AccuMac

Product Catalog

AccuMac

Accuracy | Measurement | Calibration

Company Overview

AccuMac Corporation designs and manufactures probe sensor and precision thermometer products for accurate temperature calibrations and measurements. Our products have a wide range of uses and applications including laboratory metrology, industrial process control and quality assurance. Our Standard Platinum Resistance Thermometers (SPRTs) have been top choices for National Metrology Institutes around the world, as well as commercial labs and fortune 500 companies.

With decades of experience in metrology, our team has a passion for making the best products in the world. From the initial designs to the final products, we have full control over each step of the process to ensure the highest quality.

We are fully committed to customer satisfaction by providing the best product performance, competitive pricing and customized designs.

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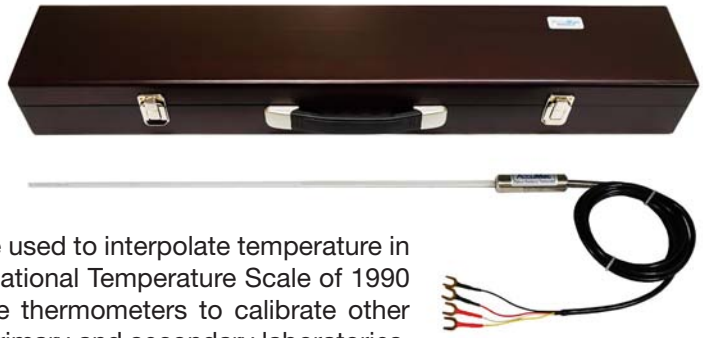
AM1960/1950 Quartz-Sheath SPRTs

HIGHLIGHTS

- Affordable primary standards
- Extremely low drift rate
- Temperature range: -200 °C to 670 °C



OVERVIEW

Standard Platinum Resistance Thermometers (SPRTs) are used to interpolate temperature in the range from -189.3442 °C to 660.323 °C on the International Temperature Scale of 1990 (ITS-90). They are widely used as standard or reference thermometers to calibrate other thermometers and to measure temperature precisely in primary and secondary laboratories. AM1950 and AM1960 SPRTs are the crown jewels of AccuMac temperature probes. It takes decades of our scientific expertise and original craftsmanship to create these world class products. They feature a very low drift rate.

To reach the best performance in stability and repeatability, the sensing element and sensor support are specially designed. To protect the platinum sensing wire from contamination at high temperature, all parts used in the thermometer are extremely cleaned before assembly. The assembly process is well controlled to protect the sensor from contamination. The gas mixture filled in the thermometer makes the sensor wire oxidation effect as low as possible. Every SPRT is fully tested for stability after manufactured. This world class probe meets ITS-90 criteria of standard thermometer fully with a very competitive price.

AM1950 has a temperature range from -200 °C to 500 °C. AM1960 covers range from -200 °C to 670 °C.

SPECIFICATIONS

Temperature Range	1950: -200 °C to 500 °C 1960: -200 °C to 670 °C
Rtpw	Nominal 25 Ω
Resistance Ratio	W(Ga) >= 1.11807 W(Hg) <= 0.844235
Drift at 0.01 °C*	1950 <0.002 °C after 100 hours at 500 °C, <0.004 °C/year typical 1960 <0.003 °C after 100 hours at 661 °C, <0.005 °C/year typical
Repeatability	±0.001 °C
Thermal Shock	±0.001 °C after 10 times thermal cycles from minimum to maximum temperatures
Self-heating	0.0015 °C at 1 mA current
Measurement Current	1 mA
Sensor Length	42 mm
Insulation Resistance	>1000 MΩ at room temperature
Sheath Material	Quartz
Dimension	1950: 7 mm (OD) X 480 mm (L) 1960: 7 mm (OD) X 500 mm (L)
External Leads	Insulated copper wire, 4 leads, 2.5 meters
Termination	Gold-plated Spade
Handle Dimension	21 mm (OD) X 80 mm (L)
Optional Calibration	NVLAP/ISO17025 accredited calibration and data available per request

*Long-term drift rate is for reference only. It could be affected by such factors as handling, application, and maintenance etc.

ACCESSORIES

Model	Description
9002	Wooden Carrying Case included

AM1880 'Bird-Cage' Metal-Sheath SPRT

HIGHLIGHTS

- Bird-Cage design: Improved Resistance to Mechanical Shock
- Platinum Capsule: High Temperature Contamination Protection
- Metal Sheath: For Harsh Environments
- Temperature Range: From -200 °C To 670 °C
- 5.56 mm Diameter: Faster Responses

OVERVIEW

AM1880 Standard Platinum Resistance Thermometers (SPRT) interpolates temperature in the range from -200 °C to 670 °C on the International Temperature Scale of 1990 (ITS-90). It is designed as a primary or secondary standard thermometer to calibrate other thermometers and to measure temperature precisely in primary and secondary laboratories.

The sensing element and sensor support utilizes a "Bird-Cage" design and they are protected inside a platinum capsule. Compared to the traditional coil wound method, the "Bird-Cage" resists mechanical shocks much better and allows for high purity platinum wire to be wound strain-free. The platinum capsule protects the sensing element from contaminations at high temperature. The "Bird-Cage" structure combined with 5.56 mm Inconel sheath makes this SPRT responds to temperature changes much faster. All parts used in the SPRT are thoroughly cleaned before assembly and the assembly process is well controlled to protect the sensor from contaminations. The gas mixture filled in the thermometer makes the sensor wire oxidation effect as low as possible.

