MULTIPOINT THERMOCOUPLE SENSORS

Reotemp Multipoint Sensors strategically place multiple sensors inside one tube or sheath, providing a more complete temperature profile of the process. Multipoints are highly customizable. You can choose from a wide selection of terminals, connections, and stem styles. Depending on the size of the outer tube, you can have an almost unlimited number of sensors to capture detailed data. This allows for optimization of the process and identification of thermal gradients.

Made in USA

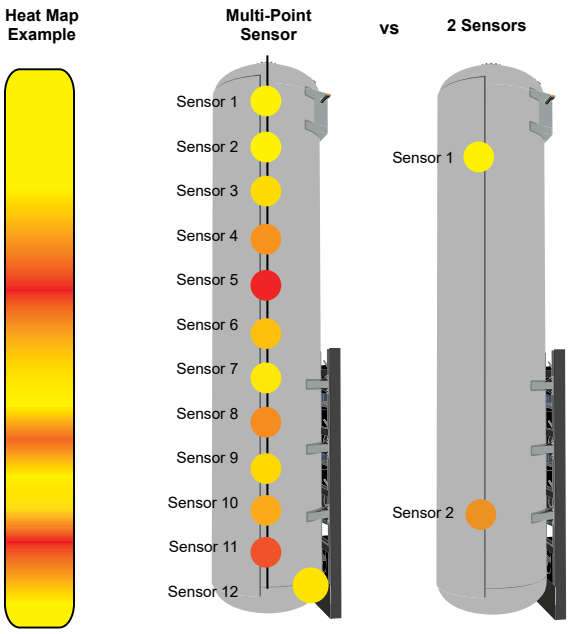
FEATURES / BENEFITS

- Optimize Efficiency
- Lower Energy Costs
- Identify Temperature Gradients and Hot Spots
- Map or Average Temperatures Over a Large Area
- Multiple Measurements with One Process Connection
- Improve Safety
- Replaceable Elements

Common Applications

- Reactor Vessels
- Scrubbers
- Chemical Silos
- Grain Silos
- Ducts
- Storage Tanks
- Exhaust Stacks
- Beverage Processing
- Ovens
- Catalytic Crackers
- Water Towers
- Distillation Columns

Provides a detailed view of the process

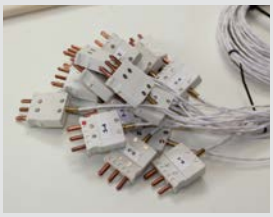


MULTIPOINT THERMOCOUPLE SENSORS

Terminal Options

Junction Box

Lead Wire



Male Plugs

Connection Options

Flanged

Threaded

Union

Stem Styles

Exposed

Protection Tube

Flexible

Additional Options

Inner Guide Tubes with Heat Transfer Blocks
(Cutaway for Illustration Purposes)

Cooling Fins

- Wide Variety of Stem Materials
- Anchor/Weight
- Transmitters (4-20mA, HART)
- Media Transfer Windows
- Free Hanging Stems
- Staggered Stems
- Replaceable Stems

MULTIPOINT THERMOCOUPLE SENSORS

SPECIFY YOUR MULTIPOINT: For a quote and drawing, email the information below to insidesales@reotemp.com

