CSA-certified Explosion-Proof Temperature Sensor Assemblies for use in U.S. and Canadian Hazardous Locations

CSA-certified assemblies for applications in hazardous locations as defined by the NEC and CEC

Speed, Service, Solutions... Beyond Measure®

CSA-CERTIFIED EXPLOSION-PROOF TEMPERATURE SENSOR ASSEMBLIES

For Use In U.S. and Canadian Hazardous Locations



RTD & THERMOCOUPLE:

- Fixed element assemblies
- Thermowell assemblies
- Spring-loaded flame path assemblies
- Heat tracing assemblies
- Optional temperature transmitters
- Wide variety of designs and options

C US

pyromation® beyond measure

The National Electrical Code (NEC), formally known as NFPA 70, is the benchmark standard for the safe installation of electrical wiring and equipment in the United States. Published by the National Fire Protection Association (NFPA), its primary mission is to safeguard people and property from electrical hazards like fire and shock. While not a federal law, the NEC is a "model code" that is adopted and enforced by state and local governments. Once adopted into local legislation, compliance becomes mandatory for all electrical work.

CEC

The Canadian Electrical Code (CEC or CE Code, CSA C22.1) is the paramount, national safety standard for installing and maintaining electrical equipment in Canada. Updated every three years by the CSA Group, it provides prescriptive rules used by provinces and territories to standardize safe electrical practices and prevent hazards in buildings, structures and premises. While national in scope, it is adopted and enforced by provincial, territorial, or municipal regulations, sometimes with local amendments. The code is divided into numbered sections (0–86) covering general requirements, wiring, equipment, and special locations.

C US

The CSA Group (formerly Canadian Standards Association) is a premier, independent, third-party testing and certification organization that develops standards and certifies products for safety, sustainability, and performance in North America and globally. They cover electrical, industrial, plumbing, and construction equipment. The organization develops standards to improve safety and performance, and provides testing, inspection, and certification services. A CSA mark indicates a product has been tested to applicable North American (including Canadian Electrical Code) or international standards.

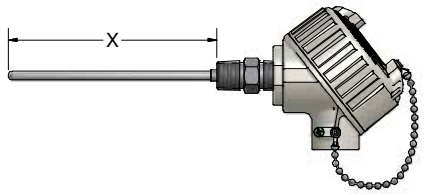
CSA Certified Explosion-Proof Temperature Sensor Assemblies for use in U.S. and Canadian Hazardous Locations as defined by the NEC and CEC

Pyromation Explosion-Proof temperature sensor assemblies are made for use in U.S. and Canadian hazardous areas. They are designed to extinguish flames inside the device, eliminating the potential for ignition of any flammable mixtures in the surrounding atmosphere. These assemblies are certified for use in these locations as designated by the NEC and CEC:

- Class I Division 1 Groups A, B, C and D
- Class II Division 1 Groups E, F, and G
- Class III
- T-Code: T6/T5/T4
- IP66



Explosion-Proof, Fixed-Element RTDs are made for use in U.S. and Canadian hazardous areas. They are designed to extinguish flames inside the device, eliminating the potential for ignition of flammable mixtures in the surrounding atmosphere. CSA certified assemblies, dependent on connection head type, meet XP Class I Division I & II; Groups A, B, C, D; DIP Class II Division I; Groups E, F, G; Class III; IP66. They may be installed directly in the process without being inserted into a thermowell. The assemblies feature 316 stainless steel sheaths in various diameter sizes. They are available with or without process mountings and with aluminum or stainless steel explosion-proof connection heads.



Order Codes

	1-0		2-0		2-1	2-2		3-0		4-0		5-0		5-1		5-2	
Example Order Number:	**HL09**	-	**R1T185L**		**48**	**3**	-	**012**	-	**00**	-	**8HN**		**94,**		**T**	Transmitter options shown on pages 10, 11.

1-0 Agency Approval

CODE	DESCRIPTION
HL09	CSA US/CAN explosion-proof-certified assembly

2-0 100 Ω Platinum RTD Elements α = 0.003 85 °C^{-1}

CODE		TOLERANCE[1]	TEMP. RANGE
SINGLE	*DUPLEX*		
R1T185L	R1T285L	Grade B	(-200 to 200) °C
R5T185L	R5T285L	(1/5) Class B	(-30 to 150) °C
RBF185L	RBF285L	Class B	(-50 to 200) °C
RAF185L	RAF285L	Class A	(-30 to 200) °C
R1T185H	R1T285H	Grade B	(-200 to 600) °C
RAT185H	RAT285H	Class A	(-100 to 450) °C

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

2-1 Sheath Diameters 316 SS

CODE	DIAMETERS (inches)
28[1]	1/8
38	3/16
48	1/4
68	3/8

[1] Not available in duplex

2-2 Element Connection

CODE	DESCRIPTION
2	2-wire element
3	3-wire element
4	4-wire element

5-1 Head Terminations

CODE	DESCRIPTION
74	DIN form B aluminum explosion-proof head
75T142C	(4 to 20) mA HART® Field Transmitter with aluminum explosion-proof housing
76T71-D10	(4 to 20) mA isolated programmable transmitter with digital display and explosion-proof aluminum housing
76T72-D10	(4 to 20) mA isolated programmable HART® transmitter with digital display and explosion-proof aluminum housing
76T82-D10	(4 to 20) mA dual input HART® Field Transmitter with digital display and explosion-proof aluminum housing
93	Aluminum explosion-proof head
94	316L stainless steel explosion-proof head
5-2 Options	
SB	1/2" NPT conduit reducer bushing
I	Stainless steel tag
T31	(4 to 20) mA head-mounted transmitter
T71-00	(4 to 20) mA isolated head-mounted transmitter
T72-00	(4 to 20) mA HART® isolated head-mounted transmitter
T82-00	(4 to 20) mA dual input, isolated HART® head-mounted transmitter
Transmitter options shown on pages 10, 11.	

