Company Information
- About U. S. Sensor
- Mission Statement
- Newsletter
- Employment Opportunities

Product Guide
- NTC Thermistors
- NTC Probes & Assemblies
- RTD's
- RTD's Probes & Assemblies
- Parametric Search

Technical Data
- What is a thermistor
- Terminology
- Manufacturing
- Quality

Markets and Applications

Find a Sales Rep/ Distributor

Contact Us

Home

U.S. Sensor
1832 W. Collins Ave
Orange, CA 92867
Tel: 800-777-6467
Tel: 714-639-1000
Fax: 714-639-1220
Email: sales@ussensor.com

Reliability Testing
ACCELERATED LIFE TESTING

« Previous Continue »

CONTINUOUS TESTING and CUSTOM TESTING PROGRAM

U.S. Sensor Corp. is dedicated to continuous improvement in the design and functionality of our temperature sensing devices. Every batch of thermistors is tested for nominal value, as well as adherence to curve characteristics. This information is added to our SPC (Statistical Process Control) database. This database dates back to the first lot of thermistors ever produced at U.S. Sensor Corp.

In addition to performance tests for adherence to temperature vs. resistance characteristics, devices are tested for reliability in various harsh environmental, physical, and, electrical conditions. Some of the testing performed on U.S. Sensor thermistors is briefly described below.

ACCELERATED LIFE TESTING (ALT)

Groups of thermistors are mounted on PCB's and subjected to a corrosive atmosphere for a period of 10 days. This test exposes the devices to high concentrations of CO2, SO2 and H2S in order to promote product failure in a highly corrosive environment. U.S. Sensor Corp. has developed manufacturing techniques that enable our thermistors to pass this test without failure.

Salt Water Testing - Groups of thermistors are subjected to temperature cycling and immersion into both fresh and salt water. Salt and fresh water baths are prepared at temperatures of 0°C and 65°C. The transition between these temperatures is minimized (under ten seconds) creating a Maximum Transition State. At completion of the test, the temperature vs. resistance characteristics must remain in tolerance. The insulation resistance of the device is also tested.

Thermal Shock 200 cycles -Thermistors are subject to one half hour at 80°C and within ten seconds transition, are subject to one half hour at -40°C. This test is typically followed by the 100,000 cycle Thermal Shock Test.

Thermal Shock 100,000 cycles -This test consists of 45 seconds at 20°C and 45 seconds at -20°C. The transition between these temperatures is minimized to under ten seconds creating a Maximum Transition State. At the completion of testing the thermistors must remain in tolerance.

CUSTOM THERMISTOR PROBE ASSEMBLIES

U.S. Sensor Corp. manufactures a complete line of custom probe assemblies. Our

experience with thermistors, coupled with our extensive testing of probe assemblies, makes U.S. Sensor Corp the only logical choice for the manufacture of your custom probe design.

It is a well known fact at U.S. Sensor that many potting designs can be subject to failure when the probe is exposed to temperature cycling and:

a) a constant high humidity,
b) a condensing humidity, or,
c) a constant or intermittent wet environment.

No matter how well, or deep, the thermistor is potted, under the above conditions the probe can be subject to moisture intrusion. While moisture intrusion does not typically cause the thermistor to fail, attempting to make a resistance measurement in a wet environment can allow the conductivity of the moisture to become a significant portion of the resistance reading. This creates a false reading at the measurement device.

« Previous Continue » Top ^