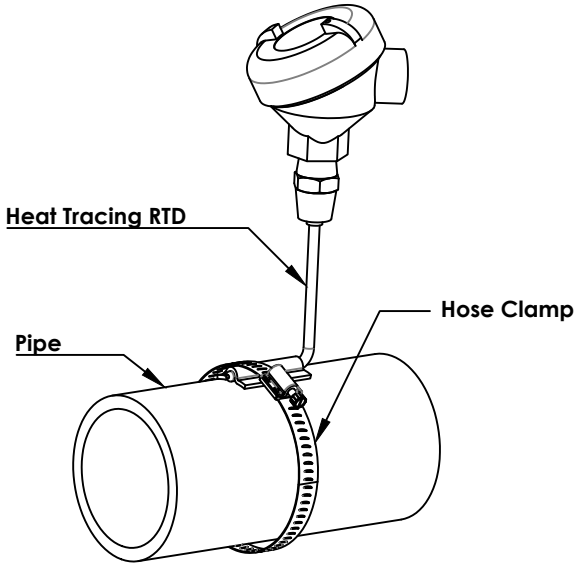
RTD61- Heat Trace Resistance Temperature Detector Assembly

TEMPERATURE SENSOR

RTD61- Tempotech RTD-61 Heat Tracing RTD (Resistance Temperature Detector) is a precision temperature sensor specifically designed for monitoring and regulating the temperature of pipes, vessels, and other surfaces in heat trace systems. These sensors provide accurate temperature readings, helping to prevent both overheating and freezing in industrial applications. It can be installed beneath insulation or directly on surfaces, optimizing the efficiency of heat trace systems.

Key Features

- High accuracy RTD's available in Pt100 or Pt1000 elements (IEC 60751 compliant) with Class A or B accuracy for precise temperature control.
- Encased in stainless steel, Teflon, or mineral-insulated sheaths for protection.
- Designed for installation in humid, wet, or corrosive environments.
- Available with weatherproof, explosion-proof or hazardous area-rated enclosures.
- Compatible with heat trace control systems, PLCs, and temperature controllers.
- Available in Bolt-on, strap-on or direct contact mounting styles.



Technical Specification

Insulation Resistance : 100 MG Ohms @ 250 vdc

Response Time : <5 Sec in circulating water @ 3ft/sec

Accuracy : As per IEC60751 (See tolerance chart)

Self Heating Error: < 0.30°F (0.17°C)

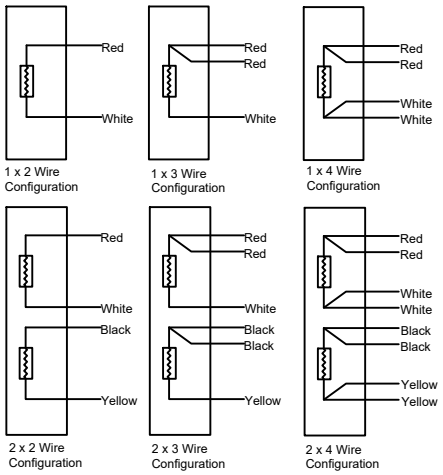
Time Constanat : < 5 sec

RTD Wire Configuration

2 Wire: In 2 wire RTDs, one lead wire is connected to each wire of the RTD element. 2 Wire RTDs are an economical option for the applications where high accuracy is not required. Since there is no compensation wire, the accuracy of RTD can be affected if long lead wire is used.

3 Wire : 3 wire RTDs are the most common type of RTDs used in the industry. In 3 three-wire Rtd 1 wire is connected to the one side of the RTD element, and on the other side, 2 wires are connected to compensate for the resistance. With compensating wire, accuracy is very close to the element accuracy at the termination end.

4 wire: 4 wire RTDs are highly accurate. In 4 wire RTDs 2 wires are connected to each side of the RTD element. With additional wire on each side of the RTD element, the output at the termination is highly accurate. 4 wire RTDs are recommended where high accuracy and long lead wire is required.



RTD Type Available				
Element Type	Pt100	Pt200	Pt1000	Ni120
Wire Wound	X	X		
Thin Film	X		X	X
Alpha Value	IEC 0.00385 JIS 0.00391	IEC 0.00385 JIS 0.00391	IEC 0.00385	0.00672

Our RTD class offerings and Tolerance as per IEC60751 (pt100)

Tolerance Class	Temperature Range °C		Tolerance	Tolerance
	Wire Wound	Thin Film	Values Ω	values °C
AA	-50 TO +250	0 TO +150	±0.04	± (0.1 + 0.0017 |t|)
A	-100 TO +450	-30 TO +300	±0.06	± (0.15 + 0.002 |t|)
B	-196 TO +600	-50 TO +500	±0.12	± (0.3 + 0.005 |t|)
C	-196 TO +600	-50 TO +600	±0.23	± (0.6 + 0.01 |t|)
a | t | = modulus of temperature in °C without regard to sign				
For 1/10 DIN B RTD is not standardize. The only accuracy defined is 1/10 of Class B accuracy at 0°C = 0.03°C				

