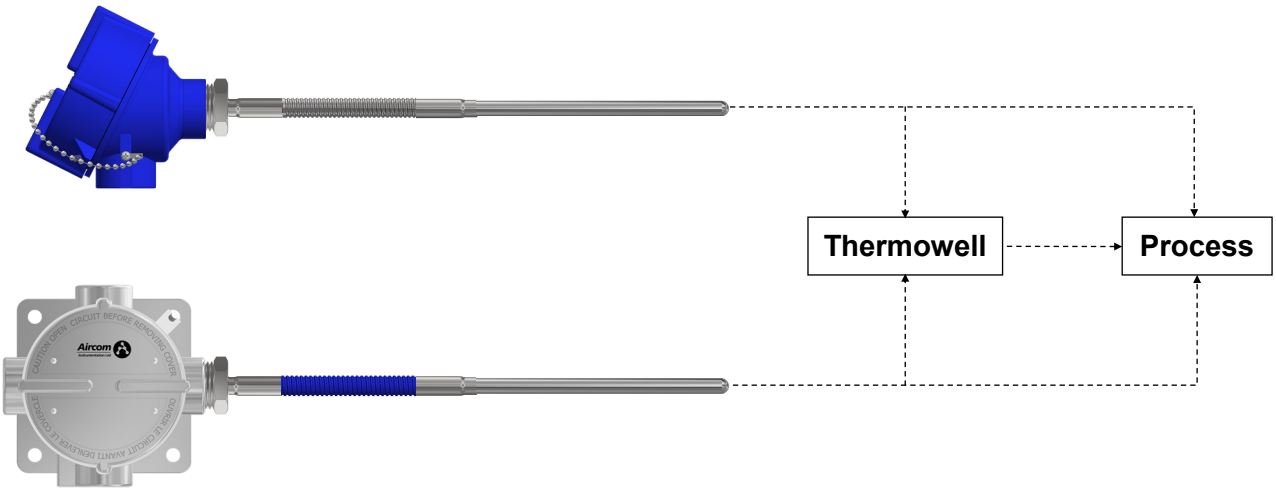
RT11 Flex Armor RTD Assembly

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



Overview

Description:

The RT11 flex armor RTD assembly is an RTD designed for use in hazardous locations. The RT11 is a customizable product that is model number configured and made to order.

The RT11 consists of a RTD sensor probe, complete with a connection head (enclosure) that may be provided with a terminal block, DIN rail, wire splice connectors, or internal transmitter. Flexible armor connects the sensor probe to the connection head and the use of a thermowell is optional.

Features:

- Simple design that is used and accepted across multiple process industries.
- RT11 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 RTD	Tolerance per IEC 60751 (DIN EN 60751)
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.

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RT11 RTD Assembly Model Code

RT11 - T1 T1A - T2 - T3 - T4 - T5 - T6 - T7 - T8 - T9 - T10 - T11

RT11	RTD assembly with connection head and connection flexible armor extension

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**
3ALT	**Standard style**	**Blue**	**Aluminum epoxy coated**	**1x 3/4" NPT**	**Bakelite**	**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
Other	Refer to page 6-7 for additional options, details and other styles					

T1A	Terminal Block / Transmitter
'Blank'	**Bakelite terminal block**
C	**Ceramic terminal block**
D	DIN mount technology
S	Splicing connectors
47D1	5437D1 PR puck transmitter (with HART)
47A1	5437A1 PR puck transmitter (with HART)
Other	Refer to page 6-7 or consult factory for available styles and options

T2	Flex-Armor Extension	Lead Wire Ratings
AF	Flex armor over fiberglass lead wire	Fiberglass lead wire +485°C (+905°F)
AT	**Flex armor over Teflon lead wire**	**Teflon lead wire +260°C (+500°F)**
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 with teflon jacket +260°C (+500°F)

T3	Flex-Armor Extension "A" length (inches)	CSA Process Temperature Rating
"inches"	Specify length in inches	-50°C to +450°C (-58°F to +842°F), when "A" length is ≥ 8" length[1]

