



INTERNATIONAL
ACCREDITATION
SERVICE®

CERTIFICATE OF ACCREDITATION

This is to attest that

ACCURA CALSERV PTE LTD

NO.16, AYER RAJAH CRESCENT, # 04-05 D, TEMPCO TECHNOMINIUM
SINGAPORE 139965, SINGAPORE

Calibration Laboratory CL-262

has met the requirements of AC204, *IAS Accreditation Criteria for Calibration Laboratories*, and has demonstrated compliance with ISO/IEC Standard 17025:2017, *General requirements for the competence of testing and calibration laboratories*. This organization is accredited to provide the services specified in the scope of accreditation.

Effective Date July 23, 2024

Expiration Date February 1, 2025



A handwritten signature in black ink, reading "Raj Nathan".

President

Visit www.iasonline.org for current accreditation information.

SCOPE OF ACCREDITATION

International Accreditation Service, Inc.

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ACCURA CALSERV PTE LTD

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Accredited to ISO/IEC 17025:2017

Effective Date July 23, 2024

CALIBRATION AND MEASUREMENT CAPABILITY (CMC)*

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY ^{1,2} (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
Mechanical			
Pressure Instruments ³ – Differential / Level (DP) (Lab and Site)	±(5 Pa to 2500 Pa) (d) ±(2500 Pa to 10000 Pa) (d) ±(10000 Pa to 15000 Pa) (d) ±(0.15 bar to 1 bar) (d) ±(1 bar to 2 bar) (d) ±(2 bar to 10 bar) (d) ±(10 bar to 15 bar) (d) ±(15 bar to 20 bar) (d)	0.5 Pa (d) 1.2 Pa (d) 14 Pa (d) 0.0003 bar (d) 0.0007 bar (d) 0.0032 bar (d) 0.0076 bar (d) 0.0085 bar (d)	Calibration Procedure ACS-CP-PR-03 / ACS-CP-SPR-03
Pressure & Vacuum Instruments ³ – Pressure / Vacuum / Level (Lab and Site)	-0.95 bar to 0 bar 0 mbar to 25 mbar 25 mbar to 100 mbar 100 mbar to 150 mbar 150 mbar to 1 bar 1 bar to 2 bar 2 bar to 10 bar 10 bar to 15 bar 15 bar to 20 bar 20 bar to 70 bar 70 bar to 700 bar 700 bar to 1000 bar	0.5 mbar 0.005 mbar 0.012 mbar 0.14 mbar 0.0003 bar 0.0007 bar 0.0032 bar 0.0076 bar 0.0085 bar 0.045 bar 0.45 bar 0.65 bar	Calibration Procedure ACS-CP-PR-05 / ACS-CP-SPR-05
Pressure Instruments ³ – Absolute (Lab and Site)	40 mbar (a) to 2 bar (a) 2 bar (a) to 20 bar (a)	0.82 mbar (a) 12 mbar (a)	Calibration Procedure ACS-CP-PR-04 / ACS-CP-SPR-04

* If information in this CMC is presented in non-SI units, the conversion factors stated in NIST Special Publication 811 "Guide for the Use of the International System of Units (SI)" apply.

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Vacuum Instruments ³ (Lab and Site)	-0.95 bar to -0.03 bar (g)	0.03 % (g)	Calibration Procedure ACS-CP-PR-01 / ACS-CP-SPR-01
Pressure Instruments – Pneumatic ³ (Lab and Site)	0.2 bar to 35 bar (g)	0.03 % (g)	Calibration Procedure ACS-CP-PR-01 / ACS-CP-SPR-01
Pressure Instruments – Hydraulic ³ (Lab and Site)	30 psi to 15000 psi (g) 15000 psi to 40000 psi (g)	0.03 % (g) 0.05 % (g)	Calibration Procedure ACS-CP-PR-02 / ACS-CP-SPR-02
Torque Wrenches / Meters / Multipliers (Lab only)	100 N·m to 300 N·m 300 N·m to 2000 N·m 2000 N·m to 3000 N·m	0.96 % 0.71 % 0.59 %	Calibration Procedure ACS-CP-TO-01
Thermal			
RTD ³ / Thermocouple Sensors with or without Indicator ³ / Controller ³ , Capillary Thermometer ³ , Data Logger with Sensor ³ , Temperature Gauge ³ , Temperature Switch ³ , Temperature Transmitter ³ (Lab and Site)	-80 °C to 230 °C 230 °C to 650 °C	0.04 °C 0.05 °C	Calibration Procedure ACS-CP-TE-01 / ACS-CP-STE-01
Temperature Calibrator ³ / Bath ³ / Chamber ³ (Lab and Site)	-80 °C to 90 °C 90 °C to 650 °C	0.06 °C 0.07 °C	Calibration Procedure ACS-CP-TE-03 / ACS-CP-STE-03
Temperature Oven ³ (Lab and Site)	30 °C to 100 °C 100 °C to 300 °C 300 °C to 500 °C	0.9 °C to 1.2 °C 1.2 °C to 2.4 °C 2.4 °C to 3.5 °C	
Humidity Instruments (Fixed Points) ³ (Lab and Site)	11.3 %RH @ 23 °C 35 %RH @ 23 °C 50 %RH @ 23 °C 60 %RH @ 23 °C 75.3 %RH @ 23 °C	0.3 %RH 0.4 %RH 0.6 %RH 0.6 %RH 0.7 %RH	Calibration Procedure ACS-CP-HU-01 / ACS-CP-SHU-01
Temperature Sensors incorporated in Humidity Instruments ³ (Lab and Site)	10 °C to 50 °C	0.05 °C	Calibration Procedure ACS-CP-HU-02 / ACS-CP-SHU-02

