



**ACCREDITATION
DOCUMENT**

**F-06/02
Issue Date: 18/08/2020
Rev. No: 09
LAB 131**

Accreditation No: LAB 131

Awarded to

**AL MEEZAN INDUSTRIAL METROLOGY SERVICES,
58, B-Block OPF Society, Lahore, Pakistan.**

The scope of accreditation is in accordance with the standard specifications outlined in the following page(s) of this document. The accredited scope shall be visible and legible in areas such as customer service, sample-receiving section etc and shall not mislead its users.

The accreditation was first time granted on **16-01-2018** by Pakistan National Accreditation Council.

The laboratory complies with the requirements of **ISO/IEC 17025:2017**.

The accreditation requires regular surveillance, and is valid until **15-01-2024**.

The decision of accreditation made by Pakistan National Accreditation Council implies that the organization has been found to fulfill the requirements for accreditation within the scope.

The organization however, itself is responsible for the results of performed measurements/tests.

PAKISTAN NATIONAL ACCREDITATION COUNCIL

14-07-2021
Date

Sd.
Director General

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Calibration Laboratory.

Accreditation Scope of Al-Meezan Industrial Metrology Services, Lahore, Pakistan.

Permanent laboratory premises

Field of measurement: Pressure Measurement and Sourcing			
Measured Quantity	Range	*Expanded Uncertainty (\pm)	Technique, Reference Standard, Equipment
Pressure	-0.600 bar to 0.000 bar	0.0014 bar	SOP: DKDR6-1 Dead Weight tester, Reference pressure gauges, reference pressure loggers
	0.001 bar to 6.800 bar	0.060 bar	
	6.801 bar to 125.000 bar	0.014 bar	
	125.01 bar to 500.00 bar	0.049 bar	
	500.01 bar to 1000.0 bar	0.085 bar	
Field of measurement: Temperature Measurement			
Digital Temperature Indicator with sensor (Digital Thermometer)	-40.00 °C to 150.00 °C	0.11 °C	SOP: DKD R5-1 Reference Thermometer with probe, Dry Block Calibrators.
	150.1 °C to 300.0 °C	0.17 °C	
	300.1 °C to 650.0 °C	0.60 °C	
Liquid in Glass TM	-10.0 °C to 100.0 °C	0.31 °C	ASTM E77 Digital Thermometer with probe, Dry Block Calibrators.
	100.1 °C to 350 °C	0.70 °C	
Dial Gauge Thermometers	-20.0 °C to 150.0 °C	0.30 °C	SOP: BSEN 13190 Digital Thermometer with probe, Dry Block Calibrators.
	150.1 °C to 350.0 °C	0.30 °C	
Dry Block Calibrator	20.00 °C to 50.00 °C	0.19 °C	SOP: EURAMET cg-13 Digital Thermometer with probe.
	50.01 °C to 150.00 °C	0.31 °C	
	150.1 °C to 650.0 °C	0.25 °C	
Temperature Bath	-20.0 °C to 95.0 °C	0.13 °C	SOP: ASTM E2488-09 Digital Thermometer with probe.
Measured Quantity	Range	*Expanded Uncertainty (\pm)	Technique, Reference Standard, Equipment

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IR Thermometers	50.0 °C to 500.0 °C	0.30 °C	SOP: ASTM 2847-11 IR Temperature Calibrator
Field of measurement: Mass Measurement			
Masses F1 Class & Below	1.00 mg to 500.00 mg	0.025 mg	SOP: NIMT CP-301 E2 Class Masses, F1 Class Masses,
	1.00000 g to 50.00000 g	0.000027 g	
	100.0000 g to 200.0000 g	0.00010 g	
	500.00 g to 1000.00 g	0.016 g	
	2000.00 g	0.019 g	
	5.0000 kg to 20.0000 kg	0.00010 kg	
Field of measurement: Volume Measurement			
Glassware & Volume Dispensers	1 mL	0.0010 mL	SOP: ASTM E542-01 E2 Class Masses F1 Class Masses Analytical / Precision Weighing Scale
	2 mL	0.0016 mL	
	5 mL	0.0040 mL	
	10 mL	0.0080 mL	
	25 mL	0.020 mL	
	25.1 mL to 100.0 mL	0.040 mL	
	100.1 mL to 250.0 mL	0.080 mL	
	250.1 mL to 1000.0 mL	1.2 mL	
Field of measurement: Electrical Measurement			
DC Voltage	1.00 mV to 200.00 mV	0.060 mV	SOP: TM/LCP/E-01 Multiproduct Calibrator
	1.000 V to 20.000 V	0.0060 V	
	20.01 V to 100.00 V	0.060 V	
	100.1 V to 200.0 V	0.070 V	
	200.1 V to 500.0 V	0.60 V	
	500.1 V to 1000.0 V	0.70 V	
AC Voltage @ 50 Hz	1.00 mV to 200.00 mV	0.060 mV	SOP: TM/LCP/E-01 Multiproduct Calibrator
	1.000 V to 10.000 V	0.0080 V	
	10.01V to 20.00 V	0.017 V	
	20.01 V to 100.0 V	0.08 V	
	100.1 V to 500.0 V	0.59 V	
	500.1 V to 1000.0 V	0.77 V	
DC Current	1.00 mA to 3.00 mA	0.0070 mA	SOP: TM/LCPE-01 Multiproduct Calibrator
	3.01 mA to 5.00 mA	0.0080 mA	
	5.01 mA to 200.00 mA	00.060 mA	
	1.000 A to 3.000 A	0.010 A	
	3.01 A to 10.00 A	0.014 A	

