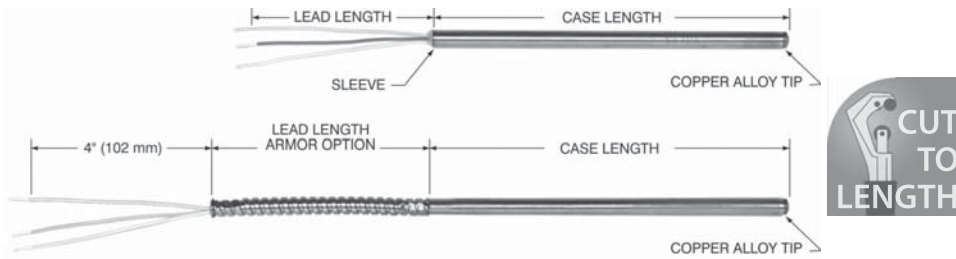


Tip-sensitive RTDs & Thermocouples



Overview

The probe sensing tip is constructed of copper alloy which is twenty times more conductive than stainless steel. The sensors react more quickly to changes and indicate tip temperature instead of stem temperature. The result is better accuracy in thermowells, bearings, and other installations. Minco recommends 0.250" diameter probes for use in thermowells.

- Copper alloy tip for fast response
- Accurate sensing to 260°C (500°F)
- Non-armor models can be user-shortened

Specifications

Temperature range:

Thermocouple: -184 to 260°C (-300 to 500°F).

RTD: -50 to 260°C (-58 to 500°F).

Case:

Stainless steel with copper alloy tip.

Minimum case length:

Thermocouple: 2.5" (63.5 mm).

- RTD:**
- Single element probes: 2.8" (71.1 mm).
 - Dual element probes: 4.0" (101.6 mm).

Maximum case length:

48" (1220 mm), longer on special order.

Leads:

Thermocouple: Solid thermocouple wire, AWG 20 (except AWG 24 on model TC355). Specify PTFE insulation, stainless steel overbraid, or stainless steel armor.

RTD: 2, 3, or 4 leadwires, stranded copper with PTFE insulation. AWG 22, except 0.188" diameter dual probes AWG 24. For 2-lead RTDs add 0.03 Ω per foot (0.05 Ω per foot for 0.188" diameter dual probes) of combined case and lead length to element tolerance. Copper (CA, CC) models must have 3 leads.

Time constant:

Thermocouple: Typical value in moving water:

- Grounded junction: 1.5 seconds.
- Ungrounded junction: 7 seconds.

RTD:

- 2.0 seconds typical in moving water.
- 3.0 seconds for dual element models.

Pressure rating:

100 psi (6.9 bar).

Insulation resistance:

Thermocouple: 10 megohms minimum at 100 VDC, leads to case, ungrounded junctions only.

RTD:

- Single element probes: 1000 megohms min. at 500 VDC, leads to case.
- Dual element probes: 100 megohms min. at 100 VDC, between elements and leads to case.

Vibration:

Withstands 10 to 2000 Hz at 20 G's min. per MIL-STD-202, Method 204, Test Condition D.

Shock:

Withstands 100 G's min. sine wave shock of 8 milliseconds duration.

Model numbers: Thermocouples

| | Model for probe diameter: | | |
|-----------------|---------------------------|--------------------|--------------------|
| | 0.188" (4.8 mm) | 0.215" (5.5 mm) | 0.250" (6.4 mm) |
| Single junction | ▼ TC354 | ▼ TC356 | ▼ TC358 |
| Dual junction | ▼ TC355 | ▼ TC357 | ▼ TC359 |

Specification and order options: Thermocouples

| | |
|------------------------------------|--|
| TC356 | Model number from table |
| T | Junction type: ▼ E = Chromel-Constantan ▼ J = Iron-Constantan ▼ K = Chromel-Alumel ▼ T = Copper-Constantan |
| G | Junction grounding: ▼ G = Grounded ▼ U = Ungrounded |
| 120 | Case length: Specify in 0.1" increments: Ex: 120 = 12.0 inches ▼ : 60, 120, 240 |
| T | Covering over leadwires: ▼ T = PTFE only G = Glass braid only S = Stainless steel overbraid A = Stainless steel armor |
| 80 | Lead length in inches: ▼80 |
| TC356TG120T80 = Sample part number | |

▼ = STANDARD OPTIONS

Specifications subject to change

Model numbers: RTD's

| Element | Model for probe diameter: | | |
|--|---------------------------|--------------------|--------------------|
| | 0.188" (4.8 mm) | 0.215" (5.5 mm) | 0.250" (6.4 mm) |
| Single element RTDs: No armor over leads | | | |
| Platinum (0.00392 TCR) 100 Ω ±0.5% at 0°C | ▼S54PA | ▼S51PA | ▼S53PA |
| Platinum (0.00385 TCR) 100 Ω ±0.06% at 0°C (Meets EN60751, Class A) | ▼S554PM | ▼S551PM | ▼S553PM |
| Platinum (0.00385 TCR) 100 Ω ±0.1% at 0°C (Meets EN60751, Class B) | ▼S854PD | ▼S851PD | ▼S853PD |
| Platinum (0.00385 TCR) 100 Ω ±0.5% at 0°C | S884PE | S881PE | S883PE |
| Copper (0.00427 TCR) 10 Ω ±0.2% at 25°C | S54CA | S51CA | S53CA |
| Nickel (0.00672) 120 Ω ±0.5% at 0°C | S54NA | S51NA | S53NA |
| Single element RTDs: With armor over leads | | | |
| Add element code (Ex: S154__ =S154NA) | ▼S154__ | ▼S151__ | ▼S153__ |
| Dual element RTDs: No armor over leads | | | |
| Platinum (0.00392 TCR) 100 Ω ±0.5% at 0°C | ▼S59PA | ▼S56PA | ▼S57PA |
| Platinum (0.00385 TCR) 100 Ω ±0.06% at 0°C (Meets EN60751, Class A) | S559PM | S856PM | S557PM |
| Platinum (0.00385 TCR) 100 Ω ±0.1% at 0°C (Meets EN60751, Class B) | ▼S859PD | ▼S856PD | ▼S857PD |
| Platinum (0.00385 TCR) 100 Ω ±0.5% at 0°C | S889PE | S886PE | S887PE |
| Copper (0.00427 TCR) 10 Ω ±0.5% at 25°C | | S56CC | S57CC |
| Nickel (0.00672) 120 Ω ±0.5% at 0°C | S59NA | S56NA | S57NA |
| Dual element RTDs: With armor over leads | | | |
| Add element code (Ex: S159__ =S159NA) | S159__ | S156__ | ▼S157__ |



STOCKED PARTS AVAILABLE

Specification and order options: RTD's

| S59PA | Model number from table |
|----------------------------------|--|
| 120 | Case length: Specify in 0.1" increments (Ex: 120 = 12.0 inches) ▼ : 40, 50, 60, 70, 80, 90, 100, 110, 120, 140, 160, 180, 200, 240 |
| Z | # of leads per sensing element: Y = 2 leads ▼ Z = 3 leads (req'd for copper elements) ▼ X = 4 leads (PD only) |
| 36 | Lead length in inches ▼ : 36, 80, 120 |
| S59PA120Z36 = Sample part number | |

Minco also offers probes equivalent to those shown on this page with the added certifications of:

- ATEX Ex ia and EX e (Zones 0 and 1)
- IECEx Ex ia and EX e (Zones 0 and 1)
- TR CU (EAC) Ex ia and EX e (Zones 0 and 1)

▼ = **STANDARD OPTIONS**

Specifications subject to change