5-0 Head Mounting Fittings

CODE	DESCRIPTION
8HN	1/2" x 1/2" NPT stainless steel hex nipple 1" "E" length
9HP	1/2" NPT stainless steel bushing (no process threads)
8RNDC	3/4" x 1/2" NPT stainless steel hex nipple

4-0 Sheath Mounting Fittings

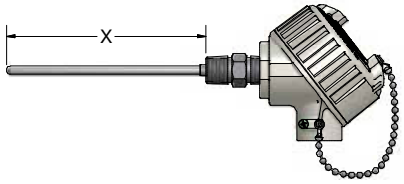
CODE	DESCRIPTION
00	No Fitting

3-0 "X" Dimensions

Insert three digit sheath length ("X" Dimension) in inches.

XP02 Hazloc Explosion-Proof-Certified, Fixed-Element Thermocouple Assemblies

Explosion-Proof, Fixed-Element Thermocouples are made for use in U.S. and Canadian hazardous areas. They are designed to extinguish flames inside the device, eliminating the potential for ignition of flammable mixtures in the surrounding atmosphere. CSA certified assemblies, dependent on connection head type, meet XP Class I Division I & II; Groups A, B, C, D; DIP Class II Division I; Groups E, F, G; Class III; IP66. They may be installed directly in the process without being inserted into a thermowell. The assemblies are available in various sheath materials, diameter sizes and ungrounded isolated junctions. They are available with or without process mountings and with aluminum or stainless steel explosion-proof connection heads.



Order Codes

Example Order Number:

1-0		2-0	2-1	2-2	2-3		3-0		4-0		5-0	5-1	5-2	
HL09	-	K	4	8	U	-	012	-	00	-	8HN	93,	T	Transmitter options shown on pages 10,11.

1-0 Agency Approval

CODE	DESCRIPTION
HL09	CSA US/CAN explosion-proof-certified assembly

2-0 Thermocouple Types

CODE		
SINGLE	*DUPLEX*	*TRIPLEX*
E	EE	-
J	JJ	JJJ
K	KK	KKK
T	TT	-

2-1 Sheath Diameters

CODE	DIAMETER (inches)
2	1/8
3	3/16
4	1/4
6	3/8

2-2 Sheath Materials

CODE	MATERIAL	STANDARD AVAILABLE TYPES
3	Alloy 600	K
4	310 SS	K
5	446 SS	K
8	316 SS	E, J, K, T

2-3 Measuring Junction

CODE	DESCRIPTION
U	Ungrounded

5-1 Head Terminations

CODE	DESCRIPTION
74	DIN form B aluminum explosion-proof head
75T142C	(4 to 20) mA HART® Field Transmitter with aluminum explosion-proof housing
76T71-D10	(4 to 20) mA isolated programmable transmitter with digital display and explosion-proof aluminum housing
76T72-D10	(4 to 20) mA isolated programmable HART® transmitter with digital display and explosion-proof aluminum housing
76T82-D10	(4 to 20) mA dual input HART® Field Transmitter with digital display and explosion-proof aluminum housing
93	Aluminum explosion-proof head
94	316L stainless steel explosion-proof head
5-2 Options	
SB	1/2" NPT conduit reducer bushing
I	Stainless steel tag
T71-00	(4 to 20) mA isolated head-mounted transmitter
T72-00	(4 to 20) mA HART® isolated head-mounted transmitter
T82-00	(4 to 20) mA dual input, isolated HART® head-mounted transmitter
Transmitter options shown on pages 10, 11.	

5-0 Head Mounting Fittings

CODE	DESCRIPTION
8HN	1/2" x 1/2" NPT stainless steel hex nipple
9HP	1/2" NPT stainless steel bushing (no process threads)
8RNDC	3/4" x 1/2" NPT stainless steel hex nipple

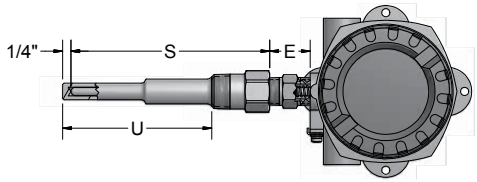
4-0 Sheath Mounting Fittings

CODE	DESCRIPTION
00	No Fitting

3-0 "X" Dimensions

Insert three digit sheath length ("X" Dimension) in inches.

Explosion-Proof RTD Assemblies with Thermowells are made for use in U.S. and Canadian hazardous areas. They are designed to extinguish flames inside the device, eliminating the potential for ignition of flammable mixtures in the surrounding atmosphere. CSA certified assemblies, dependent on connection head type, meet XP Class I Division I & II; Groups A, B, C, D; DIP Class II Division I; Groups E, F, G; Class III; IP66. The required thermowell is available in standard, heavy-duty, and flanged constructions. The assemblies feature 316 stainless steel sheaths. They are available with aluminum or stainless steel explosion-proof connection heads.



Order Codes

Example Order Number:

1-0		2-0	2-1	2-2		3-0		4-0		5-0	5-1		5-2
HL09	-	R1T185L	48	3	-	Select thermowell part # from pages 12, 13.	-	SC	-	8HN	75T142C,		I

Transmitter options shown on pages 10, 11.

