



# CERTIFICATE OF ACCREDITATION

## The ANSI National Accreditation Board

Hereby attests that

**Heraeus Electro-Nite Co., LLC**  
541 S. Industrial Drive  
Hartland, WI 53029

Fulfills the requirements of

**ISO/IEC 17025:2017**

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 'Jason Stine', is positioned above a horizontal line.

Jason Stine, Vice President

Expiry Date: 27 May 2024

Certificate Number: AC-1294



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**

**Heraeus Electro-Nite Co., LLC**

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**CALIBRATION**

Valid to: **May 27, 2024**

Certificate Number: **AC-1294**

**Electrical – DC/Low Frequency**

| Parameter/Equipment   | Range                       | Expanded Uncertainty of Measurement (+/-) | Reference Standard, Method, and/or Equipment         |
|---|-----------------------------|---|--|
| DC Voltage - Measure  | Up to 1 V                   | 0.02 mV                                   | Keysight 3458A Multimeter                            |
| DC Voltage – Measure <sup>1</sup>   | Up to 200 mV                | 0.5 mV                                    | Checkmate IV CX Calibrator                           |
| Electrical Simulation of Temperature Measuring Systems<br>Type B              | (1 800 to 3 050) °F IPTS 48 | 0.8 °F                                    | Fluke 9101 Ice Point Bath, Agilent 34420A Multimeter |
|   | (1 800 to 3 050) °F IPTS 68 | 0.9 °F                                    |  |
|   | (2 450 to 3 050) °F ITS 90  | 1.1 °F                                    |  |
|   | (1 350 to 1 650) °C IPTS 48 | 0.5 °C                                    |  |
| Electrical Simulation of Temperature Measuring Systems <sup>1</sup><br>Type B | (1 350 to 1 650) °C IPTS 68 | 0.5 °C                                    | Checkmate IV CX Simulator                            |
|   | (1 350 to 1 650) °C ITS 90  | 1.6 °C                                    |  |
|   | (2 450 to 3 050) °F IPTS 48 | 3.4 °F                                    |  |
|   | (2 450 to 3 050) °F IPTS 68 | 3.4 °F                                    |  |
|   | (2 450 to 3 050) °F ITS 90  | 3.5 °F                                    |  |
| Electrical Simulation of Temperature Measuring Systems<br>Type K              | (1 350 to 1 650) °C IPTS 48 | 1.7 °C                                    | Fluke 9101 Ice Point Bath, Agilent 34420A Multimeter |
|   | (1 350 to 1 650) °C IPTS 68 | 1.9 °C                                    |  |
|   | (1 350 to 1 650) °C ITS 90  | 2.4 °C                                    |  |
|   | (800 to 2 250) °F IPTS 48   | 0.3 °F                                    |  |
|   | (800 to 2 250) °F IPTS 68   | 0.3 °F                                    |  |
|   | (800 to 2 250) °F ITS 90    | 0.3 °F                                    |  |
| Electrical Simulation of Temperature Measuring Systems <sup>1</sup><br>Type K | (450 to 1 225) °C IPTS 48   | 0.2 °C                                    | Checkmate IV K Simulator                             |
|   | (450 to 1 225) °C IPTS 68   | 0.2 °C                                    |  |
|   | (450 to 1 225) °C ITS 90    | 0.2 °C                                    |  |
|   | (800 to 2 250) °F IPTS 48   | 3.1 °F                                    |  |
| Electrical Simulation of Temperature Measuring Systems <sup>1</sup><br>Type K | (800 to 2 250) °F IPTS 68   | 3.2 °F                                    | Checkmate IV K Simulator                             |
|   | (800 to 2 250) °F ITS 90    | 3.1 °F                                    |  |

**Electrical – DC/Low Frequency**

| Parameter/Equipment   | Range                       | Expanded Uncertainty of Measurement (+/-) | Reference Standard, Method, and/or Equipment               |
|---|-----------------------------|---|--|
| Electrical Simulation of Temperature Measuring Systems <sup>1</sup><br>Type K     | (450 to 1 225) °C IPTS 48   | 1.7 °C                                    | Checkmate IV K Simulator                                   |
|   | (450 to 1 225) °C IPTS 68   | 1.9 °C                                    |  |
|   | (450 to 1 225) °C ITS 90    | 1.7 °C                                    |  |
| Electrical Simulation of Temperature Measuring Systems<br><br>Type R              | (2 450 to 3 050) °F IPTS 48 | 0.7 °F                                    | Fluke 9101 Ice Point Bath,<br>Agilent 34420A<br>Multimeter |
|   | (2 450 to 3 050) °F IPTS 68 | 0.7 °F                                    |  |
|   | (2 450 to 3 050) °F ITS 90  | 0.8 °F                                    |  |
|   | (1 350 to 1 650) °C IPTS 48 | 0.4 °C                                    |  |
|   | (1 350 to 1 650) °C IPTS 68 | 0.5 °C                                    |  |
|   | (1 350 to 1 650) °C ITS 90  | 0.4 °C                                    |  |
| Electrical Simulation of Temperature Measuring Systems <sup>1</sup><br><br>Type R | (2 450 to 3 050) °F IPTS 48 | 3.4 °F                                    | Checkmate IV CX Simulator                                  |
|   | (2 450 to 3 050) °F IPTS 68 | 3.2 °F                                    |  |
|   | (2 450 to 3 050) °F ITS 90  | 3.2 °F                                    |  |
|   | (1 350 to 1 650) °C IPTS 48 | 1.8 °C                                    |  |
|   | (1 350 to 1 650) °C IPTS 68 | 2 °C                                      |  |
|   | (1 350 to 1 650) °C ITS 90  | 1.8 °C                                    |  |
| Electrical Simulation of Temperature Measuring Systems<br><br>Type S              | (1 950 to 3 050) °F IPTS 48 | 0.9 °F                                    | Fluke 9101 Ice Point Bath,<br>Agilent 34420A<br>Multimeter |
|   | (2 450 to 3 050) °F IPTS 68 | 0.7 °F                                    |  |
|   | (2 450 to 3 050) °F ITS 90  | 0.9 °F                                    |  |
|   | (1 260 to 1 650) °C IPTS 48 | 1.7 °C                                    |  |
|   | (1 350 to 1 650) °C IPTS 68 | 0.5 °C                                    |  |
|   | (1 350 to 1 650) °C ITS 90  | 1 °C                                      |  |
| Electrical Simulation of Temperature Measuring Systems <sup>1</sup><br><br>Type S | (2 450 to 3 050) °F IPTS 48 | 3.2 °F                                    | Checkmate IV CX Simulator                                  |
|   | (2 450 to 3 050) °F IPTS 68 | 3.3 °F                                    |  |
|   | (2 450 to 3 050) °F ITS 90  | 3.3 °F                                    |  |
|   | (1 350 to 1 650) °C IPTS 48 | 2.4 °C                                    |  |
|   | (1 350 to 1 650) °C IPTS 68 | 1.9 °C                                    |  |
|   | (1 350 to 1 650) °C ITS 90  | 2 °C                                      |  |

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 this parameter, 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. Calibration services are provided for equipment manufactured by Heraeus Electro-Nite only.
3. This scope is formatted as part of a single document including Certificate of Accreditation No. AC-1294.



Jason Stine, Vice President