

Amphenol Sensors

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ASTG Distributor Training

AB Series Thermistor Assemblies



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AB Series Thermistor Assemblies



AUTO/Transportation



MEDICAL



INDUSTRIAL



HVAC-R

Training Topic

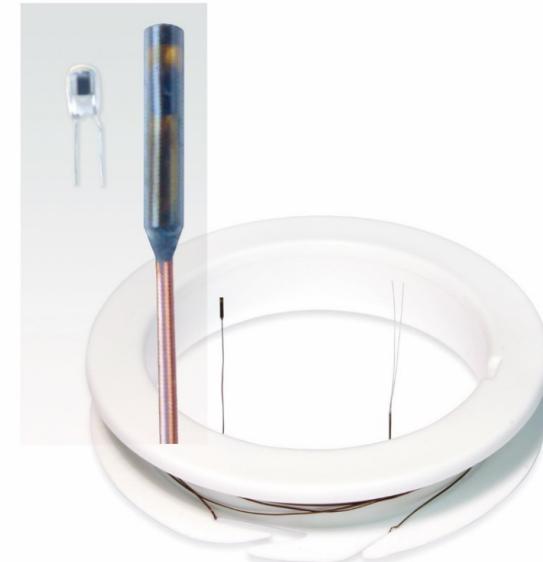
Overview of Amphenol Advanced Sensors AB Series miniature NTC thermistor assemblies for the Healthcare market

