



BURNS[®]
ENGINEERING

Temperature Measurement Experts



Series 200 & 300

Resistance Temperature Detectors (RTDs)



Temperature Measurement Experts®

Since 1960 Burns Engineering has been an industry leader in the design and manufacture of temperature sensors. Accuracy, reliability and consistency are hallmarks of the Burns brand. At Burns, we focus on the measurement. We understand the subtleties of temperature measurement, from selection through installation, and how they can impact your processes and ultimately your success. We worry about the details so you don't have to. When you select Burns you're getting more than a sensor, you're getting your own team of Temperature Measurement Experts.

Series 200 and 300 RTDs

Our Series 200 & 300 RTDs are designed to meet “real world” conditions and provide the highest levels of measurement accuracy. These platinum based sensors include various styles, lead wire configurations, thermowells, and connection heads. If your process requires something different, the Burns Engineering staff will develop a custom design appropriate for your needs.



Get a Web Quote:

Visit BurnsEngineering.com to configure your sensor today.

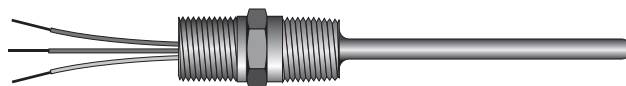
Here's how:

1. Register or sign-in
2. Search for the model (200A, 300K, etc.) using the search box (upper right) or click on the Product/Quote tab and select the model of interest.
3. Click on 'Configure My Part'.
4. Select the parameters to support your application
5. Add to Quote Cart.
6. Submit Cart for Quote – We'll be in touch shortly.

Overview and Specifications, Pages 3 and 4

A' Style- General Purpose Direct Immersion Assembly, Pages 5 and 6

Suitable for mounting into tanks, pipes, ovens, furnaces, ducts, kilns, process vessels and much more.



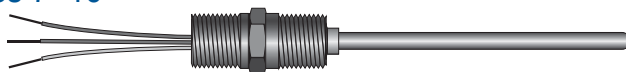
'B' Style- General Purpose Variable Immersion Assembly, Pages 5 and 6

Suitable for mounting into tanks, pipes, ovens, furnaces, ducts, kilns, process vessels and much more.



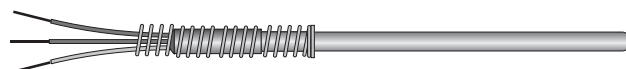
'L' Style- Spring Loaded Hex Fitting for Thermowells, Pages 7–10

Features Burns self-contained spring loaded hex fitting that ensures thermal contact with the thermowell. The double threaded hex fitting is ideal for mating to virtually any connection head or transmitter assembly.



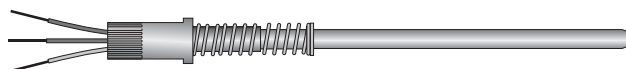
'C' Style- Spring Loaded for Thermowell Assembly, Pages 11–14

Allows easy removal of the sensor from the thermowell by simply removing the terminal block. No need to disconnect the conduit or extension fittings.



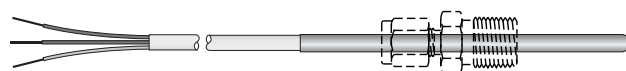
'K' Style- Bayonet, Twist-Lock, Spring Loaded for Thermowell Assembly, Pages 11–14

Features easy access to the sensor with a quarter-turn bayonet lock fitting which engages with the Burns #3 and #5 connection head. Sensors can be easily removed from the thermowell without removing the connection head, extension nipple, or related conduit and wiring.



'D' Style- Capsule Style with Plain Sheath, Pages 15 and 16

For applications that require one diameter for the entire sheath length. (Compression Fitting Optional)



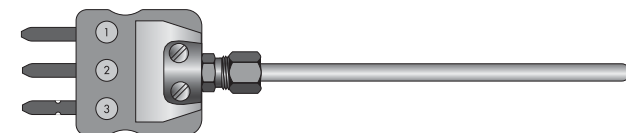
'G' Style- Capsule Style with Transition Fitting, Pages 15 and 16

Can resist 100% relative humidity. Ideal for environmental chambers, underground conduits, etc. (Compression Fitting Optional)



'P' Style- Plug Style with Plain Sheath, Pages 15 and 16

Can be quickly and easily connected or disconnected.



Common Options, Pages 17–19

Connection Head Descriptions, Page 20

Resistance vs Temperature Tables, Pages 21 and 22

Series 200 and 300

Testing

100% Tested:

Accuracy at 0°C and insulation resistance at ambient temperature and humidity.

Verification Testing:

200 Series:

For accuracy at 0°, 200° and 420°C.

Insulation resistance at 20°C for 30 days at 100% relative humidity.

Repeatability after 10 cycles between -200°C and 500°C.

Long term stability after 1000 hours at 400°C.

Vibration resistance per ASTM procedure E644 to qualification level parameters.

300 Series:

For accuracy at 0°, 100° and 200°C.

Insulation resistance at 20°C for 30 days at 100% relative humidity.

Repeatability after 10 cycles between -50° and 200°C.

Vibration resistance per ASTM procedure E644 to qualification level parameters.

Qualification Testing:

Short Term Repeatability:

Less than $\pm 0.04\%$ change in ice point resistance after 10 consecutive cycles between the minimum and maximum temperature for each series.

Long Term Stability:

Ice point resistance shift after 1000 hours at the maximum temperature for the series.

Series 200: Less than $\pm 0.05\%$ ($\pm 0.13^\circ\text{C}$)

Series 300: Less than $\pm 0.10\%$ ($\pm 0.26^\circ\text{C}$)

Long Term Temperature Cycling:

Less than $\pm 0.1\%$ ($\pm 0.25^\circ\text{C}$) change in ice point resistance after 1000 cycles from 20 to the maximum temperature for each series.

Vibration Resistance:

Series 200:

Less than $\pm 0.03\%$ ($\pm 0.075^\circ\text{C}$) ice point shift for 30 minutes at 21g peak vibration; 5-350 Hz continuous sweep, at 20°C for unsupported stem lengths of 5-1/2 inches or less.

Series 300:

For all 1/4" standard sheath diameter RTDs; less than $\pm 0.03\%$ (0.075°C) ice point shift for 30 minutes at 21g peak vibration; 5 - 350 Hz continuous sweep, at 20°C for unsupported stem lengths of 5 1/2" or less. The g level was ramped from 1 to 21g's over the 5 to 30 Hz range.

Mechanical Durability Test: 300 Series

This test ("slapper test") was developed by Burns Engineering to simulate industrial environments. The RTD is mounted in a mechanical/pneumatic test stand in which the sheath is rotated from side to side, striking metal plates at a rate of 30 cycles per minute.

Series 300 RTDs continue to meet performance specifications after 1000 cycles.

Series 200 and 300

Overview and Specifications

Series Overview:

The Series 200 and 300 are highly configurable to meet the needs of your specific application. Available styles include direct immersion, spring loaded and capsule style. These RTDs are built with coil, wound or thin film sensing elements depending upon the needs of your application. With better than IEC 60751/ASTM 1137 interchangeability, configuration options for nearly any process (including a Bending Option ref: pg 18), and a proven track record for durability, the Series 200 and 300 have the performance and flexibility to ensure accurate measurements in even the toughest applications.

Multiple configurations are approved by Factory Mutual (FM) for hazardous environments:

EXPLOSION PROOF: CLASS I, DIV. 1, GROUPS A, B, C, D

DUST IGNITION PROOF: CLASS II & III, DIV. 1, GROUPS E, F, G

NEMA 4X (CARBON STEEL THERMOWELLS ARE APPROVED FOR NEMA 4 ONLY)

Series 200 Description:

The Series 200 design consists of a proprietary element constructed with high purity platinum and minimal stress to assure accurate readings over its long life expectancy. The high purity materials, durable sheath design and unique construction techniques provide excellent vibration and shock resistance to ensure accuracy in tough applications over a wide temperature range.

Series 300 Description:

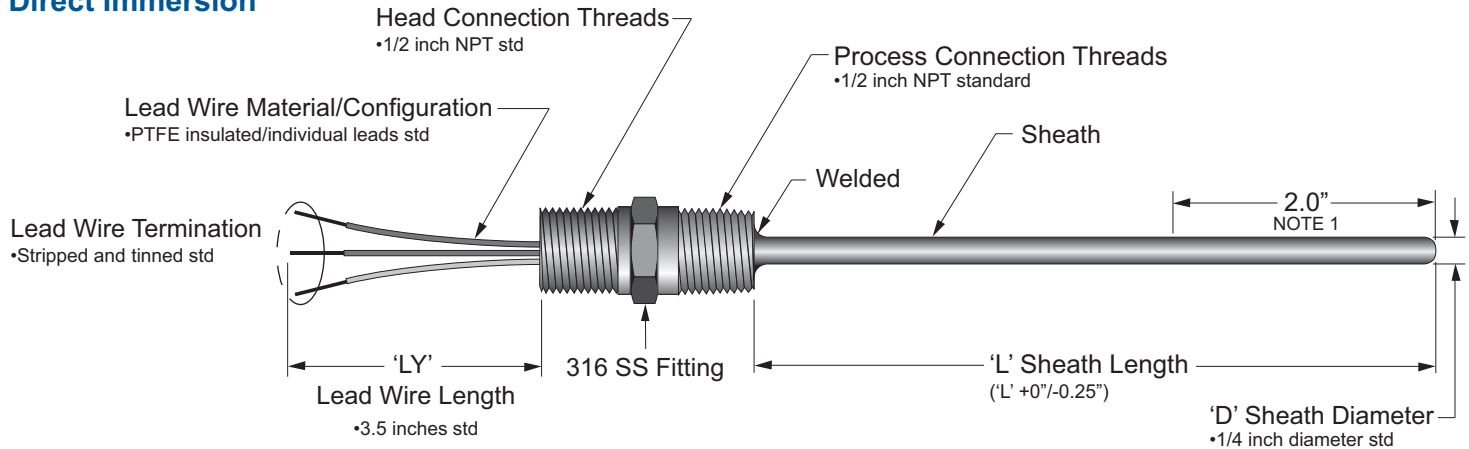
The Series 300 design incorporates a high purity platinum element specifically developed to stringent Burns criteria and fully supported in a 316 stainless steel sheath to provide ultimate vibration resistance, durability, and stability in an RTD. Even under the harshest conditions the Series 300 delivers reliable performance.

Performance Specification:	Series 200	Series 300
Element Resistance: at 0°C nominal	100 ohms	100 ohms
Temperature Coefficient: nominal	0.00385 ohms/ohm/°C	0.00385 ohms/ohm/°C
Temperature Range: (Operating range)	-200°C to 500°C	-50°C to 200°C
Burns Tolerance Class: (% of resistance at 0°C)	Code 10: ±.10% Code 05: ±.05%	Code 10: ±.10%
Alpha Tolerance:	0.00385 ± 0.000005 ohms/ohm/°C.	0.00385 ± 0.0000135 ohms/ohm/°C
Insulation Resistance:	500 megohms @ 500 VDC, 20°C	500 megohms @ 250 VDC
Time Constant: (63.2% response to step change in water moving at 3 fps)	4 seconds	6 seconds
Interchangeability Tolerance: (Itl = absolute value of temperature in °C.)	Code 05: Tolerance°C=±(0.13+0.00185 Itl), Code 10: Tolerance°C=±(0.26+0.0037 Itl)	Code 10: Tolerance°C=±(0.26+0.0037 Itl)
Self Heating: (in water moving at 3 fps.)	18mW/°C	10mW/°C
Hysteresis:	0.04% maximum between -200°C and 500°C	0.08% maximum between -50°C and 200°C
Material Specification:	Series 200	Series 300
Lead Wire: PTFE insulated nickel-plated stranded copper	22 AWG standard (24 AWG for dual). Also available in fiberglass and polyimide.	22 AWG standard (26 AWG for dual). Also available in polyimide.
Sheath Material: High purity compacted ceramic insulation	316 stainless steel is standard.	316 stainless steel is standard.

