CERTIFICATE OF ACCREDITATION

The ANSI National Accreditation Board

Hereby attests that

Aldinger Company
dba
Cal Tec Process Management
1400 Grange Hall Road, Suite 500
Beavercreek, OH 45430

Fulfills the requirements of

ISO/IEC 17025:2017

In the fields of

CALIBRATION AND DIMENSIONAL MEASUREMENT

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: 10 April 2026

Certificate Number: AC-1320

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

Aldinger Company dba Cal Tec Process Management

1400 Grange Hall Road, Suite 500
Beavercreek, OH 45430
Matt Shaw 423-617-9006

CALIBRATION AND DIMENSIONAL MEASUREMENT

Valid to: **April 10, 2026** Certificate Number: **AC-1320**

CALIBRATION

Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Capacitance – Source [1]			Comparison to Multiproduct Calibrator
10 Hz to 3 kHz	(0.19 to 3.3) nF	6 mF/F + 12 pF	
10 Hz to 1 kHz	(3.3 to 110) nF	3 mF/F + 0.12 nF	
10 Hz to 1 kHz	(110 to 330) nF	3 mF/F + 0.35 nF	
(10 to 600) Hz	(0.33 to 1.1) µF	3 mF/F + 2 nF	
(10 to 300) Hz	(1.1 to 3.3) µF	3mF/F + 4nF	
(10 to 120) Hz	(3.3 to 33) µF	5 mF/F + 35 nF	
(0 to 50) Hz	(33 to 330) µF	6 mF/F + 0.35 µF	
(0 to 6) Hz	(0.33 to 3.3) mF	6 mF/F + 4 µF	
(0 to 2) Hz	(3.3 to 11) mF	6 mF/F + 12 µF	
(0 to 0.6) Hz	(11 to 33) mF	9 mF/F + 35 µF	
(0 to 0.2) Hz	(33 to 110) mF	13 mF/F + 0.12 mF	
DC Voltage – Source [1]	Up to 320 mV	71 µV/V + 8.5 µV	Comparison to Multiproduct Calibrator
	320 mV to 3.2 V	65 µV/V + 65 µV	
	(3.2 to 32) V	75 µV/V + 0.73 mV	
	(32 to 320) V	77 µV/V + 11 mV	
	320 V to 1 kV	73 µV/V + 23 mV	
DC Voltage – Measure [1]	Up to 100 mV	71 µV/V + 5.9 µV	Comparison to Precision DMM
	100 mV to 1 V	65 µV/V + 42 µV	
	(1 to 10) V	70 µV/V + 0.42 mV	
	(10 to 100) V	75 µV/V + 4.5 mV	
	100 V to 1 kV	77 µV/V + 23 mV	

Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
AC Voltage – Source [1]	Up to 10 mV		Comparison to Multiproduct Calibrator
	10 Hz to 3 kHz	0.72 mV/V + 0.39 mV	
	(3 to 10) kHz	0.72 mV/V + 0.52 mV	
	(10 to 30) kHz	1.4 mV/V + 0.97 mV	
	(30 to 50) kHz	1.5 mV/V + 2 mV	
	(50 to 100) kHz	6.4 mV/V + 5.1 mV	
	(10 to 32) mV		
	10 Hz to 3 kHz	0.72 mV/V + 0.11 mV	
	(3 to 10) kHz	2.3 mV/V + 0.13 mV	
	(10 to 30) kHz	1.4 mV/V + 0.25 mV	
	(30 to 50) kHz	1.5 mV/V + 0.49 mV	
	(50 to 100) kHz	2 mV/V + 1.3 mV	
	(32 to 320) mV		
	10 Hz to 3 kHz	0.72 mV/V + 0.3 mV	
	(3 to 10) kHz	0.72 mV/V + 0.3 mV	
	(10 to 30) kHz	1.4 mV/V + 0.5 mV	
	(30 to 50) kHz	1.5 mV/V + 0.51 mV	
	(50 to 100) kHz	6.3 mV/V + 0.84 mV	
	320 mV to 3.2 V		
	10 Hz to 3 kHz	0.72 mV/V + 3 mV	
	(3 to 10) kHz	0.72 mV/V + 3 mV	
	(10 to 30) kHz	1.4 mV/V + 5 mV	
	(30 to 50) kHz	1.5 mV/V + 5.1 mV	
	(50 to 100) kHz	6.3 mV/V + 8.4 mV	
	(3.2 to 32) V		
	10 Hz to 3 kHz	0.72 mV/V + 30 mV	
	(3 to 10) kHz	0.85 mV/V + 30 mV	
	(10 to 30) kHz	1.5 mV/V + 50 mV	
	(30 to 50) kHz	1.9 mV/V + 51 mV	
	(50 to 100) kHz	7 mV/V + 86 mV	
	(32 to 105) V		
	10 Hz to 3 kHz	0.72 mV/V + 0.23 V	
	(3 to 10) kHz	0.85 mV/V + 0.23 V	
	(10 to 30) kHz	1.5 mV/V + 0.38 V	
	(30 to 50) kHz	1.9 mV/V + 0.38 V	
	(50 to 100) kHz	7 mV/V + 0.61 V	

Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
AC Voltage – Source [1]	(105 to 320) V		Comparison to Multiproduct Calibrator
	40 Hz to 1 kHz	0.79 mV/V + 0.23 V	
	(1 to 3) kHz	1 mV/V + 0.23 V	
	(3 to 10) kHz	1 mV/V + 0.23 V	
	(10 to 20) kHz	1.4 mV/V + 0.23 V	
	(20 to 30) kHz	1.9 mV/V + 0.38 V	
	(320 to 800) V		
	40 Hz to 1 kHz	0.79 mV/V + 0.24 V	
	(1 to 3) kHz	1 mV/V + 0.24 V	
	(3 to 10) kHz	1 mV/V + 0.25 V	
	(10 to 20) kHz	1.4 mV/V + 0.28 V	
	(20 to 30) kHz	1.9 mV/V + 0.43 V	
	800 V to 1 kV		
	40 Hz to 1 kHz	0.79 mV/V + 0.26 V	
	(1 to 3) kHz	1 mV/V + 0.26 V	
	(3 to 10) kHz	1 mV/V + 0.31 V	
	(10 to 20) kHz	1.4 mV/V + 0.39 V	
AC Voltage – Measure [1]	1 mV to 1 V		Comparison to Precision DMM
	(3 to 5) Hz	10 mV/V + 0.49 mV	
	(5 to 10) Hz	3.5 mV/V + 0.49 mV	
	10 Hz to 20 kHz	0.85 mV/V + 1 mV	
	(20 to 50) kHz	1.5 mV/V + 2 mV	
	(50 to 100) kHz	6.4 mV/V + 5.2 mV	
	(1 to 100) V		
	(3 to 5) Hz	10 mV/V + 31 mV	
	(5 to 10) Hz	3.5 mV/V + 31 mV	
	10 Hz to 20 kHz	1 mV/V + 34 mV	
	(20 to 50) kHz	1.9 mV/V + 59 mV	
	(50 to 100) kHz	7 mV/V + 0.13 V	
	100 V to 1 kV		
	(3 to 5) Hz	10 mV/V + 0.26 V	
	(5 to 10) Hz	3.6 mV/V + 0.26 V	
	10 Hz to 20 kHz	1.4 mV/V + 0.39 V	
	(20 to 50) kHz	1.9 mV/V + 0.49 V	
	(50 to 100) kHz	7 mV/V + 0.68 V	
Resistance – Source [1]	Up to 40 Ω	1 mΩ/Ω + 0.24 Ω	Comparison to Multiproduct Calibrator
	40 Ω to 4 kΩ	0.37 mΩ/Ω + 0.32 Ω	
	(4 to 40) kΩ	0.27 mΩ/Ω + 2.3 Ω	
	(40 to 400) kΩ	0.27 mΩ/Ω + 23 Ω	
	400 kΩ to 4 MΩ	0.57 mΩ/Ω + 0.23 kΩ	
	(4 to 40) MΩ	8 mΩ/Ω + 10 kΩ	
	(40 to 400) MΩ	20 mΩ/Ω + 0.11 MΩ	

Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Resistance – Measure [1]	Up to 10 Ω (10 to 100) Ω 100 Ω to 1 kΩ (1 to 10) kΩ (10 to 100) kΩ 100 kΩ to 1 MΩ (1 to 10) MΩ (10 to 100) MΩ 100 MΩ to 1 GΩ	1 mΩ/Ω + 0.24 Ω 1 mΩ/Ω + 0.25 Ω 0.37 mΩ/Ω + 0.31 Ω 0.37 mΩ/Ω + 0.84 Ω 0.27 mΩ/Ω + 20 Ω 0.42 mΩ/Ω + 0.20 kΩ 0.64 mΩ/Ω + 2 kΩ 8 mΩ/Ω + 41 kΩ 20 mΩ/Ω + 0.11 MΩ	Comparison to Precision DMM
DC Current – Source [1]	Up to 320 µA 320 µA to 3.2 mA (3.2 to 32) mA (32 to 320) mA 320 mA to 3.2 A (3.2 to 10.5) A	0.52 mA/A + 2.3 µA 0.52 mA/A + 3.1 µA 0.52 mA/A + 5.6 µA 0.53 mA/A + 0.2 mA 1.6 mA/A + 0.81 mA 1.6 mA/A + 1.3 mA	Comparison to Multiproduct Calibrator
DC Current – Source [1]	(2 to 20) A (20 to 120) A	30 µA/A + 0.87 mA 0.72 mA/A + 9.6 mA	Comparison to Multiproduct Calibrator, Current Amplifier
DC Current Clamp-on Meters [1]	(10.5 to 750) A	0.21 mA/A	Comparison to Multiproduct Calibrator, 50 Turn Coil
DC Current – Measure [1]	(1 to 100) µA 100 µA to 1 mA (1 to 10) mA (10 to 100) mA 100 mA to 1 A (1 to 10) A	0.52 mA/A + 49 nA 0.52 mA/A + 0.11 µA 0.52 mA/A + 2.2 µA 0.53 mA/A + 11 µA 0.79 mA/A + 0.23 mA 1.6 mA/A + 1.3 mA	Comparison to Precision DMM

Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
AC Current – Source [1]	Up to 32 µA 10 Hz to 3 kHz 3 kHz to 10 kHz (32 to 320) µA 10 Hz to 3 kHz 3 kHz to 10 kHz 320 µA to 3.2 mA 10 Hz to 3 kHz 3 kHz to 10 kHz (3.2 to 320) mA 10 Hz to 3 kHz 3 kHz to 10 kHz 320 mA to 3.2 A 10 Hz to 3 kHz 3 kHz to 10 kHz (3.2 to 10.5) A 10 Hz to 3 kHz 3 kHz to 10 kHz	 1.7 mA/A + 2.5 µA 3.7 mA/A + 3 µA 1.7 mA/A + 2.4 µA 3.7 mA/A + 3.5 µA 1.7 mA/A + 6.5 µA 3.7 mA/A +71 µA 1.7 mA/A+ 0.40 mA 3.7 mA/A + 70 mA 1.8 mA/A + 6 mA 4.3 mA/A + 70 mA 2.5 mA/A + 6.7 mA 6.1 mA/A + 71 mA	Comparison to Multiproduct Calibrator
AC Current – Source [1]	(2 to 20) A 10 Hz to 1 kHz (20 to 120) A 10 Hz to 1 kHz	 0.78 mA/A + 9.4 mA 0.96 mA/A + 75 mA	Comparison to Multiproduct Calibrator, Current Amplifier
AC Current [1] Clamp-on Meters	(10.5 to 750) A 10 Hz to 3 kHz	 21 mA/A + 2.01 A	Comparison to Multiproduct Calibrator, Wavetek 50-Turn Coil
AC Current – Measure [1]	Up to 100 µA 10 Hz to 5 kHz 100 µA to 1 mA 10 Hz to 5 kHz (1 to 10) mA 10 Hz to 5 kHz (10 to 100) mA 10 Hz to 5 kHz 100 mA to 1 A 10Hz to 1 kHz (1 to 10) A 10 Hz to 5 kHz	 1.8 mA/A + 1.8 µA 1.4 mA/A + 0.72 µA 1.8 mA/A + 8.8 µA 1.4 mA/A + 63 µA 2.7 mA/A + 2.6 mA 5.3 mA/A + 12 mA	Comparison to Precision DMM

Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Oscilloscopes [1] Bandwidth (referenced to 50 kHz) Rise Time	50 kHz to 600 MHz 5 ns to 100 ms 100 ms to 5 s	4.8 MHz 3.1 ms 80 ms	Comparison to Multiproduct Calibrator
Electrical Simulation of Thermocouple Indicating Devices – Source/Measure [1]	Type E (-250 to 1 000) °C Type J (-210 to 1 200) °C Type K (-250 to 1 370) °C Type N (-270 to 1 130) °C Type S (0 to 1 700) °C Type T (-250 to 1 000) °C	1.3 °C 1.3 °C 1.3 °C 1.3 °C 1.3 °C 1.3 °C	Comparison to Multiproduct Calibrator

Length – Dimensional Metrology

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
GPS Receivers (Survey Grade)	Global Positioning	HD 0.012 ft VD 0.02 ft	Comparison to Certified Length Master
Total Station Theodolite Horizontal Distance (Angle) Vertical Distance (Angle) Base Line Distance	 Up to 360° (-10 to 10)° Up to 30 m	 2.9″ 3″ 0.73 mm	Comparisons to CTPM Linear Master, CTPM Optical Range
Auto/Builders Level, Rotating Laser	Level Accuracy	0.004 6 in	Comparison to CTPM Linear Master
Height Gages [1,2]	Up to 24 in	(85 + 12*L*) µin	Comparison to Length Standard, Gage Blocks
Outside Micrometers [1,2]	Up to 48 in	(19 + 15*L*) µin	Comparison to Gage Blocks, Length Standards

