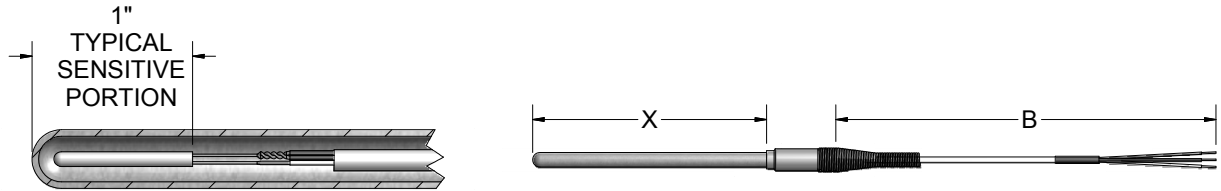


# RTD

## Configuration Code RT01 RTD Assemblies with Extension Leadwire Configuration Code RT02 RTD Assemblies with Sheath Terminations

The RTD elements illustrated and described on this page are designed to measure temperature in a variety of process and laboratory applications. These RTDs are specifically designed for use in two different process temperature ranges and will provide accurate and repeatable temperature measurement through a broad range. Low range RTDs are constructed using fluoropolymer-insulated, silver-plated copper internal leads with potting compounds to resist moisture penetration. High range RTDs are constructed with nickel internal leads inside swaged MgO insulated cable to allow higher temperature measurements at the RTD element and provide higher temperature lead protection along the sheath. The following tables allow customer selection of standard element materials, tolerances, sheath diameters, mounting fittings and terminations. Custom-built assemblies with non-standard specifications are available upon request.



### ORDER CODES

**Example Order Number:**

**R5T185L** <sup>1-1</sup> **48** <sup>1-2(A)</sup> **3** <sup>1-3</sup> - **006** <sup>1-4</sup> - Page RTD-2 - Page RTD-3 - Page RTD-4 - Page RTD-5

#### 1-1 Single Platinum RTD Elements

CODE	TOLERANCE <sup>[1]</sup>	TEMP. RANGE	BASE RESISTANCE @ 0 °C (R <sub>0</sub> )	TEMPERATURE COEFFICIENT	CODE			
					1/8" O.D.	3/16" O.D.	1/4" O.D.	3/8" O.D.
R1T185L	Grade B	(-200 to 200) °C	100 Ω	α = 0.003 85 °C <sup>-1</sup>	28	38	48	68
R3T185L	Class AA	(-50 to 200) °C	100 Ω	α = 0.003 85 °C <sup>-1</sup>	28	38	48	68
R5T185L	(1/5) Class B	(-30 to 150) °C	100 Ω	α = 0.003 85 °C <sup>-1</sup>	28	38	48	68
R1T192L	Grade B	(-200 to 200) °C	100 Ω	α = 0.003 92 °C <sup>-1</sup>	28	38	48	68
R3T192L	Class AA	(-50 to 200) °C	100 Ω	α = 0.003 92 °C <sup>-1</sup>	28	38	48	68
RBF185L	Class B	(-50 to 200) °C	100 Ω	α = 0.003 85 °C <sup>-1</sup>	28	38	48	68
RAF185L	Class A	(-30 to 200) °C	100 Ω	α = 0.003 85 °C <sup>-1</sup>	28	38	48	68
RBF195L	Class B	(-50 to 200) °C	1000 Ω	α = 0.003 85 °C <sup>-1</sup>	28	38	48	68
R1T185H	Grade B	(-200 to 600) °C	100 Ω	α = 0.003 85 °C <sup>-1</sup>	28	38	48	68
RAT185H	Class A	(-100 to 450) °C	100 Ω	α = 0.003 85 °C <sup>-1</sup>	28	38	48	68
R1T192H	Grade B	(-200 to 600) °C	100 Ω	α = 0.003 92 °C <sup>-1</sup>	28	38	48	68

[1] Refer to RTD tolerance information in the general information section for calculations to determine specific tolerance at temperature.

