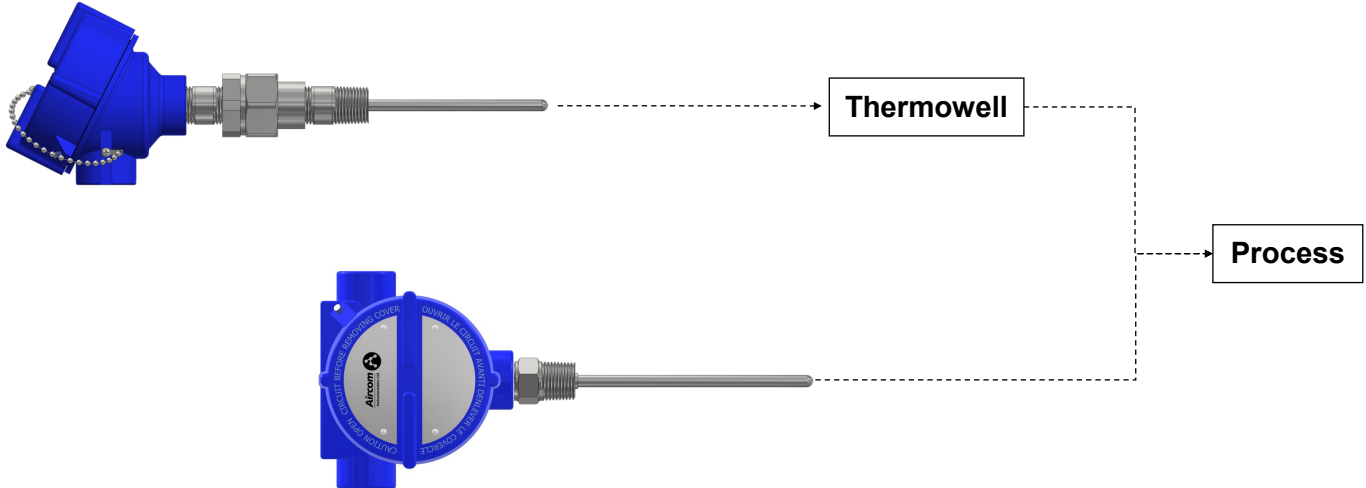


TC10 Thermocouple Assembly

Class I, Division 1, Groups B, C, D; Class II, Division 1, Groups E, F, G; Class III; T6...T1

Class I, Zone 1, Groups IIB plus hydrogen, IIB; Zone 20; T6...T1



Overview

Description:

The TC10 thermocouple assembly is a thermocouple designed for use in hazardous locations. The TC10 is a customizable product that is model number configured and made to order.

The TC10 consists of a thermocouple sensor probe, complete with a connection head (enclosure) that may be provided with a terminal block, DIN rail, wire splice connectors, or internal transmitter. 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.
- TC10 configuration options allow for many different arrangements to be configured for almost any temperature measurement application.

Application:

- Hazardous location temperature measurement
- Industrial temperature measurement
- Process control
- Outdoor / indoor use

Specifications

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: Specifications will depend on model code variants, and the values shown are the full rated model ranges.



TC10 Thermocouple Assembly Model Code

TC10 - T1 - T2 - T3 - T4 - T5 - T6 - T7 - T8 - T9

TC10 Thermocouple assembly with connection head and connection extension fittings

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	Connection Extension	Material	CSA Note
N	Nipple 1/2" NPT	Galvanized	Thermowell required ² for hazardous rating
SN	Nipple 1/2" NPT	Stainless Steel	
NUN	Nipple-union-nipple 1/2" NPT	Galvanized	
TX	Spring loaded fitting 1/2"x1/2" NPT	Stainless Steel	
TXUN	Spring loaded fitting-union-nipple	Galvanized	Canada only, Thermowell required ² for hazardous rating
SNUN	Nipple-union-nipple 1/2" NPT	Stainless Steel	
STXUN	Spring loaded fitting-union-nipple	Stainless Steel	CSA process pressure rating ≤ 34.4 MPa @ +20°C (5000 psi @ +68°F)
FS	Fixed bushing 1/2"x1/2" NPT	Stainless Steel	
FX	Fixed hex instrument fitting 1/2" NPT	Stainless Steel	CRN process pressure rating ≤ 25.5 MPa @ +20°C (3700 psi @ +68°F)

