



CERTIFICATE OF ACCREDITATION

ANSI-ASQ National Accreditation Board

500 Montgomery Street, Suite 625, Alexandria, VA 22314, 877-344-3044

This is to certify that

Signal Instrumentation cc
Unit 12, Van Biljon Park, 1 Winelands Close
Stikland, 7530, Western Cape, South Africa

has been assessed by ANAB
and meets the requirements of international standard

ISO/IEC 17025:2005

while demonstrating technical competence in the field of

CALIBRATION

Refer to the accompanying Scope of Accreditation for information regarding the types of calibrations to which this accreditation applies.

L2423

Certificate Number


ANAB Approval

Certificate Valid: 07/13/2018-07/15/2021
Version No. 002 Issued: 07/13/2018



This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. 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 17025:2005

Signal Instrumentation cc

Unit 12, Van Biljon Park
1 Winelands Close, Stikland
Western Cape, 7530 South Africa
Stefanus (Faan) Gunter Langenhoven
Fax: +27 (21) 946 1781; Tel: +27 (21) 946 1597

CALIBRATION

Valid to: **July 15, 2021**

Certificate Number: **L2423**

Electrical – DC/Low Frequency

| Parameter/Equipment | Range | Expanded Uncertainty of Measurement (+/-) | Reference Standard, Method, and/or Equipment |
|-----------------------------------|---|--|--|
| DC Current – Source | (0 to 20) mA (20 to 99) mA | 0.005 4 mA 0.015 % of reading + 0.1mA | Process Calibrator |
| DC Current – Measure | (0 to 20) mA (20 to 200) mA | 0.004 3 mA 0.064 mA | Process Calibrator |
| Resistance – Source | (0 to 500) Ω | 0.24 Ω | Process Calibrator |
| Resistance - Measure | (0 to 500) Ω | 0.24 Ω | Process Calibrator |
| RTD Temperature Simulation | PT 100 – 385 (-200 to 800) $^{\circ}\text{C}$ | 0.82 $^{\circ}\text{C}$ | Process Calibrator |
| DC Voltage – Source | (0 to 200) mV (200 to 2 000) mV (2 000 to 20 000) mV | 0.053 mV 0.54 mV 5.2 mV | Process Calibrator |
| DC Voltage – Measure | (0 to 200) mV (200 to 2 000) mV (2 000 to 20 000) mV | 0.053 mV 0.54 mV 5.2 mV | Process Calibrator |
| Electrical Temperature Simulation | Type K (-200 to 1 370) $^{\circ}\text{C}$ Type J (-210 to 1 200) $^{\circ}\text{C}$ Type R/S (-50 to 1 760) $^{\circ}\text{C}$ | 0.61 $^{\circ}\text{C}$ 0.6 $^{\circ}\text{C}$ 0.81 $^{\circ}\text{C}$ | Process Calibrator |



Mass and Mass Related

| Parameter/Equipment | Range | Expanded Uncertainty of Measurement (+/-) | Reference Standard, Method, and/or Equipment |
|--|------------------------------|---|--|
| Vacuum | (-95 to 0) kPa | 0.24 kPa | Standard Digital Pressure CONST 211 |
| Pneumatic Gauge Pressure | (0 to 2) MPa (2 to 4) MPa | 0.83 kPa 0.94 kPa | Standard Digital Pressure CONST 211 |
| Hydraulic Gauge Pressure | (0 to 60) MPa | 32 kPa | Standard Digital Pressure Additel |
| Scales and Balances (Resolution – 0.001 kg) | (0 to 2) kg (2 to 5) kg | 1.7 g 3.4 g | OIML Class M1 Mass Pieces |
| | (5 to 20) kg | 3.6 g | OIML Class M1& M2 Mass Pieces |
| | (20 to 200) kg | 35 g | OIML Class M2 Mass Pieces |

Thermodynamic

| Parameter/Equipment | Range | Expanded Uncertainty of Measurement (+/-) | Reference Standard, Method, and/or Equipment |
|---|-----------------------------------|---|--|
| Humidity – Source | (33, 53, 75) %RH @ (23 ± 5) °C | 1.5 %RH | Reference Hygrometer |
| Humidity Uniformity Surveys ¹ - Chambers, Cold rooms, Incubators | (11 to 90) %RH | 3.5 %RH | Reference Dataloggers |
| IR Thermometry Measurement Equipment | (50 to 200) °C (200 to 500) °C | 2 °C 5 °C | Portable IR Calibrator (8 to 14) μm, ε = 0.95 |
| Digital and Mechanical Thermometry systems | 0 °C | 0.071 °C | Ice Point with Reference PRT |
| | -21 °C | 0.32 °C | H ₂ O/NaCl slurry with PRT |
| | (-30 to 125) °C | 0.11 °C | Reference PRT and Micro Bath |
| | (50 to 150) °C (150 to 600) °C | 0.37 °C (0.15% of reading + 0.29 °C) | Dryblock calibrator |
| Liquid in Glass Thermometers (Partial immersion) | (-30 to 150) °C | 0.3 °C | Reference PRT and Baths |

Thermodynamic

| Parameter/Equipment | Range | Expanded Uncertainty of Measurement (+/-) | Reference Standard, Method, and/or Equipment |
|---|-----------------|---|--|
| System Accuracy Test – Chamber, Cold rooms, Incubators, Autoclaves and Retorts | (-30 to 150) °C | 0.35 °C | Reference PRT |
| Temperature Uniformity Surveys – Chambers, Cold rooms, Incubators, Autoclaves and Retorts | (25 to 80) °C | 0.52 °C | Reference Dataloggers |

Time and Frequency

| Parameter/Equipment | Range | Expanded Uncertainty of Measurement (+/-) | Reference Standard, Method, and/or Equipment |
|-------------------------------|--|---|--|
| Frequency – Source or Measure | (1 to 200) Hz (200 to 2 000) Hz (2 000 to 20 000) Hz | 0.58 Hz 0.66 Hz 1.7 Hz | Process Calibrator |

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. This scope is formatted as part of a single document including Certificate of Accreditation No. L2423.



Vice President