#### 1-4 Length

CODE
3 Digit 'X' Length

#### 1-3 Element Connection

CODE	DESCRIPTION
2	2-wire
3	3-wire
4 <sup>[1]</sup>	4-wire

[1] Not available in duplex

#### 1-1 Duplex Platinum RTD Elements

CODE	TOLERANCE <sup>[1]</sup>	TEMP. RANGE	BASE RESISTANCE @ 0 °C (R <sub>0</sub> )	TEMPERATURE COEFFICIENT	CODE		
					3/16" O.D.	1/4" O.D.	3/8" O.D.
R1T285L	Grade B	(-200 to 200) °C	100 Ω	α = 0.003 85 °C <sup>-1</sup>	38	48	68
R3T285L	Class AA	(-50 to 200) °C	100 Ω	α = 0.003 85 °C <sup>-1</sup>	38	48	68
R5T285L	(1/5) Class B	(-30 to 150) °C	100 Ω	α = 0.003 85 °C <sup>-1</sup>	38	48	68
R1T292L	Grade B	(-200 to 200) °C	100 Ω	α = 0.003 92 °C <sup>-1</sup>	38	48	68
R3T292L	Class AA	(-50 to 200) °C	100 Ω	α = 0.003 92 °C <sup>-1</sup>	38	48	68
RBF285L	Class B	(-50 to 200) °C	100 Ω	α = 0.003 85 °C <sup>-1</sup>	38	48	68
RAF285L	Class A	(-30 to 200) °C	100 Ω	α = 0.003 85 °C <sup>-1</sup>	38	48	68
RBF295L	Class B	(-50 to 200) °C	1000 Ω	α = 0.003 85 °C <sup>-1</sup>	38	48	68
R1T285H	Grade B	(-200 to 600) °C	100 Ω	α = 0.003 85 °C <sup>-1</sup>	38	48	68
RAT285H	Class A	(-100 to 450) °C	100 Ω	α = 0.003 85 °C <sup>-1</sup>	38	48	68
R1T292H	Grade B	(-200 to 600) °C	100 Ω	α = 0.003 92 °C <sup>-1</sup>	38	48	68

[1] Refer to RTD tolerance information in the general information section for calculations to determine specific tolerance at temperature.

#### 1-2A

CODE	NOMINAL SHEATH DIAMETER (inches)	TIP DIA. O.D. (inches)	TIP LENGTH (inches)
88R48	1/2	1/4	1 1/4
68R38	3/8	3/16	1 1/4
48R28	1/4	1/8	1 1/4

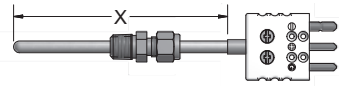
#### REDUCED-TIP RTD's

Table 1-2A lists RTD elements with reduced tip sheaths. To order, use order code numbers from Tbl. 1-2A in place of straight sheath order code numbers from Tbl. 1-2. Other reduced tips are available upon request. EXAMPLE: R1T185L**88R483**-006.

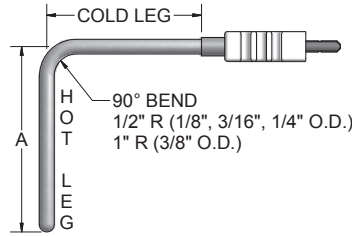
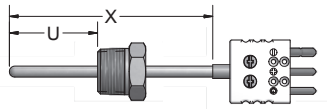


Select Sheath Mounting or Bend Options as desired from tables below.

