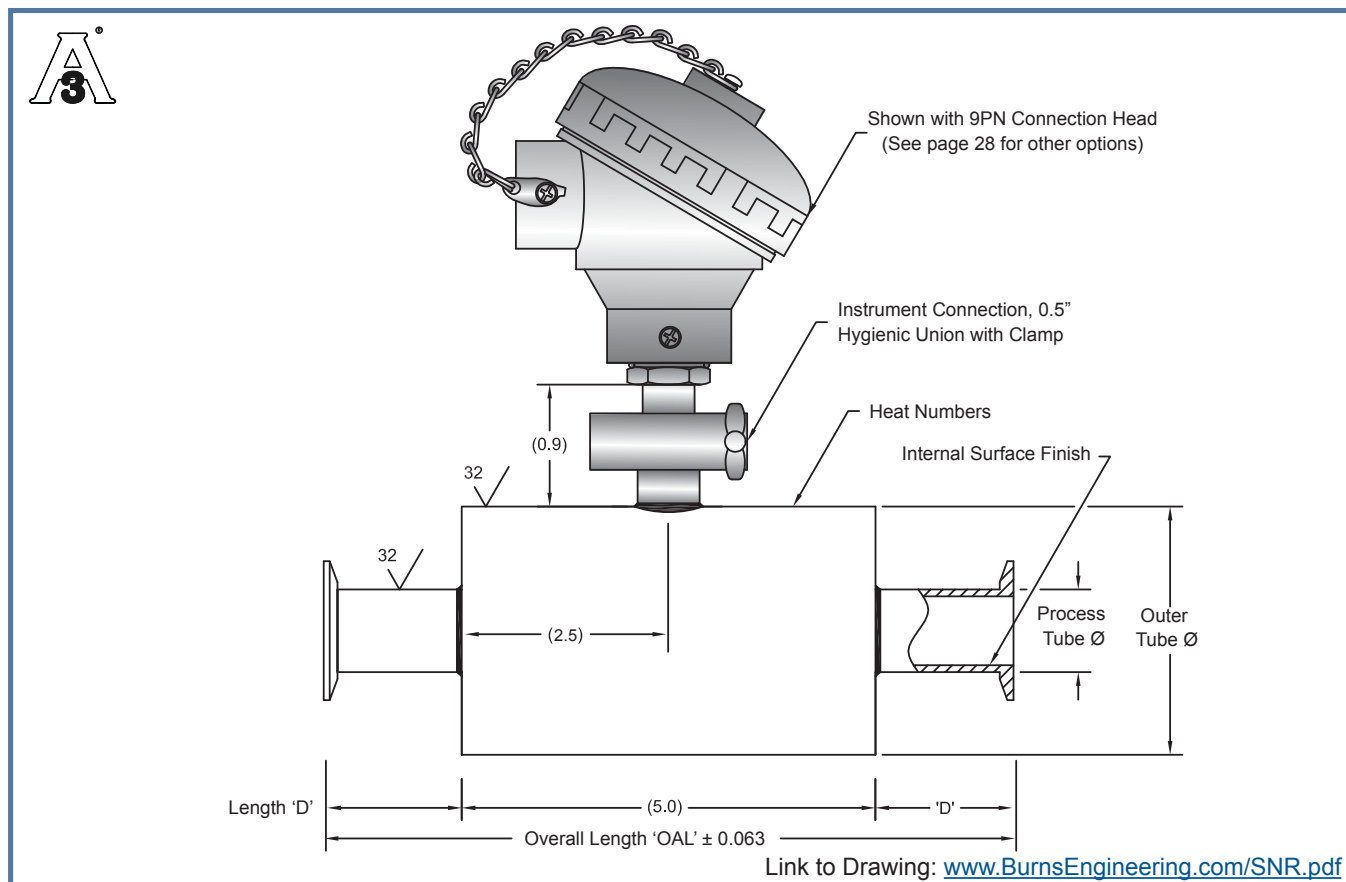


SNR Non-Intrusive Removable

Specification



All dimensions in inches.