T4	Element Type
A	**100Ω Pt. 385 Class A (Class A tolerance ≤ +300°C (+572°F), Class B tolerance typically applies >+300°C (+572°F))**
B	100Ω Pt. 385 1/10 Class B (1/10 DIN; tolerance typically applies ≤ +150°C (+302°F))
C	100Ω Platinum 392
D	120Ω Nickel 627 0.806 Ω/ºC
E	10Ω Copper 427 0.039 Ω/ºC
F	1000Ω Pt. 385 Class A

T5	Number of Elements
S	**Single element**
D	Dual element

Continued on page 3

NOTES:
1. The sensor temperature rating is based on the length not directly in contact with the process at its maximum temperature.
2. Reference page 4 to 5 for part outlines and dimensions.
3. Bold text indicates most common part selections.

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RT11 RTD Assembly Model Code

RT11	-	T1	T1A	-	T2	-	T3	-	T4	-	T5	-	T6	-	T7	-	T8	-	T9	-	T10	-	T11

Continued from page 2

T6	Lead Wire Configuration
2	2 Wire
3	**3 Wire**
4	**4 Wire**

T7	Sensor Probe Construction	
LT	**Low temperature (-50 to +260ºC) (-58°F to +500°F)**	Temperature values are for the RTD temperature sensor probe construction only. The CSA process and ambient temperature assembly ratings are dependant on connection head (T1) and flex-armor extension length (T3).
HT	High temperature (-50 to +482ºC) (-58°F to +899°F)	
ET	Extreme temperature (-50 to +850°C) (-58°F to +1562°F)	
VL	Vibration construction low temp (-50 to +260ºC) (-58°F to +500°F)	
VH	Vibration construction high temp (-50 to +482ºC) (-58°F to +899°F)	
CT	Cryogenic temperature (-200 to +260°C) (-328°F to +500°F)	

T8	Sensor “L” Length (inches)
“inches”	Specify length in inches
“LA”N“LB”	Length(s) with bend; LA = above bend (leave blank for standard supply); N = 90° Bend; LB = below bend; *e.g. N12 or 4N8*

T9	Sensor Sheath Diameter
18	1/8” (0.125”)[2]
36	3/16” (0.188”)[3]
14	**1/4” (0.250”)**
38	3/8” (0.375”)

T10	Fitting Options
X	**No fitting required**
CF	**Compression fitting**
SL0	Spring loaded fitting (1/2” NPT only)
Other	Consult Factory

T11	Fitting Size
X	**No fitting required (size not applicable)**
18	1/8” NPT
14	1/4” NPT
12	**1/2” NPT**
38	3/8” NPT
Other	Consult Factory

NOTES:
1. Part number example: RT11-2ALTD-AT-1100-A-S-3-VH-N12-14-SL0-12.
2. OD Not available for element type E, dual elements, or HT, ET, VH construction.
3. 3/16” probe OD not available for ET construction.
4. Standard sheath material supply is 316/316L stainless steel.

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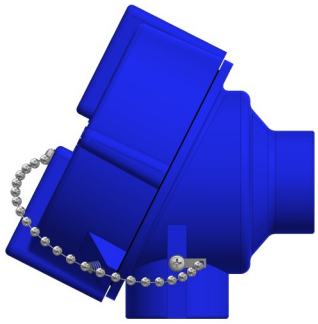
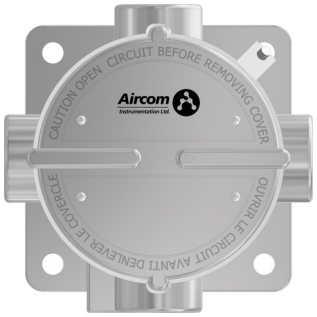
RT11 RTD Assembly Outline

Connection Head

2ALT



2ALW



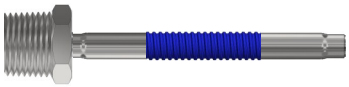
2ALM

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

Flex-Armor Extension

AF/AT/TT

PT



Sensor Probe (OD)

