SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

COAST TO COAST CALIBRATIONS
9150 Isanti Street NE
Blaine, MN 55449
Jacob Christianson Phone: 952 881 7716

CALIBRATION

Valid To: August 31, 2028 Certificate Number: 1684.01

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, 5]:

I. Chemical

Parameter/Equipment	Range	CMC[2, 6] (±)	Comments
pH Meter[3]	(0 to 14) pH	0.016 pH	pH/mV calibrator
Gas Concentration – Measure CO_2	Up to 20 %	1.3 % concentration	Standard gas meter & sensor

5202 Presidents Court, Suite 220 | Frederick, MD 21703-8515 | Phone: 301 644 3248 | Fax: 240 454 9449 | www.A2LA.org

II. Electrical – DC/Low Voltage

Parameter/Equipment	Range	CMC[2] (±)	Comments
Metal Detector[3]			
Ferrous/ Stainless Steel 304/ Stainless Steel 316/ Non-Ferrous	0.5, 1.0, 1.5, 2.0, 2.5, 3.0 mm	0.090 mm	Precision test balls
Bronze	1.5, 2.0, 2.0, 3.0 mm	0.090 mm	
Lead	1.0, 2.0, 3.0 mm	0.090 mm	
Copper	0.5, 1.0 mm	0.090 mm	
Aluminum	1.0, 1.5, 2.0, 2.5, 3 mm	0.090 mm	
X-Ray Detector[3]			
Soda Lime Glass/ Ceramic	1.0, 1.5, 2.0, 2.5, 3.0 mm	0.090 mm	Precision test balls
Quartz Glass	1.0, 2.0, 3.0 mm	0.090 mm	
Teflon	2.0, 2.5, 3.0 mm	0.090 mm	

Parameter/Range	Frequency	CMC[2] (±)	Comments
AC Current – Generate[3]			
(30 to 329) µA	10 Hz to 1 kHz	0.42 µA	Multiproduct calibrator
329 µA to 3.29 mA	10 Hz to 1 kHz	0.0042 mA	
(3.29 to 32.9) mA	10 Hz to 1 kHz	0.043 mA	
(32.9 to 329) mA	10 Hz to 1 kHz	0.52 mA	
329 mA to 1 A	10 Hz to 1 kHz	0.0011 A	

Parameter/Range	Frequency	CMC[2] (±)	Comments
AC Current – Measure[3]			
(1 to 100) µA	(10 to 20) Hz (20 to 45) Hz (45 to 100) Hz 100 Hz to 5 kHz	0.23 µA 0.23 µA 0.23 µA 0.23 µA	8.5 digit multimeter
100 µA to 1 mA	(10 to 20) Hz (20 to 45) Hz (45 to 100) Hz 100 Hz to 5 kHz	0.0024 mA 0.0024 mA 0.0024 mA 0.0024 mA	
(1 to 10) mA	(10 to 20) Hz (20 to 45) Hz (45 to 100) Hz 100 Hz to 5 kHz	0.024 mA 0.024 mA 0.024 mA 0.024 mA	
(10 to 100) mA	(10 to 20) Hz (20 to 45) Hz (45 to 100) Hz 100 Hz to 5 kHz	0.24 mA 0.24 mA 0.24 mA 0.24 mA	
100 mA to 1 A	(10 to 20) Hz (20 to 45) Hz (45 to 100) Hz 100 Hz to 5 kHz	0.0023 A 0.0023 A 0.0023 A 0.0023 A	
AC Voltage – Measure[3]			
(1 to 10) mV	(1 to 40) Hz 40 Hz to 1 kHz (1 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz	0.027 mV 0.027 mV 0.14 mV 0.14 mV 0.18 mV 0.84 mV	8.5 digit multimeter
(10 to 100) mV	(1 to 40) Hz 40 Hz to 1 kHz (1 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz 300 kHz to 1 MHz	0.11 mV 0.11 mV 0.24 mV 0.24 mV 0.31 mV 4.4 mV 4.4 mV	

