



# PERRY JOHNSON LABORATORY ACCREDITATION, INC.

## Certificate of Accreditation

Perry Johnson Laboratory Accreditation, Inc. has assessed the Organization of:

# Acro Instrument Company 1121 Coolidge Ave., National City, CA 91950

and hereby declares that the Organization is accredited in accordance with the recognized International Standard:

ISO/IEC 17025:2017

Whereby, technical competence has been confirmed for the associated scope supplement, in the fields of:

Chemical, Dimensional, Electrical, Mechanical, Thermodynamic, Time and Frequency and Mass, Force, and Weighing Devices Calibration
(As detailed in the supplement)

Accreditation claims for conformity assessment activities shall only be made from the addresses referenced within this certificate and shall apply solely to those activities identified in the related scope. This Accreditation is granted subject to the Accreditation Body rules governing the Accreditation referred to above, and the Organization hereby commits to observing and complying with those rules in their entirety.

For PJLA:

Initial Accreditation Date:

Issue Date:

Expiration Date:

September 06, 2021

October 24, 2025

January 31, 2028

Accreditation No.:

Certificate No.:

80432

L25-848

Tracy Szerszen President

Perry Johnson Laboratory Accreditation, Inc. (PJLA) 755 W. Big Beaver, Suite 1325 Troy, Michigan 48084 The validity of this certificate is maintained through ongoing assessments based on a continuous accreditation cycle. The validity of this certificate should be confirmed through the PJLA website: <a href="https://www.pjlabs.com">www.pjlabs.com</a>





#### **Acro Instrument Company**

1121 Coolidge Ave., National City, CA 91950 Contact Name: Randy Penrose Phone: 619-474-7068

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FIELD OF CALIBRATION	MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	EXPANDED MEASUREMENT UNCERTAINTY (±) <sup>1</sup>	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED	FLEX CODE	LOCATION OF ACTIVITY
Chemical	Gas Detector-	1.129 μmol/mol	0.2 % of Reading	Ideal Calibration Gas	A.I. 21A1-5-001-1	F1, F3	F, O
	Hydrogen Sulfide (H2S)			58DAL-0063			
Chemical	Gas Detector-	4.463 μmol/mol	0.2 % of Reading	Ideal Calibration Gas	A.I. 21A1-5-001-1	F1, F3	F, O
	Carbon Monoxide (CO)			58DAL-0063			
Chemical	Gas Detector-	50 %	0.2 % of Reading	Ideal Calibration Gas	A.I. 21A1-5-001-1	F1, F3	F, O
	Methane (LEL)			58DAL-0063			
Chemical	Gas Detector- Oxygen	18 %	0.2 % of Reading	Ideal Calibration Gas	A.I. 21A1-5-001-1	F1, F3	F, O
	(O2)			58DAL-0063			
Chemical	Gas Detector-	1.105 umol/mol	0.2 % of Reading	Ideal Calibration Gas	A.I. 21A1-5-001-1	F1, F3	F, O
	Isobutylene (C4H8)			58DAL-0063			
Chemical	Conductivity Meter	0.56 μS	0.62 μS/cm	Certified Conductivity	21A1-10-001-1	F1, F3	F, O
				Reference Solutions A.I.			
Chemical	Conductivity Meter	9.12 μS	0.62 μS/cm	Certified Conductivity	21A1-10-001-1	F1, F3	F, O
				Reference Solutions A.I.			
Chemical	Conductivity Meter	1 411 μS	4.6 μS/cm	Certified Conductivity	21A1-10-001-1	F1, F3	F, O
				Reference Solutions A.I.			
Chemical	pH Tester	4.01 pH	0.03 pH	Certified pH Reference	A.I. 21A1-10-002-	F1, F3	F, O
		<u> </u>		Solutions			
Chemical	pH Tester	7.00 pH	0.03 pH	Certified pH Reference	A.I. 21A1-10-002-	F1, F3	F, O
				Solutions			
Chemical	pH Tester	10.01 pH	0.05 pH	Certified pH Reference	A.I. 21A1-10-002-	F1, F3	F, O
				Solutions			
Dimensional	Calipers	Up to 12 in	$(385 + 3.46 L) \mu in$	Gage Block Set	33K6-4-552-1	F1, F3	F, O
	(Vernier, Dial)			Standard Rod Set			
				Setting Ring Gage			
				Surface Plate			
Dimensional	Calipers	12 in to 36 in	$(1.97 + 6.67 L) \mu in$	Gage Block Set	33K6-4-552-1	F1, F3	F, O
	(Vernier, Dial)			Standard Rod Set			
				Setting Ring Gage			
				Surface Plate			