Temperature	Class B±	Class A±	Class AA± (1/3 DIN B)	Class 1/10 DIN B±
-50° C	0.55	0.25	0.19	0.060
0° C	0.30	0.15	0.10	0.030
100° C	0.80	0.35	0.27	0.070
200° C	1.30	0.55	0.44	0.120
250° C	1.55	0.65	0.53	0.160
300° C	1.80	0.75	0.61	0.220
350° C	2.05	0.85	0.70	-
400° C	2.30	0.95	0.78	-
450° C	2.55	1.05	0.87	-
500° C	2.80	1.15	0.95	-
550° C	3.05	1.25	1.04	-
600° C	3.30	1.35	1.12	-
650° C	3.55	1.45	1.21	-

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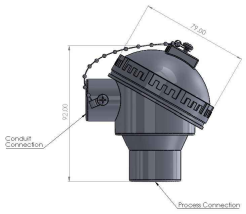
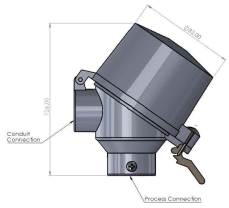
Common Applications

- Installed on pipes, tanks and vessels to prevent freezing or overheating in industrial heat tracing systems.
- Used in pipeline heating systems to maintain flow and prevent wax or hydrate formation in Oil & Gas industry.
- Prevents solidification of ingredients in piping and storage tanks in food & beverage processing.
- Protects exposed pipes and valves from freezing conditions in water & water treatment plants.
- Applied in steam tracing systems, boiler lines and condensate return pipes in power generation & HVAC systems.

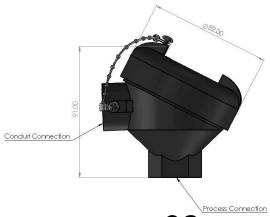
Connection Heads



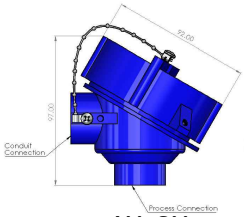
A



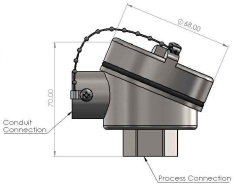
DANAW



CG



AX, SX



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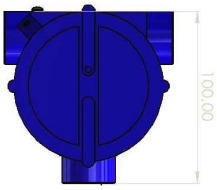
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EA

Transmitters and Displays

Model	TT-167	TT-267	TT-367	TT-467	TT-567
Transmitter					
Output					
4-20 mA	X	X	X	X	X
HART®Protocol		X	X	X	X
Input					
Thermocouple	K,J,R,S,T N,E,B, Pt100, Pt1000	K,J,R,S,T N,E,B, Pt100, Pt1000	K,J,R,S,T N,E,B, Pt100, Pt1000	K,J,R,S,T N,E,B, Pt100, Pt1000	K,J,R,S,T N,E,B, Pt100, Pt1000
Approval					
Electrical		CE, CSA	CE, CSA	CE, CSA	CE, CSA
HazLoc		OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL
Integaral Display			X	X	X
Field Programable		X	X	X	X

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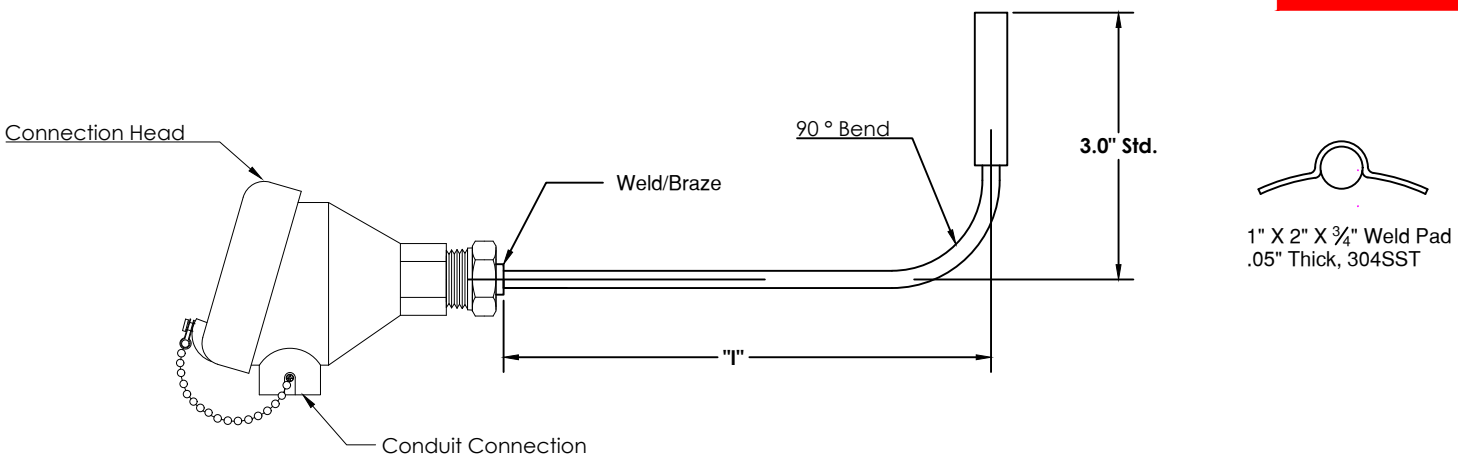