1-0 Agency Approval

CODE	DESCRIPTION
HL09	CSA US/CAN explosion-proof-certified assembly

2-0 100 Ω Platinum RTD Elements α = 0.003 85 °C^{-1}

CODE		TOLERANCE[1]	TEMP. RANGE
SINGLE	*DUPLEX*		
R1T185L	R1T285L	Grade B	(-200 to 200) °C
R5T185L	R5T285L	(1/5) Class B	(-30 to 150) °C
RBF185L	RBF285L	Class B	(-50 to 200) °C
RAF185L	RAF285L	Class A	(-30 to 200) °C
R1T185H	R1T285H	Grade B	(-200 to 600) °C
RAT185H	RAT285H	Class A	(-100 to 450) °C

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

2-1 Sheath Diameters 316 SS

CODE	DIAMETERS (inches)
48	1/4

2-2 Element Connection

CODE	DESCRIPTION
2	2-wire
3	3-wire
4	4-wire

3-0 Thermowell

Select thermowell part # from pages 12, 13.

4-0 Element Options

CODE	DESCRIPTION
SL[1]	Spring-loaded element
SC	Self-contained, spring-loaded element

[1] Not available with option 75T, 76T

5-1 Head Terminations

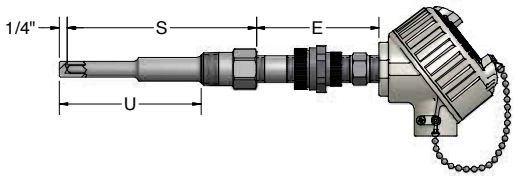
CODE	DESCRIPTION
74	DIN form B aluminum explosion-proof head
75T142C	(4 to 20) mA HART® Field Transmitter with aluminum explosion-proof housing
76T71-D10	(4 to 20) mA isolated programmable transmitter with digital display and explosion-proof aluminum housing
76T72-D10	(4 to 20) mA isolated programmable HART® transmitter with digital display and explosion-proof aluminum housing
76T82-D10	(4 to 20) mA dual input HART® Field Transmitter with digital display and explosion-proof aluminum housing
93	Aluminum explosion-proof head
94	316L stainless steel explosion-proof head
5-2 Options	
SB	1/2" NPT conduit reducer bushing
I	Stainless steel tag
T31	(4 to 20) mA head-mounted transmitter
T71-00	(4 to 20) mA isolated head-mounted transmitter
T72-00	(4 to 20) mA HART® isolated head-mounted transmitter
T82-00	(4 to 20) mA dual input, isolated HART® head-mounted transmitter
Transmitter options shown on pages 10, 11.	

5-0 Head Mounting Fittings

CODE	DESCRIPTION
316SS FITTINGS	
8HN	1/2" x 1/2" NPT hex nipple - 1" length
8PN	1/2" NPT pipe nipple (specify "E" length in inches)
8XU_[1]	1/2" NPT union/nipple (specify "E" length in inches)
NXU_[1]	1/2" NPT plated steel union with 316SS fittings (specify "E" length in inches)

[1] 3 1/2" Minimum length required. Maximum allowable "E" length is 9"

Explosion-Proof Thermocouple Assemblies with Thermowells are made for use in U.S. and Canadian hazardous areas. They are designed to extinguish flames inside the device, eliminating the potential for ignition of flammable mixtures in the surrounding atmosphere. CSA certified assemblies, dependent on connection head type, meet XP Class I Division I & II; Groups A, B, C, D; DIP Class II Division I; Groups E, F, G; Class III; IP66. The required thermowell is available in standard, heavy-duty, and flanged constructions. The assemblies feature 316 stainless steel sheaths and ungrounded isolated junctions. They are available with aluminum or stainless steel explosion-proof connection heads.



Order Codes

Example Order Number:

1-0		2-1	2-2	2-3		3-0		4-0		5-0	5-1	5-2	
HL09	-	**J**	**48**	**U**	-	Select thermowell part # from pages 12, 13.	-	**SL**	-	**8XU4**	**94,**	**I**	Transmitter options shown on pages 10, 11.

1-0 Agency Approval

CODE	DESCRIPTION
HL09	CSA US/CAN explosion-proof-certified assembly

2-1 Thermocouple Types

CODE		
SINGLE	*DUPLEX*	*TRIPLEX*
E	EE	-
J	JJ	JJJ
K	KK	KKK
T	TT	-

2-2 Sheath Diameters 316 SS

CODE	DIAMETER (inches)
48	1/4

2-3 Measuring Junction

CODE	DESCRIPTION
U	Ungrounded

3-0 Thermowell

Select thermowell part # from pages 12, 13.

4-0 Element Options

SL[1]	Spring-loaded element
SC	Self-contained spring-loaded element
[1] Not available with option 75T, 76T, or 77T	

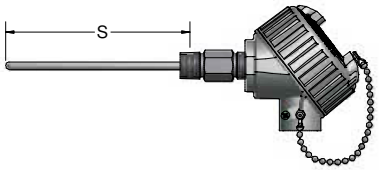
5-0 Head Mounting Fittings

CODE	DESCRIPTION
316SS FITTINGS	
8HN	1/2" x 1/2" NPT hex nipple 1" length
8PN_	1/2" NPT pipe nipple (specify "E" length in inches)
8XU_[1]	1/2" NPT union/nipple (specify "E" length in inches)
NXU_[1]	1/2" NPT plated steel union with 316SS fittings (specify "E" length in inches)
[1] 3 1/2" minimum length required. Maximum allowable "E" length is 9"	

5-1 Head Terminations

CODE	DESCRIPTION
74	DIN form B aluminum explosion-proof head
75T142C	(4 to 20) mA HART® Field Transmitter with aluminum explosion-proof housing
76T71-D10	(4 to 20) mA isolated programmable transmitter with digital display and explosion-proof aluminum housing
76T72-D10	(4 to 20) mA isolated programmable HART® transmitter with digital display and explosion-proof aluminum housing
76T82-D10	(4 to 20) mA dual input HART® Field Transmitter with digital display and explosion-proof aluminum housing
93	Aluminum explosion-proof head
94	316L stainless steel explosion-proof head
5-2 Options	
SB	1/2" NPT conduit reducer bushing
I	Stainless steel tag
T71-00	(4 to 20) mA isolated head-mounted transmitter
T72-00	(4 to 20) mA HART® isolated head-mounted transmitter
T82-00	(4 to 20) mA dual input, isolated HART® head-mounted transmitter
Transmitter options shown on pages 10, 11.	