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Dimensional	Calipers (Digital)	Up to 12 in	(88 + 1.46 L) μin	Gage Block Set Standard Rod Set Setting Ring Gage Surface Plate	33K6-4-552-1	F1, F3	F, O
Dimensional	Calipers (Digital)	12 in to 36 in	(1.97 + 6.67 L) μin	Gage Block Set Standard Rod Set Setting Ring Gage Surface Plate	33K6-4-552-1	F1, F3	F, O
Dimensional	Height Gauges (Vernier, Dial)	Up to 12 in	(585 + 2.14 L) μin	Gage Block Set Standard Rod Set Setting Ring Gage Surface Plate	33K6-4-3445-1	F1, F3	F, O
Dimensional	Height Gauges (Vernier, Dial)	12 in to 36 in	(1.97 + 6.67 L) μin	Gage Block Set Standard Rod Set Setting Ring Gage Surface Plate	33K6-4-3445-1	F1, F3	F, O
Dimensional	Height Gauges (Digital)	Up to 12 in	(124 + 3.74 L) μin	Gage Block Set Standard Rod Set Setting Ring Gage Surface Plate	33K6-4-3445-1	F1, F3	F, O
Dimensional	Height Gauges (Digital)	12 in to 36 in	(1.97 + 6.67 L) μin	Gage Block Set Standard Rod Set Setting Ring Gage Surface Plate	33K6-4-3445-1	F1, F3	F, O
Dimensional	Indicators (Dial)	Up to 4 in	(389 + 3.34 L) μin	Gage Block Set Surface Plate	33K6-4-889-1	F1, F3	F, O
Dimensional	Indicators (Digital)	Up to 4 in	(116 + 4.62 L) μin	Gage Block Set Surface Plate	33K6-4-889-1	F1, F3	F, O





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Dimensional	Micrometers	Up to 12 in	(5.63 + 3.70 L) μin	Gage Block Set Standard Rod Set Surface Plate	33K6-4-15-1	F1, F3	F, O
Dimensional	Micrometers	12 in to 36 in	(4.00 + 4.20 L) μin	Gage Block Set Standard Rod Set Surface Plate	33K6-4-15-1	F1, F3	F, O
Dimensional	Micrometers	24 in to 47 in	$(1.87 + 1.30 L) \mu in$	Standard Rod Set Surface Plate	33K6-4-15-1	F1, F3	F, O
Dimensional	Coating Thickness Gage	2.999 mils	0.02 mils	Defelsko STD-S2 Coating Thickness Calibration Standard	17-20MD-163	F1, F3	F, O
Dimensional	Coating Thickness Gage	9.992 mils	0.06 mils	Defelsko STD-S2 Coating Thickness Calibration Standard	17-20MD-163	F1, F3	F, O
Dimensional	Coating Thickness Gage	37.24 mils	0.05 mils	Defelsko STD-S2 Coating Thickness Calibration Standard	17-20MD-163	F1, F3	F, O
Electrical	Equipment to Output AC Voltage (@ 45 Hz to 1 kHz)	Up to 33 mV	0.021 % of Reading	Fluke 5080A	A.I. 21A1-4-001-1	F1, F3	F, O
Electrical	Equipment to Output AC Voltage (@ 45 Hz to 1 kHz)	33 mV to 330 mV	0.03 % of Reading	Fluke 5080A	A.I. 21A1-4-001-1	F1, F3	F, O
Electrical	Equipment to Output AC Voltage (@ 45 Hz to 1 kHz)	0.5 to 3.3 V	0.27 % of Reading	Fluke 5080A	A.I. 21A1-4-001-1	F1, F3	F, O
Electrical	Equipment to Output AC Voltage (@ 45 Hz to 1 kHz)	3.3 V to 33 V	0.015 % of Reading	Fluke 5080A	A.I. 21A1-4-001-1	F1, F3	F, O





