Product Guide

For miniature bearing and babbitt bearing applications

Miniature Temperature Sensors

For miniature bearing and babbitt bearing applications

- General purpose designs
- ATEX Certified designs
- CSA US/CAN Non-Incendive Certified designs
- Supplied in multiple case styles
- Custom designs on request
- Rugged construction
- RTD and Thermocouple Types available
- Pass throughs, elastomer fill and accessories
- Standard four day delivery
- Application proven

C US

ATEX Certification



Pyromation's miniature sensors are designed to measure the critical temperature of the metal bearing shoes operating in generators, turbines and other rotating equipment. Monitoring the bearing temperature of rotating equipment is very important in preventing machine failures caused by the breakdown of the lubricating oil when it becomes too hot. Pyromation not only provides a cost-effective line of miniature sensors for these applications, they have experienced sales and engineering support available to assist you in finding the best way to measure temperature in your equipment.

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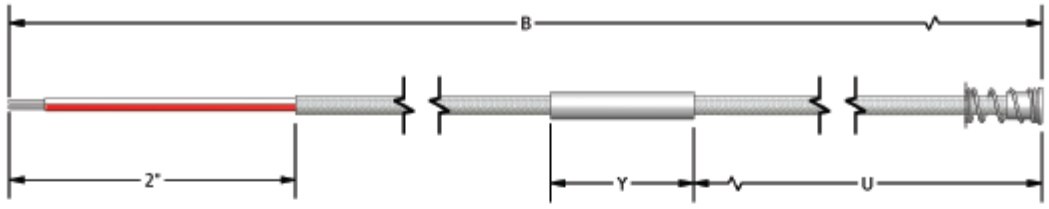
pyromation inc beyond measure

MINIATURE RTD SENSOR



Example Order Number:

0-0		1-0	1-1	2-0		3-0		4-0		5-0
HL30	-	RBF185LBS	3	BST	-	3P02(1/2),24	-	T3120	-	2

0-0 OPTIONAL CERTIFICATION [1]

CODE	DESCRIPTION
HL30	ATEX Certified CE Ex II3G Ex ic IIC T4 Gc
HL05	Certified: US/CAN Non-Incendive; Div 2; Zone 2, 22
[1] Selection not required for general purpose sensors	

1-1 ELEMENT CONNECTION

CODE	DESCRIPTION
2	2 Wire
3	3 Wire

1-0 100 Ω PLATINUM RTD ELEMENTS (-40 TO 804° C)

SENSOR TYPE		DESCRIPTION	
CODE		TOLERANCE	TEMPERATURE COEFFICIENT
SINGLE	*DUPLEX*		
RBF185LBS	RBF285LBS	± 0.30 °C [± 0.12% X R_o]	α = 0.003 85 °C^{-1}
RBF192LBS	RBF292LBS	± 0.30 °C [± 0.12% X R_o]	α = 0.003 92 °C^{-1}

2-0 CASE OPTIONS

CASE STYLE	
CODE	DESCRIPTION
A	0.275" OD x 0.250" Long
B	0.188" OD x 0.250" Long
BS	0.188" OD x 0.250" Long (Includes spring and washer)
C	0.125" OD x 0.300" Long
D[1]	0.080" OD x 0.300" Long
CASE MATERIAL	
CODE	DESCRIPTION
T	Tin plated copper
N	Nickel plated copper
[1] Not available in duplex	

3-0 SEALING OPTIONS

CODE	DESCRIPTION
00	No sealing option
E "U"	Elastomer fill (must specify length of elastomer fill "U" dimension) 72" maximum fill length. T3BT wire type must be specified.
3P"Y", "U"	3/16" OD pass through (Must specify "Y" length and "U" length)
4P"Y", "U"	1/4" OD pass through (Must specify "Y" length and "U" length)