Every AM1880 SPRT is fully tested for stability after manufactured. This world class probe meets ITS-90 criteria of standard thermometer fully.

SPECIFICATIONS

Temperature Range	1950: -200 °C to 500 °C 1960: -200 °C to 670 °C
Rtpw	Nominal 25 Ω
Resistance Ratio	W(Ga)>=1.11807 W(Hg)<=0.844235
Drift at 0.01 °C*	<0.006 °C/year, <0.003 °C/year typical
Repeatability	< 0.001 °C
Thermal Shock	< 0.001 °C after 10 times thermal cycles from minimum to maximum temperatures
Self-heating	< 0.0015 °C at 1 mA current
Measurement Current	1 mA
Sensor Length	42 mm
Insulation Resistance	>1000 MΩ at room temperature
Sheath Material	Inconel™
Dimension	5.56 mm (OD) X 500 mm (L)
External Leads	Insulated copper wire, 4 leads, 2.5 meters
Termination	Gold-plated Spade
Handle Dimension	21 mm (OD) X 80 mm (L)
Optional Calibration	NVLAP/ISO17025 accredited calibration and data available per request

*Long-term drift rate is for reference only. It could be affected by such factors as handling, application, and maintenance etc.

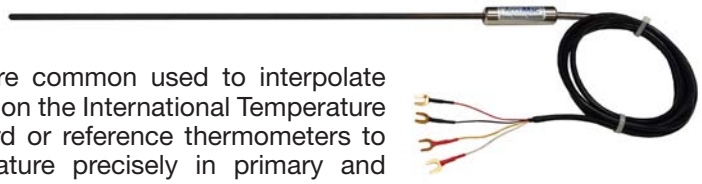
ACCESSORIES

Model	Description
9002	Wooden Carrying Case included

AM1860/1850 Metal-Sheath SPRTs

HIGHLIGHTS

- Metal sheathed
- Great working standards
- Temperature range: -200 °C to 670 °C



OVERVIEW

Standard Platinum Resistance Thermometers (SPRTs) are common used to interpolate temperature in the range from -189.3442 °C to 660.323 °C on the International Temperature Scale of 1990 (ITS-90). They are widely used as standard or reference thermometers to calibrate other thermometers and to measure temperature precisely in primary and secondary laboratories. It takes decades of our scientific expertise and original craftsmanship to create these world class SPRTs. They feature a very low drift rate.

To improve the durability of the SPRT, Inconel 600 replaces quartz glass as sheath material of the thermometer. A special capsule is adopted to protect the platinum sensor wire from contamination introduced by metal sheath at high temperature. All parts used in the thermometer are completely cleaned and treated at high temperature before assembly. The gas mixture filled in the thermometer is well controlled to reduce oxidation effect as low as possible. Every SPRT is fully tested for stability after manufactured. This world class probe meets ITS-90 criteria of standard thermometer fully with a very competitive pricing.

AM1850 has a temperature range from -200 °C to 500 °C. AM1860 covers range from -200 °C to 670 °C. They are widely used as reference thermometer at drywell block calibrator and temperature bath.

SPECIFICATIONS

Temperature Range	1850: -200 °C to 500 °C 1860: -200 °C to 670 °C
Rtpw	Nominal 25 Ω or nominal 100 Ω
Resistance Ratio	W(Ga) >= 1.11807 W(Hg) <= 0.844235
Drift at 0.01 °C*	1850 <0.002 °C after 100 hours at 500°C, <0.008 °C/year typical 1860 <0.003 °C after 100 hours at 661°C, <0.01 °C/year typical
Repeatability	±0.0015 °C
Thermal Shock	±0.0015 °C after 10 times thermal cycles from minimum to maximum temperatures
Self-heating	0.0015 °C at 1 mA current
Measurement Current	1 mA
Sensor Length	42 mm
Insulation Resistance	>1000 MΩ at room temperature
Sheath Material	Inconel™
Dimension	1850: 6.35 mm (OD) X 480 mm (L) 1860: 6.35 mm (OD) X 500 mm (L)
External Leads	Insulated copper wire, 4 leads, 2.5 meters
Termination	Gold-plated Spade
Handle Dimension	21 mm (OD) X 80 mm (L)
Optional Calibration	NVLAP/ISO17025 accredited calibration and data available per request

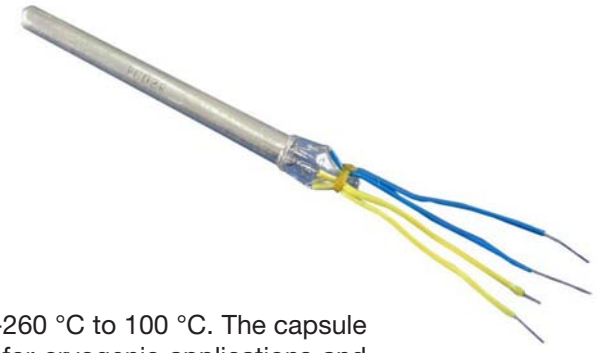
*Long-term drift rate is for reference only. It could be affected by such factors as handling, application, and maintenance etc.