T3	Connection Extension "A" length (inches)	Connection Extension (T2) Options	CSA Rating
X	Fixed length for T2 options FS, FX, TX	FS, FX, TX	-50°C to +50°C (-50°F to +122°F), T6
0.5	Clearance fit	N, SN	-50°C to +50°C (-50°F to +122°F), T6
1.5	1" installed length	N, SN	-50°C to +200°C (-50°F to +392°F), T4A
3.5	3" installed length	N, NUN, TXUN, SN, SNUN, STXUN	-50°C to +230°C (-58°F to +446°F), T3C
4.5	4" installed length	N, NUN, TXUN, SN, SNUN, STXUN	-50°C to +230°C (-58°F to +446°F), T3C
8.5	8" installed length	SN, SNUN, STXUN	-50°C to +450°C (-58°F to +842°F), T2
"inches"	Installed length is the fitting length minus approximately 1/2 inch for thread engagement.		

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

Continued on page 3



TC10 Thermocouple Assembly Model Code

TC10 - T1 - T2 - T3 - T4 - T5 - T6 - T7 - T8 - T9

Continued from page 2

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
Other	Consult factory

T9	Sensor "L" Length (inches)
"inches"	Specify length in inches

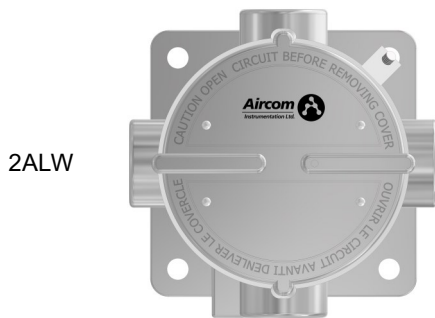
NOTES:

1. Part number example: TC10-2ALT-TXUN-3.5-K-14-U-S-316-12
2. Must be installed into certified thermowell at Aircom or in the field
3. Reference page 4 for outline and page 5-6 for dimensions
4. Bold text indicates most common part selections



TC10 Thermocouple Assembly Outline

Connection Head



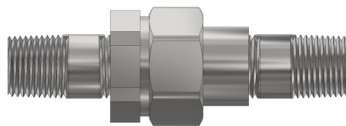
Refer to page 6 for further connection head styles, options, and details

Connection Extension

N & SN



NUN & SNUN



FS



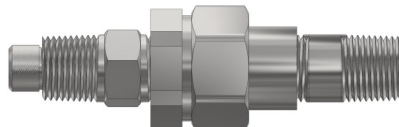
FX



TX



TXUN & STXUN



Sensor Probe (OD)

18
(0.125")



36
(0.188")