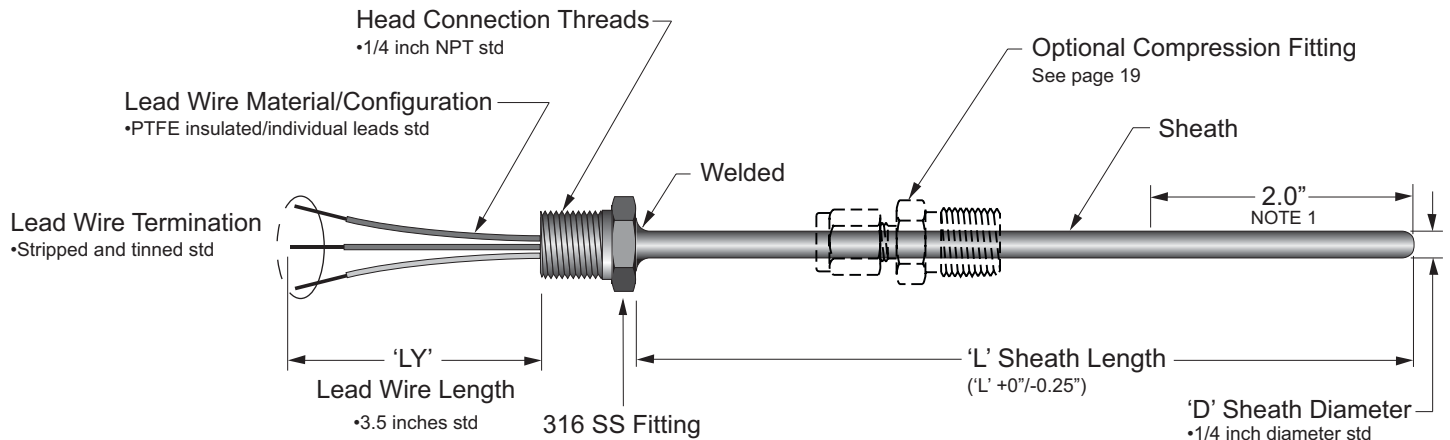
'A' and 'B' Style Direct Immersion Sensors

Specifications

'A' Style Direct Immersion



'B' Style Variable Immersion



'A' Style Application

Designed for direct immersion into the process where fast response is needed or in small diameter lines where a thermowell can't be used. Pressure rated to 3000 psi.

'B' Style Application

A variable immersion version of the 'A' Style. Brass or 316 SS compression fitting with PTFE or SS ferrules are available. PTFE allows for readjustment of the immersion length.

NOTE 1: 1st 2.0 inches of Series 200 sensors Do Not Bend

'A' Style and 'B' Style Direct Immersion Sensors

Ordering Information

200 Burns Series 200		300 Burns Series 300	
Sensor Style			
A Direct Immersion			
B Variable Immersion			
RTD Accuracy			Sheath Material
10 Standard RTD +/- 0.10% of resistance at 0 degrees C			316 SS
05 Precision RTD +/- 0.05% of resistance at 0 degrees C (not available with the Series 300 model)			316 SS
RTD Element Lead Configuration			
A Three Wire Single			
B True Four Wire Single			
C Three Wire Dual			
Connection Head (See NOTE 1)			Sensor/Head Connection
1C Cast Iron Head			1/2" NPT
2A Aluminum Head			1/2" NPT
2E Aluminum Head, Epoxy Coated			1/2" NPT
3A Aluminum Head with Water Proof Kit			1/2" NPT
3E Aluminum Head, Epoxy Coated with Water Proof Kit			1/2" NPT
4A Miniature Aluminum Head			1/4" NPT
5A Aluminum Head			1/2" NPT
5E Aluminum Head, Epoxy Coated			1/2" NPT
9P Polypropylene Head, White			1/2" NPT
14S Stainless Steel Head			1/2" NPT
19A Aluminum Head with LED Indicator			1/2" NPT
24S Stainless Steel Head with Battery Powered LCD Indicator			1/2" NPT
25A Aluminum Head with Option for Remote Mount			3/4" NPT
N No Connection Head			
'L' Sheath Length (See NOTE 2)			
035 3.5 inch (minimum)			
055 5.5 inch			
085 8.5 inch			
115 11.5 inch			
175 17.5 inch			
LLL Specify 'L' Length in inches for 'L' ≤ 99.9" (LLLL for 'L' > 99.9". ex: 150"=1500)			

Basic Order Codes

(Leave Options blank if not required)

Explosion Proof (NOTE 3) Options Transmitter

See pages 17–19

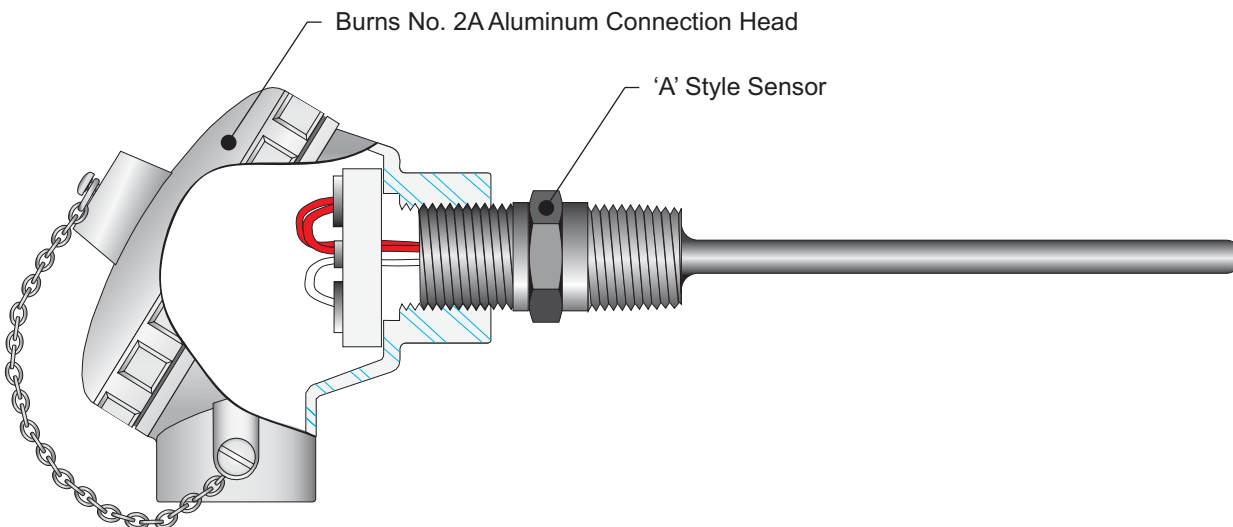
FOR REFERENCE:

RTD Specifications, page 3 and 4

Common Options, pages 17 – 19

Connection Head Descriptions, page 20

Example Configuration



NOTE 1: See our Connection Head Supplement for all available connection heads and full details.

NOTE 2: For sensor sheath lengths 'L' greater than 200 inches, contact Burns Customer Service.

NOTE 3: For FM explosion proof approved assembly, enter 'AFM' code. See page 4 for ratings and [drawing # 18938](#) for approved product structure details.

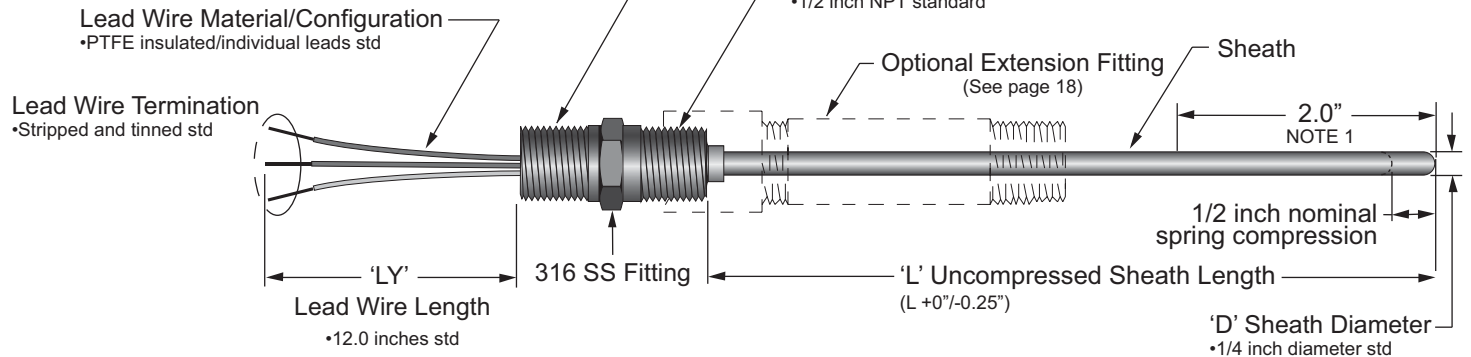
'L' Style Spring Loaded Hex Fitting Sensors

Specifications

'L' Style

Spring Loaded Hex without Thermowell

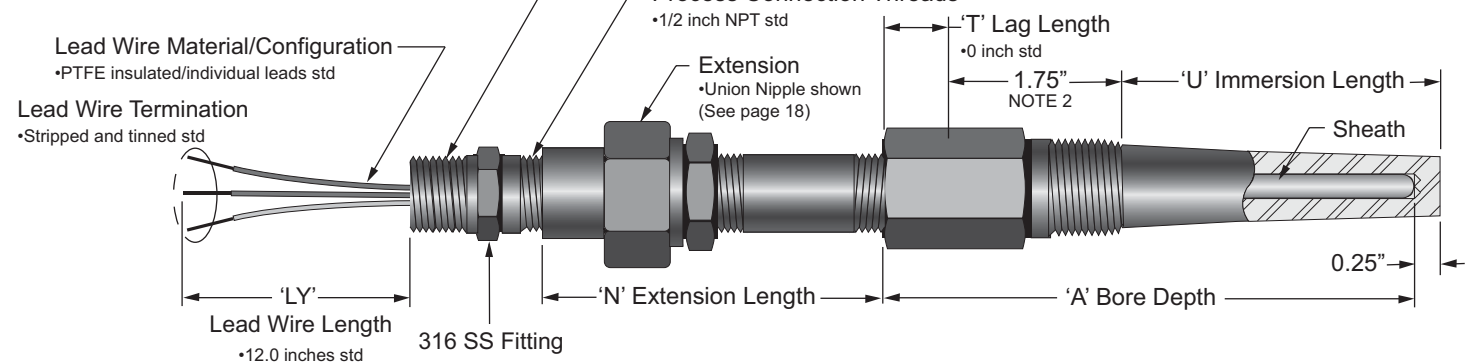
Ordering info on page 8



'L' Style

Spring Loaded Hex with Thermowell

Ordering info on page 9



'L' Style Application

Adaptable to a variety of connection heads or direct to conduit. Union connection allows for easy removal for calibration without disconnecting the leads.

Length Code Definitions and Equations for 'L' Style Assemblies		
Length Codes	For Threaded & Socket Wells	For Flanged Wells
'L' Uncompressed Sheath Length	$L = N + A$	$L = N + A$
'U' Immersion Length	$L = N + U + T + 1.5$	$L = N + U + T + 2$
'N' Extension Length	$A = U + T + 1.5$	$A = U + T + 2$
'A' Well Bore Depth		
'T' Well Lag Length		

NOTE 1: 1st 2.0 inches of Series 200 and 300 sensors Do Not Bend

NOTE 2: 1.75 inch length is used on threaded and socket weld thermowells. A 2.25 inch length is used with flanged wells

Sensor Style

RTD Accuracy

RTD Element Lead Configuration

Connection Head (See NOTE 1)

Sensor/Head Connection

[illegible]

Extension Type (See Illustrations - page 18)

Standard 'N' Extension Length

1C	Gavlanized Coupling Nipple	3 inches
2C	304 SS Coupling Nipple	3 inches
3C	316 SS Coupling Nipple	3 inches
1D	Gavlanized Union Nipple	3 inches
2D	304 SS Union Nipple	3 inches
3D	316 SS Union Nipple	3 inches
N	No Extension	0 inches

'L' Uncompressed Sheath Length (See NOTE 2)

035	3.5 inch (minimum)
055	5.5 inch
085	8.5 inch
115	11.5 inch
175	17.5 inch
LLL	Specify 'L' Length in inches for 'L' ≤ 99.9" (LLLL for 'L' > 99.9". ex: 150"=1500)

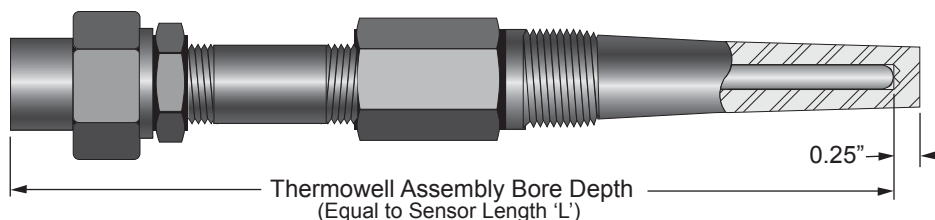
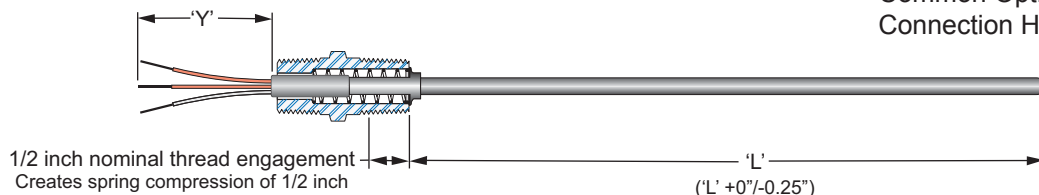
(Leave blank if not required)

Options

Transmitter

See pages 17–19

FOR REFERENCE:
RTD Specifications, page 3 and 4
Common Options, pages 17 – 19
Connection Head Descriptions, page 20



NOTE 1: See our Connection Head Supplement for all available connection heads and full details.
NOTE 2: For sensor sheath lengths 'L' greater than 200 inches, contact Burns Customer Service.

