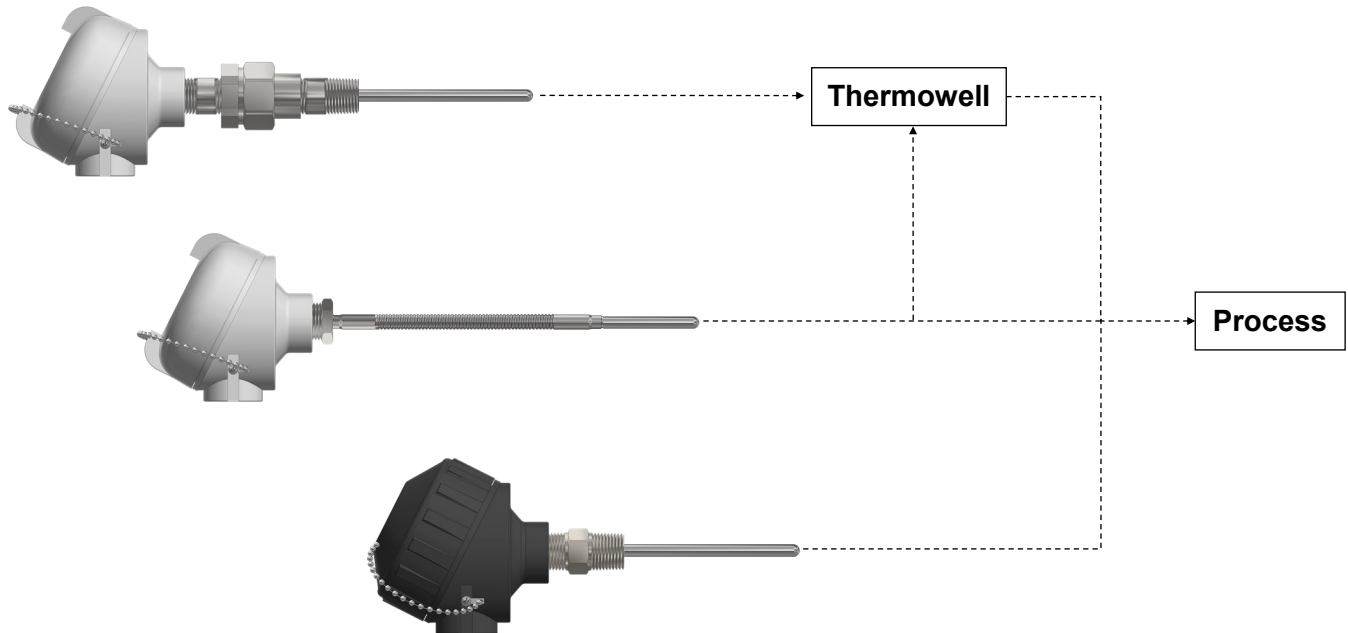


TC1 Thermocouple Assembly

General Purpose



Overview

Description:

The TC1 thermocouple assembly is a thermocouple sensor designed for use general purpose non-hazardous locations. The TC1 is a customizable product that is model number configured and made to order.

The TC1 consists of a thermocouple sensor, complete with a connection head (enclosure) that may or may not contain an internal temperature transmitter module. Connection extension fittings will spring load the sensor into a thermowell or a fixed fitting can be used without a thermowell.

Features:

- Simple design that is used and accepted across multiple process industries.
- TC1 configuration options allow for many different patterns to be configured for almost any temperature measurement application.

