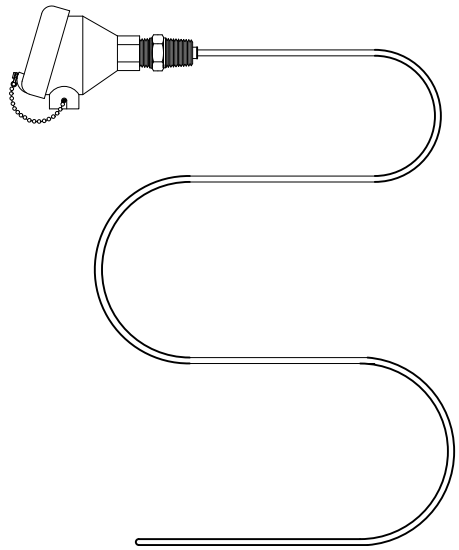
RTD72- Averaging Resistance Temperature Detector Assembly

TEMPERATURE SENSOR

RTD72- An Averaging Industrial Resistance Temperature Detector is a temperature-sensing device designed to measure the temperature across the suface area or zone. It allows for uniform temperature measurement around the covered zone instead single point like traditional RTD sensors. In the sensor multiple sensing elements are placed at different point to sense the temperature along the entire length of the sensing probe. Sensor can be bent into a various shapes of loop to cover the temperature zone.

Key Features

- Custom sensing length
- Heavy Industrial design for harsh application environments
- Flexible bendable design for easy installation.
- Connection head contains terminals or 4-20mA output temperature transmitter for signal conditioning.
- Available with Pt100 or Pt1000 elements per IEC 60751 standard in Class A or Class B accuracy ratings.
- Available in 2-wire, 3-wire, or 4-wire configurations for enhanced accuracy and reduced lead wire resistance errors.
- Available in 304, 316, or 316L stainless steel for corrosion resistance and sheath diameters range from 3mm to 12mm (custom sizes available).



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)

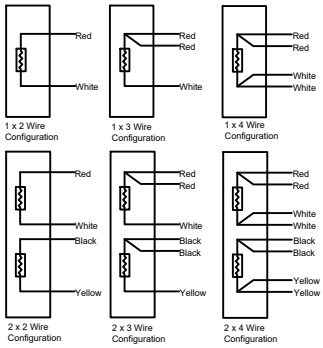
Time Constanat : < 5 sec

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	-

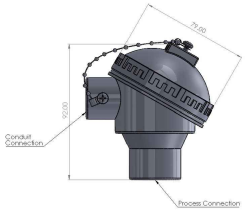
RTD72- Averaging Resistance Temperature Detector Assembly

TEMPERATURE SENSOR

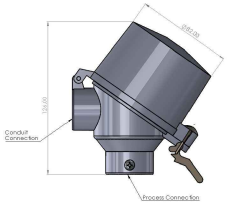
Common Applications

- Used in HVAC System and Building Automation.
- Temperature measurement in Heating and Cooling system.
- Monitors temperature in liquid storage for temperature uniformity.
- Industrial Freezer.