'L' Style Spring Loaded Hex Fitting Sensors with Thermowell

Ordering Information (1 of 2)

200	Burns Series 200
300	Burns Series 300

Sensor Style	
L	Spring Loaded, Hex Fitting

RTD Accuracy		Sheath Material
10	Standard RTD +/- 0.10% of resistance at 0 degrees C	316 SS
05	Precision RTD +/- 0.05% of resistance at 0 degrees C (not currently available with the Series 300 model)	316 SS

RTD Element Lead Configuration	
A	Three Wire Single
B	True Four Wire Single
C	Three Wire Dual

Connection Head (See NOTE 1)		Sensor/Head Connection
1C	Cast Iron Head	1/2" NPT
2A	Aluminum Head	1/2" NPT
2E	Aluminum Head, Epoxy Coated	1/2" NPT
3A	Aluminum Head with Water Proof Kit	1/2" NPT
3E	Aluminum Head, Epoxy Coated with Water Proof Kit	1/2" NPT
5A	Aluminum Head	1/2" NPT
5E	Aluminum Head, Epoxy Coated	1/2" NPT
9P	Polypropylene Head, White	1/2" NPT
14S	Stainless Steel Head	1/2" NPT
19A	Aluminum Head with LED Indicator	1/2" NPT
24S	Stainless Steel Head with Battery Powered LCD Indicator	1/2" NPT
25A	Aluminum Head with Option for Remote Mount	3/4" NPT
N	No Connection Head	

Extension Type (See Illustrations - page 18)		Standard 'N' Extension Length
1C	Gavlanized Coupling Nipple	3 inches
2C	304 SS Coupling Nipple	3 inches
3C	316 SS Coupling Nipple	3 inches
1D	Gavlanized Union Nipple	3 inches
2D	304 SS Union Nipple	3 inches
3D	316 SS Union Nipple	3 inches
N	No Extension	0 inches

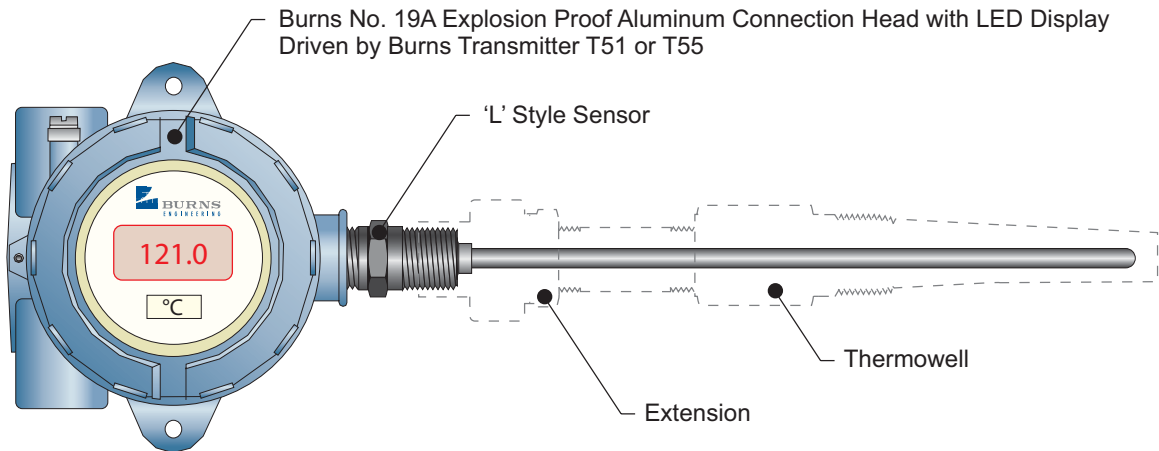
'U' Immersion Length (See NOTE 2)	
025	2.5 inch (minimum)
040	4.0 inch
045	4.5 inch
070	7.0 inch
075	7.5 inch
100	10.0 inch
105	10.5 inch
135	13.5 inch
160	16.0 inch
Specify 'U' Immersion Length in inches	

Basic Order Codes

Required basic order codes continued on next page

FOR REFERENCE:
RTD Specifications, page 3 and 4
Common Options, pages 17 – 19
Connection Head Descriptions, page 20

Example Configuration



NOTE 1: See our Connection Head Supplement for all available connection heads and full details.
NOTE 2: For Thermowells with Bore Depths ('A') greater than 42 inches contact Burns Customer Service. Long length wells can be constructed from welded bar stock segments or from pipe. Specifics of the application must be verified to ensure the thermowell design meets your process needs.

'L' Style Spring Loaded Hex Fitting Sensors with Thermowell

Ordering Information (2 of 2)

Thermowell Type (See NOTE 3)

Threaded Thermowells

TT2	Tapered Threaded, 1/2" NPT process threads
TT3	Tapered Threaded, 3/4" NPT process threads
TT4	Tapered Threaded, 1" NPT process threads
RT2	Reduced Tip Threaded, 1/2" NPT process threads
RT3	Reduced Tip Threaded, 3/4" NPT process threads
RT4	Reduced Tip Threaded, 1" NPT process threads
ST2	Straight Threaded, 1/2" NPT process threads
ST3	Straight Threaded, 3/4" NPT process threads
ST4	Straight Threaded, 1" NPT process threads

Socket Weld Thermowells

TW3	Tapered Welded, 3/4" pipe size
TW4	Tapered Welded, 1" pipe size
TW5	Tapered Welded, 1 1/4" pipe size
RW3	Reduced Tip Welded, 3/4" pipe size
RW4	Reduced Tip Welded, 1" pipe size
RW5	Reduced Tip Welded, 1 1/4" pipe size
SW3	Straight Welded, 3/4" pipe size
SW4	Straight Welded, 1" pipe size
SW5	Straight Welded, 1 1/4" pipe size

Flanged Thermowells

TF4A	Tapered Flanged, 1.0" flange, 150 LB
TF6A	Tapered Flanged, 1.5" flange, 150 LB
TF8A	Tapered Flanged, 2.0" flange, 150 LB
TF4B	Tapered Flanged, 1.0" flange, 300 LB
TF6B	Tapered Flanged, 1.5" flange, 300 LB
TF8B	Tapered Flanged, 2.0" flange, 300 LB
RF4A	Reduced Tip Flanged, 1.0" flange, 150 LB
RF6A	Reduced Tip Flanged, 1.5" flange, 150 LB
RF8A	Reduced Tip Flanged, 2.0" flange, 150 LB
RF4B	Reduced Tip Flanged, 1.0" flange, 300 LB
RF6B	Reduced Tip Flanged, 1.5" flange, 300 LB
RF8B	Reduced Tip Flanged, 2.0" flange, 300 LB
SF4A	Straight Flanged, 1.0" flange, 150 LB
SF6A	Straight Flanged, 1.5" flange, 150 LB
SF8A	Straight Flanged, 2.0" flange, 150 LB
SF4B	Straight Flanged, 1.0" flange, 300 LB
SF6B	Straight Flanged, 1.5" flange, 300 LB
SF8B	Straight Flanged, 2.0" flange, 300 LB

Sanitary Thermowells (1/2" NPT, 16 AMP Cap)

TS15	Tapered Sanitary, 1 1/2" Sanitary Cap
TS20	Tapered Sanitary, 2" Sanitary Cap
TS25	Tapered Sanitary, 2 1/2" Sanitary Cap
RS15	Reduced Tip Sanitary, 1 1/2" Sanitary Cap
RS20	Reduced Tip Sanitary, 2" Sanitary Cap
RS25	Reduced Tip Sanitary, 2 1/2" Sanitary Cap
SS15	Straight Sanitary, 1 1/2" Sanitary Cap
SS20	Straight Sanitary, 2" Sanitary Cap
SS25	Straight Sanitary, 2 1/2" Sanitary Cap

Thermowell Material

02	304 Stainless Steel
03	316 Stainless Steel
04	Carbon Steel
05	304L Stainless Steel
06	316L Stainless Steel
07	Hastelloy® C276
08	Chrome-Moly
09	Aluminum 6061 T6
10	Monel™
11	PTFE
12	Inconel® 600
13	Brass
14	Titanium

Basic Order Codes

(Leave Options blank if not required)

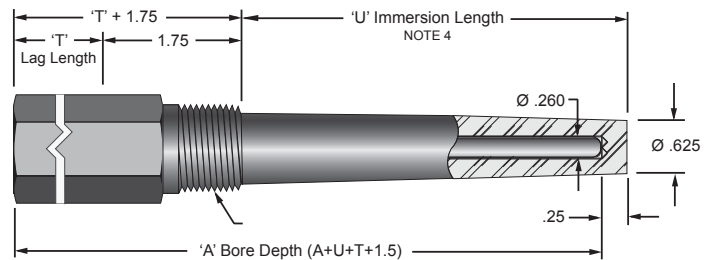
Explosion Proof
(NOTE 5)

Options

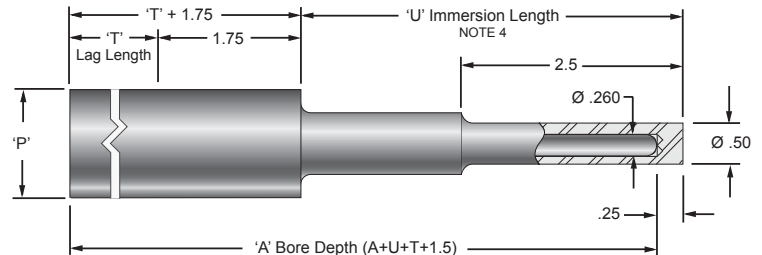
Transmitter

See pages 17-19

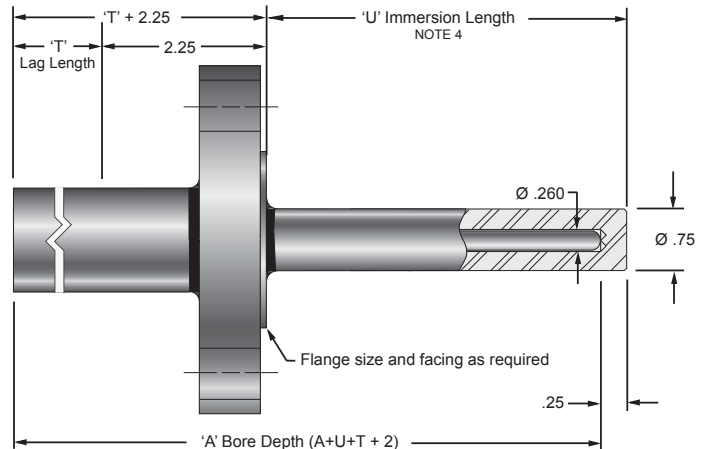
(TT) Threaded Thermowell shown with Tapered Stem



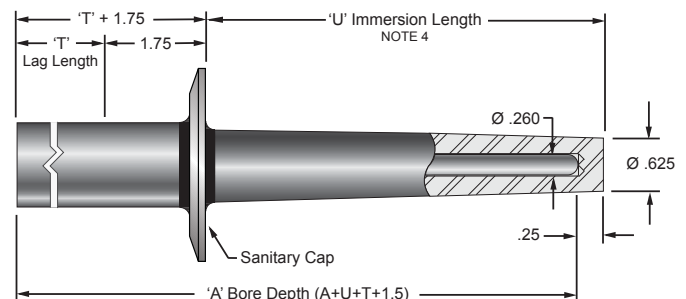
(RW) Socket Weld Thermowell shown with Reduced Tip Stem



(SF) Flanged Thermowell shown with Straight Stem



(TS) Sanitary Thermowell shown with Tapered Stem



NOTE 3: See our Thermowell catalog or visit us on-line at burnsengineering.com for a full line of standard thermowell styles along with information on custom thermowells.