ACCESSORIES

Model	Description
9002	Wooden Carrying Case included

AM1968 Platinum Capsule SPRT

HIGHLIGHTS



- Rtpw Drift < 1 mK after thermal cycle
- Temperature range: -260 °C (13K) to 100 °C (373K)
- Short term stability: <0.001 °C at 0.01 °C
- Nominal Rtpw: 25 ohm at 0 °C

OVERVIEW

AM1968 Platinum Capsule SPRT covers temperatures from -260 °C to 100 °C. The capsule construction makes this SPRT a preferred primary standard for cryogenic applications and other applications where space is limited or stem conduction is a concern for a long stem SPRT.

The sensing element is made of pure platinum wires with a temperature coefficient of 0.003925 Ω/Ω/°C. The coiled platinum wires are mounted in a way that is strain free and enclosed in a platinum capsule, which is sealed by glass. The special sealing glass has a thermal expansion coefficient that matches with that of the platinum wire to ensure the capsule SPRT is sealed permanently in the entire temperature range. A uniquely designed support structure provides excellent performances of stability, mechanical shock, and thermal cycle performance. The SPRT achieves a high level of stability and repeatability in performance and fully meets ITS-90 criteria for reference thermometers.

SPECIFICATIONS	
Temperature Range	-260 °C to 100 °C
Resistance at 0.01 °C	Nominal 25 Ω
Temperature Coefficient	0.003925 Ω/ Ω/°C
Drift at 0.01 °C*	<0.003 °C after 1 year typical
Short Term Stability	±0.001 °C at 0.01 °C
Thermal Shock	±0.001 °C after thermal cycle from minimum to maximum temperatures
Self-heating	0.0015 °C at 1 mA current
Resistance Ratios	W(Ga) ≥ 1.11807 W(Hg) ≤ 0.844235
Measurement Current	1 mA
Sensor Length	42 mm
Filling Gas	Helium
Sheath Material	Platinum
Dimension	Sheath diameter 5 mm, glass head diameter 7 mm, length 60 mm
External Leads	4 platinum wires, 30 mm

*Long-term drift rate is for reference only. It could be affected by such factors as handling, application, and maintenance etc.

ACCESSORIES	
Model	**Description**
9007	Carrying Case included

AM1762/1760 Secondary SPRTs

HIGHLIGHTS

- Rtpw Drift: < 4 mK after 100 hours at 661 °C
- Accuracy: ±0.006 °C at 0.01 °C
- Temperature range: -200 °C to 670 °C
- Customized dimensions available

OVERVIEW

AM1760 series Secondary SPRTs provide our customers reliable secondary standards that can be used daily in their labs. This SPRT features accuracy of ±0.006 °C at 0.01 °C, short term stability of ±0.002 °C and very low drift rate of less than 0.004 °C after 100 hours at 661 °C. Two different lengths of SPRTs are available at 12-inch and 20-inch.

The sensing element is designed to protect the platinum sensing wire from contamination at high temperatures, giving the device a high level of stability and repeatability in performance. A uniquely designed support structure and filling material provides excellent balance between the hysteresis effect, mechanical shock and thermal shock performance. This high performance probe fully meets ITS-90 criteria for reference thermometers.

SPECIFICATIONS

Temperature Range	-200 °C to 670 °C
Resistance at 0 °C	1760 – Nominal 100 Ω 1762 – Nominal 25 Ω
Temperature Coefficient	0.003925 Ω/ Ω/°C
Accuracy	±0.007 °C at -196 °C ±0.006 °C at 0.01 °C ±0.015 °C at 420 °C ±0.025 °C at 660 °C
Long Term Drift*	±0.004 °C at TPW after 100 hours at 661 °C
Short Term Stability	±0.002 °C
Thermal Shock	±0.002 °C after 10 times thermal cycles from minimum to maximum temperatures
Self-heating	0.0015 °C at 1 mA current
Response Time	9 seconds for 63% response to step change in water moving at 3 feet per second
Measurement Current	0.5 mA or 1 mA
Sensor Length	42 mm
Sensor Location	5 mm from tip
Insulation Resistance	>1000 MΩ at room temperature
Sheath Material	Inconel™
Dimension	1760/1762-12: 0.25 inch X 12 inch (6.35 mm X 305 mm) 1760/1762-20: 0.25 inch X 20 inch (6.35 mm X 500 mm)
External Leads	Teflon™ – insulated copper wire, 4 leads, 2.5 meters
Handle Dimension	15 mm (OD) X 65 mm (L)
Handle Temperature Range**	-50 °C to 180 °C
Optional Calibration	NIST traceable calibration and data available per request: Ordering # 5007

*Long-term drift rate is for reference only. It could be affected by such facts as handling, application, and maintenance, etc.

