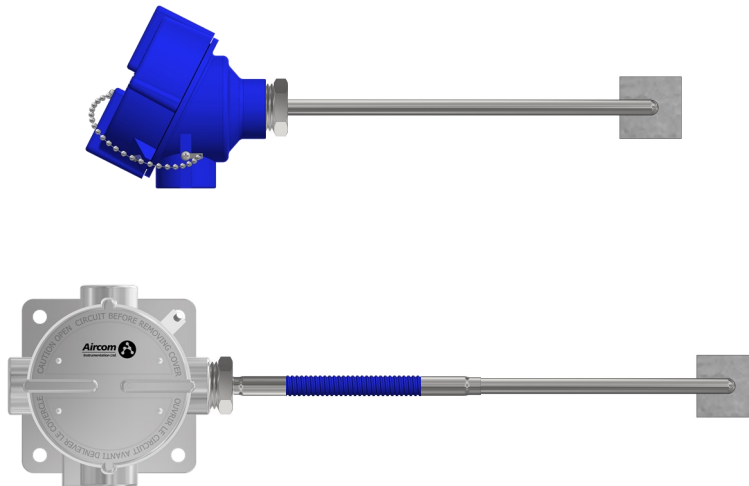


# SM4 Surface Pad Temperature Assembly

Class I, Division 2, Groups A, B, C, D; Class I, Zone 2, Group IIC (Note 2); T6...T1



## Overview

### Description:

The SM4 surface pad temperature sensor assembly is designed for use in hazardous locations. The SM4 is a customizable product that is model number configured and made to order.

The SM4 consists of a thermocouple or RTD sensor probe with a surface mount pad that can come curved for a pipe or flat. Flexible armour connects the sensor probe to a connection head (enclosure) that may be provided with a terminal block, DIN rail, wire splice connectors, or internal transmitter.

### Application:

- Hazardous location temperature measurement
- Surface mount industrial temperature measurement
- Process control
- Outdoor / indoor use

## Specifications

Accuracy RTD	Tolerance per IEC 60751 (DIN EN 60751)
Accuracy TC	Tolerance per ASTM E230
T-Code	T6...T1
Electrical rating	30 Vdc, 1.0 A max
Ambient temperature	-50°C to +50°C (-58°F to +122°F)
Process temperature	-50°C to +450°C (-58°F to +842°F)
CSA Certificate of Compliance	1526478

### Note:

1. Specifications will depend on model code variants, and the values shown are the full rated model ranges.
2. Class I, Zone 2, Group IIC is US only.

# SM4 Surface Pad Model Code

SM4 - T1 - T2 - T3 - T4 - T5 - T6 - T7 - T8 - T9

## SM4 Surface Pad Temperature Assembly

T1	Connection Head	Color	Material	Conduit Connection	Terminal Block	Type Rating
2ALT	Standard style	Blue	Aluminum epoxy coated	1x 3/4" NPT	Bakelite	Type 4X
1ALT	Standard style	Blue	Aluminum epoxy coated	1x 1/2" NPT	Bakelite	Type 4X
2ALTC	Standard style	Blue	Aluminum epoxy coated	1x 3/4" NPT	Ceramic	Type 4X
2ALW	Mounting holes	Grey	Aluminum epoxy coated	1x 3/4" NPT	Bakelite	Type 4X
2ALM	Multi connection	Blue	Aluminum epoxy coated	2x 3/4" NPT	Bakelite	Type 4X
2AL	Standard style	Grey	Aluminum	1x 3/4" NPT	Bakelite	Type 4
2SS	Standard style	Steel	Stainless steel	1x 3/4" NPT	Bakelite	Type 4X
Note	Refer to page 6 for additional options, details and other styles					