Explosion-Proof, Spring-Loaded RTDs are made for use in U.S. and Canadian hazardous areas. They are designed to extinguish flames inside the device, eliminating the potential for ignition of flammable mixtures in the surrounding atmosphere. CSA certified assemblies, dependent on connection head type, meet XP Class I Division I & II; Groups B, C, D; DIP Class II Division I; Groups E, F, G; Class III; IP66 when installed in a thermowell. Pyromation provides sensors for installation into your existing thermowell or provides the required thermowell as part of the assembly. Refer to pages 12, 13 of this brochure for thermowell selection. The assemblies feature 316 stainless steel sheaths. They are available with aluminum or stainless steel explosion-proof connection heads. **Note:** The "S" dimension will measure 1/4" longer than specified when the spring is in the relaxed position. The "S" dimension is calculated when the sensor is compressed or in the installed position. This design allows 1/4" spring compression to ensure positive contact with the bottom of the thermowell.



Order Codes

	1-0		2-0	2-1	2-2		3-0		4-0		5-0	5-1	5-2	
Example Order Number:	**HL09**	-	**R1T185L**	**48**	**3**	-	**006**	-	**FP**	-	**8HN**	**93,**	**T**	Transmitter options shown on pages 10, 11.

1-0 Agency Approval

CODE	DESCRIPTION
HL09	CSA US/CAN explosion-proof-certified assembly

2-0 100 Ω Platinum RTD Elements α = 0.003 85 °C⁻¹

CODE		TOLERANCE[1]	TEMP. RANGE
SINGLE	*DUPLEX*		
R1T185L	R1T285L	Grade B	(-200 to 200) °C
R5T185L	R5T285L	(1/5) Class B	(-30 to 150) °C
RBF185L	RBF285L	Class B	(-50 to 200) °C
RAF185L	RAF285L	Class A	(-30 to 200) °C
R1T185H	R1T285H	Grade B	(-200 to 600) °C
RAT185H	RAT285H	Class A	(-100 to 450) °C

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

2-1 Sheath Diameters 316 SS

CODE	DIAMETERS (inches)
48	1/4

2-2 Element Connection

CODE	DESCRIPTION
2	2-wire
3	3-wire
4	4-wire

3-0 "S" Dimensions

Insert three digit sheath length ("S" Dimension) in inches

4-0 Element Options

FP	Spring-loaded element with flame path

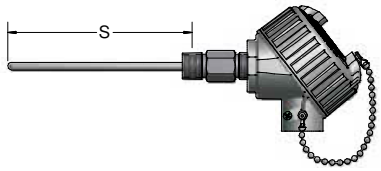
5-0 Head Mounting Fittings

CODE	DESCRIPTION
316 STAINLESS STEEL FITTINGS	
8HN	1/2" NPT flame-path fitting (1-1/2" "E" length)
8PU4[1]	1/2" NPT union/nipple with flame-path fitting (specify "E" length in inches, maximum allowable 9")
[1] For longer lengths replace "4" with length in inches.	

5-1 Head Terminations

CODE	DESCRIPTION
74	DIN form B aluminum explosion-proof head
75T142C	(4 to 20) mA HART® Field Transmitter with aluminum explosion-proof housing
76T71-D10	(4 to 20) mA isolated programmable transmitter with digital display and explosion-proof aluminum housing
76T72-D10	(4 to 20) mA isolated programmable HART® transmitter with digital display and explosion-proof aluminum housing
76T82-D10	(4 to 20) mA dual input HART® Field Transmitter with digital display and explosion-proof aluminum housing
93	Aluminum explosion-proof head
94	316L stainless steel explosion-proof head
5-2 Options	
SB	1/2" NPT conduit reducer bushing
I	Stainless steel tag
T31	(4 to 20) mA head-mounted transmitter
T71-00	(4 to 20) mA isolated head-mounted transmitter
T72-00	(4 to 20) mA HART® isolated head-mounted transmitter
T82-00	(4 to 20) mA dual input, isolated HART® head-mounted transmitter
Transmitter options shown on pages 10, 11.	

Explosion-Proof, Spring-Loaded Thermocouples are made for use in U.S. and Canadian hazardous areas. They are designed to extinguish flames inside the device, eliminating the potential for ignition of flammable mixtures in the surrounding atmosphere. CSA certified assemblies, dependent on connection head type, meet XP Class I Division I & II; Groups B, C, D; DIP Class II Division I; Groups E, F, G; Class III; IP66 when installed in a thermowell. Pyromation provides sensors for installation into your existing thermowell or provides the required thermowell as part of the assembly. Refer to pages 12, 13 of this brochure for thermowell selection. The assemblies feature 316 stainless steel sheaths and ungrounded isolated junctions. They are available with aluminum or stainless steel explosion-proof connection heads. **Note:** The "S" dimension will measure 1/4" longer than specified when the spring is in the relaxed position. The "S" dimension is calculated when the sensor is compressed or in the installed position. This design allows 1/4" spring compression to ensure positive contact with the bottom of the thermowell.



