PERRY JOHNSON LABORATORY ACCREDITATION, INC.

Certificate of Accreditation

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

Tripoint Technical Services, LLC

11 Depot Street, South Grafton, MA 01560

(Hereinafter called the Organization) and hereby declares that Organization 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
(as outlined by the joint ISO-ILAC-IAF Communiqué dated April 2017):

Electrical, Thermodynamic, Dimensional, Time & Frequency, and Weighing Device/Force Calibration

(As detailed in the supplement)

Accreditation claims for such testing and/or calibration services shall only be made from addresses referenced within this certificate. This Accreditation is granted subject to the system rules governing the Accreditation referred to above, and the Organization hereby covenants with the Accreditation body's duty to observe and comply with the said rules.

For PJLA:

Tracy Szerszen
President

Perry Johnson Laboratory Accreditation, Inc. (PJLA)
755 W. Big Beaver, Suite 1325
Troy, Michigan 48084

Initial Accreditation Date:	*Issue Date:*	*Expiration Date:*
July 05, 2023	July 05, 2023	October 31,2025
Revision Date:	*Accreditation No.:*	*Certificate No.:*
July 19, 2024	123217	L23-526-R2

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: www.pjlabs.com

Certificate of Accreditation: Supplement

Tripoint Technical Services, LLC
11 Depot Street, South Grafton, MA 01560
Contact Name: Mr. Tim Mullen Phone: 508-471-0695

Accreditation is granted to the facility to perform the following calibrations:

Time & Frequency

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED
Timers/Recorders [FO]	Up to 30 min	0.34 s	Stopwatch	SP960-12/ CP101
Frequency Counters, DMMs, O-Scopes [FO]	0.01 Hz to 119.99 Hz	590 µHz/Hz	Fluke 5560A	CPF01
	120.0 Hz to 1199.9 Hz	580 µHz/Hz		
	1.200 Hz to 11.999 kHz	610 µHz/Hz		
	12.00 kHz to 119.99 kHz	660 µHz/Hz		
	120.0 kHz to 1199.9 kHz	580 µHz/Hz		
	1.200 MHz to 2.000 MHz	650 µHz/Hz		

Thermodynamic

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED
Temperature Measure with RTD [O]	(-20 to 40) °C	0.26 °C	Vaisala HMP75 Temp/Humidity Probe and TTS Procedure	CP102
Humidity Measure with sensor [O]	(15 to 95) %RH	2.3 % RH	Vaisala HMP75 Temp/Humidity Probe and TTS Procedure	CP102
Ovens, Chambers, Temperature Uniformity Survey [O]	Type J (-17 to 871) ºC	0.8 °C	Eurotherm 6100A Temperature Recorder	CP101
	Type K (-17 to 1370) ºC	0.6 °C + 0.000 3 °C/°C		

Dimensional

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED
Micrometers [FO]	Up to 36 in	(40 + 6*L*) µin	Gage Blocks	CP502
Calipers [FO]	Up to 40 in	(310 + 10*L*) µin		CP501
Indicators, Test [FO]	0.008 in	32 µin		CP504
Indicators, Drop [FO]	Up to 2 in	(35 + 6*L*) µin		CP504
Height Gage [FO]	Up to 40 in	(12 + 4*L*) µin		CP505
Gage Blocks to 10" [F]	Up to 10 in	(2.1 + 2.3*L*)	Mitutoyo Block Comparator, Master Gage Blocks,	CP507
Gage Blocks > 10" to 20" [F]	>10" to 20 in	(6.9 + 1.75*L*)		