**Handle temperature outside this range will cause damage to the probe.

ACCESSORIES

Model	Description
9001	Wooden Carrying Case for 1760/1762-12 included
9002	Wooden Carrying Case for 1760/1762-20 included

AM1758 Gradient PRT

HIGHLIGHTS

- Vertical Gradient Measurement of Dry Blocks/Dry Wells
- 6 mm Sensing Element
- Short Term Stability ±0.003 °C at 0.01 °C
- Temperature Range: -200 °C to 670 °C

OVERVIEW

AM1758 is specifically designed to measure vertical gradients of dry blocks or dry wells. The length of the sensing element is only 6 mm, which allows AM1758 to measure the detailed temperature changes inside the dry wells with pin point precision.

The short sensing element has adopted many of AccuMac's PRT technologies to offer a high level of stability across the temperature range from -200 °C to 670 °C. A uniquely designed support structure and filling material provides excellent balance between the hysteresis effect, mechanical shock and thermal shock performance.

It has long been a challenge for temperature calibration labs across the world to measure gradient of a dry block. With a 6 mm sensing element AM1758 meets the challenge and requirement such as one from The Euramet Calibration Guide CG-13 Version 3.0 "CALIBRATION OF TEMPERATURE BLOCK CALIBRATORS".

SPECIFICATIONS

Temperature Range	From -200°C to 670°C
Resistance at 0 °C	Nominal 25 Ω
Temperature Coefficient	0.003925 Ω/ Ω/°C
Short Term Stability (1)	±0.003°C at -196 °C; ±0.003°C at 0.01 °C ±0.004°C at 232 °C; ±0.005°C at 420 °C; ±0.006°C at 660 °C
Hysteresis	<=0.005°C
Self-heating	0.0015 °C at 1 mA current
Response Time	9 seconds for 63% response to step change in water moving at 3 feet per second
Measurement Current	1 mA
Sensor Length	6 mm
Sensor Location	3 mm from tip
Insulation Resistance	>1000 MΩ at room temperature
Sheath Material	Inconel™
Dimension	AM1758-12: 0.25 inch X 12 inch (6.35 mm X 305 mm) AM1758-20: 0.25 inch X 20 inch (6.35 mm X 500 mm)
External Leads	Teflon™ –insulated copper wire, 4 leads, 2.5 meters
Handle Dimension	15mm (OD) X 65 mm (L)
Handle Temperature Range (2)	-50°C to 180°C
Calibration Options	Optional: NIST Traceable Calibration and Data Ordering Model for Calibrations: 5007

(1) Maximum variation from PRT during gradient measurements up to 4 hours in the same heat source

(2) Handle temperature outside this range will cause damage to the probe.

ACCESSORIES

Model	Description
9001/9002	Wooden Carrying Case included

AM1751/1730/1710 Secondary PRTs

HIGHLIGHTS

- Affordable reference probe
- Accuracy ±0.015 °C at 0.01 °C
- Customized dimensions available
- Bend option available

OVERVIEW

AM1751/1730/1710 Secondary Reference PRTs provides our customers affordable reference probes for precision temperature measurements and calibrations. These PRTs features accuracy of ±0.015 °C at 0.01 °C and short-term stability of ±0.007 °C. Customers can choose one model to best suit their applications based on different temperature range, probe lengths and bend options.

The sensing element is designed to protect the platinum sensing wire from contamination at high temperatures, giving the device a high level of stability and repeatability in performance. A uniquely designed support structure and filling material provides excellent balance between the hysteresis effect, mechanical shock and thermal shock performance. This high performance probe fully meets ITS-90 criteria for reference thermometers.

SPECIFICATIONS

Model	AM1751	AM1730	AM1710
Temperature Range	-200 °C to 670 °C	-200 °C to 420 °C	-60 °C to 160 °C
Resistance at 0 °C	Nominal 100 Ω		
Temperature Coefficient	0.003925 Ω/ Ω/°C		
Accuracy	±0.025 °C at -196 °C ±0.015 °C at 0.01 °C ±0.035 °C at 420 °C ±0.05 °C at 661 °C	±0.025 °C at -196 °C ±0.015 °C at 0.01 °C ±0.035 °C at 420 °C	±0.015 °C at 0.01 °C
Drift	±0.01 °C at TPW after 100 hours maximum temperature		
Short Term Stability	±0.007 °C at 0.01 °C		
Thermal Shock	±0.005 °C after 10 times thermal cycles from minimum to maximum temperatures		
Hysteresis	<=0.005 °C		
Self-heating	50 mW/°C		
Response Time	9 seconds for 63% response to step change in water moving at 3 feet per second		
Measurement Current	0.5 mA or 1 mA		
Sensor Length	32 mm		
Sensor Location	5 mm from tip		
Insulation Resistance	>1000 MΩ at room temperature		
Sheath Material	Inconel™	Inconel™	SST
Dimension	1751-12: 0.25” X 12” (6.35 mm X 305 mm) 1751-20: 0.25” X 20” (6.35 mm X 500 mm)	1730-12: 0.25” X 12” (6.35 mm X 305 mm) 1730-9: 0.187” X 9” (4.75 mm X 229 mm)	1710-12: 0.25” X 12” (6.35 mm X 305 mm)
Bend Option	Available per request		
External Leads	Teflon™ –insulated copper wire, 4 leads, 2.5 meters		
Handle Temperature Range*	-50 °C to 180 °C		
Optional Calibration	NIST traceable calibration and data available per request		

*Handle temperature outside this range will cause damage to the probe.

