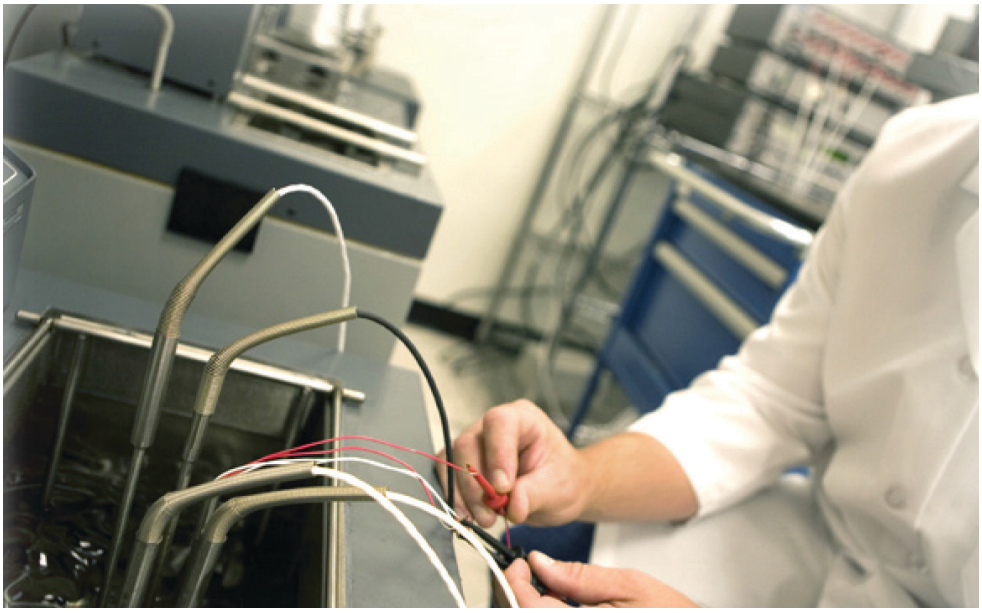
Temperature Calibration Service

Specifications

The Burns Engineering NVLAP accredited metrology laboratory (lab code 200706-0) performs NIST traceable calibrations that conform to ISO/IEC 17025 and ANSI/NCSL Z540-1 Part 1 requirements. Our highly trained calibration specialists utilize precision calibration baths and measurement electronics to ensure the highest standards are met on every calibration. Our laboratory personnel are dedicated to excellence in all phases of professional practice and are committed to continual self-analysis and ongoing improvement.

Features and Benefits

- Our NVLAP accreditation ensures consistent and repeatable measurement practices
- NIST traceability ensures alignment with national standards
- Five-point and three-point calibrations between temperatures of -196°C and 500°C
- Secondary standard PRT and industrial PRT calibrations are performed by comparison to a SPRT
- “As Found” and “As left” test data reported for all instrument calibrations
- Lab-to-Lab scheduled calibration service - *Our Promise! 5 Business Days*
- Resistance vs. Temperature reports with coefficients for ITS-90 and Callender-Van Dusen equations
- Calibration records are kept for each instrument and certificates are available online



See pages 11 and 12 for ordering information. For our fastest service call our Customer Service Department at 800-328-3871 or visit our website at www.burnsengineering.com, Keyword “calibration” to schedule your calibration.

Temperature Calibration Service

Definitions

NIST traceable

This is the minimum temperature calibration lab capability. The statement “NIST Traceable” indicates there is an unbroken chain of comparisons to stated standards, from the lab instrumentation to NIST. Calibration performance reported this way is only required to include the uncertainty of the calibration equipment and process. It does not require the inclusion of the uncertainty (short term behavior) attributed to the sensor being calibrated.

