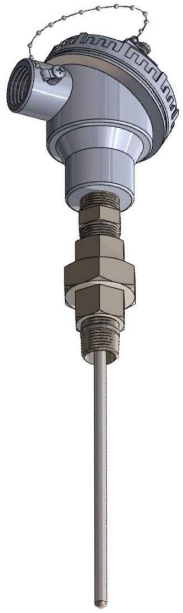
RTD80- Industrial Resistance Temperature Detetctor with Nipple Union Nipple

TEMPERATURE SENSOR

RTD80- An Industrial RTD (Resistance Temperature Detector) with a Nipple Union Extension is a rugged temperature sensor designed for easy installation and maintenance in industrial environments. This configuration includes a nipple, union, and extension pipe, providing a secure and adjustable connection while allowing for sensor replacement without process shutdown. The nipple provides a threaded process connection, the union allows for quick disconnection, and the extension increases the sensor's reach, keeping the connection head away from high temperatures or harsh conditions. These RTDs are ideal for pipes, tanks, boilers, and heat exchangers, where accessibility and durability are essential.

Key Features

- A nipple-union-nipple (NUN) connection allows for easy replacement and connection to thermowells or process piping.
- The nipple and union extension typically feature NPT (National Pipe Thread) or BSP (British Standard Pipe) threads for secure fitting.
- Nipple union extension pipe keeps the connection head away from heat and process exposure.
- 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)

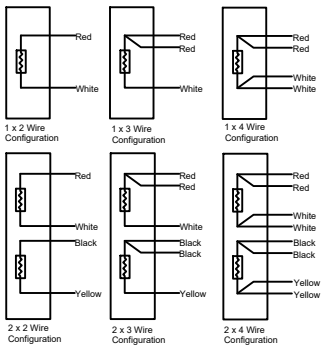
Time Constanat : < 5 sec

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	-

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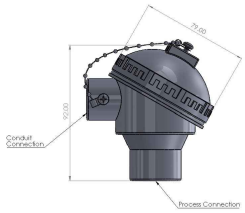
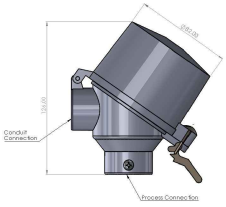
Common Applications

- Used in chemical, petrochemical and oil & gas industries for accurate temperature monitoring.
- Temperature measurement in motors, bearings, hydraulic systems and compressors.
- Monitors temperature in boilers, turbines and condensers in power generation.
- Used in heating systems, air ducts and industrial cooling systems in environmental temperature monitoring and HVAC systems.
- Ensures precise temperature control in sterile environments in Pharmaceutical & Biotechnology.

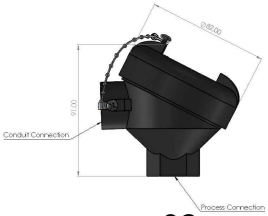
Connection Heads



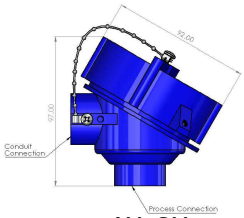
A



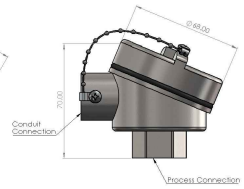
DANAW



CG



AX, SX



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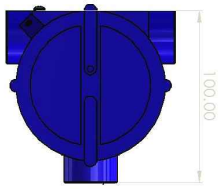

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EA

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

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		

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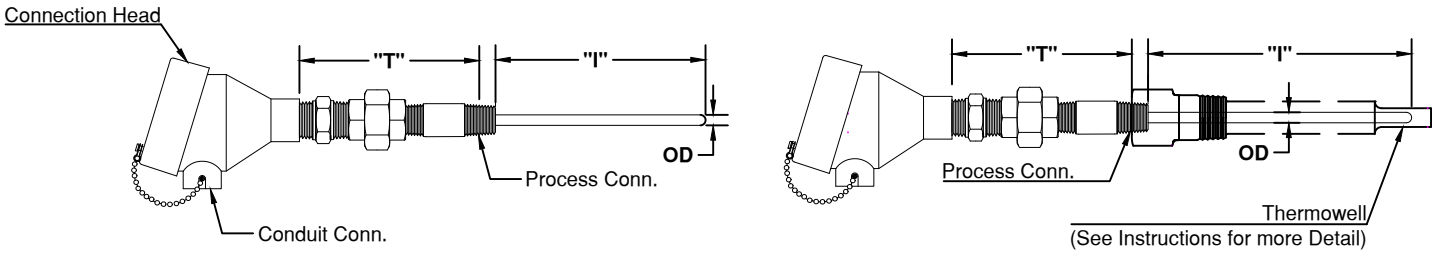

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
RTD80														

For Example- RTD80-01-A-S-03-LT-4-8-6i-AX-57-NUN-SS-4i-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
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 (Available only for RTD type 01,02)

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
2	1/8"	3.2 mm
3	3/16"	4.76 mm
4	1/4"	6.35 mm
5	5/16"	7.9mm
6	3/8"	9.5 mm

6. SHEATH OD		
7	0.215"	5.46 mm
2M	0.079	3.0mm
3M	0.197"	5.0mm
4M	0.236"	6.0 mm
5M	0.315"	8.0mm
6M	0.354"	9.0 mm
7M	0.394"	10.0 mm

7. SHEATH MAT.	
CODE	
8	SS 316
4	SS 310
9	SS 304
6	SS 321

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. INSTRUMENT 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

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

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

13. EXTENSION LENGTH (T)
Extension length - use "I" for inches and "M" for millimetre

14. 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