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	QUALITY ON GALUGE	WHERE MI ROTRETTE	errezarrii (2)	STANDARDS USED	PROCEDURES USED		110111111
Electrical	Equipment to Output AC Voltage (@ 45 Hz to 1 kHz)	33 V to 102 V	0.021 % of Reading	Fluke 5080A	A.I. 21A1-4-001-1	F1, F3	F, O
Electrical	Equipment to Output AC Voltage (@ 45 Hz to 1 kHz)	102 V to 330 V	0.035 % of Reading	Fluke 5080A	A.I. 21A1-4-001-1	F1, F3	F, O
Electrical	Equipment to Output AC Voltage (@ 45 Hz to 1 kHz)	330 V to 1 020 V	0.028 % of Reading	Fluke 5080A	A.I. 21A1-4-001-1	F1, F3	F, O
Electrical	Equipment to Output DC Voltage	Up to 330 mV	0.027 % of Reading	Fluke 5080A	A.I. 21A1-4-001-1	F1, F3	F, O
Electrical	Equipment to Output DC Voltage	330 mV to 3.3 V	0.036 % of Reading	Fluke 5080A	A.I. 21A1-4-001-1	F1, F3	F, O
Electrical	Equipment to Output DC Voltage	3.3 V to 33 V	0.039 % of Reading	Fluke 5080A	A.I. 21A1-4-001-1	F1, F3	F, O
Electrical	Equipment to Output DC Voltage	10 V to 102 V	0.019 % of Reading	Fluke 5080A	A.I. 21A1-4-001-1	F1, F3	F, O
Electrical	Equipment to Output DC Voltage	30 V to 330 V	0.03 % of Reading	Fluke 5080A	A.I. 21A1-4-001-1	F1, F3	F, O
Electrical	Equipment to Output DC Voltage	330 V to 1 020 V	0.003 % of Reading	Fluke 5080A	A.I. 21A1-4-001-1	F1, F3	F, O
Electrical	Equipment to Output AC Current (@ 45 Hz to 1 kHz)	Up to 330 μA	0.1 % of Reading	Fluke 5080A	A.I. 21A1-4-001-1	F1, F3	F, O
Electrical	Equipment to Output AC Current (@ 45 Hz to 1 kHz)	0.33 mA to 3.3 mA	0.064 % of Reading	Fluke 5080A	A.I. 21A1-4-001-1	F1, F3	F, O
Electrical	Equipment to Output AC Current (@ 45 Hz to 1 kHz)	3.3 mA to 33 mA	0.003 7 % of Reading	Fluke 5080A	A.I. 21A1-4-001-1	F1, F3	F, O