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Surface-plates-Unilateral Flatness [FO]	Up to 200 in Diagonal	(25 + 4*D*) µin	Electronic Levels	CP503
Surface-plates-Repeatability [FO]	Up to 200 in Diagonal	30 µin	Repeat-O-meter w/indicator	CP503
Hi-Precision Electronic Levels [FO]	Up to 200 Arc-Seconds	1 Sec of Arc (0.0003°)	Gage Blocks, Surface Plate, 10” Sine Bar	CP506
Bore Gages 2-Point [FO]	Up to 12 in	(38 + 3.6*D*)	ULM and gage Blocks	CP517
Bore Gages 3-Point [FO]	Up to 12 in	(57.1 + 21.1*D*)	Ring Gages	
Cylindrical Rings Gages [F]	Up to 12 in	(17.3 + 5.3*D*)	Universal Length Measuring System, gage Blocks	CP512
Cylindrical Plug Gages [F]	Up to 12 in	(10.5 + 5.4*D*)	Universal Length Measuring System, gage Blocks	CP508
Thread Plug, Set Plug Gages [F]	Up to 4 inch	(21 + 7.95*D*)	Universal Length Measuring System, 3-Wire Method, gage Blocks	CP513
Optical Comparator [O] Toolmakers scope, Vision Systems X and Y Linearity Magnification Screen Protractor Angle	X to 20 in Y to 12 in	(103 + 4.8*L*)	Gage Blocks, Glass Scales Caliper and precision Scale Etch artifacts. Glass Scale W/Azimuth,	CP511
	Up to 12 in image	(1866 + 175*L*)		
	Azimuth to 360º Rotation	(3MOA + 0.02MOA/DEG)		
Bench Micrometers, Universal Length Measuring Systems Super-micrometers [FO]	Up to 20 inch	(32 + 13.6*L*)	Gage Blocks	CP509

Pressure

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED
Pressure Measuring Equipment Pressure gages, Manometers, Transmitters/Transducers [FO]	-15 PSI to 10 000 PSI	(0.2 PSI + 0.001 *PSI/PSI*)	Additel 273 W/ 30 PSI Module 500 PSI Module 3 000 PSI Module 10 000 PSI Module	CP105 ASMEB40

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Electrical

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Temperature Calibration Indication and Control Equipment used with Thermocouple – Type J FO	(-210 to -100) °C	0.4 °C	Fluke 754Process Calibrator Manufacturers Specifications	CP102
	(-100 to 800) °C	0.2 °C		
	(800 to 1 200) °C	0.41 °C		
Temperature Calibration Indication and Control Equipment used with Thermocouple - Type K FO	(-200 to -100) °C	0.6 °C		
	(-100 to 400) °C	0.4 °C		
	(400 to 1 200) °C	0.4 °C		
	(1 200 to 1 372) °C	0.43 °C		
Temperature Calibration Indication and Control Equipment used with Thermocouple - Type L FO	(-200 to -100) °C	0.41 °C		
	(-100 to 800) °C	0.3°C		
	(800 to 900) °C	0.3 °C		
Temperature Calibration Indication and Control Equipment used with Thermocouple - Type N FO	(-200 to -100) °C	0.81 °C		
	(-100 to 900) °C	0.96 °C		
	(900 to 1 300) °C	0.72 °C		
Temperature Calibration Indication and Control Equipment used with Thermocouple - Type R FO	(-20 to 0) °C	1.5 °C		
	(Up to 100) °C	1.4 °C		
	(100 to 1 767) °C	1.1 °C		
Temperature Calibration Indication and Control Equipment used with Thermocouple - Type S FO	(-20 to 0) °C	1.9 °C		
	(Up to 200) °C	1.4 °C		
	(200 to 1 400) °C	1.1 °C		
	(1 400 to 1 767) °C	1.2 °C		
Temperature Calibration Indication and Control Equipment used with Thermocouple – Type T FO	(-250 to -200) °C	1.1 °C		
	(-200 to 0) °C	0.6 °C		
	(Up to 400) °C	0.44 °C		
Temperature Calibration Indication and Control Equipment used with Thermocouple – Type U FO	(-200 to 0) °C	0.61 °C		
	(Up to 600) °C	0.49 °C		
TC Simulation Digital Thermometers, Process Calibrators, Temp Controllers, Chart Recorders - Type E FO	(-225 to -150) °C	0.43 °C	Fluke 5560A Multifunction Calibrator,	
	(-150 to -25) °C	0.22 °C		
	(-25 to 350) °C	0.19 °C		
	(350 to 650) °C	0.22 °C		
	(650 to 1 000) °C	0.24 °C		