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DC Current (Clamp On)	1.01 A to 10.00 A	0.014 A	SOP: TM/LCP/E-01 Multiproduct Calibrator
	10.01 A to 100.00 A	0.070 A	
	100.01 A to 200.00 A	0.060 A	
	200.01 A to 500 A	0.76 A	
	500 A to 1000 A	0.85 A	
AC Current @ 50 Hz	1.00 mA to 3.00 mA	0.0080 mA	SOP: TM/LCP/E-01 Multiproduct Calibrator
	3.01 mA to 5.00 mA	0.0060 mA	
	5.01 mA to 200.00 mA	0.060 mA	
	1.000 A to 10.000 A	0.050 A	
AC Current @ 50 Hz (Clamp On)	1.01 A to 10.000 A	0.0080 A	SOP: TM/LCP/E-01 Multiproduct Calibrator, Digital Clamp Meter
	10.01 A to 100.00 A	0.050 A	
	100.01 A to 200.00 A	0.070 A	
	200.01 A to 1000 A	0.50 A	
Resistance	1.000 Ω to 10.00 Ω	0.060 Ω	SOP: TM/LCP/E-01 Multiproduct Calibrator
	10.01 Ω to 100.00 Ω	0.080 Ω	
	100.01 Ω to 1.000 k Ω	0.60 Ω	
	1.001 k Ω to 10.00 k Ω	0.0060 k Ω	
	10.00 k Ω to 100.00 k Ω	0.080 k Ω	
	0.1M Ω to 1 M Ω	0.0012 M Ω	
	1.01 M Ω to 100 M Ω	0.0080 M Ω	
Frequency	0.1 Hz to 1.00 Hz	0.00060 Hz	SOP: TM/LCP/E-01 Multiproduct Calibrator
	1.01 Hz to 50.00 Hz	0.0060 Hz	
	50.01 Hz to 100.00 Hz	0.060 Hz	
	0.1 kHz to 1 kHz	0.00060 kHz	
	1.01 kHz to 50.00 kHz	0.0060 kHz	
	50.01 kHz to 500.00 kHz	0.060 kHz	
	0.21 MHz to 2.00 MHz	0.00010 MHz	
	2.01 MHz to 5 MHz	0.00060 MHz	
	5.01 MHz to 10.00 MHz	0.0060 MHz	
Frequency Counter	100.000 kHz to 500.000 kHz	0.0070 kHz	SOP: TM/LCP/E-04 Frequency Generator
	1.00000 MHz to 100.000 MHz	0.000090 MHz	
Frequency Generator	100.000 kHz to 500.000 kHz	0.0090 kHz	SOP: TM/LCP/E-04 Frequency Counter
	1.000 MHz to 200.000 MHz	0.0020 MHz	
RPM (Optical)	1.0 RPM to 100.0 RPM	0.058 RPM	SOP: TM/LCP/E-02 Multiproduct Calibrator, Frequency Counter and Frequency Generator
	100.1 RPM to 2000.0 RPM	0.078 RPM	
	2000.1 RPM to 5000.0 RPM	0.14 RPM	
	5000.1 RPM to 10000 RPM	0.59 RPM	
	10000.1 RPM to 50000.0 RPM	0.73 RPM	
	50000.1 RPM to 99999 RPM	0.78 RPM	
Capacitance	0.01nF to 1.0 nF	0.30 nF	SOP: TM/LCP/E-01

