SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017
& ANSI/NCSL Z540-1-1994

ASSOCIATED ENVIRONMENTAL SYSTEMS
15 Wellman Ave
North Chelmsford, MA 01863
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CALIBRATION

Valid To: July 31, 2028 Certificate Number: 3964.01

In recognition of the successful completion of the A2LA evaluation process (including an assessment of the organization's compliance with R205 – A2LA's Calibration Program Requirements), accreditation is granted to this laboratory to perform the following calibrations[1, 4]:

I. Electrical – DC/Low Frequency

Parameter/Equipment	Range	CMC[2, 5] (±)	Comments
DC Voltage[3] – Generate	(0 to 100) mV > 100 mV to 1 V (> 1 to 15) V	0.01 % + 0.0076 mV 0.012 % + 0.0001 V 0.012 % + 0.0001 V	Process calibrator
DC Resistance[3] – Generate	(0 to 10) Ω (> 1 to 100) Ω (> 100 to 1000) Ω	0.02 % + 0.012 Ω 0.0033 % + 0.038 Ω 0.048 % + 0.023 Ω	Process calibrator
DC Current[3] – Generate	(0 to 22) mA	0.012 % + 0.0035 mA	Process calibrator
Electrical Calibration of Thermocouple Indicating Systems[3] –			
Type J	(-210 to -100) °C (-100 to 700) °C (700 to 1200) °C	0.41 °C 0.30 °C 0.38 °C	Process calibrator
Type K	(-200 to -100) °C (-100 to 600) °C (600 to 1372) °C	0.43 °C 0.32 °C 0.46 °C	

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Parameter/Equipment	Range	CMC[2, 5] (±)	Comments
Electrical Calibration of Thermocouple Indicating Systems[3] – (cont)			
Type T	(-250 to -100) °C (-200 to 0) °C (0 to 400) °C	0.91 °C 0.30 °C 0.27 °C	Process calibrator
Electrical Calibration of RTD Indicating Systems[3] –			
Pt 385 100 Ω	(-200 to 100) °C (100 to 800) °C	0.071 °C 0.012 % + 0.061 °C	Process calibrator

Parameter/Range	Frequency	CMC[2, 5] (±)	Comments
AC Voltage – Measure			
(0 to 100) mV	(3 to 5) Hz (5 to 10) Hz 10 Hz to 20 kHz (20 to 50) kHz	0.0057 % + 0.029 mV 0.0011 % + 0.029 mV 0.000 49 % + 0.035 mV 0.0077 % + 0.043 mV	Multimeter
100 mV to 1 V	(3 to 5) Hz (5 to 10) Hz 10 Hz to 20 kHz (20 to 50) kHz	0.0057 % + 0.0003 V 0.0012 % + 0.0002 V 0.000 58 % + 0.0002 V 0.000 86 % + 0.0003 V	
(1 to 10) V	(3 to 5) Hz (5 to 10) Hz 10 Hz to 20 kHz (20 to 50) kHz	0.0057 % + 0.0031 V 0.0011 % + 0.0033 V 0.000 57 % + 0.0024 V 0.000 84 % + 0.0036 V	
(10 to 100) V	(3 to 5) Hz (5 to 10) Hz 10 Hz to 20 kHz (20 to 50) kHz	0.0058 % + 0.023 V 0.0012 % + 0.023 V 0.000 59 % + 0.023 V 0.000 86 % + 0.034 V	
(100 to 750) V	(3 to 5) Hz (5 to 10) Hz 10 Hz to 1 kHz	0.0065 % + 0.12 V 0.002 % + 0.13 V 0.0012 % + 0.17 V	

II. Thermodynamics

Parameter/Equipment	Range	CMC[2, 6, 7] (±)	Comments
Relative Humidity[3] – Measure	(10 to 30) % RH (30 to 50) % RH (50 to 95) % RH	0.02 % + 1.0 % RH 1.6 % RH 1.6 % + 0.8 % RH	Hygrometer
Temperature[3] – Measure	(-80 to 0) °C (0 to 200) °C (0 to 760) °C (0 to 1100) °C	1.4 °C 2.5 °C 2.3 °C 1.7 °C	Process calibrator with J and K thermocouples
Temperature – Measure RTD Comparison	(-95 to 33) °C (33 to 250) °C	0.02 % + 0.11 °C 0.097 % + 0.078 °C	Additel ADT282 w/ Accumac Am1751-12
Temperature – Measure Thermocouple Type T	(-95 to 33) °C (33 to 250) °C	0.047 % + 0.32 °C 0.046 % + 0.34 °C	Additel ADT282 w/ Accumac Am1751-12

[1] This laboratory offers commercial and field calibration service.

[2] Calibration and Measurement Capability Uncertainty (CMC) is the smallest uncertainty of measurement that a laboratory can achieve within its scope of accreditation when performing more or less routine calibrations of nearly ideal measurement standards or nearly ideal measuring equipment. CMCs represent expanded uncertainties expressed at approximately the 95 % level of confidence, usually using a coverage factor of $k = 2$. The actual measurement uncertainty of a specific calibration performed by the laboratory may be greater than the CMC due to the behavior of the customer's device and to influences from the circumstances of the specific calibration.

[3] Field calibration service is available for this calibration. Please note the actual measurement uncertainties achievable on a customer's site can normally be expected to be larger than the CMC found on the A2LA Scope. Allowance must be made for aspects such as the environment at the place of calibration and for other possible adverse effects such as those caused by transportation of the calibration equipment. The usual allowance for the actual uncertainty introduced by the item being calibrated, (e.g. resolution) must also be considered and this, on its own, could result in the actual measurement uncertainty achievable on a customer's site being larger than the CMC.

[4] This scope meets A2LA's *P112 Flexible Scope Policy*.

[5] The stated measured values are determined using the indicated instrument (see Comments). This capability is suitable for the calibration of the devices intended to measure or generate the measured value in the ranges indicated. CMCs are expressed as either a specific value that covers the full range or as a percent or fraction of the reading plus a fixed floor specification.

[6] The type of instrument or material being calibrated is defined by the parameter. This indicates the laboratory is capable of calibrating instruments that measure or generate the values in the ranges indicated for the listed measurement parameter.

[7] In the statement of CMC, percentage (%) refers to percent of reading, unless otherwise noted.

Accredited Laboratory

A2LA has accredited

ASSOCIATED ENVIRIONMENTAL SYSTEMS

North Chelmsford, MA

for technical competence in the field of

Calibration

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 *General requirements for the competence of testing and calibration laboratories*. This laboratory also meets the requirements of ANSI/NCSL Z540-1-1994 and R205 – Specific Requirements: Calibration Laboratory Accreditation Program. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (*refer to joint ISO-ILAC-IAF Communiqué dated April 2017*).

Presented this 5th day of October 2026.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 3964.01
Valid to July 31, 2028

For the calibrations to which this accreditation applies, please refer to the laboratory's Calibration Scope of Accreditation.