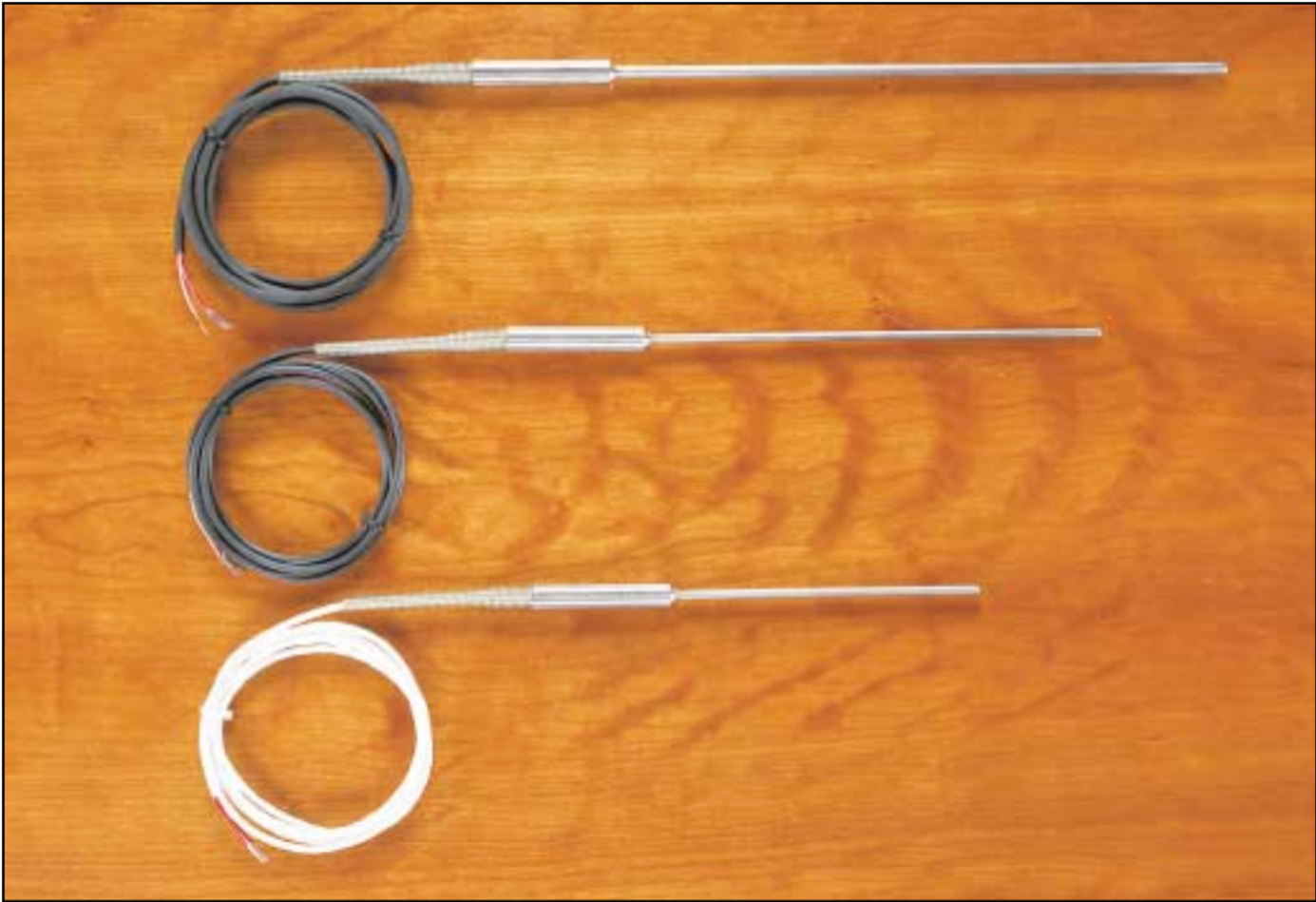


SECONDARY REFERENCE TEMPERATURE STANDARDS

Probes



Secondary Reference Standards	Models 5612, 5613, and 5614
Affordable wide-range accuracy	
Excellent stability	
Reference-grade platinum sensing element	

Need a durable but accurate sensor for use in the factory, field, or lab? The Model 5614 Secondary Temperature Standard is the answer.

The 5614 is a Platinum Resistance Thermometer (PRT) that's 12 inches long with an Inconel 600 sheath and a 1/4" outside diameter. It is designed to be used as a transfer device from the highest laboratory standards to industrial or second-tier lab locations. It has short-term accuracy of $\pm 0.02^\circ\text{C}$ at 200°C .

The element is constructed of reference-grade platinum wire (99.999% pure) for excellent stability. The wire is

wound in a coil and placed in a mandrel where it is uniformly supported in a manner to virtually eliminate hysteresis. The electrical configuration is a four-wire current-potential hookup to eliminate effects of lead-wire resistance.

