



# Application Spotlight

## Thermistor Stability Benchmarking (5)

### Thermocon / HVAC / DATS

\* Typical Tolerance:  $\pm 0.2^{\circ}\text{C}$  at  $0^{\circ}\text{C}$

\* Accuracy/stability is essential to maintain cabin environment.

- The Thermocon is used to control the temperature of the evaporator in car air conditioning systems. Misreading the evaporator temperature results in icing on the heat exchanger, restricting cooling capacity and diminishing the performance of the air conditioning system.
- Discharge Air Temperature Sensors are used to provide feedback control to cooling and heating equipment. If the thermistor used is not stable or accurate, the occupants may feel uncomfortable due the occupant area being cooler or warmer than the desired setting.



### Boiler and Pipe Applications

\* Typical Tolerance:  $\pm 0.85^{\circ}\text{C}$  at  $63^{\circ}\text{C}$

\* Accuracy/stability is required for mechanical efficiency.

- The Temperature Sensors are used to either create, control or maintain a pilot flame in the boiler, or to build in the control system to monitor water level in the boiler. Thermistor accuracy and/or stability issues can lead to reduced efficiency and performance of the boiler.
- Pipe Clip Sensors are typically used in processing applications to measure the inlet and outlet temperatures. Inaccurate or unstable thermistors could signal incorrect information about the heat exchange rates, the process efficiency and EHS or legislation requirements.

### AAS Advantage

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

### Temperature Stability of Resin-Coated Thermistors

@ $100^{\circ}\text{C}$ for 1000 Hours			
Supplier	$\Delta R_{25\%}$	$\Delta ^{\circ}\text{C}$	Performance Ranking
<b>Amphenol</b>	<b>0.08</b>	<b>0.018</b>	<b>1</b>
A	0.16	0.036	2
B	0.22	0.050	3
C	0.24	0.055	4
D	0.30	0.068	5
E	0.62	0.141	6

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