



CERTIFICATE OF ACCREDITATION

The ANSI National Accreditation Board

Hereby attests that

American Lab LLC

**85 Saratoga Avenue, #130
Santa Clara, CA 95051**

Fulfills the requirements of

ISO/IEC 17025:2017

and national standard

ANSI/NCSL Z540-1-1994 (R2002)

In the field of

CALIBRATION

This certificate is valid only when accompanied by a current scope of accreditation document.
The current scope of accreditation can be verified at www.anab.org.

A handwritten signature in black ink, appearing to be 'J. Stine', is positioned above a horizontal line.

Jason Stine, Vice President
Expiry Date: 27 July 2026
Certificate Number: AC-1468



This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017.
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).

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

AND

ANSI/NCSL Z540-1-1994 (R2002)

American Lab LLC
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 Santa Clara, CA 95051
 Ken Silva 408-997-8911

CALIBRATION

Valid to: **July 27, 2026**

Certificate Number: **AC-1468**

Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
DC Voltage – Measure ¹	Up to 100 mV (0.1 to 3) V (3 to 30) V (30 to 300) V	0.34 % of reading + 6.3 μV 0.034 % of reading + 65 μV 0.034 % of reading + 0.66 mV 0.081 % of reading + 58 mV	Fluke 753 Documenting Process Calibrator
AC Voltage – Measure ¹	(40 to 500) Hz Up to 3 V (3 to 30) V (30 to 300) V	1.1 % of reading + 2.5 mV 1.1 % of reading + 25 mV 1.2 % of reading + 0.24 V	Fluke 753 Documenting Process Calibrator
DC Current – Measure ¹	Up to 30 mA (30 to 100) mA	0.016 % of reading + 6.6 μA 0.017 % of reading + 25 μA	Fluke 753 Documenting Process Calibrator
DC Resistance – Measure ¹	Up to 10 Ω (10 to 100) Ω (0.1 to 1) kΩ (1 to 10) kΩ	0.081 % of reading + 58 mΩ 0.081 % of reading + 58 mΩ 0.081 % of reading + 5.8 Ω 0.17 % of reading + 12 Ω	Fluke 753 Documenting Process Calibrator
DC Voltage – Source ¹	Up to 100 mV (0.1 to 1) V (1 to 15) V	0.017 % of reading + 5.9 μV 0.017 % of reading + 58 μV 0.017 % of reading + 0.58 mV	Fluke 753 Documenting Process Calibrator
DC Current – Source ¹	(0.1 to 22) mA	0.022 % of reading + 3.7 μA	Fluke 753 Documenting Process Calibrator



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Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
DC Resistance – Source ¹	Up to 10 Ω (10 to 100) Ω (0.1 to 1) kΩ (1 to 10) kΩ	0.017 % of reading + 12 mΩ 0.017 % of reading + 12 mΩ 0.034 % of reading + 0.24 mΩ 0.034 % of reading + 3.5 Ω	Fluke 753 Documenting Process Calibrator
Electrical Simulation of Thermocouple Measuring Devices ¹ (Source)	Type B (600 to 800) °C (800 to 1 000) °C (1 000 to 1 820) °C Type C (0 to 800) °C (800 to 1 200) °C (1 200 to 1 800) °C (1 800 to 2 316) °C Type E (-250 to -200) °C (-200 to -100) °C (-100 to 600) °C (600 to 1000) °C Type J (-210 to 100) °C (-100 to 800) °C (800 to 1 200) °C Type K (-200 to -100) °C (-100 to 400) °C (400 to 1 200) °C (1 200 to 1 372) °C Type L (-200 to -100) °C (100 to 800) °C (800 to 900) °C Type N (-200 to -100) °C (-100 to 900) °C (900 to 1 300) °C Type R (-20 to 0) °C (0 to 100) °C (100 to 1 767) °C	2 °C 1.7 °C 1.7 °C 1.3 °C 1.4 °C 1.9 °C 2.6 °C 1.3 °C 0.71 °C 0.7 °C 0.59 °C 0.71 °C 0.59 °C 0.59 °C 1.3 °C 0.71 °C 0.7 °C 0.7 °C 0.72 °C 0.6 °C 0.61 °C 1.3 °C 1.2 °C 0.7 °C 2.4 °C 2.3 °C 1.9 °C	Fluke 753 Documenting Process Calibrator

Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Electrical Simulation of Thermocouple Measuring Devices ¹ (Source)	Type S (-20 to 0) °C	2.4 °C	Fluke 753 Documenting Process Calibrator
	(0 to 200) °C	2.2 °C	
	(200 to 1 400) °C	1.9 °C	
	(1 400 to 1 767) °C	2 °C	
	Type T (-250 to -200) °C	1.9 °C	
	(200 to 0) °C	0.99 °C	
	(0 to 400) °C	0.7 °C	
	Type U (-200 to 0) °C	0.96 °C	
	(0 to 800) °C	0.73 °C	
	Type BP (0 to 1 000) °C	0.96 °C	
	(1 000 to 2 000) °C	1.3 °C	
	(2 000 to 2 500) °C	1.7 °C	
	Type XK (-200 to 300) °C	0.84 °C	
(300 to 800) °C	0.96 °C		
Thermocouple – Measure ¹	Type B (600 to 800) °C	2.6 °C	Fluke 753 Documenting Process Calibrator
	(800 to 1 000) °C	2 °C	
	(1 000 to 1 820) °C	1.8 °C	
	Type C (0 to 800) °C	1.3 °C	
	(800 to 1 200) °C	1.6 °C	
	(1 200 to 1 800) °C	2.1 °C	
	(1 800 to 2 316) °C	3.7 °C	
	Type E (-250 to -200) °C	2.6 °C	
	(-200 to -100) °C	1.2 °C	
	(-100 to 600) °C	0.7 °C	
	(600 to 1000) °C	0.93 °C	
	Type J (-210 to 100) °C	1.3 °C	
	(-100 to 800) °C	0.7 °C	
(800 to 1 200) °C	1.2 °C		

Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Thermocouple – Measure ¹	Type K (-200 to -100) °C (-100 to 400) °C (400 to 1 200) °C (1 200 to 1 372) °C Type L (-200 to -100) °C (100 to 800) °C (800 to 900) °C Type N (-200 to -100) °C (-100 to 900) °C (900 to 1 300) °C Type R (-20 to 0) °C (0 to 100) °C (100 to 1 767) °C Type S (-20 to 0) °C (0 to 200) °C (200 to 1 400) °C (1 400 to 1 767) °C Type T (-250 to -200) °C (200 to 0) °C (0 to 400) °C Type U (-200 to 0) °C (0 to 800) °C Type BP (0 to 1 000) °C (1 000 to 2 000) °C (2 000 to 2 500) °C Type XK (-200 to 300) °C (300 to 800) °C	1.6 °C 0.71 °C 1.2 °C 1.4 °C 1.3 °C 0.72 °C 1.2 °C 2 °C 1.2 °C 1.3 °C 3.5 °C 2.9 °C 2 °C 3.5 °C 2.7 °C 1.9 °C 2.2 °C 3.2 °C 1.3 °C 0.7 °C 1.3 °C 0.73 °C 2 °C 3.1 °C 3.8 °C 0.6 °C 0.96 °C	Fluke 753 Documenting Process Calibrator
Electrical Simulation of RTD Indicating Devices ¹ (Source)	Pt 385, 100 Ω (-200 to 100) °C (100 to 800) °C Pt 385, 200 Ω (-200 to 100) °C (100 to 630) °C	0.12 °C 0.029 % of reading + 0.093 °C 0.12 °C 0.029 % of reading + 0.093 °C	Fluke 753 Documenting Process Calibrator

Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Electrical Simulation of RTD Indicating Devices ¹ (Source)	Pt 385, 500 Ω (-200 to 100) °C	0.12 °C	Fluke 753 Documenting Process Calibrator
	(100 to 630) °C	0.029 % of reading + 0.093 °C	
	Pt 385, 1 000 Ω (-200 to 100) °C	0.12 °C	
	(100 to 630) °C	0.029 % of reading + 0.093 °C	
	Pt 3916, 100 Ω (-200 to 100) °C	0.12 °C	
	(100 to 630) °C	0.029 % of reading + 0.093 °C	
	Pt 3926, 100 Ω (-200 to 100) °C	0.12 °C	
	(100 to 630) °C	0.093 °C	
RTD – Measure ¹	Pt 385, 100 Ω (-200 to 100) °C	0.16 °C	Fluke 753 Documenting Process Calibrator
	(100 to 800) °C	0.046 % of reading + 0.12 °C	
	Pt 385, 200 Ω (-200 to 100) °C	0.16 °C	
	(100 to 630) °C	0.046 % of reading + 0.12 °C	
	Pt 385, 500 Ω (-200 to 100) °C	0.16 °C	
	(100 to 630) °C	0.046 % of reading + 0.12 °C	
	Pt 385, 1 000 Ω (-200 to 100) °C	0.16 °C	
	(100 to 630) °C	0.046 % of reading + 0.12 °C	
	Pt 3916, 100 Ω (-200 to 100) °C	0.16 °C	
	(100 to 630) °C	0.046 % of reading + 0.12 °C	
	Pt 3926, 100 Ω (-200 to 100) °C	0.16 °C	
	(100 to 630) °C	0.046 % of reading + 0.12 °C	
Cu 427, 10 Ω (-100 to 260) °C	0.47 °C		
Ni 627, 120 Ω (-80 to 260) °C	0.24 °C		