T2	Flex Armor Extension	Lead Wire Ratings
FX	Fixed 1/2" NPT instrument fitting	N/A
AF	Flex armor over fiberglass lead wire	Fiberglass lead wire +485°C (+905°F)
AT	<b>Flex armor over Teflon lead wire</b>	<b>Teflon lead wire +260°C (+500°F)</b>
PT	Poly jacketed flex armor over Teflon lead wire	Teflon lead wire +260°C (+500°F) / Poly jacket +90°C (+194°C)
TT	Teflon jacketed flex armor over Teflon lead wire	Teflon lead wire / jacket +260°C (+500°F)

T3	Flex Armor Extension "A" length (inches) <sup>4</sup>	CSA Process Temperature Rating <sup>4</sup>
"inches"	Specify length in inches	-50°C to +450°C (-58°F to +842°F), when "A" length is ≥ 8" length <sup>4</sup>
0.5"	For FX style connection extension	Ensure sensor probe "L" length is ≥ 8" length <sup>4</sup>

T4	Sensor Type	Notes
K	Type K Thermocouple	Temperature values are for the temperature sensor probe construction only. The CSA process and ambient temperature assembly ratings are dependant on connection head (T1) and distance from the head to contact with the process (T2, T3, T8) <sup>4</sup> .
J	Type J Thermocouple	
T	Type T Thermocouple	
E	Type E Thermocouple	
N	Type N Thermocouple	
R3LT	<b>3 Wire RTD - Low temperature (-50 to 260°C) (-58°F to +500°F)</b>	
R3HT	3 Wire RTD - High temperature <sup>4</sup> (-50 to 482°C) (-58°F to +899°F)	
R3ET	3 Wire RTD - Extreme temperature <sup>4</sup> (-50 to 850°C)(-58°F to +1562°F)	
R3VT	3 Wire RTD - Vibration construction <sup>4</sup> (-50 to 482°C) (-58°F to +899°F)	
R3CT	3 Wire RTD - Cryogenic temperature (-200 to 260°C) (-328°F to +500°F)	
R4LT	<b>4 Wire RTD - Low temperature (-50 to 260°C) (-58°F to +500°F)</b>	
R4HT	4 Wire RTD - High temperature <sup>4</sup> (-50 to 482°C) (-58°F to +899°F)	
R4ET	4 Wire RTD - Extreme temperature <sup>4</sup> (-50 to 850°C)(-58°F to +1562°F)	
R4VT	4 Wire RTD - Vibration construction <sup>4</sup> (-50 to 482°C) (-58°F to +899°F)	
R4CT	4 Wire RTD - Cryogenic temperature (-200 to 260°C) (-328°F to +500°F)	

Continued on page 3



# SM4 Surface Pad Model Code

SM4 - T1 - T2 - T3 - T4 - T5 - T6 - T7 - T8 - T9

Continued from page 2

T5	Element - Junction Type
G	Thermocouple Grounded
U	<b>Thermocouple Ungrounded</b>
A	<b>RTD 100Ω Pt. 385 Class A</b> (Class A tolerance $\leq +300^{\circ}\text{C}$ (+572°F), Class B tolerance typically applies $> +300^{\circ}\text{C}$ (+572°F))
B	100Ω Pt. 385 1/10 Class B (1/10 DIN; tolerance typically applies $\leq +300^{\circ}\text{C}$ (+572°F))
C	RTD 100Ω Platinum 392
D	RTD 120Ω Nickel 627 0.806Ω/°C
E	RTD10Ω Copper 427 0.039Ω/ °C
F	RTD 1000Ω Pt. 385 Class A

T6	Number of Elements - Junctions
S	<b>Single</b>
D	Dual
Other	Consult factory

T7	Sensor Probe Diameter
36	0.188" (3/16")
<b>14</b>	<b>0.250" (1/4")</b>
38	0.375" (3/8")

T8	Sensor Probe "L" Length (inches)
"inches"	Specify length in inches for straight probe length
N "inches"	Specify "N" and length in inches for 90° bend

T9	Surface Pad Curve - Surface Diameter (inches)
X	<b>Not applicable - flat surface pad</b>
"inches"	Surface (pipe) diameter specified in inches

**Sensor Probe Sheath & Pad Material**  
 Standard default material is 316/316L stainless steel. Other alloys are available on request

