

## TIP SENSITIVE BEARING RTD PROBE

### Temperature Sensor

#### Specifications

- Variety of Configurations
- Cut-To-Length
- Fast Response
- Tip Sensitive
- Single and Dual Elements
- Custom Designs Available

The Tip Sensitive Bearing RTD Probe is a tubular sensor in which the sensing element is encased in a copper alloy tip. This allows for increased accuracy and sensitivity to temperature changes at the point of contact in bearings. Inserted at an opening on the bearing housing, they are used in electric motors and generators for continuous sensing of the bearing temperature.

Bearing sensors can be used with a fluid sealed adjustable spring loaded holder for proper loading in any depth hole to maintain contact with the bearing surface.

#### Features

- Variety Sheath Styles:
  - » Stainless Steel, Isolated Stainless Steel, Insulated Epoxy Glass
  - » Copper Tip
- Elements, Single and Dual:
  - » Platinum, Copper, Nickel
- Sheath Diameters:
  - » 0.188", 0.250", 0.215"
- Leadwire/Cable Options

#### Applications

- Industrial
- Electric Motors
- Generators

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## Performance Specifications

### Insulation Resistance:

Single or Dual Elements:  
1,000 megohms @ 500 VDC, leads to case  
Dual Elements:  
100 megohms @ 50 VDC between elements

### Time Constant (typical in 3 ft/sec moving water):

Stainless Steel Sheath and Isolated Stainless Steel Sheath:  
Single Element: 2.0 seconds  
Dual Element: 3.0 seconds  
Insulated Epoxy Glass Sheath: 2.5 seconds

### Pressure Rating:

Standard Stainless Steel Sheath: 100 psi (6.9 bar)  
Isolated Stainless Steel Sheath: 100 psi (6.9 bar)  
Insulated Epoxy Glass Sheath: 30 psi (2.1 bar)  
Fluid Sealed Holder: 50 psi

### Repeatability:

Less than  $\pm .06\%$  change in ice point resistance after 10 consecutive cycles between ice point and 250°C

### Long Term Stability:

Less than  $\pm .2\%$  ice point resistance shift after 1,000 hours at 250°C

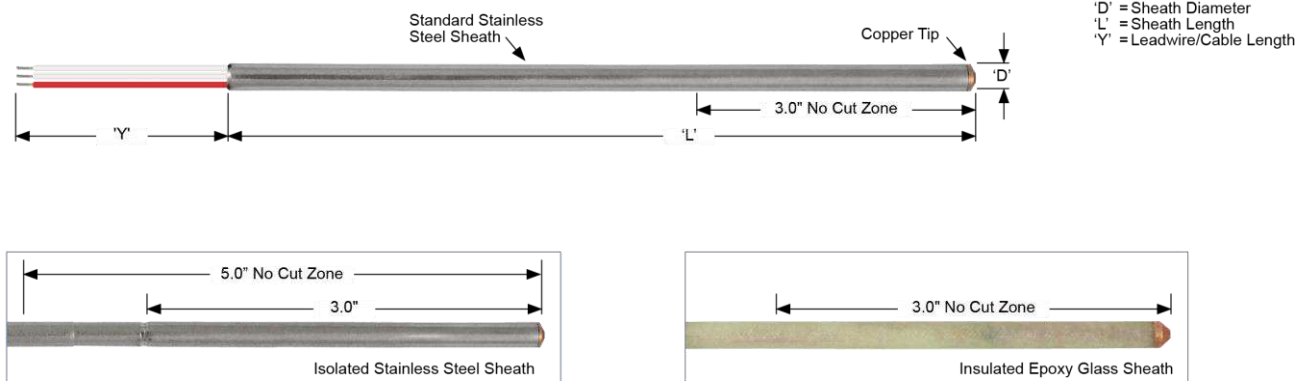
### Self-Heating:

10 mW/C in water moving 3 feet/sec

## RTD Temperature Accuracy Specifications:

Element Material	TCR	Standard Tolerances at 0°C		
		$\pm .12\%$	$\pm .2\%$	$\pm .5\%$
Platinum	0.00385	0.30°C, .12Ω	N/A	1.20°C, .46Ω
Platinum	0.00392	N/A	N/A	1.20°C, 0.46Ω
Copper	0.00427	N/A	0.71°C, 0.028Ω	1.49°C, .058Ω
Nickel	0.00672	N/A	N/A	0.85°C, .68Ω

## Dimensions



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## Ordering Information

Tip Sensitive Bearing RTD Probe			
Model	Sheath Style	Temperature Range	Minimum / Maximum Lengths
310A	Insulated Epoxy Glass	-50 to 155°C (-58 to 311°F)	3.0" Minimum / 48.0" Maximum
310B	Standard Stainless Steel	-50 to 250°C (-58 to 482°F)	3.0" Minimum / 96.0" Maximum
310C	Isolated Stainless Steel	-50 to 250°C (-58 to 482°F)	5.0" Minimum / 96.0" Maximum
Model	Element	Accuracy	Temperature Coefficient
P2B	Platinum	100 Ohm ±.12% at 0°C	.00385
P2C	Platinum	100 Ohm ±.5% at 0°C	.00385
G2C	Platinum	100 Ohm ±.5% at 0°C	.00392
C1D	Copper	10 Ohm ±.2% at 25°C	.00427
N3C	Nickel	120 Ohm ±.5% at 0°C	.00672
Model	Leadwires, Element Configuration	Typical Color Code	
3S	Three Wire, Single	Red/White/White	
3D	Three Wire, Dual	Red/White/White // Blue/Yellow/Yellow	
4S	Four Wire, Single	Red/Red/White/White	
Model	'L' Sheath Length		
---	Define 'L' Length in Inches (See above for Minimum / Maximum Lengths) Example: 10.0 = 10.0"; 6.3 = 6.3"		
Model	'D' Sheath Diameter		
B	.188" Diameter		
C	.250" Diameter (Standard SS and Isolated SS Only)		
D	.215" Diameter		
Model	'Y' Leadwire/Cable Options		
N	No Options, Stranded TFE Leadwires (36.0" Standard)		
W	Leadwire Options		

### Stocked Part Numbers\*

Part Number	Model Number	Part Number	Model Number
R-8580-360	310B P2B 3S 24.0 B W=96.0" Leads	R-10192-16	310C N3C 3S 36.0 B N
R-8580-361	310B P2B 3S 24.0 D W=96.0" Leads	R-10192-106	310C C1D 3S 36.0 B N
R-8580-362	310B P2B 3S 24.0 C W=96.0" Leads	R-10192-89	310C G2C 3S 36.0 D W=4.0" Leads
R-8580-363	310B P2B 3S 36.0 B W=96.0" Leads	R-10192-213	310C P2B 3S 36.0 B W=96.0" Leads
R-8580-364	310B P2B 3S 36.0 D W=96.0" Leads	R-10192-214	310C P2B 3S 36.0 D W=96.0" Leads
R-8580-365	310B P2B 3S 36.0 C W=96.0" Leads	R-10192-215	310C P2B 3S 36.0 C W=96.0" Leads
R-8573-18	310B N3C 3S 36.0 D N	R-11705-8	310C P2B 3D 36.0 D N
R-10137-6	310B P2C 3D 36.0 C N	R-8608-106	310A P2B 3S 36.0 B W=96.0" Leads
R-10137-66	310B P2B 3D 36.0 B W=6.0" Leads	R-8608-107	310A P2B 3S 36.0 D W=96.0" Leads

\* Please consult factory for availability.

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