Order Codes

Example Order Number:

1-0		2-1	2-2	2-3		3-0		4-0		5-0	5-1	5-2	
HL09	-	J	48	U	-	012	-	FP	-	8HN	94,	T	Transmitter options shown on pages 10, 11.

1-0 Agency Approval

CODE	DESCRIPTION
HL09	CSA US/CAN explosion-proof-certified assembly

2-1 Thermocouple Types

CODE		
SINGLE	*DUPLEX*	*TRIPLEX*
E	EE	-
J	JJ	JJJ
K	KK	KKK
T	TT	-

2-2 Sheath Diameters 316 SS

CODE	DIAMETER (inches)
48	1/4

2-3 Measuring Junction

CODE	DESCRIPTION
U	Ungrounded

3-0 "S" Dimensions

Insert three digit sheath length ("S" Dimension) in inches

5-1 Head Terminations

CODE	DESCRIPTION
74	DIN form B aluminum explosion-proof head
75T142C	(4 to 20) mA HART® Field Transmitter with aluminum explosion-proof housing
76T71-D10	(4 to 20) mA isolated programmable transmitter with digital display and explosion-proof aluminum housing
76T72-D10	(4 to 20) mA isolated programmable HART® transmitter with digital display and explosion-proof aluminum housing
76T82-D10	(4 to 20) mA dual input HART® Field Transmitter with digital display and explosion-proof aluminum housing
93	Aluminum explosion-proof head
94	316L stainless steel explosion-proof head
5-2 Options	
SB	1/2" NPT conduit reducer bushing
I	Stainless steel tag
T71-00	(4 to 20) mA isolated head-mounted transmitter
T72-00	(4 to 20) mA HART® isolated head-mounted transmitter
T82-00	(4 to 20) mA dual input, isolated HART® head-mounted transmitter
Transmitter options shown on pages 10, 11.	

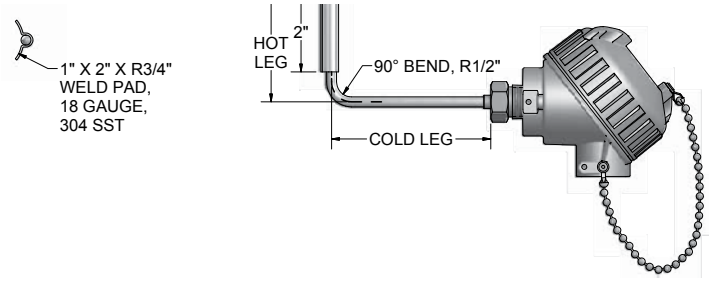
5-0 Head Mounting Fittings

CODE	DESCRIPTION
316 STAINLESS STEEL FITTINGS	
8HN	1/2" NPT flame-path fitting (1-1/2" "E" length)
8PU4[1]	1/2" NPT union/nipple with flame-path fitting (specify "E" length in inches, maximum allowable 9")
[1] For longer lengths replace "4" with length in inches.	

4-0 Element Options

FP	Spring-loaded element with flame path

Explosion-Proof rated Heat-Tracing RTD assemblies are made for use in systems that measure the surface temperature of process pipe that is carrying products whose temperatures must be controlled to prevent freeze-up, or to maintain a viscosity level so that the inner medium will flow. They are intended for use in U.S. and Canadian hazardous areas and they are designed to extinguish flames inside the device, eliminating the potential for ignition of flammable mixtures in the surrounding atmosphere. CSA certified assemblies, meet XP Class I Division I & II; Groups A, B, C, D; DIP Class II Division I; Groups E, F, G; Class III; IP66. These RTDs are offered in a variety of temperature ranges and are supplied with a 316SS sheath, and a 3/4" radius stainless steel mounting pad.



Order Codes

Example Order Number:

1-0		2-0		2-1	2-2		3-0		4-0		5-0	5-1
HL09	-	RBF185L		48	3	-	HT	-	0304	-	18RD	-	93,	I

1-0 Agency Approval

CODE	DESCRIPTION
HL09	CSA US/CAN explosion-proof-certified assembly

2-0 100 Ω Platinum RTD Elements α = 0.003 85 °C^{-1}

CODE		TOLERANCE[1]	TEMP. RANGE
SINGLE	*DUPLEX*		
R1T185L	R1T285L	Grade B	(-200 to 200) °C
R5T185L	R5T285L	(1/5) Class B	(-30 to 150) °C
RBF185L	RBF285L	Class B	(-50 to 200) °C
RAF185L	RAF285L	Class A	(-30 to 200) °C
RBF185M	RBF285M	Class B	(-50 to 482) °C
R1T185H	R1T285H	Grade B	(-200 to 600) °C
RAT185H	RAT285H	Class A	(-100 to 450) °C

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

2-1 Sheath Diameters

CODE	DIAMETERS (inches) 316 SS
48	1/4
68	3/8

2-2 Element Connection

CODE	DESCRIPTION
2	2-wire element
3	3-wire element
4	4-wire element

3-0 Sheath Lengths

CODE	HOT LEG (inches)	COLD LEG (inches)
0304	3	4
0306	3	6
0308	3	8
Consult factory for other hot leg lengths or cold leg lengths.		

4-0 Radius Mounting Pads 1" W x 2" L x 18 Ga. 304 SS

CODE	RADIUS (inches)	NPT PIPE SIZE (inches)
18RD	3/4	1 1/2
Mounting pad is flexible enough to be formed around pipe sizes from 1" to 12" NPS pipe.		

