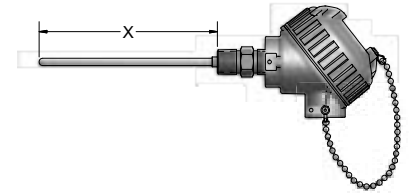
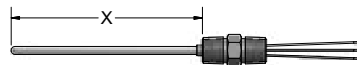
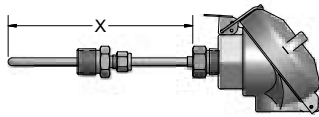


SENSORS WITH CONNECTION HEADS

Configuration Code GP01 Fixed-Sheath RTD Assemblies with General-Purpose Connection Heads

Fixed-Sheath RTD Assemblies with General-Purpose Connection Heads are provided with head mounting fittings that are welded or brazed to the sheath for direct immersion into a process. To order an assembly with an optional 4 to 20 mA transmitter, select the assembly below and the transmitter from the back of this section. The RTD assemblies are supplied with a 316 stainless steel sheath in several diameters. They are available in various tolerances and temperature ranges as noted below.



ORDER CODES

Example Order Number: **RBF185L 48 3 - 006(1/2) - 00 - 8HN 31, SB, T** Select Type and Range from back of section

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
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
28 ^[1]	1/8
38	3/16
48	1/4
68	3/8

[1] Not available in duplex

1-2 Element Connection

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

[1] Not available in duplex or with 440 Series Transmitter

2-0 "X" Dimensions

Insert three digit "X" length in inches.

Sheath lengths over 72" will be shipped in a coiled configuration unless otherwise specified.

3-0 No Fitting

CODE 00

3-1 One-Time Adjustable Fittings

CODE	TYPE	NPT SIZE (inches)	AVAILABLE SHEATH DIAMETERS (inches)
05A	316 SS	1/8	1/8, 3/16, 1/4
05B	316 SS	1/4	1/8, 3/16, 1/4, 3/8
05C	316 SS	1/2	1/8, 3/16, 1/4, 3/8
15A	Brass	1/8	1/8, 3/16, 1/4
15B	Brass	1/4	3/16, 1/4, 3/8
15C	Brass	1/2	1/4, 3/8
14	Brass/Steel	Flange	1/8, 3/16, 1/4, 3/8

3-2 Re-Adjustable Compression Fittings

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

FEP gland standard 204 °C [400 °F] max.

3-3 Fixed Bushings^[1]

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

[1] Requires Table 4, Option 9HP Selection

[2] When ordering fixed bushings, specify order code above plus insert length "U", as measured from hot tip to bottom of threaded bushing.

EXAMPLE: order code 8A06 is 1/8" NPT, 316 SS bushing located 6" from hot tip.

4-0 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

4-1 Head and Sheath Terminations

CODE	DESCRIPTION
22	3" Individual fluoropolymer leads with terminal pins
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 [®] dual cavity field temperature 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

4-2 Options

W ^[1]	Epoxy Coating
GS	Ground screw
I	Stainless tag
NB	1/2" NPT nylon conduit reducer bushing
SB	1/2" NPT conduit reducer bushing
T-440	(4 to 20) mA head-mounted RTD transmitter
T-441	(4 to 20) mA isolated head-mounted transmitter
T-442	(4 to 20) mA isolated HART [®] head-mounted transmitter
T82-00	(4 to 20) mA dual input HART [®] head-mounted transmitter

See transmitter ordering information in back of section.

[1] Available with option 31 only.

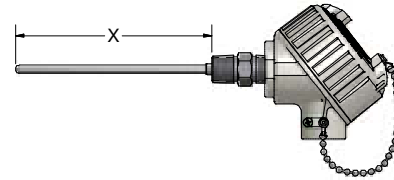
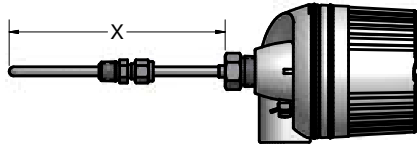
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SENSORS WITH CONNECTION HEADS

Configuration Code GP01 Fixed-Sheath RTD Assemblies with Explosion-Proof Connection Heads

Fixed-Sheath RTD Assemblies with Explosion-Proof Connection Heads are provided with head mounting fittings that are welded or brazed to the sheath for direct immersion into a process. To order an assembly with an option 4 to 20 mA transmitter, select the assembly below and the transmitter from the back of this section. The RTD assemblies are supplied with a 316 stainless steel sheath in several diameters. They are available in various tolerances and temperature ranges as noted below.



