

## 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

# TIP SENSITIVE BEARING RTD PROBE

Temperature Sensor

## 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

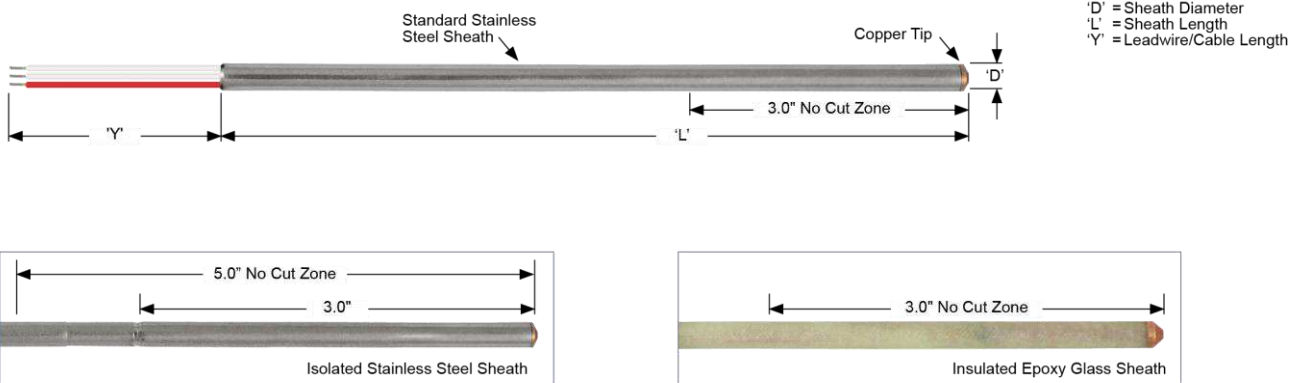
### Self-Heating:

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



# TIP SENSITIVE BEARING RTD PROBE

Temperature Sensor

## 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.

## NORTH AMERICA

Measurement Specialties, Inc.,  
a TE Connectivity Company  
1711 139th Lane NW  
Andover, MN 55304  
Tel +1 763 689 4870  
Fax +1 763 689 5033  
temp.eng.us@meas-spec.com

## EUROPE

Measurement Specialties (Europe), Ltd.,  
a TE Connectivity Company  
4 Rue Gaye Marie  
31027 Toulouse, France  
Tel +33 (0) 582 082 200  
Fax +33 (0) 582 082 151

## ASIA

Measurement Specialties (China), Ltd.,  
a TE Connectivity Company  
No. 26 Langshan Road  
Shenzhen High-Tech Park (North)  
Nanshan District, Shenzhen 518057 China  
Tel +86 755 3330 5088  
Fax +86 755 3330 5099

## TE.com/sensorsolutions

Measurement Specialties, Inc., a TE Connectivity company.

Measurement Specialties, TE Connectivity, TE connectivity (logo) and EVERY CONNECTION COUNTS are trademarks. All other logos, products and/or company names referred to herein might be trademarks of their respective owners.

The information given herein, including drawings, illustrations and schematics which are intended for illustration purposes only, is believed to be reliable. However, TE Connectivity makes no warranties as to its accuracy or completeness and disclaims any liability in connection with its use. TE Connectivity's obligations shall only be as set forth in TE Connectivity's Standard Terms and Conditions of Sale for this product and in no case will TE Connectivity be liable for any incidental, indirect or consequential damages arising out of the sale, resale, use or misuse of the product. Users of TE Connectivity products should make their own evaluation to determine the suitability of each such product for the specific application.

© 2015 TE Connectivity Ltd. family of companies All Rights Reserved.

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[TE Connectivity:](#)

[R-8580-360](#)