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Temperature and Humidity Instruments ³ (Lab and Site)	10 %RH @ 15 °C to 40 °C >10 %RH to 50 %RH @ 15 °C to 40 °C >50 %RH to 75 %RH @ 15 °C to 40 °C 15 °C to 40 °C @ 10 %RH to 75 %RH	0.7 %RH 0.87 %RH 0.94 %RH 0.16 °C	Calibration Procedure ACS-CP-HU-02 / ACS-CP-SHU-02
Non-contact Thermometer / Pyrometer / Thermal Imager (Lab only)	50 °C to 200 °C 200 °C to 525 °C 525 °C to 900 °C	2.2 °C 3.9 °C 5.1 °C	Calibration Procedure ACS-CP-IN-01
Electrical – DC/LF			
Measuring Instruments			
Temperature Measuring Instruments ³ / Controllers ³ / Transmitters ³ (RTD) Simulation Method (Lab and Site)	-200 °C to -100 °C -100 °C to 0 °C 0 °C to 50 °C 50 °C to 100 °C 100 °C to 150 °C 150 °C to 200 °C 200 °C to 400 °C 400 °C to 600 °C 600 °C to 850 °C	0.02 °C 0.03 °C 0.04 °C 0.05 °C 0.06 °C 0.07 °C 0.09 °C 0.13 °C 0.18 °C	Calibration Procedure ACS-CP-TE-02 / ACS-CP-STE-02
Temperature Measuring Instruments ³ / Controllers ³ / Transmitters ³ (T/C) (Lab and Site)			Calibration Procedure ACS-CP-EL-01 / ACS-CP-SEL-01
K Type	-200 °C to -140 °C -140 °C to -100 °C -100 °C to 100 °C 100 °C to 900 °C 900 °C to 1370 °C	0.32 °C 0.2 °C 0.16 °C 0.25 °C 0.31 °C	
J Type	-150 °C to -100 °C -100 °C to -30 °C -30 °C to 150 °C 150 °C to 760 °C 760 °C to 1200 °C	0.28 °C 0.15 °C 0.13 °C 0.18 °C 0.23 °C	

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Temperature Measuring Instruments ³ / Controllers ³ / Transmitters ³ (T/C) (Lab and Site) (continued)			Calibration Procedure ACS-CP-EL-01 / ACS-CP-SEL-01
T Type	-200 °C to -150 °C -150 °C to 0 °C 0 °C to 120 °C 120 °C to 400 °C	0.72 °C 0.14 °C 0.13 °C 0.15 °C	
S Type	-20 °C to 250 °C 250 °C to 1000 °C 1000 °C to 1700 °C	0.93 °C 0.53 °C 0.64 °C	
R Type	-20 °C to 250 °C 250 °C to 1000 °C 1000 °C to 1700 °C	0.93 °C 0.53 °C 0.64 °C	
E Type	0 °C to 350 °C 350 °C to 650 °C 650 °C to 800 °C	0.13 °C 0.16 °C 0.19 °C	
N Type	-200 °C to -100 °C -100 °C to -25 °C -25 °C to 120 °C 120 °C to 410 °C 410 to 1300 °C	0.51 °C 0.25 °C 0.21 °C 0.20 °C 0.29 °C	
B Type	600 °C to 800 °C 800 °C to 1000 °C 1000 °C to 1800 °C	0.85 °C 0.76 °C 0.65 °C	
Temperature Measuring Instruments ³ RTD ³ (Lab and Site)	-100 °C to 0 °C 0 °C to 750 °C	0.39 °C 0.43 °C	Calibration Procedure ACS-CP-EL-01 / ACS-CP-SEL-01
DC Voltage ³ (Lab and Site)	0 mV to 100 mV 100 mV to 200 mV 200 mV to 1 V 1 V to 10 V 10 V to 1000 V	0.007 % 0.005 % 0.004 % 0.003 % 0.004 %	Calibration Procedure ACS-CP-EL-01 / ACS-CP-SEL-01