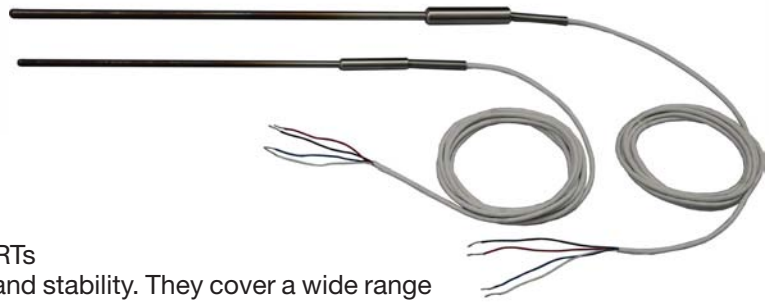
OPTIONAL ACCESSORIES

Model	Description
9001	Wooden Carrying Case for 12”/9” probe
9002	Wooden Carrying Case for 20” probe

AM1660/1640/1620 Precision Industrial PRTs

HIGHLIGHTS

- Accuracy: ±0.035 °C at 0 °C
- Durable and shock resistance
- Customized dimensions available



OVERVIEW

AM1660/1640/1620 series precision Industrial PRTs (IPRTs) are rugged probes with excellent accuracy and stability. They cover a wide range of temperature from -200 °C to 670 °C with amazing accuracy of ±0.035 °C at 0 °C, short term stability of ±0.01 °C and fast respond time of 5 seconds. These IPRTs come with standard length 12 inches and 9 inches but customized dimensions are available per request.

To reach the best performance in stability and repeatability, the wire-wound sensing elements are specially designed to protect the platinum sensing wire from contamination at high temperature. A unique support structure and filling material provide the best balance among the hysteresis effect, mechanical shock and thermal shock performance. All of these probes conform to the standard 385 curve so the resistance ratio of the PRT follow DIN/IEC-751 curve precisely.

SPECIFICATIONS

Model	AM1660	AM1640	AM1620
Temperature Range	-200 °C to 670 °C	-200 °C to 420 °C	-60 °C to 300 °C
Resistance at 0 °C	Nominal 100 Ω		
Temperature Coefficient	0.00385 Ω/ Ω/°C		
Accuracy	±0.04 °C at -196 °C ±0.035 °C at 0 °C ±0.05 °C at 232 °C ±0.09 °C at 420 °C ±0.15 °C at 660 °C	±0.04 °C at -196 °C ±0.035 °C at 0 °C ±0.05 °C at 232 °C ±0.09 °C at 420 °C	±0.04 °C at -60 °C ±0.035 °C at 0 °C ±0.05 °C at 232 °C
Drift	±0.04 °C at 0 °C after 100 hours at maximum temperature		
Short Term Stability	±0.01 °C		
Thermal Shock	±0.007 °C after 10 times thermal cycles from minimum to maximum temperatures		
Hysteresis	<=0.01 °C		
Self-heating	50 mW/°C		
Response Time	5 seconds for 63% response to step change in water moving at 3 feet per second		
Measurement Current	0.5 mA or 1 mA		
Sensor Length	32 mm		
Sensor Location	5 mm from tip		
Insulation Resistance	>1000 MΩ at room temperature		
Sheath Material	Inconel™	Inconel™	SST
Dimension	1660-12: 0.25” X 12” (6.35 mm X 305 mm)	1640-12: 0.25” X 12” (6.35 mm X 305 mm) 1640-9: 0.187” X 9” (4.75 mm X 229 mm)	1620-12: 0.25” X 12” (6.35 mm X 305 mm) 1620-9: 0.187” X 9” (4.75 mm X 229 mm)
External Leads	Teflon™ – insulated copper wire, 4 leads, 2.5 meters		
Handle Temperature Range*	-50 °C to 180 °C		
Optional Calibration	NIST traceable calibration and data available per request.		

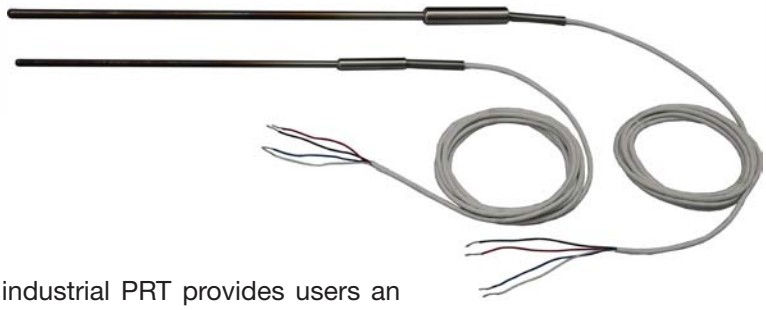
*Handle temperature outside this range will cause damage to the probe.

OPTIONAL ACCESSORIES

Model	Description
9001	Wooden Carrying Case

AM1610 Precision Industrial PRTs

HIGHLIGHTS



- Sensor Length: 30 mm
- Accuracy: ±0.05°C
- Durable and shock resistance
- Customized dimensions available

OVERVIEW

With 30 mm long sensor, AM1610 series precision industrial PRT provides users an excellence temperature probe with extremely low stem conduction (heat loss along sheath) in precision temperature measurement. It is a great tool for measuring and testing the vertical temperature uniformity of heat sources.