18
(0.125”)

36

14
(0.250”)

38

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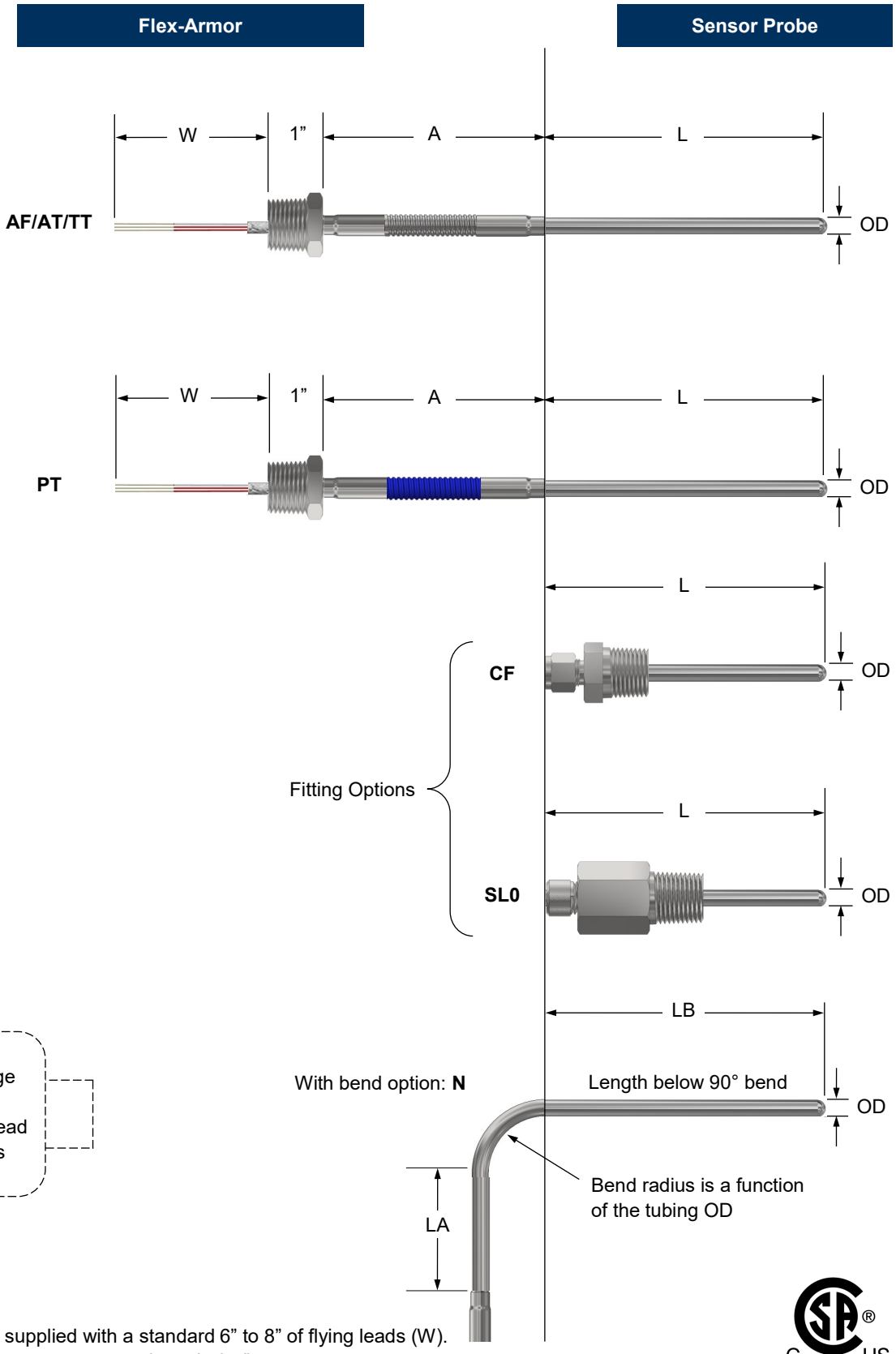
RT11 RTD Assembly Dimensions