Overview

Highlight the features of the AB Series thermistor assemblies

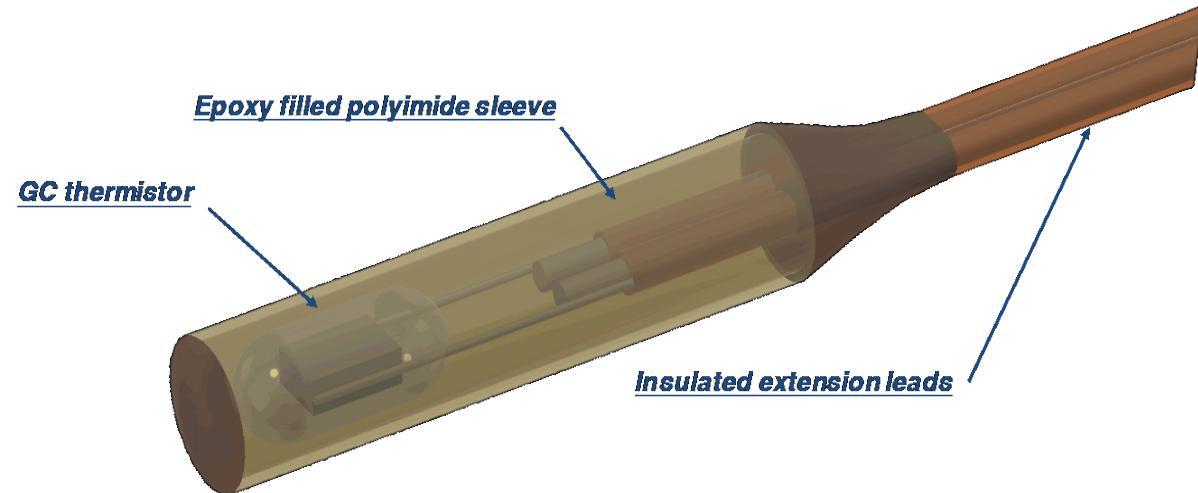
Discuss the benefits of the AB Series

Review typical critical care / catheter applications

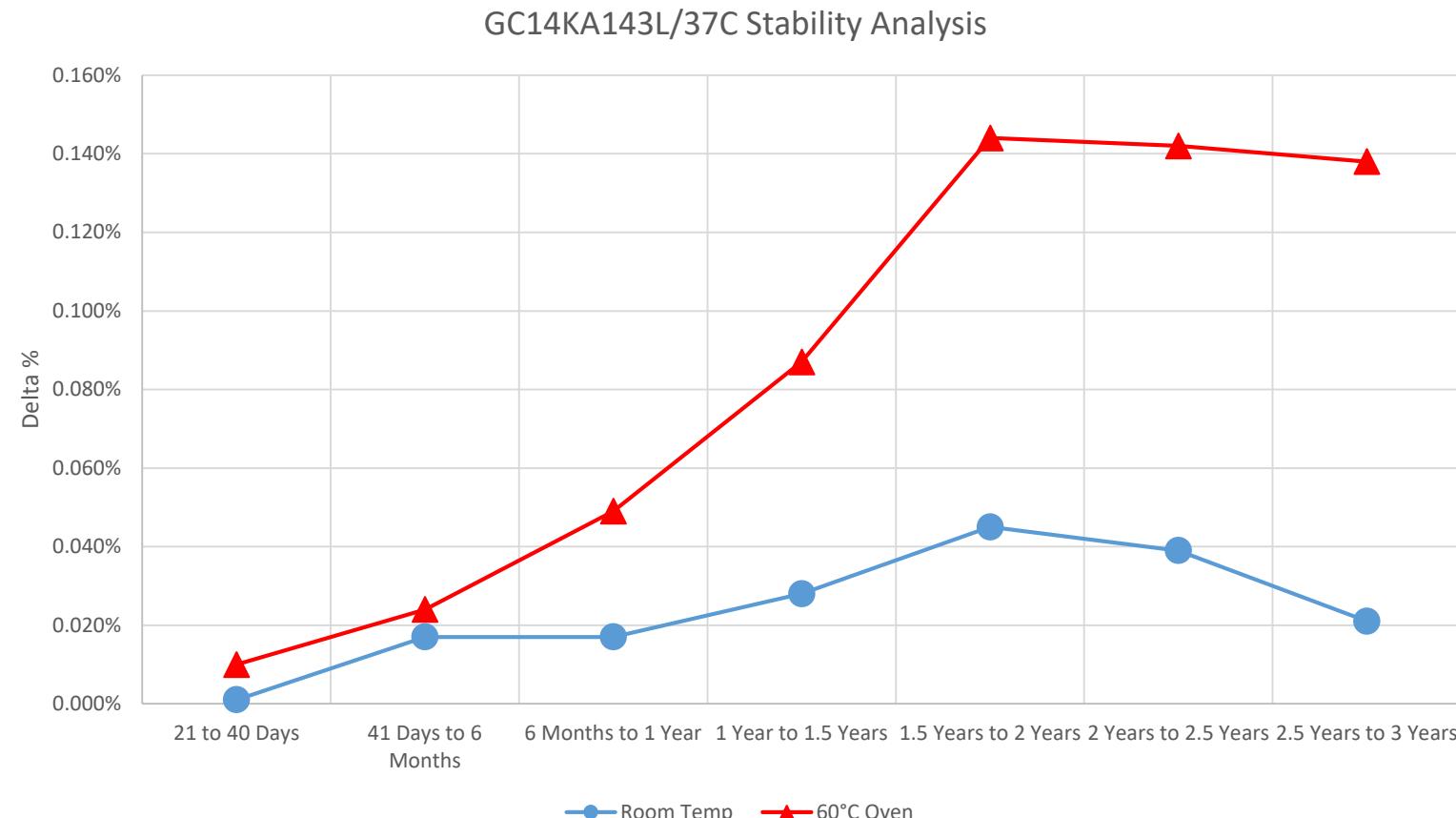


AB Thermistor Assembly Overview

- Consists of a small GC (chip-in-glass) thermistor
- Thermistor is hermetically sealed in glass
- Thermistor leads are welded to insulated extension leads
- Thermistor and / or weld joints are covered in one of several insulation types, depending upon the application or environment

