



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005
& ANSI/NCSL Z540-1-1994

CONRAD KACSIK INSTRUMENT SYSTEMS, INC.
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Solon, OH 44139
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CALIBRATION

Valid To: December 31, 2019

Certificate Number: 1385.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following calibrations¹:

I. Electrical – DC/Low Frequency

Parameter/Equipment	Range	CMC ^{2,4} (±)	Comments
DC Voltage – Measure ³	(0 to 100) mV (0.1 to 1) V (1 to 10) V	22 μ V/V + 1 μ V 9.0 μ V/V + 1 μ V 8.0 μ V/V + 1 μ V	HP 3458A, opt 002
DC Voltage – Generate ³	(0 to 330) mV 330 mV to 3.3 V (3.3 to 33) V	29 μ V/V + 1 μ V 16 μ V/V + 2 μ V 16 μ V/V + 20 μ V	Fluke 5520A/SC600
DC Current – Measure ³	(0 to 100) μ A (0.1 to 1) mA (1 to 10) mA (10 to 100) mA	22 μ A/A + 8 nA 18 μ A/A + 5 nA 18 μ A/A + 50 nA 30 μ A/A + 500 nA	HP 3458A, opt 002
DC Current – Generate ³	(0 to 329.999) μ A (0.3 to 3.299) mA (3 to 32.99) mA	0.03 % + 20 nA 0.012 % + 50 nA 0.012 % + 250 nA	Fluke 5520A/SC600

Parameter/Equipment	Range	CMC ^{2,4} (±)	Comments
Electrical Calibration of mV Thermocouple Sources ³ –			
Type J	(-210 to 760) °C	0.12 °C	HP 3458A opt 002, Kaye Ice point, Omega T/C half junctions
Type K	(-270 to 1372) °C	0.13 °C	
Type N	(-270 to 1300) °C	0.14 °C	
Type R	(0 to 1767) °C	0.28 °C	
Type S	(0 to 1767) °C	0.28 °C	
Type T	(-270 to 400) °C	0.13 °C	
Type E	(-270 to 1000) °C	0.14 °C	
Electrical Calibration of Thermocouple Indicators ³ –			
Type J	(-200 to 760) °C	0.12 °C	Fluke 5520A HP 3458A opt 002, Kaye Ice point, Omega T/C half junctions
Type K	(-200 to 1372) °C	0.13 °C	
Type N	(-200 to 1300) °C	0.14 °C	
Type R	(-50 to 1767) °C	0.28 °C	
Type S	(-50 to 1767) °C	0.28 °C	
Type T	(-250 to 400) °C	0.13 °C	
Type E	(-270 to 1000) °C	0.14 °C	

II. Thermodynamics

Parameter/Equipment	Range	CMC ² (±)	Comments
Thermocouples and Extension Wires for Furnaces & Ovens	(100 to 1000) °F (1100 to 1600) °F (1700 to 1900) °F (2000 to 2200) °F	1.0 °F 1.4 °F 1.9 °F 2.2 °F	Hart 1560 scanner, Lindberg tube oven, Primary T/C type S

Parameter/Equipment	Range	CMC ² (±)	Comments
Ovens ³ –			ASTM E145 testing:
Ventilation Rate	(50 to 200) air changes/hr	5.2 % air changes/hr	Anemometer
Temperature	(20 to 500) °C	0.15 °C	Digital survey recorder
Time Constant	(10 to 660) s	1.5 s	Stopwatch
Uniformity Survey	(40 to 175) °C (175 to 500) °C	0.73 °C 0.78 °C	Digital survey recorder, T/C type J ½ special limits
Uniformity Survey	(40 to 400) °F (500 to 2200) °F 2350 °F	1.6 °F (1.7 to 3.2) °F 4.1 °F	AMS-2750 uniformity Survey: Digital survey recorder, T/C type K
Infrared Thermometers	(500 to 2200) °F	3.1 °F	Black body source Iron BCH-22F-1 Infrared systems 564/301 E=.99
	122 °F	0.5 °F	Hart Scientific 9135 E= 0.95
	212 °F	0.5 °F	
	302 °F	0.8 °F	
Infrared Source	(50 to 250) °C	0.1 °C	CELABS R5T185L RTD, HP 3458A opt 002
	(260 to 1204) °C	0.61 °C	Ectron 1140A, primary T/C type S

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 and this laboratory meets A2LA R104 – *General Requirements: Accreditation of Field Testing and Field Calibration Laboratories* for these calibrations. 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 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. CMC's are expressed as either a specific value that covers the full range or as a percent or fraction of the readin a fixed floor specification.



Accredited Laboratory

A2LA has accredited

CONRAD KACSIK INSTRUMENT SYSTEMS, INC.

Solon, OH

for technical competence in the field of

Calibration

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *General requirements for the competence of testing and calibration laboratories*. This laboratory also meets 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 8 January 2009*).



Presented this 27th day of December 2017.

A handwritten signature in black ink, written over a horizontal line.

President and CEO
For the Accreditation Council
Certificate Number 1385.01
Valid to December 31, 2019

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