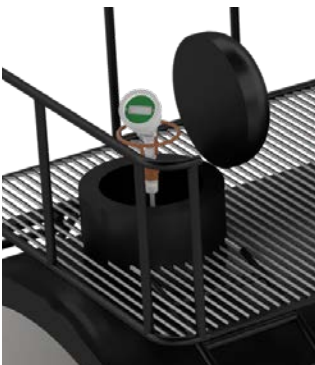


RAILCAR TEMPERATURE PROBES

REOTEMP's Railcar Temperature Probes allow railcar terminals to measure the temperature of incoming and outgoing crude oil, corn syrup and other tanker fluids. These probes can also be used in similar applications for tanks, silos and/or transport containers. REOTEMP offers a digital version with sliding union connection that allows the user to adjust the probe insertion depth. The multipoint version allows for 3 readings at once, at various depths, eliminating the need for stem adjustment.



	Plain Stem	Digital	Multipoint	Hard Wired	Bimetal
	RCPS	RCDL	RCMP	RCHW	RCJJ
# of Sensors	1	1	3 (Custom Depths)	1	1
Max Stem Length	15 ft.	15 ft.	15 ft.	15 ft.	8 ft.
Standard Connection	3/4" or 1/2" NPT (Facing Wires)	3/4" or 1/2" NPT Adj. Sliding Union	3/4", 1", or 1.5" NPT	3/4" or 1/2" NPT Adj. Sliding Union	3/4" NPT Adj. Sliding Union
Head & Display	None or Customer Supplied	4 Digit LCD Display (Explosion Proof Available)	Explosion Proof Head w/ LCD Readout and Multi-position Switch	None	Dial



Temperature sensor attaches to railcar with a standard threaded connection.



Made in USA



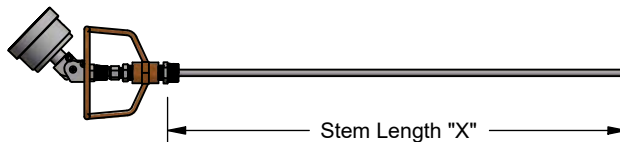
FEATURES / BENEFITS

- Measure Material Temperature Upon Arrival, Handling, & Departure
- Adjustable Insertion Depth
- Multipoint Model Offers 3 Sensors in One Stem and Explosion Proof Design, CSA Approved
- Heavy-Duty Construction

RAILCAR TEMPERATURE PROBES

BUILD YOUR DIGITAL RAILCAR PROBE: Choose options to build a part number. For example: **RCDL0600S21**

MODEL	STEM LENGTH "X"	PROCESS CONNECTION	TEMPERATURE RANGE			OPTIONS
RCDL = Digital Rail Car Thermometer with orange handle, 3" Dial, adjustable angle connection, blunt tip, 3/8" diameter stem, 100Ω RTD	0360 = 36" Stem 0480 = 48" Stem 0600 = 60" Stem 0720 = 72" Stem 0840 = 84" Stem 0960 = 96" Stem ???? = Enter Stem Length in Inches (Example: 0840 equals 84 inches)	S3 = Sliding Union with 3/4" NPT S2 = Sliding Union with 1/2" NPT	Code	Temp. Range	Resolution	PS = Pointed Stem EH = Explosion Proof Head FM, CSA, ATEX, & IECEx Approved, EH Head is not adjustable angle, Bottom Connection Only
			1	-58°F to 392°F	0.1°	
			2	-50°C to 200°C	0.1°	
			3	-328°F to 1112°F	1°	
			4	-200°C to 600°C	1°	



EH Explosion Proof Head Option



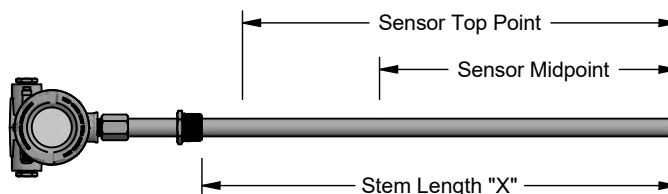
For additional options see page 146.