ISO 17025

This ISO standard titled: **General requirements for the competence of testing and calibration laboratories**, like many ISO systems focuses on the quality system related to the calibration function. A Calibration Lab that states compliance with ISO 17025 insures traceability to the primary standard as well as broader system confidence as it addresses practices beyond the specific process related to calibration. ISO 17025 also addresses the management of the process and lab including training, document control, contract review and management oversight. The other very important difference is the inclusive analysis of the calibration uncertainty. ISO 17025 requires labs to include the sensor being calibrated as a component of the stated uncertainty.

Accredited

Certificate of Accreditation Scope of Accreditation

There are various organizations that issue accredited status of metrology labs in accordance with ISO 17025. Burns, (lab code: 200706-0) selected NVLAP, established by NIST in 1976 as the **National Voluntary Laboratory Accreditation Program**. The NVLAP accreditation requirements are described in NIST Handbook 150. NVLAP also includes the general requirements of ANSI/NCSL Z540, Part 1. Uncertainties reported are inclusive of the sensor being calibrated, and validated through proficiency testing.

Burns Best Uncertainties*
(by comparison to SPRT)

Range in ºC	High Quality PRT (±)in mK	PRT with meter system with (±)in mK	Any other PRT (±)in mK
-196	5.2	5.2	25
-80 to 20	5.1	5.1	25
0 / 0.01	3.4	3.4	25
20 to 250	6.9	6.9	25
250 to 500	17	17	25

* Notes: 1. SPRT at the TWP 1.6mK
2. Uncertainties are subject to change. For the most current values visit the Burns Website at www.burnsengineering.com, Keyword “Accredited”.
3. Represents an expanded uncertainty using a coverage factor, k = 2, at a 95% confidence level..

Temperature Calibration Service

Ordering Information

For your Platinum Resistance Thermometer (PRT), select the calibration range that best covers the temperature range of intended use in your laboratory or process. Burns offers calibration ranges from 700ºC span down to 100ºC span. Contact our Customer Service Department at 800-328-3871 for other non-standard calibration options.

Our most common calibration options:

12005/12001 Secondary Standard PRT by Comparison to SPRT*

5 Point Calibration								6 Point Calib.		3 Point Calibration			
Part No. 18629-15		Part No. 18629-16		Part No. 18629-17		Part No. 18629-18		Part No. 18629-19		Part No. 18629-37		Part No. 18629-38	
Calibration Points Taken (ºC)	Expected Uncertainty k=2 (ºC)	Calibration Points Taken (ºC)	Expected Uncertainty k=2 (ºC)	Calibration Points Taken (ºC)	Expected Uncertainty k=2 (ºC)	Calibration Points Taken (ºC)	Expected Uncertainty k=2 (ºC)	Calibration Points Taken (ºC)	Expected Uncertainty k=2 (ºC)	Calibration Points Taken (ºC)	Expected Uncertainty k=2 (ºC)	Calibration Points Taken (ºC)	Expected Uncertainty k=2 (ºC)
-196	.024	-196	.024	-196	.024	-196	.024	-196	.024	0.01	.010	0.01	.010
-38	.011	-38	.011	-38	.011	-38	.011	-38	.011	200	.018	200	.018
0.01	.010	0.01	.010	0.01	.010	0.01	.010	0.01	.010	300	.029	420	.029
50	.018	100	.018	200	.018	200	.018	100	.018	-	-	-	-
100	.018	200	.018	300	.029	420	.029	300	.029	-	-	-	-
-	-	-	-	-	-	-	-	500	.029	-	-	-	-

Any Industrial PRT by Comparison to SPRT*

4 Point Calibration

Part No. 18630-15		Part No. 18630-16		Part No. 18630-17		Part No. 18630-18	
Calibration Points Taken (ºC)	Expected Uncertainty k=2 (ºC)	Calibration Points Taken (ºC)	Expected Uncertainty k=2 (ºC)	Calibration Points Taken (ºC)	Expected Uncertainty k=2 (ºC)	Calibration Points Taken (ºC)	Expected Uncertainty k=2 (ºC)
-196	.025	-196	.025	-196	.025	-196	.025
0	.025	0	.025	0	.025	0	.025
50	.025	100	.025	200	.025	200	.025
100	.025	200	.025	300	.025	420	.025