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FIELD OF CALIBRATION	MEASURED	RANGE	EXPANDED	CALIBRATION	CALIBRATION	FLEX CODE	LOCATION
CALIBRATION	INSTRUMENT, QUANTITY OR GAUGE	(AND SPECIFICATION WHERE APPROPRIATE)	MEASUREMENT UNCERTAINTY (±) <sup>1</sup>	EQUIPMENT AND REFERENCE STANDARDS USED	MEASUREMENT METHOD OR PROCEDURES USED		OF ACTIVITY
Electrical	Equipment to Output	33 mA to 330 mA	0.003 2 % of Reading	Fluke 5080A	A.I. 21A1-4-001-1	F1, F3	F, O
	AC Current (@ 45 Hz to 1 kHz)		<b>A</b>				
Electrical	Equipment to Output AC Current	0.33 A to 3 A	0.01 % of Reading	Fluke 5080A	A.I. 21A1-4-001-1	F1, F3	F, O
Electrical	(@ 45 Hz to 1 kHz) Equipment to Output	3.3 A to 20.5 A	0.076 % of Reading	Fluke 5080A	A.I. 21A1-4-001-1	F1, F3	F, O
Electrical	AC Current (@ 45 Hz to 1 kHz)	3.3 A to 20.3 A	0.076 % of Reading	Fluke 3080A	A.I. 21A1-4-001-1	F1, F3	r, O
Electrical	Equipment to Output DC Current	Up to 330 μA	0.01 % of Reading	Fluke 5080A	A.I. 21A1-4-001-1	F1, F3	F, O
Electrical	Equipment to Output DC Current	330 μA to 3.3 mA	0.003 % of Reading	Fluke 5080A	A.I. 21A1-4-001-1	F1, F3	F, O
Electrical	Equipment to Output DC Current	3.3 mA to 33 mA	0.045 % of Reading	Fluke 5080A	A.I. 21A1-4-001-1	F1, F3	F, O
Electrical	Equipment to Output DC Current	33 mA to 330 mA	0.002 % of Reading	Fluke 5080A	A.I. 21A1-4-001-1	F1, F3	F, O
Electrical	Equipment to Output DC Current	0.33 A to 3 A	0.031 % of Reading	Fluke 5080A	A.I. 21A1-4-001-1	F1, F3	F, O
Electrical	Equipment to Output DC Current	3 A to 20.5 A	0.075 % of Reading	Fluke 5080A	A.I. 21A1-4-001-1	F1, F3	F, O
Electrical	Equipment to Output Resistance	Up to 190 Ω	0.063 % of Reading	Fluke 5080A	A.I. 21A1-4-001-1	F1, F3	F, O
Electrical	Equipment to Output Resistance	1 kΩ to 190 kΩ	0.089 % of Reading	Fluke 5080A	A.I. 21A1-4-001-1	F1, F3	F, O
Electrical	Equipment to Output Resistance	1 MΩ to 190 MΩ	0.058 % of Reading	Fluke 5080A	A.I. 21A1-4-001-1	F1, F3	F, O
Electrical	Equipment to Measure DC Voltage	Up to 1 000 mV	0.001 3 % of Reading	Fluke 45	A.I. 21A1-4-001-1	F1, F3	F, O





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Electrical	Equipment to Measure DC Voltage	3 V to 30 V	0.006 6 % of Reading	Fluke 45	A.I. 21A1-4-001-1	F1, F3	F, O
Electrical	Equipment to Measure DC Voltage	300 V to 1 000 V	0.009 7 % of Reading	Fluke 45	A.I. 21A1-4-001-1	F1, F3	F, O
Electrical	Equipment to Measure AC Voltage (@ 45 Hz to 1 kHz)	Up to 300 mV	0.2 % of Reading	Fluke 45	A.I. 21A1-4-001-1	F1, F3	F, O
Electrical	Equipment to Measure AC Voltage (@ 45 Hz to 1 kHz)	3 V to 30 V	0.028 % of Reading	Fluke 45	A.I. 21A1-4-001-1	F1, F3	F, O
Electrical	Equipment to Measure AC Voltage (@ 45 Hz to 1 kHz)	300 V to 750 V	0.011 % + 0.22 V	Fluke 45	A.I. 21A1-4-001-1	F1, F3	F, O
Electrical	Equipment to Measure Resistance	Up to 300 Ω	0.13 % of Reading	Fluke 45	A.I. 21A1-4-001-1	F1, F3	F, O
Electrical	Equipment to Measure Resistance	$300 \Omega$ to $3 k\Omega$	0.003 7 % of Reading	Fluke 45	A.I. 21A1-4-001-1	F1, F3	F, O
Electrical	Equipment to Measure Resistance	$30 \text{ k}\Omega \text{ to } 300 \text{ k}\Omega$	0.013 % of Reading	Fluke 45	A.I. 21A1-4-001-1	F1, F3	F, O
Electrical	Equipment to Measure Resistance	$3~\mathrm{M}\Omega$ to $300~\mathrm{M}\Omega$	0.044 % of Reading	Fluke 45	A.I. 21A1-4-001-1	F1, F3	F, O
Electrical	Equipment to Measure AC Current (@ 45 Hz to 1 kHz)	Up to 30 mA	0.014 % of Reading	Fluke 45	A.I. 21A1-4-001-1	F1, F3	F, O
Electrical	Equipment to Measure AC Current (@ 45 Hz to 1 kHz)	30 mA to 100 mA	0.017 % of Reading	Fluke 45	A.I. 21A1-4-001-1	F1, F3	F, O
Electrical	Equipment to Measure AC Current (@ 45 Hz to 1 kHz)	1 A to 10 A	0.11 % of Reading	Fluke 45	A.I. 21A1-4-001-1	F1, F3	F, O