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AC Voltage ³ (Lab and Site)			Calibration Procedure ACS-CP-EL-01 / ACS-CP-SEL-01
@ 40 Hz	20 mV to 200 V	0.53 % to 0.099 %	
@ 50 Hz	20 mV to 200 mV 200 mV to 20 V 20 V to 200 V 200 V to 1000 V	0.19 % to 0.061 % 0.058 % 0.099 % 0.097 %	Calibration Procedure ACS-CP-EL-01 / ACS-CP-SEL-01
@ 1 kHz	20 mV to 100 mV 100 mV to 100 V 100 V to 300 V 300 V to 1000 V	0.15 % 0.16 % 0.21 % 0.19 %	
@ 50 kHz	100 mV to 1V 1 V to 10 V 10 V to 100 V 100 V to 300 V	0.91 % to 0.06 % 0.66 % 0.16 % 0.21 %	
DC Current ³ (Lab and Site)	0 µA to 100 µA 100 µA to 10 mA 10 mA to 100 mA 100 mA to 1 A 1 A to 20 A 20 A to 30 A	0.05 % 0.01 % 0.013 % 0.021 % 0.061 % 0.054 %	Calibration Procedure ACS-CP-EL-01 / ACS-CP-SEL-01
DC Current ³ (Using Current Coil) (Lab and Site)	30 A to 60 A 60 A to 300 A 300 A to 1500 A	0.46 % 0.59 % 0.30 %	
AC Current ³ (Lab and Site)			Calibration Procedure ACS-CP-EL-01 / ACS-CP-SEL-01
@ 10 Hz	25 µA to 100 µA 100 µA to 1 A	1.4 % to 0.52 % 0.39 %	
@ 50 Hz	200 µA to 30 A	0.26 % to 0.09 %	
@ 1 kHz	100 µA 100 mA 30 A	1.2 % 0.79 % 0.37 %	
@ 10 kHz	100 µA 100 mA 1 A	1.2 % 0.79 % 0.81 %	

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AC Current @ 50 Hz ³ (Using Current Coil) (Lab and Site)	30 A to 60 A 60 A to 300 A 300 A to 1500 A	0.46 % 0.59 % 0.30 %	
Frequency ³ (Lab and Site)	10 Hz to 10 MHz	0.0003 % to 0.0002 %	Calibration Procedure ACS-CP-EL-01 / ACS-CP-SEL-01
Resistance ³ (Lab and Site)	Dial x 0.01 Ω Dial x 0.1 Ω Dial x 1 Ω Dial x 10 Ω Dial x 100 Ω Dial x 1 kΩ Dial x 10 kΩ 0.1 Ω 0.28 Ω 1 Ω 10 Ω 100 Ω 1 kΩ 10 kΩ 100 kΩ 1 MΩ 10 MΩ 100 MΩ 1000 MΩ	1.2 % 0.24 % 0.024 % 0.024 % 0.024 % 0.024 % 0.024 % 2.1 % 2.1 % 2.1 % 0.01 % 0.01 % 0.01 % 0.01 % 0.01 % 0.02 % 0.05 % 0.58 % 1.2 %	Calibration Procedure ACS-CP-EL-01 / ACS-CP-SEL-01
Insulation Resistance ³ (Lab and Site)	Dial x 0.1 MΩ Dial x 1 MΩ Dial x 10 MΩ Dial x 100 MΩ Dial x 1 GΩ Dial x 10 GΩ 200 GΩ 500 GΩ	2.3 % 2.3 % 3.5 % 3.5 % 3.5 % 5.8 % 6.5 % 6.5 %	Calibration Procedure ACS-CP-EL-03/ ACS-CP-SEL-03
Capacitance ³ (Lab and Site)	1 nF 10 nF 20 nF 50 nF 100 nF 1 μF 10 μF	0.34 % 0.35 % 0.49 % 1.0 % 0.31 % 0.46 % 0.73 %	Calibration Procedure ACS-CP-EL-01 / ACS-CP-SEL-01