Specification Worksheet

Customer Info	Company Name:		
	Phone:		
	Email:		
Sensor Type	Thermocouple:	Type J Single ☐	Type J Dual ☐
		Type K Single ☐	Type K Dual ☐
		Type E Single ☐	Type E Dual ☐
		Type N Single ☐	Type N Dual ☐
		Type T Single ☐	Type T Dual ☐
	Junction:	Grounded ☐	Ungrounded ☐
	RTD:	Consult Factory ☐	Other (Specify in Notes) ☐
		3-wire ☐	4-wire ☐
		100Ω ☐	1000Ω ☐
		Std Temp (-328/400°F), ☐	Ext. Temp (-328/1112°F) ☐
# of Temperature Sensors			
Total Length of stem (in inches)			
Location of each sensor (from tip up)	Evenly distributed: ☐		
	Custom location (Describe distance from tip for each sensor):		
Pipe	Nominal Pipe Size:		
	OD:		
	Schedule:		
Ambient Temperature Range:			
Maximum Process Temperature:			
Process Material/Conditions/Pressure:			
Accuracy required:			
Electrical Connection: Transmitter, Terminal block, plug/jack,	Transmitter:	4-20mA ☐	Fieldbus ☐
		HART ☐	Terminal Block ☐
		Profibus ☐	Std. ceramic terminal block ☐
	Plug/Jack:	Std. Male Plug ☐	
		Mini Male Plug ☐	
		Std. Female Jack ☐	
		Mini Female Jack ☐	
	Other:	Stripped Leads ☐	
Enclosure Type:	Std. NEMA4X/IP65 Aluminum ☐	Explosion Proof (consult factory) ☐	
Enclosure Electrical Connection:	Blank Case ☐		
	3/4" Female Conduit Connection ☐		
	Cable Gland ☐		
	Other: ☐		

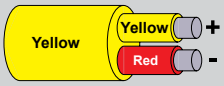
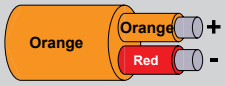
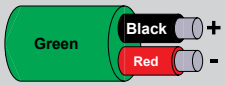
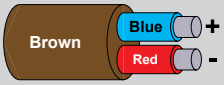
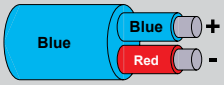
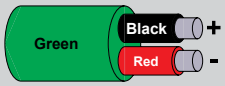
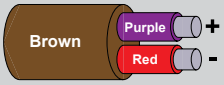
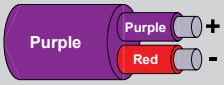
MULTIPOINT THERMOCOUPLE SENSORS

Process Connection (Threaded or Flanged)	Flanged:	1"	☐	150# RF	☐
		1.5"	☐	300# RF	☐
		2"	☐	600# RF	☐
	Threaded:	1/2"NPT	☐	Male	☐
		3/4" NPT	☐	Female	☐
		1" NPT	☐	Union	☐
		2" NPT	☐		
		Other	☐		
Stem Style:	Rigid ☐				
	Exposed ☐				
	Flexible ☐				
Options:	Heat Transfer Blocks		☐		
	Cooling Fins		☐		
	Anchor Weight: lbs		☐		
	Media Transfer Windows		☐		
	Replaceable Stems		☐		
	PMI (Positive Material Identification)		☐		
	Helium Leak Test		☐		
	Tag - Stainless Steel		☐		
Additional Notes:					

If you have a preliminary drawing or sketch, please include it with this form. Reotemp can provide a representative drawing of the assembly for your approval, upon request.

REFERENCE INFORMATION

THERMOCOUPLE WIRE COLOR CODES (U.S.A. ANSI)

	Thermocouple Grade	Extension Grade	Plug/ Jack		Thermocouple Grade	Extension Grade	Plug/Jack
K			Yellow	N			Orange
J			Black	S	None Established		Green
T			Blue	R	None Established		Green
E			Purple	B	None Established		White

THERMOCOUPLE & RTD ACCURACIES

	Type K	Type J	Type T	Type E	Type N	Type S	Type R	Type B	RTD Class B	RTD Class A
-328°F	*	–	*	*	–	–	–	–	± 2.34°F	± 2.34°F
-148°F	*	–	*	*	–	–	–	–	± 1.44°F	± 1.44°F
32°F	± 3.96°F	± 3.96°F	± 1.8°F	± 3.06°F	± 3.96°F	± 2.7°F	± 2.7°F	–	± 0.54°F	± 0.27°F
392°F	± 3.96°F	± 3.96°F	± 2.7°F	± 3.06°F	± 3.96°F	± 2.7°F	± 2.7°F	–	± 2.34°F	± 0.99°F
752°F	± 5.4°F	± 5.4°F	–	± 3.6°F	± 5.4°F	± 2.7°F	± 2.7°F	–	± 4.14°F	± 4.14°F
1112°F	± 8.1°F	± 8.1°F	–	± 5.4°F	± 8.1°F	± 2.7°F	± 2.7°F	–	± 5.94°F	± 5.94°F
1472°F	± 10.8°F	–	–	± 7.2°F	± 10.8°F	± 3.6°F	± 3.6°F	–	–	–
1832°F	± 13.5°F	–	–	–	± 13.5°F	± 4.5°F	± 4.5°F	± 9°F	–	–
2192°F	± 16.2°F	–	–	–	± 16.2°F	± 5.4°F	± 5.4°F	± 10.8°F	–	–
2552°F	–	–	–	–	–	± 6.3°F	± 6.3°F	± 12.6°F	–	–
2912°F	–	–	–	–	–	–	–	± 14.4°F	–	–

