



Type: Initial Accreditation



Certificate of Accreditation

This is to certify that

ENGINEERING AUTOMATION TECHNOLOGY LIMITED E&I LABORATORY
NO 5 APAGODO STREET, OFF ADA GEORGE ROAD, PORT HARCOURT, RIVERS STATE

Has been assessed by the Nigeria National Accreditation System and
meets the requirements of the International Standard

ISO/IEC 17025:2017

with demonstrated technical competence in the field of

Calibration

for the specific services listed on the approved Scope of Accreditation.

On behalf of the Nigeria National Accreditation System:



Issue date: **September 09, 2024**
Valid through: **September 08, 2026**

Scope of Accreditation

Calibration Laboratory

ENGINEERING AUTOMATION TECHNOLOGY LIMITED E&I LABORATORY

NO 5 APAGODO STREET, OFF ADA GEORGE ROAD, PORT HARCOURT, RIVERS STATE

Schedule NO.: C0004B

Issue No. 3: 09 09, 2024

Valid to : 08 09, 2026

CALIBRATION AND MEASUREMENT CAPABILITY (CMC)

| Measured Quantity | Range | Expanded Measurement Uncertainty (k = 2) | Remark (calibration Method) |
|-------------------|-----------------|--|---|
| Pressure | -14.5 to 0 psig | $\pm 0.25\%$ of Full Scale | DKD-R6:2014 |
| | 0 to 10,000 psi | 0 to 20% of Range: $\pm 0.02\%$ of Full Scale 20 to 110% of Range: $\pm 0.1\%$ of reading | |
| Temperature | -200°C to 0°C | $\pm 0.03^\circ\text{C}$ | NIST Handbook 105-6(1997) EURAMET/cg-13 V3.0 (2015) |
| | 0°C to 160°C | $\pm 0.03^\circ\text{C}$ | |
| | 161 to 200°C | $\pm 0.03^\circ\text{C}$ | |
| | | | |
| Dimension | 0.5 to 25mm | $\pm 0.05\mu\text{m}$ | NABL 122-01: Specific Criteria for Calibration Laboratories in Mechanical Discipline: Dimensional Metrology |
| | 26 to 75mm | $\pm 0.06\mu\text{m}$ | |
| | 76 to 100mm | $\pm 0.08\mu\text{m}$ | |
| | 101 to 150mm | $\pm 0.09\mu\text{m}$ | |
| | 151 to 300mm | $\pm 0.10\mu\text{m}$ | |
| | 301 to 400mm | $\pm 0.12\mu\text{m}$ | |
| | 401 to 500mm | $\pm 0.14\mu\text{m}$ | |

| Measured Quantity | Range | Expanded Measurement Uncertainty (k = 2) | Remark (calibration Method) |
|-------------------------------------|----------------------------|--|--|
| Mass | 1kg | ±5mg | EURAMET/Cg - No. 18 V4.0 (11/2015) NIST Handbook 44 (2022) |
| | 2kg | ±10mg | |
| | 5kg | ±25mg | |
| | 10kg | ±50mg | |
| | 20kg | ±100mg | |
| | 60kg | ±250mg | |
| | | | |
| | | | |
| LV ELECTRICAL - AC VOLTAGE (SOURCE) | 1 to 200mV@20Hz to 20kHz | 0.08% + 50µV | Using Standard Multifunction Calibrator by Direct Comparison Method as Per EURAMET/Cg - 15 V01 |
| | 1 to 200mV@20kHz to 100kHz | 0.05% + 500µV | |
| | 0.2 to 2V@20Hz to 20KHz | 0.05% + 350µV | |
| | 0.2 to 2V@20kHz to 100KHz | 0.09% + 900µV | |
| | 2 to 20V@20Hz to 20KHz | 0.05% + 1.5mV | |
| | 2 to 20V@20kHz to 100KHz | 0.15% + 15mV | |
| | 20 to 1050V@ 40Hz to 1KHz | 0.08% + 60mV | |
| LV ELECTRICAL - DC VOLTAGE (SOURCE) | 0 to 200mV | 15ppm + 4µV | Using Standard Multifunction Calibrator by Direct Comparison Method as Per EURAMET/Cg - 15 V01 |
| | 0.2 to 20V | 15ppm + 75µV | |
| | 20 to 200V | 25ppm + 3mV | |