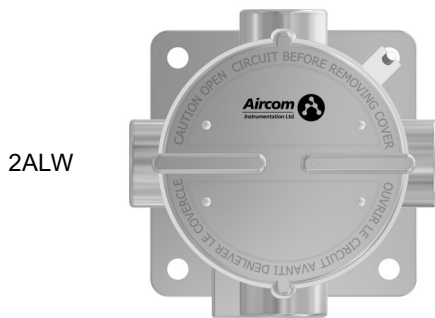
**NOTES:**

1. Part number example: SM4-X-AT-36-K-U-S-14-12-X or SM4-2ALT-FS-1.5-72-R3LT-A-S-14-10-X
2. Reference page 4 for part outline and 5-6 for part dimensions
3. Bold text indicates most common part selections
4. The sensor temperature rating is based on the length not directly in contact with the process at its maximum temperature



# SM4 Surface Pad Assembly Outline

## Connection Head



Refer to page 6 for further connection head styles, options, and details

## Flex Armor Extension

FX



AF - AT - TT



PT



## Sensor Probe



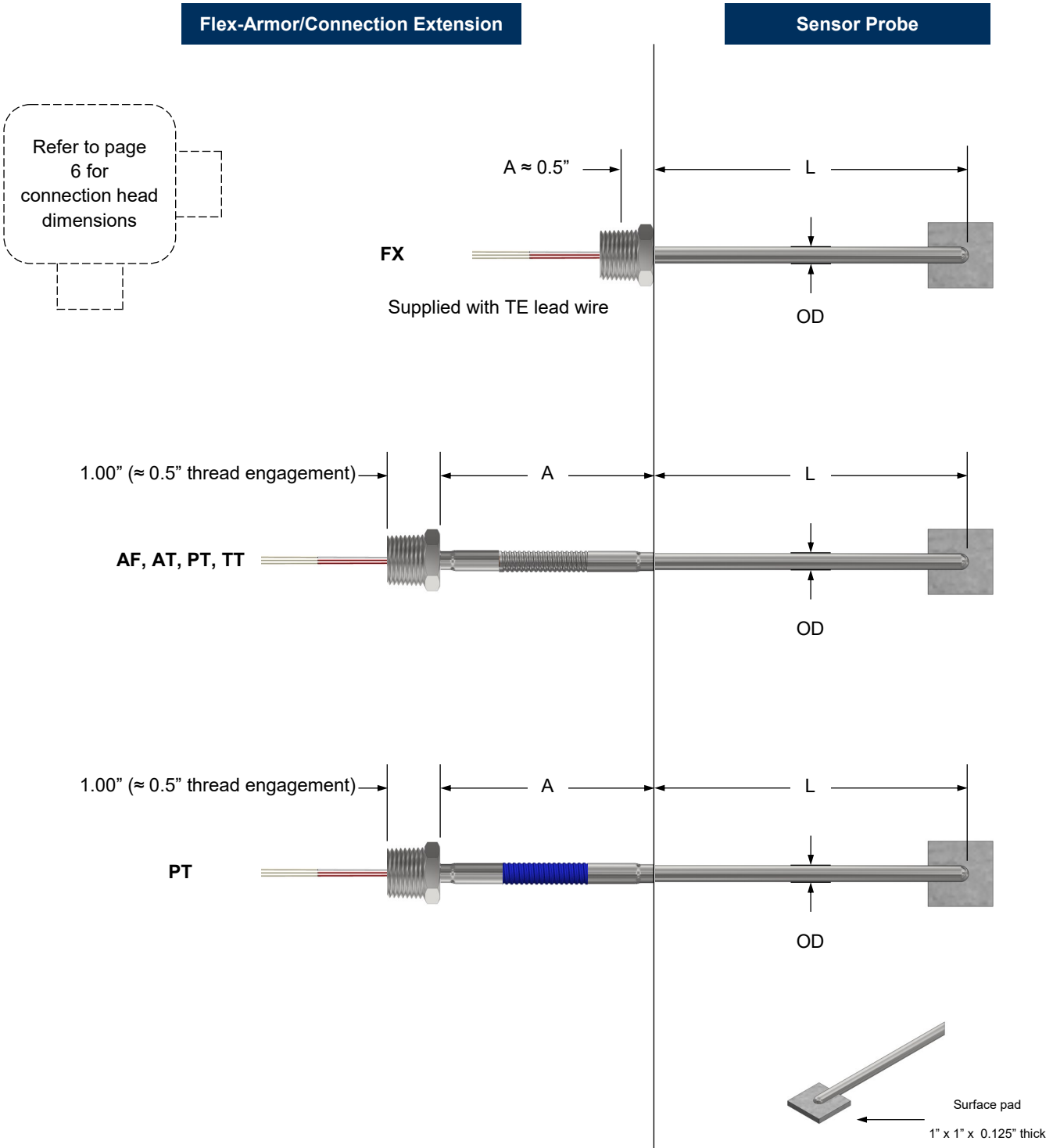
Flat



Curve



# SM4 Surface Pad Assembly Dimensions

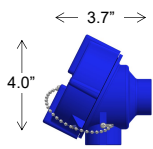
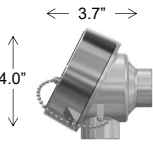

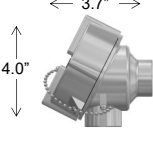
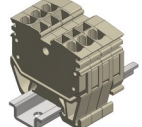
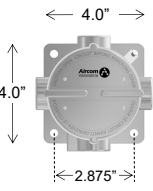

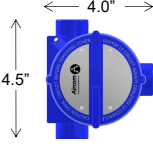


NOTE:  
1. Assemblies are supplied with 6" to 8" of lead wire



# SM4 Connection Heads

## Model, Outline, and Dimensions

Outline & Dimensions	Model	Connection (NPT)		Material & Type	Ambient Temperature	Terminal Block Options
		Instrument	Conduit			
	1ALT	1/2"	1x 1/2" <sup>2</sup>	Cast aluminum epoxy coated Buna O-ring Type 4X		 Bakelite - <u>standard</u> Screw terminals to suit sensor configuration.