Parameter/Range	Frequency	CMC[2] (±)	Comments
AC Voltage – Measure[3] (cont)			
100 mV to 1 V	(1 to 40) Hz 40 Hz to 1 kHz (1 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz 300 kHz to 1 MHz	0.0011 V 0.0011 V 0.0024 V 0.0024 V 0.0040 V 0.044 V 0.044 V	8.5 digit multimeter
(1 to 10) V	(1 to 40) Hz 40 Hz to 1 kHz (1 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz 300 kHz to 1 MHz	0.016 V 0.016 V 0.024 V 0.024 V 0.032 V 0.44 V 0.44 V	
(10 to 100) V	40 Hz to 1 kHz (1 to 20) kHz (20 to 50) kHz (50 to 100) kHz	0.11 V 0.25 V 0.25 V 0.33 V	
(100 to 700) V	40 Hz to 1 kHz	0.46 V	
AC High Voltage – Measure[3]			
(8.5 to 85) kV	60 Hz	0.74 kV	Voltage divider, 6.5 digit multimeter
AC Voltage – Generate[3]			
(2.2 to 32.9) mV	(10 to 45) Hz 45 Hz to 10 kHz	0.031 mV 0.025 mV	Multiproduct calibrator
(32.9 to 329) mV	(10 to 45) Hz 45 Hz to 10 kHz	0.29 mV 0.022 mV	
329 mV to 3.29 V	(10 to 45) Hz 45 Hz to 10 kHz	0.0030 V 0.0022 V	
(3.29 to 329) V	(10 to 45) Hz 45 Hz to 10 kHz	0.49 V 0.51 V	
(329 to 1000) V	(10 to 45) Hz 45 Hz to 10 kHz	0.37 V 0.55 V	

Parameter/Range	Frequency	CMC[2] (±)	Comments
AC Current – Generate[3]			
(1 to 329) µA	10 Hz to 1 kHz	0.42 µA	Multiproduct calibrator
329 µA to 3.29 mA	10 Hz to 1 kHz	0.0042 mA	
(3.29 to 32.9) mA	10 Hz to 1 kHz	0.043 mA	
(32.9 to 329) mA	10 Hz to 1 kHz	0.52 mA	
329 mA to 1 A	10 Hz to 1 kHz	0.0011 A	

Parameter/Equipment	Range	CMC[2] (±)	Comments
Resistance – Measure[3]	Up to 10 Ω (10 to 100) Ω (0.1 to 1) kΩ (1 to 10) kΩ (10 to 100) kΩ (0.1 to 1) MΩ (1 to 10) MΩ (10 to 100) MΩ	0.0051 Ω 0.0056 Ω 0.000 023 kΩ 0.000 18 kΩ 0.0025 kΩ 0.000 032 MΩ 0.0096 MΩ 0.031 MΩ	8.5 digit multimeter
Resistance – Generate[3]	0 to 10.999 Ω 11 to 32.999 Ω 33 to 109.999 Ω 110 to 329.999 Ω 330 Ω to 1.099 99 kΩ 1.1 to 3.299 99 kΩ 3.3 to 10.9999 kΩ 11 to 32.9999 kΩ 33 to 109.999 kΩ 110 to 329.999 kΩ 330 kΩ to 1.0999 MΩ 1.1 to 3.299 99 MΩ 3.3 to 10.9999 MΩ 11 to 32.9999 MΩ 33 to 109.999 MΩ 110 to 329.999 MΩ 330 to 1100.00 MΩ	0.0015 Ω 0.0062 Ω 0.0062 Ω 0.018 Ω 0.000 35 kΩ 0.000 62 kΩ 0.000 61 kΩ 0.0019 kΩ 0.0060 kΩ 0.019 kΩ 0.000 48 MΩ 0.0026 MΩ 0.0018 MΩ 0.0045 MΩ 0.048 MΩ 0.13 MΩ 5 MΩ	Multiproduct calibrator (Fluke 5502A)

