



Application Spotlight

Thermistor Stability Benchmarking (1)

Overview

Temperature sensing applications, and the accuracy of the output, are directly related to the performance of the temperature sensing element (i.e., the thermistor).

NTC thermistor electrical performance is determined by four factors:

1. Reference resistance
2. Beta value (NTC curve shape)
3. Temperature measurement accuracy
± % tolerance & ±°C accuracy of the product specification
4. Long term resistance stability
Maintaining the supplied tolerance and accuracy during operation in the field

Healthcare Applications

* Typical tolerance ±0.2°C between 25°C and 50°C

* Clinical accuracy/stability is essential for disposable and fixed applications

- Avoiding misdiagnosis is critical. Incorrect temperature readings from an oral thermometer, neonatal skin surface sensor or thermo-dilution catheter accuracy hinder the doctor or care-giver's ability to properly diagnose and treat the patient
- Accurate temperature measurement is a key factor to enhance patients' comfort and safety during treatment involving water, gas, or lasers at elevated temperatures, and assisting in tasks such as personal hygiene or cosmetic surgery
- Thermistors are often used as the temperature monitoring and control function of medical equipment. Incorrect feedback on temperature from the thermistor could lead to item/equipment reuse without correct cleaning processes Response time



AAS Advantage

- Amphenol component accuracy supplied at ±0.2°C at 50°C, typical medical tolerance
- Amphenol resin-coated devices have excellent stability performance at elevated temperature 100°C (operational temperature 45°C)

Temperature Stability @ 100°C for 1000 hours			
Supplier	Δ R25%	Δ °C	Performance Ranking
Amphenol	0.08	0.018	1
A	0.16	0.069	2
B	0.22	0.050	3
E	0.24	0.055	4
V	0.30	0.068	5
K	0.62	0.141	6

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