Flame-Proof RTD & Thermocouple Sensor Assemblies for IEC Hazardous Locations

CSA Certified ATEX, IECEx Flame-Proof Temperature Sensor Assemblies for Application in IEC Hazardous Locations

Speed, Service, Solutions... Beyond Measure®

FLAME-PROOF TEMPERATURE SENSOR ASSEMBLIES FOR IEC 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

pyromation inc. beyond measure

Equipment for potentially explosive atmospheres (ATEX). A potentially explosive atmosphere exists when a mixture of air gases, vapors, mists, or dusts combine in a way that can ignite under certain operating conditions. Equipment and protective systems intended for use in potentially explosive atmospheres (ATEX) cover a range of products, including those used on fixed offshore platforms, petrochemical plants, mines, and flour mills, amongst others. The ATEX Directive 2014/34/EU covers equipment and protective systems intended for use in potentially explosive atmospheres. The directive defines the essential health and safety requirements and conformity assessment procedures, to be applied before products are placed on the EU market.

The IEC established IECEx, the IEC System for Certification to Standards Relating to Equipment for Use in Explosive Atmospheres. Since its inception in 1996, IECEx has grown from less than a dozen member countries to now being a truly global system comprising more than 60 approved certification bodies (ExCBs) in more than 35 countries, and has emerged to become an essential compliance assessment tool for the global Ex industry.

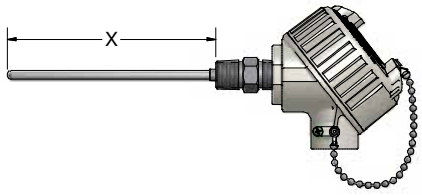
Many products require CE marking before they can be sold in the EU. CE marking indicates that a product has been assessed by the manufacturer and deemed to meet EU safety, health and environmental protection requirements. It is required for products manufactured anywhere in the world that are then marketed in the EU.

Flame-Proof RTD & Thermocouple Sensor Assemblies for IEC Hazardous Locations

Pyromation Flame-Proof temperature sensor assemblies are made for use in IEC hazardous areas. They are designed to extinguish flames inside the device, eliminating the potential for ignition of flammable mixtures in the surrounding atmosphere. They are certified for use in the below locations:

- II 2 GD Sira 18ATEX1250X
- Ex db IIC T6...T4 Gb
- Ex tb IIIC T60°C...T110°C Db
- IP66
- IECEx SIR 18.0065X
- Ex db IIC T6...T4 Gb
- Ex tb IIIC T60°C...T110°C Db
- IP66

Flame-Proof, Fixed-Element RTDs are made for use in IEC hazardous areas. They are designed to extinguish flames inside the device, eliminating the potential for ignition of flammable mixtures in the surrounding atmosphere. ATEX and IECEx certified assemblies are rated for Ex db IIC Gb and Ex tb IIIC Db locations for applications with process temperatures of 180 °C or less. 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

Example Order Number:

1-0		2-0	2-1	2-2		3-0		4-0		5-0	5-1	5-2	
HL06	-	R1T185L	48	3	-	012	-	00	-	8HN	94,	T	Transmitter options shown on pages 10,11

1-0 Agency Approval

CODE	DESCRIPTION
HL06	ATEX/IECEx flame-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

3-0 "X" Dimensions

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

4-0 Sheath Mounting Fittings

CODE	DESCRIPTION
00	No Fitting

5-0 Head Mounting Fittings

CODE	DESCRIPTION
6HN	1/2" x 1/2" NPT steel hex nipple 1" "E" length
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

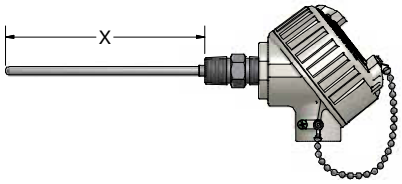
5-1 Head Terminations

CODE	DESCRIPTION
75T142E	(4 to 20) mA HART® Field Transmitter with aluminum flame-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 flame-proof head
94	316L stainless steel flame-proof head
5-2 Options	
SB	1/2" NPT conduit reducer bushing, Aluminum
I	Stainless steel tag
M2	M20x1.5 conduit reducer bushing, Nickel Plated Brass
M5	M25x1.5 conduit reducer bushing, Nickel Plated Brass
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

