



CERTIFICATE OF ACCREDITATION

The ANSI National Accreditation Board

Hereby attests that

Instech Calibration Services cc
5 Marignane Drive, Bonaero Park
Kempton Park, South Africa, 1619

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.

Jason Stine, Vice President

Expiry Date: 25 September 2026

Certificate Number: L2428



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

Instech Calibration Services (Pty) Ltd.

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CALIBRATION

ISO/IEC 17025 Accreditation Granted: 25 September 2024

Certificate Number: L2428

Certificate Expiry Date: 25 September 2026

Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Capacitance – Measure ¹	(1 to 20) nF (20 to 200) nF 200 nF to 2 µF (2 to 20) µF (20 to 200) µF 200 µF to 2 mF (2 to 10) mF	23 pF 0.16 nF 1.6 nF 0.10 µF 1.1 µF 11 µF 51 µF	Comparison to Fluke 8588A Reference Multimeter
Capacitance – Generate ¹	(350.0 to 399.9) pF (0.4 to 3.299 9) nF 10 Hz to 10 kHz (3.3 to 10.999) nF (11 to 32.999) nF (33 to 109.99) nF (110 to 329.99) nF 10 Hz to 1 kHz (0.33 to 1.099 9) µF (10 to 600) Hz (1.1 to 3.299 9) µF (10 to 300) Hz (3.3 to 10.999) µF (10 to 150) Hz (11 to 32.999) µF (10 to 120) Hz (33 to 109.99) µF (10 to 80) Hz (110 to 329.99) µF	3.7 pF 21 pF 31 pF 0.15 nF 0.45 nF 1.5 nF 2.8 nF 8.7 nF 30 nF 0.22 µF 0.9 µF 2.3 µF	Comparison to Fluke 5502A Multiproduct Calibrator

This Scope of Accreditation, version 010, was last updated on: 19 August 2025 and is valid only when accompanied by the Certificate.

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Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Capacitance – Generate ¹	Up to 50 Hz (0.33 to 1.099 9) mF	4.3 μ F	Comparison to Fluke 5502A Multiproduct Calibrator
	Up to 20 Hz (1.1 to 3.299 9) mF	23 μ F	
	Up to 6 Hz (3.3 to 10.999) mF	81 μ F	
DC Current – Measure ¹	(0 to 200) μ A 200 μ A to 2 mA (2 to 20) mA (20 to 200) mA 200 mA to 2 A	2.5 pA 24 pA 0.32 μ A 13 μ A 0.36 mA	Comparison to Fluke 8588A Reference Multimeter
DC Current – Measure ¹	(2 to 10) A (10 to 20) A	2.8 mA 16 mA	Comparison to Fluke 8588A Reference Multimeter
	(10 to 1 025) A	2.3 % of Reading	Comparison to Fluke 376 Clamp Meter
	(10 to 600) A	0.22 % of reading	Comparison to Fluke 8846A Multimeter with DC Shunt
DC Current – Generate ¹	(0 to 329.999) μ A (330 to 3.299 99) mA (3.3 to 32.999 9) mA (33 to 329.999) mA (0.33 to 1.099 99) A (1.1 to 2.999 99) A (3.3 to 10.999 9) A (11 to 20.5) A	0.06 μ A 0.32 μ A 2.9 μ A 29 μ A 0.4 mA 0.91 mA 5.1 mA 17 mA	Comparison to Fluke 5502A Multiproduct Calibrator
DC Current – Simulate ¹ Clamp Meters	(20.5 to 1 025) A	0.48 % of output	Comparison to Fluke 5502A Multiproduct Calibrator & Current Coil
AC Current – Measure ¹	10 Hz to 5 kHz (0 to 100) μ A (0.1 to 1) mA (1 to 10) mA (10 to 100) mA 100 mA to 1 A (1 to 10) A (10 to 20) A	2.1 μ A 2.4 μ A 7.7 μ A 66 μ A 0.72 mA 11 mA 20 mA	Comparison to Fluke 8588A Reference Multimeter

Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
AC Current – Measure ¹	(10 to 1 025) A (10 to 100) Hz	2.3 % of reading	Comparison to Fluke 376 Clamp Meter
AC Current – Measure ¹	(10 to 1 500) A (10 to 100) Hz	0.38 % of reading	Comparison to Current Transformer with Fluke 8846A Multimeter



Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
AC Current – Generate ¹	(0.03 to 0.33) mA		Comparison to Fluke 5502A Multiproduct Calibrator
	(10 to 20) Hz	3.1 μ A	
	(20 to 45) Hz	2.2 μ A	
	(45 Hz to 1) kHz	2.2 μ A	
	(1 to 5) kHz	2.3 μ A	
	(5 to 10) kHz	3.1 μ A	
	(10 to 30) kHz	4.9 μ A	
	(0.33 to 3.3) mA		
	(10 to 20) Hz	5.2 μ A	
	(20 to 45) Hz	6 μ A	
	(45 Hz to 1) kHz	4.1 μ A	
	(1 to 5) kHz	6.1 μ A	
	(5 to 10) kHz	14 μ A	
	(10 to 30) kHz	26 μ A	
	(3.3 to 33) mA		
	(10 to 20) Hz	52 μ A	
	(20 to 45) Hz	32 μ A	
	45 Hz to 1 kHz	17 μ A	
	(1 to 5) kHz	25 μ A	
	(5 to 10) kHz	55 μ A	
	(10 to 30) kHz	0.11 mA	
	(33 to 330) mA		
	(10 to 20) Hz	0.5 mA	
	(20 to 45) Hz	0.3 mA	
	(45 Hz to 1) kHz	0.17 mA	
	(1 to 5) kHz	0.36 mA	
	(5 to 10) kHz	0.6 mA	
	(10 to 30) kHz	1.2 mA	
	(0.33 to 1.1) A		
	(10 to 45) Hz	1.7 mA	
	(0.45 to 1) Hz	0.59 mA	
	(1 to 5) kHz	5.9 mA	
	(5 to 10) kHz	25 mA	
	(1.1 to 3) A		
	(10 to 45) Hz	4.7 mA	
	(0.45 to 1) Hz	2.1 mA	
	(1 to 5) kHz	15 mA	
	(5 to 10) kHz	62 mA	

Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
AC Current – Generate ¹	(3 to 11) A 45 to 100 Hz 100 Hz to 1 kHz 1 kHz to 5 kHz (11 to 20.5) A 45 to 100 Hz 100 Hz to 1 kHz 1 kHz to 5 kHz	8.3 mA 11 mA 0.24 A 0.02 A 0.16 A 0.47 A	Comparison to Fluke 5502A Multiproduct Calibrator
AC Current – Simulate ¹ Clamp Meters	(20.5 to 1 025) A (45 to 100) Hz (0.1 to 1) kHz	0.3 % of output 0.7 % of output	Comparison to Fluke 5502A Multiproduct Calibrator & Current Coil
DC Power – Generate ¹	33 mV to 1 020 V 3.3 mA to 20.5 A	0.1 % of output	Comparison to Fluke 5502A Multiproduct Calibrator
AC Power – Generate ¹ PF = 1	33 mV to 1 020 V 3.3 mA to 20.5A (45 to 65) Hz	0.2 % of output	Comparison to Fluke 5502A Multiproduct Calibrator
Resistance – Measure ¹	(0 to 20) Ω (20 to 200) Ω (0.2 to 2) k Ω (2 to 20) k Ω (20 to 200) k Ω (0.2 to 2) M Ω (2 to 20) M Ω (20 to 200) M Ω (0.2 to 2) G Ω	0.62 m Ω 2.2 m Ω 22 m Ω 0.24 Ω 6.1 Ω 40 Ω 2.1 k Ω 40 k Ω 4.5 M Ω	Comparison to Fluke 8588A Reference Multimeter
HV Resistance Measure ¹	(10 to 20) M Ω (20 to 200) M Ω (0.2 to 2) G Ω (2 to 20) G Ω	5.3 k Ω 20 k Ω 1.4 M Ω 30 M Ω	Comparison to Fluke 8588A Reference Multimeter
Resistance – Generate ¹	(0.001 to 33) Ω (33 to 330) Ω 330 Ω to 3.3 k Ω (3.3 to 33) k Ω (33 to 330) k Ω 330 k Ω to 3.3 M Ω (3.3 to 33) M Ω (33 to 330) M Ω (330 to 1 100) M Ω	4.4 m Ω 30 m Ω 0.92 Ω 2.6 Ω 49 Ω 0.41 k Ω 29 k Ω 1.4 M Ω 14 M Ω	Comparison to Fluke 5502A Multiproduct Calibrator

Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Resistance – Generate ¹	(0.1 to 100) M Ω 1 G Ω 10 G Ω	1.4 % of reading 12 M Ω 28 M Ω	Comparison to High Voltage Reference Resistance Box
Temperature Simulation for RTD Temperature Indicators ¹	PT385, 100 Ω (-200 to 100) °C (100 to 630) °C (630 to 800) °C PT385, 1 000 Ω (-200 to 100) °C (100 to 600) °C	0.06 °C 0.1 °C 0.18 °C 0.04 °C 0.06 °C	Comparison to Fluke 5502A Multiproduct Calibrator
DC Voltage – Measure ¹	(0 to 200) mV (0.2 to 2) V (2 to 20) V (20 to 200) V (200 to 1 000) V	3.1 μ V 14 μ V 0.15 mV 1.6 mV 7.6 mV	Comparison to Fluke 8588A Reference Multimeter
High DC Voltage – Measure ¹	(1 to 40) kV	1.7 % of reading	Comparison to Fluke 80k-40 High Voltage Probe with Multimeter
High DC Voltage – Measure ¹	(20 to 100) kV	1.5 % of reading	Comparison to High Voltage Divider
DC Voltage – Generate ¹	(0 to 330) mV (0.33 to 3.3) V (3.3 to 33) V (33 to 330) V (100 to 1 020) V	18 μ V 0.14 mV 1.4 mV 15 mV 45 mV	Comparison to Fluke 5502A Multiproduct Calibrator
High DC Voltage – Measuring Systems/Devices ¹	(1 to 30) kV	2.6 % of reading	Comparison to Fluke 80k-40 with Multimeter and Power Supply

Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
AC Voltage – Measure ¹	10 Hz to 30 kHz		Comparison to Fluke 8588A Reference Multimeter
	(0 to 10) mV	7.8 μ V	
	(10 to 100) mV	27 μ V	
	(0.1 to 1) V	0.25 mV	
	(1 to 10) V	2.5 mV	
	(10 to 100) V	25 mV	
	(100 to 1 000) V	0.31 V	
	30 kHz to 100 kHz		
	(0 to 10) mV	32 μ V	
	(10 to 100) mV	0.06 mV	
AC Voltage – Measure ¹	(0.1 to 1) V	0.59 mV	Fluke 8588A Reference Comparison to Multimeter
	(1 to 10) V	5.9 mV	
	(10 to 100) V	0.06 V	
High AC Voltage – Measure ¹	100 kHz to 300 kHz		Comparison to Fluke 80k-40 High Voltage Probe with Multimeter
	(0 to 10) mV	0.11 mV	
	(10 to 100) mV	0.24 mV	
	(0.1 to 1) V	2.4 mV	
High AC Voltage – Measure ¹	(1 to 28) kV		Comparison to High Voltage Divider
	50 Hz	5.9 % of reading	
High AC Voltage – Measure ¹	50 Hz		Comparison to High Voltage Divider
	(20 to 100) kV	1.7 % of reading	

Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
AC Voltage – Generate ¹	(1 to 33) mV		Comparison to Fluke 5502A Multiproduct Calibrator
	(10 to 45) Hz	54 μ V	
	45 Hz to 10 kHz	37 μ V	
	(10 to 20) kHz	56 μ V	
	(20 to 50) kHz	69 μ V	
	(50 to 100) kHz	0.12 mV	
	(100 to 500) kHz	0.33 mV	
	(33 to 330) mV		
	(10 to 45) Hz	0.15 mV	
	45 Hz to 10 kHz	0.09 mV	
	(10 to 20) kHz	0.2 mV	
	(20 to 50) kHz	0.29 mV	
	(50 to 100) kHz	0.72 mV	
	(0.33 to 3.3) V		
	(10 to 45) Hz	1.4 mV	
	45 Hz to 10 kHz	0.82 mV	
	(10 to 20) kHz	1.9 mV	
	(20 to 50) kHz	2.6 mV	
	(50 to 100) kHz	6 mV	
	(100 to 500) kHz	14 mV	
	(3.3 to 33) V		
	(10 to 45) Hz	14 mV	
	45 Hz to 10 kHz	8.4 mV	
	(10 to 20) kHz	19 mV	
	(20 to 50) kHz	26 mV	
	(50 to 100) kHz	60 mV	
AC Voltage – Generate ¹	(33 to 330) V		Comparison to Fluke 5502A Multiproduct Calibrator
	45 Hz to 1 kHz	0.13 V	
	(1 to 10) kHz	0.21 V	
	(10 to 20) kHz	0.24 V	
	(20 to 50) kHz	0.32 V	
	(50 to 100) kHz	0.67 V	
	(330 to 1 020) V		
	45 Hz to 1 kHz	0.42 V	
	(1 to 5) kHz	0.65 V	
	(5 to 10) kHz	0.73 V	
High AC Voltage – Measuring Systems/Devices ¹	50 Hz (1 to 28) kV	5.9 % of reading	Comparison to Fluke 80k-40 High Voltage Probe with Multimeter and Power Supply