AM1610 uses a special aged and tested 30-mm long sensing element to achieve the best performance in stability and repeatability. A unique assembly procedure provides the best balance among the hysteresis effect, mechanical shock and thermal shock performance.

SPECIFICATIONS	
Temperature Range	-60 °C to 160 °C
Resistance at 0 °C	Nominal 100 Ω
Temperature Coefficient	0.00385 Ω/ Ω/°C
Accuracy	±0.05 °C over the full range
Drift	±0.04 °C at 0 °C after 100 hours at 160 °C
Short Term Stability	±0.01 °C
Thermal Shock	±0.01 °C after 10 times thermal cycles from minimum to maximum temperatures
Hysteresis	<=0.01 °C
Self-heating	50 mW/°C
Response Time	5 seconds for 63% response to step change in water moving at 3 feet per second
Measurement Current	0.5 mA or 1 mA
Sensor Length	30 mm
Sensor Location	5 mm from tip
Insulation Resistance	>1000 MΩ at room temperature
Sheath Material	316 Stainless Steel
Dimension	1610-12: 0.25 inch X 12 inch (6.35 mm X 305 mm) 1610-9: 0.187 inch X 9 inch (4.75 mm X 229 mm)
External Leads	Teflon™ – insulated copper wire, 4 leads, 2.5 meters
Handle Dimension	1610-12: 15 mm (OD) X 65 mm (L) 1610-9: 10 mm (OD) X 50 mm (L)
Handle Temperature Range*	-50 °C to 160 °C
Optional Calibration	NIST traceable calibration and data available per request

*Handle temperature outside this range will cause damage to the probe.

OPTIONAL ACCESSORIES	
Model	**Description**
9001	Wooden Carrying Case

AM1612 Full Immersion PRT

HIGHLIGHTS

- Temperature Range: -196 °C to 180 °C
- Accuracy: ±0.05 °C
- Transition junction and lead wires can withstand full PRT temperature range

OVERVIEW

AM1612 full immersion PRT is uniquely designed to provide users an excellence temperature probe that can expose the transition junction and lead wires to an environment that covers the full PRT temperature range. The seal of probe prevents the ingress of moisture so that the probe can work in a humid condition or even under full immersion in common heat transfer fluids such as ethanol, silicone oil and mineral oil. It has a wide application in freezers, temperature/humidity chambers and sterilizers.

AM1612 is small in size with probe length of 50 mm and diameter of 3 mm. A unique assembly procedure provides the best balance among the hysteresis effect, mechanical shock and thermal shock performance.

SPECIFICATIONS	
Temperature Range	-196 °C to 180 °C
Resistance at 0 °C	Nominal 100 Ω
Temperature Coefficient	0.00385 Ω/ Ω/°C
Accuracy	±0.05 °C at 0 °C
Drift	±0.04 °C at 0 °C after 100 hours at 160 °C
Short Term Stability	±0.02 °C
Thermal Shock	±0.02 °C after 10 times thermal cycles from minimum to maximum temperatures
Hysteresis	<=0.01 °C
Self-heating	75 mW/°C
Response Time	4 seconds for 63% response to step change in water moving at 3 feet per second
Measurement Current	1 mA
Sensor Length	30 mm
Insulation Resistance	>1000 MΩ at room temperature
Sheath Material	Stainless Steel (SST) 316L
Dimension	0.125 inch X 2 inch (3 mm X 50 mm)
External Leads	Enameled copper wire protected by high temperature heat shrink tubing, 4 leads, 2.5 meters
Optional Calibration	NIST traceable calibration and data available per request

OPTIONAL ACCESSORIES	
Model	**Description**
9001	Wooden Carrying Case

AM1643 Full Immersion PRT

HIGHLIGHTS

- Transition junction and lead wire can withstand high temperature up to 420°C
- Short term stability: 0.02 °C
- Temperature range: 0 °C to 420 °C

OVERVIEW

AM1643 full immersion PRT features a unique design that allows for the users to apply the probe together with its lead wire in a high temperature environment such as ovens or furnaces. It covers a wide range of temperature from 0 °C to 420 °C with amazing accuracy of ±0.04 °C at 0 °C, short term stability of ±0.02 °C and fast respond time of 5 seconds.

To reach the best performance in stability and repeatability, the wire-wound sensing elements are specially designed to protect the platinum sensing wire from contamination at high temperature. A unique support structure and filling material provide the best balance among the hysteresis effect, mechanical shocks and thermal shock performance. This probe conforms to the DIN/IEC-751 curve precisely.

