



# PERRY JOHNSON LABORATORY ACCREDITATION, INC.

## Certificate of Accreditation

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

### ***A & G Instrument Service and Calibration Inc.***

*1227 North Tustin Avenue, Anaheim, CA 92807*

*(Hereinafter called the Organization) and hereby declares that Organization is accredited in accordance with the recognized International Standard:*

### **ISO/IEC 17025:2005**

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 January 2009):

***Chemical, Electrical, Thermodynamic and Time Frequency 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/Operations Manager

*Initial Accreditation Date:*

September 4, 2014

*Issue Date:*

September 4, 2014

*Expiration Date:*

January 31, 2017

*Accreditation No.:*

76653

*Certificate No.:*

L14-261

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: [www.pjllabs.com](http://www.pjllabs.com)*



# Certificate of Accreditation: Supplement

## A & G Instrument Service and Calibration Inc.

1227 North Tustin Avenue, Anaheim, CA 92807

Gloria Walton Phone: 714-630-7400

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

### Chemical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY ( $\pm$ )	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
pH (Meter, Indicator, Analyzer) <sup>F</sup>	4 pH to 7 pH	0.051 pH	Certified Solution Thermoelectric M/N 311570 ThermoOrion 370
	10 pH	0.045 pH	
Conductivity/Resistivity (Meter, Indicator, Analyzer) <sup>F</sup>	10 $\mu$ S to 10 000 $\mu$ S	2.2 $\mu$ S	Certified Solution Thermo Electric M/N 311570 RTD Probe: PT-100
	10 000 $\mu$ S to 100 000 $\mu$ S	4.8 $\mu$ S	
ORP (Meter, Indicator, Analyzer) <sup>F</sup>	200 mv to 600 mV	12 mV	Certified Solution Rosemount1054B

### Electrical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY ( $\pm$ )	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Equipment to Measure DC Current <sup>F</sup>			
Controller	1 mA to 30 mA	0.009 mA	Martel MC1210 Fluke 301DM Process Meter
Recorder	1 mV to 75 mV	0.025 mV	
Indicator, Transmitter	1 V to 10 V	0.058 V	
Equipment to Measure DC Voltage <sup>F</sup>			
Controller	1 mA to 10 mA	0.004 mA	Martel MC1210 Fluke 301DM Process Meter
Recorders	1 mA to 20 mA	0.006 mA	
FlowMeter	1 mV to 75 mV	0.065 mV	
Voltage, Ampere	1 V to 10 V	0.007 V	
Temperature Calibration Indication and Control equipment used with Thermocouple Type J <sup>F0</sup>	-100° to 2 100° F	0.88 °F	Thermo Electric M/N 311570 Martel MC1210
Temperature Calibration Indication and Control equipment used with Thermocouple Type K <sup>F0</sup>	-100° to 2 500° F	1.1 °F	
Temperature Calibration Indication and Control equipment used with Thermocouple Type T <sup>F0</sup>	-300° to 750° F	0.99 °F	



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### Mechanical

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Gauge, Pressure Transmitter, Pressure Digital Indicator <sup>F</sup>	0 H <sub>2</sub> O to 100 H <sub>2</sub> O	0.07 H <sub>2</sub> O	Heise Digital Indicator PT-1 Module HQS-1
	1 psig to 200 psig	0.08 psig	Heise Digital Indicator PT-1 Module HQS-1 Module HQS-2
	2 psia to 1 000 psia	0.34 psia	
	5 psig to 3 000 psig	0.96 psig	
Level Indicator (D/P Cells) <sup>FO</sup>	0 H <sub>2</sub> O to 2 000 H <sub>2</sub> O	0.41 %	Meriam Instrument M/N 350-DN- 2000

### Thermodynamic

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY ( $\pm$ )	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Thermometers <sup>F</sup>	-50 °F to 500 °F	0.5 °F	Thermoelectric M/N 311570 RTD Probe: PT-100 Hart Scientific 1521 Oil and Dry Bath
Uniformity Survey (Oven, Incubator, Furnace) <sup>F</sup>	750 °F	3.3 °F	Thermoelectric M/N 311570 Yokogawa Chart Recorder DR2400 Type "K" Premium Thermocouple Type "T" Thermocouple
	1 750 °F	8.7 °F	
	2 050 °F	10 °F	
Humidity (Chamber & Proof Box) <sup>F</sup>	20 % RH to 50 % RH	2.9 % RH	Vaisala M170/HMP77B
	51 % RH to 80 % RH	3.3 % RH	

### Time and Frequency

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY ( $\pm$ )	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Equipment to Measure Frequency (Flow Turbine/Mag Meters) <sup>FO</sup>	1 Hz to 20 kHz	2 Hz	Martel MC1210 Frequency Measurement Only
Equipment to Output Frequency (Flow Turbine/Mag Meters) <sup>FO</sup>	1 Hz to 20 kHz	2.3 Hz	Martel MC1210 Frequency Generate Only



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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. Example: Outside Micrometer<sup>F</sup> would mean that the laboratory performs this calibration at its fixed location.
4. The presence of a superscript FO means that the laboratory performs calibration of the indicated parameter both at its fixed location and onsite at customer locations. Example: Outside Micrometer<sup>FO</sup> would mean that the laboratory performs this calibration at its fixed location and 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.