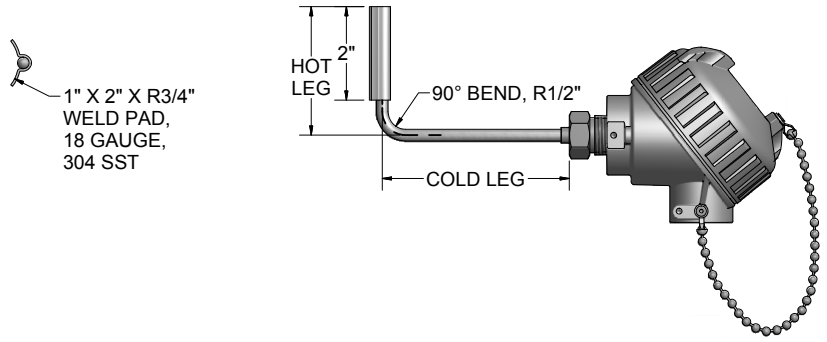
Configuration Code SP03
Heat-Tracing RTD Assemblies

Heat-tracing RTDs 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. These sensors are constructed with RTD sensing elements inside 316SS sheaths, and with a 3/4" Radius stainless steel mounting pad. Cold legs are available in customer-specified lengths to accommodate pipe insulation thickness.



ORDER CODES

Example Order Number:

1-0	1-1	1-2		2-0		3-0		4-0	4-1
RBF185L	48	3	-	HT	-	0304	-	18RD	-	31,	I

1-0 100 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	RBF185M	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.

1-1 Sheath Diameters

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

1-2 Element Connection

CODE	DESCRIPTION
2	2-wire element
3	3-wire element
4[1]	4-wire element

[1] Not available with 440 Series Transmitter

2-0 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.

3-0 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.

4-0 Standard Head Terminations

CODE	DESCRIPTION
31	Aluminum screw-cover head
34	Cast iron screw-cover head
35T-642A	(4 to 20) mA HART® Field Transmitter with aluminum general-purpose housing
36T82-D10	(4 to 20) mA dual input HART® transmitter with digital display and general-purpose aluminum housing with glass lid
37T-662A	(4 to 20) mA HART® Field Transmitter with general-purpose aluminum housing
49	Flip-top aluminum head
63	White polypropylene screw-cover head
91	316 L Stainless steel screw-cover head
93	Aluminum explosion-proof/flame-proof head, NEC, IEC, Atex approved
94	316L stainless steel explosion-proof/flame-proof head, NEC, IEC, Atex approved

4-1 Standard Head Options

CODE	DESCRIPTION
CG	Nylon cord grip
GS	Ground screw
I	Stainless steel tag
NB	1/2" NPT nylon conduit reducer bushing
SB	1/2" NPT conduit reducer bushing
T-440	4-20 mA head-mounted RTD transmitter (see instrument section)
T-441	4-20 mA isolated head-mounted transmitter (see instrument section)
T-442	4-20 mA HART® isolated head-mounted transmitter (see instrument section)
T82-00	(4 to 20) mA dual input HART® head-mounted transmitter

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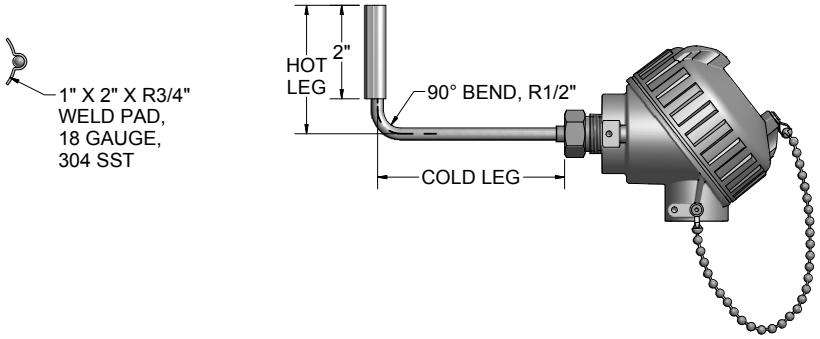
Configuration Code SP03
Heat-Tracing Thermocouple Assemblies

Heat-tracing Thermocouples 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. These sensors are constructed with Thermocouple sensing elements inside 316SS sheaths, and with a 3/4" Radius stainless steel mounting pad. Cold legs are available in customer-specified lengths to accommodate pipe insulation thickness.