Electrical – DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
High AC Voltage – Measuring Systems/Devices ¹	50 Hz (20 to 100) kV	1.6 % of reading	Comparison to High Voltage Divider and Power Supply
Temperature Simulation for Thermocouple Temperature Indicators, Controllers, Recorders, and Simulators ¹	Type K (-100 to 1 000) °C (1000 to 1 372) °C Type J (-100 to 600) °C Type T (-250 to 0) °C (0 to 400) °C Type S (0 to 1 767) °C Type R (0 to 250) °C (250 to 1 767) °C	0.23 °C 0.33 °C 0.16 °C 0.5 °C 0.16 °C 0.38 °C 0.46 °C 0.33 °C	Comparison to Fluke 5502A Multiproduct Calibrator

Length – Dimensional Metrology

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Thickness Gauges ^{1,2} (Ultrasonic, Magnetic and Eddy Current)	(2 to 25) mm	0.002L mm	Comparison to Grade 1 Gauge Blocks and Micrometer with Glass Thickness standards
Thickness Gauges ^{1,4} (Magnetic and Eddy Current)	11 µm 21 µm 49 µm 75 µm 128 µm 189 µm 475 µm 762 µm 1 045 µm 1 570 µm	2.1 µm 2.1 µm 2.2 µm 2.2 µm 2.7 µm 2.7 µm 6.3 µm 9.1 µm 12 µm 12 µm	Comparison to Calibration Foils

Mass and Mass Related

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Pneumatic Absolute Pressure ¹	(1 to 200) kPa	36 Pa	Comparison to Druck Digital Absolute Pressure Indicator/Gauge and Vacuum Pump; Pressurized Chamber (15 PSI Max)
Pneumatic Gauge Pressure ¹	(-80 to 0) kPa (0 to 20) kPa (20 to 700) kPa (0.7 to 6) MPa	0.11 kPa 12 Pa 0.18 kPa 1 kPa	Comparison to Druck Pressure Gages and Pneumatic Pump
Hydraulic Gauge Pressure ¹	(-80 to 0) kPa (0 to 700) kPa (0.7 to 7) MPa (7 to 60) MPa (60 to 70) MPa	0.11 kPa 0.18 kPa 1 kPa 10 kPa 35 kPa	Comparison to Druck Pressure Gages and Comparator
Autoclave Gauge Pressure ¹	(0 to 700) kPa	0.18 kPa	Comparison to Druck Pressure Gages and Pneumatic Pump
Mass Pieces ¹	(0.1 to 1) g (1.000 1 to 10) g (10.000 1 to 50) g (50.000 1 to 100) g (100.000 1 to 200) g (200.000 1 to 500) g (500.01 to 2 000) g (2 000.01 to 3 000) g (3 000.01 to 5 000) g (5.01 to 20.000) kg (20.01 to 100.000) kg (100.01 to 200.00) kg (200.01 to 300.00) kg (300.01 to 400.00) kg	0.16 mg 0.27 mg 0.39 mg 0.63 mg 1.3 mg 8.8 mg 15 mg 21 mg 0.24 g 4.3 g 48 g 58 g 72 g 87 g	Calibration Procedure based on OIML R111-1 with OIML Class F1 and OIML M2 Mass Standards
Scales and Balances ^{1,3}	(0 to 100) g (0 to 200) g (200 to 500) g (500 to 1 000) g (1 000 to 3 000) g (3 000 to 5 000) g	0.63 mg 1.3 mg 8.8 mg 11 mg 21 mg 0.24 g	Comparison to OIML Class F1 Standards