These Inconel-sheathed probes have a partially supported sensing element, making them more durable than SPRTs. The element is protected in an ultrahigh-purity ceramic case with a hermetic glass seal to improve output stability by locking out moisture and contaminants.

This probe comes calibrated in accordance with ITS-90, which makes it com-

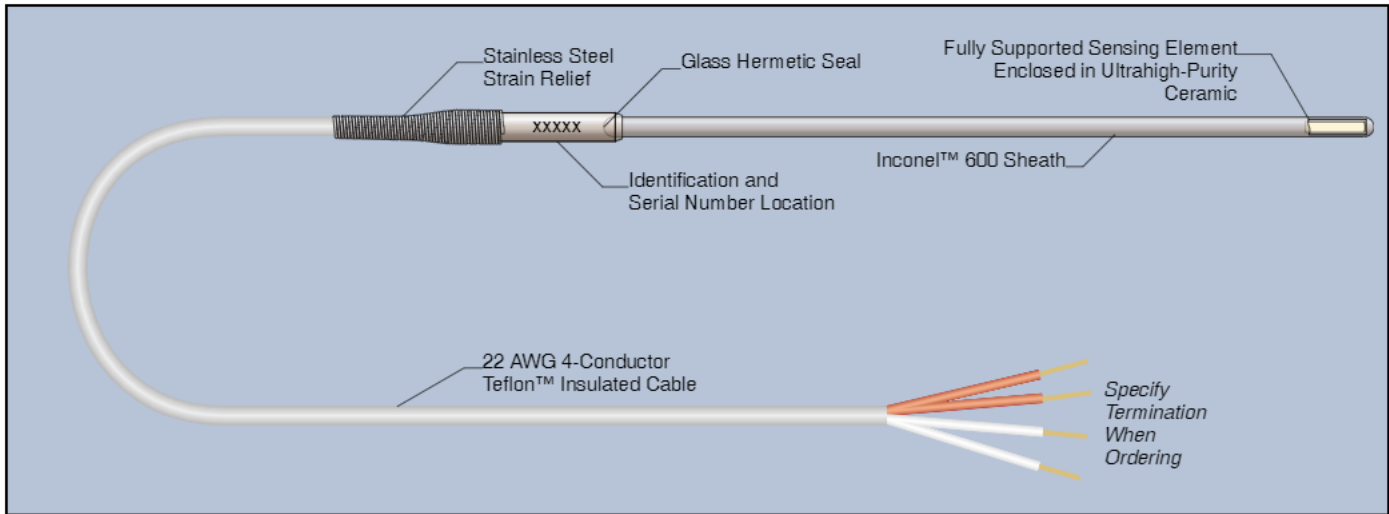
patible with many excellent readout devices, including Hart's 1575 and 1590 Super-Thermometers, 1560 *Black Stack*, and 1502 Tweener. It bridges the gap between a 100-ohm industrial RTD and an SPRT.

For those needing faster thermal response, or where diameter and immersion depth are problems, order the 6-inch 5613 or the 9-inch 5612. These probes are excellent reference probes for comparison calibrations in a Hart dry-well.

A printout of sensor resistance is provided in 1°C increments for each probe. The 5614 and 5612 are calibrated from -196°C to 420°C . The 5613 is calibrated to 300°C .

We've tested many of the probes on the market. We've used them in our manufacturing facility and tested them in the lab, and this is an excellent secondary standards PRT. Other instruments on the

Models 5612, 5613, and 5614



Terminations are available as spade lugs, DIN connectors, banana plugs, INFO-CON, or bare wire.

market are priced much higher, have lower stability, or have lower quality.

Remember, these instruments are inexpensive and have excellent durability. Each probe is individually calibrated and includes a report of calibration from the manufacturer. Contact Hart for calibration in Hart's NVLAP accredited lab.

Ordering Information

5612-X Secondary Standard PRT, 3/16" x 9", -200 to 420°C

5613-X Secondary Standard PRT, 3/16" x 6", -200 to 300°C

5614-X Secondary Standard PRT, 1/4" x 12", -200 to 420°C

























2601 Probe Carrying Case

X = termination. Specify "B" (bare wire), "S" (spade lugs), "D" (5-pin DIN for Tweener Thermometer), or "I" (INFO-CON for 1521 or 1522 Handheld Thermometer).