Parameter/Equipment	Range	CMC[2] (±)	Comments
Resistance – Generate (Fixed Points)[3]	1 Ω 10 Ω 100 Ω 1 kΩ 10 kΩ 100 kΩ 1 MΩ 10 MΩ 100 MΩ	0.000 62 Ω 0.000 14 Ω 0.0015 Ω 0.000 015 kΩ 0.000 12 kΩ 0.0014 kΩ 0.000 018 MΩ 0.000 50 MΩ 0.027 MΩ	Multiproduct calibrator
Capacitance – Generate (Simulated-Fixed)[3]	1 nF 10 nF 100 nF 1 µF 10 µF 100 µF 1 mF	0.052 nF 0.12 nF 1.2 nF 0.012 µF 0.12 µF 1.2 µF 0.012 mF	Multiproduct calibrator
Electrical Simulation of RTD Indicating Devices – Generate[3]			
Pt 385 100 Ω	(-200 to -80) °C (-80 to 0) °C (0 to 100) °C (100 to 800) °C	0.035 °C 0.028 °C 0.036 °C 0.084 °C	Multiproduct calibrator
Pt 3 926 100 Ω	(-200 to -80) °C (-80 to 0) °C (0 to 800) °C	0.028 °C 0.027 °C 0.069 °C	
Pt 3 916 100 Ω	(-200 to -190) °C (-190 to 0) °C (0 to 800) °C	0.055 °C 0.055 °C 0.074 °C	

Parameter/Equipment	Range	CMC[2] (±)	Comments
Electrical Simulation of Thermocouple Indicating Devices – Generate/Measure[3]			
Type E	(-250 to -100) °C (-100 to -25) °C (-25 to 350) °C (350 to 650) °C (650 to 1000) °C	1.9 °C 0.81 °C 1.6 °C 1.3 °C 1.3 °C	Multiproduct calibrator
Type J	(-210 to -100) °C (-100 to -30) °C (-30 to 150) °C (150 to 760) °C (760 to 1200) °C	0.35 °C 0.19 °C 0.18 °C 0.21 °C 0.27 °C	
Type K	(-200 to -100) °C (-100 to -25) °C (-25 to 120) °C (120 to 1000) °C (1000 to 1372) °C	0.42 °C 0.22 °C 0.20 °C 0.31 °C 0.47 °C	
Type T	(-250 to -150) °C (-150 to 0) °C (0 to 120) °C (120 to 400) °C	0.73 °C 0.30 °C 0.20 °C 0.18 °C	
DC Voltage – Generate[3]	(1 to 329) mV 329 mV to 3.29 V (3.29 to 32.9) V (32.9 to 329) V (329 to 1000) V	0.0021 mV 0.000 018 V 0.000 25 V 0.0027 V 0.0064 V	Multiproduct calibrator
DC Voltage – Measure[3]	(1 to 100) mV 100 mV to 1 V (1 to 10) V (10 to 100) V 100 V to 1 kV	0.0046 V 0.000 028 V 0.000 30 V 0.0039 V 0.039 V	8.5 digit multimeter
DC High Voltage – Measure[3]	(10 to 40) kV (40 to 120) kV	0.22 kV 0.20 kV	Voltage divider, 6.5 digit multimeter

Parameter/Equipment	Range	CMC[2] (±)	Comments
DC Current – Generate[3]	(1 to 3.29) mA (3.29 to 32.9) mA (32.9 to 329) mA 329 mA to 1 A (1 to 2.2) A (2.2 to 11) A	0.000 11 mA 0.0017 mA 0.15 mA 0.0011 A 0.000 70 A 0.0049 A	Multiproduct calibrator
DC Current – Measure[3]	(1 to 100) µA (0.1 to 1) mA (1 to 10) mA (10 to 100) mA (0.1 to 1) A (1 to 3) A	0.0082 µA 0.000 052 mA 0.000 49 mA 0.0048 mA 0.000 097 A 0.000 097 A	8.5 digit multimeter 6.5 digit multimeter