Note: The accuracies in the above table are estimates given at fixed points, they do not apply to temperature ranges and are intended only as examples to give a general idea of what can be expected. Consult Reotemp if a specific accuracy is required or to confirm accuracies at any points not listed in the above table.
*Thermocouples are normally supplied to meet the tolerances specified in the table for temperatures above 32°F. The same materials, however, may not fall within the tolerances for temperatures below 32°F. If materials are required to meet the tolerances stated for temperatures below 32°F, contact Reotemp sales.

Looking for better accuracy?

Hi-Accuracy™

Reotemp offers **RTDs** up to 5x more accurate than Class B RTDs with the Hi-Accuracy™ option.

Thermocouples up to 2x more accurate with the Special Limits of Error option.

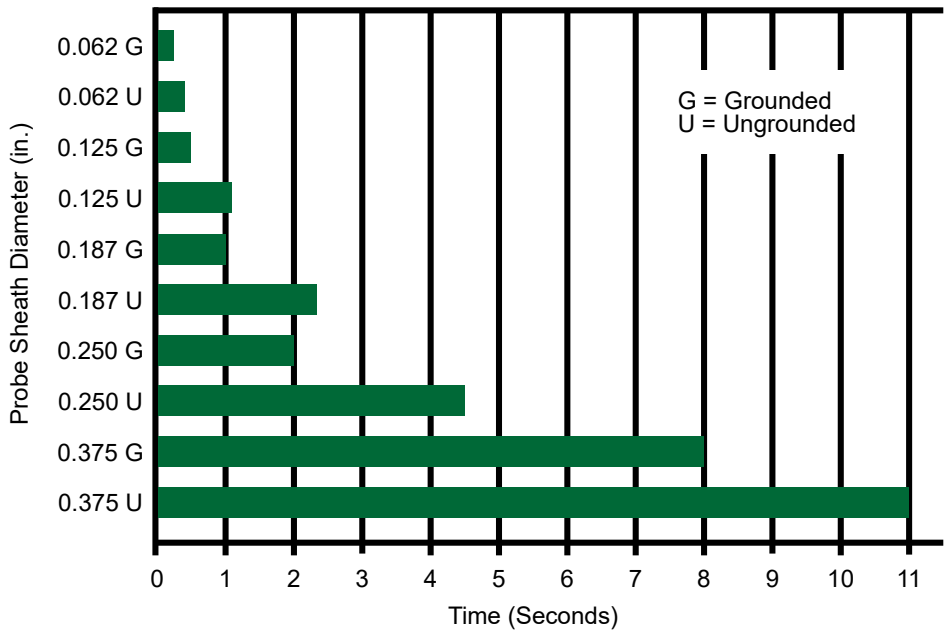
REFERENCE INFORMATION

THERMOCOUPLE TEMPERATURE OPERATING RANGES

Type	Minimum Temp. °F	Maximum Temp. °F
K	-328	2300
J	32	1400
T	-328	700
E	-328	1600
N	32	2300
S	32	2700
R	32	2700
B	1600	3100

THERMOCOUPLE TYPICAL RESPONSE TIMES

63.2% Temperature Change in an Agitated Water Bath



TEMP. LIMITS OF WIRE JACKETS

Jacket	Temp. Limit
PVC	221°F
Teflon	400°F
Fiberglass	900°F