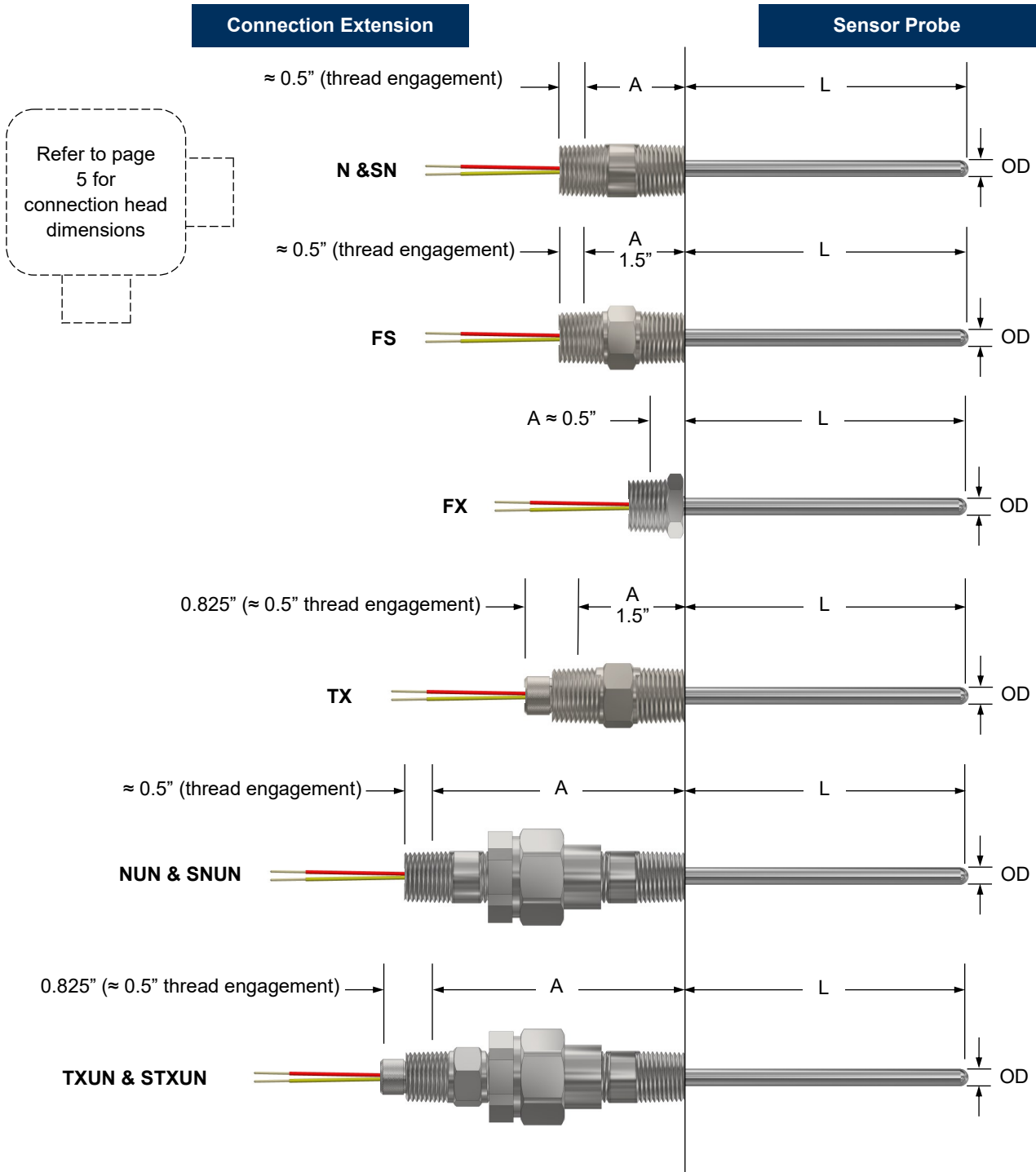
14
(0.250")



38
(0.375")



TC10 Thermocouple Assembly Dimensions



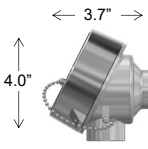

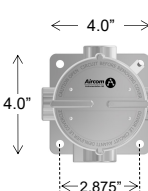
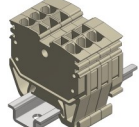
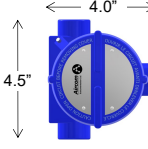
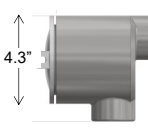
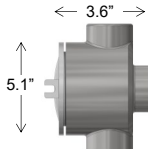
NOTE:

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



TC10 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" ²	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" ²	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" ²	Cast aluminum Buna O-ring Type 4		Ceramic - optional Screw terminals to suit sensor configuration Add suffix "C" to connection head model number.
	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 Type 4X	-40°C to +85°C (-40°F to +185°F)	 Clamp technology - optional DIN mounted clamp technology terminals to suit sensor configuration Add suffix "D" 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"			Clamp technology - optional DIN mounted clamp technology terminals to suit sensor configuration Add suffix "D" to connection head model number.
	2ALM	1/2"	2x 3/4"			
	3ALM	3/4"	2x 3/4"			
	1CAL ³	1/2" ²	1x 1/2" ²			 Splice technology - optional Wire splicing connectors contained loosely within connection head. Add suffix "S" to connection head model number.
	2CAL ³	3/4"	1x 3/4"			
	4CAL ³	1/2"	2x 1/2"	Cast aluminum Buna O-ring Type 4	-20°C to +40°C (-4°F to +104°F)	Splice technology - optional Wire splicing connectors contained loosely within connection head. Add suffix "S" to connection head model number.
	3CAL ³	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