XP02 HazLoc Flame-Proof-Certified, Fixed Element Thermocouple Assemblies

Flame-Proof, Fixed-Element Thermocouples are made for use in IEC hazardous areas. They are designed to extinguish flames inside the device, eliminating the potential for ignition of flammable mixtures in the surrounding atmosphere. ATEX and IECEx certified assemblies are rated for Ex db IIC Gb and Ex tb IIIC Db locations for applications with process temperatures of 180 °C or less. They may be installed directly in the process without being inserted into a thermowell. The assemblies are available in various sheath material, diameters 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	
HL06	-	K	4	8	U	-	012	-	00	-	8HN	93,	T	Transmitter options shown on pages 10,11

1-0 Agency Approval

CODE	DESCRIPTION
HL06	ATEX/IECEx flame-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
75T142E	(4 to 20) mA HART® Field Transmitter with aluminum flame-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 flame-proof head
94	316L stainless steel flame-proof head
5-2 Options	
SB	1/2" NPT conduit reducer bushing, Aluminum
I	Stainless steel tag
M2	M20x1.5 conduit reducer bushing, Nickel Plated Brass
M5	M25x1.5 conduit reducer bushing, Nickel Plated Brass
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
6HN	1/2" x 1/2" NPT steel hex nipple 1" "E" length
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

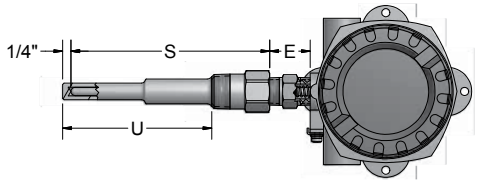
4-0 Sheath Mounting Fittings

CODE	DESCRIPTION
00	No Fitting

3-0 "X" Dimensions

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

Flame-Proof RTD Assemblies with Thermowells are made for use in IEC hazardous areas. They are designed to extinguish flames inside the device, eliminating the potential for ignition of flammable mixtures in the surrounding atmosphere. ATEX and IECEx certified assemblies are rated for Ex db IIC Gb and Ex tb IIIC Db locations for applications with process temperatures of 180 °C or less. 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	
HL06	- R1T185L	48	3	-	Select Thermowell Part # from pages 12, 13	-	FP	- 8HN	75T-642E,	I	Transmitter options shown on pages 10,11

1-0 Agency Approval

CODE	DESCRIPTION
HL06	ATEX/IECEx flame-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

FP[1]	Spring-loaded element with flame path
FE	Fixed element
[1] Only available with 8HN and 8XU head mounting fittings	

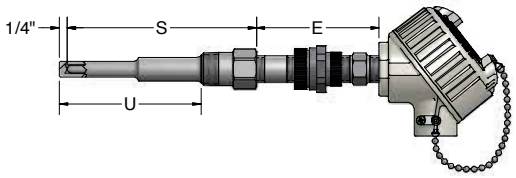
5-1 Head Terminations

CODE	DESCRIPTION
75T142E	(4 to 20) mA HART® Field Transmitter with aluminum flame-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 flame-proof head
94	316L stainless steel flame-proof head
5-2 Options	
SB	1/2" NPT conduit reducer bushing, Aluminum
I	Stainless steel tag
M2	M20x1.5 conduit reducer bushing, Nickel Plated Brass
M5	M25x1.5 conduit reducer bushing, Nickel Plated Brass
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	CODE	DESCRIPTION
STEEL FITTINGS		*316SS FITTINGS*	
6HN	1/2" x 1/2" NPT hex nipple	8HN	1/2" x 1/2" NPT hex nipple
6PN_	1/2" NPT pipe nipple (specify "E" length in inches)	8PN	1/2" NPT pipe nipple (specify "E" length in inches)
6XU_[1]	1/2" NPT union/nipple (specify "E" length in inches)	8XU_[1]	1/2" NPT union/nipple (specify "E" length in inches)
[1] 3 1/2" Minimum length required. Maximum "E" length is 9".			

Flame-Proof Thermocouple Assemblies with Thermowells are made for use in IEC hazardous areas. They are designed to extinguish flames inside the device, eliminating the potential for ignition of flammable mixtures in the surrounding atmosphere. ATEX and IECEx certified assemblies are rated for Ex db IIC Gb and Ex tb IIIC Db locations for applications with process temperatures of 180 °C or less. 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		2-0	2-1	2-2		3-0		4-0		5-0	5-1	5-2
HL06	-	J	48	U	-	Select Thermowell Part # from pages 12, 13	-	FP	-	8XU4	94,	I

Transmitter options shown on pages 10,11

1-0 Agency Approval

CODE	DESCRIPTION
HL06	ATEX/IECEx flame-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 316 SS

