



INTERNATIONAL  
ACCREDITATION  
SERVICE®

# CERTIFICATE OF ACCREDITATION

*This is to attest that*

## **BAHRAIN METROLOGY SERVICES**

FLAT NO 22, BUILDING 446, STREET 1206, BLOCK 712  
SALMABAD, 1802, BAHRAIN

### **Calibration Laboratory CL-283**

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 February 21, 2024

Expiration Date March 1, 2025



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

**President**

Visit [www.iasonline.org](http://www.iasonline.org) for current accreditation information.

# SCOPE OF ACCREDITATION

International Accreditation Service, Inc.

3060 Saturn Street, Suite 100, Brea, California 92821, U.S.A. | [www.iasonline.org](http://www.iasonline.org)

## BAHRAIN METROLOGY SERVICES

**Contact Name** Hussain Haider

**Contact Phone** +973 39622683

**Accredited to** ISO/IEC 17025:2017

**Effective Date** February 21, 2024

### CALIBRATION AND MEASUREMENT CAPABILITY (CMC)\*

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY <sup>1,2</sup> (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
Dimensional			
Calipers, (Vernier / Dial/ Digital)	0 mm to 300 mm	9 µm	Using Caliper Checker Method as per SOP: BMS-WP-L-01 and ISO 6906
Outside Micrometer	0 mm to 25 mm	5 µm	Using Mic Check Set '0' grade Method as per SOP: BMS-WP-L-02 and ISO 3611
Dial/Digital Gauges (Plunger / Lever)	0 mm to 2 mm	3 µm	Using Dial Gauge Tester Method as per SOP: BMS-WP-L-03 and ISO/R 463
	2 mm to 50 mm	3 µm	
Mechanical			
Pressure <sup>5</sup> (Gauges, Recorders, Transmitters, Switches)	0 bar to 20 bar	0.03 bar	Using Pressure Calibrator by Direct / Comparison Method as per SOP: BMS-WP-P-01 and DKD-R 6-1
	20 bar to 700 bar	1.7 bar	Using Pressure Calibrator/ Comparison Method as per SOP: BMS-WP-P-01 and DKD-R 6-1
Vacuum <sup>5</sup> (Gauges, Calibrators, Switches, Transmitters)	0 bar to -0.8 bar	0.03 bar	Using Pressure Calibrator/ by Direct / Comparison Method as per SOP: BMS-WP-P-01 and DKD-R 6-1
Mass <sup>6</sup> – Weighing Balance	1 mg to 100 g	1 mg	Using F1 weights by Method as per SOP: BMS-WP-M-01 and OIML R76 as per ABBA Method
	100 g to 5000 g	0.2 g	
	5 kg to 30 kg	1 g	
	30 kg to 100 kg	10 g	
	100 kg to 500 kg	100 g	
Thermal			