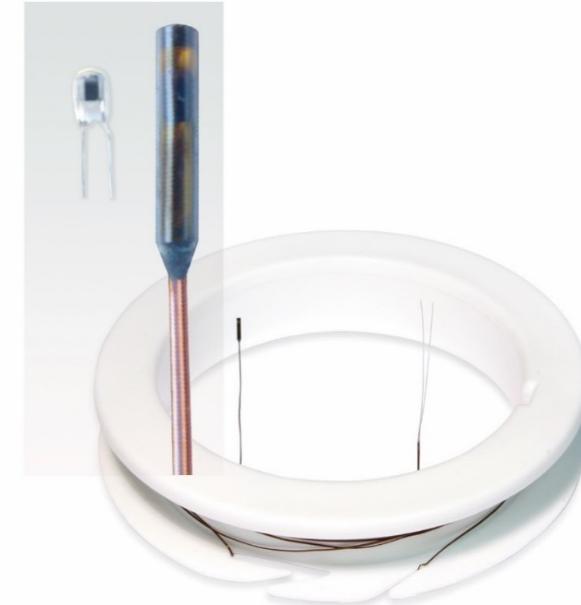


AB Thermistor Assembly Stability

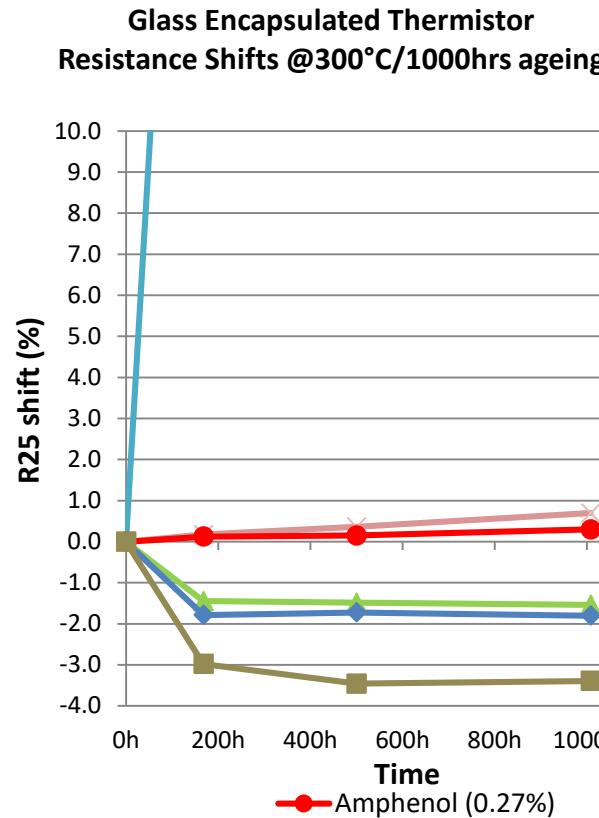


AB Thermistor Assembly Features

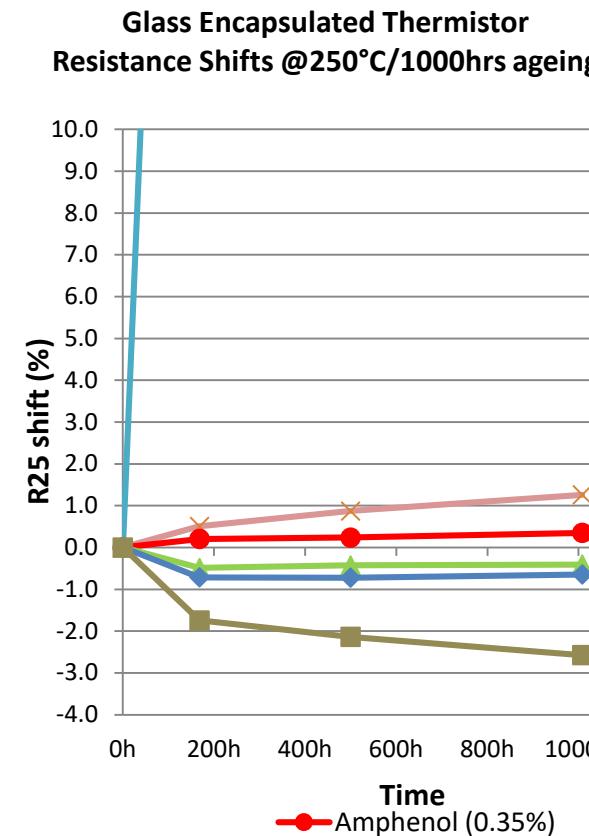
- Chip in Glass technology with proven reliability
- 14004 ohms @ +37°C
- $\pm 0.5\%$ & $\pm 15\%$ tolerance on resistance
- 25/50 Beta of 3500K $\pm 3\%$
- Six (6) feet long, #38 AWG Ni Alloy 200 bifilar leads with a heavy build polyester enamel insulation