CODE	DIAMETER (inches)
48	1/4

2-2 Measuring Junction

CODE	DESCRIPTION
U	Ungrounded

3-0 Thermowell

Select Thermowell Part # from pages 12, 13

4-0 Element Options

FP[1]	Spring-loaded element with flame path
FE	Fixed element
[1] Only available with 8HN and 8XU head mounting fittings	

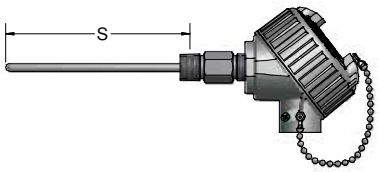
5-0 Head Mounting Fittings

CODE	DESCRIPTION	CODE	DESCRIPTION
STEEL FITTINGS		*316SS FITTINGS*	
6HN	1/2" x 1/2" NPT hex nipple	8HN	1/2" x 1/2" NPT hex nipple
6PN_	1/2" NPT pipe nipple (specify "E" length in inches)	8PN	1/2" NPT pipe nipple (specify "E" length in inches)
6XU_[1]	1/2" NPT union/nipple (specify "E" length in inches)	8XU_[1]	1/2" NPT union/nipple (specify "E" length in inches)
[1] 3 1/2" Minimum length required. Maximum "E" length is 9".			

5-1 Head Terminations

CODE	DESCRIPTION
75T142E	(4 to 20) mA HART® Field Transmitter with aluminum flame-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 flame-proof head
94	316L stainless steel flame-proof head
5-2 Options	
SB	1/2" NPT conduit reducer bushing, Aluminum
I	Stainless steel tag
M2	M20x1.5 conduit reducer bushing, Nickel Plated Brass
M5	M25x1.5 conduit reducer bushing, Nickel Plated Brass
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	

Flame-Proof, Spring-Loaded RTDs are made for use in IEC hazardous areas. They are designed to extinguish flames inside the device, eliminating the potential for ignition of flammable mixtures in the surrounding atmosphere. ATEX and IECEx certified assemblies are rated for Ex db IIC Gb and Ex tb IIIC Db locations for applications with process temperatures of 180 °C or less. 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

Example Order Number:

1-0		2-0	2-1	2-2		3-0		4-0		5-0	5-1	5-2	
HL06	-	**R1T185L**	**48**	**3**	-	**006**	-	**FP**	-	**8HN**	**93,**	**T**	Transmitter options shown on pages 10,11

1-0 Agency Approval

CODE	DESCRIPTION
HL06	ATEX/IECEx flame-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

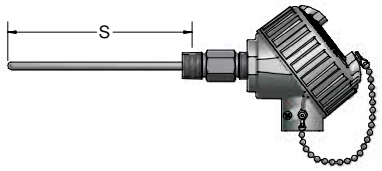
CODE	DESCRIPTION
316 STAINLESS STEEL FITTINGS	
8HN	1/2" NPT hex nipple (1-1/2" "E" length)
8XU_[1]	1/2" NPT union/nipple (specify "E" length in inches)
[1] 3 1/2" minimum length, maximum length is 9".	

5-1 Head Terminations

CODE	DESCRIPTION
75T142E	(4 to 20) mA HART® Field Transmitter with aluminum flame-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 flame-proof head
94	316L stainless steel flame-proof head
5-2 Options	
SB	1/2" NPT conduit reducer bushing, Aluminum
I	Stainless steel tag
M2	M20x1.5 conduit reducer bushing, Nickel Plated Brass
M5	M25x1.5 conduit reducer bushing, Nickel Plated Brass
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	

XP06 HazLoc Flame-Proof-Certified, Spring-Loaded Thermocouple Assemblies

Flame-Proof, Spring-Loaded Thermocouples are made for use in IEC hazardous areas. They are designed to extinguish flames inside the device, eliminating the potential for ignition of flammable mixtures in the surrounding atmosphere. ATEX and IECEx certified assemblies are rated for Ex db IIC Gb and Ex tb IIIC Db locations for applications with process temperatures of 180 °C or less. 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		2-0	2-1	2-2		3-0		4-0		5-0	5-1	5-2	
HL06	-	J	48	U	-	012	-	FP	-	8HN	94,	T	Transmitter options shown on pages 10,11

1-0 Agency Approval

CODE	DESCRIPTION
HL06	ATEX/IECEx flame-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 316 SS

CODE	DIAMETER (inches)
48	1/4

2-2 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
75T142E	(4 to 20) mA HART® Field Transmitter with aluminum flame-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 flame-proof head
94	316L stainless steel flame-proof head
5-2 Options	
SB	1/2" NPT conduit reducer bushing, Aluminum
I	Stainless steel tag
M2	M20x1.5 conduit reducer bushing, Nickel Plated Brass
M5	M25x1.5 conduit reducer bushing, Nickel Plated Brass
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	