Application:

- Industrial temperature measurement
- Process control

Configuration Considerations

When configuring the TC1 model to suit your application it is important to consider the following:

- Site specific standards
- Connection head type
- Extension length
- Thermocouple type (tolerance)
- Junction style and quantity
- Minimum and maximum temperature of the process
- Maximum pressure
- Process conditions and their effects on the assembly
- Sensor probe length (to align with what it is going into)

If using a TC1 with a thermowell, consider:

- Thermowell length alignment with TC1 sensor probe
- Spring loaded TC1 "L" length = Thermowell stem
- Fixed fitting TC1 "L" length = Thermowell stem - 0.5"

TC1 Thermocouple Assembly Model Code

TC1 - T1 - T2 - T3 - T4 - T5 - T6 - T7 - T8 - T9

TC1 Thermocouple Assembly

T1 Connection Head

0AL	Aluminum, 1x 3/4" conduit, Bakelite terminal block
2CI	Iron alloy, 1x 3/4" conduit, Bakelite terminal block
0PY	Polypropylene, 1x 3/4" conduit, Ceramic terminal block
X	Not required
Other	Refer to page 5 for details, styles and options

T2 Flex-Armor/Connection Extension

N	Nipple 1/2" NPT (galvanized)
SN	Nipple 1/2" NPT (stainless steel)
NUN	Nipple-union-nipple⁴ 1/2" NPT (galvanized)
SNUN	Nipple-union-nipple ⁴ 1/2" NPT (stainless steel)
FS	Fixed bushing 1/2"x1/2" NPT
FX	Fixed hex instrument fitting 1/2" NPT
OS	Spring loaded bushing with oil seal 1/2"x1/2" NPT
AF	Fixed hex instrument fitting - flex armor over fiberglass
AT	Fixed hex instrument fitting - flex armor over Teflon
PT	Fixed hex fitting - Poly jacketed flex armor over Teflon
TX	Spring loaded fitting (transmitter bushing) 1/2"x1/2" NPT
TXUN	Spring loaded fitting-union-nipple (galvanized)
STXUN	Spring loaded fitting-union-nipple (stainless)

T3 Flex-Armor/Connection Extension "A" (inches)⁵

X	Fixed length for T2 options FS, FX, OS, TX
3.5	3.5" (3" installed)
4.5	4.5" (4" installed)
"inches"	Specify AF, AT, PT length in inches
Other	Specify (inches)

T4 Thermocouple Type

K	Type K	N	Type N
J	Type J	R	Type R
T	Type T	S	Type S
E	Type E	B	Type B

T5 Sensor Sheath Diameter

18	1/8" OD
36	3/16" OD
14	1/4" OD
38	3/8" OD

T6 Thermocouple Junction

G	Grounded
U	Ungrounded
E	Exposed

T7 Thermocouple Junction Quantity

S	Single
D	Dual
T	Triple
Q	Quad

T8 Sensor Sheath Material

304	304/304L stainless steel
316	316/316L stainless steel
310	310 stainless steel
600	Inconel 600
HAC	Hastelloy C-276
CI	Ceramic Insulators
Other	Consult factory

T9 Sensor "L" Length (inches)⁵

"inches"	Specify length in inches
----------	--------------------------

NOTES:

1. Part number example: TC1-2ALT-NUN-3.5-K-14-U-S-316-12
2. Connection head enclosure connection extension (T2) options NUN requires a connection head and terminal block for spring loading
3. Reference page 3 for part overview and page 4 for dimensions
4. Bold text indicates most common part selections



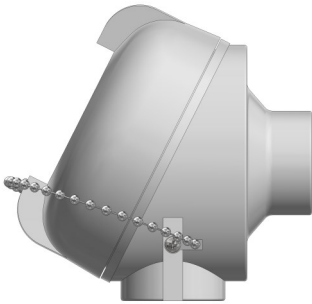
Section: Thermocouple Sensor Probes & Assemblies
File: Thermocouple-Assembly-TC1-2

Aircom Instrumentation Ltd.
9328 - 37 Avenue NW
Edmonton, AB T6E 5K3
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TC1 Thermocouple Assembly Outline

Connection Head

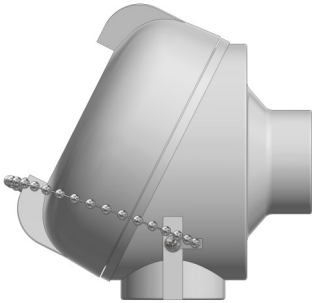
0AL



2CI



0PY



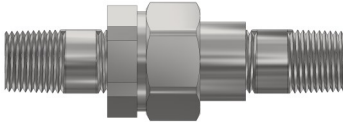
Refer to page 5 for further connection head styles, options, and details