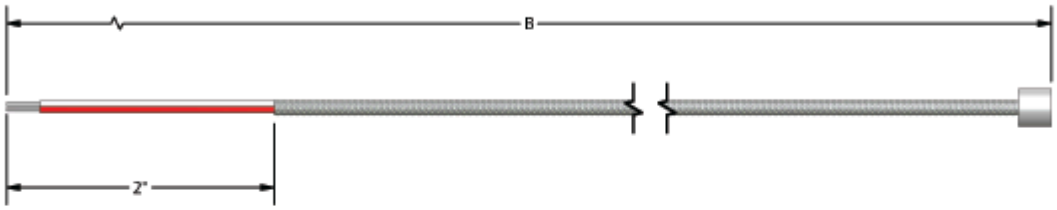
4-0 EXTENSION LEADWIRE TYPE ("B" DIMENSION)

CODE	DESCRIPTION
T3J	Fluoropolymer insulation - individual leads - stranded conductor
T3	Fluoropolymer insulation - stranded conductor
T3B	Fluoropolymer insulation - stranded conductor - stainless steel overbraid
T3BT	Fluoropolymer insulation - stranded conductor - stainless steel overbraid - Fluoropolymer outer jacket

5-0 TERMINATION

CODE	DESCRIPTION
0	No termination
2	2" split leads 1/4" strip
3	2" split leads with spade lugs

100 Ω Platinum RTD α = 0.00385 °C^{-1} α = 0.00392 °C^{-1}		CASE STYLE A Ø 0.275" OD x 0.250" L		CASE STYLE B Ø 0.188" OD x 0.250" L Flange 0.250" OD x 0.030" L		CASE STYLE C Ø 0.125" OD x 0.300" L		CASE STYLE D Ø 0.080" OD x 0.300" L	
CODE	DESCRIPTION	*Single*	*Duplex*	*Single*	*Duplex*	*Single*	*Duplex*	*Single*	*Duplex*
T3J	Fluoropolymer insulation - individual leads - stranded conductor	2 or 3 wire 24 AWG	2 or 3 wire 28 AWG	2 or 3 wire 24 AWG	2 or 3 wire 28 AWG	2 or 3 wire 28 AWG	2 or 3 wire 28 AWG	2 or 3 wire 28 AWG	N/A
T3	Fluoropolymer insulation - stranded conductor	2 or 3 wire 24 AWG	2 or 3 wire 28 AWG	2 or 3 wire 24 AWG	2 or 3 wire 28 AWG	2 or 3 wire 28 AWG	2 or 3 wire 28 AWG	N/A	N/A
T3B	Fluoropolymer insulation - stranded conductor - stainless steel overbraid	2 or 3 wire 24 AWG	2 or 3 wire 28 AWG	2 or 3 wire 24 AWG	2 or 3 wire 28 AWG	2 or 3 wire 28 AWG	2 or 3 wire 28 AWG	N/A	N/A
T3BT	Fluoropolymer insulation - stranded conductor - stainless steel overbraid - Fluoropolymer outer jacket	2 or 3 wire 24 AWG	2 or 3 wire 28 AWG	2 or 3 wire 24 AWG	2 or 3 wire 28 AWG	2 or 3 wire 28 AWG	2 or 3 wire 28 AWG	N/A	N/A



Example Order Number:

0-0	1-0		2-0		3-0		4-0		5-0
HL30	JBS	U	AT	-	00	-	T3120	-	2

0-0 Optional Certification [1]

CODE	DESCRIPTION
HL30	ATEX Certified CE Ex II3G Ex ic IIC T4 Gc
HL05	Certified: US/CAN Non-Incendive; Div 2; Zone 2, 22
[1] Selection not required for general purpose sensors	

1-0 Thermocouple Type

CODE	
SINGLE	*DUPLEX*
JBSU	JJBSU
KBSU	KKBSU
TBSU	TTBSU
EBSU	EEBSU

3-0 Sealing Options

CODE	DESCRIPTION
00	No sealing option
3P"Y", "U"	3/16" OD pass through (Must specify "Y" length and "U" length)
4P"Y", "U"	1/4" OD pass through (Must specify "Y" length and "U" length)