	1	2	3	4	5	6	7	8	9	10	11	12
RTD61												

For Example- RTD61-01-A-S-04-LT-4-8-12i-AX-07-TB-0

1. RTD TYPE	
CODE	
01	Pt100 Ohm, 0.00385, Coefficient
02	Pt100 Ohm, 0.00392, Coefficient
03	Pt200 Ohm, 0.00385, Coefficient
04	Pt1000 Ohm, 0.00385 Coefficient
05	Ni120 Ohm, 0.00672 Curve Class B Only (Only Available in Low temp)

2. RTD ACCURACY	
CODE	
B	Class "B"
A	Class "A"
AA	Class "AA" (Available only for RTD type 01,02)
1/10	Class 1/10 DIN B

3. SENSOR ELEMENT	
CODE	
S	Single
D	Dual

4. WIRE CONFIGURATION	
CODE	
02	2- Wire
03	3- Wire
04	4- Wire
06	Dual 6- Wire
08	Dual 8- Wire

5. TEMPERATURE RANGE	
CODE	
LT	-50°C to 250°C, Thin Film
MT	-50°C to 485°C, Thin Film
HT	-196°C to 600°C, Wire Wound
UT	-196°C to 700°C, Wire Wound

6. SHEATH OD		
CODE	IMPERIAL SIZE	METRIC SIZE
4	¼"	6.35 mm

7. SHEATH MAT.	
CODE	
8	SS 316

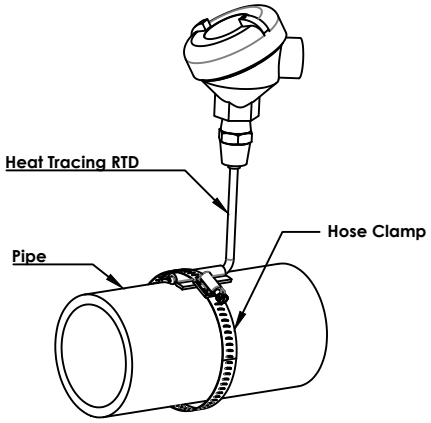
8. IMMERSION LENGTH (I)
Immersion length - use "I" for inches and "M" for millimetre

9. CONNECTION HEAD	
CODE	
A	Gen purpose Aluminum head IP68
EA	Economical Aluminum gen purpose head(non-rated)
S	SS general purpose
CG	Cast iron
PG	Polypropylene
SX	SS Explosion proof
AX	Aluminum explosion proof (CSA,FM,ATEX,IECE'x approved)
06	"Fieldmount Temp Transmitter w/ Display Aluminum"
07	"Fieldmount Temp Transmitter w/ Display SS"
06X	"Exd Fieldmount Temp Transmitter w/ Display Aluminum"
07X	"Exd Fieldmount Temp Transmitter w/ Display SS"
09	General Purpose Transmitter w/ Loop Powered Indicator
10	Aluminum connection head (CCOE approved)
DA	Dual entry gen purpose Aluminum head
D-XD	Dual entry Aluminum explosion proof (CSA,FM,ATEX,IECE'x approved)

10. CONDUIT CONNECTION	
CODE	
05	½" NPT
07	¾" NPT (STD.)
2M	M20 X 1.5

11. HEAD TERMINATION	
CODE	
OO	Blank Head Ready to Install Transmitter
TB	Ceramic Terminal Block
TRM	Standard 4-20 mA Transmitter
TRM-H	Standard 4-20 mA Transmitter w/ Hart

12. HOSE CLAMP (OPTIONAL)	
CODE	CLAMP ID RANGE
0	Nor required
HC1	11/16" to 1-¼"
HC2	1 -1/16" to 2.0"
HC3	1 -⅞" to 5.0"
HC4	4 -⅛" to 7.0"
09	SPECIFY ANY OTHER RANGE



TYPICAL INSTALLATION OF RTD