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.

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)

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CALIBRATION

ISO/IEC 17025 Accreditation Granted: **27 July 2024**

Certificate Number: **AC-1468** Certificate Expiry Date: **27 July 2026**

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	Comparison to 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	Comparison to 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	Comparison to 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	Comparison to 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	Comparison to Fluke 753 Documenting Process Calibrator

Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
DC Current – Source [1]	(0.1 to 22) mA	0.022 % of reading + 3.7 µA	Comparison to Fluke 753 Documenting Process Calibrator
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	Comparison to Fluke 753 Documenting Process Calibrator
Electrical Simulation of Thermocouple Measuring Devices [1] (Source)	Type K (-200 to -100) °C (-100 to 400) °C (400 to 1 200) °C (1 200 to 1 372) °C	 1.3 °C 0.71 °C 0.7 °C 0.7 °C	Comparison to Fluke 753 Documenting Process Calibrator
Thermocouple – Measure [1]	Type K (-200 to -100) °C (-100 to 400) °C (400 to 1 200) °C (1 200 to 1 372) °C	 1.6 °C 0.71 °C 1.2 °C 1.4 °C	Comparison to 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	 0.12 °C 0.029 % of reading + 0.093 °C	Comparison to Fluke 753 Documenting Process Calibrator
RTD – Measure [1]	Pt 385, 100 Ω (-200 to 100) °C (100 to 800) °C	 0.16 °C 0.046 % of reading + 0.12 °C	Comparison to Fluke 753 Documenting Process Calibrator

Length – Dimensional Metrology

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Bench Micrometer [2]	Up to 10 in	(65 + 10*L*) µin	Comparison to Gage Blocks
Dial/Digital Calipers [1] (Inside, Outside, Depth)	Up to 24 in	390 µin	Comparison to Gage Blocks, Micrometer Standards (1 to 11) in

Length – Dimensional Metrology

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Height Gages/Height Master [1] (Various Types)	Up to 24 in	(127 + 11L) µin	Comparison to Gage Blocks, Micrometer Standards (1 to 11) in, Surface Plate
Dial/Test Indicators [1]	Up to 4 in	80 µin	Comparison to Gage Blocks
Dial/Digital Micrometers [1,2] (Blade, Depth, Flange, Micrometer Head, Inside, Outside)	Up to 10 in	(65 + 10L) µin	Comparison to Gage Blocks, Micrometer Standards (1 to 11) in
Micrometer Standards [2]	(1 to 10) in	(19 + 15L) µin	Comparison to P & W Supermicrometer®, Gage Blocks
Pitch Diameter/External Threads [1]	Up to 4 in	60 µin	Comparison to P & W Supermicrometer®, Etalon Precision Indicating Micrometer, Thread Wires
Gage Blocks [2]	(0.05 to 1) in (1 to 4) in	(13 + 0.9L) µin (29 + 10L) µin	Comparison to 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	Comparison to 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	Comparison to 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	Comparison to 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	Comparison to 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 does not contain the resolution of the DUT. The resolution will be included in the measurement uncertainty at the time of calibration.
4. Unless otherwise specified in the far-right column, the calibration procedure being used was internally written by the laboratory.

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