4 Point Calibration

Part No. 18630-25		Part No. 18630-26		Part No. 18630-27		Part No. 18630-28	
Calibration Points Taken (ºC)	Expected Uncertainty k=2 (ºC)	Calibration Points Taken (ºC)	Expected Uncertainty k=2 (ºC)	Calibration Points Taken (ºC)	Expected Uncertainty k=2 (ºC)	Calibration Points Taken (ºC)	Expected Uncertainty k=2 (ºC)
-38	.025	-38	.025	-38	.025	-38	.025
0	.025	0	.025	0	.025	0	.025
50	.025	100	.025	200	.025	200	.025
100	.025	200	.025	300	.025	420	.025

3 Point Calibration

Part No. 18630-35		Part No. 18630-36		Part No. 18630-37		Part No. 18630-38	
Calibration Points Taken (ºC)	Expected Uncertainty k=2 (ºC)	Calibration Points Taken (ºC)	Expected Uncertainty k=2 (ºC)	Calibration Points Taken (ºC)	Expected Uncertainty k=2 (ºC)	Calibration Points Taken (ºC)	Expected Uncertainty k=2 (ºC)
0	.025	0	.025	0	.025	0	.025
50	.025	100	.025	200	.025	200	.025
100	.025	200	.025	300	.025	420	.025

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System Calibration Service

Specifications

At Burns, we understand the importance and value of your sensor/meter system to your process and temperature instrument validation. Our accredited lab services include a variety of system calibrations covering many of the most common handheld and digital readout devices.

Features and Benefits

- Accredited PRT calibrations and completed system verifications
- Meter calibration to ensure system accuracy
- “As Found” and “As Left” data on your PRT, meter and complete system
- Calibration certifications and R vs. T tables provided and available online
- Lab-to-Lab scheduled calibration service – *Our Promise! 5 Business Days*

** For more details contact our Customer Service Department at 800-328-3871 or visit the Burns website at www.burnsengineering.com, Keyword “Lab-to-Lab”

System Calibration Service

Ordering Information

Our most common calibration options:

Digital Thermometer with PRT System by Comparison to SPRT*

5 Point Calibration

Part No. 21330-15		Part No. 21330-16		Part No. 21330-17		Part No. 21330-18	
Calibration Points Taken (ºC)	Expected Uncertainty k=2 (ºC)	Calibration Points Taken (ºC)	Expected Uncertainty k=2 (ºC)	Calibration Points Taken (ºC)	Expected Uncertainty k=2 (ºC)	Calibration Points Taken (ºC)	Expected Uncertainty k=2 (ºC)
-196	.024	-196	.024	-196	.024	-196	.024
-38	.011	-38	.011	-38	.011	-38	.011
0.01	.010	0.01	.010	0.01	.010	0.01	.010
50	.018	100	.018	200	.018	200	.018
100	.018	200	.018	300	.029	420	.029

3 Point Calibration

Part No. 21330-35		Part No. 21330-36		Part No. 21330-37		Part No. 21330-38	
Calibration Points Taken (ºC)	Expected Uncertainty k=2 (ºC)	Calibration Points Taken (ºC)	Expected Uncertainty k=2 (ºC)	Calibration Points Taken (ºC)	Expected Uncertainty k=2 (ºC)	Calibration Points Taken (ºC)	Expected Uncertainty k=2 (ºC)
0.01	.010	0.01	.010	0.01	.010	0.01	.010
50	.018	100	.018	200	.018	200	.018
100	.018	200	.018	300	.029	420	.029

* Notes: 1. SPRT at the TWP 1.6mK
2. Uncertainties are subject to change. For the most current values visit the Burns Website at www.burnsengineering.com, Keyword “Accredited”.
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