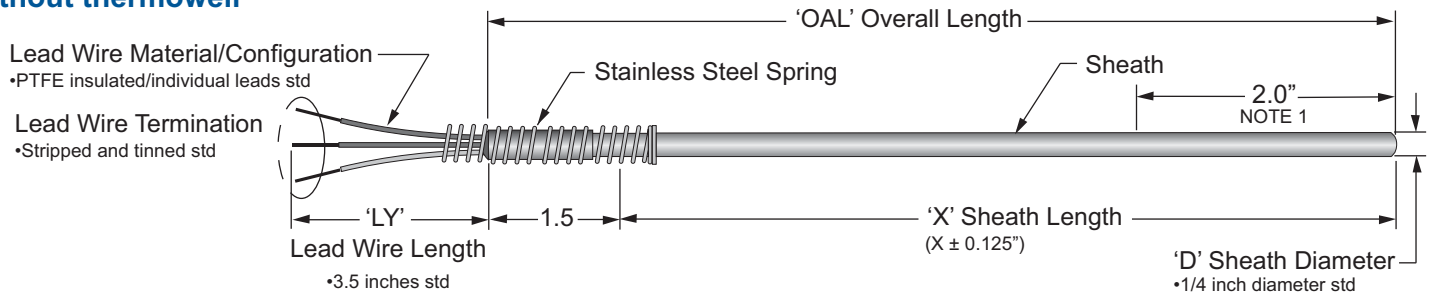
NOTE 4: For Thermowells with Bore Depths ('A') greater than 42 inches contact Burns Customer Service. Long length wells can be constructed from welded bar stock segments or from pipe. Specifics of the application must be verified to ensure the thermowell design meets your process needs.

NOTE 5: For FM explosion proof approved assembly, enter 'AFM' code. See page 4 for ratings and [drawing # 18938](#) for approved product structure details.

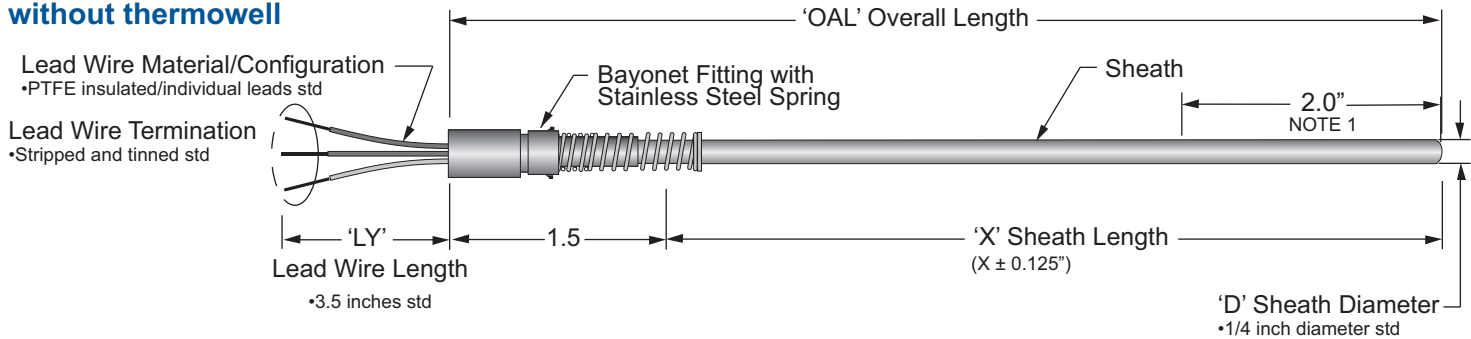
'C' and 'K' Style Spring Loaded Sensors

Specifications

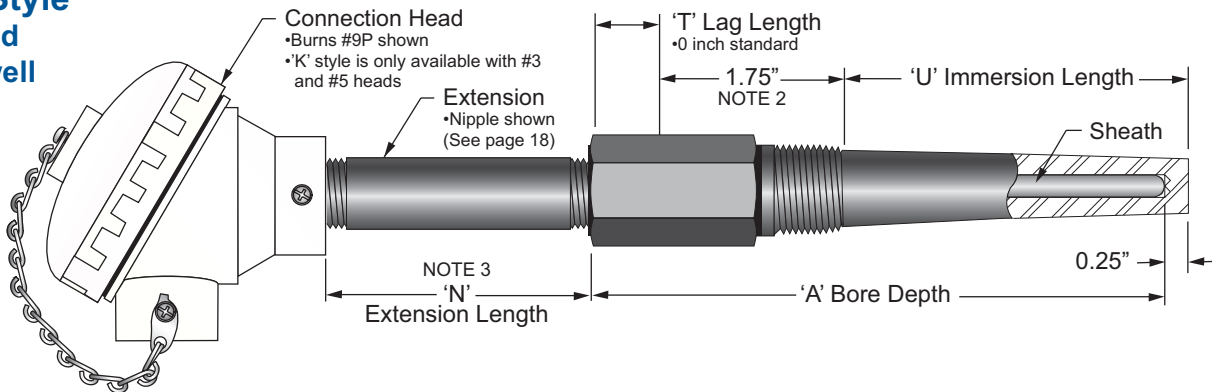
'C' Style Spring Loaded without thermowell



'K' Style Spring Loaded without thermowell



'C' and 'K' Style Spring Loaded with thermowell



'C' Style Application

Assembly allows easy removal of the sensor through the connection head. No wrenches required.

'K' Style Application

Similar to the 'C' Style but with the addition of a 1/4 turn twist lock fitting for even easier removal of the sensor. Add longer leads and it makes calibration checks possible with no tools required. Works with #3 and #5 connection heads only.

NOTE 1: 1st 2.0 inches of Series 200 sensors Do Not Bend

NOTE 2: 1.75 inch length is used on, threaded and socket weld thermowells, a 2.25 inch length is used with flanged thermowells.

NOTE 3: When a 'C' Style assembly is ordered with a transmitter the actual "N" nominal extension length will be 1/2" longer than specified.

'C' and 'K' Style Spring Loaded Sensors without Thermowell

Ordering Information

200 300	Burns Series 200 Burns Series 300
Sensor Style	
C Spring Loaded Sensor for Thermowell Applications K Spring Loaded Sensor with Bayonet Fitting for Thermowell Applications, mates with #3 and #5 heads only	
RTD Accuracy	
10	Standard RTD +/- 0.10% of resistance at 0 degrees C
05	Precision RTD +/- 0.05% of resistance at 0 degrees C (not available with the Series 300 model)
RTD Element Lead Configuration	
A	Three Wire Single
B	True Four Wire Single
C	Three Wire Dual
Connection Head (See NOTE 1)	
1C	Cast Iron Head, 'C' style only
2A	Aluminum Head, 'C' style only
2E	Aluminum Head, Epoxy Coated, 'C' style only
3A	Aluminum Head with Water Proof Kit, 'K' style only
3E	Aluminum Head, Epoxy Coated with Water Proof Kit, 'K' style only
5A	Aluminum Head, 'K' style only
5E	Aluminum Head, Epoxy Coated, 'K' style only
9P	Polypropylene Head, White, 'C' style only
14S	Stainless Steel Head, 'C' style only
N	No Connection Head
Extension Type (See Illustrations - page 18)	
1A	Galvanized Nipple
2A	304 SS Nipple
3A	316 SS Nipple
1B	Galvanized Nipple Union Nipple
2B	304 SS Nipple Union Nipple
3B	316 SS Nipple Union Nipple
N	No Extension
'X' Sheath Length (See NOTE 2)	
035	3.5 inch (minimum)
060	6.0 inch
090	9.0 inch
120	12.0 inch
150	15.0 inch
180	18.0 inch
XXX	Specify 'X' Length in inches for 'X' ≤ 99.9' (XXXX for 'X' > 99.9', ex. 150'=1500)

Basic Order Codes

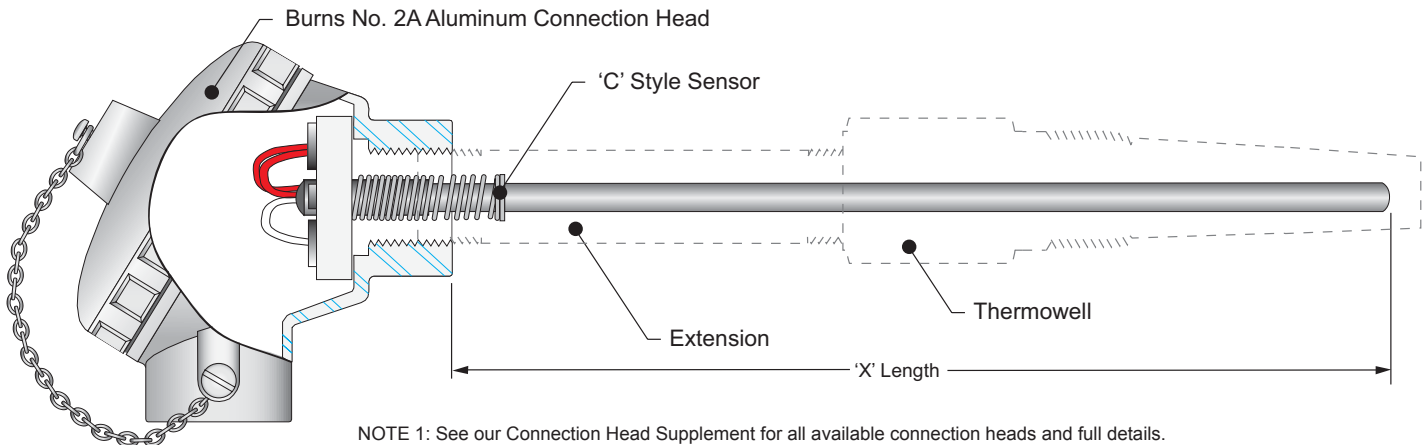
Options

Transmitter

FOR REFERENCE:
RTD Specifications, page 3 and 4
Common Options, pages 17 – 19
Connection Head Descriptions, page 20

Length Code Definitions and Equations for 'C' and 'K' Style Assemblies		
Length Codes	For Threaded & Socket Wells	For Flanged Wells
'X' Sheath Length	$X = OAL - 1.5$	$X + OAL - 1.5$
'U' Immersion Length	$X = N + A$	$X + N + A$
'OAL' Overall Length	$X = N + U + T + 1.5$	$X + N + U + T + 2$
'N' Extension Length	$A = U + T + 1.5$	$A = U + T + 2$
'A' Well Bore Depth		
'T' Well Lag Length		

Example Configuration



NOTE 1: See our Connection Head Supplement for all available connection heads and full details.
NOTE 2: For sensor sheath lengths 'X' greater than 200 inches, contact Burns Customer Service.

