SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

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CALIBRATION

Valid To: November 30, 2026 Certificate Number: 5098.01

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 – Generate[3]			
Measuring Instruments	(0 to 330) mV 330 mV to 3.3 V (3.3 to 33) V (33 to 330) V (330 to 1000) V	0.04 µV/V + 2.0 µV 22 µV/V + 4.2 µV 0.02 mV/V + 0.04 mV 0.04 mV/V + 0.29 mV 0.04 mV/V + 3.1 mV	Fluke 5520A
DC Current – Generate[3]			
Measuring Instruments	(0 to 330) µA 330 µA to 3.3 mA (3.3 to 33) mA (33 to 330) mA 330 mA to 1.1 A (1.1 to 3) A (3 to 20) A	0.30 nA/µA + 41 nA 0.20 µA/mA + 0.1 µA 0.20 µA/mA + 0.51 µA 0.20 µA/mA + 5.1 µA 0.40 mA/A + 0.08 mA 0.56 mA/A + 0.08 mA 2.0 mA/A + 1.0 mA	Fluke 5520A
Toroidal & Other Type of Clamps	(20 to 300) A (300 to 600) A (600 to 1000) A	0.59 % + 0.63 A 0.61 % + 0.58 A 0.61 % + 0.56 A	Fluke 5520A, 50 turn coil

Parameter/Equipment	Range	CMC[2, 5] (±)	Comments
Resistance – Generate[3]			
Measuring Instruments	(0 to 11) Ω (11 to 33) Ω (33 to 110) Ω	0.08 mΩ/Ω + 20 mΩ 0.06 mΩ/Ω + 29 mΩ 0.81 mΩ/Ω + 5.2 mΩ	Fluke 5520A
Resistance – Generate[3]			
Measuring Instruments	(110 to 330) Ω (0.33 to 1.1) kΩ (1.1 to 3.3) kΩ (3.3 to 11) kΩ (11 to 33) kΩ (33 to 110) kΩ (110 to 330) kΩ (0.33 to 1.1) MΩ (1.1 to 3.3) MΩ (3.3 to 11) MΩ (11 to 33) MΩ (33 to 110) MΩ (119 to 330) MΩ (0.33 to 1.1) GΩ	0.06 mΩ/Ω + 40 mΩ 0.06 Ω/kΩ + 0.04 Ω 0.06 Ω/kΩ + 0.40 Ω 0.06 Ω/kΩ + 0.21 Ω 0.06 Ω/kΩ + 2.0 Ω 0.06 Ω/kΩ + 2.0 Ω 0.06 Ω/kΩ + 20 Ω 0.06 kΩ/kΩ + 0.02 kΩ 0.12 kΩ/MΩ + 0.30 kΩ 0.26 kΩ/MΩ + 0.50 kΩ 0.50 kΩ/MΩ + 4.9 kΩ 1.0 kΩ/MΩ + 6.0 kΩ 6.0 kΩ/MΩ + 0.20 MΩ 30 kΩ/MΩ + 1.0 MΩ	Fluke 5520A
Electrical Simulation of Thermocouple Indicating Systems – Generate & Measure[3]			
Type C	(0 to 150) °C (150 to 650) °C (650 to 1000) °C (1000 to 1800) °C (1800 to 2316) °C	0.60 °C 0.52 °C 0.62 °C 1.0 °C 1.7 °C	Fluke 5520A
Type E	(-250 to -100) °C (-100 to -25) °C (-25 to 350) °C (350 to 650) °C (650 to1000) °C	1.0 °C 0.32 °C 0.28 °C 0.32 °C 0.42 °C	
Type J	(-210 to -100) °C (-100 to -30) °C (-30 to 150) °C (150 to 760) °C (760 to 1200) °C	0.54 °C 0.32 °C 0.28 °C 0.34 °C 0.46 °C	