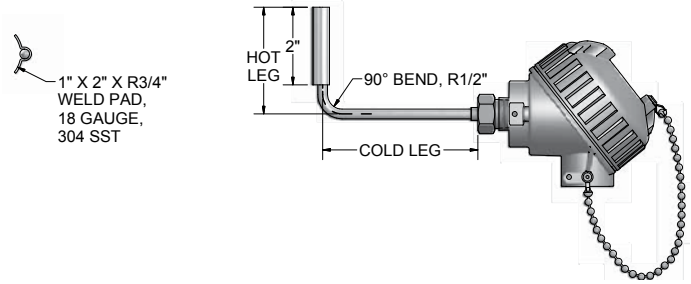
5-0 Standard Head Terminations

CODE	DESCRIPTION
74	DIN form B aluminum explosion-proof head
75T142C	(4 to 20) mA HART® field transmitter with aluminum explosion-proof housing
76T71-D10	(4 to 20) mA isolated programmable transmitter with digital display and explosion-proof aluminum housing
76T72-D10	(4 to 20) mA isolated programmable HART® transmitter with digital display and explosion-proof aluminum housing
76T82-D10	(4 to 20) mA dual input HART® Field Transmitter with digital display and explosion-proof aluminum housing
93	Aluminum explosion-proof head
94	316L stainless steel explosion-proof head

5-1 Standard Head Options

CODE	DESCRIPTION
I	Stainless Steel Tag
SB	1/2" NPT conduit reducer bushing
T31	4-20 mA head-mounted RTD transmitter
T71-00	4-20 mA isolated head-mounted transmitter
T72-00	4-20 mA HART® isolated head-mounted transmitter
T82-00	(4 to 20) mA dual input HART® head-mounted transmitter
Transmitter options shown on pages 10, 11.	

Explosion-Proof rated Heat-Tracing Thermocouple assemblies are made for use in systems that measure the surface temperature of process pipe that is carrying products whose temperatures must be controlled to prevent freeze-up, or to maintain a viscosity level so that the inner medium will flow. They are intended for use in U.S. and Canadian hazardous areas and they are designed to extinguish flames inside the device, eliminating the potential for ignition of flammable mixtures in the surrounding atmosphere. CSA certified assemblies, meet XP Class I Division I & II; Groups A, B, C, D; DIP Class II Division I; Groups E, F, G; Class III; IP66. These Thermocouples are offered in a variety of temperature ranges and are supplied with a 316SS sheath, and a 3/4" radius stainless steel mounting pad.



Order Codes

Example Order Number:

1-0	2-0	2-1	2-2		3-0		4-0		5-0	5-1
HL09	- J	48	U	-	HT	- 0304	-	18RD	- 94,	I

1-0 Agency Approval

CODE	DESCRIPTION
HL09	CSA US/CAN explosion-proof-certified assembly

2-0 Thermocouple Types

CODE	
SINGLE	*DUPLEX*
E	EE
J	JJ
K	KK
T	TT

2-1 316 SS Sheath Diameters and Insulation Type

CODE	DIAMETER (inches)	Insulation Type
48	1/4	MgO
68	3/8	MgO
P48	1/4	Fiberglass
P68	3/8	Fiberglass

2-2 Measuring Junction

CODE	DESCRIPTION
U	Ungrounded
ELEMENT OPTIONS	
M	Special Limits of Error

3-0 Sheath Lengths

CODE	HOT LEG (inches)	COLD LEG (inches)
0304	3	4
0306	3	6
0308	3	8
Consult factory for other hot leg lengths or cold leg lengths.		

4-0 Radius Mounting Pads 1" W x 2" L x 18 Ga. 304 SS

CODE	RADIUS (inches)	NPT PIPE SIZE (inches)
18RD	3/4	1 1/2
Mounting pad is flexible enough to be formed around pipe sizes from 1" to 12" NPS pipe.		

5-0 Standard Head Terminations

CODE	DESCRIPTION
74	DIN form B aluminum explosion-proof head
75T142C	(4 to 20) mA HART® field transmitter with aluminum explosion-proof housing
76T71-D10	(4 to 20) mA isolated programmable transmitter with digital display and explosion-proof aluminum housing
76T72-D10	(4 to 20) mA isolated programmable HART® transmitter with digital display and explosion-proof aluminum housing
76T82-D10	(4 to 20) mA dual input HART® Field Transmitter with digital display and explosion-proof aluminum housing
93	Aluminum explosion-proof head
94	316L stainless steel explosion-proof head

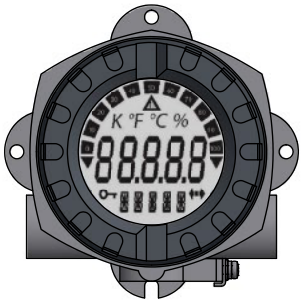
5-1 Standard Head Options

CODE	DESCRIPTION
I	Stainless Steel Tag
SB	1/2" NPT conduit reducer bushing
T71-00	4-20 mA isolated head-mounted transmitter
T72-00	4-20 mA HART® isolated head-mounted transmitter
T82-00	(4 to 20) mA dual input HART® head-mounted transmitter
Transmitter options shown on pages 10, 11.	