SNR Specifications

Time Constant: Maximum time to reach 63.2% of a step change in temperature in water flowing at 3 fps.	12.0 seconds
RTD Repeatability: Maximum change in resistance at 0°C after 10 cycles over the full temperature range.	0.04%
RTD Long Term Stability: Maximum change in resistance at 0°C after 1000 hours at 200°C	Precision: 0.01% Standard: 0.10%
RTD Hysteresis: Maximum % error at the mid point of the operating temperature range. (Example: 0.04% over a 250°C range = 0.10°C)	Precision: 0.04% Standard: 0.08%



• General Specifications:

- » See page 4 of this catalog

• Removable Sensor:

- » Details see pages 29 and 30

• Process Connections:

- » Hygienic ferrules for hygienic clamp union connection
- » Weld-ends squared off to support automatic weld process

• Installation Length:

- » For assemblies with hygienic ferrules, the OAL is 8.0 inches.
- » For assemblies with weld-ends, to support automatic welding, the OAL range is 8.5 to 9.25 inches based on the process tube size. See ordering information table under 'Process Tube Ø'

SNR Non-Intrusive Removable

Ordering Information

Sensor Style

SNR- Sanitary Non-intrusive Removable

RTD Accuracy

10 Standard RTD +/-0.10% of resistance at 0 degrees C

Thermocouple Type

E Chromel/Constantan (leadwire colors = +purple -red)

J Iron/Constantan (leadwire colors = +white -red)

K Chromel/Alumel (leadwire colors = +yellow -red)

T Copper/Constantan (leadwires colors = +blue -red)

RTD Element Lead Configuration

A Three Wire Single

B Four Wire Single

Thermocouple Junction Configuration

D Single Ungrounded

Connection Head (NOTE 1)

2EN Aluminum, Epoxy Coated NET Solution

5EN Aluminum, Epoxy Coated NET Solution

9PN Polypropylene White, NET Solution

14SN Stainless Steel, NET Solution

16AN Mini Aluminum, Epoxy Coated NET Solution

19AN Aluminum, with LED indicator NET Solution

20PN Plastic, with LED indicator NET Solution

21SN Stainless Steel, with LED indicator NET Solution

22AN Aluminum, with LCD indicator NET Solution

23PN Plastic, with LCD indicator NET Solution

24SN Stainless Steel, with LCD indicator NET Solution

N2 No Connection Head, 1/2" NPSM Bushing

NA Cable design, 120" Length, Nylon Spring Standard

**** See page 40 for other options

Process Tube	Flow Tube Diameter	Wall Thickness	Outer Tube Ø	Bore Depth	RTD w/Cable	RTD w/Head	Thermocouple	Length 'D' for Weld Ends	Overall Length for Weld Ends
0500	0.500"	0.065"	1.25"	1.5"	22535-1	22536-1	22537-1	1.75"	8.50"
0750	0.750"	0.065"	2"	1.5"	22535-1	22536-1	22537-1	1.75"	8.50"
1000	1.000"	0.065"	3"	2.188"	22535-2	22536-2	22537-2	1.75"	8.50"
1500	1.500"	0.065"	3"	1.5"	22535-1	22536-1	22537-1	1.75"	8.50"
2000	2.000"	0.065"	4"	2.188"	22535-2	22536-2	22537-2	1.75"	8.50"
2500	2.500"	0.065"	4"	1.5"	22535-1	22536-1	22537-1	1.75"	8.50"
3000	3.000"	0.065"	6"	2.188"	22535-2	22536-2	22537-2	2.00"	9.00"
4000	4.000"	0.083"	6"	2.188"	22535-2	22536-2	22537-2	2.13"	9.25"

Material

-06 316L

-20 AL6XN

Internal Finish

M32 32 Ra Mechanical Finish

E10 10 Ra Electropolish

Process Connection Fitting

C Sanitary Cap (Hygienic Ferrule)

N Weld Ends No Process Connection

Process Connection Size

Compatible with tube sizes

050 1/2" 0500, 0750

150 1 1/2" 1000, 1500

200 2" 2000

250 2 1/2" 2500

300 3" 3000

400 4" 4000

Weld Ends, No Process Connection, Leave Blank

Example Part Number: SNR-10A20PN2000-06E10C200

NOTE 1: For full descriptions see page 40 or: www.BurnsEngineering.com/Con-Heads.pdf

Specifications

RTDS

Operating Temperature Range:

-50°C to 200°C

Element Resistance:

100 ohms at 0°C nominal

Temperature Coefficient of Resistance (alpha):

0.00385 $\Omega/\Omega/^\circ\text{C}$ nominal

Accuracy:

Standard: 0.10% of resistance at 0°C

Precision: 0.05% of resistance at 0°C

Insulation Resistance:

100 megohms minimum at 100 VDC at 25°C

(Not applicable for grounded thermocouples)

Interchangeability:

For 100 ohm elements the tolerance values at any temperature for these specifications are given by:

Tolerance $^\circ\text{C} = \pm(0.13 + 0.00185 \text{ ltl})$ for accuracy code 05