Parameter/Equipment	Range	CMC[2, 5] (±)	Comments
Electrical Simulation of Thermocouple Indicating Systems – Generate & Measure[3] (cont)			
Type K	(-200 to -100) °C (-100 to -25) °C (-25 to 120) °C (120 to 1000) °C (1000 to 1372) °C	0.66 °C 0.36 °C 0.32 °C 0.52 °C 0.80 °C	Fluke 5520A
Type N	(-200 to -100) °C (-100 to -25) °C (-25 to 120) °C (120 to 410) °C (410 to 1300) °C	0.82 °C 0.44 °C 0.38 °C 0.36 °C 0.54 °C	
Type R	(0 to 250) °C (250 to 400) °C (400 to 1000) °C (1000 to 1767) °C	1.2 °C 0.71 °C 0.67 °C 0.80 °C	
Type S	(0 to 250) °C (250 to 1000) °C (1000 to 1400) °C (1400 to 1767) °C	0.96 °C 0.73 °C 0.75 °C 0.93 °C	
Type T	(-250 to -150) °C (-150 to 0) °C (0 to 120) °C (120 to 400) °C	1.3 °C 0.48 °C 0.32 °C 0.28 °C	
Electrical Simulation of RTD Indicators and Indicating Systems Generate[3] –			
Pt 385, 100 Ω	(-200 to -80) °C (-80 to 0) °C (0 to 100) °C (100 to 300) °C (300 to 400) °C (400 to 630) °C (630 to 800) °C	0.05 °C 0.05 °C 0.07 °C 0.09 °C 0.10 °C 0.12 °C 0.23 °C	Fluke 5520A

Parameter/Range	Frequency	CMC[2, 5] (±)	Comments
AC Voltage – Generate[3]			
Measuring Instruments			
(3 to 33) mV	10 Hz to 1 kHz (1 to 10) kHz (10 to 50) kHz	0.34 µV/mV 0.81 µV/mV 2.4 µV/mV	Fluke 5520A
(33 to 330) mV	10 Hz to 1 kHz (1 to 10) kHz (10 to 50) kHz	0.34 µV/mV 0.37 µV/mV 0.75 µV/mV	
(0.33 to 3.3) V	10 Hz to 1 kHz (1 to 10) kHz (10 to 50) kHz	0.34 mV/V 0.42 mV/V 0.63 mV/V	
(3.3 to 33) V	10 Hz to 1 kHz (1 to 10) kHz (10 to 50) kHz	1.0 mV/V 0.34 mV/V 0.74 mV/V	
(33 to 330) V	10 Hz to 1 kHz (1 to 10) kHz (10 to 50) kHz	0.39 mV/V 0.54 mV/V 0.65 mV/V	
(330 to 1020) V	10 Hz to 1 kHz (1 to 10) kHz	0.52 mV/V 0.62 mV/V	
AC Current – Generate[3]			
Measuring Instruments			
(190 to 329) µA	45 Hz to 1 kHz (10 to 30) kHz	1.8 nA/µA + 0.14 µA 18 nA/µA + 0.45 µA	Fluke 5520A
329 µA to 3.29 mA	45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz (10 to 30) kHz	1.4 µA/mA + 0.26 µA 2.7 µA/mA + 0.72 µA 5.1 µA/mA + 1.4 µA 11 µA/mA + 2.9 µA	
(3.29 to 32.9) mA	45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz (10 to 30) kHz	0.59 µA/mA + 2.9 µA 0.83 µA/mA + 4.9 µA 1.9 µA/mA + 12 µA 3.9 µA/mA + 25 µA	