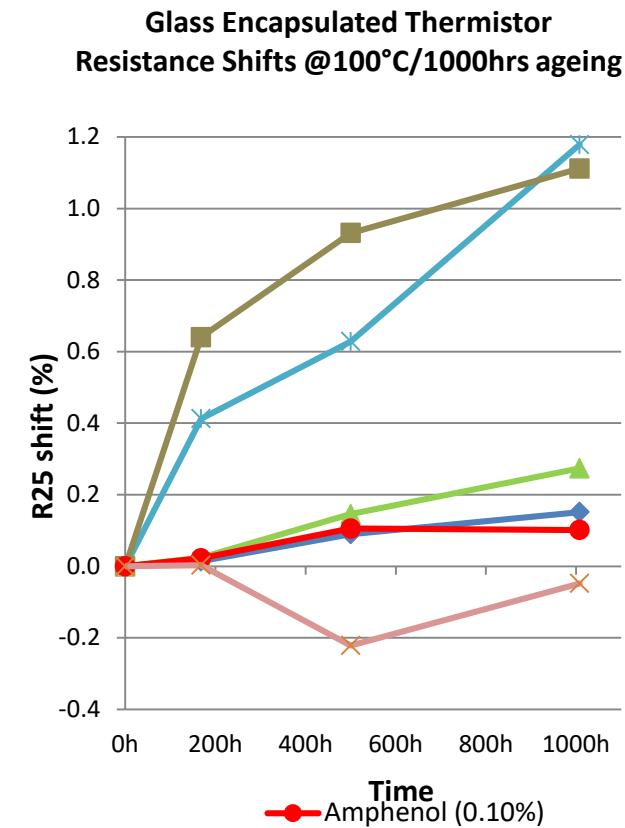
AB Thermistor Assembly Stability over temperature



Supplier	$\Delta R25 \%$	$\Delta {}^\circ C$	Performance ranking
Amphenol	0.27	0.062	1
E	0.40	0.091	2
S	-0.64	0.146	3
K	0.69	0.157	4
V	-2.58	0.588	5
P	64.80	14.771	6



Supplier	$\Delta R25 \%$	$\Delta {}^\circ C$	Performance ranking
Amphenol	0.350	0.080	1
E	-0.460	0.105	2
S	-0.640	0.146	3
K	1.260	0.287	4
V	-2.500	0.570	5
P	72.700	16.572	6



Supplier	$\Delta R25 \%$	$\Delta {}^\circ C$	Performance ranking
K	-0.04	0.009	1
Amphenol	0.10	0.023	2
S	0.15	0.034	3
E	0.27	0.062	4
V	1.11	0.253	5
P	1.18	0.269	6

AB Thermistor Assembly Features

Multiple thermistor head insulation types available (*common types listed*)



Type A8: Liquid epoxy resin web over weld joints, no sleeve

Type B2: Epoxy filled polyimide sleeve, 0.090" ref long over thermistor and weld joints

Type B4: Epoxy filled polyimide sleeve, 0.090" ref long over weld joints, thermistor tip exposed

Type E3: Epoxy filled polyimide sleeve, 0.090" ref long over weld joints, liquid epoxy resin over thermistor tip

Type E5: Epoxy filled polyimide sleeve, 0.090" ref long over thermistor and weld joints, liquid epoxy resin coating

Type N2: Epoxy filled polyimide sleeve, 0.060" ref long over thermistor and weld joints

Type N4: Epoxy filled polyimide sleeve, 0.060" ref long over weld joints, thermistor tip exposed