Length – Dimensional Metrology

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Bench Micrometer ²	Up to 10 in	$(71 + 0.7L) \mu\text{in}$	Gage Blocks
Dial/Digital Calipers ¹ (Inside, Outside, Depth)	Up to 24 in	150 μin	Gage Blocks, Micrometer Standards (1 to 11) in
Height Gages/Height Master ¹ (Various Types)	Up to 24 in	$(17 + 0.4L) \mu\text{in}$	Gage Blocks, Micrometer Standards (1 to 11) in, Surface Plate
Dial/Test Indicators ¹	Up to 4 in	80 μin	Gage Blocks
Dial/Digital Micrometers ^{1,2} (Blade, Depth, Flange, Micrometer Head, Inside, Outside)	Up to 12 in	$(65 + 23L) \mu\text{in}$	Gage Blocks, Micrometer Standards (1 to 11) in
Micrometer Standards ²	(1 to 11) in	$(71 + 1.2L) \mu\text{in}$	P & W Supermicrometer [®] , Gage Blocks
Pitch Diameter/External Threads ¹	Up to 4 in	60 μin	P & W Supermicrometer [®] , Etalon Precision Indicating Micrometer, Thread Wires
Gage Blocks ²	(0.05 to 1) in (1 to 4) in	$(13 + 0.9L) \mu\text{in}$ $(71 + 0.3L) \mu\text{in}$	P & W Supermicrometer [®] , Master Gage Blocks
Surface Plates ¹ Local Area Flatness Only (Repeat Readings)	Up to 0.005 in	110 μin	Partial Verification per Internal Calibration Procedure #037 using Repeat-o-Meter

Mass and Mass Related

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Force Devices ¹	(20 to 7 000) gf	0.04 % of reading + 4.6 mgf	NIST Class F Weights
Force – Measure ¹ (Tension and Compression)	Up to 440 lbf	1 % of reading + 0.2 lbf	Comparison to Digital Force Gage
Torque Tools ¹	(5 to 50) lbf·in	6 % of reading + 0.11 lbf·in	CDI Torque Tester

Mass and Mass Related

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Scales and Balances ^{1,3}	Up to 2 000 g	0.2 % of reading + 0.6 g	NIST Class F weights and internal procedure #045 utilized for the calibration of the weighing system.

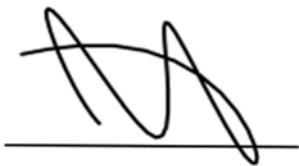
Time and Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Frequency – Measure	Up to 30 V rms (1 to 110) Hz (110 to 1 100) Hz (1.1 to 11 kHz) (11 to 50) kHz	58 mHz 0.58 Hz 5.8 Hz 58 Hz	Fluke 753 Documenting Process Calibrator
Frequency – Source	Up to 30 V p-p 100 mHz to 10.99 Hz (11 to 110) Hz (110 to 1 100) Hz (1.1 to 22) kHz (22 to 500) kHz	13 mHz 0.12 Hz 0.12 Hz 2.4 Hz 8.2 Hz	Fluke 753 Documenting Process Calibrator

Calibration and Measurement Capability (CMC) is expressed in terms of the measurement parameter, measurement range, expanded uncertainty of measurement and reference standard, method, and/or equipment. The expanded uncertainty of measurement is expressed as the standard uncertainty of the measurement multiplied by a coverage factor of 2 ($k=2$), corresponding to a confidence level of approximately 95%.

Notes:

1. On-site calibration service is available for this parameter, since on-site conditions are typically more variable than those in the laboratory, larger measurement uncertainties are expected on-site than what is reported on the accredited scope.
2. L = length in inches.
3. The CMC for Scales and Balances is highly dependent upon the resolution of the device under test (DUT). The CMC expressed here does not contain the resolution of the DUT. The resolution will be included in the measurement uncertainty at the time of calibration.
4. This scope is formatted as part of a single document including Certificate of Accreditation No. AC-1468.



Jason Stine, Vice President