Parameter/Range	Frequency	CMC[2, 5] (±)	Comments
AC Current – Generate[3] (cont)			
Measuring Instruments			
(32.9 to 329) mA	45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz (10 to 30) kHz	0.66 µA/mA + 0.83 µA 1.2 µA/mA + 34 µA 2.4 µA/mA + 75 µA 4.5 µA/mA + 0.21 mA	Fluke 5520A
(0.33 to 1) A	45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz	0.61 mA/A + 0.25 mA 0.76 mA/A + 1.0 mA 25 mA/A + 5.1 mA	
(1 to 3) A	45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz	0.86 mA/A + 0.13 mA 6.0 mA/A + 1.0 mA 26 mA/A + 5.1 mA	
(3 to 11) A	45 Hz to 1 kHz (1 to 5) kHz	1.2 mA/A + 2.8 mA 1.2 mA/A + 2.8 mA	
(11 to 20.5) A	45 Hz to 1 kHz (1 to 5) kHz	1.9 mA/A + 7.0 mA 30 mA/A + 7.1 mA	
Toroidal Type Clamps			
(20 to 300) A	(45 to 65) Hz (65 to 440) Hz	0.32 % + 0.62 A 0.20 % + 1.0 A	Fluke 5520A, 50 turn coil
(300 to 600) A	(45 to 65) Hz (65 to 440) Hz	0.35 % + 0.52 A 0.36 % + 0.51 A	
(600 to 1000) A	(45 to 65) Hz (65 to 440) Hz	0.35 % + 0.50 A 0.34 % + 0.65 A	
Non-Toroidal Type Clamps			
(20 to 300) A	(45 to 65) Hz (65 to 440) Hz	0.60 % + 0.58 A 0.58 % + 0.68 A	
(300 to 600) A	(45 to 65) Hz (65 to 440) Hz	0.61 % + 0.55 A 0.62 % + 0.57 A	
(600 to 1000) A	(45 to 65) Hz (65 to 440) Hz	0.61 % + 0.57 A 0.60 % + 0.67 A	

Parameter/Range	Frequency	CMC[2, 5] (±)	Comments
Capacitance – Generate[3]			
Measuring Instruments			
(0.19 to 0.4) nF	1 kHz	10 pF/nF + 20 pF	Fluke 5520A
(0.4 to 1.1) nF	1 kHz	10 pF/nF + 20 pF	
(1.1 to 3.3) nF	1 kHz	10 pF/nF + 20 pF	
(3.3 to 11) nF	1 kHz	5.0 pF/nF + 20 pF	
(11 to 33) nF	1 kHz	5.0 pF/nF + 0.20 nF	
(33 to 110) nF	1 kHz	5.0 pF/nF + 0.20 nF	
(110 to 330) nF	1 kHz	5.0 pF/nF + 0.60 nF	
(0.33 to 1.1) µF	100 Hz	.0 nF/µF + 2.0 nF	
(1.1 to 3.3) µF	100 Hz	5.0 nF/µF + 6.0 nF	
(3.3 to 11) µF	100 Hz	5.0 nF/µF + 20 nF	
(11 to 33) µF	100 Hz	8.0 nF/µF + 60 nF	
(33 to 110) µF	50 Hz, 100 Hz	9.0 nF/µF + 0.2 µF	
(110 to 330) µF	50 Hz	9.0 nF/µF + 0.6 µF	
(0.33 to 1.1) mF	50 Hz	9.0 µF/mF + 2.1 µF	
(1.1 to 3.3) mF	50 Hz	9.0 µF/mF + 6.0 µF	
(3.3 to 11) mF	50 Hz	9.0 µF/mF + 20 µF	
(11 to 33) mF	50 Hz	15 µF/mF + 60 µF	
(33 to 110) mF	50 Hz	22 µF/mF + 0.20 mF	
AC Voltage – Measure[3]			
Generating Instruments			
(0.1 to 1) V	10 Hz to 20 kHz	2.1 mV/V + 0.3 mV	Keysight 34465A
	(20 to 50) kHz	1.7 mV/V + 0.5 mV	
	(50 to 100) kHz	2.7 mV/V + 0.8 mV	
	(100 to 300) kHz	13 mV/V + 5.0 mV	
(1 to 10) V	10 Hz to 20 kHz	2.1 mV/V + 3.0 mV	
	(20 to 50) kHz	2.4 mV/V + 5.0 mV	
	(50 to 100) kHz	3.0 mV/V + 8.0 mV	
	(100 to 300) kHz	13 mV/V + 50 mV	
(10 to 100) V	45 Hz to 20 kHz	1.3 mV/V + 30 mV	
	(20 to 50) kHz	7.8 mV/V + 50 mV	
	(50 to 100) kHz	3.2 mV/V + 80 mV	
(100 to 750) V	45 Hz to 20 kHz	1.3 mV/V + 0.23 V	
	(20 to 50) kHz	1.8 mV/V + 0.38 V	
	(50 to 100) kHz	2.8 mV/V + 0.60 V	

