THERMOMETRICS
A COMMITMENT TO EXCELLENCE

Application Spotlight

Thermistor Stability Benchmarking (2)

EGR (Exhaust Gas Recirculation) Applications

* Typical tolerance ±5°C at 300°C
* Typical tolerance ±1°C at 150°C
* Accuracy/stability is essential for efficient combustion control

- Emission concerns – sensor interprets air temperature incorrectly creating a difference between the actual control temperature and the engine design temperature emission mapping value.
- Engine performance – sensor interprets air temperature incorrectly causing the engine to operate to a condition not optimized for peak performance and efficiency.
- Engine life – sensor interprets air temperature incorrectly, resulting in excessive engine temperature which would decrease engine components and fluids life.

Glass encapsulated thermistor elevated temperature stability

Supplier	300°C @ 1000 hours		250°C @ 1000 hours		Performance ranking
	Δ R25 %	Δ °C	Δ R25 %	Δ °C	
Amphenol	**0.27**	**0.062**	**0.35**	**0.080**	**1**
E	0.40	0.091	-0.46	0.105	2
S	-0.64	0.146	-0.64	0.146	3
K	0.69	0.157	1.26	0.287	4
V	-2.58	0.588	-2.5	0.57	5
K	64.8	14.77	72.7	16.57	6

AAS Advantage

- Amphenol supplies both glass encapsulated and resin coated thermistors for EGR system based on temperature applications, i.e. ±5°C at 250°C/300°C and ±1°C at 150°C, typical high temperature EGR tolerances.
- Amphenol thermistors have excellent stability. The glass encapsulated components show 0.062°C measurement accuracy at 300°C and 0.080°C at 250°C after 1000 hours; The resin coated parts show 0.043°C accuracy at 170°C after 1000 hours.

Resin coated thermistor elevated temperature stability

Supplier	170°C @ 1000 hours		Performance ranking
	Δ R25 %	Δ °C	
Amphenol	**-0.19**	**0.043**	**1**
V	-0.21	0.048	2
A	1.57	0.358	3
E	1.85	0.422	4
B	2.65	0.604	5
S	4.6	1.049	6
K	5.54	1.263	7

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