ORDER CODES

Example Order Number:

1-0	1-1	1-2		2-0		3-0		4-0	4-1
J	P48	U	- HT -	0304	-	18RD	-	31,	I

1-0 Thermocouple Types

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

1-1 316 SS Sheath Diameters and Insulation Types

CODE	DIAMETERS (inches)	INSULATION TYPE
48	1/4	MgO
68	3/8	MgO
P48	1/4	Fiberglass
P68	3/8	Fiberglass

1-2 Measuring Junction

CODE	DESCRIPTION
G	Grounded junction
U	Ungrounded junction
ELEMENT OPTIONS	
M	Special Limits of Error

2-0 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.		

3-0 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.		

4-0 Standard Head Terminations

CODE	DESCRIPTION
31	Aluminum screw-cover head
34	Cast iron screw-cover head
35T-642A	(4 to 20) mA HART® Field Transmitter with aluminum general-purpose housing
36T82-D10	(4 to 20) mA dual input HART® transmitter with digital display and general-purpose aluminum housing with glass lid
37T-662A	(4 to 20) mA HART® Field Transmitter with general-purpose aluminum housing
49	Flip-top aluminum head
63	White polypropylene screw-cover head
91	316 L Stainless steel screw-cover head
93	Aluminum explosion-proof/flame-proof head, NEC, IEC, Atex approved
94	316L stainless steel explosion-proof/flame-proof head, NEC, IEC, Atex approved

4-1 Standard Head Options

CODE	DESCRIPTION
CG	Nylon cord grip
GS	Ground screw
I	Stainless steel tag
NB	1/2" NPT nylon conduit reducer bushing
SB	1/2" NPT conduit reducer bushing
T-441	4-20 mA isolated head-mounted transmitter (see instrument section)
T-442	4-20 mA HART® isolated head-mounted transmitter (see instrument section)
T82-00	(4 to 20) mA dual input HART® head-mounted transmitter

ORDER CODES

Example Order Number:

1-0		1-1		1-2	1-3	1-4		1-5		1-6
440	-		-	3	85	U	-	S(0-200)		C

1-0 Transmitter Type

CODE	DESCRIPTION
440[1]	(4 to 20) mA programmable head-mounted RTD Transmitter
441	(4 to 20) mA programmable head-mounted universal Transmitter
442	(4 to 20) mA HART® programmable head-mounted universal Transmitter
35T-642A	(4 to 20) mA HART® Field Transmitter with general-purpose aluminum housing
75T-642C	(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 I Groups E,F,G; Class III; NI Class I Div II Groups A,B,C,D
[1] Only available with 2- or 3-wire input connection and Pt100 sensor type	

1-1 Options (For 642 Series only)

CODE	DESCRIPTION
T	Solid cover
D	Glass cover with digital display
Leave blank if using 440, 441, or 442	

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 3-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 $^{\circ}C^{-1}$)

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

For complete transmitter specifications see Transmitter Section.

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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
37T-662A	-	D	-	33	-	85	-	85	-	A	-	U	-	S(0-200)	C

1-0 Transmitter Type

CODE	DESCRIPTION
37T-662A	(4 to 20) mA HART® Field Transmitter, single or dual input, with general-purpose dual cavity aluminum housing
77T-662C	(4 to 20) mA HART® Field Transmitter with dual-cavity explosion-proof aluminum housing FM/CSA XP Class I Div I Groups B,C,D; DIP Class II Div I Groups E,F,G; Class III; NI Class I Div II Groups B,C,D
T82-00	(4 to 20) mA dual input, isolated HART® head-mounted Transmitter
36T82	(4 to 20) mA dual input HART® Transmitter and general-purpose aluminum housing
76T82	(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 Housing Cover Options

CODE	DESCRIPTION
T	Solid cover for 662 series
D	Glass cover with digital display for 662 series
D10	Glass cover with digital display for 36T82 and 76T82 series

1-2 Configuration Input

CODE	DESCRIPTION
00	T82 Unconfigured
01	662 Single input, unconfigured
02	662 Dual input, 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

1-8 Unit of Measure

CODE	DESCRIPTION
C	Celsius
F	Fahrenheit

1-7 Range

CODE	DESCRIPTION
S	(lower limit – upper limit)

1-6 Failure Mode

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

1-5 Input Set-ups

CODE	DESCRIPTION
0	One Input (662 only)
A	Process Variable = Ch1; CH2 = inactive
B	Process variable = CH1; secondary variable = Ch2 (T82 Only)
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

1-4 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 ºC^{-1})
00	No second channel

1-3 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 ºC^{-1})

For complete transmitter specifications see Transmitter Section.

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