'C' Style and 'K' Style Spring Loaded Sensors with Thermowell

Ordering Information (2 of 2)

Thermowell Type (See NOTE 3)

Threaded Thermowells

TT2	Tapered Threaded, 1/2" NPT process threads
TT3	Tapered Threaded, 3/4" NPT process threads
TT4	Tapered Threaded, 1" NPT process threads
RT2	Reduced Tip Threaded, 1/2" NPT process threads
RT3	Reduced Tip Threaded, 3/4" NPT process threads
RT4	Reduced Tip Threaded, 1" NPT process threads
ST2	Straight Threaded, 1/2" NPT process threads
ST3	Straight Threaded, 3/4" NPT process threads
ST4	Straight Threaded, 1" NPT process threads

Socket Weld Thermowells

TW3	Tapered Welded, 3/4" pipe size
TW4	Tapered Welded, 1" pipe size
TW5	Tapered Welded, 1 1/4" pipe size
RW3	Reduced Tip Welded, 3/4" pipe size
RW4	Reduced Tip Welded, 1" pipe size
RW5	Reduced Tip Welded, 1 1/4" pipe size
SW3	Straight Welded, 3/4" pipe size
SW4	Straight Welded, 1" pipe size
SW5	Straight Welded, 1 1/4" pipe size

Flanged Thermowells

TF4A	Tapered Flanged, 1.0" flange, 150 LB
TF6A	Tapered Flanged, 1.5" flange, 150 LB
TF8A	Tapered Flanged, 2.0" flange, 150 LB
TF4B	Tapered Flanged, 1.0" flange, 300 LB
TF6B	Tapered Flanged, 1.5" flange, 300 LB
TF8B	Tapered Flanged, 2.0" flange, 300 LB
RF4A	Reduced Tip Flanged, 1.0" flange, 150 LB
RF6A	Reduced Tip Flanged, 1.5" flange, 150 LB
RF8A	Reduced Tip Flanged, 2.0" flange, 150 LB
RF4B	Reduced Tip Flanged, 1.0" flange, 300 LB
RF6B	Reduced Tip Flanged, 1.5" flange, 300 LB
RF8B	Reduced Tip Flanged, 2.0" flange, 300 LB
SF4A	Straight Flanged, 1.0" flange, 150 LB
SF6A	Straight Flanged, 1.5" flange, 150 LB
SF8A	Straight Flanged, 2.0" flange, 150 LB
SF4B	Straight Flanged, 1.0" flange, 300 LB
SF6B	Straight Flanged, 1.5" flange, 300 LB
SF8B	Straight Flanged, 2.0" flange, 300 LB

Sanitary Thermowells (1/2" NPT, 16 AMP Cap)

TS15	Tapered Sanitary, 1 1/2" Sanitary Cap
TS20	Tapered Sanitary, 2" Sanitary Cap
TS25	Tapered Sanitary, 2 1/2" Sanitary Cap
RS15	Reduced Tip Sanitary, 1 1/2" Sanitary Cap
RS20	Reduced Tip Sanitary, 2" Sanitary Cap
RS25	Reduced Tip Sanitary, 2 1/2" Sanitary Cap
SS15	Straight Sanitary, 1 1/2" Sanitary Cap
SS20	Straight Sanitary, 2" Sanitary Cap
SS25	Straight Sanitary, 2 1/2" Sanitary Cap

Thermowell Material

02	304 Stainless Steel
03	316 Stainless Steel
04	Carbon Steel
05	304L Stainless Steel
06	316L Stainless Steel
07	Hastelloy® C276
08	Chrome-Moly
09	Aluminum 6061 T6
10	Monel™
11	PTFE
12	Inconel® 600
13	Brass
14	Titanium

Basic Order Codes

(Leave Options blank if not required)

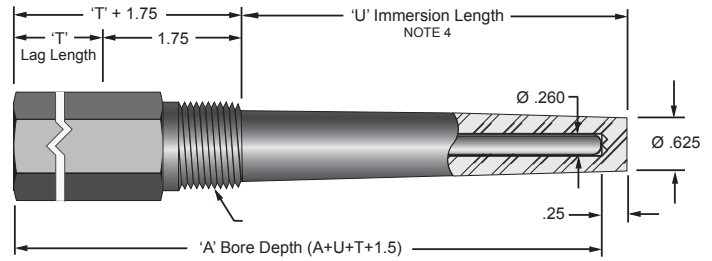
Explosion Proof
(NOTE 5)

Options

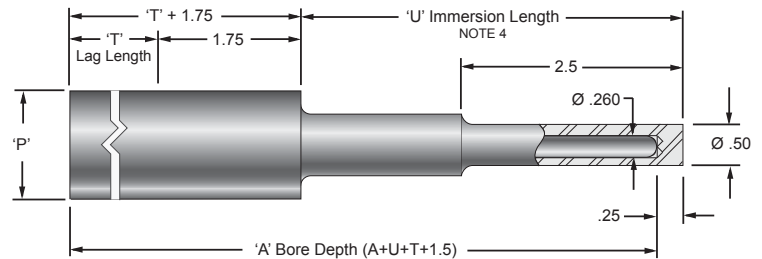
Transmitter

See pages 17-19

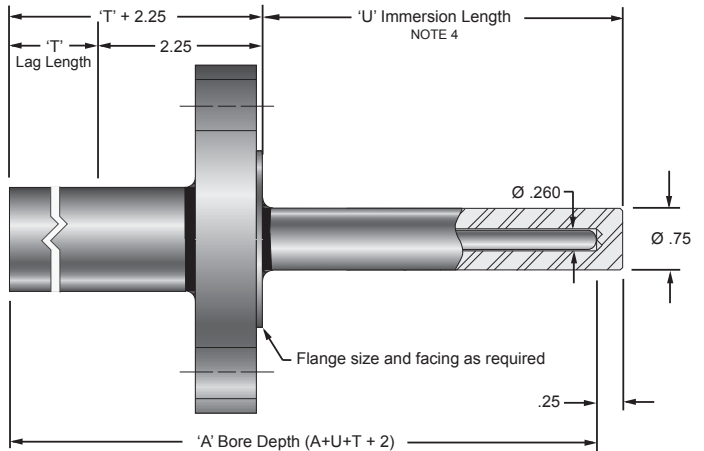
(TT) Threaded Thermowell shown with Tapered Stem



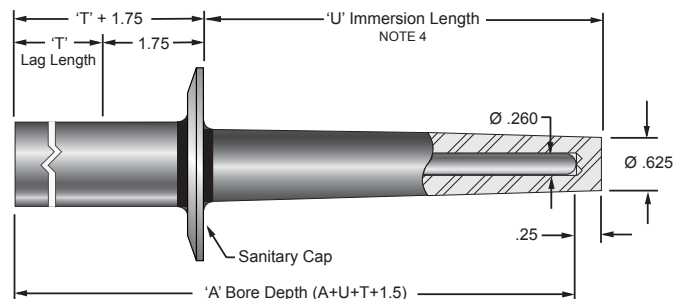
(RW) Socket Weld Thermowell shown with Reduced Tip Stem



(SF) Flanged Thermowell shown with Straight Stem



(TS) Sanitary Thermowell shown with Tapered Stem



NOTE 3: See our Thermowell catalog or visit us on-line at burnsengineering.com for a full line of standard thermowell styles along with information on custom thermowells.

NOTE 4: For Thermowells with Bore Depths ('A') greater than 42 inches contact Burns Customer Service. Long length wells can be constructed from welded bar stock segments or from pipe. Specifics of the application must be verified to ensure the thermowell design meets your process needs.

NOTE 5: For FM explosion proof approved assembly, enter 'AFM' code. See page 4 for ratings and [drawing # 18938](#) for approved product structure details.

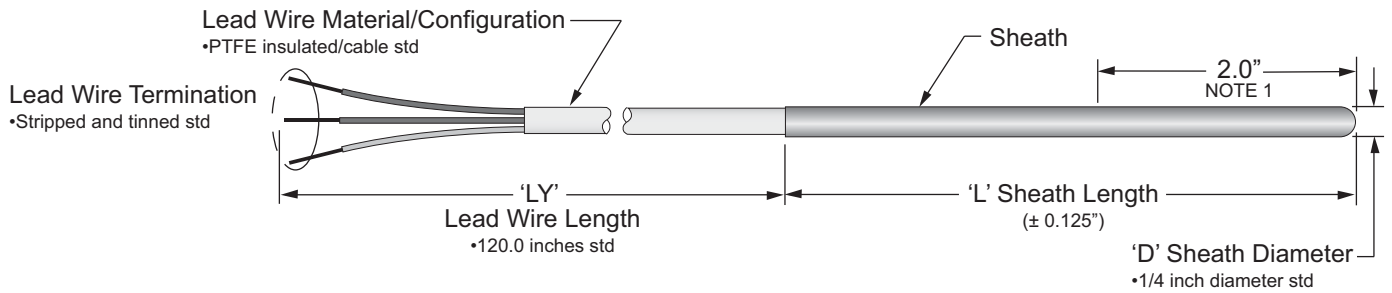
'D', 'G', and 'P' Style Capsule Sensors

Specifications

'D' Style

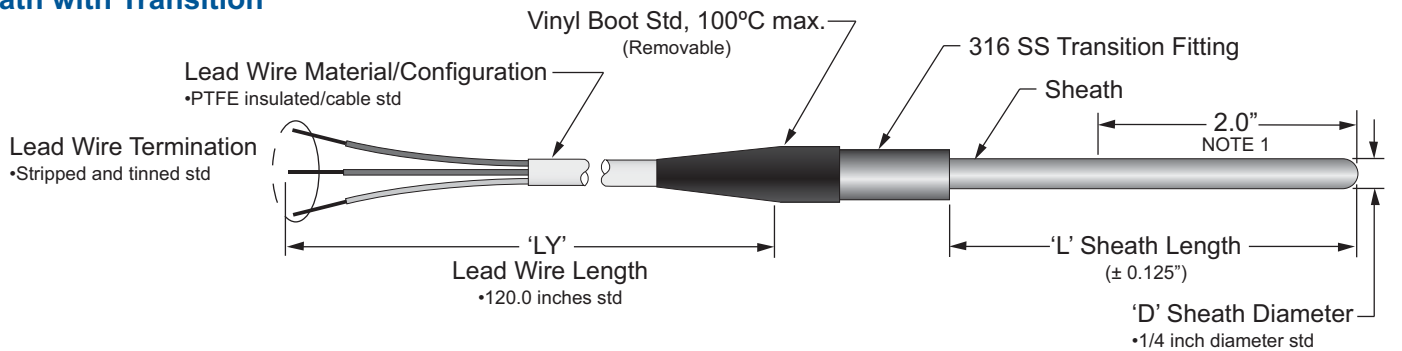
Straight Sheath

(only available in Series 300)

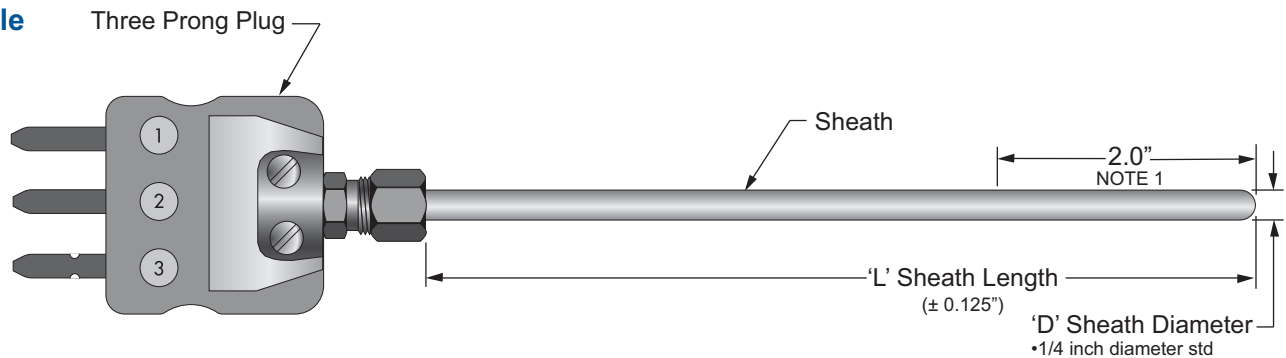


'G' Style

Sheath with Transition



'P' Style Plug Style



'D' Style Application

Straight sheath available on series 300 only. Allows pass through in tight locations.

'G' Style Application

Addition of the transition fitting improves moisture resistance. Recommended where humidity is high.

'P' Style Application

Quick disconnect plug allows use with multiple readouts and portable equipment.