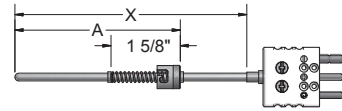
### COMPRESSION FITTING



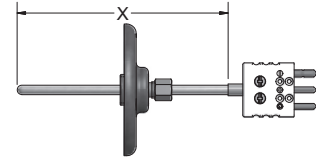
### FIXED BUSHING



### BAYONET CAP and SPRING (OPTION 13A)



### ADJUSTABLE FLANGE (OPTION 14)



## ORDER CODES

Example Order Number:

R5T185L483-006 -

2  
05A,304

PAGE  
RTD 3

PAGE  
RTD 4

PAGE  
RTD 5

### 2-1 No Fitting or Bend Options

CODE	00
------	----

### 2-2 One-time Adjustable Compression Fittings

CODE	TYPE	NPT SIZE (inches)	PRESSURE RATED	AVAILABLE SHEATH DIAMETERS (inches)
05A	316 stainless steel	1/8	YES	1/8, 3/16, 1/4
05B	316 stainless steel	1/4	YES	1/8, 3/16, 1/4, 3/8
05C	316 stainless steel	1/2	YES	1/8, 3/16, 1/4, 3/8
15A	Brass	1/8	NO	1/8, 3/16, 1/4
15B	Brass	1/4	NO	3/16, 1/4, 3/8
15C	Brass	1/2	NO	1/4, 3/8

### 2-3 Re-adjustable Compression Fittings

CODE	TYPE	NPT SIZE (inches)	AVAILABLE SHEATH DIAMETERS (inches)
12A	316 stainless steel	1/8	1/8, 3/16, 1/4
12B	316 stainless steel	1/4	1/8, 3/16, 1/4, 3/8
12C	316 stainless steel	1/2	1/8, 3/16, 1/4, 3/8
11A	Brass	1/8	1/8, 3/16, 1/4
11B	Brass	1/4	1/8, 3/16, 1/4, 3/8
11C	Brass	1/2	1/4, 3/8
19C	Spring-loaded SS well fitting	1/2	3/16, 1/4

FEP gland standard 204 °C [400 °F] max. For lava gland 649 °C [1200 °F] max. opt. 12A, 12B, and 12C only use letter suffix "L" after compression fitting order code. EXAMPLE: 12AL for lava gland.

### 2-6 Miscellaneous Options

CODE	TYPE	AVAILABLE SHEATH DIAMETER (inches)
13A __ [1]	Spring-loaded bayonet fitting	1/8, 3/16
14	Adjustable flange with brass compression fitting	1/8, 3/16, 1/4, 3/8
16A	Spring-loaded adjustable bayonet compression fitting	1/8

[1] When ordering fixed bayonet fitting specify dimension "A".  
EXAMPLE: order code 13A06 is for a fixed bayonet adapter with 6" A Dimension.

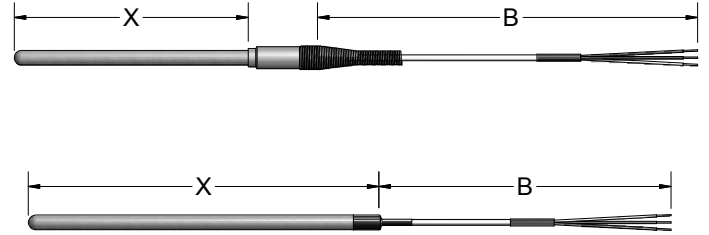
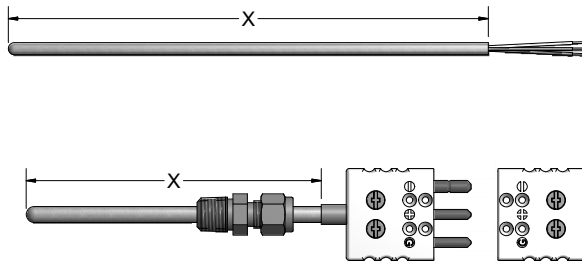
### 2-5 Fixed Bushings

CODE	MOUNTING THREAD NPT (inches)	AVAILABLE SHEATH DIAMETERS (inches)
316 SS		
8A __ [1]	1/8	1/8, 3/16, 1/4
8B __ [1]	1/4	1/8, 3/16, 1/4, 3/8
8C __ [1]	1/2	1/8, 3/16, 1/4, 3/8
8D __ [1]	3/4	1/8, 3/16, 1/4, 3/8

[1] When ordering fixed bushings, specify order code above, plus insertion length "U", as measured from hot tip to bottom of threaded bushing. EXAMPLE: order code 8A06 is 1/8" NPT, 316 SS bushing located 6" from hot tip.