AB Thermistor Assembly Benefits

- Suitable for insertion into hypodermic needles, catheters, or other small housings that require extended, insulated leads
- Fast response time without sacrificing ease of insertion
 - 1.2 sec nom in still air @ +25°C – Type B2 insulation
- Small profile for tight spaces, down to < 1 French
 - 0.022" OD – Type B2 w/ GC14
 - 0.016" OD – Type B4 w/ GC14
 - 0.0125" OD – Type N4 w/ GC11
- Excellent point isolation of measurement
- Available for use with any small GC (chip-in-glass), BR (ruggedized bead), B (coated bead), or P (glass probe) thermistor
- Complete immersion in conductive fluids with Type E3, E5, & E8 insulations
- Alternate lead conductor materials and insulations available



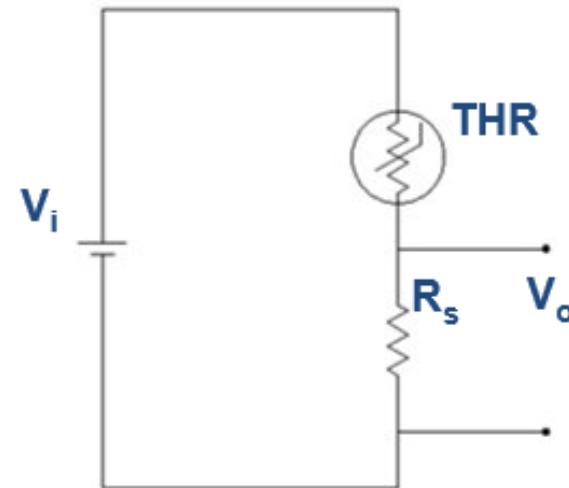
AB Thermistor Assembly Applications

- Continuous cardiac output monitoring
- Thermal dilution catheters
- Ablation catheters
- Foley catheters
- Esophageal catheters
- Internal body temperature monitoring
- Surgical instruments / probes
- Disposable patient temperature monitoring

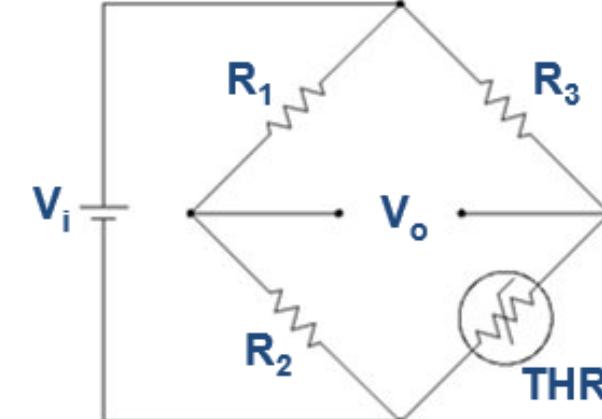


AB Thermistor Assembly Applications

Voltage Divider



Wheatstone Bridge



Additional Information

Product Spotlight

Product Spotlight

AB Thermistors for Healthcare

Features

- Chip in Glass Technology with proven reliability
- 14004 ohms @ 37°C
- 25/50 Beta: 3500 nominal
- Very Fast Response Time
- Small Profile for Tight Spaces
- Excellent Point Isolation of Measurement

Applications

- Continuous Cardiac Output Monitoring
- Thermal dilution catheters
- Foley catheters
- Esophageal catheters
- Internal Body Temperature monitoring
- Other Disposable Temperature Monitoring

SKU	Description	Tol. @ 37°C	Figure	"00"	"LEN"	Lead Type
600812	AB6B2-001KA143E/370	±0.5%	1	0.02"	0.090"±0.010"	#8BAW0 NI
600804	AB6B2-001KA143L/370	±1%	1	0.02"	0.090"±0.010"	#8BAW0 NI
507894	AA6B4-001KA143L/370	±1%	2	0.014"	0.090"±0.010"	#4DAW0 NI
600451	AG6N4-001KA143L/370	±1%	2	0.0125"	0.065"±0.005"	#44AW0 Ou
600891	AB6N2-001KA143E/370	±0.5%	1	0.019" max	0.060"±0.005"	#8BAW0 NI
600453	AG6N4-001KA143L/370	±1%	2	0.0125" max	0.065"±0.005"	#44AW0 NI

