Series 300 Specifications

Element Resistance: 100 Ohms at 0°C nominal

Temperature Coefficient of Resistance: 0.00385 ohms/ohm/°C nominal

Temperature Range: -50°C to 200°C

Accuracy: Available with accuracy of ±0.10% of resistance at 0°C with typical alpha accuracy of 0.00385 ±0.0000135 ohms/ohm/°C

Interchangeability: For 100 ohm elements the tolerance values at any temperature for these specifications are given by: Tolerance°C=±(0.26+0.0037|t|) for accuracy code 10 (|t|=absolute value of temperature in °C i.e. -100 becomes 100)

Time constant: Four seconds maximum for 63.2% response to step change in water moving at 3 fps.

Insulation resistance: Will remain greater than 500 megohms @ 250 VDC at a specified temp. range for at least 30 days at 100% relative humidity.

Repeatability: Less than ±.10% (±.26°C for a 100 ohm RTD) ice point resistance shift after 1000 hours at 200°C.

Long term stability: Less than ±0.05% (±0.13°C for a 100 ohm RTD) Ice point resistance shift after 1000 hours at 400°C. (See figure 1)

Vibration resistance: For all 1/4" standard sheath diameter RTDs; less than ±.3% (.075°C for a 100 ohm RTD) ice point shift for 30 minutes at 21 g peak vibration; 5-350 Hz continuous sweep at 20°C for unsupported step lengths of 5 1/2" or less. The g level was ramped from 1 to 21g's over the 5 to 30Hz range.

Heavy Duty Sheath (option code SD25) is capable of 30g peak vibration when using the same test above.

Mechanical Durability Test: (slapper test) This test was developed by Burns Engineering to simulate industrial environments. The RTD is mounted in a mechanical/pneumatic test stand in which the sheath is rotated from side to side, striking metal plates at a rate of 30 cycles per minute. Series 300 RTDs continue to meet performance specifications after 1000 cycles.

Long term temperature cycling: Less than ±0.1% (±0.25°C for a 100 ohm RTD) change in ice point resistance after 1000 cycles from 20 to 200°C

Self heating: 10mW/°C in water moving at 3 fps.

Hysteresis: 0.08% maximum between -50 and 200°C

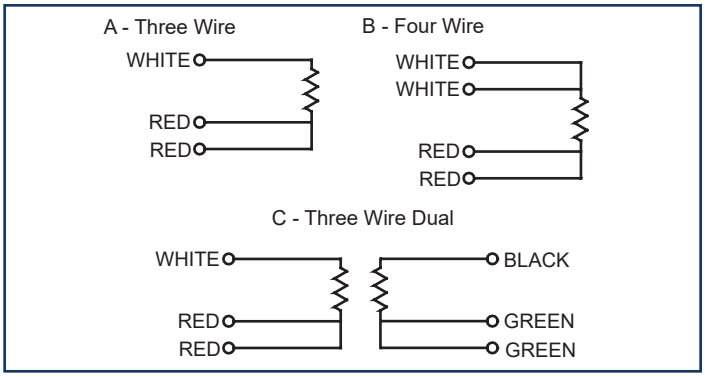
Lead wire: Teflon™ insulated nickel-plated stranded copper, 22 AWG standard (26AWG for dual). Also available in Kapton™.

Sheath material: 316 stainless steel.

Proof Tests to Prove Reliability

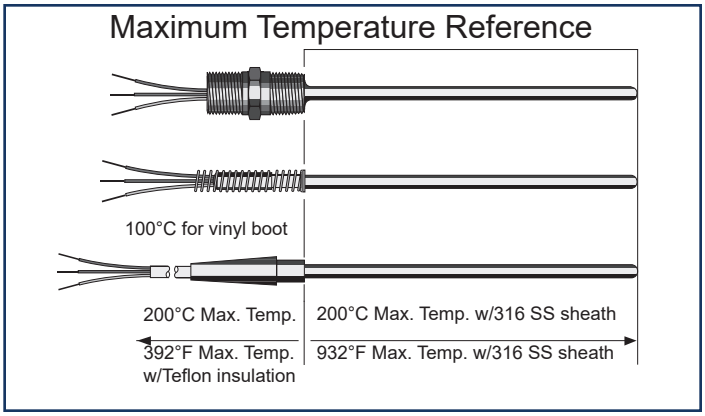
100% Tested: For accuracy at 0°C and insulation resistance for short time ambient temperature and humidity.

Sample Tested: For accuracy at 0°, 100°and 200°C. Insulation resistance for a short time at 200°C and at 20°C for 30 days at 100% relative humidity. Repeatability after 10 cycles between -50° and 200°C. Vibration resistance per ASTM procedure E644 to above parameters. Mechanical durability test for 1000 strikes.



Use Temperature	Max. Drift 1000 Hours	Avg. Drift 1000 hours
To 300°C	0.06°C	0.03°C
To 400°C	0.13°C	0.06°C
To 500°C	0.38°C	0.19°C

Temperature		Interchangeability .10%	
C°	F°	C°	F°
-50	-58	±0.45	±0.80
-25	-13	±0.35	±0.64
0	32	±0.26	±0.46
25	77	±0.35	±0.64
50	122	±0.45	±0.80
75	167	±0.54	±0.97
100	212	±0.64	±1.15
125	257	±0.72	±1.30
150	302	±0.82	±1.47
175	347	±0.91	±1.63
200	392	±1.00	±1.80



Note: Burns wire wound RTDs will offer higher stability and accuracy than thin film RTDs. Series 300 is the best choice for heavy-duty applications, where durability and economy are priorities.

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Information subject to change without notice.

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