THERMOMETRICS
A COMMITMENT TO EXCELLENCE

Application Spotlight

Thermistor Stability Benchmarking (6)

For Automotive Applications

Active In-Car Temperature Sensor

Indicates in-cabin vehicle temperature. Thermistor accuracy and stability is essential to maintain a comfortable and consistent cabin environment.

Typical Tolerance: ±0.23°C at 25°C

Why is thermistor stability important?

- For a comfortable environment for occupants of the vehicle, preventing the automated temperature control from creating ambient conditions that are colder/warmer than desired.
- For a consistent environment with regular response to combined temperature/humidity inputs to achieve the desired cabin environment, preventing driver distraction from unnecessary adjustments of temperature and environment controls.

Outside Air Temperature Sensor (OAT)

Measures the temperature outside of a vehicle and relays the outside air temperature to the controller of the automatic HVAC system. Thermistor accuracy and stability is essential for mechanical efficiency of the vehicle.

Typical Tolerance: ±0.2°C at 0°C

Why is thermistor stability important?

- For the detection and warning of icing and freezing conditions to allow the vehicle to initiate safety systems during critical weather.
- To allow the operator of the vehicle to adapt driving techniques recommended during icing conditions on road surfaces. Inaccurate temperature readings can reduce driver perception of vehicle quality, if readings differ from the true temperature or continually display incorrect temperature readings.
- For optimized engine performance and emissions to prevent the Engine Management System (ECU) from interpreting sensor output as an incorrect temperature.

AAS Advantage

- Amphenol Component Accuracy: Typical ± 0.2°C at 0°C and ±0.85°C at 63°C.
- Amphenol resin-coated devices have excellent stability performance, showing 0.08% resistance shift, equivalent to 0.02°C measurement accuracy change after 1000 hours at elevated temperature 100°C, the higher NTC stability at the operational temperature at the applications.

Temperature Stability of Resin-Coated Thermistors

@ 100°C for 1000 Hours			
Supplier	Δ R25%	Δ °C	Performance Ranking
Amphenol	**0.08**	**0.018**	**1**
B	0.16	0.036	2
C	0.22	0.050	3
D	0.24	0.055	4
E	0.30	0.068	5
F	0.62	0.141	6

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