Flex-Armor/Connection Extension

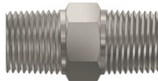
N & SN



NUN & SNUN



FS



FX



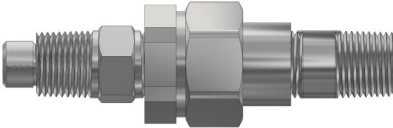
OS



TX



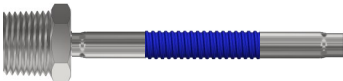
TXUN & STXUN



AF - AT



PT



Sensor Probe (OD)

18
(0.125")



36
(0.188")



14
(0.250")



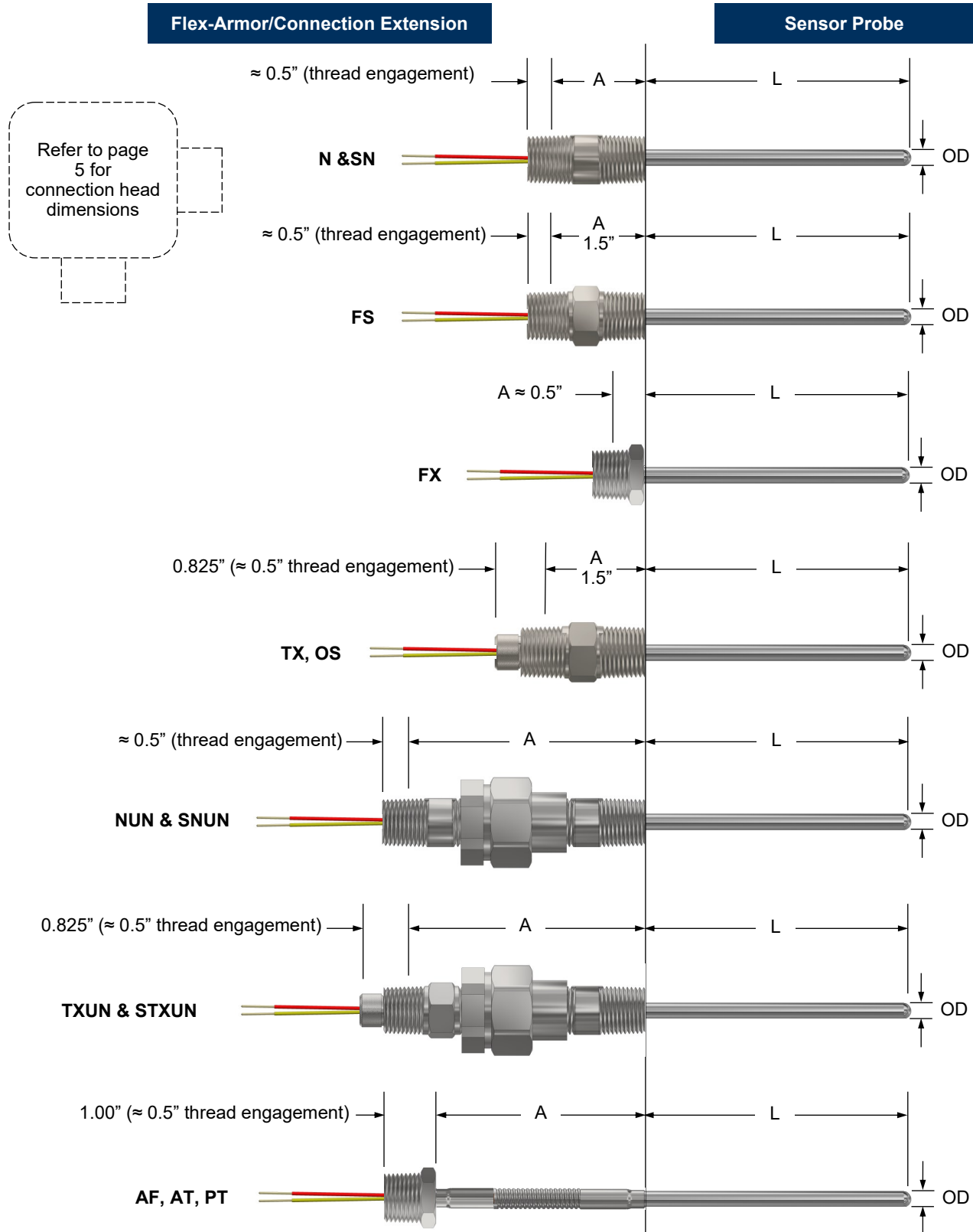
38
(0.375")