Parameter/Range	Frequency	CMC[2, 5] (±)	Comments
AC Voltage – Measure[3] (cont)			
Generating Instruments			
(0.1 to 25) kV	60 Hz	1.2 V/kV + 0.28 V	Keysight 34465A w/80K-40 high voltage probe
AC Current – Measure[3]			
Generating Instruments			
(0.1 to 1) mA	10 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz	3.0 µA/mA + 0.4 µA 3.3 µA/mA + 0.4 µA 5.0 µA/mA + 0.4 µA	Keysight 34465A
(1 to 10) mA	10 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz	3.1 µA/mA + 0.4 µA 3.3 µA/mA + 0.4 µA 5.0 µA/mA + 0.4 µA	
(10 to 100) mA	10 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz	3.1 µA/mA + 0.4 µA 3.3 µA/mA + 0.4 µA 5.0 µA/mA + 0.4 µA	
(0.1 to 1) A	10 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz	3.2 mA/A + 0.4 mA 3.3 mA/A + 0.4 mA 13 mA/A + 0.4 mA	
(0.1 to 3) A	45 Hz to 1 kHz (1 to 10) kHz	3.9 mA/A + 0.4 mA 8.7 mA/A + 0.4 mA	
(3 to 10) A	45 Hz to 1 kHz	4.6 mA/A + 0.4 mA	

Parameter/Equipment	Range	CMC[2, 5] (±)	Comments
DC Voltage – Measure[3]			
Generating Instruments	(0 to 100) mV (0.1 to 1) V (1 to 10) V (10 to 100) V (100 to 1000) V	0.07 µV/mV + 5.2 µV 50 µV/V + 7.3 µV 34 µV/V + 23 µV 0.05 mV/V + 0.02 mV 0.05 mV/V + 0.01 mV	Keysight 34465A

Parameter/Equipment	Range	CMC[2, 5] (±)	Comments
DC Voltage – Measure[3] (cont)			
Generating Instruments	(1 to 20) kV (20 to 35) kV (35 to 40) kV	1 V/kV + 0.09 V 0.93 V/kV + 1.3 V 0.80 V/kV + 6.0 V	Keysight 34465A w/80K-40 high voltage probe
DC Current– Measure[3] –			
Generating Instruments	(0 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 (3 to 10) A	0.52 nA/µA + 1 nA 69 µA/mA + 0.08 µA 0.50 µA/mA + 2.0 µA 0.51 µA/mA + 5 µA 0.81 mA/A + 0.10 mA 2.0 mA/A + 0.60 mA 1.3 mA/A + 1.0 mA	Keysight 34465A
Four-Wire Resistance – Measure[3]			
Generating Instruments	(0 to 100) Ω (0.1 to 1) kΩ (1 to 10) kΩ (10 to 100) kΩ	0.67 mΩ/Ω + 20 mΩ 0.09 Ω/kΩ + 0.02 Ω 0.49 Ω/kΩ + 0.50 Ω 0.08 Ω/kΩ + 0.84 Ω	Keysight 34465A
Two-Wire Resistance – Measure[3]			
Generating Instruments	(0 to 1) kΩ (1 to 10) kΩ (10 to 100) kΩ (0.1 to 1) MΩ (1 to 10) MΩ (10 to 100) MΩ	0.17 Ω/kΩ + 0.02 Ω 0.08 Ω/kΩ + 0.04 Ω 0.09 Ω/kΩ + 0.61 Ω 0.14 kΩ/MΩ + 0.01 kΩ 0.40 kΩ/MΩ + 0.17 kΩ 3.2 kΩ/MΩ + 1.1 kΩ	Keysight 34465A

