



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017
& ANSI/NCSL Z540-1-1994

INDUSTRONICS SERVICE COMPANY
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CALIBRATION

Valid To: January 31, 2024

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^{1, 6}:

I. Chemical

| Parameter/Equipment | Range | CMC ^{2, 7} (±) | Comments |
|---|---------------------|-------------------------|--------------------------|
| pH ³ – Measuring Equipment | (4, 7, 14) pH units | 0.46 pH units | Buffers at 4, 7, & 10 pH |
| Oxygen Reduction Potential, Fixed Points ³ – Measuring Equipment | 200 mV 600 mV | 19 mV 28 mV | ORP test solutions |

II. Electrical – DC/Low Frequency

| Parameter/Equipment | Range | CMC ^{2, 5} (±) | Comments |
|---------------------------|--|---|-------------|
| DC Voltage ³ – | 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 | Fluke 5520A |
| | | | |

| Parameter/Equipment | Range | CMC ^{2, 5} (±) | Comments |
|--|--|---|--|
| DC Current ³ – | | | |
| 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 | Fluke 5520A w/ coil |
| Measure | (0 to 30) mA | 17 µA/A + 4.8 µA | Fluke 8508A |
| Electrical Calibration of RTD Indicating Devices ³ – | | | |
| 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 | Fluke 5520A |
| 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 ² (±) | Comments |
|--|--|---|-------------|
| Electrical Calibration of RTD Indicating Devices ³ – (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 | Fluke 5520A |
| 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 ³ – | | | |
| 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 | Fluke 5520A |

| Parameter/Equipment | Range | CMC ² (±) | Comments |
|---|---|---|-------------|
| Electrical Calibration of Thermocouple Indicating Devices ³ – (cont) | | | |
| 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 | Fluke 5520A |
| 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 | |
| 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 ^{2, 4, 7} (±) | Comments |
|---|---|--|---|
| Pressure ³ – Measure & Measuring Equipment | Up to 1 psig (1 to 15) psig (15 to 100) psig (100 to 1500) psig (1500 to 15 000) psig | 0.0071 psi 0.016 psi 0.12 psi 0.97 psi 8.2 psi | Pressure modules Additel ADT672-05-GP 15K-PSI-N2 |
| Vacuum ³ – Measure & Measuring Equipment | Atmosphere to 10 ⁻² torr (10 ⁻² to 10 ⁻⁶) torr | 6.7 % 6.7 % | Inficon/Leybold |

IV. Thermodynamics

| Parameter/Equipment | Range | CMC ^{2, 7} (±) | Comments |
|---|---|--|--|
| Dew Point & Relative Humidity – Measuring Equipment | (-112 to 32) °F (32 to 70) °F | 0.44 °F 0.39 °F | Chilled mirror dew point |
| Temperature – Measure & Measuring Equipment | (32 to 2000) °F (2000 to 2200) °F (-112 to 200) °F (200 to 500) °F | 1.1 °F 1.6 °F 2.3 °F 1.7 °F | Type S thermocouple measurement system & dry well furnace Type T thermocouple measurement system & dry well furnace |

| Parameter/Equipment | Range | CMC ² (±) | Comments |
|---|------------------|----------------------|--|
| Thermal Processing Equipment ³ – | | | |
| System Accuracy Test (SAT) | | | |
| Type J | (32 to 1600) °F | 1.3 °F | AMS2750, universal calibrator & test thermocouples |
| Type K | (32 to 2300) °F | 1.3 °F | |
| Type N | (32 to 2300) °F | 2.0 °F | |
| Type T | (-300 to 450) °F | 2.0 °F | |
| Temperature Uniformity Surveys (TUS) | | | |
| Type J | (32 to 1600) °F | 1.4 °F | AMS2750, multi-point recorder & test thermocouples |
| Type K | (32 to 2300) °F | 1.5 °F | |
| Type N | (32 to 2300) °F | 2.0 °F | |
| Type T | (-300 to 450) °F | 2.2 °F | |

V. Time & Frequency

| Parameter/Equipment | Range | CMC ^{2,7} (±) | Comments |
|-------------------------------------|---------------|------------------------|-------------------|
| Time Elapsed ³ – Measure | 1 min to 1 hr | 0.22 s | Digital stopwatch |

¹ This laboratory offers commercial and field calibration service.

² 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.

³ Field calibration service is available for this calibration. 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.

⁴ In the statement of CMC a % refers to a percent of reading unless otherwise noted.

⁵ 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.

⁶ This scope meets *A2LA's P112 Flexible Scope Policy*.

⁷ The type of instrument or material being calibrated is defined by the parameter. This indicates the laboratory is capable of calibrating instruments that measure or generate the values in the ranges indicated for the listed measurement parameter.



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 17025:2017 *General requirements for the competence of testing and calibration laboratories*. This laboratory also meets the requirements of ANSI/NCCL 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 April 2017).



Presented this 18th day of August 2021.

A blue ink signature of the Vice President of Accreditation Services.

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 1619.01
Valid to January 31, 2024
Revised December 20, 2023

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