

International Accreditation Service  
**CERTIFICATE OF ACCREDITATION**

*This is to signify that*

**UNIVERSAL LABORATORIES (BAHRAIN) W.L.L.**

GATE 1006, VILLA: 2, ROAD 3221  
MAHOOZ 332, P.O. BOX 728  
KINGDOM OF BAHRAIN

Calibration Laboratory CL-161  
(Revised July 29, 2014)

has met the requirements of the IAS Accreditation Criteria for Calibration Laboratories (AC204), has demonstrated compliance with the ISO/IEC Standard 17025:2005, *General requirements for the competence of testing and calibration laboratories*, and has been accredited commencing June 23, 2014, for the calibration discipline(s) listed in the approved scope of accreditation. The laboratory meets IAS program requirements in the field of calibration.



Patrick V. McCullen

Vice President, Chief Technical Officer



C. P. Ramani, P.E.

President



*(see attached scope of accreditation for fields of calibration and accredited calibration methods)*

Print Date: 07/31/2014

This accreditation certificate supersedes any IAS accreditation certificate bearing an earlier date. The certificate becomes invalid upon suspension, cancellation or revocation of accreditation.  
See the IAS Accreditation Listings on the web at [www.iasonline.org](http://www.iasonline.org) for current accreditation information, or contact IAS directly at (562) 364-8201.

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# SCOPE OF ACCREDITATION

Universal Laboratories (Bahrain) W.L.L. CL-161  
(Revised July 29, 2014)

Universal Laboratories (Bahrain) W.L.L.  
Gate 1006, Villa: 2, Road 3221  
Mahooz 332, P.O. Box 728  
Kingdom of Bahrain

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Lab Manager  
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MEASUREMENT AREA	RANGE & RESOLUTION	CALIBRATION & MEASUREMENT CAPABILITY <sup>1</sup> (CMC) (±)	TECHNIQUE, REFERENCE STANDARD, EQUIPMENT
<i>Dimensional</i> Micrometers Vernier Calipers & Height Gauges Dial Gauges	0 to 25mm/0.01 mm >25 to 50mm/0.01 mm up to 600mm/0.02 mm 0 to 10mm/0.01 mm	0.012mm 0.013mm 0.018mm 0.009mm	Gauge Blocks – Grade '0'
Mass Standard Weights Weights (Class M, F1, and F2)	Up to 200 g  Up to 10 kg  20 kg	2 mg  100 mg  200 mg	Standard Weights-(E2,F1 & F2) Analytical Balance: Make: KERN, Model:770  Precision Balance:- Make: KERN, Model: 572-49  Precision Balance:- Make: KERN, Model: DS 36K0.5
<i>Mechanical</i> Analytical Balances  Digital Balances  Platform Balances  Pressure Gauges, Switches, Recorders, Valves  Vacuum Gauges  Torque Wrenches  Compression Machine Tensile Machine	Up to 60g / 0.01g 60g to 500g / 0.01g  Up to 50Kg/0.01g  Up to 1600 Kg/0.1g  up to 20 bar/0.1 bar >20 up to 40 bar/0.1 bar  >40 up to 700 bar/1 bar  >700 up to 1000 bar/1 bar  0 to-1 bar/0.0001 bar  0 to 500 Nm/0.1 Nm  0 to 250000 Kg / 10kg 0 to 4500kg / 10 kg	0.011g 0.014g  0.006g  0.24 mg  0.2 bar 0.25 bar  0.65 bar  0.82 bar  0.006 bar  0.102 Nm  0.646 kg 0.578 kg	Standard Weights-E2 Class Make: KERN & Sohn GmbH  Standard Weights-F2&F1 Class Make: KERN & Sohn GmbH  Standard Weights-M Class  Dead Weight Tester Model: 9250 Make: SI Pressure Instruments  Pressure Calibrator-Air Model:PC6-PRO-0040-C, Make: SI Pressure Instruments  Pressure Calibrator-Hydraulic Make: Keller, Model:LEX 1  Pressure Calibrator-Air  Torque Transducer  Load Cell