NOTE 1: 1st 2.0 inches of Series 200 or 300 sensors Do Not Bend

'D', 'G', and 'P' Style Capsule Sensors

Ordering Information

200	Burns Series 200
300	Burns Series 300

Sensor Style	
D	Plain Sheath with One Diameter for Entire Sheath Length ('D' Style not available with Series 200)
G	Capsule Style with Transition Fitting
P	Plug Style

RTD Accuracy		Sheath Material
10	Standard RTD +/- 0.10% of resistance at 0 degrees C	316 SS
05	Precision RTD +/- 0.05% of resistance at 0 degrees C (not currently available with the Series 300 model)	316 SS

RTD Element Lead Configuration	
A	Three Wire Single
B	True Four Wire Single
C	Three Wire Dual (not currently available with Series 200 'P' Style)

'L' Sheath Length (See NOTE 1)	
035	3.5 inch (minimum length)
055	5.5 inch
085	8.5 inch
115	11.5 inch
175	17.5 inch
LLL	Specify 'L' Length in inches for 'L' ≤ 99.9" (LLLL for 'L' > 99.9". ex: 150"=1500)

Basic Order Codes

(Leave blank if not required)

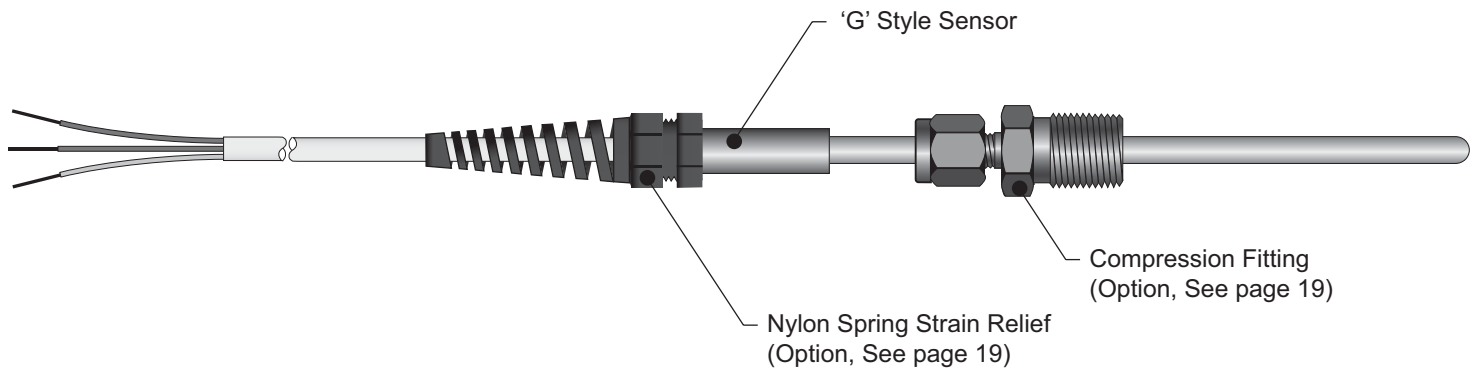
Options Transmitter

See pages 17-19

FOR REFERENCE:
RTD Specifications, page 3 and 4
Common Options, pages 17 – 19



Example Configuration



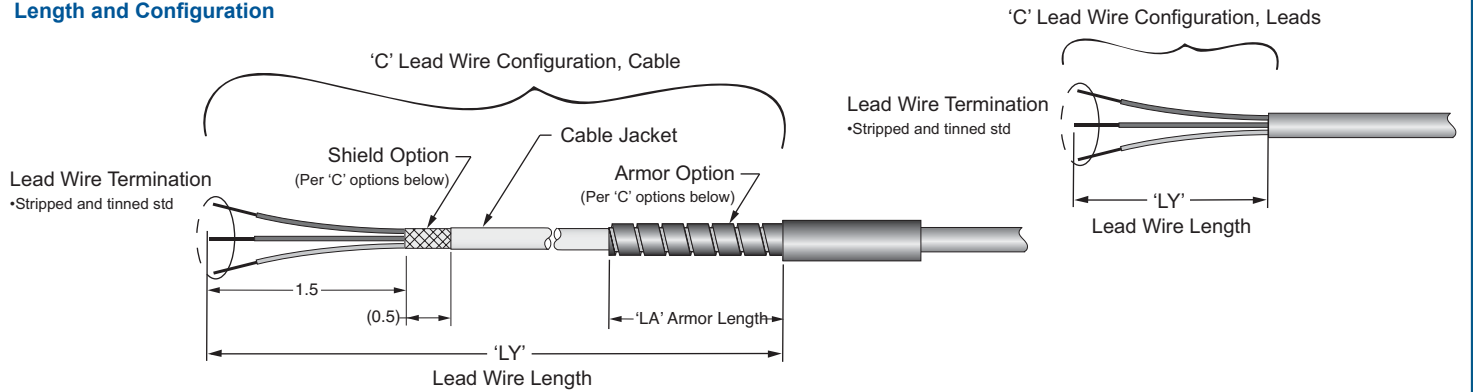
NOTE 1: For sensor sheath lengths 'X' greater than 200 inches, contact Burns Customer Service.

Common Options

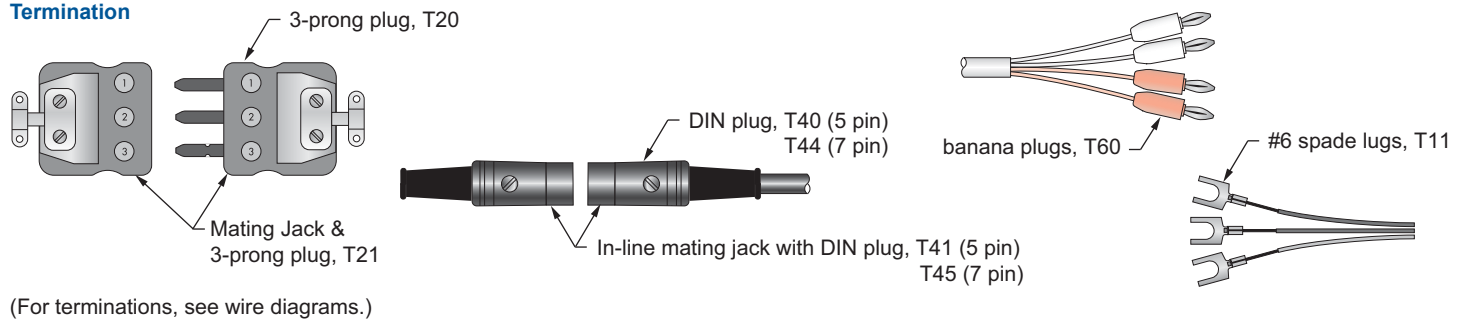
Codes and Specifications

Leadwire Options

Length and Configuration



Termination

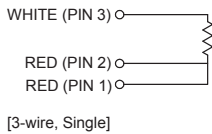


L Lead Wire Options (Note: Only fill in the codes applicable to your specifications)

Lead Wire Length ('Y' option)

Y --- Specify lead wire length in one inch increments
Example: For a 6 inch 'Y' length specify 006, For a 15 foot 'Y' length specify 180
Cable Designs: minimum 12.0 inches (Y012), Maximum 999.0 inches (Y999)
Leadwire Designs: minimum 3.0 inches (Y003), Maximum 36.0 inches (Y036)

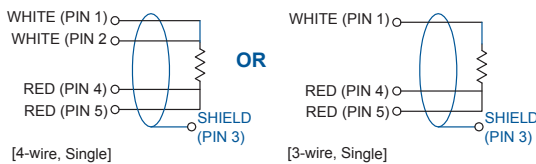
3-PIN PLUG



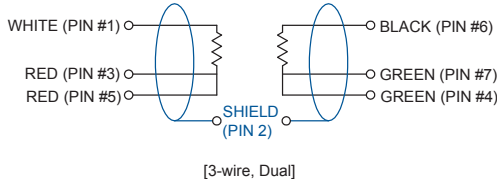
Lead Wire Insulation Material ('M' option)

M02	Fiberglass insulation with epoxy seal. (Leads rated to 450°C, seal rated to 200°C) (Fiberglass insulated conductors and fiberglass jacket)	Series 200 only
M03	Kapton® insulation with epoxy seal. (Leads rated to 250°C, seal rated to 200°C) (Kapton® insulated conductors and Kapton® jacket)	Series 200 & Series 300
M98	Fiberglass insulation with ceramic seal. (Lead wires and seal rated to 450°C) (Fiberglass insulated conductors and fiberglass jacket)	Series 200 only

5-PIN DIN CONNECTOR



7-PIN DIN CONNECTOR



Lead Wire Configuration ('C' option)

C01	Individual insulated leads, standard for A, B, L, C and K style sensors
C10	Cable, standard for D and G style sensors
C20	Shielded cable (stainless steel braid)
C23	Shielded cable (foil shield with drain wire)
C30	Cable with stainless steel overbraid
C40	Cable with stainless steel armor, specify armor length below
C41	Shielded cable with stainless steel armor, specify armor length below
C50	Cable with PVC coated armor, specify armor length below
C51	Cable with PTFE encased stainless steel armor, specify armor length below
C52	Shielded cable with PVC coated armor, specify armor length below
C53	Shielded cable with PTFE encapsulated stainless steel armor, specify armor length below

Armor Length ('A' option)

A --- Specify armor length in one inch increments
'A' Armor Length must be at least 6 inches less than lead wire length
example: For a 15 foot 'A' Armor Length specify 180

Lead Wire Termination ('T' option)

T11	Stripped and tinned lead wires with #6 spade lugs
T20	Three prong plug
T21	Three prong plug with mating jack
T40	DIN plug 5 pin
T41	DIN Plug with in-line mating jack 5 pin
T44	DIN plug 7 pin
T45	DIN Plug with in-line mating jack 7 pin
T60	Banana plugs

Common Options

Codes and Specifications

Sheath Options

S Sheath Options (Note: Only fill in the codes applicable to your specifications)

Sheath Diameter ('D' option)

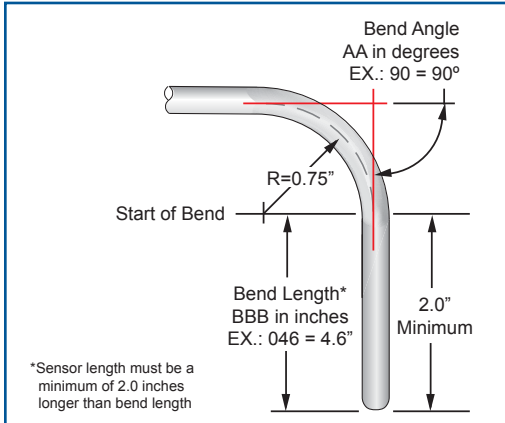
D01	1/8 inch diameter
D02	3/16 inch diameter

Sheath Coating ('C' option)

C02	Teflon Coating
-----	----------------

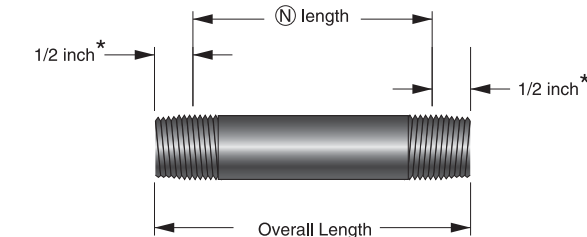
Sheath Bending ('B' option)

B _ _ _ _	Specify bend angle (AA) and location (BBB)
	Bending angles should be specified to the nearest degree.
	Bend locations should be specified in 0.1 inch increments and are defined as the distance from the tip of the sensor.
	Minimum Bend Length = 2.0 inches
	Example: for a 45° bend, starting 4.0 inches from the tip of the sensor, specify B45040



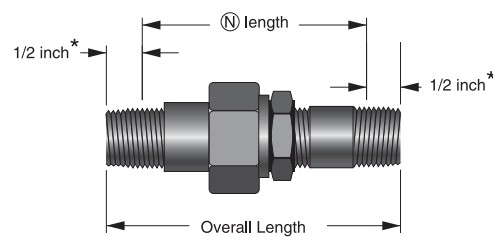
Extension Options (*1/2" is normal thread engagement for 1/2" NPT fittings)

Style "A", Nipple Extension



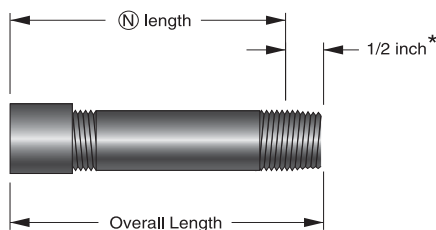
Use with C, K, L style assemblies.

Style "B", Nipple-Union-Nipple Extension



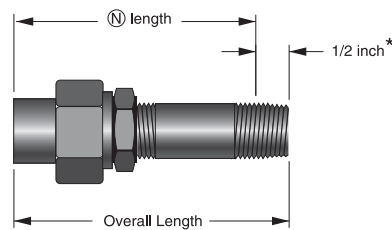
Use with C or K style assemblies.

Style "C", Coupling-Nipple Extension



Use with L style assemblies.