	2ALT	1/2"	1x 3/4"			
	3ALT	3/4"	1x 3/4"			
	1SS	1/2"	1x 1/2" <sup>2</sup>	316 stainless steel Buna O-ring Type 4X	-50°C to +85°C (-58°F to +185°F) (+125°C (+257°F) Canada only)	 Ceramic - optional Screw terminals to suit sensor configuration Add suffix "C" to connection head model number.
	2SS	1/2"	1x 3/4"			
	3SS	3/4"	1x 3/4"			
	1AL	1/2"	1x 1/2" <sup>2</sup>	Cast aluminum Buna O-ring Type 4		 Clamp technology - optional DIN mounted clamp technology terminals to suit sensor configuration Add suffix "D" to connection head model number.
	2AL	1/2"	1x 3/4"			
	3AL	3/4"	1x 3/4"			
	1ALW	1/2" <sup>2</sup>	1x 1/2" <sup>2</sup>	Cast aluminum epoxy coated Buna O-ring Type 4X	-40°C to +85°C (-40°F to +185°F)	 Splice technology - optional Wire splicing connectors contained loosely within connection head. Add suffix "S" to connection head model number.
	2ALW	1/2" <sup>2</sup>	1x 3/4"			
	3ALW	3/4"	1x 3/4"			
	4ALW	3/4"	2x 3/4"			
	1ALM	1/2"	2x 1/2"			
	2ALM	1/2"	2x 3/4"			
	3ALM	3/4"	2x 3/4"			

### NOTES:

1. Ambient ratings are of the connection head only, temperature assembly ambient rating is typically -50°C to +50°C (-58°F to +122°F)
2. May be supplied with an approved 3/4" x 1/2" NPT reducer bushing
3. Type ratings are for enclosure component of assembly ONLY and not full assembly