



# CERTIFICATE OF ACCREDITATION

**The ANSI National Accreditation Board**

Hereby attests that

**Bravo Technical Services, Inc.**

**130 W. Johnson Drive  
Terre Haute, IN 47802**

Fulfills the requirements of

**ISO/IEC 17025:2017**

and national standard

**ANSI/NCSL Z540-1-1994 (R2002)**

In the field of

**CALIBRATION**

This certificate is valid only when accompanied by a current scope of accreditation document.  
The current scope of accreditation can be verified at [www.anab.org](http://www.anab.org).

A handwritten signature in black ink, appearing to be 'J. Stine', is positioned above a horizontal line.

Jason Stine, Vice President  
Expiry Date: 04 January 2026  
Certificate Number: AC-1300



This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017.  
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).

**SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017**

**AND**

**ANSI/NCSL Z540-1-1994 (R2002)**

**Bravo Technical Services, Inc.**

130 W. Johnson Drive

Terre Haute, IN 47802

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**CALIBRATION**

Valid to: **January 4, 2026**

Certificate Number: **AC-1300**

**Electrical – DC/Low Frequency**

| Parameter/Equipment | Range  | Expanded Uncertainty of Measurement (+/-)  | Reference Standard, Method, and/or Equipment            |
|---------------------|--|--|---|
| DC Voltage – Source | Up to 330 mV<br>(0.33 to 3.3) V<br>(3.3 to 33) V<br>(33 to 330) V<br>(333 to 1 000) V  | 18 $\mu$ V<br>0.2 mV<br>2.3 mV<br>24 mV<br>54 mV   | Comparison to<br>Fluke 5522A<br>Multiproduct Calibrator |
| DC Current – Source | Up to 330 $\mu$ A<br>(0.33 to 3.3) mA<br>(3.3 to 33) mA<br>33 mA to 1.1 A<br>(1.1 to 3) A  | 0.22 $\mu$ A<br>2.1 $\mu$ A<br>25 $\mu$ A<br>0.4 mA<br>1.3 mA  | Comparison to<br>Fluke 5522A<br>Multiproduct Calibrator |
| AC Voltage – Source | (1 to 33) mV<br>(10 to 45) Hz<br>45 Hz to 10 kHz<br>(10 to 20) kHz<br>(20 to 50) kHz<br>(50 to 100) kHz<br>(100 to 500) kHz<br>(33 to 330) mV<br>(10 to 45) Hz<br>45 Hz to 10 kHz<br>(10 to 20) kHz<br>(20 to 50) kHz<br>(50 to 100) kHz<br>(100 to 500) kHz | 0.13 V<br>68 $\mu$ V<br>68 $\mu$ V<br>81 $\mu$ V<br>0.22 mV<br>1 mV<br>1.3 mV<br>0.55 mV<br>0.55 mV<br>0.59 mV<br>1.5 mV<br>9.3 mV | Comparison to<br>Fluke 5522A<br>Multiproduct Calibrator |