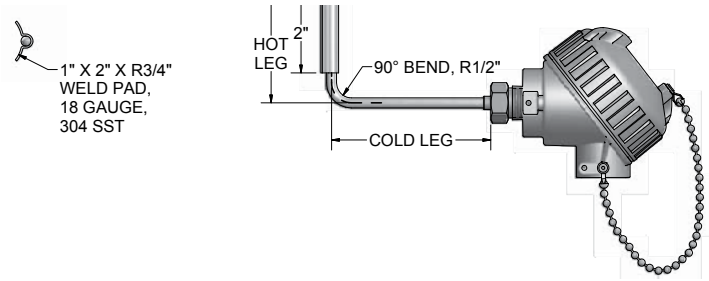
5-0 Head Mounting Fittings

CODE	DESCRIPTION
316 STAINLESS STEEL FITTINGS	
8HN	1/2" NPT hex fitting (1-1/2" "E" length)
8XU_[1]	1/2" NPT union/nipple (specify "E" length in inches)
[1] 3 1/2" minimum length, maximum length is 9".	

4-0 Element Options

FP	Spring-loaded element with flame path

Flame-Proof Heat-Tracing RTD assemblies are made for use in IEC hazardous areas. They are designed to extinguish flames inside the device, eliminating the potential for ignition of flammable mixtures in the surrounding atmosphere. They are typically used 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. ATEX and IECEx certified assemblies are rated for Ex db IIC Gb and Ex tb IIIC Db locations for applications with process temperatures of 180 °C or less. 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
HL06	-	RBF185L	48	3	-	HT	-	0304	-	18RD	-	93,	I

1-0 Agency Approval

CODE	DESCRIPTION
HL06	ATEX/IECEx flame-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

CODE	DIAMETERS (inches) 316 SS
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

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.		

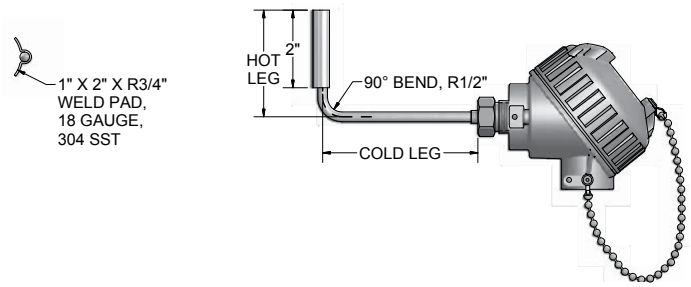
5-0 Standard Head Terminations

CODE	DESCRIPTION
75T-142E	(4 to 20) mA HART® Field Transmitter with aluminum flame-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 flame-proof head
94	316L stainless steel flame-proof head

5-1 Standard Head Options

CODE	DESCRIPTION
I	Stainless Steel Tag
SB	1/2" NPT conduit reducer bushing
M2	M20x1.5 conduit reducer bushing, Nickel Plated Brass
M5	M25x1.5 conduit reducer bushing, Nickel Plated Brass
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	

Flame-Proof Heat-Tracing thermocouple assemblies are made for use in IEC hazardous areas. They are designed to extinguish flames inside the device, eliminating the potential for ignition of flammable mixtures in the surrounding atmosphere. They are typically used 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. ATEX and IECEx certified assemblies are rated for Ex db IIC Gb and Ex tb IIIC Db locations for applications with process temperatures of 180 °C or less. 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: **HL06 - J 48 U - HT - 0304 - 18RD - 93, I**

(1-0) (2-0) (2-1) (2-2) (3-0) (4-0) (5-0) (5-1)

1-0 Agency Approval

CODE	DESCRIPTION
HL06	ATEX/IECEx flame-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

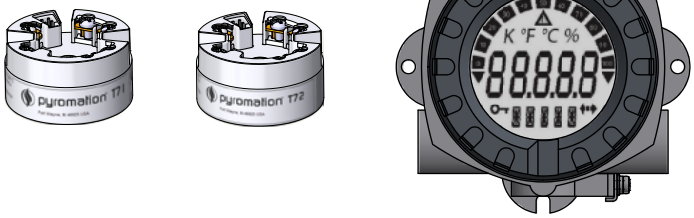
CODE	RADIUS (inches)	NPT PIPE SIZE (inches)
18RD	3/4	1 1/2
Mounting pad is flexible enough to be formed around pipe sizes from 1" to 12" NPS pipe.		