Style "D", Union-Nipple Extension



Use with L style assemblies.

E Extension Options

Extension Length ('N' option)

N _ _	Specify extension length in 0.5 inch increments
	Minimum Length is 1.0 inch (N10), Maximum Length is 9.5 inches (N95)
	Example: N60 = 'N' length of 6.0 inches

Thermowell Options

W Thermowell Options (Note: Only fill in the codes applicable to your specifications)

Lag Extension ('T' option)

T30	3.0 inches
T _ _	Specify lag length in 0.1 inch increments
	Minimum Length is 0.5 inch (T05), Maximum Length is 9.9 inches (T99)
	Example: T45 = 'T' length of 4.5 inches

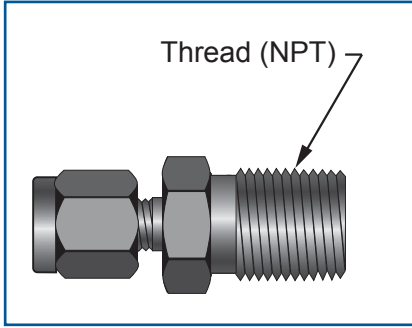
Testing and Documentation Options ('E' option)

E01	Hydrostatic internal pressure testing per ASTM specifications
E02	Dye penetrant testing per ASTM specifications
E03	X-ray examination per ASTM specifications
E04	Material certification of thermowell, not available with brass
E05	Murdock strength calculations
E06	Surface Finish certification of thermowell
E07	Canadian Registration Number (CNR) provided with thermowell
E15	Hydrostatic external pressure testing
E16	Positive material identification (PMI)
E17	Inspection Certificate (ISO 10474, EN 10204, DIN 50049)

Common Options

Codes and Descriptions

Compression Fitting Options



FC Fitting Options, Compression ('C' option)

Fitting Material

03	316 Stainless Steel
13	Brass

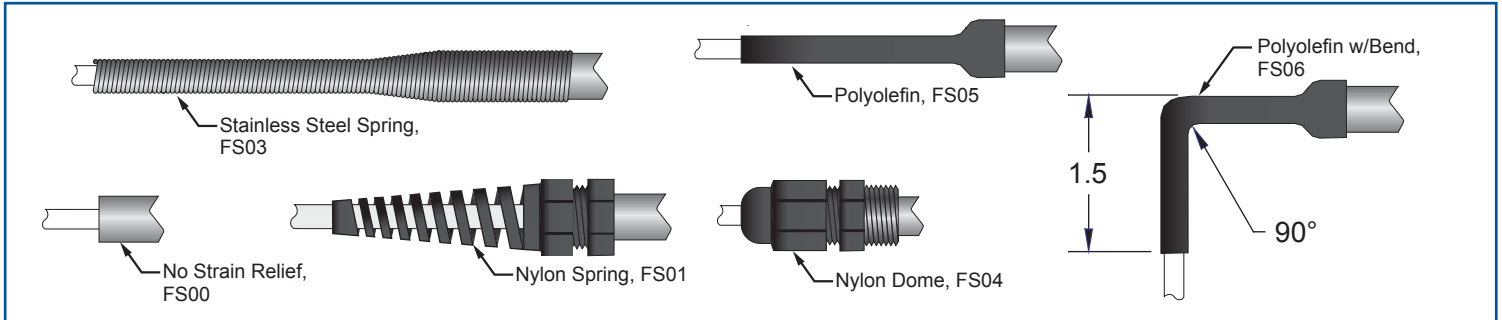
Ferrule Type

1	PTFE, re-adjustable
2	Stainless Steel

Threads

1	1/8" NPT
3	1/4" NPT
4	3/8" NPT
5	1/2" NPT

Strain Relief Options



F Fitting Options

Strain Relief Options ('S' option) available only with 'G' Style sensor

S01	Nylon Spring, Maximum temperature 100°C
S03	Stainless Steel Spring
S04	Nylon Dome, Maximum temperature 100°C
S05	Polyolefin, Adhesive lined, Maximum temperature 100°C
S06	Polyolefin, Adhesive lined with 90 degree bend, Maximum temperature 100°C

Tagging Options

M Miscellaneous Options

Sensor Tagging Options ('T' Options)

T01	Paper Tag with Tag Number (sensor assembly)
T02	Stainless Steel Tag with Tag Number (sensor assembly)
T26	Tag Number Electro-etched on Sensor Sheath

Transmitter Options

We offer a range of transmitters to meet your requirements. Our transmitters provide fast response and accurate measurements over the entire temperature range. They are designed for monitoring and control applications. For more information on our complete transmitter offering see our transmitter catalog or contact our factory.

T51 T55

Transmitter Transmitter, Matching Capabilities, HART Communication

Calibration Type

M	Transmitter and sensor matched for improved performance (Only available when ordered with a sensor assembly)
(blank)	Not matched

Temperature Range

{Tmin to Tmax}	Tmin = Temperature for 4mA output Tmax = Temperature for 20mA output
----------------	---

Temperature Units

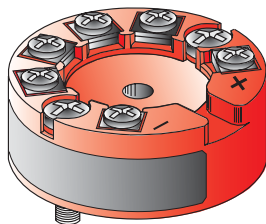
C	Degrees Celsius
F	Degrees Fahrenheit

Model T51 & T55

PC Programmable
Custom Input/Linearization

FM, CSA, CE Approval

0.05% Accuracy

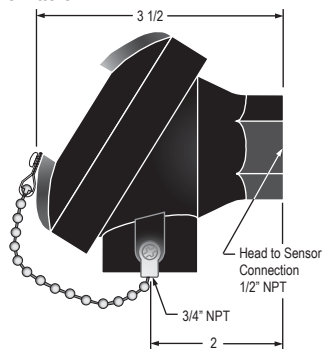


Connection Head Descriptions

Standard Enclosures

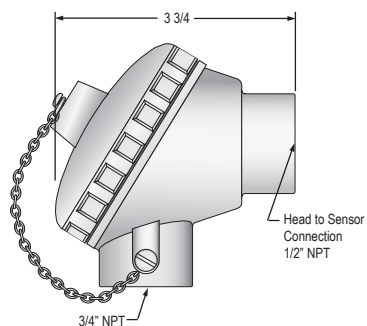
Burns Engineering offers a variety of connection heads to complement the sensor (RTD or Thermocouple) and its operational environment. Choose from the following materials, sizes and ratings. See Burns Connection Head Supplement for all available heads and additional details.

Cast iron weather proof connection head NEMA type 4 enclosure. For use with single or dual element sensors and DIN B sized transmitters.



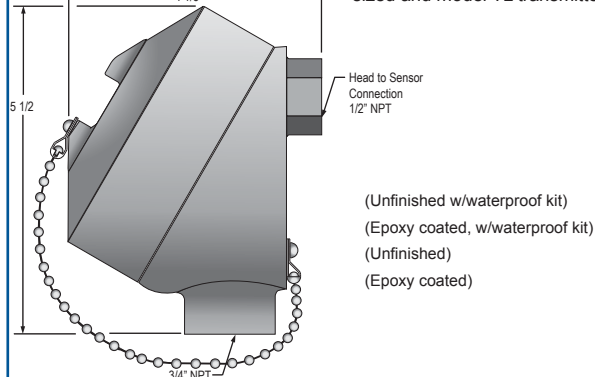
1C (Cast iron, black baked enamel)

Cast aluminum weather proof connection head NEMA type 4X enclosure. For use with single or dual element sensors and DIN B sized transmitters.

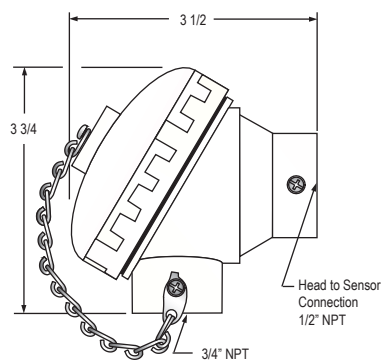


2A (Aluminum, polyester metallic finish)
2E (Epoxy coated)

Explosion proof cast aluminum connection head FM rated as explosion proof Class I, Div 1, Group A, B, C, D: Class II, Div 1, Group E, F, G: Class III, Div 1, NEMA 4X. For use with single and dual element sensors, DIN B sized and model TL transmitters.

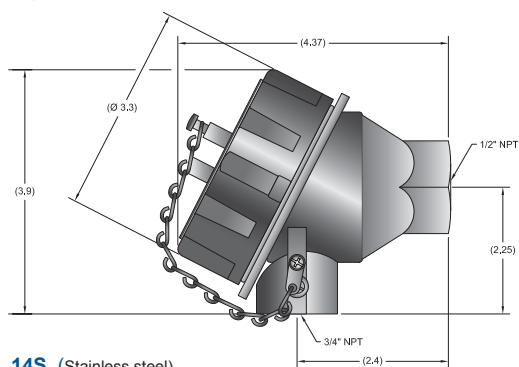


Polypropylene weather proof NEMA type 4X connection head. For use with single or dual sensor and DIN B sized transmitters.



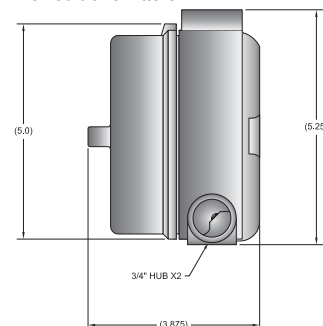
9P (Polypropylene, white)

Explosion proof 316 stainless steel connection head. FM rated as explosion proof Class I, Div. 1, group A, B, C, D: Class II, Div. 1, Group E, F, G: Class III, Div. 1, NEMA 4A. For use with single and dual sensors and DIN B sized transmitters.



14S (Stainless steel)

Remote mountable, explosion proof aluminum head. FM rated: Class I, Div 1, Group B, C, D: Class II, Div 1, Group E, F, G: Class III, Div1. For use with single or dual sensors and DIN B sized transmitters.

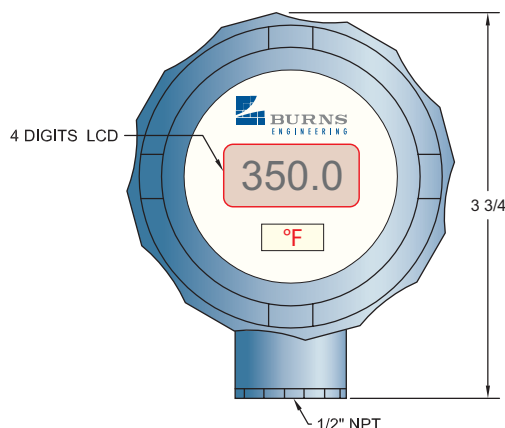


25A (Remote mount)

Enclosures with Indicators

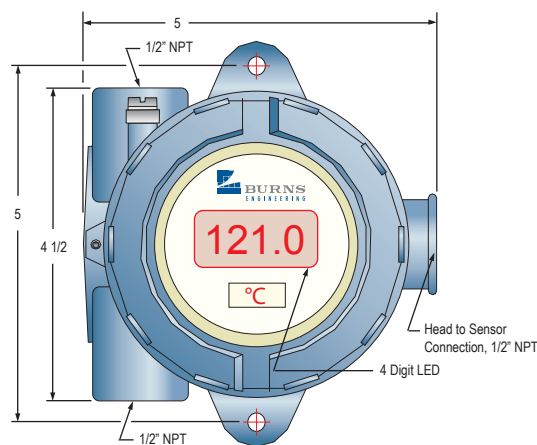
Burns offers loop powered (LED) and battery powered (LCD) indicators, available in three enclosure options. See the Burns Connection Head Supplement for all available Heads and Indicators.

The 24S, LCD indicator is a stainless steel head with battery powered indicator. NEMA 4X, IP67 rated.



24S (4 Digit LCD, battery powered)

The 19A LED indicator in an aluminum head can be driven by the Burns T51 or T55 transmitter housed in the same head. Hazardous location approved. See the Connection Head Supplement for rating.