Specifications

Resistance	Nominal 100Ω (±0.1Ω)
Temperature Coefficient	0.003925 ohms/ohm/°C nominal
Temperature Range	-200°C to 420°C (transition and cable temperature 150°C maximum)
Transition Temperature	5°C to 200°C
Drift Rate	±0.01°C at 0°C per year maximum, when used periodically to 400°C
Sheath Material	Inconel™ 600
Leads	Teflon™-insulated, silver-plated stranded copper, 22 AWG
Termination	Four gold-plated spade lugs are standard. Other options available. See Ordering Information.
Hysteresis	< 0.01°C at 0°C using -196°C and 420°C as the end points
Immersion Effects	Reading will not vary more than 0.005°C when the probe immersion is varied between 4 inches and 10 inches in an ice bath (5614).
Calibration	Includes NIST-traceable calibration and table with R vs. T values in 1°C increments from -183°C to 500°C. The 5614 and 5612 are calibrated to 420°C and the 5613 to 300°C. ITS-90 coefficients included.
Probe Accuracy (includes calibration uncertainty and short-term stability)	±0.018°C at -196°C ±0.018°C at 0°C ±0.019°C at 200°C ±0.023°C at 420°C
Time Constant	Nine seconds typical for 63.2% response to step change in temperature in water flowing at 3 feet per second
Size:	5612 0.187" dia. x 9" 5613 0.187" dia. x 6" 5614 0.25" dia. x 12"
High Flexibility Cable Option	Standard 5612, 5613, and 5614 PRTs come with a 6-foot white Teflon cable that withstands temperatures from -100°C to 250°C. For super-flexible black PVC cable that can be exposed to temperatures from 0°C to 90°C, add "B" to the model number. (A 5614 PRT with spade lug terminations and PVC cable would be ordered as "5614-S-B.") No additional charge is added for PVC cable.

THERMOMETER PROBE SUMMARY

Reference Probes	Model	Range	Size	Accuracy*	Price	Page
PRTs						
	Secondary Reference RTDs					
	5612-X	-200°C to 420°C	9" x 0.187"	±0.018°C at 0°C		66
	5613-X	-200°C to 300°C	6" x 0.187"	±0.018°C at 0°C		
	5614-X	-200°C to 420°C	12" x 0.25"	±0.018°C at 0°C		
	Precision Industrial RTDs					
	5627-6-X	-200°C to 300°C	6" x 0.187"	±0.05°C at 0°C		68
	5627-9-X	-200°C to 420°C	9" x 0.187"	±0.05°C at 0°C		
	5627-12-X	-200°C to 420°C	12" x 0.25"	±0.05°C at 0°C		
	Secondary Standards PRTs					
	5626-X	-200°C to 660°C	12" or 15" x 0.25"	±0.004°C at 0°C		69
	5628-X	-200°C to 660°C	12" or 15" x 0.25"	±0.003°C at 0°C		
	Fast Response RTDs					
	5622-05-X	-200°C to 350°C	100 x 0.5 mm	±0.04°C at 0°C		70
	5622-10-X	-200°C to 350°C	100 x 1.0 mm	±0.04°C at 0°C		
	5622-16-X	-200°C to 350°C	200 x 1.6 mm	±0.04°C at 0°C		
	5622-32-X	-200°C to 350°C	200 x 3.2 mm	±0.04°C at 0°C		
	Smart Probes					
	5690	-200°C to 420°C	18" x 0.25"	±0.01°C		71
	5691	-200°C to 420°C	18" x 0.25"	±0.025°C		
Thermistors						
	Series 400 Thermistors	0°C to 75°C	Four probe types	±0.05°C		71
	Thermistor Standards					
	5640-X	0°C to 60°C	9" x 0.25"	±0.0015°C		72
	5641-X	0°C to 60°C	4.5" x 0.125"	±0.001°C		
	5642-X	0°C to 60°C	9" x 0.125"	±0.001°C		
	5643-X	0°C to 100°C	4.5" x 0.125"	±0.0025°C		
	5644-X	0°C to 100°C	9" x 0.125"	±0.0025°C		
	Secondary Thermistor Probes					
	5665-X	0°C to 100°C	3" x 0.110"	±0.02°C		74
	5666-X	0°C to 100°C	6" or 9" x 0.125"	±0.02°C		
	5610-X	0°C to 100°C	6" or 9" x 0.125"	±0.02°C		
	5611-X	0°C to 100°C	.110" or .070" dia.	±0.02°C		
Thermocouples						
	Type S Thermocouple Standards					
	5650-20	0°C to 1450°C	20" x 0.25"	±0.7°C at 1100°C		76
	5650-20C	0°C to 1450°C	20" x 0.25"	±0.7°C at 1100°C		
	5650-25	0°C to 1450°C	25" x 0.25"	±0.7°C at 1100°C		
	5650-25C	0°C to 1450°C	25" x 0.25"	±0.7°C at 1100°C		
Other						
	Glass Thermometers	-38°C to 405°C -36°F to 761°F	15" length	0.1°C Divisions 0.2°F Divisions		77

*Accuracy does not include long-term drift.