SPECIFICATIONS	
Temperature Range	0 °C to 420 °C
Resistance at 0 °C	Nominal 100 Ω
Temperature Coefficient	0.00385 Ω/ Ω/°C
Accuracy*	±0.04 °C at 0 °C ±0.05 °C at 200 °C ±0.07 °C at 420 °C
Drift	±0.04 °C at 0 °C after 100 hours at 420 °C
Short Term Stability	±0.02 °C
Thermal Shock	±0.02 °C after 10 times thermal cycles from minimum to maximum temperatures
Hysteresis	<=0.01 °C
Self-heating	50 mW/°C
Response Time	5 seconds for 63% response to step change in water moving at 3 feet per second
Measurement Current	1 mA
Minimum immersion depth	50 mm
Maximum immersion depth	Dry medium: full immersion Liquid medium: use protective tube if immersion depth reaches transition junction
Sensor Length	30 mm
Insulation Resistance	>500 MΩ at room temperature
Sheath Material	Inconel™
Dimension	0.125 inch X 2 inch (3 mm X 50 mm)
External Leads	Four fiberglass insulation Ni-plated copper wires, 2.5 meters (longer lead wires are available per request)
Handle Dimension	7 mm (OD) X 30 mm (L)
Optional Calibration	NIST traceable calibration and data available per request: Ordering # 5012

*With optional calibration.

OPTIONAL ACCESSORIES	
Model	**Description**
9001	Wooden Carrying Case

AM8060 Dual-Channel Precision Thermometer

HIGHLIGHTS

- Accuracy up to ±0.008°C
- Resolution 0.001°C
- Dual channels
- Data storage into USB flash drive as easy as plug-n-record

OVERVIEW

AM8060 Precision Thermometer provides high accuracy, fast readings and great stability. It has two channels that can measure two Platinum Resistance Thermometers (PRTs) at the same time. Users can choose to display temperature in °C, °F or resistance values of the two inputs as well as the differences between them. Readings can be stored in a USB flash disk or transferred to PC through an USB cable.

AM8060 Precision Thermometer allows users to choose ITS-90, IEC-751 (DIN), or Callendar-Van Dusen conversion methods to response to various PRTs. Users can also choose to key in calibration data of each PRT to ensure the best accuracy.

This dual-channel readout is a great choice for precision temperature measurement and calibration for both lab and field. It offers outstanding performance at a very affordable price.

SPECIFICATIONS

Temperature Range	-200°C to 850°C
Accuracy (meter only)	±0.01°C @ -200°C ±0.008°C @ 0°C ±0.009°C @ 232°C ±0.01°C @ 420°C ±0.015°C @ 660°C
Resolution	0.001°C (0.0001 Ω) over full range
Probe	Nominal Rtpw: 25 Ω or 100 Ω RTD, PRT or SPRT
Characterizations	ITS-90 coefficients, Callender Van Dusen coefficients, IEC-751 (DIN 385)
Sample Interval	1 second
Display	2.7 inch OLED
Display Units	°C, °F, Ω
Excitation Current	1 mA, reversing
Operation Range	15 °C to 35 °C
Thermometer Input Connectors	Spade plug, banana plug or bare wire
Power Requirements	100-240V
Dimension	180 mm (W) X 65 mm (H) X 200 mm (D)
Weight	0.3 kg (0.7 lbs)

OPTIONAL ACCESSORIES

Model	Description
1610/1620/1640/1660	Precision Industrial PRTs
1751/1730/1710	Secondary Reference PRTs
1760/1762	Secondary SPRT, -200°C to 670°C
1850	Metal-sheath SPRT, -200°C to 500°C
1860	Metal-sheath SPRT, -200°C to 670°C
1880	Metal-sheath SPRT with Bird-Cage sensor, -200°C to 670°C
1950	Quartz-sheath SPRT, -200°C to 500 °C
1960	Quartz-sheath SPRT, -200°C to 670 °C

ORDERING INFORMATION

Model	Description
8060	Dual-channel Precision Thermometer
9003	Carrying case included

AM8040 Precision Thermometer

HIGHLIGHTS

- Accuracy up to ±0.008°C
- Resolution 0.001°C
- Data storage into USB flash drive as easy as plug-n-record

OVERVIEW

AM8040 is a single channel bench top Precision Thermometer. It features high accuracy, fast readings and great stability. It operates with a wide range of Platinum Resistance Thermometers (PRTs). Users can choose to display temperature in °C, °F or resistance values. All of the readings can be stored in a USB flash drive or transferred to PC through an USB cable.

AM8040 Precision Thermometer allows users to choose ITS-90, IEC-751 (DIN), or Callendar-Van Dusen conversion methods to response to various PRTs. Users can also choose to key in PRT coefficients to ensure the best accuracy.

AM8040 provides a simple solution as a PRT readout to achieve high accuracy at a very affordable price for calibration labs.

SPECIFICATIONS

Temperature Range	-200°C to 850°C
Accuracy (meter only)	±0.01°C @ -200°C ±0.008°C @ 0°C ±0.009°C @ 232°C ±0.01°C @ 420°C ±0.015°C @ 660°C
Resolution	0.001°C (0.0001 Ω) over full range
Probe	Nominal Rtpw: 25 Ω or 100 Ω RTD, PRT or SPRT
Characterizations	ITS-90 coefficients, Callender Van Dusen coefficients, IEC-751 (DIN 385)
Sample Interval	1 second
Display	2.7 inch OLED
Display Units	°C, °F, Ω
Excitation Current	1 mA, reversing
Operation Range	15 °C to 35 °C
Thermometer Input Connectors	Spade plug, banana plug or bare wire
Power Requirements	100-240V
Dimension	180 mm (W) X 65 mm (H) X 200 mm (D)
Weight	0.3 kg (0.7 lbs)