**Electrical – DC/Low Frequency**

| Parameter/Equipment | Range               | Expanded Uncertainty of Measurement (+/-) | Reference Standard, Method, and/or Equipment            |
|---------------------|---------------------|---|---|
| AC Voltage – Source | (0.33 to 3.3) V     |   | Comparison to<br>Fluke 5522A<br>Multiproduct Calibrator |
|                     | (10 to 45) Hz       | 13 mV                                     |   |
|                     | 45 Hz to 10 kHz     | 7.8 mV                                    |   |
|                     | (10 to 20) kHz      | 7.9 mV                                    |   |
|                     | (20 to 50) kHz      | 8.5 mV                                    |   |
|                     | (50 to 100) kHz     | 17 mV                                     |   |
|                     | (100 to 500) kHz    | 0.19 V                                    |   |
|                     | (3.3 to 33) V       |   |   |
|                     | (10 to 45) Hz       | 0.13 V                                    |   |
|                     | 45 Hz to 10 kHz     | 65 mV                                     |   |
|                     | (10 to 20) kHz      | 79 mV                                     |   |
|                     | (20 to 50) kHz      | 82 mV                                     |   |
|                     | (50 to 100) kHz     | 0.16 V                                    |   |
|                     | (33 to 330) V       |   |   |
|                     | 10 Hz to 1 kHz      | 0.49 V                                    |   |
|                     | (1 to 10) kHz       | 0.65 V                                    |   |
|                     | (10 to 20) kHz      | 0.81 V                                    |   |
|                     | (20 to 50) kHz      | 0.95 V                                    |   |
| (50 to 100) kHz     | 2 V                 |   |   |
| (330 to 1 020) V    |                     |   |   |
| (10 to 45) Hz       | 2.5 V               |   |   |
| 45 Hz to 1 kHz      | 1.1 V               |   |   |
| (1 to 5) kHz        | 1.3 V               |   |   |
| (5 to 8) kHz        | 1.4 V               |   |   |
| AC Current – Source | (33 to 330) $\mu$ A |   | Comparison to<br>Fluke 5522A<br>Multiproduct Calibrator |
|                     | (10 to 20) Hz       | 1.9 $\mu$ A                               |   |
|                     | (20 to 45) Hz       | 1.7 $\mu$ A                               |   |
|                     | 45 Hz to 1 kHz      | 1.1 $\mu$ A                               |   |
|                     | (1 to 5) kHz        | 2.9 $\mu$ A                               |   |
|                     | (5 to 10) kHz       | 4.2 $\mu$ A                               |   |
|                     | (10 to 30) kHz      | 7.1 $\mu$ A                               |   |
|                     | (0.33 to 3.3) mA    |   |   |
|                     | (10 to 20) Hz       | 19 $\mu$ A                                |   |
|                     | (20 to 45) Hz       | 17 $\mu$ A                                |   |
|                     | 45 Hz to 1 kHz      | 9.2 $\mu$ A                               |   |
|                     | (1 to 5) kHz        | 24 $\mu$ A                                |   |
|                     | (5 to 10) kHz       | 26 $\mu$ A                                |   |
|                     | (10 to 30) kHz      | 33 $\mu$ A                                |   |

**Electrical – DC/Low Frequency**

| Parameter/Equipment  | Range                    | Expanded Uncertainty of Measurement (+/-) | Reference Standard, Method, and/or Equipment            |
|----------------------|--------------------------|---|---|
| AC Current – Source  | (3.3 to 33) mA           |   | Comparison to<br>Fluke 5522A<br>Multiproduct Calibrator |
|                      | (10 to 20) Hz            | 0.18 mA                                   |   |
|                      | (20 to 45) Hz            | 0.17 mA                                   |   |
|                      | 45 Hz to 1 kHz           | 96 $\mu$ A                                |   |
|                      | (1 to 5) kHz             | 41 mA                                     |   |
|                      | (5 to 10) kHz            | 0.28 mA                                   |   |
|                      | (10 to 30) kHz           | 0.48 mA                                   |   |
|                      | (33 to 330) mA           |   |   |
|                      | (10 to 20) Hz            | 2.1 mA                                    |   |
|                      | (20 to 45) Hz            | 2 mA                                      |   |
|                      | 45 Hz to 1 kHz           | 1.6 mA                                    |   |
|                      | (1 to 5) kHz             | 13 mA                                     |   |
|                      | (5 to 10) kHz            | 13 mA                                     |   |
|                      | (10 to 30) kHz           | 14 mA                                     |   |
|                      | (0.33 to 3) A            |   |   |
| (10 to 45) Hz        | 5.4 mA                   |   |   |
| 45 Hz to 1 kHz       | 4.3 mA                   |   |   |
| (1 to 5) kHz         | 16 mA                    |   |   |
| (5 to 10) kHz        | 40 mA                    |   |   |
| Resistance – Source  | Up to 11 $\Omega$        | 13 m $\Omega$                             | Comparison to<br>Fluke 5522A<br>Multiproduct Calibrator |
|                      | (11 to 33) $\Omega$      | 20 m $\Omega$                             |   |
|                      | (33 to 110) $\Omega$     | 23 m $\Omega$                             |   |
|                      | (110 to 330) $\Omega$    | 43 m $\Omega$                             |   |
|                      | (0.33 to 1.1) k $\Omega$ | 94 m $\Omega$                             |   |
|                      | (1.1 to 3.3) k $\Omega$  | 0.44 $\Omega$                             |   |
|                      | (3.3 to 11) k $\Omega$   | 0.87 $\Omega$                             |   |
|                      | (11 to 33) k $\Omega$    | 4.9 $\Omega$                              |   |
|                      | (33 to 110) k $\Omega$   | 14 $\Omega$                               |   |
|                      | (3.3 to 11) k $\Omega$   | 70 $\Omega$                               |   |
|                      | (0.33 to 1.1) M $\Omega$ | 0.22 k $\Omega$                           |   |
|                      | (1.1 to 3.3) M $\Omega$  | 3.4 k $\Omega$                            |   |
|                      | (3.3 to 11) M $\Omega$   | 13 k $\Omega$                             |   |
|                      | (11 to 33) M $\Omega$    | 0.72 M $\Omega$                           |   |
|                      | (33 to 110) M $\Omega$   | 2.6 M $\Omega$                            |   |
| DC Voltage – Measure | Up to 200 mV             | 12 $\mu$ V                                | Comparison to<br>Keithley 2001<br>7.5 Digit Multimeter  |
|                      | (0.2 to 2) V             | 67 $\mu$ V                                |   |
|                      | (2 to 20) V              | 0.7 mV                                    |   |
|                      | (20 to 200) V            | 10 mV                                     |   |
|                      | (200 to 1 000) V         | 59 mV                                     |   |