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	1.01 nF to 10.0 nF	0.76 nF	Multiproduct Calibrator
	10.01 nF to 50.0 nF	0.60 nF	
	50.1 nF to 500 nF	0.60 nF	
	0.501 μF to 1.000 μF	0.0010 μF	
Insulation Resistance Sourcing @ 1 kV & 5 kV	10.000 MΩ	0.080 MΩ	SOP: TM/LCP/E-01
	100.00 MΩ	0.30 MΩ	Insulation Tester Calibration Box
	1.001 GΩ	0.0040 GΩ	
	10.00 GΩ	0.030 GΩ	
Field of Measurement: Electrical High Voltage			
Source & Meter AC Hi Volts @50 Hz	0.5 kV to 8.0 kV	0.060 kV	SOP: TM/LCP/E-01
	8.1 kV to 20.0 kV	0.090 kV	Precision HV Meter & Divider
	20.1 kV to 40.0 kV	0.10 kV	
Source & Meter DC Hi Volts	1.0 kV to 8.0 kV	0.060 kV	SOP: TM/LCP/E-01
	8.1 kV to 15.0 kV	0.070 kV	Precision HV Meter & Divider
	15.1 kV to 28.0 kV	0.080 kV	
	28.1 kV to 40.0 kV	0.60 kV	
DC Current	0.500 mA to 200.000 mA	0.010 A	SOP: TM/LCP/E-01
	0.201 A to 3.000 A	0.00010 A	6 ½ & 4 ½ Digit DMM
	3.001 to 10.00 A	0.003 A	
AC Current @50 Hz	0.500 mA to 200.00 mA	0.010 A	SOP: TM/LCP/E-01
	0.201 A to 3.000 A	0.00030 A	6 ½ & 4 ½ Digit DMM
	3.001 to 10.00 A	0.003 A	
Measured quantity	Range	*Expanded Uncertainty (±)	Technique, Reference Standard, Equipment
DC Volts	10.000 mV to 200.000 mV	0.0020 mV	SOP: TM/LCP/E-01
	0.2001 V to 20.000 V	0.00030 V	6 ½ Digit DMM
	20.001 V to 200.000 V	0.0030 V	
	200.001 V to 1000.00 V	0.0040 V	
AC Volts @50 Hz	10.000 mV to 200.00 mV	0.0020 mV	SOP: TM/LCP/E-01
	0.2001 V to 20.000 V	0.00050 V	6 ½ Digit DMM
	20.001 V to 200.000 V	0.0030 V	
	200.001 V to 1000.000 V	0.0050 V	
Resistance Measurement	1.000 Ω to 100.00 Ω	0.010 Ω	SOP: TM/LCP/E-01
	1.000 kΩ to 100.00 kΩ	0.060 kΩ	6 ½ Digit DMM
	1.000 MΩ to 100.00 MΩ	0.36 MΩ	

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Field of Measurement; pH & Conductivity Measurement			
pH Meters	4.00 pH to 10.01 pH	0.016 pH	SOP: TM/LCP /ITS-09 Standard pH Buffers
Conductivity Meters	1.413 mS	0.0051 mS	SOP: TM/LCP /ITS-010 Conductivity Buffers
	12.880 mS	0.052 mS	
Field of Measurement; Spectrophotometry			
Spectrophotometers Wavelength Accuracy, Transmittance, Absorbance	285.0 nm to 640.0 nm	0.076 nm	SOP: ASTG-4 IANZ and AIMS-TM-WI-S-01 Spectronic Standard Filters
	8.10 % to 57.40 %T	0.0046 %T	
	0.240 A to 1.090 A	0.0034 A	
Field of Measurement; Dimension Measurement			
General Dimension Measurements Length, diameter, thickness & depth of industrial artifacts.	1 mm to 25 mm	0.016 mm	SOP: AIMS-TM-LCP-D-04 Micrometer, Dial Indicator, Vernier Calipers, Long Vernier caliper, Reference Steel Rule, Laser Distance Meter
	25.1 mm to 300 mm	0.011 mm	
	300.1 mm to 1 m	0.060 mm	
	1.1m to 50 m	1.10 mm	
Length & outer diameter	0.500 mm to 25.000 mm	2.47 µm	SOP: umLTM SOP-05, 06 & 08 Gauge Block Set (Grade 0) Mic-check set Caliper check set
	0.50 mm to 450.00 mm	0.010 mm	
	0.100 mm to 50.00 mm	0.010 mm	
Field of Measurement: RPM and Time			
RPM Measurement	5 RPM to 2000 RPM	1.10 RPM	SOP: AIMS-TM-LCP-E-002 Digital Tachometers
	2001 RPM to 6000 RPM	1.04 RPM	
Timers & Stopwatches	1 s to 3600 s	0.034 s	SOP: NIST 960-12 Digital Stopwatches, Frequency Counter and Frequency Generator

