

# Increased Safety & Intrinsically Safe Embedment Sensors

**ATEX**  **II 2 G Ex e IIC**

**ATEX**  **II 1 G Ex ia IIC**

**IECEx Ex eb IIC**

**IECEx Ex ia IIC**

**EAC**



## Overview

- Increased safety and intrinsically safe embedment sensors for monitoring the temperature of thrust bearings
- Three case styles offer a variety of installation options
- Certified for use in Zone 0 and Zone 1, Group IIC hazardous areas, defined by IEC 60079-0 and IEC 60079-7

## Specifications

**Temperature range:** -50 to 200°C (-58 to 392°F), reducing to 125°C (257°F) when elastomer filled cable is ordered.

**Case:** Tin plated copper alloy.

**Babbitt tip:** Factory applied babbitt tip, available on case style A and B reduces the danger of overheating the sensor when installed in babbitt layer.

### Leads:

**RTD:** stranded copper with PTFE insulation.

Stainless steel braid, FEP over PTFE and FEP over stainless steel braid with elastomer fill are optional.

**Thermocouple:** stranded, PTFE insulated, twisted pairs.

Stainless steel braid, FEP over PTFE and FEP over stainless steel braid with elastomer fill are optional.

### Leadwire size (AWG):

RTD					
Case style	Number of leads				
	2	3	4	6	8
A	24	24	24	24	
B	24	24	28	28	28
C	24	26	30	30	
D	30	30	34		
Thermocouple					
A, B, C	24		24		
D	30				

**Time constant:** 3.0 seconds (case style A), typical in moving water.

**Insulation resistance:** 10 megohms minimum at 100 VDC, leads to case.

▼ = **STANDARD OPTIONS**





*Specifications subject to change*





## Specification and order options: RTD

S102951PD	Model number from next page
3	Number of leads per sensing element (2, 3 or 4): ▼:3 CA or PD elements not available with 2 leads 4 leads available on all single elements and dual S207596 + S207598 only
E	<b>Covering over leadwires:</b> T = PTFE insulated leads only ▼ S = Stainless steel overbraid with PTFE insulated leads F = FEP over PTFE insulated leads ▼ E = FEP over stainless steel braid, with elastomer fill and PTFE insulated leads (max. fill length 240")
36	<b>Lead length in inches</b> ▼:36, 120
<b>(Stop here for case style C; no installation variable)</b>	
AC1	<b>Optional Installation/Accessory option</b> ▼ B0 = No babbitt metal or accessories ▼ B1 = Babbitt metal applied ▼ AC1 = Supplied with AC171 spring and AC172 series ring (case style B only) AC2 = Supplied with AC171 spring and AC1038 ring (case style B only) AC3 = Supplied with AC171 spring and AC915-1 ring (case style B only)
S102951PD3E36AC1 = Sample part number	

## Specification and order options: Thermocouple

TC102960K	Model number from next page
U	<b>Junction grounding:</b> ▼ G = Grounded ▼ U = Ungrounded
48	<b>Lead length in inches</b> ▼:48, 144
S	<b>Covering over leadwires:</b> T = PTFE insulated leads only ▼ S = Stainless steel overbraid with PTFE insulated leads F = FEP over PTFE insulated leads ▼ E = FEP over stainless steel braid, with elastomer fill and PTFE insulated leads (max fill length 240")
<b>(Stop here for case style C; no installation variable)</b>	
B0	<b>Optional Installation/Accessory option</b> ▼ B0 = No babbitt metal or accessories ▼ B1 = Babbitt metal applied ▼ AC1 = Supplied with AC171 spring and AC172 series ring (case style B only) AC2 = Supplied with AC171 spring and AC1038 ring (case style B only) AC3 = Supplied with AC171 spring and AC915-1 ring (case style B only)
TC102960KU48SB0 = Sample part number	

RTD Element	TCR $\Omega/\Omega/^{\circ}\text{C}$	Case style A Case L: 0.250" (6.4 mm) Case $\varnothing$ : 0.275" (7.0 mm) 		Case style B Case L: 0.250" (6.4 mm) Case $\varnothing$ : 0.188" (4.8 mm) Flange $\varnothing$ : 0.250" (6.4 mm) 		Case style C Case L: 0.300" (7.6 mm) Case $\varnothing$ : 0.125" (3.2 mm) 		Case style D Case L: 0.300" (7.6 mm) Case $\varnothing$ : 0.080" (2.0 mm) 
		Single	Dual	Single	Dual	Single	Dual	Single
▼ Platinum, 100 $\Omega$ $\pm$ 0.36% at 0°C	.00392	S102950	S102950	S102951	S102951	S102952	S102952	S102954 * Zone 0 only
▼ Platinum, 100 $\Omega$ $\pm$ 0.12% at 0°C (Meets EN60751, Class B)	.00385							
▼ Platinum, 100 $\Omega$ $\pm$ 0.067% at 0°C (Meets EN60751, Class A)	.00385							
▼ Platinum, 100 $\Omega$ $\pm$ 0.36% at 0°C	.00385							
▼ Platinum, 1000 $\Omega$ $\pm$ 0.12% at 0°C	.00385							
▼ Copper, 10 $\Omega$ $\pm$ 0.2% at 25°C	.00427							
▼ Nickel, 120 $\Omega$ $\pm$ 0.5% at 0°C	.00672							Not Available

Thermocouple Junction Type	Case style A Case L: 0.250" (6.4 mm) Case $\varnothing$ : 0.275" (7.0 mm) 		Case style B Case L: 0.250" (6.4 mm) Case $\varnothing$ : 0.188" (4.8 mm) Flange $\varnothing$ : 0.250" (6.4 mm) 		Case style C Case L: 0.300" (7.6 mm) Case $\varnothing$ : 0.125" (3.2 mm) 		Case style D Case L: 0.300" (7.6 mm) Case $\varnothing$ : 0.080" (2.0 mm) 
	Single	Dual	Single	Dual	Single	Dual	Single
E = Chromel-Constantan	▼ TC102960	▼ TC102960	▼ TC102961	▼ TC102961	TC102962	TC102962	TC102964 *Zone 0 only
J = Iron-Constantan							
K = Chromel-Alumel							
T = Copper-Constantan							

**STOP OIL SEEPAGE!**

**Feedthroughs** provide an oil tight seal where a cable exits a machine housing. The stainless steel tube is epoxy filled and each wire is sealed to the individual conductor. This prevents wicking of oil inside the wires as well as leakage around the wire insulation. Pressure rating to 25 psi (1.7 bar.) See page 3-11 for details.

**Leadwire and cable seal** models FG1015, FG3015 and FG4015 seal RTD or thermocouple leadwires where they exit oil-filled bearing housings of rotating equipment. Both versions include a grommet that provides the seal and allows adjustment of the wire or cable position. See page 3-12 for details.

**Elastomer rubber-filled cable** has elastomer fill between the wires, stainless steel braid, and outer jacket. This fill can extend along the entire length of the cable, or a specified portion. The outside of the cable can be sealed with an FG1015, FG3015 and FG4015 fitting. See Leadwire Covering Options on Miniature Sensors on pages 6-2 to 6-10.



Minco Application Aid #27 provides more information on the problems of oil seepage and various solutions. Download AA#27 at [www.minco.com](http://www.minco.com)

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