ORDER CODES

Example Order Number: **RAF185L** **48** **3** - **012(1/2)** - **00** - **8HN 94, SB, T** Select Type and Range from back of section

1-0 100 Ω Platinum RTD
Elements $\alpha = 0.00385 \text{ } ^\circ\text{C}^{-1}$

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.

1-1 Sheath Diameters

CODE	DIAMETERS (inches) 316 SS
28 ^[1]	1/8
38	3/16
48	1/4
68	3/8

[1] Not available in duplex

1-2 Element Connection

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

[1] Not available in duplex or with 440 Series Transmitter

2-0 "X" Dimensions

Insert three digit "X" length in inches.

Sheath lengths over 72" will be shipped in a coiled configuration unless otherwise specified.

3-0 No Fitting

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

3-1 One-Time Adjustable Fittings

CODE	TYPE	NPT SIZE (inches)	AVAILABLE SHEATH DIAMETERS (inches)
05A	316 SS	1/8	1/8, 3/16, 1/4
05B	316 SS	1/4	1/8, 3/16, 1/4, 3/8
05C	316 SS	1/2	1/8, 1/4, 3/8
15A	Brass	1/8	1/8, 3/16, 1/4
15B	Brass	1/4	3/16, 1/4, 3/8
15C	Brass	1/2	1/4, 3/8
14	Brass/Steel	Flange	1/8, 3/16, 1/4, 3/8

3-2 Re-Adjustable Compression Fittings

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

FEP gland standard 204 °C [400 °F] max.

3-3 Fixed Bushings^[1]

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

[1] Requires Table 4, Option 9HP Selection

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

4-0 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

4-1 Head Terminations

CODE	DESCRIPTION
74	Dual conduit DIN form B aluminum explosion-proof/flame-proof head, NEC, IEC, Atex approved
75T-642C	(4 to 20) mA HART® field transmitter with aluminum explosion-proof housing
76T82-D10	(4 to 20) mA dual input HART® Field Transmitter with digital display and explosion-proof aluminum housing
77T-662C	(4 to 20) mA HART® Field Transmitter with dual cavity explosion-proof aluminum housing
93	Aluminum explosion-proof/flame-proof head, NEC, IEC, Atex approved
94	316L stainless steel explosion-proof/flame-proof head, NEC, IEC, Atex approved

4-2 Options

SB	1/2" NPT conduit reducer bushing
I	Stainless tag
T-440 ^[1]	(4 to 20) mA head-mounted RTD transmitter
T-441	(4 to 20) mA isolated head-mounted transmitter
T-442	(4 to 20) mA isolated HART® head-mounted transmitter
T82-00	(4 to 20) mA dual input, isolated HART® head-mounted transmitter

See transmitter ordering information in back of section.

[1] Not available with option 74.

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ORDER CODES

Example Order Number: ¹⁻⁰ **440** - ¹⁻¹ - ¹⁻² **3** ¹⁻³ **85** ¹⁻⁴ **U** - ¹⁻⁵ **S(0-200)** ¹⁻⁶ **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

1-6 Unit of Measure

CODE	DESCRIPTION
C	Celsius
F	Fahrenheit

1-5 Range

CODE	DESCRIPTION
S	(lower limit – upper limit)

1-4 Failure Mode

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

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 ($\alpha = 0.00385 \text{ } ^\circ\text{C}^{-1}$)

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
21	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
31	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
41	Ch1: RTD 4-wire, Ch2: inactive
4T	Ch1: RTD 4-wire, Ch2: Thermocouple
TI	Ch1: Thermocouple, Ch2: inactive
TT	Ch1: Thermocouple, Ch2: Thermocouple

For complete transmitter specifications see Transmitter Section.

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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 ($\alpha = 0.00385 \text{ } ^\circ\text{C}^{-1}$)
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 ($\alpha = 0.00385 \text{ } ^\circ\text{C}^{-1}$)