III. Fluid Quantities

Parameter/Equipment	Range	CMC[2] (±)	Comments
Fume Hoods – Air Velocity Only[3]	(50 to 150) FPM (>150 to 500) FPM (>500 to 1250) FPM (>1250 to 2500) FPM	19 FPM 53 FPM 160 FPM 230 FPM	Anemometer
Flow – Gas (Air) @ 25 °C[3]	(0.1 to 1) SLPM (1 to 100) SLPM	0.017 SLPM 0.22 SLPM	Standard flow meter
Anemometers – Wind Speed	(50 to 150) FPM (150 to 500) FPM (500 to 1250) FPM (1250 to 2000) FPM (2000 to 2500) FPM	13 FPM 21 FPM 39 FPM 56 FPM 74 FPM	Wind Tunnel w/ Anemometer

IV. Mechanical

Parameter/Equipment	Range	CMC[2, 6] (±)	Comments
Mass – Measure, Fixed Points	1 mg 2 mg 3 mg 5 mg 10 mg 20 mg 30 mg 50 mg 100 mg 200 mg 300 mg 500 mg 1 g 2 g 3 g 5 g 10 g 20 g 30 g 50 g 100 g 200 g 300 g 500 g 1 kg 2 kg 3 kg 5 kg 10 kg 25 kg 30 kg 22.6 kg (50 lb) 11.4 kg (25 lb) 4.5 kg (10 lb) 2.3 kg (5 lb) 907 g (2 lb) 453 g (1 lb) 226 g (8 oz) 113 g (4 oz) 56.7 g (2 oz) 28.3 g (1 oz)	1.8 µg 1.4 µg 1.4 µg 1.6 µg 2.0 µg 1.6 µg 1.6 µg 2.0 µg 2.3 µg 2.3 µg 1.7 µg 2.2 µg 6.9 µg 5.9 µg 4.4 µg 6.4 µg 15 µg 16 µg 21 µg 30 µg 43 µg 91 µg 60 µg 0.14 mg 0.37 mg 1.1 mg 1.0 mg 1.4 mg 2.8 mg 10 mg 10 mg 410 mg 160 mg 3.0 mg 2.2 mg 1.2 mg 0.84 mg 0.93 mg 1.5 mg 0.50 mg 0.042 mg	Standard weights using double substitution

Parameter/Equipment	Range	CMC[2, 4, 6] (±)	Comments
Mass – Measure, Fixed Points (cont)	14.2 g (1/2 oz) 7.09 g (1/4 oz) 3.54 g (1/8 oz) 1.77 g (1/16 oz) 0.886 g (1/32 oz) 90.7 g (0.2 lb) 45.4 g (0.1 lb) 22.7 g (0.05 lb) 9.07 g (0.02 lb) 4.54 g (0.01 lb) 2.27 g (0.005 lb) 0.907 g (0.002 lb) 0.454 g (0.001 lb)	0.039 mg 0.015 mg 0.019 mg 0.014 mg 0.013 mg 0.27 mg 0.14 mg 0.10 mg 0.062 mg 0.045 mg 0.067 mg 0.044 mg 0.036 mg	Standard weights using double substitution
Balances & Scales[3]	Up to 5000 kg (10 klb) (10 000 to 20 000) lb using substitution calibration	1.2*R*	ASTM E617 with standard weights.
Pipettes[3]	(0.5 to 1) µl (>1 to 5) µl (>5 to 10) µl (>10 to 50) µl (>50 to 100) µl (>100 to 500) µl (>500 to 1000) µl (>1 to 10) ml	0.048 µl 0.048 µl 0.049 µl 0.049 µl 0.063 µl 0.063 µl 0.065 µl 10 µl	Gravimetric method using analytical balance
Dispenser[3]	Up to 25 ml (>25 to 50) ml (>50 to 100) ml (>100 to 200) ml	38 µl 50 µl 100 µl 170 µl	Gravimetric method using analytical balance
Pressure Gages[3] – Pneumatic	(-12 to 100) psig (>100 to 300) psig	0.08 psi 0.30 psi	Pressure calibrator & pressure modules
Pneumatic Pressure Measuring Instrument (N_2)	Up to 1000 psig	0.024 psig	Gas piston pressure system