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CALIBRATION	INSTRUMENT, QUANTITY OR GAUGE	(AND SPECIFICATION WHERE APPROPRIATE)	MEASUREMENT UNCERTAINTY (±) <sup>1</sup>	EQUIPMENT AND REFERENCE	MEASUREMENT METHOD OR	TEEN COLL	OF ACTIVITY
				STANDARDS USED	PROCEDURES USED		
Electrical	Equipment to Measure	Up to 30 mA	0.000 34 % of	Fluke 45	A.I. 21A1-4-001-1	F1, F3	F, O
	DC Current		Reading				
Electrical	Equipment to Measure DC Current	30 mA to 100 mA	0.018 % of Reading	Fluke 45	A.I. 21A1-4-001-1	F1, F3	F, O
Electrical	Equipment to Measure DC Current	1 A to 10 A	0.069 % of Reading	Fluke 45	A.I. 21A1-4-001-1	F1, F3	F, O
Electrical	Equipment to Generate Capacitance	0.001 μF to 4 μF	0.73 % + 0.013 nF	Extech 380405	A.I. 21A1-4-001-1	F1, F3	F, O
Electrical	Equipment to Generate Capacitance	100 pF to 400 pF	0.1 % + 1.70 pF	Extech 380405	A.I. 21A1-4-001-1	F1, F3	F, O
Mechanical	Vacuum Gauge	-30 inHg to 0 inHg	0.05 % + 0.04 inHg	Ametek IS33	A.I. 21A1-1-002-1	F1, F3	F, O
Mechanical	Pressure Gauge	0 psi to 36 psi	0.05 % + 0.02 psig	Ametek IS33	A.I. 21A1-1-001-1	F1, F3	F, O
Mechanical	Pressure Gauge	36 psi to 5 000 psi	0.035 % of Reading	Ametek IS33	A.I. 21A1-1-001-1	F1, F3	F, O
Mechanical	Pressure Gauge	1 000 psig to 10 000 psig	0.05 % + 0.1 psig	Fluke 700G31	A.I. 21A1-1-001-1	F1, F3	F, O
Mechanical	Pressure Gauge	10 000 psig to 30 000 psig	0.043 % + 9.00 psig	Additel ADT680	A.I. 21A1-1-001-1	F1, F3	F, O
Mechanical	Differential Pressure Gauge	0 psi to 36 psi	0.011 % of Reading	Ametek IS33	A.I. 21A1-1-004-1	F1, F3	F, O
Mechanical	Differential Pressure Gauge	36 psi to 5 000 psi	0.035 % of Reading	Ametek IS33	A.I. 21A1-1-004-1	F1, F3	F, O
Mechanical	Torque Wrench	Up to 100 lbf•in	0.31% + 0.11 lbf•in	Seekonk TA100 Torque Gauge	A.I. 21A1-2-001-1	F1, F3	F, O
Mechanical	Torque Wrench	30 lbf•ft to 600 lbf•ft	0.81 % + 0.14 lbf•ft	Digitool Solutions SPT-6004	A.I. 21A1-2-001-1	F1, F3	F, O
Mechanical	Torque Wrench	600 lbf•ft to 2 000 lbf•ft	0.63 % of Reading	AWS QCMF-2000	A.I. 21A1-2-001-1	F1, F3	F, O
Mechanical	Flow Meter	100 gpm to 3 000 gpm	0.8 % of Reading	Ultrasonic Flow Meter	Direct Comparison	F1, F3	0
Thermodynamic	Temperature Sensor	50 °C to 650 °C	0.001 7 % + 0.51°C	Fluke 9141	A.I. 21A1-3-001-1	F1, F3	F, O