### 2-4 Sheath Bends

CODE	DESCRIPTION
2 __	Sheath bent 45°
3 __	Sheath bent 90°
2" minimum hot leg length	
When ordering bend options, specify hot leg dim. "A". EXAMPLE: order code 206 is a 45° bend with 6" hot leg. Total sheath length is Table 1 "X" length = hot leg plus cold leg.	



## RT02

## ORDER CODES

## RT01

### Example Order Number:

R5T185L483-006-00 - <sup>3-1</sup> **4, MC** or R5T185L483-006-01A,304 - <sup>3-2</sup> **16** - **PAGE RTD-4** - **PAGE RTD-5**

### 3-1 Plug and Jack Sheath Terminations

CODE	DESCRIPTION
4	Standard plug
5	Standard jack
6 <sup>[1]</sup>	Miniature plug
7 <sup>[1]</sup>	Miniature jack
<b>Options</b>	
MC	Mating connector
CL <sup>[2]</sup>	Compression L bracket to hold plug to sheath
[1] Not available with 1/4" O.D. or 3/8" O.D. sheath	
[2] Not available with miniature connector	

### 3-2 Leadwire transitions

(Requires Table 4 and 5 selections)

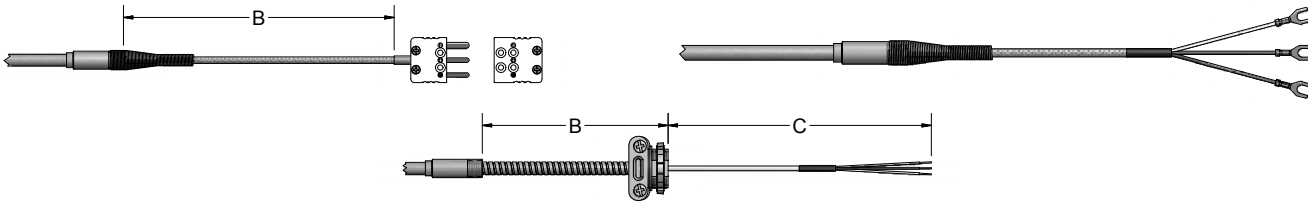
CODE	DESCRIPTION
13 <sup>[1]</sup>	Same size transition with heat-shrink tubing 104 °C [220 °F]
15	Extension leadwire transition with relief spring 204 °C [400 °F]
16	Extension leadwire transition with heat-shrink tubing 104 °C [220 °F]
18 <sup>[1]</sup>	Same size transition without heat-shrink tubing 204 °C [400 °F]
19	Extension leadwire transition without spring or heat-shrink tubing 204 °C [400 °F]
<b>Options</b>	
HT <sup>[2]</sup>	High temperature potting 538 °C [1000 °F] not available with option 13 or 16
[1] Not available with flex armor	
[2] Not available with option 13 or 16. When specifying high temp potting with Flex Armor option 19 must be selected.	

### 3-2 Threaded Fittings with Extension Leadwire

(Requires Table 4 and 5 selections)

CODE	DESCRIPTION
6HN23	1/2" x 1/2" NPT steel hex nipple
8HN23	1/2" x 1/2" NPT stainless steel hex nipple
9HP23	1/2" NPT stainless steel bushing (no process threads)
8RNDC23	3/4" process x 1/2" NPT stainless steel hex nipple

Select desired leadwire type by order code number, followed by desired length in inches.