**Electrical – DC/Low Frequency**

| Parameter/Equipment  | Range             | Expanded Uncertainty of Measurement (+/-) | Reference Standard, Method, and/or Equipment     |
|----------------------|-------------------|---|--|
| DC Current – Measure | Up to 200 $\mu$ A | 0.13 $\mu$ A                              | Comparison to Keithley 2001 7.5 Digit Multimeter |
|                      | (0.2 to 2) mA     | 0.97 $\mu$ A                              |  |
|                      | (2 to 20) mA      | 9.6 $\mu$ A                               |  |
|                      | (20 to 200) mA    | 0.12 mA                                   |  |
|                      | (0.2 to 2) A      | 2.3 mA                                    |  |
| AC Voltage – Measure | Up to 200 mV      |   | Comparison to Keithley 2001 7.5 Digit Multimeter |
|                      | (20 to 50) Hz     | 0.59 mV                                   |  |
|                      | (50 to 100) Hz    | 0.59 mV                                   |  |
|                      | 100 Hz to 2 kHz   | 0.15 mV                                   |  |
|                      | (2 to 10) kHz     | 0.11 mV                                   |  |
|                      | (10 to 30) kHz    | 0.17 mV                                   |  |
|                      | (30 to 50) kHz    | 0.19 mV                                   |  |
|                      | (50 to 100) kHz   | 0.73 mV                                   |  |
|                      | (100 to 200) kHz  | 1.8 mV                                    |  |
|                      | (0.2 to 2) V      |   |  |
|                      | (20 to 50) Hz     | 5.9 mV                                    |  |
|                      | (50 to 100) Hz    | 2.2 mV                                    |  |
|                      | 100 Hz to 2 kHz   | 1.5 mV                                    |  |
|                      | (2 to 10) kHz     | 1.5 mV                                    |  |
|                      | (10 to 30) kHz    | 1.7 mV                                    |  |
|                      | (30 to 50) kHz    | 14 mV                                     |  |
|                      | (50 to 100) kHz   | 7.2 mV                                    |  |
|                      | (100 to 200) kHz  | 18 mV                                     |  |
|                      | (2 to 20) V       |   |  |
|                      | (20 to 50) Hz     | 59 mV                                     |  |
|                      | (50 to 100) Hz    | 22 mV                                     |  |
|                      | 100 Hz to 2 kHz   | 18 mV                                     |  |
|                      | (2 to 10) kHz     | 23 mV                                     |  |
|                      | (10 to 30) kHz    | 31 mV                                     |  |
|                      | (30 to 50) kHz    | 34 mV                                     |  |
|                      | (50 to 100) kHz   | 73 mV                                     |  |
|                      | (20 to 200) V     |   |  |
|                      | (20 to 50) Hz     | 0.59 V                                    |  |
|                      | 50 Hz to 2 kHz    | 0.18 V                                    |  |
|                      | (2 to 10) kHz     | 0.23 V                                    |  |
| (10 to 30) kHz       | 0.31 V            |   |  |
| (30 to 50) kHz       | 0.33 V            |   |  |
| (50 to 100) kHz      | 0.86 V            |   |  |
| (200 to 750) V       |                   |   |  |
| (50 to 100) Hz       | 2.5 V             |   |  |
| 100 Hz to 2 kHz      | 1.1 V             |   |  |
| (2 to 10) kHz        | 1.3 V             |   |  |