EH Head Approvals

FM Approved Enclosure Only: CL. I. GR. A,B,C,D; CL. II. GR E,F,G; CL. III.; Type 4X. For CSA Class I, Group A, conduit seal is required within 18 inches. CL. I, ZONE 1, ATEX: d IIC, IP66. ATEX: II 2GD Ex d tD A21 IIC, FTZU 04 ATEX 0265U. IECEx FMG 06.0003U, Ex d II C, IP68. Approvals held by Limatherm 34-600 Limanowa Poland.

BUILD YOUR MULTIPOINT RAILCAR PROBE: Choose options to build a part number. For example: **RCMP10960B03600720**

MODEL	PROCESS CONNECTION	STEM LENGTH "X"	SENSOR MIDDLE POINT	SENSOR TOP POINT	OPTIONS
RCMP = Multipoint with Explosion Proof Head and Multi-position switch, 100Ω RTD	3 = 3/4" NPT 1 = 1" NPT 1.5 = 1.5" NPT	180" Max Stem Length 0960 = 96" Stem 1080 = 108" Stem 1200 = 120" Stem 1320 = 132" Stem 1800 = 180" Stem ???? = Enter Stem Length in Inches (Example: 0840 equals 84 inches)	0360 = Middle Sensor Located 36" From the Bottom of the Stem ???? = Enter Stem Length in Inches (Example: 0400 equals 40 inches)	0720 = Top Sensor Located 72" From the Bottom of the Stem ???? = Enter Stem Length in Inches (Example: 0800 equals 80 inches)	= Blunt Tip (Standard) PS = Pointed Stem For additional options see page 146.



Note: Third sensor is located at tip of probe.

RAILCAR TEMPERATURE PROBES

BUILD YOUR HARD WIRED RAILCAR PROBE: Choose options to build a part number. For example: **RCHW0600S21200**

RCHW

0600

S2

1200



MODEL

**STEM LENGTH
"X"**

**PROCESS
CONNECTION**

**LEADWIRE
LENGTH**

OPTIONS

RCHW = Hard-wired Rail Car Thermometer with Orange Handle, Blunt Tip, 3/8" Diameter Stem, Type K Thermocouple with Mini Male Plug

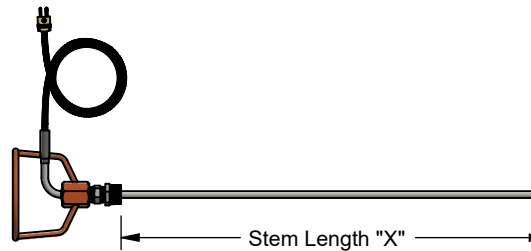
0360 = 36" Stem
0480 = 48" Stem
0600 = 60" Stem
0720 = 72" Stem
0840 = 84" Stem
0960 = 96" Stem
???? = Enter Stem Length in Inches (Example: 0840 equals 84 inches)

S3 = 3/4" NPT
S2 = 1/2" NPT

1200 = 120" Stainless Steel Armor Lead Wire
1400 = 140" Stainless Steel Armor Lead Wire
???? = Enter Stainless Steel Armor Lead Wire in Inches (Example: 840 = 84")

PS = Pointed Stem
THH503 = Handheld Digital Display, Type K Jack

For additional options see page 146.