Parameter/Equipment	Range	CMC[2] (±)	Comments
Hydraulic Pressure Measuring Instruments	(200 to 2000) psig (2000 to 4000) psig (4000 to 6000) psig (6000 to 8000) psig (8000 to 10 000) psig	1.6 psig 1.8 psig 2.1 psig 2.4 psig 2.3 psig	Dead weight tester
Centrifuge[3] –			
Rotation	(6 to 15 000) rpm (>15 000 to 30 000) rpm	7.4 rpm 20 rpm	Laser tachometer
Time Interval	Up to 10 min (600 s)	0.14 s	Stopwatch
Temperature	(-20 to 40) °C	1.2 °C	TC with meter
Torque Tools[3]	(4 to 50) lbf·in (30 to 400) lbf·in (80 to 1000) lbf·in (20 to 250) lbf·ft (60 to 600) lbf·ft	0.63 lbf·in 0.69 lbf·in 2.0 lbf·in 0.72 lbf·ft 2.7 lbf·ft	Torque calibrator

V. Thermodynamic

Parameter/Equipment	Range	CMC[2, 6] (±)	Comments
Thermometers & Temperature Indicating Systems[3]	(-80 to -30) °C (-30 to 100) °C (>100 to 420) °C (>420 to 650) °C	0.025 °C 0.011 °C 0.048 °C 0.13 °C	PRT/TC with meter
Relative Humidity – Measure[3]	(15 to 85) % RH	2.5 % RH	Comparison to humidity probe with meter

VI. Time & Frequency

Parameter/Equipment	Range	CMC[2, 6] (±)	Comments
Frequency – Generate[3]	0.1 Hz to 80 MHz	1.3 µHz/Hz	Function / arbitrary waveform generator
Frequency – Measure[3]	0.1 Hz to 350 MHz	3.5 µHz/Hz	Frequency counter
Non-contact Tachometers[3]	(30 to 100,000) RPM	0.011 rpm	Function / arbitrary waveform generator

SATELLITE

COAST TO COAST CALIBRATIONS
2475 West 2nd Avenue, Unit 34A
Denver, CO 80223
Tanner Nelson Phone: 800-772-5398

CALIBRATION

I. Chemical

Parameter/Equipment	Range	CMC[2, 6] (±)	Comments
pH Meter[3]	(0 to 14) pH	0.016 pH	pH/mV calibrator

II. Electrical – DC/Low Voltage

Parameter/Equipment	Range	CMC[2] (±)	Comments
Metal Detector[3]			
Ferrous/ Stainless Steel 304/ Stainless Steel 316/ Non-Ferrous	0.5, 1.0, 1.5, 2.0, 2.5, 3.0 mm	0.090 mm	Precision test balls
Bronze	1.5, 2.0, 2.0, 3.0 mm	0.090 mm	
Lead	1.0, 2.0, 3.0 mm	0.090 mm	
Copper	0.5, 1.0 mm	0.090 mm	
Aluminum	1.0, 1.5, 2.0, 2.5, 3 mm	0.090 mm	
X-Ray Detector[3]			
Soda Lime Glass/ Ceramic	1.0, 1.5, 2.0, 2.5, 3.0 mm	0.090 mm	Precision test balls
Quartz Glass	1.0, 2.0, 3.0 mm	0.090 mm	
Teflon	2.0, 2.5, 3.0 mm	0.090 mm	