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TC Simulation Digital Thermometers, Process Calibrators, Temp Controllers, Chart Recorders - Type J FO	(-210 to -100) °C	0.27 °C	Fluke 5560A Multifunction Calibrator,	CP102
	(-100 to -30) °C	0.21 °C		
	(-30 to 150) °C	0.18 °C		
	(150 to 760) °C	0.19 °C		
	(760 to 1 200) °C	0.23 °C		
TC Simulation Digital Thermometers, Process Calibrators, Temp Controllers, Chart Recorders - Type K FO	(-200 to -100) °C	0.53 °C		
	(-200 to -25) °C	0.23 °C		
	(-25 to 120) °C	0.18 °C		
	(120to 1 000) °C	0.24°C		
	(1 000 to 1 372) °C	0.33 °C		
TC Simulation Digital Thermometers, Process Calibrators, Temp Controllers, Chart Recorders - Type R FO	Up to 250) °C	0.51 °C		
	(250 to 400) °C	0.35 °C		
	(400 to 1 000) °C	0.32 °C		
	(1 000 to 1767) °C	0.38°C		
TC Simulation Digital Thermometers, Process Calibrators, Temp Controllers, Chart Recorders - Type S FO	(Up to 250) °C	0.47 °C		
	(250 to 1 000) °C	0.36 °C		
	(1 000 to 1 400) °C	0.37 °C		
	(1 400 to 1 767) °C	0.44°C		
TC Simulation Digital Thermometers, Process Calibrators, Temp Controllers, Chart Recorders - Type T FO	(-250 to -150) °C	0.51 °C		
	(-150 to 0) °C	0.26 °C		
	(Up to 120) °C	0.19 °C		
	(120 to 400) °C	0.18°C		

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DC Current DMMs, Clamp Meters, Process Calibrators [FO]	120 µA	100 µA/A + 0.006 µA	Fluke 5560A Multifunction Calibrator,	CP116
	1.2 mA	78 µA/A + 0.08 µA		
	12 mA	78 µA/A + 0.8 µA		
	120 mA	79 µA/A + 10 µA		
	1.2 A	120 µA/A + 0.006 µA		
	3.1 A	0.03 µA/A + 150 µA		
	12 A	240 µA/A + 250 µA		
	30.2 A	780 µA/A + 500 µA		
DC Volts, DMMs, Clamp Meter, Process Calibrators [FO]	120 mV	11 µV/V + 0.8 µV		CP104
	1.2 V	8.5 µV/V + 1 µV		
	12 V	6.3 µV/V + 10 µV		
	120 V	8.7 µV/V + 100 µV		
	1 020 V	8.7 µV/V + 1 000 µV		
AC Current DMMs, Clamp Meters O'Scopes [FO] 120 µA	3 Hz to 45 Hz	250 µA/A + 0.01 µA		CP116
	45 Hz to 1 k Hz	210 µA/A + 0.01 µA		
	1 kHz to 5 k Hz	220 µA/A + 0.01 µA		
	5 kHz to 10 k Hz	1 200 µA/A + 0.04 µA		
	10 kHz to 30 k Hz	4 000 µA/A + 1 µA		
AC Current DMMs, Clamp Meters O'Scopes [FO] 1.2 mA	3 Hz to 45 Hz	200 µA/A + 0.1 µA		
	45 Hz to 1 k Hz	200 µA/A + 0. 1 µA		
	1 kHz to 5 k Hz	200 µA/A + 0. 1 µA		
	5 kHz to 10 k Hz	200 µA/A + 0. 1 µA		
	10 kHz to 30 k Hz	3 900 µA/A + 5 µA		
AC Current DMMs, Clamp Meters O'Scopes [FO] 12 mA	3 Hz to 45 Hz	200 µA/A + 1 µA		
	45 Hz to 1 k Hz	200 µA/A + 1 µA		
	1 kHz to 5 k Hz	200 µA/A + 1 µA		
	5 kHz to 10 k Hz	1 200 µA/A + 1µA		
	10 kHz to 30 k Hz	3 900 µA/A + 10 µA		
AC Current DMMs, Clamp Meters O'Scopes [FO] 120 mA	3 Hz to 45 Hz	200 µA/A + 10 µA		
	45 Hz to 1 k Hz	130 µA/A + 5 µA		
	1 kHz to 5 k Hz	200 µA/A + 8 µA		
	5 kHz to 10 k Hz	1 200 µA/A + 10 µA		
	10 kHz to 30 k Hz	3 900 µA/A + 100 µA		

