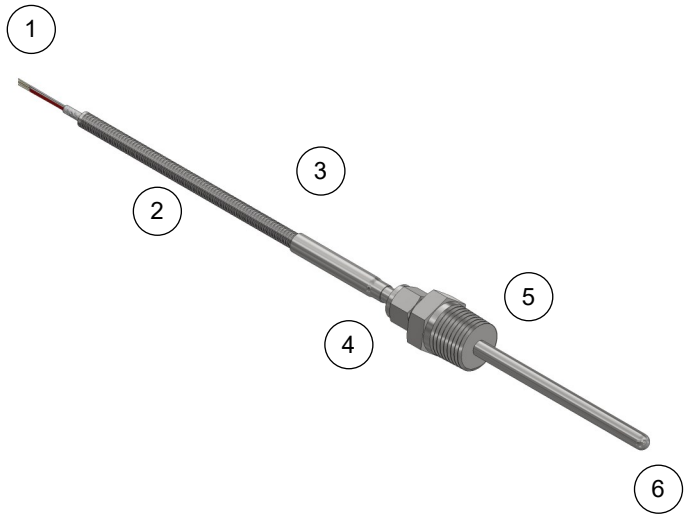
RTD Sensor Probes

RT Series Sensor Probes



1. Lead Wire Termination is how the sensor will connect and terminate to the instrument or electrical interface.

2. Lead Wire Insulation Type and length are selected to suit each application. The temperature rating varies depending on the material of lead wire used.

3. Transition is where the sensing probe is transitioned to lead wires. This piece is crimped or brazed onto the probe and potted with an epoxy rated to 150°C. For high temperature, and low moisture applications, a ceramic cement potting material is available on special request.

4. Fitting options are available to fasten the sensor into the process or optional thermowell.

5. Sensor length, outer diameter, and material are very important variables when designing a RTD sensor probe. The sheath is commonly constructed from tubing or mineral insulated cable (MI cable). 316/L stainless steel is the standard alloy Aircom uses to construct RTD sensors. Other alloys are available on special request. Material compatibility is always the end users responsibility.

6. RTD element is located in the tip of the sensor. This is where the temperature sensing takes place. RTD elements may be a thin-flim or wire-wound style depending on RTD construction options.

Temperature Limiting Factors of RTD sensor probes will depend on the RTD construction option of the model code in addition to the rating of each component used in the sensors construction. Continuous temperature ratings of the components are listed in the model number selection.

Overview

The RT series RTD sensor probes come in various styles unique to different applications. Each style consists of a RTD element protected by a sheath with a termination option.

Features:

- Styles are customizable to almost any application.
- Manufactured from high quality raw materials that meet industry recognized standards.
- Fast lead time on styles that utilize standard Aircom materials.

Application:

RTD sensor probes are used widely across almost any and every commercial and industrial temperature process control application.

Configuration Considerations

When configuring the RT series RTD sensor probe models to suit your application it is important to consider the following:

- Hazardous location approval rating
- Sensor probe construction options
- Number of RTD elements
- Sheath OD
- Sheath material (316/L stainless steel standard)
- Sensor probe length
- Lead wire length
- Lead wire type
- Lead wire termination
- Process fitting options
- Process fitting size
- Minimum and maximum temperature of the process
- Process conditions and effect on the sensor probe
- Maximum pressure (if applicable)

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RT4 RTD Sensor Probe Model Code

RT4 - T1 - T2 - T3 - T4 - T5 - T6 - T7 - T8 - T9 - T10 - T11 - T12 - T13

RT4	RTD Sensor Probe

T1	Probe Style[2]
GP	**General purpose**
EI	Electrically isolated[4]
TS	Tip sensitive[4]
BP	Bayonet style
TE	Tip sensitive & electrically isolated[4]
BT	Bayonet style & tip sensitive[4]

T2	Element Type
A	**100Ω Pt. 385 Class A[3]**
B	100Ω Pt. 385 1/10 Class B[3]
C	100Ω Platinum 392
D	120Ω Nickel 627 0.806Ω/ºC
E	10Ω Copper 427 0.039Ω/ ºC
F	1000Ω Pt. 385 Class A[3]

T3	Number of Elements		
S	**Single element**	D	Dual element

T4	Lead Wire Configuration		
2	2 Wire	**3**	**3 Wire**
4	**4 Wire**	Other	Consult factory