Parameter/Range	Frequency	CMC[2] (±)	Comments
AC Current – Generate[3]			
(30 to 329) µA	10 Hz to 1 kHz	0.42 µA	Multiproduct calibrator
329 µA to 3.29 mA	10 Hz to 1 kHz	0.0042 mA	
(3.29 to 32.9) mA	10 Hz to 1 kHz	0.043 mA	
(32.9 to 329) mA	10 Hz to 1 kHz	0.52 mA	
329 mA to 1 A	10 Hz to 1 kHz	0.0011 A	
AC Current – Measure[3]			
(1 to 100) µA	(10 to 20) Hz (20 to 45) Hz (45 to 100) Hz 100 Hz to 5 kHz	0.23 µA 0.23 µA 0.23 µA 0.23 µA	8.5 digit multimeter
100 µA to 1 mA	(10 to 20) Hz (20 to 45) Hz (45 to 100) Hz 100 Hz to 5 kHz	0.0024 mA 0.0024 mA 0.0024 mA 0.0024 mA	
(1 to 10) mA	(10 to 20) Hz (20 to 45) Hz (45 to 100) Hz 100 Hz to 5 kHz	0.024 mA 0.024 mA 0.024 mA 0.024 mA	
(10 to 100) mA	(10 to 20) Hz (20 to 45) Hz (45 to 100) Hz 100 Hz to 5 kHz	0.24 mA 0.24 mA 0.24 mA 0.24 mA	
100 mA to 1 A	(10 to 20) Hz (20 to 45) Hz (45 to 100) Hz 100 Hz to 5 kHz	0.0023 A 0.0023 A 0.0023 A 0.0023 A	

Parameter/Range	Frequency	CMC[2] (±)	Comments
AC Voltage – Measure[3]			
(1 to 10) mV	(1 to 40) Hz 40 Hz to 1 kHz (1 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz	0.027 mV 0.027 mV 0.14 mV 0.14 mV 0.18 mV 0.84 mV	8.5 digit multimeter
(10 to 100) mV	(1 to 40) Hz 40 Hz to 1 kHz (1 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz 300 kHz to 1 MHz	0.11 mV 0.11 mV 0.24 mV 0.24 mV 0.31 mV 4.4 mV 4.4 mV	
100 mV to 1 V	(1 to 40) Hz 40 Hz to 1 kHz (1 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz 300 kHz to 1 MHz	0.0011 V 0.0011 V 0.0024 V 0.0024 V 0.0040 V 0.044 V 0.044 V	
(1 to 10) V	(1 to 40) Hz 40 Hz to 1 kHz (1 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz 300 kHz to 1 MHz	0.016 V 0.016 V 0.024 V 0.024 V 0.032 V 0.44 V 0.44 V	
(10 to 100) V	40 Hz to 1 kHz (1 to 20) kHz (20 to 50) kHz (50 to 100) kHz	0.11 V 0.25 V 0.25 V 0.33 V	
(100 to 700) V	40 Hz to 1 kHz	0.46 V	

Parameter/Range	Frequency	CMC[2] (±)	Comments
AC Voltage – Generate[3]			
(2.2 to 32.9) mV	(10 to 45) Hz 45 Hz to 10 kHz	0.031 mV 0.025 mV	Multiproduct calibrator
(32.9 to 329) mV	(10 to 45) Hz 45 Hz to 10 kHz	0.29 mV 0.022 mV	
329 mV to 3.29 V	(10 to 45) Hz 45 Hz to 10 kHz	0.0030 V 0.0022 V	
(3.29 to 329) V	(10 to 45) Hz 45 Hz to 10 kHz	0.49 V 0.51 V	
(329 to 1000) V	(10 to 45) Hz 45 Hz to 10 kHz	0.37 V 0.55 V	
AC Current – Generate[3]			
(30 to 329) µA	10 Hz to 1 kHz	0.42 µA	Multiproduct calibrator
329 µA to 3.29 mA	10 Hz to 1 kHz	0.0042 mA	
(3.29 to 32.9) mA	10 Hz to 1 kHz	0.043 mA	
(32.9 to 329) mA	10 Hz to 1 kHz	0.52 mA	
329 mA to 1 A	10 Hz to 1 kHz	0.0011 A	

Parameter/Equipment	Range	CMC[2] (±)	Comments
Resistance – Measure[3]	Up to 10 Ω (10 to 100) Ω (0.1 to 1) kΩ (1 to 10) kΩ (10 to 100) kΩ (0.1 to 1) MΩ (1 to 10) MΩ (10 to 100) MΩ	0.0051 Ω 0.0056 Ω 0.000 023 kΩ 0.000 18 kΩ 0.0025 kΩ 0.000 032 MΩ 0.0096 MΩ 0.031 MΩ	8.5 digit multimeter