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0.101011	QUANTITY OR GAUGE	WHERE APPROPRIATE)	UNCERTAINTY (±) <sup>1</sup>	REFERENCE STANDARDS USED	METHOD OR PROCEDURES USED		ACTIVITY
Thermodynamic	Infrared Thermometer	122 °F to 932 °F	0.34 % + .09 °F	Reed BX-500	A.I. 21A1-3-002-1	F1, F3	F, O
Thermodynamic	Temperature Sensor/Indicator	-200 °C to 1 370 °C	0.038 % + 0.1 °C	Fluke 724	A.I. 21A1-3-001-1	F1, F3	F, O
Thermodynamic	Environmental Chambers (Temperature)	-40 °F to 169 °F	0.28 % + 0.01 °F	Onset Hobo UX100-003	A.I. 21A1-3-001-1	F1, F3	F, O
Thermodynamic	Environmental Chambers (Humidity)	Up to 99 % RH	2.7 % of Reading + 0.15 % RH	Onset Hobo UX100-003	A.I. 21A1-3-001-1	F1, F3	F, O
Time and Frequency	Stopwatches/Timer	Up to 24 hr	0.019 2 s/ 24 hr	Nuline CMI0541 Stopwatch	NIST 960-12	F1, F2	F, O
Mass, Force, and Weighing Devices	Balances	1 g to 180 g	0.01 % + 0.000 5 g	Class 7 Weights	NAVAIR 17-20MM- 18	F1, F2	F, O
Mass, Force, and Weighing Devices	Balances/Weights	Up to 30 kg	8.3 g	Adam LBX 30kg Bench Scale	Digital Scale NAVAIR Direct Comparison	F1, F2	F, O
Mass, Force, and Weighing Devices	Balances/Weights	24 lb to 418 lb	0.17 % + 0.13 lb	Tipre Digital Scale	Digital Scale NAVAIR Direct Comparison	F1, F2	F, O





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- 1. The CMC (Calibration and Measurement Capability) stated for calibrations included on this scope of accreditation represents the smallest measurement uncertainty attainable by the laboratory when performing a more or less routine calibration of a nearly ideal device under nearly ideal conditions. It is typically expressed at a confidence level of 95 % using a coverage factor k (usually equal to 2). The actual measurement uncertainty associated with a specific calibration performed by the laboratory will typically be larger than the CMC for the same calibration since capability and performance of the device being calibrated and the conditions related to the calibration may reasonably be expected to deviate from ideal to some degree.
- 2. The laboratories range of calibration capability for all disciplines for which they are accredited is the interval from the smallest calibrated standard to the largest calibrated standard used in performing the calibration. The low end of this range must be an attainable value for which the laboratory has or has access to the standard referenced. Verification of an indicated value of zero in the absence of a standard is common practice in the procedure for many calibrations but by its definition it does not constitute calibration of zero capacity.
- 3. Location of activity:

Location	Location
Code	
F	Conformity assessment activity is performed at the CABs fixed facility
O	Conformity assessment activity is performed onsite at the CABs customer
	location

- 4. Measurement uncertainties obtained for calibrations performed at customer sites can be expected to be larger than the measurement uncertainties obtained at the laboratories fixed location for similar calibrations. This is due to the effects of transportation of the standards and equipment and upon environmental conditions at the customer site which are typically not controlled as closely as at the laboratories fixed location.
- 5. The term L represents length in inches or millimeters as appropriate to the uncertainty statement