**Electrical – DC/Low Frequency**

| Parameter/Equipment     | Range                  | Expanded Uncertainty of Measurement (+/-) | Reference Standard, Method, and/or Equipment     |
|-------------------------|------------------------|---|--|
| AC Current – Measure    | Up to 200 $\mu$ A      |   | Comparison to Keithley 2001 7.5 Digit Multimeter |
|                         | (20 to 50) Hz          | 0.92 $\mu$ A                              |  |
|                         | (50 to 200) Hz         | 0.62 $\mu$ A                              |  |
|                         | 200 Hz to 1 kHz        | 1 $\mu$ A                                 |  |
|                         | (1 to 10) kHz          | 2.3 $\mu$ A                               |  |
|                         | (0.2 to 2) mA          |   |  |
|                         | (20 to 50) Hz          | 7.5 $\mu$ A                               |  |
|                         | (50 to 200) Hz         | 4.4 $\mu$ A                               |  |
|                         | 200 Hz to 1 kHz        | 3.8 $\mu$ A                               |  |
|                         | (1 to 10) kHz          | 12 $\mu$ A                                |  |
|                         | (2 to 20) mA           |   |  |
|                         | (20 to 50) Hz          | 73 $\mu$ A                                |  |
|                         | (50 to 200) Hz         | 38 $\mu$ A                                |  |
|                         | 200 Hz to 1 kHz        | 32 $\mu$ A                                |  |
|                         | (1 to 10) kHz          | 57 $\mu$ A                                |  |
|                         | (20 to 200) mA         |   |  |
|                         | (20 to 50) Hz          | 0.73 mA                                   |  |
|                         | (50 to 200) Hz         | 0.38 mA                                   |  |
| 200 Hz to 1 kHz         | 0.32 mA                |   |  |
| (1 to 10) kHz           | 0.67 mA                |   |  |
| (0.2 to 2) A            |                        |   |  |
| (20 to 50) Hz           | 9.1 mA                 |   |  |
| (50 to 200) Hz          | 5.1 mA                 |   |  |
| 200 Hz to 1 kHz         | 7.2 mA                 |   |  |
| (1 to 10) kHz           | 62 mA                  |   |  |
| DC Resistance – Measure | Up to 20 $\Omega$      | 18 m $\Omega$                             | Comparison to Keithley 2001 7.5 Digit Multimeter |
|                         | (20 to 200) $\Omega$   | 28 m $\Omega$                             |  |
|                         | (0.2 to 2) k $\Omega$  | 0.24 $\Omega$                             |  |
|                         | (2 to 20) k $\Omega$   | 1.7 $\Omega$                              |  |
|                         | (20 to 200) k $\Omega$ | 20 $\Omega$                               |  |
|                         | (0.2 to 2) M $\Omega$  | 0.32 k $\Omega$                           |  |
|                         | (2 to 20) M $\Omega$   | 12 k $\Omega$                             |  |
| (20 to 200) M $\Omega$  | 2.5 M $\Omega$         |   |  |

Calibration and Measurement Capability (CMC) is expressed in terms of the measurement parameter, measurement range, expanded uncertainty of measurement and reference standard, method, and/or equipment. The expanded uncertainty of measurement is expressed as the standard uncertainty of the measurement multiplied by a coverage factor of 2 ( $k=2$ ), corresponding to a confidence level of approximately 95%.

Notes:

1. On-site calibration service is available for all parameters, since on-site conditions are typically more variable than those in the laboratory, larger measurement uncertainties are expected on-site than what is reported on the accredited scope.
2. Unless otherwise specified in the far-right column, the calibration procedure utilized in the calibration of the listed parameters have been written internally.
3. This scope is formatted as part of a single document including Certificate of Accreditation No. AC-1300.



Jason Stine, Vice President