Parameter/Equipment	Range	CMC[2] (±)	Comments
Resistance – Generate[3]	0 to 10.999 Ω 11 to 32.999 Ω 33 to 109.999 Ω 110 to 329.999 Ω 330 Ω to 1.099 99 kΩ 1.1 to 3.299 99 kΩ 3.3 to 10.9999 kΩ 11 to 32.9999 kΩ 33 to 109.999 kΩ 110 to 329.999 kΩ 330 kΩ to 1.0999 MΩ 1.1 to 3.299 99 MΩ 3.3 to 10.9999 MΩ 11 to 32.9999 MΩ 33 to 109.999 MΩ 110 to 329.999 MΩ 330 to 1100.00 MΩ	0.0015 Ω 0.0062 Ω 0.0062 Ω 0.018 Ω 0.000 35 kΩ 0.000 62 kΩ 0.000 61 kΩ 0.0019 kΩ 0.0060 kΩ 0.019 kΩ 0.000 48 MΩ 0.0026 MΩ 0.0018 MΩ 0.0045 MΩ 0.048 MΩ 0.13 MΩ 5 MΩ	Multiproduct calibrator (Fluke 5520A)
Capacitance – Generate (Simulated-Fixed)[3]	1 nF 10 nF 100 nF 1 µF 10 µF 100 µF 1 mF	0.052 nF 0.12 nF 1.2 nF 0.012 µF 0.12 µF 1.2 µF 0.012 mF	Multiproduct calibrator
Electrical Simulation of RTD Indicating Devices – Generate[3]			
Pt 385 100 Ω	(-200 to -80) °C (-80 to 0) °C (0 to 100) °C (100 to 800) °C	0.035 °C 0.028 °C 0.036 °C 0.084 °C	Multiproduct calibrator
Pt 3 926 100 Ω	(-200 to -80) °C (-80 to 0) °C (0 to 630) °C	0.028 °C 0.027 °C 0.069 °C	
Pt 3 916 100 Ω	(-200 to -190) °C (-190 to 0) °C (0 to 630) °C	0.055 °C 0.055 °C 0.074 °C	

Parameter/Equipment	Range	CMC[2] (±)	Comments
Electrical Simulation of Thermocouple Indicating Devices – Generate/Measure[3]			
Type E	(-250 to -100) °C (-100 to -25) °C (-25 to 350) °C (350 to 650) °C (650 to 1000) °C	1.9 °C 0.81 °C 1.6 °C 1.3 °C 1.3 °C	Multiproduct calibrator
Type J	(-210 to -100) °C (-100 to -30) °C (-30 to 150) °C (150 to 760) °C (760 to 1200) °C	0.35 °C 0.19 °C 0.18 °C 0.21 °C 0.27 °C	
Type K	(-200 to -100) °C (-100 to -25) °C (-25 to 120) °C (120 to 1000) °C (1000 to 1372) °C	0.42 °C 0.22 °C 0.20 °C 0.31 °C 0.47 °C	
Type T	(-250 to -150) °C (-150 to 0) °C (0 to 120) °C (120 to 400) °C	0.73 °C 0.30 °C 0.20 °C 0.18 °C	
DC Voltage – Generate[3]	(1 to 329) mV 329 mV to 3.29 V (3.29 to 32.9) V (32.9 to 329) V (329 to 1000) V	0.0021 mV 0.000 018 V 0.000 25 V 0.0027 V 0.0064 V	Multiproduct calibrator
DC Voltage – Measure[3]	(1 to 100) mV 100 mV to 1 V (1 to 10) V (10 to 100) V 100 V to 1 kV	0.0046 V 0.000 028 V 0.000 30 V 0.0039 V 0.039 V	8.5 digit multimeter