BUILD YOUR PLAIN STEM RAILCAR PROBE: Choose options to build a part number. For example: **RCPS30960B37PX**

RCPS

3

0960

B

37

PX



MODEL

**PROCESS
CONNECTION**

**STEM LENGTH
"X"**

STEM DIAMETER

SENSOR TYPE

OPTIONS

RCPS = Plain Stem Rail Car, Blunt Tip, 6" Lead Stripped

3 = 3/4" NPT
2 = 1/2" NPT

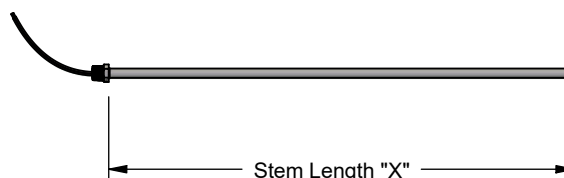
180" Max Stem Length
0960 = 96" Stem
1080 = 108" Stem
1200 = 120" Stem
1320 = 132" Stem
1800 = 180" Stem
???? = Enter Stem Length in Inches (Example: 0840 equals 84 inches)

37 = 3/8" Diameter
50 = 1/4" Schedule 40 Pipe (Nominal 1/2" Diameter)

PX = 100Ω RTD, 3 Wire
PB = 100Ω RTD, 4 Wire
K = Type K Thermocouple, Single
J = Type J Thermocouple, Single

PS = Pointed Stem
CSH = Customer Supplied Head

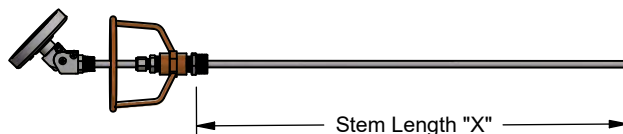
For additional options see page 146.



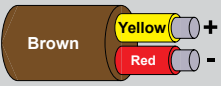
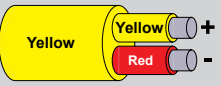
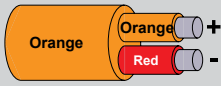
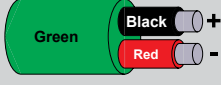
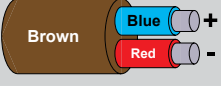
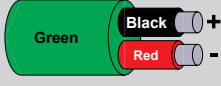
RAILCAR TEMPERATURE PROBES

BIMETAL VERSION: Choose options to build a part number. For example: **RCJJ0600S2F47**

RCJJ	0600	S2	F47		
MODEL	STEM LENGTH "X"	PROCESS CONNECTION	TEMPERATURE RANGE	OPTIONS	
RCJJ = Rail Car Thermometer with orange handle, 5" Dial, adjustable angle connection, blunt tip, 3/8" diameter stem	0360 = 36" Stem 0480 = 48" Stem 0600 = 60" Stem 0720 = 72" Stem 0840 = 84" Stem 0960 = 96" Stem ???? = Enter Stem Length in Inches (Example: 0840 equals 84 inches)	S3 = Sliding Union with 3/4" NPT S2 = Sliding Union with 1/2" NPT	<i>Fahrenheit Ranges</i> F23 = -40°F to 160°F F55 = 25°F to 125°F F43 = 0°F to 200°F F47 = 0°F to 250°F F63 = 50°F to 300°F F67 = 50°F to 500°F F69 = 50°F to 550°F F81 = 150°F to 750°F F85 = 200°F to 1000°F <i>Celsius Ranges</i> C23 = -40°C to 70°C C55 = 0°C to 50°C C43 = 0°C to 100°C C47 = -20°C to 120°C C59 = 0°C to 150°C C67 = 0°C to 250°C C69 = 0°C to 300°C C73 = 0°C to 400°C C85 = 100°C to 500°C	<i>Dual Scale Ranges</i> D23 = -40°F to 160°F & -40°C to 70°C D55 = 25°F to 125°F & -5°C to 50°C D43 = 0°F to 200°F & -10°C to 90°C D47 = 0°F to 250°F & -20°C to 120°C D63 = 50°F to 300°F & 10°C to 150°C D67 = 50°F to 500°F & 10°C to 260°C D69 = 50°F to 550°F & 10°C to 290°C D81 = 150°F to 750°F & 70°C to 400°C D85 = 200°F to 1000°F & 100°C to 500°C <i>Additional Ranges Available</i>	PS = Pointed Stem



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?



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.