| Measured Quantity | Range | Expanded Measurement Uncertainty (k = 2) | Remark (calibration Method) |
|--------------------------------------|---|--|--|
| | 200 to 1050V | 40ppm + 30mV | |
| LV ELECTRICAL -AC VOLTAGE (MEASURE) | 0 to 100mV@ 3Hz to 300kHz | 4.0%rdg +0.04%F.S. | Using a Standard 6½ digits Digital Multimeter by Direct Method as per EURAMET/Cg - 15 V01 |
| | 1 to 750V @3Hz to 300KHz | 4.0%rdg +0.4% F.S. | |
| LV ELECTRICAL - DC VOLTAGE (MEASURE) | 0 to 100mv | 0.005%rdg + 0.0035% F.S. | Using a Standard 6½ digits Digital Multimeter by Direct Method as per EURAMET/Cg - 15 V01 |
| | 1 to 100V | 0.0045%rdg + 0.0006% F.S. | |
| | 101 to 1000V | 0.0045%rdg + 0.0010% F.S. | |
| LV ELECTRICAL - AC CURRENT (SOURCE) | '10 to 200µA@ 20Hz to 5kHz | 0.1% + 0.5µA | Using Standard Multifunction Calibrator by Direct Comparison Method as Per EURAMET/Cg - 15 V01 |
| | '0.2 to 2mA@ 20Hz to 5kHz | 0.08% + 0.5µA | |
| | '2 to 20mA @ 20Hz to 5kHz | 0.08% + 5µA | |
| | '20 to 200mA@ 20Hz to 5kHz | 0.1% + 50µA | |
| | '0.2 to 2A (10 to 100A) @ 20Hz to 500Hz z | 0.1% + 300µA | |
| | '2 to 22A (100 to 1,100A) @ 20Hz to 500Hz | 0.1% + 3mA | |
| LV ELECTRICAL - DC CURRENT (SOURCE) | 0 to 200µA | 80ppm + 15nA | Using Standard Multifunction Calibrator by Direct Comparison Method as Per EURAMET/Cg - 15 V01 |
| | 0.2 to 20mA | 60ppm + 200nA | |
| | 20 to 200mA | 60ppm + 3µA | |
| | 0.2 to 2A (10 to 100A) | 100ppm + 35µA | |
| | 2 to 22A (100 to 1,100A) | 250ppm + 400µA | |
| LV ELECTRICAL - AC CURRENT (MEASURE) | 1A @ 3Hz to 5KHz | 0.10%rdg + 0.04% of F.S. | Using Standard 6½ Digital Multimeter by Direct Method as per EURAMET/Cg - 15 V01 |
| | 3A @ 3Hz to 5KHz | 0.15%rdg + 0.06%F.S. | |

| Measured Quantity | Range | Expanded Measurement Uncertainty (k = 2) | Remark (calibration Method) |
|--------------------------------------|----------------|--|--|
| LV ELECTRICAL -DC CURRENT (MEASURE) | 10.000000mA | 0.05%rdg + 0.02%F.S. | Using Standard 6½ Digital Multimeter by Direct Method as per EURAMET/Cg - 15 V01 |
| | 100.00000mA | 0.05%rdg + 0.005%F.S. | |
| | 1.000000A | 0.10%rdg + 0.01%F.S. | |
| | 3.00000A | 0.120%rdg + 0.02%F.S. | |
| LV ELECTRICAL - SIMULATED RESISTANCE | '10Ω to 40Ω | 0.15% + 50mΩ | Using Standard Multifunction Calibrator by Direct Comparison Method as Per EURAMET/Cg - 15 V01 |
| | '40Ω to 400Ω | 0.05% + 50mΩ | |
| | '400Ω to 400kΩ | 0.02% + 100Ω | |
| | '400kΩ to 4MΩ | 0.02% + 1kΩ | |
| | '4MΩ to 40MΩ | 0.02% + 10kΩ | |
| LV ELECTRICAL - DECADE RESISTANCE | 1Ω | 800ppm | Using Standard Multifunction Calibrator by Direct Comparison Method as Per EURAMET/Cg - 15 V01 |
| | 10Ω | 70ppm | |
| | 100Ω | 30ppm | |
| | 1KΩ | 20ppm | |
| | 10KΩ | 20ppm | |
| | 100kΩ | 30ppm | |
| | 1MΩ | 150ppm | |
| | 10MΩ | 0.1% | |
| | 100MΩ | 1% | |
| | 1GΩ | 10% | |