Order Codes

Example Order Number: **75T142C - D - 3 85 U - S(0-200) C - B**

(1-0 = 75T142C; 1-1 = D; 1-2 = 3; 1-3 = 85; 1-4 = U; 1-5 = S(0-200); 1-6 = C; 1-7 = B)

1-0 Transmitter Type

CODE	DESCRIPTION
T31	(4 to 20) mA programmable head-mounted RTD transmitter
T71-00	(4 to 20) mA programmable head-mounted universal transmitter
T72-00	(4 to 20) mA HART® programmable head-mounted universal transmitter
75T142C	(4 to 20) mA HART® Field Transmitter with explosion-proof aluminum housing FM/CSA /XP Class I Div I Groups A,B,C,D; DIP Class II Div 1 Groups E,F,G; Class III; NI Class I Div II Groups A,B,C,D
76T71-D10	(4 to 20) mA isolated Programmable transmitter with digital display and explosion-proof aluminum housing
76T72-D10	(4 to 20) mA isolated Programmable HART® transmitter with digital display and explosion-proof aluminum housing

1-1 Options (For 142 Series only)

CODE	DESCRIPTION
T	Solid cover
D	Glass cover with digital display
Leave blank if using T31, T71 or T72	

1-2 Input Type

CODE	DESCRIPTION
00[1]	Unconfigured
1	Thermocouple (TC)
2	RTD (2-wire)
3	RTD (3-wire)
4	RTD (4-wire)
[1] Default setting supplied as 4-wire Pt100 (0-100) °C	

1-3 Sensor Type

CODE	DESCRIPTION
J	Type J thermocouple
K	Type K thermocouple
T	Type T thermocouple
N	Type N thermocouple
E	Type E thermocouple
85	100 ohm platinum (α = 0.003 85 °C)

1-4 Failure Mode

CODE	DESCRIPTION
U	Upscale burnout ≥ 20.5 mA
D	Downscale burnout ≤ 3.8 mA

1-5 Range

CODE	DESCRIPTION
S	(lower limit – upper limit)

1-6 Unit of Measure

CODE	DESCRIPTION
C	Celsius
F	Fahrenheit

1-7 Options

CODE	DESCRIPTION
B[1]	Bluetooth (APP) Configuration
[1] Only available with T72 Models	

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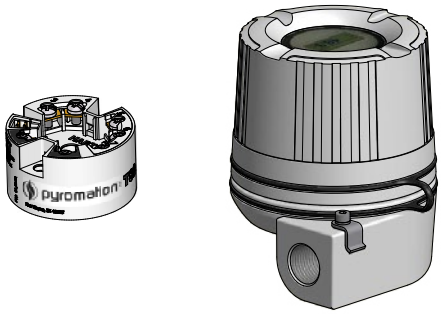

Order Codes

Example Order Number:

1-0		1-1		1-2		1-3		1-4		1-5		1-6		1-7		1-8
76T82-D10	-	33	-	85	-	85	-	A	-	U	-	S(0-200)		C	-	SIL

1-0 Transmitter Type

CODE	DESCRIPTION
T82-00	(4 to 20) mA dual input, isolated HART® head-mounted Transmitter, no display (transmitter only)
76T82-D10	(4 to 20) mA dual input HART® programmable Transmitter with digital display and explosion-proof aluminum housing, FM/CSA,NI,IS,XP,DIP Class I Div I and Div II, Groups A,B,C,D

1-1 Configuration Input

CODE	DESCRIPTION
00	T82 Unconfigured
2I	Ch1: RTD 2-wire, Ch2: inactive
22	Ch1: RTD 2-wire, Ch2: RTD 2-wire
23	Ch1: RTD 2-wire, Ch2: RTD 3-wire
2T	Ch1: RTD 2-wire, Ch2: Thermocouple
3I	Ch1: RTD 3-wire, Ch2: inactive
32	Ch1: RTD 3-wire, Ch2: RTD 2-wire
33	Ch1: RTD 3-wire, Ch2: RTD 3-wire
3T	Ch1: RTD 3-wire, Ch2: Thermocouple
4I	Ch1: RTD 4-wire, Ch2: inactive
4T	Ch1: RTD 4-wire, Ch2: Thermocouple
TI	Ch1: Thermocouple, Ch2: inactive
TT	Ch1: Thermocouple, Ch2: Thermocouple

1-2 Sensor Input Channel 1

CODE	DESCRIPTION
J	Type J thermocouple
K	Type K thermocouple
T	Type T thermocouple
N	Type N thermocouple
E	Type E thermocouple
85	100 ohm platinum (α = 0.003 85 $^{\circ}C^{-1}$)

1-3 Sensor Input Channel 2

CODE	DESCRIPTION
J	Type J thermocouple
K	Type K thermocouple
T	Type T thermocouple
N	Type N thermocouple
E	Type E thermocouple
85	100 ohm platinum (α = 0.003 85 $^{\circ}C^{-1}$)
00	No second channel

1-4 Input Set-ups

CODE	DESCRIPTION
A	Process Variable = Ch1; CH2 = inactive
B	Process variable = CH1; secondary variable = Ch2
C	Process variable = the difference between CH1 and Ch2
D	Process variable = the average between CH1 and Ch2
E	Sensor backup; Process variable= Ch1 and Ch2

1-5 Failure Mode

CODE	DESCRIPTION
U	Upscale Burnout ≥ 20.5 mA
D	Downscale Burnout ≤ 3.8 mA

1-6 Range

CODE	DESCRIPTION
S	(lower limit – upper limit)

1-7 Unit of Measure

CODE	DESCRIPTION
C	Celsius
F	Fahrenheit

1-8 SIL Option

CODE	DESCRIPTION
SIL	Safety Integrity Level SIL2 and Supports SIL3

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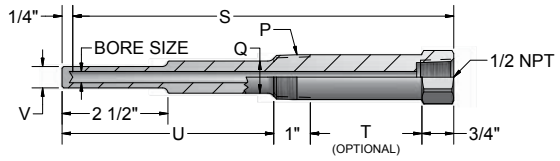
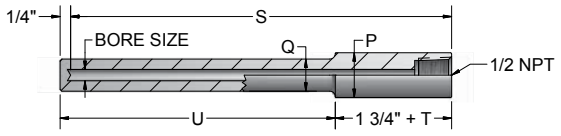
The drilled thermowells shown on this page are those commonly found in process applications. These Thermowells are available as separate individual components and can be ordered by the code numbers listed below. They can also be ordered as part of a complete temperature sensor assembly. Consult factory for thermowells with different mounting threads, lengths, and materials.