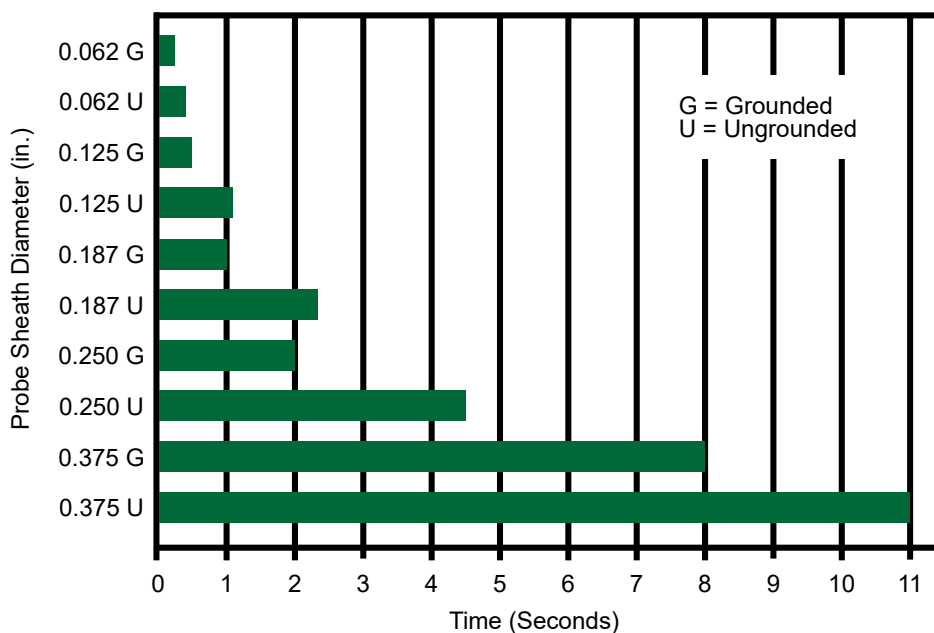
REFERENCE INFORMATION

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

THERMOCOUPLE & RTD OPTIONS

		Thermocouple	RTD	Digital Thermometers	Handheld Digital
CERTIFICATION OPTIONS					
-R1	1 Point Calibration Certification, Reotemp Chooses	✓	✓	✓	✓
-R3	3 Point Calibration Certification, Reotemp Chooses	✓	✓	✓	✓
-C1	1 Point Calibration Certification, Customer Chooses	✓	✓	✓	✓
-C3	3 Point Calibration Certification, Customer Chooses	✓	✓	✓	✓
-CC	Certificate of Conformance	✓	✓	✓	✓
-CS	NIST Calibration Sticker (No Logged Points)	✓	✓	✓	✓
OTHER OPTIONS					
-VB	Hi-Vibration	N/A	✓	✓	✓
-AC	Hi-Accuracy	N/A	✓	N/A	N/A
-PS	Pointed Stem	✓	✓	✓	✓
-TF	Teflon Coating	✓	✓	✓	✓
-SS	316 SS stem	N/A	STD	✓	✓
-NL	No Logo	✓	✓	✓	✓
-HT	Heat Transfer Compound (2 oz)	✓	✓	✓	N/A
-GL	Plain Glass Lens	N/A	N/A	✓	✓
-CL	Custom Logo Dial	N/A	N/A	✓	✓
-BP	Replacement Battery Pack	N/A	N/A	✓	✓
-WD	White Dial	N/A	N/A	✓	✓
-AS	Allows to Fit 1-1/4-18 Industrial Thermowell	✓	✓	✓	N/A
TAG OPTION					
-TS	Stainless Steel Tag (1-10 Characters)	✓			
-TM	Stainless Steel Tag (11-80 Characters)	✓			
-TP	Paper Tag	✓			

✓	Indicates that the option is available with this model.
N/A	Indicates the option is not available with this model.
STD	Indicates standard options with no additional cost.