\* 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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Liquid in glass thermometer	30 °C to 200 °C	0.3 °C	Using Digital Reference Thermometer & Liquid Bath by Comparison Method as per SOP: BMS-WP-T-01, OIML R 133
Thermometer, RTD, Thermocouple, Thermistor, Temperature Indicator/Transmitter with Sensor, Temp. Gauges <sup>5</sup>	-25 °C to 100 °C 100 °C to 200 °C	0.2 °C 0.3 °C	Using Digital Reference Thermometer & Liquid/dry Bath by Comparison Method as per SOP: BMS-WP-T-01, EURAMET GUIDE NO.8, OIML R84, , OIML R 133
Chiller / Autoclave/ Freezer / Refrigerator / Incubator / Oven / Chamber/ Furnace (Single Sensor method) <sup>5</sup>	-25 °C to 275 °C 300 °C to 1000 °C	0.2 °C 4 °C	Using standard RTD / Thermocouple by Comparison Method as per SOP: BMS-WP-T-02 , DKD R 5-7
<b>Electrical – DC/LF</b>			
DC Voltage-Generate <sup>3,5</sup>	1 mV to 10 mV 10 mV to 100 mV 100 mV to 300 mV 0.3 V to 30 V 30 V to 1000 V	0.32 % 0.022 % 0.0072 % 0.0019 % 0.0026 %	Using Multi-Function Calibrator (Fluke 5520A) by Direct Method as per SOP: WP-E-01 IEC 60051 IS 13875-1,2
DC Current-Generate <sup>3,5</sup>	1 µA to 10 µA 10 µA to 100 µA 100 µA to 300 µA 0.3mA to 300 mA 300 mA to 1 A 1 A to 10 A 11 A to 20.5 A 10 A to 200 A 200 A to 1000 A	2.4 % 0.040 % 0.024 % 0.014 % 0.028 % 0.067 % 0.12 % 1.9 % 0.86 %	Using Multi-Function Calibrator (Fluke 5520A) and Current coil by Direct Method as per SOP: WP-E-01 IEC 60051 IS 13875-1,2
DC 4 Wire Resistance-Generate <sup>3,5</sup>	1 Ω to 10 Ω 10 Ω to 30 Ω 30 Ω to 1 MΩ 1 MΩ to 3 MΩ 3 MΩ to 10 MΩ 10 MΩ to 100 MΩ 100 MΩ to 300 MΩ 300 MΩ to 1 GΩ	0.12 % 0.01 % 0.0051 % 0.0085 % 0.017 % 0.067 % 0.45 % 1.9 %	Using Multi-Function Calibrator (Fluke 5520A) by Direct Method as per SOP: WP-E-01 IEC 60051 IS 13875-1,2
DC Resistance – Generate <sup>3,5</sup>	1 Ω to 10 Ω 10 Ω to 1 GΩ	0.58 % 0.13 %	Using Decade box by Direct Method as per SOP: WP-E-03 IEC 60051 IS 13875-1,2

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AC Voltage – Generate <sup>3,5</sup>	(45 Hz to 10 kHz) 1 mV to 10 mV 10 mV to 30 mV 30 mV to 300 mV 0.3 V to 300 V 300 V to 1000 V	0.17 % 0.080 % 0.036 % 0.028 % 0.038 %	Using Multi-Function Calibrator (Fluke 5520A) and Current coil by Direct Method as per SOP: WP-E-01 IEC 60051 IS 13875-1,2
AC Current – Generate <sup>3,5</sup>	(45 Hz to 1 kHz) 29 µA to 100 µA 100 µA to 300 µA 0.3 mA to 3 mA 3 mA to 10 A 11 A to 20 A  (50Hz) 10 A to 200 A 200 A to 1000 A	0.78 % 1.0 % 0.14 % 0.10 % 0.21 %  1.9 % 0.88 %	Using Multi-Function Calibrator (Fluke 5520A) and Current coil by Direct Method as per SOP: WP-E-01 IEC 60051 IS 13875-1,2
Capacitance – Generate <sup>3,5</sup>	(1 kHz) 0.19 nF to 0.3999 nF 0.4 nF to 1.0999 nF 1.1 nF to 3.2999 nF 3.3 nF to 10 mF 10 mF to 32.9999 mF 33 mF to 110 mF	3.5 % 2.1 % 0.95 % 0.79 % 0.97 % 1.4 %	Using Multi-Function Calibrator (Fluke 5520A) by Direct Method as per SOP: WP-E-01 IEC 60051 IS 13875-1,2
DC Voltage- Measure <sup>4,5</sup>	1 mV to 10 mV 10 mV to 100 mV 0.1 V to 1000 V	0.046 % 0.0099 % 0.0064 %	Using Digital Precision Multimeter (6½) by Direct Method as per SOP: WP-E-02 IEC 60051 IS 13875-1,2
AC Voltage -Measure <sup>4,5</sup>	(50 Hz to 1kHz) 1 mV to 10 mV 10 mV to 750 V	0.53 % 0.11 %	Using Digital Precision Multimeter (6½) by Direct Method as per SOP: WP-E-02 IEC 60051 IS 13875-1,2
DC Current- Measure <sup>4,5</sup>	1 mA to 10 mA 10 mA to 100 mA 0.1A to 1 A 1 A to 3 A	0.081 % 0.05 % 0.10 % 0.16 %	Using Digital Precision Multimeter (6½) by Direct Method as per SOP: WP-E-02 IEC 60051 IS 13875-1,2
AC Current – Measure <sup>4,5</sup>	(50 Hz to 1 kHz) 1 A to 3 A	0.24 %	Using Digital Precision Multimeter (6½) by Direct Method as per SOP: WP-E-02 IEC 60051 IS 13875-1,2
DC Resistance- Measure <sup>4,5</sup>	1 Ω to 1 MΩ 1 MΩ to 10 MΩ 10 MΩ to 100 MΩ	0.016 % 0.04 % 0.92 %	Using Digital Precision Multimeter (6½) by Direct Method as per SOP: WP-E-02 IEC 60051 IS 13875-1,2

