



The American Association for Laboratory Accreditation

World Class Accreditation

# Accredited Laboratory

A2LA has accredited

## J&W INSTRUMENTS

*New Brighton, MN*

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 the requirements of ANSI/NCSL Z540-1-1994 and any additional program requirements in the field of calibration. 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 3rd day of August 2009.



A handwritten signature in cursive script, reading "Peter Meyer".

President & CEO  
For the Accreditation Council  
Certificate Number 1752.01  
Valid to July 31, 2011

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



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

J & W INSTRUMENTS  
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CALIBRATION

Valid To: July 31, 2011

Certificate Number: 1752.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following calibrations<sup>1</sup>:

I. Electrical – DC/Low Frequency

Parameter/Equipment	Range	Best Uncertainty <sup>2</sup> (±)	Comments
DC Voltage – Measure	(0 to 100) mV	20 µV/V + 0.3 µV	Agilent 3458A
	(0 to 100) V	30 µV/V + 30 µV	
	(0 to 100) mV	0.23 mV + 0.02 mV	TRX-II process calibrator
DC Current – Measure	(0 to 10) mA	36 µA/A + 0.05 µA	Agilent 3458A
	(10 to 100) mA	58 µA/A + 0.05 µA	
	(0 to 30) A	6.6 µΩ	RAM Shunt
	(0 to 100) A	2.1 µΩ	RAM Shunt
	(0 to 1000) A	0.76 µΩ	RAM Shunt
	(0 to 12) mA	0.03 % of reading + 0.01 mA	TRX-II process calibrator
	(12 to 24) mA	0.03 % of reading + 0.01 mA	

Parameter/Equipment	Range	Best Uncertainty <sup>2</sup> (±)	Comments
AC Current – Measure	(0 to 40) A	1.3 A	Fluke 33 clamp on ammeter
Resistance – Measure	(0 to 10) Ω (10 to 1000) Ω (1 to 10) kΩ	30 μΩ/Ω + 50 μΩ 17 μΩ/Ω + 0.5 μΩ 17 μΩ/kΩ + 5 μΩ	Agilent 3458A
	(0 to 400) Ω 400 Ω to 2 kΩ	0.01 % of reading + 0.09 Ω 0.03 % of reading + 0.4 Ω	TRX-II process calibrator
Thermocouple Simulation –			
Type K	(-270 to 1370) °C	0.4 °C	TRX II process calibrator
Type J	(-210 to 1200) °C	0.4 °C	
Type T	(-270 to 400) °C	0.28 °C	
Type B	(50 to 1820) °C	0.95 °C	
Type R	(-50 to 1769) °C	0.88 °C	
Type S	(-50 to 1769) °C	0.89 °C	
Type N	(-270 to 1300) °C	0.4 °C	
RTD Simulation <sup>3,4</sup> –			
Pt 385, 100 Ω	(-200 to 850) °C	0.4 °C	TRX II process calibrator
Pt 392, 100 Ω	(-200 to 510) °C	0.4 °C	

## II. Mechanical

Parameter/Equipment	Range	Best Uncertainty <sup>2</sup> (±)	Comments
Pressure Gauges <sup>3,4</sup>	(0 to 300) psi (0 to 1000) psi	0.41 psi 0.61 psi	DPI-603 3D digital gauge
Vacuum Gauges <sup>3,4</sup>	(0 to 27) inHg	0.44 inHg	DPI-601

### III. Time & Frequency

Parameter/Equipment	Range	Best Uncertainty <sup>2</sup> (±)	Comments
Stopwatches and Timing Devices <sup>3,4</sup>	(0 to 24) hours	0.08 s	Stopwatch

### IV. Thermodynamics

Parameter/Equipment	Range	Best Uncertainty <sup>2</sup> (±)	Comments
Temperature – Measure	(192 to 660) °C	0.03 °C	5611 PRT
	(-50 to 300) °C	0.4 °C	RTD, TRX-II
	(300 to 1200) °C	0.93 °C + 0.4 % of reading	T/C, TRX-II
Temperature – Generate <sup>3,4</sup> Fixed Points	0 °C	0.04 °C	ICE Point
	Ambient to 200 °C	0.3 °C	6102 Oil bath

<sup>1</sup> This laboratory offers commercial calibration service and field calibration service, where noted.

<sup>2</sup> “Best Uncertainty” 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 of nearly ideal measuring equipment. Best uncertainties represent expanded uncertainties expressed at approximately the 95 % level of confidence, usually using a coverage factor of  $k = 2$ . The best uncertainty of a specific calibration performed by the laboratory may be greater than the best uncertainty due to the behavior of the customer’s device, to the environment and to influences from the circumstances of the specific calibration.

<sup>3</sup> 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 uncertainties achievable on a customer’s site can normally be expected to be larger than the Best Measurement Capabilities (BMC) that the accredited laboratory has been assigned as Best Uncertainty 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 uncertainty introduced by the item being calibrated, (e.g. resolution) must also be considered and this, on its own, could result in the calibration uncertainty being larger than the BMC.

<sup>4</sup> The best uncertainty stated for calibrations performed in the laboratory is applicable for field calibrations.