

Super-Stable Thermistors

1

• YSI 46000 Series

YSI 46000 Series components represent the state of the art in long-term stability performance. By coupling glass hermetic encapsulation with 100% resistance shift screening, we offer stability never before realized with thermistor components.

We offer YSI 46000 Series thermistors with interchangeability tolerances as tight as $\pm 0.05^{\circ}\text{C}$, as well as $\pm 0.1^{\circ}\text{C}$ and $\pm 0.2^{\circ}\text{C}$.

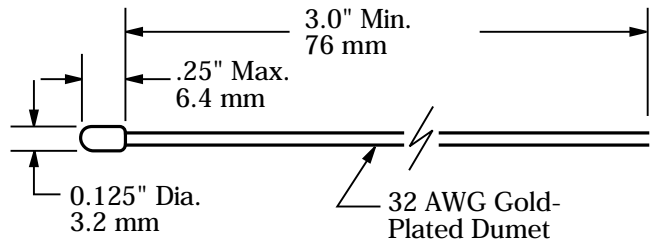
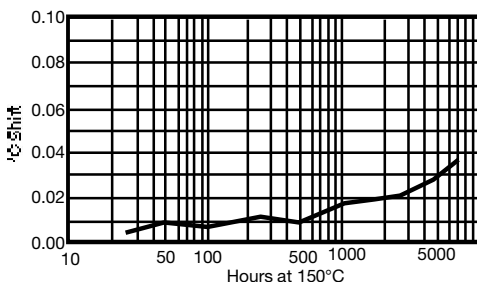
Many leading aerospace companies have recognized the advantages of these parts, developing their own specifications for qualifying, screening and using these thermistors in high-reliability applications. We welcome your inquiry on special measurement points and [special test services](#).

• Tests Show Thermistor Stability

YSI 45000 and 46000 Series Thermistors offer unparalleled stability and moisture resistance in thermistor components. The data from the three tests we performed demonstrate that YSI glass thermistors are the device of choice in extreme environments.

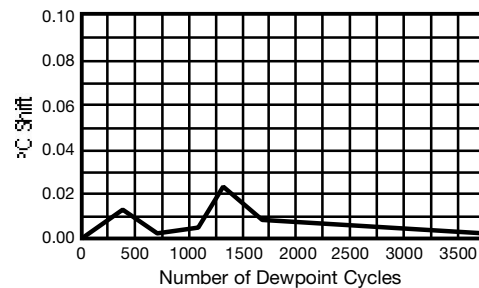
High-Temperature Testing

The first was static high-temperature testing. All thermistors show some increase in resistance over time; the higher the temperature, the greater the shift. We placed YSI glass thermistors in an isothermal 150°C environment for extended time testing. On average, they shifted less than 0.040°C in 5,000 hours.



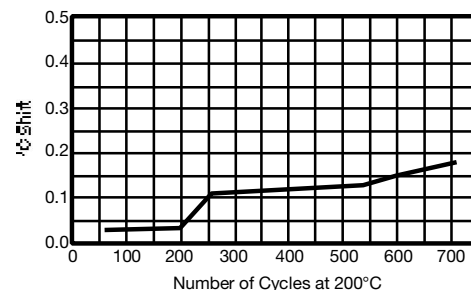
Differential Dew Point Cycling

The second test was cycling from ambient to below the dew point. Moisture is a major cause of failure in standard non-hermetic thermistors. This test exposed the thermistors to multiple cycles with 11 minutes below the dew point and 11 minutes at ambient. After over 3,500 cycles, we saw no appreciable shifts.



High-Temperature Cycling

The last, and most rigorous test, was thermal cycling. This cycle consisted of 11 minutes at ambient and 11 minutes at 200°C . We ran several hundred cycles. Shifts after 700 cycles averaged less than 0.2°C .



Specifications

Time Constant: 2.5 sec max when suspended by its leads in a well-stirred oil bath, 20 sec max in still air.

Dissipation Constant: 10 mW/°C min when suspended by its leads in a well-stirred oil bath, or 4 mW/°C in still air.

Resistance/Temperature Data: A °C/°F resistance versus temperature table is in the Technical Information Section.

Interchangeability Tolerance Data: Tables on pages 17, 18 and 19 show nominal resistance values, ohms per degree, and tolerance at select temperatures over the operating range.

Temperature Probe Assemblies: YSI 46000 Series Thermistors may be installed in many of the probes described in the [Configure to Order Probe Section](#).

Typical Thermometric Drift

Operating Temperature	Typical Thermometric Drift	
	10 months	100 months
25°C	<0.01°C	<0.01°C
70°C	<0.01°C	<0.01°C
100°C	0.02°C	0.03°C
150°C	0.05°C	0.08°C
200°C	0.22°C	0.60°C

How to Order

Please order from your YSI representative or YSI Customer Service.

	Ordering Part Numbers	Zero Power Resistance Ω at 25°C	Beta 0 to 50°C β (K)	Ratio Ω 25 / 125°C	Maximum Working Temperature	Mix
±0.2°C Interchangeability Tolerance 0 to 70°C	46004	2252	3891	29.26	200°C	B
	46005	3000	3891	29.26	200°C	B
	46007	5000	3891	29.26	200°C	B
	46017	6K	3891	29.26	200°C	B
	46006	10K	3574	23.51	200°C	H
	46016	10K	3891	29.26	200°C	B
	46008	30K	3810	29.15	200°C	H
±0.1°C Interchangeability Tolerance 0 to 70°C	46033	2252	3891	29.26	200°C	B
	46030	3000	3891	29.26	200°C	B
	46034	5000	3891	29.26	200°C	B
	46037	6K	3891	29.26	200°C	B
	46031	10K	3574	23.51	200°C	H
	46036	10K	3891	29.26	200°C	B
	46032	30K	3810	29.15	200°C	H
±0.05°C Interchangeability Tolerance 0 to 70°C	46043	2252	3891	29.26	200°C	B
	46040	3000	3891	29.26	200°C	B
	46044	5000	3891	29.26	200°C	B
	46047	6000	3891	29.26	200°C	B
	46041	10K	3574	23.51	200°C	H
	46046	10K	3891	29.26	200°C	B