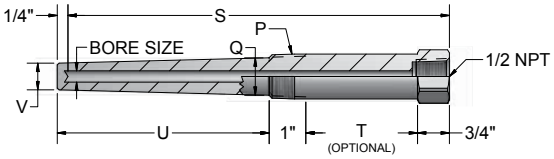
STANDARD-DUTY WELLS



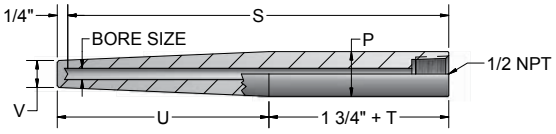
STRAIGHT-SHANK, SOCKET-WELD



HEAVY-DUTY WELLS



WELD-IN WELLS



Order Codes

Example Order Number:

1-0	1-1	1-2	1-3	1-4	1-5	1-6
S	4	D	06	08	T2	S

1-0 Well Type

CODE	DESCRIPTION
S	Standard-duty threaded (NPT)
H	Heavy-duty threaded (NPT)
SW	Straight-shank, socket-weld
WI	Weld-in

1-1 Bore Size

CODE	DESCRIPTION
4	0.260 Dia. Bore

1-2 Pipe Size "P"

CODE	DESCRIPTION
C	1/2" Pipe[1]
D	3/4" Pipe
E	1" Pipe
[1] Only available with well type S or H	

1-3 Length Dimensions (inches)

CODE	"S" DIMENSIONS	"U" DIMENSIONS	
		NO LAG	*WITH STANDARD LAG*
04	4	2(1/2)	N/A
06	6	4(1/2)	2(1/2)
09	9	7(1/2)	4(1/2)
12	12	10(1/2)	7(1/2)
15	15	13(1/2)	10(1/2)
18	18	16(1/2)	13(1/2)
24	24	22(1/2)	19(1/2)

1-4 Material

CODE	DESCRIPTION
08	316 stainless steel
09	304 stainless steel

1-5 Optional "T" Lag Dimension

CODE	DESCRIPTION
Leave blank if No Lag is required	
T2	2" Lag standard on 6" well
T3	3" Lag standard on 9, 12, 15, 18, 24" wells
T__	Special Lag specify "T" dimension in inches

1-6 Well Options

CODE	DESCRIPTION
C8	316 stainless steel well cap and chain
C22	Brass well cap and chain
S	Customer specified part number marked on the thermowell - (10 digit maximum)

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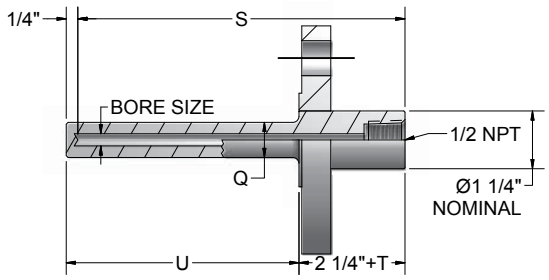
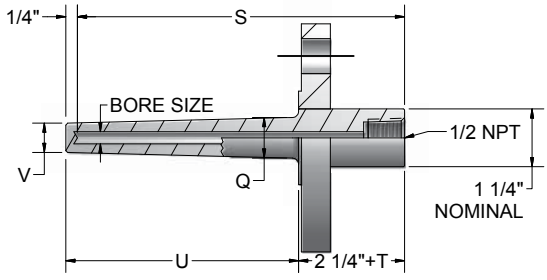
The flanged thermowells described on this page are those commonly found in most process applications. These wells are supplied as standard- or heavy-duty with raised-faced flanges. Consult factory for wells with different flange sizes, lengths, and materials.

FLANGED THERMOWELLS

STANDARD-DUTY



HEAVY-DUTY



Order Codes

Example Order Number:

1-0	1-1	1-2	1-3	1-4	1-5	1-6	1-7	1-8
SF	**4**	**15**	**R**	**3**	**12**	**08**	**T2**	**C8**

1-0 Well Type

CODE	DESCRIPTION
SF	Standard-duty flanged
HF	Heavy-duty flanged

1-1 Bore Size

CODE	DESCRIPTION
4	0.260 Bore

1-2 Flange Size

CODE	DESCRIPTION
10	1"
15	1 1/2"
20	2"

1-3 Flange Type

CODE	DESCRIPTION
R	Raised face

1-4 Pressure Rating

CODE	DESCRIPTION
1	150 class
3	300 class

1-5 Well Length (inches)

CODE	DESCRIPTION	
	"S" DIMENSION	"U" DIMENSION
06	6	4
09	9	7
12	12	10
15	15	13
18	18	16
24	24	22

1-6 Well Material

CODE	DESCRIPTION
08	316 Stainless steel
09	304 Stainless steel

1-7 Optional "T" Lag Dimension

CODE	DESCRIPTION
Leave blank if no lag is required	
T__	Specify "T" dimension in inches

1-8 Well Options

CODE	DESCRIPTION
C8	316 stainless steel well cap and chain
C22	Brass well cap and chain
S	Customer specified part number marked on thermowell (10 digit maximum)

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Operating since 1962, Pyromation is the premier temperature sensor manufacturer in North America. From RTDs and thermocouples to thermowells, connection heads, accessories and complete assemblies, Pyromation can make the right temperature sensor for your process and deliver it faster than anyone in the industry. A broad product line, industry experience, friendly customer service and quick delivery make Pyromation the best choice for your temperature measurement applications. For more information, please call us or visit www.pyromation.com.

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