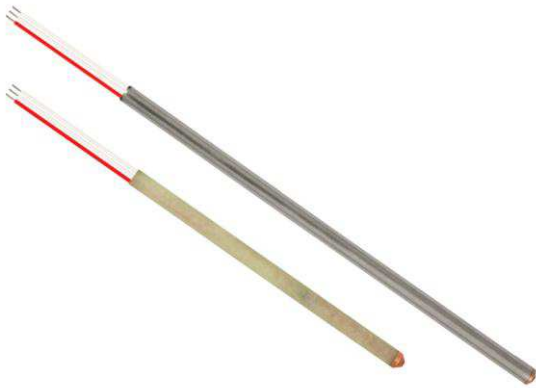




## TIP SENSITIVE BEARING RTD PROBE

### 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

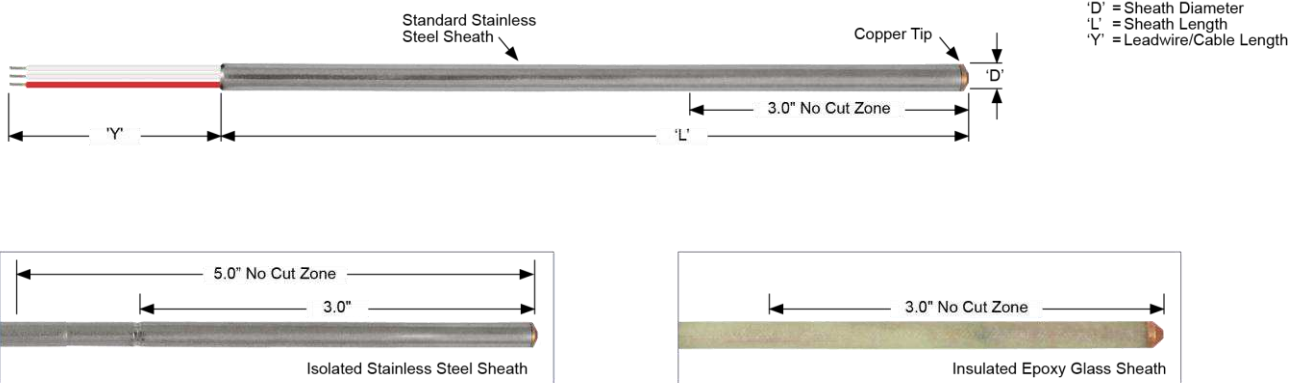
### Self-Heating:

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)<br>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.

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