## ORDER CODES

**Example Order Number:**

**R5T185L483-006-01A,304-16**

**T3 036**

**PAGE  
RTD-5**

### 4 Extension Leadwire Type and B + C Dimension

CODE	DESCRIPTION	TEMP. RATING
<b>FIBERGLASS</b>		
F3J___	Fiberglass insulation - individual leads - stranded conductor (12" limit)	482 °C [900 °F]
F3___	Fiberglass insulation - stranded conductor	
F3A___	Fiberglass insulation - stranded conductor - flexible armor	
F3B___	Fiberglass insulation - stranded conductor - stainless steel overbraid	
<b>FLUOROPOLYMER</b>		
T3J___	Fluoropolymer insulation - individual leads - stranded conductor (12" limit)	204 °C [400 °F]
T3___	Fluoropolymer insulation - stranded conductor	
T3A___	Fluoropolymer insulation - stranded conductor - flexible armor	
T3B___	Fluoropolymer insulation - stranded conductor - stainless steel overbraid	
M3___	Fluoropolymer insulation - stranded conductor - stainless steel overbraid - Fluoropolymer insulation	
T3M___	Fluoropolymer insulation - stranded conductor - polyester shield	
T3MA___	Fluoropolymer insulation - stranded conductor - polyester shield - flexible armor	
<b>POLYIMIDE</b>		
K3___	Polyimide insulation - stranded conductor	316 °C [600 °F]
K3A___	Polyimide insulation - stranded conductor - flexible armor	
K3B___	Polyimide insulation - stranded conductor - stainless steel overbraid	
<b>SILICON RUBBER</b>		
S3___	Fluoropolymer insulation - stranded conductor - silicon rubber	204 °C [400 °F]
<b>COIL CORDS</b>		
C3060	PVC insulation - stranded conductor - coil cord - 60" extended length	104 °C [220 °F]
C3120	PVC insulation - stranded conductor - coil cord - 120" extended length	

Insert wire code number and 3 digit 'B' length in inches EXAMPLE: T3036 = 36" B length

For assemblies requiring leadwire beyond the flexible armor (illustrated in 'C' in drawing), insert 3 digit 'C' length after armor length.  
 EXAMPLE: F3A036 -012 = 36" B length with additional 12" 'C' length leads beyond armor.

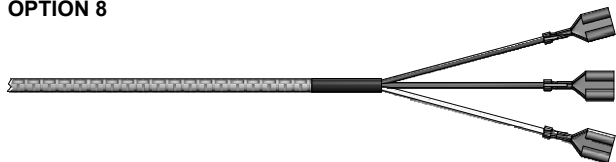
All insulated leadwires in flexible armor are available with either extruded PVC or FEP covering over the flexible armor.  
 Substitute suffix codes T (FEP) or P (PVC) for the suffix 'A' code above. EXAMPLE: T3T is FEP covered armor.

Select desired leadwire termination and options (if desired), by order code numbers below.

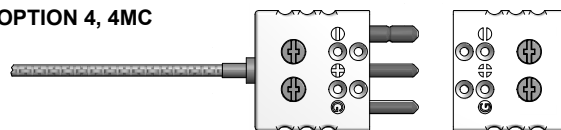
**OPTION 3**



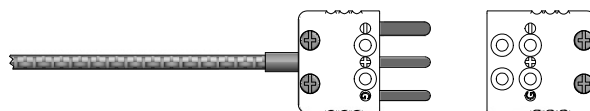
**OPTION 8**



**OPTION 4, 4MC**



**OPTION 6, 6MC**



## ORDER CODES

**Example Order Number:**

**R5T185L483-006-01A,304-16-T3036 - 4, MC**

5-1      5-2

### 5-1 Terminations

CODE	DESCRIPTION
0	Leads not stripped
2	2" split leads, 1/4" stripped
3	2" split leads with spade lugs
4	Standard plug
5	Standard jack
6	Miniature plug
7	Miniature jack
8	2" split leads with 1/4" female quick disconnects

### 5-2 Options

CODE	DESCRIPTION
BX	1/2" NPT BX connector with Options 0, 2, 3, or 8
CC	Plug or jack secured to leads with cable clamp
CG	Cord grip (1/2" NPT PVC)
MC	Mating connector
RB	Rubber boot