



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

INDUSTRONICS SERVICE COMPANY  
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 South Windsor, CT 06074  
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CALIBRATION

Valid To: July 31, 2019

Certificate Number: 1619.01

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. Chemical

Parameter/Equipment	Range	CMC <sup>2</sup> (±)	Comments
pH <sup>3</sup>	(4, 7, 14) pH units	0.46 pH units	Buffers at 4, 7 & 10 pH
Oxygen Reduction Potential, Fixed Points <sup>3</sup>	200 mV 600 mV	19 mV 28 mV	ORP test solutions

II. Electrical – DC/Low Frequency

Parameter/Equipment	Range	CMC <sup>2,5</sup> (±)	Comments
DC Voltage <sup>3</sup> –			
Generate	Up to 330 mV 330 mV to 3.3 V (3.3 to 33) V (33 to 330) V (330 to 1000) V	23 µV/V + 1 µV 12 µV/V + 2 µV 15 µV/V + 20 µV 21 µV/V + 150 µV 21 µV/V + 1.5 mV	Multifunction calibrator
Measure	(0 to 110) mV (0.11 to 1.1) V (1.1 to 11) V	0.03 % + 0.02 mV 0.04 % + 0.02 mV 0.04 % + 0.3 µV	Fluke 8508A

Parameter/Equipment	Range	CMC <sup>2,5</sup> (±)	Comments
DC Current <sup>3</sup> –			
Generate	Up to 330 µA 330 µA to 3.3 mA (3.3 to 33) mA (33 to 330) mA 330 mA to 1.1 A (1.1 to 3) A (3 to 11) A (11 to 20.5) A (20.5 to 1000) A	0.018 % + 0.036 µA 0.011 % + 0.071 µA 0.012 % + 0.29 µA 0.012 % + 2.9 µA 0.024 % + 46 µA 0.045 % + 37 µA 0.059 % + 550 µA 0.012 % + 950 µA 0.6 % + 0.58 A	Multifunction calibrator
Measure	(0 to 30) mA	17 µA/A + 4.8 µA	Fluke 8508A
Electrical Calibration of RTD Indicating Devices <sup>3</sup> –			
Pt 385, 100 Ω	(-200 to -80) °C (-80 to 0) °C (0 to 100) °C (100 to 300) °C (300 to 400) °C (400 to 630) °C (630 to 800) °C	0.062 °C 0.062 °C 0.079 °C 0.098 °C 0.11 °C 0.13 °C 0.24 °C	Multifunction calibrator
Pt 385, 200 Ω	(-200 to -80) °C (-80 to 0) °C (0 to 100) °C (100 to 260) °C (260 to 300) °C (300 to 400) °C (400 to 600) °C (600 to 630) °C	0.055 °C 0.055 °C 0.055 °C 0.062 °C 0.13 °C 0.14 °C 0.15 °C 0.17 °C	
Pt 385, 500 Ω	(-200 to -80) °C (-80 to 0) °C (0 to 100) °C (100 to 260) °C (260 to 300) °C (300 to 400) °C (400 to 600) °C (600 to 630) °C	0.055 °C 0.062 °C 0.062 °C 0.071 °C 0.088 °C 0.088 °C 0.098 °C 0.12 °C	

Parameter/Equipment	Range	CMC <sup>2</sup> (±)	Comments
Electrical Calibration of RTD Indicating Devices <sup>3</sup> – (cont)			
Pt 385, 1000 Ω	(-200 to -80) °C (-80 to 0) °C (0 to 100) °C (100 to 260) °C (260 to 300) °C (300 to 400) °C (400 to 600) °C (600 to 630) °C	0.048 °C 0.048 °C 0.055 °C 0.062 °C 0.071 °C 0.079 °C 0.079 °C 0.24 °C	Multifunction calibrator
Pt 3916, 100 Ω	(-200 to -190) °C (-190 to -80) °C (-80 to 0) °C (0 to 100) °C (100 to 260) °C (260 to 300) °C (300 to 400) °C (400 to 600) °C (600 to 630) °C	0.26 °C 0.055 °C 0.055 °C 0.071 °C 0.079 °C 0.088 °C 0.098 °C 0.11 °C 0.24 °C	
Pt 3926, 100 Ω	(-200 to -80) °C (-80 to 0) °C (0 to 100) °C (100 to 300) °C (300 to 400) °C (400 to 630) °C	0.062 °C 0.062 °C 0.079 °C 0.098 °C 0.11 °C 0.13 °C	
Pt Ni 385, 120 Ω	(-80 to 0) °C (0 to 100) °C (100 to 260) °C	0.071 °C 0.088 °C 0.15 °C	
Cu 427, 10 Ω	(-100 to 260) °C	0.31 °C	
Electrical Calibration of Thermocouple Indicating Devices <sup>3</sup> –			
Type B	(600 to 800) °C (800 to 1000) °C (1000 to 1550) °C (1550 to 1820) °C	0.46 °C 0.39 °C 0.36 °C 0.38 °C	Multifunction calibrator
Type C	(0 to 150) °C (150 to 650) °C (650 to 1000) °C (1000 to 1800) °C (1800 to 2316) °C	0.35 °C 0.31 °C 0.36 °C 0.53 °C 0.86 °C	