T5	Sensor Probe Diameter
18	0.125” (1/8”)[4]
36	0.188” (3/16”)
21	0.215”
14	**0.250” (1/4”)**
38	0.375” (3/8”)
Other	Consult factory

T6	Sensor Probe “L” Length (inches)[2]
“inches”	Specify length in inches for straight probe
“LA”N“LB”	LA = Length above / N = Bend / LB = Length below

T7	Lead Wire Type[5]
TE	Teflon (+260°C)
ST	Teflon with SS over braid (+260°C)
AT	**Flex armor over Teflon (+260°C)**
PT	Poly jacketed flex armor over Teflon (+102°C)
TT	Teflon flex armor over Teflon (+260°C)
AF	Flex armor over fiberglass (+482°C)
Other	Consult factory

T8	Lead Wire “A” Length (inches)[2]
“inches”	Specify length in inches

T9	Lead Wire Termination[5]
BE	**Bare ended lead wire**
SC	Standard male connector (+205°C)
MC	Miniature male connector (+205°C)
SL	Spade lugs
RL	Ring lugs
PI	Pins
CG	1/2” NPT cord grip electrical fitting
Other	Consult factory

T10	Flying Leads “W” Length (inches)[2]
8	**Standard 8” flying leads**
“inches”	Specify length in inches
X	Not applicable (Default for TE and ST options)

T11	Fitting Options
X	**No fitting required**
CF	Compression fitting - Stainless steel ferrule
CT	Compression fitting - Teflon ferrule
FX	Fixed hex instrument plug 1/2" NPT
FS	Fixed bushing 1/2”x1/2” NPT
TX	Spring loaded bushing 1/2”x1/2” NPT
OS	Oil seal spring loaded 1/2”x1/2” NPT
SG	Self gripping spring
Other	Consult factory

T12	Fitting Size
X	**No fitting**
18	1/8” NPT
14	1/4” NPT
38	3/8” NPT
12	**1/2” NPT**
Other	Consult factory

T13	Sensor Probe Construction[5]
LT	**Low temperature (-50 to +260ºC)**
HT	High temperature[3] (-50 to +482ºC)
ET	Extreme temperature[3] (-50 to +850°C)
VL	Vibration low temperature[3] (-50 to +260ºC)
VH	Vibration high temperature (-50 to +482ºC)
CT	Cryogenic temperature (-200 to +260°C)

Standard sheath material supply is 316/316L stainless steel

NOTES:

1. Part number example: RT4-GP-A-S-3-14-6-AT-36-BE-60-X-X-LT or RT4-GP-A-S-3-14-3N9-TE-BE-X-CF-12-LT.
2. Reference page 3 for further detail on probe style, page 4 for part outline, and page 5 for part dimensions
3. Element tolerances applicable to each class: Class A ≤ +300°C, Class B > +300°C, 1/10 DIN Class B ≤ +150°C (+302°F).
4. Only available for sensor probe construction (T12) LT option.
5. Temperature values given are for maximum continuous rating for the specific component of the configuration.
6. Bold text indicates most common part selections.

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RT4 RTD Sensor Probe Style

Probe Style	
GP	General Purpose - Standard RTD sensor probe construction.
EI	Electrically Isolated - Sensor sheath is isolated 2.5” back from tip. Typically used on electric motor bearings.
TS	Tip Sensitive - Copper sensor probe tip is silver soldered on to probe for enhanced thermal conductivity. Typically used on electric motors.
TE	Tip Sensitive & Electrically Isolated - Combination of both sensor styles noted above.
BP	Bayonet Style - Spring loaded construction by means of standard bayonet cap. Designed to install into bayonet adapter fitting. Spring length is 1.625”.
BT	Bayonet Style & Tip Sensitive - Combination of both sensor styles noted above.

Sheath Materials - Standard Aircom RTD sensor probes are manufactured with 316/316L stainless steel. Other materials are available upon request.