FIGURE 1 
FIGURE 2 

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<https://www.amphenol-sensors.com/en/component/edocman/330-thermometrics-product-spotlight-ab-thermistors-for-healthcare/download?Itemid=8484%20%27>

Datasheet

NTC Type AB6 Thermometrics Thermobeads and GCs (Chip-in-Glass)

Description

NTC Type AB6 thermistor assemblies consist of small GC (chip-in-glass) or Thermobeads that are welded to insulated extension leads. The Thermobeads or GC (chip-in-glass) are hermetically sealed in glass and have fine diameter 0.0007" in to 0.004 in (0.0178 mm to 0.105 mm) planar or alloy lead ends. The aluminum leads are cut and welded to insulated extension leads and the joints are covered in one of several insulation types, depending upon the application or environment. The assembly is then ready for insertion into hypodermic needles, catheters or other small housings that require extended leads. Any of the Thermobeads or GC (chip-in-glass) listed in Table 1 may be used in a NTC Type AB6 assembly. Please consult the data shown for specific electrical or mechanical properties for the thermistor selected.

Applications

Thermobead and GC (chip-in-glass) assemblies are used where the small thermistor must be further connected to longer leads. The Thermobeads or GC (chip-in-glass) are hermetically sealed in glass and have fine diameter 0.0007" in to 0.004 in (0.0178 mm to 0.105 mm) planar or alloy lead ends. The aluminum leads are cut and welded to insulated extension leads and the joints are covered in one of several insulation types, depending upon the application or environment. The assembly is then ready for insertion into hypodermic needles, catheters or other small housings that require extended leads. Any of the Thermobeads or GC (chip-in-glass) listed in Table 1 may be used in a NTC Type AB6 assembly. Please consult the data shown for specific electrical or mechanical properties for the thermistor selected.

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<https://www.amphenol-sensors.com/en/component/edocman/143-thermometrics-ntc-type-thermistor-assemblies-ab6-series-datasheet/download?Itemid=8484%20%27>

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Application Spotlight

Application Spotlight

Temperature Sensing in Medical Devices

Medical applications demand the ultimate in accurate and reliable monitoring of critical temperature measurement. From the Amphenol Advanced Sensors family of brands, Thermometrics, Inc. designs and manufactures an extensive line of NTC thermistors and non-contact infrared (IR) based temperature sensors for this vital market.

In addition to our standard product offerings, Amphenol Advanced Sensors pride itself in our ability to customize a unique solution for each customer's application needs.

Whether superior resistance stability, tight temperature accuracy, small diameter, fast response, or all the above are critical for your design, our team is ready to partner with you.

Application Offerings

Cardiac Care	Respiratory Care	Thermometry	Surgical
Small diameter chip-in-glass or Thermobead assemblies for thermodilution catheters and continuous cardiac output systems.	Glass diode or epoxy-coated chip-in-glass for non-contact temperature monitoring of ventilator flow tubes and humidifiers.	Interchangeable thermistors and IR sensors for oral, rectal, tympanic, and auxiliary thermometry. Also available for predictive, clinical, or home thermometers.	Miniature chip-in-glass or glass diode thermistors with fine diameter wires for insertion into hypodermic needles for hypothermia monitoring or external attachment to metal lumens used during laser surgery.
Type AW	Type AW	Type GS / Type SC / Type ZIR	Type BG / Type MG / Type AD40

Medical Disclaimer: You are hereby advised that Amphenol Advanced Sensors has not performed any biocompatibility or clinical testing of these products. The responsibility to ensure that all products comply with all applicable federal, state, and local laws lies with the OEM manufacturer or user.

Amphenol Advanced Sensors

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<https://www.amphenol-sensors.com/en/healthcare-spotlights/518-thermometrics-application-spotlight-thermistor-stability-benchmarking-part-4-application-spotlight>

Summary

- Chip in Glass technology with proven performance reliability
- 14004 ohms @ +37°C
- 25/50 Beta of 3500K $\pm 3\%$
- Very fast response time: 1.2 sec in still air w/ type B2
- Small profile for tight spaces: < 1 French (0.0125" OD)
- Excellent point insulation of measurement
- Catalog and customized options available: thermistor, insulation, and wire