CI
(0.250 or 0.375")



TC1 Thermocouple Assembly Dimensions

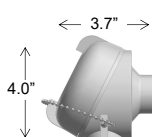
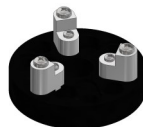
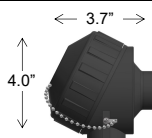

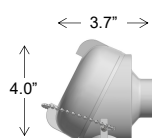
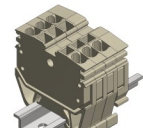
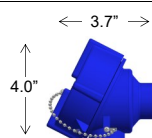
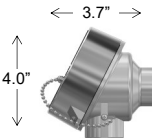
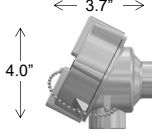
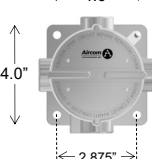

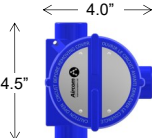


NOTE:

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

TC1 Connection Heads

Model, Outline, and Dimensions

Outline & Dimensions	Model	Connection (NPT)		Material & Type	Max. Temperature Rating	Terminal Block Options	
		Instrument	Conduit				
	4AL	1/2"	1x 1/2" ²	Cast aluminum Buna O-ring General Purpose	+440°C (+825°F)	 Bakelite - <u>standard</u> Screw terminals to suit sensor configuration	
	0AL	1/2"	1x 3/4"				
	1CI	1/2"	1x 1/2" ²	Iron alloy General Purpose	+440°C (+825°F)	 Ceramic - optional Screw terminals to suit sensor configuration Add suffix "C" to connection head model number	
	2CI	1/2"	1x 3/4"				
	3CI	3/4"	1x 3/4"				
	0PY	1/2"	1x 3/4"	Polypropylene General Purpose	+121°C (+250°F)	 Clamp technology - optional DIN mounted clamp technology terminals to suit sensor configuration Add suffix "D" to connection head model number.	
	1ALT	1/2"	1x 1/2" ²	Cast aluminum epoxy coated Buna O-ring Hazardous ¹ Type 4X	+85°C ² (+185°F)		
	2ALT	1/2"	1x 3/4"				
	3ALT	3/4"	1x 3/4"				
	1SS	1/2"	1x 1/2" ²	316 stainless Hazardous ¹ Type 4X			
	2SS	1/2"	1x 3/4"				
	3SS	3/4"	1x 3/4"				
	1AL	1/2"	1x 1/2" ²	Cast aluminum Buna O-ring Hazardous ¹ Type 4X			
	2AL	1/2"	1x 3/4"				
	3AL	3/4"	1x 3/4"				
	1ALW	1/2" ²	1x 1/2" ²	Cast aluminum epoxy coated Buna O-ring Hazardous ¹ Type 4X	+85°C ³ (+185°F)	 Splice technology - optional Wire splicing connectors contained loosely within connection head. Add suffix "S" to connection head model number.	
	2ALW	1/2" ²	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. Hazardous location rating is for connection head ONLY and not the complete temperature sensor assembly
2. Ambient temperature rating -50°C to +85°C (-58°F to +185°F); maximum temperature rating +125°C (+257°F) Canada only
3. Ambient temperature rating -40°C to +85°C (-40°F to +185°F)
4. May be supplied with an approved reducer bushing