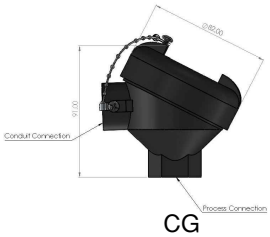
Connection Heads



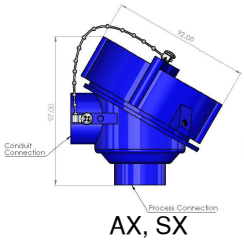
A



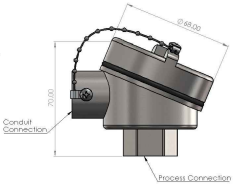
DANAW



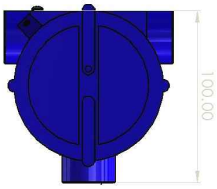
CG



AX, SX



S



11

EA

Transmitters and Displays

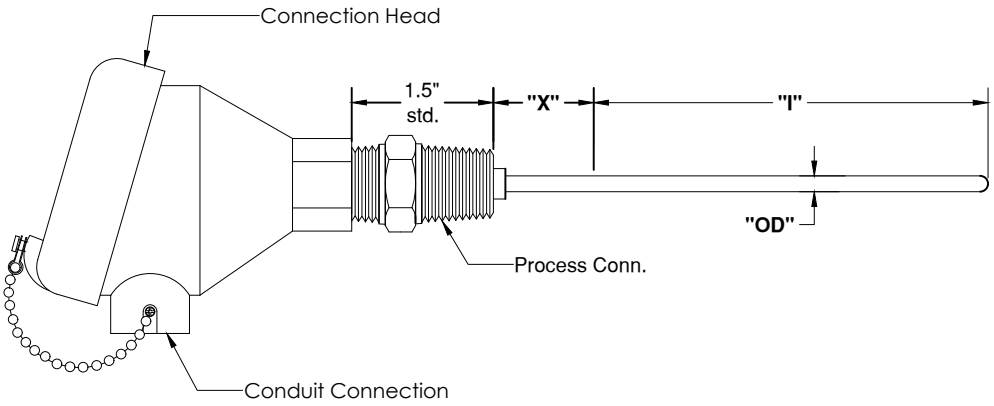
Model	TT-167	TT-267	TT-367	TT-467	TT-567
Transmitter					
Output					
4-20 mA	X	X	X	X	X
HART®Protocol		X	X	X	X
Input					
Thermocouple	K,J,R,S,T N,E,B, Pt100, Pt1000	K,J,R,S,T N,E,B, Pt100, Pt1000	K,J,R,S,T N,E,B, Pt100, Pt1000	K,J,R,S,T N,E,B, Pt100, Pt1000	K,J,R,S,T N,E,B, Pt100, Pt1000
Approval					
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

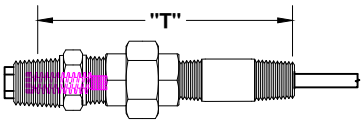
Thermowell Options

Thermowell					
	Flanged Helical Thermowell	Flanged Thermowell	Socket Weld Thermowell	Threaded Thermowell	Metal Protection Tubes
MODELS	TF, TF-H	TF	SWT01, SWT02, SWT03	TWS01, TWS02, TWS03	PT
					
	Vanstone Thermowell	Weld in Themowell	Tri-Clamp Thermowell		
MODELS	TWV-02,TWV-03	TWT-W	TCT-01, TCT-02, TCT-03, TCT-04		

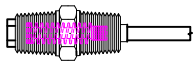
RTD72- Averaging Resistance Temperature Detector Assembly

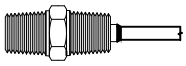
TEMPERATURE SENSOR





Nipple Union Extension


Spring Loaded Oil Seal Fitting


Welded Fixed Fitting

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
RTD72															

For Example- RTD72-01-A-S-03-LT-4-8-6i-3i-A-57-01-N-SS-1.0i-TB

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

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 (Available only for RTD type 01,02)

3. SENSOR ELEMENT	
CODE	
S	Single

4. WIRE CONFIGURATION	
CODE	
03	3- Wire
04	4- Wire

5. TEMPERATURE RANGE	
CODE	
LT	-50°C to 250°C, Thin Film

6. SHEATH OD		
CODE	IMPERIAL SIZE	METRIC SIZE
4	1/4"	6.35 mm
4M	0.236"	6.0 mm

7. SHEATH MAT.	
CODE	
8	SS 316
CU	Copper

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

9. NON SENSING LENGTH (X)
Non sensing length - use "I" for inches and "M" for millimetre

10. 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)

11. PROCESS X CONDUIT CONN.	
CODE	
55	1/2" NPT X 1/2" NPT
57	1/2" NPT X 3/4" NPT
77	3/4" NPT X 3/4" NPT
5M	1/2" NPT x M20 X1.5
7M	3/4" NPT x M20 X1.5

12. ELEMENT BUSHING STYLE	
CODE	
01	Fixed bushing
02	Spring loading bushing
03	Oil seal spring load bushing

12. TYPE OF EXTENSION	
CODE	
NUN	Fitting Union Nipple
NU	Nipple Union
N	Nipple

13. EXTENSION MATERIAL	
CODE	
PS	Plated Steel
MS	Mild Steel
SS	Stainless Steel

14. EXTENSION LENGTH (T)
Extension length - use "I" for inches and "M" for millimetre. Use 1.0i when ordering with nipple only

15. 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