ORDERING INFORMATION

Model	Description
8040	Single Channel Precision Thermometer
9003	Carrying case included

OPTIONAL ACCESSORIES

Model	Description
1610/1620/1640/1660	Precision Industrial PRTs
1751/1730/1710	Secondary Reference PRTs
1760/1762	Secondary SPRT, -200°C to 670°C
1850	Metal-sheath SPRT, -200°C to 500°C
1860	Metal-sheath SPRT, -200°C to 670°C
1880	Metal-sheath SPRT with Bird-Cage sensor, -200°C to 670°C
1950	Quartz-sheath SPRT, -200°C to 500 °C
1960	Quartz-sheath SPRT, -200°C to 670 °C

AM8010 Handheld Precision Thermometer

HIGHLIGHTS

- Accuracy up to ±0.03°C
- Resolution 0.01°C
- Dual power supply
- USB interface for real time data saving and displaying on PC

OVERVIEW

AM8010 is a handheld precision thermometer with high accuracy, fast readings and great stability. This readout is perfect for field applications as well as lab measurements. Though small in size, AM8010 provides excellent accuracy that is as high as 0.03 °C at 0 °C. A USB interface allows user to log and display real time data on a PC.

AM8010 precision thermometer allows users to choose ITS-90, IEC-751 (DIN), or Callendar-Van Dusen conversion methods to response various PRTs. Probe's coefficients can be keyed in through front panel to ensure the best accuracy achievable.

This portable readout is a powerful device with a small price.

SPECIFICATIONS

Temperature Range	-200°C to 850°C
Accuracy (meter only)	±0.04°C @ -200°C ±0.03°C @ 0°C ±0.04°C @ 232°C ±0.05°C @ 420°C ±0.06°C @ 660°C
Resolution	0.01°C (0.001 Ω) over full range
Stability	±0.01°C per year
Probe	100 Ω RTD, PRT or SPRT
Characterizations	ITS-90 coefficients, Callender Van Dusen coefficients, IEC-751 (DIN 385)
Sample Interval	1 second
Display	2.7 inch LCD
Display Units	°C, °F, Ω
Excitation Current	1 mA, reversing
Operation Range	15 °C to 35 °C
Thermometer Input Connectors	5-pin plug
Power Requirements	100-240 V
Battery Life	Approx. 90 hours
Dimension	141mm (L) X 25 mm (H) X 89 mm (W)
Weight	0.2 kg (0.5 lbs)

ORDERING INFORMATION

Model	Description
AM8010	Handheld Precision Thermometer
9004	Carrying case included

OPTIONAL ACCESSORIES

Model	Description
1610-12/9	Precision Industrial PRT, -60°C to 160°C
1620-12/9	Precision industrial PRT, -60°C to 300°C
1640-12	Precision industrial PRT, -200°C to 420°C
1660-12	Precision industrial PRT, -200°C to 670°C
1710-12	Secondary Reference PRT, -60°C to 160°C
1730-12/9	Secondary Reference PRT, -200°C to 420°C
1751-12/20	Secondary Reference PRT, -200°C to 670°C

AM1210 Reference Standard Type S Thermocouple

HIGHLIGHTS

- Affordable reference standard
- Type S
- Short term stability: ±0.2 °C at 1084.62 °C
- Temperature range: 0 °C to 1300 °C

OVERVIEW

AM1210 Reference Standard Type S Thermocouple is made from reference grade platinum and platinum-rhodium alloy. It covers a temperature range of 0 °C to 1300 °C with short term stability of 0.2 °C all the way to Freezing Point of Copper (1084.62 °C). It is commonly used as reference standard to calibrate industrial thermocouples. All thermocouple wires and parts are specially cleaned and annealed before assembly. Every AM1210 thermocouple is fully annealed and tested again to meet the Tolerance criteria as specified in the table below.

SPECIFICATIONS	
Temperature Range	0 °C to 1300 °C
Type	Type S: Platinum/10 % Rhodium vs. platinum
Long Term Drift	±0.6 °C at 1084.62 °C after 1 year typical usage
Tolerance (mV)	$E(t_{Cu})$=10.575±0.015 $E(t_{Al})$=5.860+0.37(E(tCu)-10.575)±0.005 $E(t_{Zn})$=3.447+0.18(E(tCu)-10.575) ±0.005
Short Term Stability	±0.2 °C at 1084.62 °C
Diameter of TC wire	0.5 mm
Total length of TC wire	1200 mm
Sheath Material	Alumina
Sheath Dimensions	OD: 6 mm; Length: 500 mm
External Lead Wire	S type thermocouple wire, 700 mm
Protective Carrying Case	Included

AM1880 “Bird-Cage” SPRT

THE BEST METAL-SHEATH SPRT!

“Finally A Rosemount 162CE Replacement!”

AM1880 SPRT FEATURES:

- Bird-Cage Design - Improved Resistance to Mechanical Shock
- Platinum Capsule - High Temperature Contamination Protection
- Metal Sheath - For Harsh Environments
- Temperature Range: From -200 ºC To 670 ºC
- 5.56 mm Diameter - Faster Responses

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