Mass and Mass Related

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Scales and Balances ^{1,3}	(0 to 10) kg (10 to 20) kg (20 to 100) kg (100 to 200) kg (200 to 300) kg (300 to 400) kg	3.8 g 4.3 g 48 g 58 g 72 g 87 g	Comparison to OIML Class M2 Mass Standards
Torque Screwdrivers and Wrenches ^{1,2} (CW Only)	(1 to 10) N·m (10 to 50) N·m (50 to 1 000) N·m	0.16 N·m 0.69 N·m 0.004T N·m	Comparison to Torque Analyser, Torque Transducer with Display

Thermodynamic

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Thermo-Hygrometers - Loggers and Indicators	(11, 33, 53, 75, 90) %RH (18 to 28) °C	1.3 %RH 0.4 °C	Comparison to Reference Hygrometer and Chambers
Humidity and Temperature Indicators ¹	(11 to 90) %RH (10 to 50) °C	2.7 %RH 1.1 °C	Comparison to Reference Datalogger
Radiation (IR) Temperature Measuring Equipment ¹	50 °C 100 °C 150 °C 200 °C 250 °C 300 °C 350 °C 400 °C 450 °C 500 °C	2.2 °C 2.3 °C 2.7 °C 2.7 °C 5.8 °C 5.9 °C 5.9 °C 6.6 °C 6.6 °C 6.6 °C	Comparison to Portable IR Calibrator $\epsilon = 0.95$, $\lambda = (8 \text{ to } 14) \mu\text{m}$
Liquid in Glass Thermometers ¹ (Partial/Total Immersion)	0 °C	0.31 °C	Comparison to PRT with Multimeter and ice point
	(10 to 90) °C	0.31 °C	Comparison to PRT with Multimeter and water bath
Digital and Mechanical Thermometers and Temperature Measuring Systems ¹	(-80 to -40) °C	0.18 °C	Comparison to Dry Ice and Alcohol
	(-15 to -20) °C	0.1 °C	Comparison to PRT and Alcohol NaCl slurry

Thermodynamic

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
	0 °C	0.07 °C	Comparison to PRT and ice point
Digital and Mechanical Thermometers and Temperature Measuring Systems ¹	(10 to 90) °C	0.09 °C	Comparison to PRT and water bath
	(50 to 400) °C	0.07 °C	Comparison to PRT and dry block
	(400 to 1 200) °C	2.8 °C	Comparison to Type R TC and dry block
Temperature Uniformity Survey ¹	(-70 to 1 000) °C	2.8 °C	Comparison to Type K TC and display unit
	(-20 to 200) °C	0.4 °C	Comparison to RTD and display unit
System Accuracy Test ¹	(-70 to 1 000) °C	3.8 °C	Comparison to Type K TC and display unit
Autoclave Temperature Uniformity Survey & Accuracy Test ¹	(0 to 200) °C	3.8 °C	Comparison to Type K TC and display unit

Time and Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Frequency – Measure ¹	(0.1 to 10) Hz 10 Hz to 100 MHz	0.06 % of reading 0.01 % of reading	Comparison to Fluke 8588A Reference Multimeter
Frequency – Generate ¹	(0.01 to 120) Hz (0.12 to 1.2) kHz (1.2 to 12) kHz (12 to 120) kHz (0.12 to 1.2) MHz	7 mHz 63 mHz 0.63 Hz 6.3 Hz 62 Hz	Comparison to Fluke 5502A Multiproduct Calibrator
Stopwatches and Timers ¹	(1 to 86 400) s	0.08 s	Comparison to HP 5328A Counter
	(1 to 120) minutes	1 s	Comparison to Stopwatch
Tachometers ¹ Contact Type	(10 to 500) rpm (501 to 2 999) rpm	0.5 rpm 1.9 rpm	Comparison to VSD Motor with Proximeter

Time and Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Tachometers ¹ Non-Contact Type	(10 to 100) rpm (100 to 1 000) rpm (1 001 to 6 000) rpm (6 001 to 20 000) rpm (20 001 to 50 000) rpm	0.08 rpm 0.14 rpm 0.31 rpm 1.2 rpm 2.8 rpm	Comparison to VSD Motor with Proximeter and 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. L = length in mm, T = Torque in N·m.
3. The uncertainties for scales and balances is highly dependent upon the resolution of the unit under test. The uncertainties presented here does not include the resolution of the unit under test. The resolution will be included in the reported measurement uncertainty at the time of calibration.
4. The nominal values listed are approximate.



Jason Stine, Vice President