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Electrical – DC/LF			
Source/generating Instruments			
Temperature Sourcing Instruments ³ (T/C) (Lab and Site)			Calibration Procedure ACS-CP-EL-02 / ACS-CP-SEL-02
K Type	-100 °C to 1360 °C	1.4 °C to 0.95 °C	
J Type	-100 °C to 1190 °C	1.2 °C to 0.81 °C	
R Type	0 °C to 1700 °C	3.0 °C to 1.9 °C	
S Type	0 °C to 1700 °C	3.0 °C to 2.0 °C	
T Type	-100 °C to 400 °C	1.2 °C to 0.98 °C	
Temperature Sourcing Instruments ³ (RTD) (Lab and Site)	-100 °C to 800 °C	0.39 °C to 0.47 °C	Calibration Procedure ACS-CP-EL-02 / ACS-CP-SEL-02
DC Voltage ³ (Lab and Site)	0 mV to 1000 V	0.0009 %	Calibration Procedure ACS-CP-EL-02 / ACS-CP-SEL-02
AC Voltage ³ (Lab and Site)			Calibration Procedure ACS-CP-EL-02 / ACS-CP-SEL-02
@ 50 Hz ~ 1 kHz	100 mV to 100 V 100 V to 700 V	0.081 % 0.12 %	
DC Current ³ (Lab and Site)	0 µA to 100 µA 100 µA to 100 mA 100 mA to 1 A	0.003 % 0.003 % to 0.082 % 0.082 % to 0.014 %	Calibration Procedure ACS-CP-EL-02 / ACS-CP-SEL-02
AC Current ³ (Lab and Site)			Calibration Procedure ACS-CP-EL-02 / ACS-CP-SEL-02
@ 50 Hz ~ 1 kHz	1 A to 2 A	0.26 % to 0.28 %	
Frequency ³ (Lab and Site)	1 Hz to 10 MHz	0.06 % to 0.012 %	Calibration Procedure ACS-CP-EL-02 / ACS-CP-SEL-02
Resistance ³ (Lab and Site)	0.1 Ω to 1 MΩ 1 MΩ to 10 MΩ	0.002 % 0.007 %	Calibration Procedure ACS-CP-EL-02 / ACS-CP-SEL-02

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Chemical/Gas			
pH Instruments ³ (Lab and Site)	2.000 pH 4.005 pH 7.000 pH 10.001 pH 12.000 pH	0.02 pH 0.01 pH 0.01 pH 0.01 pH 0.02 pH	Calibration Procedure ACS-CP-CH-03 / ACS-CP-SCH-03
Conductivity Instruments ³ (Lab and Site)	10 µS/cm 100 µS/cm 300 µS/cm 500 µS/cm 1413 µS/cm 10 mS/cm 20 mS/cm 100 mS/cm 200 mS/cm	0.1 µS/cm 0.7 µS/cm 1.8 µS/cm 2.0 µS/cm 4.6 µS/cm 0.04 mS/cm 0.08 mS/cm 0.3 mS/cm 2.0 mS/cm	Calibration Procedure ACS-CP-CH-01 / ACS-CP-SCH-01
TDS Instruments ³ (Lab and Site)	6.64 ppm 66 ppm 200 ppm 337 ppm 940 ppm 6.65 ppt 13.42 ppt 67.2 ppt 133 ppt	1.1 % 0.71 % 0.6 % 0.4 % 0.32 % 0.4 % 0.4 % 0.3 % 0.99 %	Calibration Procedure ACS-CP-CH-04 / ACS-CP-SCH-04
Total Suspended Solids Instruments ³ (Lab and Site)	1 mg/L 5 mg/L 10 mg/L 20 mg/L 50 mg/L 100 mg/L 200 mg/L	0.09 mg/L 0.37 mg/L 0.61 mg/L 1.7 mg/L 3.8 mg/L 7.2 mg/L 14 mg/L	Calibration Procedure ACS-CP-CH-06 / ACS-CP-SCH-06
Turbidity Instruments ³ (Lab and Site)	5 NTU 50 NTU 100 NTU	0.37 NTU 3.7 NTU 7.4 NTU	Calibration Procedure ACS-CP-CH-07 / ACS-CP-SCH-07
Oxidation - Reduction Potential (ORP) instruments ³ (Lab and Site)	200 mV 476 mV	3.1 mV 4.4 mV	Calibration Procedure ACS-CP-CH-02 / ACS-CP-SCH-02

¹The uncertainty covered by the Calibration and Measurement Capability (CMC) is expressed as the expanded uncertainty having a coverage probability of approximately 95 %. It is the smallest measurement uncertainty that a laboratory can achieve within its scope of accreditation when performing calibrations of a best existing device. The

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measurement uncertainty reported on a calibration certificate may be greater than that provided in the CMC due to the behavior of the calibration item and other factors that may contribute to the uncertainty of a specific calibration.

²When uncertainty is stated in relative terms (such as percent, a multiplier expressed as a decimal fraction or in scientific notation), it is in relation to instrument reading or instrument output, as appropriate, unless otherwise indicated.

³Calibrations available also at site: note that actual measurement uncertainties achievable at a customer's site can normally be expected to be larger than the uncertainties listed on this Scope of Accreditation.

Notes:

(d) = differential pressure

(a) = absolute pressure

(g) = gauge pressure

ppm = parts in 10^6

ppt = parts in 10^3

NTU = Nephelometric Turbidity Unit