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AC Current DMMs, Clamp Meters O'Scopes [FO] 1.2 A	3 Hz to 45 Hz	210 µA/A + 100 µ	Fluke 5560A Multifunction Calibrator,	CP116
	45 Hz to 1 k Hz	210 µA/A + 50 µA		
	1 kHz to 5 k Hz	210 µA/A + 80 µA		
	5 kHz to 10 k Hz	1 200 µA/A + 300 µA		
	10 kHz to 30 k Hz	3 900 µA/A + 300 µA		
AC Current DMMs, Clamp Meters O'Scopes [FO] 3.1 A	3 Hz to 45 Hz	400 µA/A + 500 µA		
	45 Hz to 1 k Hz	370 µA/A + 300 µA		
	1 kHz to 5 k Hz	400 µA/A + 300 µA		
	5 k Hzto 10 k Hz	1 900 µA/A + 500 µA		
AC Current DMMs, Clamp Meters O'Scopes [FO] 12 A	3 Hz to 45 Hz	300 µA/A + 1 000 µA		
	45 k Hz to 1 k Hz	240 µA/A + 500 µA		
	1 k Hzto 5 k Hz	300 µA/A + 800 µA		
	5 k Hzto 10 k Hz	1 900 µA/A + 1 000 µA		
AC Current DMMs, Clamp Meters O'Scopes [FO] 30.2 A	3 Hz to 45 Hz	530 µA/A + 10 000 µA		
	45 Hz to 1k Hz	370 µA/A + 8 000 µA		
	1 kHz to 5 k Hz	3 000 µA/A + 8 000 µA		
AC Volts DMMs, Clamp Meters, O'scopes [FO] 12 mV	3 Hz to 5 Hz	1700 µV/V + 7 µV	Fluke 5560A Multifunction Calibrator,	TTS Procedure#104
	5 Hz to 10 Hz	670 µV/V + 7 µV		
	10 Hz to 20 kHz	290 µV/V + 6 µV		
	20 kHz to 50 kHz	420 µV/V + 6 µV		
	50 kHz to 100 kHz	1 100 µV/V + 15 µV		
	100 kHz to 300 kHz	5 500 µV/V + 30 µV		
	300 kHz to 500 kHz	5 500 µV/V + 30 µV		
AC Volts DMMs, Clamp Meters, O'scopes [FO] 120 mV	3 Hz to 5 Hz	1 600 µV/V + 7 µV		
	5 Hz to 10 Hz	570 µV/V + 7 µV		
	10 Hz to 20 kHz	100 µV/V + 6 µV		
	20 kHz to 50 kHz	230 µV/V + 8 µV		
	50 kHz to 100 kHz	530 µV/V + 20 µV		
	100 kHz to 300 kHz	1 400 µV/V + 30 µV		
	300 kHz to 500 kHz	1 700 µV/V + 30 µV		