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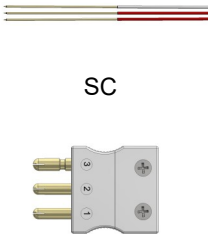
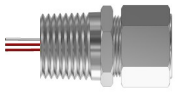
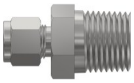
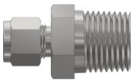
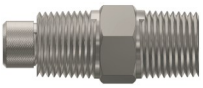
RT4 RTD Sensor Probe Outline

Termination	Lead Wire Type	Transition	Fittings	Sensor Sheath (OD)
BE	TE	Standard Transition	X (None)	18 (0.125”)
SC	ST	Small Transition	CF	36 (0.188”)
MC	AT	X (None)	CT	21 (0.215”)
SL	PT		FX	14 (0.250”)
CG	AF		FS	38 (0.375”)
	TT		OS/TX	
			SG	







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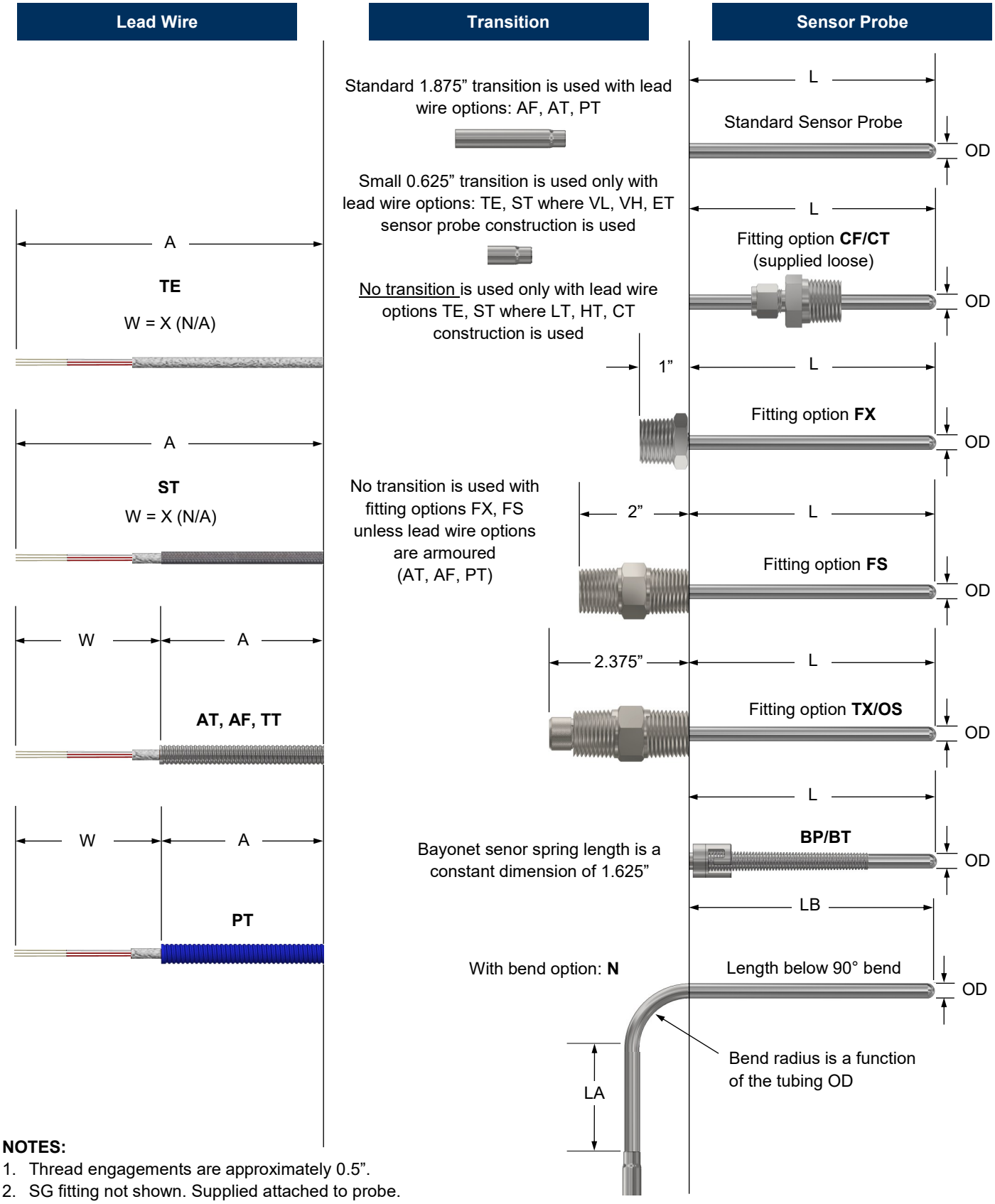
RT4 RTD Sensor Probe Dimensions



NOTES:

1. Thread engagements are approximately 0.5”.
2. SG fitting not shown. Supplied attached to probe.

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