Tolerance $^\circ\text{C} = \pm(0.26 + 0.0037 \text{ ltl})$ for accuracy code 10

(ltl = absolute value of temperature in $^\circ\text{C}$)

Leadwire:

PTFE insulated nickel-plated stranded copper, 22 and 24 AWG typical

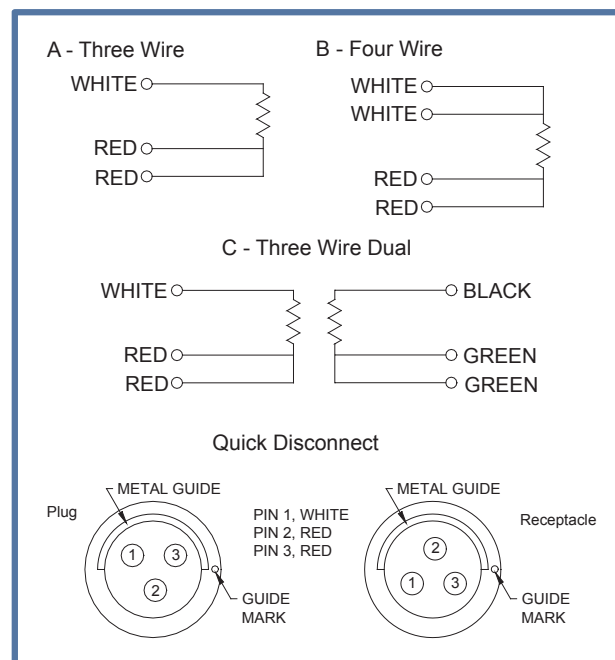
Sheath Material:

316L stainless steel typical

100% Tested:

For accuracy at 0°C and insulation resistance

Color Codes Element/Leadwire Configuration



Temperature		Interchangeability			
$^\circ\text{C}$	$^\circ\text{F}$	0.05%**		0.10%	
-50	-58	$\pm.23^\circ\text{C}$	$\pm.41^\circ\text{F}$	$\pm.45^\circ\text{C}$	$\pm.80^\circ\text{F}$
0	32	$\pm.13^\circ\text{C}$	$\pm.23^\circ\text{F}$	$\pm.26^\circ\text{C}$	$\pm.46^\circ\text{F}$
100	212	$\pm.32^\circ\text{C}$	$\pm.57^\circ\text{F}$	$\pm.64^\circ\text{C}$	$\pm 1.15^\circ\text{F}$
200	392	$\pm.50^\circ\text{C}$	$\pm.90^\circ\text{F}$	$\pm 1.00^\circ\text{C}$	$\pm 1.80^\circ\text{F}$

** ± 0.05 accuracy is not currently available with all models. See the Ordering Information Table for each model for applicability.

Thermocouples

The tables listed below are provided to the user for a ready reference of thermocouple designations as compared to the generic and trade names for the most common thermocouple materials. The letter "P" in the designation indicates the positive (+) leg of the thermocouple while the letter "N" designates the negative (-). Color coding and other means of conductor identification are also provided. Specification reference per ASTM E230 / E230M.

ANSI Thermocouple Type	Temperature Range	Special Limits
E	-50°C to 125°C 125°C to 200°C	$\pm 0.5^\circ\text{C}$ $\pm 0.4\%^*$
J	0°C to 200°C	$\pm 1.1^\circ\text{C}$
K	0°C to 200°C	$\pm 1.1^\circ\text{C}$
T	-50°C to 125°C 125°C to 200°C	$\pm 0.5^\circ\text{C}$ $\pm 0.4\%^*$

* % applies to measurement in $^\circ\text{C}$

Thermocouple Grade Wire

ANSI Type	Grade or Generic Trade Names	Single Conductors	Magnetic	Conductor Color Code	Overall Color Code
E	Chromel® Constantan	EP EN	No No	Purple Red	Brown w/ Purple Tracer
J	Iron Constantan	JP JN	Yes No	White Red	Brown w/ White Tracer
K	Chromel® Alumel®	KP KN	No Yes	Yellow Red	Brown w/ Yellow Tracer
T	Copper Constantan	TP TN	No No	Blue Red	Brown w/ Blue Tracer

Extension Grade Wire

ANSI Type	Grade or Generic Trade Names	Single Conductors	Magnetic	Conductor Color Code	Overall Color Code
EX	Chromel® Constantan	EPX ENX	No No	Purple Red	Purple
JX	Iron Constantan	JPX JNX	Yes No	White Red	Black
KX	Chromel® Alumel®	KPX KNX	No Yes	Yellow Red	Yellow
TX	Copper Constantan	TPX TNX	No No	Blue Red	Blue