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AC Volts DMMs, Clamp Meters, O'scopes [FO] 1.2 V	3 Hz to 5 Hz	1 900 µV/V + 75 µV	Fluke 5560A Multifunction Calibrator,	TTS Procedure#104
	5 Hz to 10 Hz	690 µV/V + 70 µV		
	10 Hz to 40 Hz	130 µV/V + 60 µV		
	40.01Hz to 20 kHz	210 µV/V + 8 µV		
	20 kHz to 50 kHz	290 µV/V + 14 µV		
	50 kHz to 100 kHz	570 µV/V + 40 µV		
	100 kHz to 300 kHz	1 600 µV/V + 80 µV		
	300 kHz to 500 kHz	2 900 µV/V + 80 µV		
AC Volts DMMs, Clamp Meters, O'scopes [FO] 12 V	3 Hz to 5 Hz	1 900 µV/V + 750 µV		
	5 Hz to 10 Hz	690 µV/V + 750 µV		
	10 Hz to 40 Hz	120 µV/V + 350 µV		
	40.01Hz to 20 kHz	120 µV/V + 50 µV		
	20 kHz to 50 kHz	240 µV/V + 50 µV		
	50 kHz to 100 kHz	540 µV/V + 130 µV		
	100 kHz to 300 kHz	1 600 µV/V + 600 µV		
	300 kHz to 500 kHz	1 600 µV/V + 600 µV		
AC Volts DMMs, Clamp Meters, O'scopes [FO] 120 V	3 Hz to 5 Hz	1 900 µV/V + 7.5 µV		
	5 Hz to 10 Hz	570 µV/V + 7.5 µV		
	10 Hz to 20 kHz	110 µV/V + 3.5 µV		
	20 kHz to 50 kHz	150 µV/V + 0.5 µV		
	50 kHz to 100 kHz	150 µV/V + 0.5 µV		
	100 kHz to 300 Khz	920 µV/V + 20 µV		
AC Volts DMMs, Clamp Meters, O'scopes [FO] 330 V	3 Hz to 5 Hz	1 900 µV/V + 75 000 µV		
	5 Hz to 10 Hz	680 µV/V + 75 000 µV		
	10 Hz to 20 kHz	130 µV/V + 8 000 µV		
	20 kHz to 50 kHz	240 µV/V + 8 000 µV		
	50 kHz to 100 kHz	1 200 µV/V + 13 000 µV		
AC Volts DMMs, Clamp Meters, O'scopes [FO] 1 020 V	3 Hz to 5 Hz	200 µV/V + 75 000 µV		
	5 Hz to 10 Hz	260 µV/V + 75 000 µV		
	10 Hz to 10 kHz	14 µV/V + 80 000 µV		

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DC Resistance LCR Meters, DMMs [FO]	12 Ω	0.01 Ω	Fluke 5560A Multifunction Calibrator,	CP110
	120 Ω	20 µΩ/ Ω + 0.015 Ω		
	1. 2kΩ	19 µΩ/ Ω + 0.02 Ω		
	12 kΩ	19 µΩ/ Ω + 0.2 Ω		
	120 kΩ	19 µΩ/ Ω + 1 Ω		
	1.2 MΩ	0.004 3 µΩ/ Ω +0.01 kΩ		
	12 MΩ	47 µΩ/ Ω + 0.15 kΩ		
	120 MΩ	340 µΩ/ Ω + 2.5 kΩ		
	1 200 MΩ	31 000 µΩ/ Ω + 100 kΩ		
Capacitance LCR Meters, DMMs [FO]	1.2 nF	4400 µF/F + 0.002 nF	Fluke 5560A Multifunction Calibrator,	TTS Procedure#123
	12 nF	1100 µF/F + 0.005 nF		
	120 nF	1100 µF/F + 0.03 nF		
	1.2 µF	1100 µF/F + 0.0003 µF		
	12 µF	1000 µF/F + 0.003 µF		
	120 µF	1400 µF/F + 0.025 µF		
	1.2 mF	2200 µF/F + 0.00025 mF		
	12 mF	2000 µF/F + 0.003 mF		
	120 mF	3900 µF/F + 0.03 mF		

Weighing Device/Force

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED
Balance [FO]	1 Gram to 50 Grams	(0.000 26 Gram)	Class 1 Weights	TTS Procedure#109 and NIST Handbook 44
Scales [FO]	Up to 100 kg	(0.000 1 kg + 0.000 06 kg/kg)	Class M1 Weights	
	Up to 500 lb	(0.12 Lb + 0.000 3 Lb/Lb)	Class 6 Weights	
Torque Wrenches, Drivers, Indicators and Watches [FO]	Up to 7 lbinf	0.16 lbinf + 0.08 lbinf/lbin	Portable Torque Testers	TTS Procedure#523
	5 lbinf to 70 lbinf	0.13 lbinf + 0.01 lbinf/lbin		
	5 lbinf to 600 lbftf	1.63 lbftf + 0.02 lbftf/lbft		

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Accreditation is granted to the facility to perform the following calibrations:

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. The presence of a superscript F means that the laboratory performs calibration of the indicated parameter at its fixed location.

4. The presence of a superscript O means that the laboratory performs calibration of the indicated parameter onsite at customer locations

5. 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.

6. The term T represents temperature in ºC or ºF as appropriate to the uncertainty statements.