NOTES:

1. Assemblies are supplied with a standard 6” to 8” of flying leads (W).
2. Thread engagements are approximately 0.5”.

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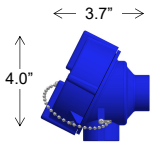
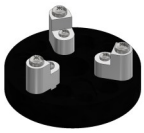
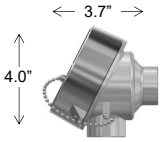
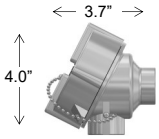
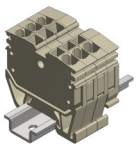
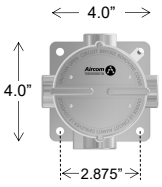
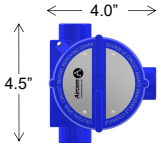
Model, Outline, and Dimensions for T1/T1A

Outline & Dimensions	Model	Connection (NPT)		Material & Type	Ambient Temperature	Terminal Block Options (T1A)
		Instrument	Conduit			
	1ALT	1/2"	1x 1/2"[2]	Cast aluminum epoxy coated Buna O-ring Type 4X	-50°C to +85°C (-58°F to +185°F) (+125°C (+257°F) Canada only)	 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		 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		 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"[2]	1x 1/2"[2]	Cast aluminum epoxy coated Buna O-ring Type 4X	-40°C to +85°C (-40°F to +185°F)	
	2ALW	1/2"[2]	1x 3/4"			
	3ALW	3/4"	1x 3/4"			
	4ALW	3/4"	2x 3/4"			 Splice technology - optional Wire splicing connectors contained loosely within connection head. Add suffix "S" to connection head model number.
	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.

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Transmitter Options for T1/T1A

Image	Code	Model	Specifications
	47D1	5437D1 PR Order PN RTD, TC, potentiometer, linear resistance and bipolar mV input Single input with sensor redundancy and drift detection High accuracy across a wide ambient operating temperature of -50 to +85°C 2.5 kVAC galvanic isolation Full assessment to IEC61508 : 2010 up to SIL 2/3	Single Sensor (4 terminals) Operating Temperature: -50°C to +85°C (standard) Storage Temperature: -50°C to +85°C Protection Degree: IP68 (enclosure) / IP00 (terminal) Dimensions: Ø 44 x 20.2 mm Center Hole Diameter: Ø 6.35 mm / ¼ in Weight: Approx. 50 g Supply Voltage: 7.5…30 VDC Isolation Voltage: 2.5 kVAC (test) / 42 VAC (working) Response Time: 70 ms Approvals: ATEX, IECEx, FM, CSA, SIL 2/3 Refer to PR Electronics for full details
	47A1	5437A1 PR Order PN RTD, TC, potentiometer, linear resistance and bipolar mV input Single or true dual inputs with sensor redundancy and drift detection Wide ambient operating temperature of -50 to +85°C Total accuracy from 0.014% 2.5 kVAC galvanic isolation Full assessment to IEC61508 : 2010 for use in SIL 2/3 applications	Single Sensor (4 terminals) Operating Temperature: -50°C to +85°C (standard) Storage Temperature: -50°C to +85°C Protection Degree: IP68 (enclosure) / IP00 (terminal) Dimensions: Ø 44 x 21.45 mm Center Hole Diameter: Ø 6.35 mm / ¼ in Weight: Approx. 50 g Supply Voltage: 7.5…48 VDC Isolation Voltage: 2.5 kVAC (test) / 55 VAC (working) Response Time: 75 ms Approvals: ATEX, IECEx, FM, CSA, INMETRO, SIL 2/3 Refer to PR Electronics for full details
Image Not Applicable	Other	Consult Aircom for other available options	

NOTES:

1. Models shown represent the most commonly selected configurations.

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