Parameter/Equipment	Range	CMC[2] (±)	Comments
DC Current – Generate[3]	(1 to 3.29) mA (3.29 to 32.9) mA (32.9 to 329) mA 329 mA to 1 A (1 to 2.2) A (2.2 to 11) A	0.000 11 mA 0.0017 mA 0.15 mA 0.0011 A 0.000 70 A 0.0049 A	Multiproduct calibrator
DC Current – Measure[3]	(1 to 100) µA (0.1 to 1) mA (1 to 10) mA (10 to 100) mA (0.1 to 1) A (1 to 3) A	0.0082 µA 0.000 052 mA 0.000 49 mA 0.0048 mA 0.000 097 A 0.000 097 A	8.5 digit multimeter 6.5 digit multimeter

III. Fluid Quantities

Parameter/Equipment	Range	CMC[2] (±)	Comments
Fume Hoods – Air Velocity Only[3]	(50 to 150) FPM (>150 to 500) FPM (>500 to 1250) FPM (>1250 to 2500) FPM	19 FPM 53 FPM 160 FPM 230 FPM	Anemometer
Flow – Gas (Air) @ 25 °C[3]	(0.1 to 1) SLPM (1 to 100) SLPM	0.017 SLPM 0.22 SLPM	Standard flow meter

IV. Mechanical

Parameter/Equipment	Range	CMC[2, 4, 6] (±)	Comments
Balances & Scales[3]	Up to 250 kg (500 lb) 500 to 10 000 lb using substitution method	1.2*R*	ASTM E617 with standard weights.
Pipettes[3]	(0.5 to 1) µl (>1 to 5) µl (>5 to 10) µl (>10 to 50) µl (>50 to 100) µl (>100 to 500) µl (>500 to 1000) µl (>1 to 10) ml	0.048 µl 0.048 µl 0.049 µl 0.049 µl 0.063 µl 0.063 µl 0.065 µl 10 µl	Gravimetric method using analytical balance
Dispenser[3]	Up to 25 ml (>25 to 50) ml (>50 to 100) ml (>100 to 200) ml	38 µl 50 µl 100 µl 170 µl	Gravimetric method using analytical balance
Force Gages[3], Fixed Points	Up to 10 lb (>10 to 50) lb (>50 to 110) lb	0.04 lb 0.22 lb 0.50 lb	Standard weights
Pressure Gages[3] – Pneumatic	(-12 to 100) psig (>100 to 300) psig	0.08 psi 0.30 psi	Pressure calibrator & pressure modules
Torque Tools[3]	(4 to 50) lbf·in (30 to 400) lbf·in (80 to 1000) lbf·in (20 to 250) lbf·ft (60 to 600) lbf·ft	0.63 lbf·in 0.69 lbf·in 2.0 lbf·in 0.72 lbf·ft 2.7 lbf·ft	Torque calibrator
Hydraulic Pressure Measuring Instruments	(200 to 2000) psig (2000 to 4000) psig (4000 to 6000) psig (6000 to 8000) psig (8000 to 10 000) psig	1.6 psig 1.8 psig 2.1 psig 2.4 psig 2.3 psig	Pressure gage

V. Thermodynamic

Parameter/Equipment	Range	CMC[2, 6] (±)	Comments
Thermometers & Temperature Indicating Systems[3]	(-80 to -30) °C (-30 to 100) °C (>100 to 420) °C (>420 to 650) °C	0.025 °C 0.011 °C 0.048 °C 0.13 °C	PRT/TC with meter Lab can generate temperatures from 0 °C to 200 °C

VI. Time & Frequency

Parameter/Equipment	Range	CMC[2, 6, 7] (±)	Comments
Frequency – Generate[3]	10 Hz to 2 MHz	3 µHz/Hz	Fluke 5502A
Frequency – Measure[3]	1 Hz to 10 MHz	0.05 % of Reading	Comparison to 8.5 digit Multimeter
Non-contact Tachometers[3]	(30 to 100,000) RPM	0.011 rpm	Fluke 5502A

[1] This laboratory offers commercial calibration service 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] In the statement of CMC, *R* is the Resolution of the unit under test/calibration.

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

[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, percentages are percentage of reading, unless otherwise indicated.

Accredited Laboratory

A2LA has accredited

COAST TO COAST CALIBRATIONS

Blaine, MN

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 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 20th day of October 2026.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 1684.01
Valid to August 31, 2028

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