| Measured Quantity | Range | Expanded Measurement Uncertainty (k = 2) | Remark (calibration Method) |
|-------------------------------------|------------------|--|--|
| LV ELECTRICAL - CAPACITANCE | '10nF to 50nF | '0.5% | Using Standard Multifunction Calibrator by Direct Comparison Method as Per EURAMET/Cg - 15 V01 |
| | 100nF to 1μF | '0.25% | |
| LV ELECTRICAL - DIGITAL FREQUENCY | 0.1Hz to 1kHz | 20ppm | Using Standard Multifunction Calibrator by Direct Comparison Method as Per EURAMET/Cg - 15 V01 |
| | 1kHz to 1MHz | 20ppm | |
| | 1MHz to 10MHz | 20ppm | |
| LV Electrical - J Type Thermocouple | '-210 to - 50°C | 0.15°C | Using Standard Multifunction Calibrator by Direct Comparison Method as Per EURAMET/Cg - 15 V01 |
| | '-50 to 1200°C | 0.09°C | Using Standard Multifunction Calibrator by Direct Comparison Method as Per EURAMET/Cg - 15 V01 |
| LV Electrical - K Type Thermocouple | '-200 to - 100°C | 0.2°C | Using Standard Multifunction Calibrator by Direct Comparison Method as Per EURAMET/Cg - 15 V01 |
| | '-100 to 480°C | 0.1°C | |
| | '480 to 1372°C | 0.15°C | |
| LV Electrical - T Type Thermocouple | '-200 to - 100°C | 0.2°C | Using Standard Multifunction Calibrator by Direct Comparison Method as Per EURAMET/Cg - 15 V01 |
| | '-100 to 400°C | 0.09°C | |
| LV Electrical - R Type Thermocouple | '-50 to 20°C | 0.9°C | Using Standard Multifunction Calibrator by Direct Comparison Method as Per EURAMET/Cg - 15 V01 |
| | '20 to 250°C | 0.5°C | |

| Measured Quantity | Range | Expanded Measurement Uncertainty (k = 2) | Remark (calibration Method) |
|-------------------------------------|----------------|--|--|
| | '250 to 1768°C | 0.35°C | Using Standard Multifunction Calibrator by Direct Comparison Method as Per EURAMET/Cg - 15 V01 |
| LV Electrical - B Type Thermocouple | '300 to 600°C | 1.0°C | Using Standard Multifunction Calibrator by Direct Comparison Method as Per EURAMET/Cg - 15 V01 |
| | '600 to 1820°C | 0.6°C | |
| LV Electrical - N Type Thermocouple | '-200 to 0°C | 0.3°C | Using Standard Multifunction Calibrator by Direct Comparison Method as Per EURAMET/Cg - 15 V01 |
| | '0 to 600°C | 0.1°C | |
| | '600 to 1300°C | 0.15°C | |
| LV Electrical - E Type Thermocouple | '-200 to 0°C | 0.1°C | Using Standard Multifunction Calibrator by Direct Comparison Method as Per EURAMET/Cg - 15 V01 |
| | '0 to 1000°C | 0.05°C | Using Standard Multifunction Calibrator by Direct Comparison Method as Per EURAMET/Cg - 15 V01 |
| LV Electrical- S Type Thermocouple | '-50 to 100°C | 0.7°C | Using Standard Multifunction Calibrator by Direct Comparison Method as Per EURAMET/Cg - 15 V01 |
| | '100 to 500°C | 0.4°C | Using Standard Multifunction Calibrator by Direct Comparison Method as Per EURAMET/Cg - 15 V01 |
| | '500 to 1768°C | 0.3°C | Using Standard Multifunction Calibrator by Direct Comparison Method as Per EURAMET/Cg - 15 V01 |

| Measured Quantity | Range | Expanded Measurement Uncertainty (k = 2) | Remark (calibration Method) |
|--------------------------|----------------|---|--|
| LV ELECTRICAL – PT100 | '-180 to 200°C | 0.2°C | Using Standard Multifunction Calibrator by Direct Comparison Method as Per EURAMET/Cg - 15 V01 |
| | '200 to 850°C | 0.03% + 0.15°C | |