5-0 Standard Head Terminations

CODE	DESCRIPTION
75T142E	(4 to 20) mA HART® Field Transmitter with aluminum flame-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 flame-proof head
94	316L stainless steel flame-proof head

5-1 Standard Head Options

CODE	DESCRIPTION
I	Stainless Steel Tag
SB	1/2" NPT conduit reducer bushing
M2	M20x1.5 conduit reducer bushing, Nickel Plated Brass
M5	M25x1.5 conduit reducer bushing, Nickel Plated Brass
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:

1-0		1-1		1-2	1-3	1-4		1-5	1-6		1-7
75T142E	-	D	-	3	85	U	-	S(0-200)	C	-	B

1-0 Transmitter Type

CODE	DESCRIPTION
T71-00	(4 to 20) mA programmable head-mounted universal transmitter
T72-00	(4 to 20) mA HART® programmable head-mounted universal transmitter
75T142E	(4 to 20) mA HART® Field Transmitter with flame-proof/dust-protected aluminum housing ATEX/IECEx; Ex d IIC T6...T4Gb; Ex tb IIIC T110 °C Db, IP66/67
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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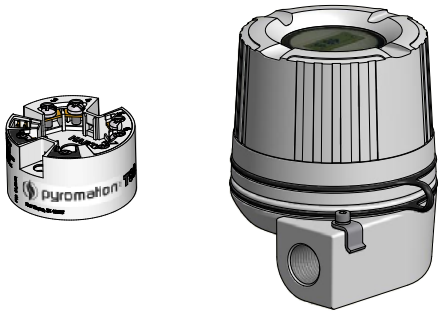

Order Codes

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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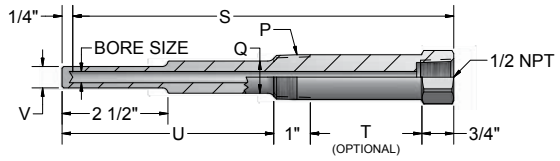
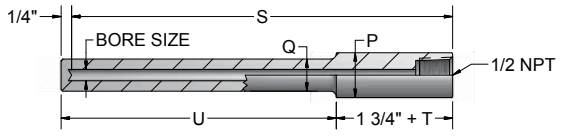
The drilled thermowells listed below are those most commonly found in process applications. Other types and styles are listed later in this section. The thermowells listed below are available as separate component wells and can be ordered by the code numbers listed below. They can also be ordered as a part of a complete sensor assembly. Consult factory for wells with different mounting threads, lengths, and materials.

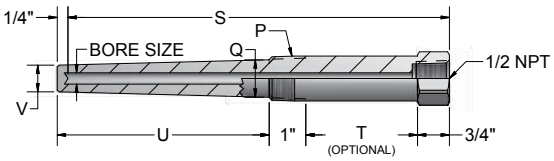
STANDARD-DUTY WELLS



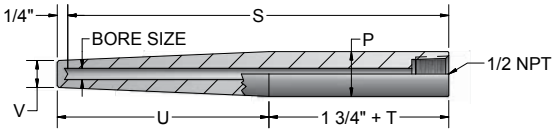
STRAIGHT-SHANK, SOCKET-WELD



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

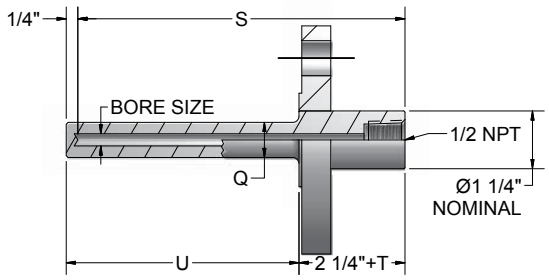
1-6 Well Options

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)

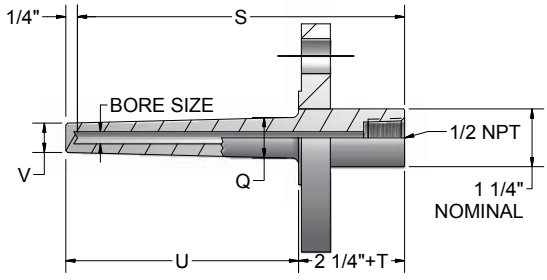
The flanged thermowells described on this page are those commonly found in most process applications. These wells are supplied as standard- or heavy-duty with raised-faced flanges. Other types and styles are listed later in this section. Consult factory for wells with different flange sides, lengths,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