Parameter/Equipment	Range	CMC <sup>2</sup> (±)	Comments
Electrical Calibration of Thermocouple Indicating Devices <sup>3</sup> – (cont)			
Type E	(-250 to -100) °C (-100 to -25) °C (-25 to 350) °C (350 to 650) °C (650 to 1000) °C	0.53 °C 0.22 °C 0.2 °C 0.21 °C 0.25 °C	Fluke 5520A
Type J	(-210 to -100) °C (-100 to -30) °C (-30 to 150) °C (150 to 760) °C (760 to 1200) °C	0.30 °C 0.21 °C 0.20 °C 0.22 °C 0.27 °C	
Type K	(-200 to -100) °C (-100 to -25) °C (-25 to 120) °C (120 to 1000) °C (1000 to 1372) °C	0.37 °C 0.24 °C 0.22 °C 0.29 °C 0.42 °C	
Type N	(-200 to -100) °C (-100 to -25) °C (-25 to 120) °C (120 to 410) °C (410 to 1300) °C	0.44 °C 0.28 °C 0.26 °C 0.25 °C 0.32 °C	
Type R	(0 to 250) °C (250 to 400) °C (400 to 1000) °C (1000 to 1767) °C	0.6 °C 0.4 °C 0.38 °C 0.44 °C	
Type S	(0 to 250) °C (250 to 1000) °C (1000 to 1400) °C (1400 to 1767) °C	0.51 °C 0.41 °C 0.42 °C 0.5 °C	
Type T	(-250 to -150) °C (-150 to 0) °C (0 to 120) °C (120 to 400) °C	0.66 °C 0.31 °C 0.26 °C 0.24 °C	

### III. Mechanical

Parameter/Equipment	Range	CMC <sup>2,4</sup> (±)	Comments
Pressure <sup>3</sup> – Measure	(100 to 1500) psig (15 to 100) psig (1 to 15) psig (0 to 1) psig	0.97 psi 0.12 psi 0.016 psi 0.0071 psi	Pressure modules
Vacuum <sup>3</sup> – Measure	Atmosphere to 10 <sup>-2</sup> torr (10 <sup>-2</sup> to 10 <sup>-6</sup> ) torr	6.7 % 6.7 %	Inficon/Leybold

### IV. Thermodynamics

Parameter/Equipment	Range	CMC <sup>2</sup> (±)	Comments
Temperature – Measure & Measuring Equipment	(32 to 2000) °F (2000 to 2200) °F	1.1 °F 1.6 °F	Type S thermocouple measurement system & dry well furnace
	(-112 to 175) °F (200 to 500) °F	2.3 °F 1.7 °F	Type T thermocouple measurement system & dry well furnace
Dew Point & Relative Humidity	(-112 to 32) °F (33 to 70) °F	0.44 °F 0.39 °F	Chilled mirror dew point

### V. Time & Frequency

Parameter/Equipment	Range	CMC <sup>2</sup> (±)	Comments
Time Elapsed <sup>3</sup>	1 min to 1 hr	0.22 s	Digital stopwatch

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

- <sup>2</sup> Calibration and Measurement Capability Uncertainty (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. CMCs 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.
- <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 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.
- <sup>4</sup> In the statement of CMC a % refers to a percent of reading unless otherwise noted.
- <sup>5</sup> The stated measured values are determined using the indicated instrument (see Comments). This capability is suitable for the calibration of the devices intended to measure or generate the measured value in the ranges indicated. CMCs are expressed as either a specific value that covers the full range or as a fraction/percentage of the reading plus a fixed floor specification.



## *Accredited Laboratory*

A2LA has accredited

# **INDUSTRONICS SERVICE COMPANY**

*South Windsor, CT*

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 R205 – Specific Requirements: Calibration Laboratory Accreditation Program. 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 21<sup>st</sup> day of June 2017.

A handwritten signature in black ink, written over a horizontal line.

President and CEO  
For the Accreditation Council  
Certificate Number 1619.01  
Valid to July 31, 2019

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