II. Mechanical

Parameter/Equipment	Range	CMC[2, 7] (±)	Comments
Pressure Gauges[3] –			
Pneumatic	(-12 to 0) psig (0 to 30) psig (30 to 500) psig (500 to 1000) psig	0.013 psig 0.04 psig 0.53 psig 1.1 psig	Omega digital pressure gauges
Hydraulic	(1000 to 5000) psig (5000 to 10 000) psig	5.3 psig 11 psig	
Torque Tools (Mechanical and Electronic Types)[3]	(50 to 500) lbf·ft	0.12 % + 0.07 lbf·ft	ASME B107.300-2010 using AKO torque measuring system
Scales and Balances[3]	(1 to 500) mg 1 g 10 g 20 g 50 g 100 g 200 g 500 g 1 kg 2 kg 5 kg 20 kg 60 kg 100 kg 200 kg 325 kg	18 µg 27 µg 85 µg 0.60 mg 1.1 mg 1.6 mg 1.8 mg 8.3 mg 8.5 mg 8.8 mg 2.2 g 8.6 g 11 g 15 g 26 g 40 g	Using ASTM Class 0 Weights, NIST Class F weights

III. Thermodynamics

Parameter/Equipment	Range	CMC[2, 6, 7] (±)	Comments
Heat Treating Furnace/Oven – Temperature System Accuracy Test (SAT)[3]	(32 to 2190) °F	0.001 ºF/ºF + 2.3 ºF	SAE AMS2750 3.4: Type S thermocouple and temperature indicator
Temperature – Measuring Equipment[3]	(-80 to 215) °C	0.0003 °C/°C + 1.4 °C	Pt 385, 100 Ω RTD probe and Omega readout
	(0 to 1200) °C	0.001 °C/°C + 1.4 °C	Type S thermocouple and Omega readout

IV. Time/Frequency

Parameter/Equipment	Range	CMC[2, 6] (±)	Comments
Frequency – Generate[3]	(1 to 5) Hz (5 to 10) Hz (10 to 120) Hz (0.12 to 1) kHz (1 to 100) kHz (0.1 to 1) MHz (1 to 2) MHz	0.02 µHz/Hz + 12 µHz 0.23 µHz/Hz + 10 µHz 1.7 mHz/Hz + 2.5 mHz 5.1 mHz/kHz + 0.16 Hz 0.15 Hz/kHz + 0.01 Hz 0.08 kHz/MHz + 0.97 kHz 1.2 kHz/MHz + 0.06 kHz	Fluke 5520A
Frequency – Measure[3]	(0.01 to 1) kHz (1 to 300) kHz	4.5 mHz/Hz + 1.5 mHz 0.15 Hz/kHz + 4.4 Hz	Keysight 34465A
Stopwatch[3]	(0 to 24) h	0.92 s	NIST SP 960-12, direct comparison method using traceable audio time signal WWV

[1] This laboratory offers commercial 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 uncertainties achievable on a customer's site can normally be expected to be larger than the Calibration and Measurement Capability uncertainty (CMC) that the accredited laboratory has been assigned 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 uncertainty introduced by the item being calibrated, (e.g. resolution) must also be considered and this, on its own, could result in the calibration uncertainty being larger than the CMC uncertainty.

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

Accredited Laboratory

A2LA has accredited

TRIN CALSERVICES INC.

Brampton, Ontario, CANADA

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 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 27th day of March 2025.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 5098.01
Valid to November 30, 2026

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