June 23, 2014  
Commencement Date



*C. P. Ramani*  
C. P. Ramani, P.E.  
President

Print Date: 07/31/2014

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<i>Mechanical (Continued)</i> Volume Pipettes, Burettes, Flasks, etc.	100µl to 2000 ml/ (Up to 60 g=0.01 mg, 60 to 210 g=0.1 mg, 210 to 30 Kg =0.1 g)	14µl	Analytical & Precision Balances
<i>Thermal</i> Generate Thermometers(Digital & Glass Type), PT100 Thermocouples (All Types)	-20 to 150°C	0.094°C	Temperature Calibrator
Thermometers(Digital & Glass Type), PT100, Thermocouples (All Types)	50 to 650°C/0.1°C	0.017°C	
Measure Oven Incubator Water Bath Temperature Calibrators Temperature Transmitters Chiller Freezer	-200 to 1300°C/0.1°C	0.094°C	Temperature Indicator With Probe
Thermocouple - Generate K-Type J-Type T-Type R-Type S-Type N-Type B-Type E-Type	-140 to 1250°C/0.1°C -180°C to 750°C/0.1°C -200°C to 400°C/0.1°C -50°C to 1700°C/0.1°C -50°C to 1700°C/0.1°C -270°C to 1300°C/0.1°C 0°C to 1800°C/0.1°C 400°C to 800°C/0.1°C	0.15°C 0.15°C 0.15°C 0.15°C 0.15°C 0.15°C 0.15°C 0.15°C	Multi-Product Calibrator & Thermocouple Adapter
Thermocouple - Measure K-Type J-Type E-Type T-Type S-Type R-Type B-Type L-Type N-Type	-100 to 1370°C/0.1°C -200°C to 1200°C/0.1°C -200°C to 1000°C/0.1°C -200°C to 400°C/0.1°C 0°C to 1760°C/0.1°C 70°C to 17600°C/0.1°C 400°C to 1820°C/0.1°C -170°C to 1600°C/0.1°C -200°C to 1300°C/0.1°C	0.15°C 0.15°C 0.15°C 0.15°C 0.15°C 0.15°C 0.15°C 0.15°C 0.15°C	Temperature Calibrator-TC2000
RTD Pt-100	-50°C to 800°C	0.15°C	Temperature Calibrator-TC2000

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<i>Electrical DC - LF</i>			
DC Voltage Generate	0 to 1020 V/0.001V to 1 V	10µV/V + 0.3mV	Multi-Product Calibrator Transmille Model: 2050 SP
DC Current Generate	0 to 20 A/0.01mA to 0.01 mA	1.2mA/A+0.75mA	
Resistance Generate	10Ω to 10 MΩ/0.1Ω to 0.01 kΩ	10Ω to 10 MΩ/0.1Ω to 0.01 kΩ	
AC Voltage Generate	0 to 1020 V/0.001V to 1 V	10µV/V+0.3mV	
AC Current Generate	0 to 20 A/0.01mA to 0.01 mA	1.2mA/A+0.75m	
DC Voltage-Measure	0.0001 mV to 1000.000V/100 nV-1mV	0.403 mV	Digital Multimeter 61/2 Digit
AC Voltage – Measure	0.0001 mV to 1000.000V/100 nV-1mV	0.421mV	
Resistance – Measure	0 to 1 GΩ/10µΩ-1KΩ	0.604Ω	
Capacitance- Measure	1 pF to 100 mF/1 pF to 100µF	0.576µF	
DC Current – Measure	0 to 10A/0.0001µA to 0.00001A	1.2mA/A+0.75mA	
AC Current – Measure	0 to 10A/0.0001µA to 0.00001A	1.2mA/A+0.75mA	
RCD Generate RCD Tester	150mA/30 ms, 30mA/150 ms, 10mA/150 ms	1.4 ms	Electrical Test Box-Transmille
High Volt-Measure HV Tester, Cable Test Set	0-40 KV DC & 0-28 KV AC	0.018%+1d	High Volt Test Probe and Multimeter
Loop Generate Loop Tester	Loop+1Ω	1.9 mΩ	Electrical Test Box-Transmille
Insulation Generate Insulation Tester	1MΩ, 9.9MΩ, 99MΩ	1.2KΩ, 1.458KΩ, 60.002KΩ	Electrical Test Box-Transmille
Sound Sound Level Meter	94 dB & 114dB	0.0073 dB	Sound Level Calibrator

<sup>1</sup>"Calibration and Measurement Capability" is the smallest uncertainty of measurement that a laboratory can achieve within its scope of accreditation when performing more or less routine calibrations of nearly ideal measurement standards or of nearly ideal measuring instruments. Calibration and Measurement Capabilities are expressed as uncertainties at approximately the 95% level of confidence, usually using a coverage factor of  $k=2$ . The measurement uncertainty of a specific calibration performed by the laboratory may be greater than the least uncertainty due to the behavior of the customer's device, to the environment (if the calibration is performed in the field), and to influences from the circumstances of the specific calibration.

**NOTE:** Calibration parameters are performed primarily on-site at customer locations. The uncertainty of scale/balance calibration is highly dependent on local conditions, such as scale resolution and sensitivity, scale cleanliness, local gravity, temperature and humidity, dust, vibration, etc.; therefore, any statement of uncertainty is misleading. The class of the best weights used by the laboratory is shown in the Technique column. Use of weights in combination, whether in the same class or different classes, will increase measurement uncertainty resulting from the additive effect of weight tolerances, as defined in ASTM E 617.

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