19A (4 Digit LED, loop power)

Resistance vs. Temperature

(Degrees Celsius)

(100 ohm PRT, $\alpha = .00385$)

	0	-1	2	-3	-4	-5	-6	-7	-8	-9
-200	18.52									
-190	22.83	22.40	21.97	21.54	21.11	20.68	20.25	19.82	19.38	18.95
-180	27.10	26.67	26.24	25.82	25.39	24.97	24.54	24.11	23.68	23.25
-170	31.34	30.91	30.49	30.07	29.64	29.22	28.80	28.37	27.95	27.52
-160	35.54	35.12	34.70	34.28	33.86	33.44	33.02	32.60	32.18	31.76
-150	39.72	39.31	38.89	38.47	38.05	37.64	37.22	36.80	36.38	35.96
-140	43.88	43.46	43.05	42.63	42.22	41.80	41.39	40.97	40.56	40.14
-130	48.00	47.59	47.18	46.77	46.36	45.94	45.53	45.12	44.70	44.29
-120	52.11	51.70	51.29	50.88	50.47	50.06	49.65	49.24	48.83	48.42
-110	56.19	55.79	55.38	54.97	54.56	54.15	53.75	53.34	52.93	52.52
-100	60.26	59.85	59.44	59.04	58.63	58.23	57.82	57.41	57.01	56.60
-90	64.30	63.90	63.49	63.09	62.68	62.28	61.88	61.47	61.07	60.66
-80	68.33	67.92	67.52	67.12	66.72	66.31	65.91	65.51	65.11	64.70
-70	72.33	71.93	71.53	71.13	70.73	70.33	69.93	69.53	69.13	68.73
-60	76.33	75.93	75.53	75.13	74.73	74.33	73.93	73.53	73.13	72.73
-50	80.31	79.91	79.51	79.11	78.72	78.32	77.92	77.52	77.12	76.73
-40	84.27	83.87	83.48	83.08	82.69	82.29	81.89	81.50	81.10	80.70
-30	88.22	87.83	87.43	87.04	86.64	86.25	85.85	85.46	85.06	84.67
-20	92.16	91.77	91.37	90.98	90.59	90.19	89.80	89.40	89.01	88.62
-10	96.09	95.69	95.30	94.91	94.52	94.12	93.73	93.34	92.95	92.55
0	100.00	99.61	99.22	98.83	98.44	98.04	97.65	97.26	96.87	96.48

	0	1	2	3	4	5	6	7	8	9
0	100.00	100.39	100.78	101.17	101.56	101.95	102.34	102.73	103.12	103.51
10	103.90	104.29	104.68	105.07	105.46	105.85	106.24	106.63	107.02	107.40
20	107.79	108.18	108.57	108.96	109.35	109.73	110.12	110.51	110.90	111.29
30	111.67	112.06	112.45	112.83	113.22	113.61	114.00	114.38	114.77	115.15
40	115.54	115.93	116.31	116.70	117.08	117.47	117.86	118.24	118.63	119.01
50	119.40	119.78	120.17	120.55	120.94	121.32	121.71	122.09	122.47	122.86
60	123.24	123.63	124.01	124.39	124.78	125.16	125.54	125.93	126.31	126.69
70	127.08	127.46	127.84	128.22	128.61	128.99	129.37	129.75	130.13	130.52
80	130.90	131.28	131.66	132.04	132.42	132.80	133.18	133.57	133.95	134.33
90	134.71	135.09	135.47	135.85	136.23	136.61	136.99	137.37	137.75	138.13
100	138.51	138.88	139.26	139.64	140.02	140.40	140.78	141.16	141.54	141.91
110	142.29	142.67	143.05	143.43	143.80	144.18	144.56	144.94	145.31	145.69
120	146.07	146.44	146.82	147.20	147.57	147.95	148.33	148.70	149.08	149.46
130	149.83	150.21	150.58	150.96	151.33	151.71	152.08	152.46	152.83	153.21
140	153.58	153.96	154.33	154.71	155.08	155.46	155.83	156.20	156.58	156.95
150	157.33	157.70	158.07	158.45	158.82	159.19	159.56	159.94	160.31	160.68
160	161.05	161.43	161.80	162.17	162.54	162.91	163.29	163.66	164.03	164.40
170	164.77	165.14	165.51	165.89	166.26	166.63	167.00	167.37	167.74	168.11
180	168.48	168.85	169.22	169.59	169.96	170.33	170.70	171.07	171.43	171.80
190	172.17	172.54	172.91	173.28	173.65	174.02	174.38	174.75	175.12	175.49
200	175.86	176.22	176.59	176.96	177.33	177.69	178.06	178.43	178.79	179.16
210	179.53	179.89	180.26	180.63	180.99	181.36	181.72	182.09	182.46	182.82
220	183.19	183.55	183.92	184.28	184.65	185.01	185.38	185.74	186.11	186.47
230	186.84	187.20	187.56	187.93	188.29	188.66	189.02	189.38	189.75	190.11
240	190.47	190.84	191.20	191.56	191.92	192.29	192.65	193.01	193.37	193.74
250	194.10	194.46	194.82	195.18	195.55	195.91	196.27	196.63	196.99	197.35
260	197.71	198.07	198.43	198.79	199.15	199.51	199.87	200.23	200.59	200.95
270	201.31	201.67	202.03	202.39	202.75	203.11	203.47	203.83	204.19	204.55
280	204.90	205.26	205.62	205.98	206.34	206.70	207.05	207.41	207.77	208.13
290	208.48	208.84	209.20	209.56	209.91	210.27	210.63	210.98	211.34	211.70
300	212.05	212.41	212.76	213.12	213.48	213.83	214.19	214.54	214.90	215.25

Resistance vs. Temperature

(Degrees Fahrenheit)

(100 ohm PRT, alpha = .00385)

	0	-1	-2	-3	-4	-5	-6	-7	-8	-9
-250	36.94	36.71	36.47	36.24	36.01	35.78	35.54	35.31	35.08	34.84
-240	39.26	39.03	38.80	38.56	38.33	38.10	37.87	37.64	37.40	37.17
-230	41.57	41.34	41.11	40.88	40.65	40.42	40.19	39.95	39.72	39.49
-220	43.88	43.65	43.42	43.19	42.96	42.73	42.49	42.26	42.03	41.80
-210	46.17	45.94	45.71	45.48	45.26	45.03	44.80	44.57	44.34	44.11
-200	48.46	48.23	48.00	47.78	47.55	47.32	47.09	46.86	46.63	46.40
-190	50.74	50.52	50.29	50.06	49.83	49.60	49.38	49.15	48.92	48.69
-180	53.02	52.79	52.56	52.34	52.11	51.88	51.65	51.43	51.20	50.97
-170	55.29	55.06	54.83	54.61	54.38	54.15	53.93	53.70	53.47	53.25
-160	57.55	57.32	57.10	56.87	56.65	56.42	56.19	55.97	55.74	55.51
-150	59.81	59.58	59.35	59.13	58.90	58.68	58.45	58.23	58.00	57.78
-140	62.06	61.83	61.61	61.38	61.16	60.93	60.71	60.48	60.26	60.03
-130	64.30	64.08	63.85	63.63	63.40	63.18	62.95	62.73	62.50	62.28
-120	66.54	66.31	66.09	65.87	65.64	65.42	65.20	64.97	64.75	64.52
-110	68.77	68.55	68.33	68.10	67.88	67.66	67.43	67.21	66.99	66.76
-100	71.00	70.78	70.55	70.33	70.11	69.89	69.66	69.44	69.22	68.99
-90	73.22	73.00	72.78	72.56	72.33	72.11	71.89	71.67	71.45	71.22
-80	75.44	75.22	75.00	74.78	74.55	74.33	74.11	73.89	73.67	73.45
-70	77.66	77.43	77.21	76.99	76.77	76.55	76.33	76.11	75.88	75.66
-60	79.86	79.64	79.42	79.20	78.98	78.76	78.54	78.32	78.10	77.88
-50	82.07	81.85	81.63	81.41	81.19	80.97	80.75	80.53	80.31	80.09
-40	84.27	84.05	83.83	83.61	83.39	83.17	82.95	82.73	82.51	82.29
-30	86.47	86.25	86.03	85.81	85.59	85.37	85.15	84.93	84.71	84.49
-20	88.66	88.44	88.22	88.00	87.78	87.56	87.34	87.13	86.91	86.69
-10	90.85	90.63	90.41	90.19	89.97	89.75	89.54	89.32	89.10	88.88
0	93.03	92.82	92.60	92.38	92.16	91.94	91.72	91.50	91.29	91.07

	0	1	2	3	4	5	6	7	8	9
0	93.03	93.25	93.47	93.69	93.91	94.12	94.34	94.56	94.78	95.00
10	95.21	95.43	95.65	95.87	96.09	96.30	96.52	96.74	96.96	97.17
20	97.39	97.61	97.83	98.04	98.26	98.48	98.70	98.91	99.13	99.35
30	99.57	99.78	100.00	100.22	100.43	100.65	100.87	101.09	101.30	101.52
40	101.74	101.95	102.17	102.39	102.60	102.82	103.04	103.25	103.47	103.69
50	103.90	104.12	104.34	104.55	104.77	104.98	105.20	105.42	105.63	105.85
60	106.07	106.28	106.50	106.71	106.93	107.15	107.36	107.58	107.79	108.01
70	108.23	108.44	108.66	108.87	109.09	109.30	109.52	109.73	109.95	110.17
80	110.38	110.60	110.81	111.03	111.24	111.46	111.67	111.89	112.10	112.32
90	112.53	112.75	112.96	113.18	113.39	113.61	113.82	114.04	114.25	114.47
100	114.68	114.90	115.11	115.33	115.54	115.76	115.97	116.18	116.40	116.61
110	116.83	117.04	117.26	117.47	117.68	117.90	118.11	118.33	118.54	118.76
120	118.97	119.18	119.40	119.61	119.82	120.04	120.25	120.47	120.68	120.89
130	121.11	121.32	121.53	121.75	121.96	122.18	122.39	122.60	122.82	123.03
140	123.24	123.46	123.67	123.88	124.09	124.31	124.52	124.73	124.95	125.16
150	125.37	125.59	125.80	126.01	126.22	126.44	126.65	126.86	127.08	127.29
160	127.50	127.71	127.93	128.14	128.35	128.56	128.78	128.99	129.20	129.41
170	129.62	129.84	130.05	130.26	130.47	130.68	130.90	131.11	131.32	131.53
180	131.74	131.96	132.17	132.38	132.59	132.80	133.01	133.23	133.44	133.65
190	133.86	134.07	134.28	134.50	134.71	134.92	135.13	135.34	135.55	135.76
200	135.97	136.19	136.40	136.61	136.82	137.03	137.24	137.45	137.66	137.87
210	138.08	138.29	138.51	138.72	138.93	139.14	139.35	139.56	139.77	139.98
220	140.19	140.40	140.61	140.82	141.03	141.24	141.45	141.66	141.87	142.08
230	142.29	142.50	142.71	142.92	143.13	143.34	143.55	143.76	143.97	144.18
240	144.39	144.60	144.81	145.02	145.23	145.44	145.65	145.86	146.07	146.28
250	146.49	146.70	146.91	147.11	147.32	147.53	147.74	147.95	148.16	148.37

Custom solutions designed for your specific needs.

Burns Engineering has a long history of designing and building temperature sensors to meet the measurement needs of unique and varied applications. The products in this catalog were specifically developed to meet field requirements and allow for configured-to-order flexibility. Not sure what product is right for your application? Our application engineering group is here to help you select, configure, and/or custom design the right product for your specific needs.

Burns Engineering is a leading supplier of temperature measurement solutions for all your process and metrology applications.

Your processes require temperature measurement solutions that you can depend on. We understand that measurement accuracy, reliability and consistency are important to your success.

Your measurement is our mission.

Turn to Burns as your
Temperature Measurement Experts.®

What will your solution BE?

Series 200 and 300 RTDs



RTDology® Temperature Training Complementary Online Education



RTDology® - learn how to build confidence
in your temperature measurements.

RTD vs.
Thermocouple



To learn more about our
online sessions snap or visit

RTDology.com

RTD Selection
& Application



RTD Accuracy



Burns Engineering | 10201 Bren Rd. E. Minnetonka, MN 55343 | email: info@burnsengineering.com
Phone Toll Free: 800-328-3871 | Phone (Local): 952-935-4400 | Fax: 952-935-8782

Product images provided by Sr. Applications Engineer and Photographer Bill Bergquist.

Trademarks contained within this catalog:

Burns Engineering Logo, Temperature Measurement Experts are registered trademarks of Burns Engineering.

Monel is a trademark of the Special Metals family of companies. Hastelloy is a registered trademark of Haynes Int'l Inc.