Length – Dimensional Metrology

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Inside Micrometers [1,2]	(0.5 to 40) in	(48 + 13*L*) µin	Comparison to Length Machine, Length Standard
Depth Micrometers [1,2]	Up to 12 in	(95 + 9*L*) µin	Comparison to Depth Master, Gage Blocks
Dial Indicators [1]	Up to 2 in	67 µin	Comparison to Indicator Calibrator, Gage Blocks
Calipers [1,2]	Up to 24 in	(580 + 21.7*L*) µin	Comparison to Cal Master, Gage Blocks, Length Standards
Thread Plugs [2] Major Diameter Pitch Diameter	 (0.012 to 8) in (0.012 to 8) in	 (15 + 9.6*L*) µin (33 + 7.9*L*) µin	Comparison to Bench Micrometer, Laser Attachment, Thread Wires
Pin Gages [2]	(0.012 to 2) in	(15 + 14*L*) µin	Comparison to Laser Micrometer
Plain Plug Gages [2]	(0.012 to 8) in	(5.4 + 11*L*) µin	Comparison to Bench Micrometer, Laser Attachment
Gage Blocks [2]	(0.05 to 1) in 2 in 3 in 4 in	(3.8 + 10*L*) µin 25 µin 37 µin 48 µin	Comparison to DMS 680, Master Gage Blocks
Laser Micrometers [1,2]	(0.005 to 12) in	(15 + 10*L*) µin	Comparison to Master Gage Pins
Surface Plates[1],[2] Overall Flatness Local Area Flatness	 (1 to 2.5) ft^2 (1 to 32) ft^2 Up to 0.001 in	 120 µin (18 + 3.4*L*) µin 80 µin	In accordance with ASME B89.3.7 using Mahr Federal Level System Repeat-o-Meter

Mass and Mass Related

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Pressure Gages [1]	(-15 to 300) psi (0 to 3 000) psi (0 to 10 000) psi	0.24 psi 1.1 psi 3.2 psi	Comparison to Additel Pressure Gages
Torque Tools [1]	(5 to 50) lbf·in (40 to 400) lbf·in (100 to 1 000) lbf·in (25 to 250) lbf·ft (60 to 600) lbf·ft	0.6 % of reading + 0.001 lbf·in 0.6 % of reading – 0.01 lbf·in 1 % of reading + 0.057 lbf·in 0.6 % of reading – 0.003 lbf·ft 0.6 % of reading – 0.02 lbf·ft	Comparison to Torque Calibrator

Thermodynamic

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Temperature – Measure [1]	(0 to 60) °C	0.18 °C	Comparison to Fluke 1620A w/ probe
Temperature – Measure/Source [1] (Thermohygrometers)	(0 to 60) °C	0.18 °C	Comparison to Fluke 1620A w/ Probe
Humidity – Measure/Source [1] (Thermohygrometers)	(20 to 70) %RH	1.6 %RH	Comparison to Master Thermohygrometer, Humidity Source, Fluke 1620A w/ probe
Temperature – Source [1] (Thermometers Thermocouples)	(-25 to 350) °C	0.8 °C	Comparison to Fluke 9142 Field Metrology Well, Platinum Thermometer
Temperature Uniformity Surveys (TUS) [1] (Ovens/Furnaces)	(0 to 850) °C	1.2 °C	Data Acquisition, Thermocouple Wire per AMS 2750 (G), CQI 9
System Accuracy Tests [1] (SAT) (Temperature Controllers, Temperature Recorders)	(0 to 850) °C	1.2 °C	Temperature Calibrator, Thermocouple Wire per AMS 2750 (G), CQI 9

Time and Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Frequency – Source [1]	10 Hz to 600 MHz 100 MHz to 3.2 GHz	1.4 µHz/Hz 1.2 µHz/Hz	Comparison to Multiproduct Calibrator, Frequency Generator
Frequency – Measure [1]	10 Hz to 8 GHz	0.63 µHz/Hz	Comparison to Frequency Counter

DIMENSIONAL MEASUREMENT

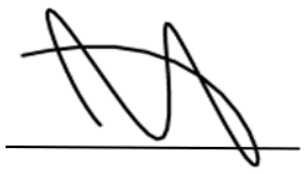
1 Dimensional

Parameter	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method and/or Equipment
Length Measurements – 1D	(0.01 to 40) in	7.1 µin	Linear Laser System utilized as the Reference Standard.
Length Measurements – 1D	X axis: Up to 18 in Y axis: Up to 20 in Z axis: Up to 16 in	340 µin 340 µin 340 µin	Coordinate Measuring Machine utilized as the Reference Standard.

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 scope of accreditation.
2. L = length in inches; ″ = arc-second.
3. Unless otherwise specified in the far-right column, the calibration procedure/method was written internally.
4. This scope is formatted as part of a single document including Certificate of Accreditation No. AC-1320.



Jason Stine, Vice President