the thermistor itself does not provide any control over heating elements, relays, etc. The thermistor is strictly a sensor and any electrical control would need to be implemented by the circuit utilizing the sensor.

Features

- Economical
- Long-term stability
- Accurate
- A wide variety of packaging options available

Continuous Temperature Sensing

NTC Thermistor Temperature Sensors (NTC Sensors, for short) from Therm-O-Disc offer economical, reliable and accurate solutions to those applications requiring more extensive sensing than the one or two temperature points typically offered by a bimetallic thermostat. NTC Sensors provide a change in resistance with temperature that when combined with an electronic circuit provides a means of continuously measuring temperature over a very wide range.

Authored by Mr. Dan Lavin. Dan is an Application Engineer with Emerson’s Therm-O-Disc and has over 30 years of experience working with thermistors. Question for Dan? Reach him at dan.lavin@emerson.com.