



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 June 2011.



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

President & CEO
For the Accreditation Council
Certificate Number 1752.01
Valid to July 31, 2013

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



"World Class Accreditation"

The American Association for Laboratory 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, 2013

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 calibrations¹:

I. Electrical – DC/Low Frequency

Parameter/Equipment	Range	CMC ² (±)	Comments
DC Voltage – Measure	(0 to 100) mV (0 to 100) V	20 μ V/V + 0.3 μ V 90 μ V/V + 30 μ V	Agilent 3458A
	(0 to 100) mV	0.27 mV + 0.02 mV	TRX-II process calibrator
DC Current – Measure	(0 to 10) mA (10 to 100) mA	36 μ A/A + 0.05 μ A 58 μ A/A + 0.05 μ A	Agilent 3458A
	(0 to 30) A (0 to 100) A (0 to 1000) A	6.6 μ Ω 2.1 μ Ω 0.76 μ Ω	RAM shunt
	(0 to 12) mA (12 to 24) mA	0.03 % of reading + 0.01 mA 0.03 % of reading + 0.01 mA	TRX-II process calibrator

Parameter/Equipment	Range	CMC ² (±)	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/Ω + 5 μΩ	Agilent 3458A
	(0 to 400) Ω 400 Ω to 2 kΩ	1.5 % of reading + 0.09 Ω 0.3 % 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 ³ –			
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	CMC ² (±)	Comments
Pressure Gauges ³	(0 to 300) psi	0.41 psi	DPI-603
	(0 to 1000) psi	0.61 psi	3D digital gauge
Vacuum Gauges ³	(0 to 27) inHg	0.44 inHg	DPI-601

III. Thermodynamics

Parameter/Equipment	Range	CMC ² (±)	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 ³ – Measuring Equipment, Fixed Points	0 °C	0.04 °C	ICE Point
	Ambient to 200 °C	0.3 °C	6102 oil bath

IV. Time & Frequency

Parameter/Equipment	Range	CMC ² (±)	Comments
Stopwatches and Timing Devices ³	(0 to 24) hours	0.08 s	Stopwatch

¹ This laboratory offers commercial calibration service and field calibration service, where noted.

² Calibration and Measurement Capability (CMC) 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 or nearly ideal measuring equipment. Calibration and Measurement Capabilities represent expanded uncertainties expressed at approximately the 95 % level of confidence, usually using a coverage factor of $k = 2$. The actual measurement uncertainty of a specific calibration performed by the laboratory may be greater than the CMC due to the behavior of the customer's device and to influences from the circumstances of the specific calibration.

³ 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 actual measurement uncertainties achievable on a customer's site can normally be expected to be larger than the CMC found 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 actual uncertainty introduced by the item being calibrated, (e.g. resolution) must also be considered and this, on its own, could result in the actual measurement uncertainty achievable on a customer's site being larger than the CMC.