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Temperature simulation Thermocouple J (Measure and Generate) 3,4,5	-100 °C to 200 °C 200 °C to 1200 °C	0.32 °C 0.61 °C	Using Multi-Function Calibrator (Fluke 5520A) by Direct Method as per SOP: WP-E-03 IEC 60051 IS 13875-1,2
Temperature simulation Thermocouple K (Measure and Generate) 3,4,5	-100 °C to 200 °C 200 °C to 1350 °C	0.4 °C 0.74 °C	Using Multi-Function Calibrator (Fluke 5520A) by Direct Method as per SOP: WP-E-03 IEC 60051 IS 13875-1,2
Temperature simulation Thermocouple S (Measure and Generate) 3,4,5	0 °C to 1767 °C	0.79 °C	Using Multi-Function Calibrator (Fluke 5520A) by Direct Method as per SOP: WP-E-03 IEC 60051 IS 13875-1,2
Temperature simulation RTD PT-100 – (Generate only) <sup>3,5</sup>	-100 °C to 100 °C 100 °C to 800 °C	0.08 °C 0.27 °C	Using Multi-Function Calibrator (Fluke 5520A) by Direct Method as per SOP: WP-E-03 IEC 60051 IS 13875-1,2
<b>Time and Frequency</b>			
Frequency -Generate <sup>3,5</sup>	1 Hz to 10 Hz 10 Hz to 2 MHz	0.58 % 0.048 %	Using Multi-Function Calibrator (Fluke 5520A) by Direct Method as per SOP: WP-E-01 IEC 60051 IS 13875-1,2
Frequency -Measure <sup>4,5</sup>	3 Hz to 5 Hz 5 Hz to 10 Hz 10 Hz to 40 Hz 40 Hz to 300 kHz	0.12 % 0.58 % 0.034 % 0.011 %	Using Digital Precision Multimeter (6½) by Direct Method as per SOP: WP-E-02 IEC 60051 IS 13875-1,2
Speed: Stirrers, Centrifuges and rotating equipment <sup>5</sup>	100 rpm to 20000 rpm	0.2 %	Using Digital Tachometer, Direct Method as per SOP BMS-WP-SP-01 and SANAS TR 45-03
<b>Chemical/Gas</b>			
pH Meter <sup>5</sup>	4 pH, 7 pH, 10 pH	0.03 pH	Using Certified Reference Buffer Solutions by Direct Method as per SOP: BMS-WP-PH-01



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Conductivity Meter <sup>5</sup>	147 µS/cm 1413 µS/cm	4 % 1.1 %	Using Certified Reference Buffer Solutions by Direct Method as per SOP: BMS-WP-COND-01

<sup>1</sup>The 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 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.

<sup>2</sup>When 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.

<sup>3</sup>Capability is suitable for the calibration of measuring devices in the stated ranges.

<sup>4</sup>Capability is suitable for the calibration of devices intended to generate the indicated quantity in the stated ranges.

<sup>5</sup>Also available as site calibration. 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.

<sup>6</sup> Available only as site calibration.