2-0 Case Options

CASE STYLE	
CODE	DESCRIPTION
A	0.275" OD x 0.250" Long
B	0.188" OD x 0.250" Long
BS	0.188" OD x 0.250" Long (Includes spring and washer)
C[1]	0.125" OD x 0.300" Long
D[1]	0.080" OD x 0.300" Long
CASE MATERIAL	
CODE	DESCRIPTION
T	Tin plated copper
N	Nickel plated copper
[1] Not available in duplex	

4-0 Extension Leadwire Type ("B" Dimension)

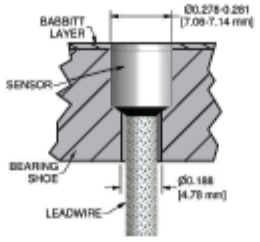
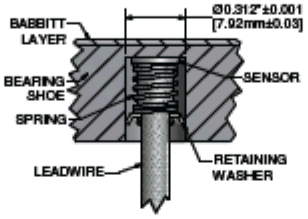
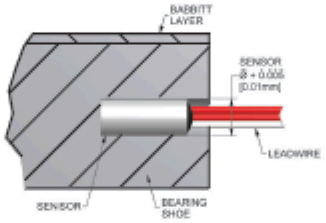
CODE	DESCRIPTION	AVAILABLE CALIBRATIONS			
		J	K	T	E
T1	Fluoropolymer insulation - solid conductor	x	x	x	
T3J	Fluoropolymer insulation - individual leads - stranded conductor	x	x	x	x
T3	Fluoropolymer insulation - stranded conductor	x	x	x	x
T3B	Fluoropolymer insulation - stranded conductor - stainless steel overbraid	x	x		

5-0 Termination

CODE	DESCRIPTION
0	No termination
2	2" split leads 1/4" strip
3	2" split leads with spade lugs

Thermocouple Types J, K, T, E	CASE STYLE A		CASE STYLE B		CASE STYLE C		CASE STYLE D	
	Ø 0.275" OD x 0.250" L		Ø 0.188" OD x 0.250" L Flange 0.250" OD x 0.030" L		Ø 0.125" OD x 0.300" L		Ø 0.080" OD x 0.300" L	
CODE	DESCRIPTION	*Single*	*Duplex*	*Single*	*Duplex*	*Single*	*Duplex*	*Single*	*Duplex*
T1	Fluoropolymer insulation - solid conductor	24 AWG	24 AWG	24 AWG	24 AWG	24 AWG	N/A	30 AWG	N/A
T3J	Fluoropolymer insulation - individual leads - stranded conductor	24 AWG	24 AWG	24 AWG	24 AWG	24 AWG	N/A	N/A	N/A
T3	Fluoropolymer insulation - individual leads - stranded conductor	24 AWG	24 AWG	24 AWG	24 AWG	24 AWG	N/A	N/A	N/A
T3B	Fluoropolymer insulation - stranded conductor - stainless steel overbraid	24 AWG	24 AWG	24 AWG	N/A	24 AWG	N/A	N/A	N/A

Installation Instructions

CASE STYLE	INSTALLATION	ILLUSTRATION
A	Install sensor just below the babbitt layer – near bearing shoe surface, then puddle the babbitt metal over the sensor tip and smooth.	
B	This sensor is designed with a spring and retaining washer that allows for spring loading. Slide the spring and washer over the leads. Insert the sensor tip into a hole bored into the bearing shoe and push down on the retaining ring to compress the spring and secure the sensor.	
C & D	Bore the sensor hole in the bearing shoe near, but not touching, the babbitt surface. Insert sensor and secure by potting/bonding with epoxy.	

Accessories

PART NUMBER	DESCRIPTION	ILLUSTRATION
12920	Spring	
12919	Retaining Washer	
10494	Retaining Ring	

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Operating since 1962, Pyromation is the premier temperature sensor manufacturer in North America. From RTDs and thermocouples to thermowells, connection heads, transmitters, accessories and complete assemblies, Pyromation can make the right temperature sensor for your process and deliver it faster than anyone in the industry. A broad product line, industry

For product selection, application assistance,
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