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Scope of Calibration for Onsite

Field of measurement: Pressure Measurement and Sourcing			
Measured Quantity	Range	*Expanded Uncertainty (±)	Technique, Reference Standard, Equipment
Pressure	-0.600 bar to 0.000 bar	0.014 bar	SOP: DKDR6-1 Dead Weight tester, Reference pressure gauges, reference pressure loggers
	0.001 bar to 6.800 bar	0.060 bar	
	6.801 bar to 125.00 bar	0.014 bar	
	125.01 bar to 500.00 bar	0.049 bar	
	500.01 bar to 700.0 bar	0.15 bar	
Field of measurement: Temperature Measurement			
Digital Temperature Indicator with sensor (Digital Thermometer)	-40.00 °C to 150.00 °C	0.11 °C	SOP: DKD R5-1 Reference Thermometer with probe, Dry Block Calibrators.
	150.1 °C to 300.0 °C	0.17 °C	
	300.1 °C to 650.0 °C	0.60 °C	
Liquid in Glass TM	-10.0 °C to 100.0 °C	0.31 °C	ASTM E77 Digital Thermometer with probe, Dry Block Calibrators.
	100.1 °C to 350 °C	0.70 °C	
Dial Gauge Thermometers	-20.0 °C to 150.0 °C	0.30 °C	SOP: BSEN 13190 Digital Thermometer with probe, Dry Block Calibrators.
	150.1 °C to 350.0 °C	0.30 °C	
Measured quantity	Range	*Expanded Uncertainty (±)	Technique, Reference Standard, Equipment
Temperature Bath	-20.0 °C to 95.0 °C	0.13 °C	SOP: ASTM E2488-09 Digital Thermometer with probe.
Environmental Chambers	-40.0 °C to 300.0 °C	1.7 °C	SOP: DKD-R 5-7 Digital Thermometer with probe, Multi-channel temperature logger/meter with probes and Wireless data loggers

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Temperature Furnace	50.0 °C to 1100.0 °C	5.52 °C	SOP: DMS2010:2010 Digital Thermometer with probe
Field of measurement: Mass Measurement			
Weighing balance / Scales	0.0010 g to 220.0000 g	0.00025 g	SOP: EURAMET cg-18 E2 Class Masses, F1 Class Masses, M1 Class Masses
	0.001 to 420.000 g	0.035 g	
	0.010 to 1.100 kg	0.011 g	
	0.010 to 4.500 kg	0.016g	
	0.01 to 35.00 kg	0.30 g	
	500.00 g to 200.00 kg	4.0 g	
Field of Measurement: pH & Conductivity Measurement			
pH Meters	4.00 pH to 10.01 pH	0.016 pH	SOP: TM/LCP /ITS-09 Standard pH Buffers
Conductivity Meters	1.413 mS	0.0051 mS	SOP: TM/LCP /ITS-010 Conductivity Buffers
	12.880 mS	0.052 mS	
Field of Measurement; Spectrophotometry			
Spectrophotometers Wavelength Accuracy, Transmittance, Absorbance	285.0 nm to 640.0 nm	0.076 nm	SOP: ASTG-4 IANZ and AIMS-TM-WI-S-01 Spectronic Standard Filters
	8.10 % to 57.40 %T	0.0046 %T	
	0.240 A to 1.090 A	0.0034 A	
Field of Measurement; General Dimension Measurement			
General Dimension Measurements Length, diameter & depth of industrial artifacts.	1 mm to 25 mm	0.016 mm	SOP: AIMS-TM-LCP-D-04 Micrometer, Dial Indicator, Vernier Calipers, Long Vernier caliper, Reference Steel Rule, Laser Distance Meter
	25.1 mm to 300 mm	0.011 mm	
	300.1 mm to 1.0 m	0.060 mm	
	1.1m to 50 m	1.10 mm	
Field of Measurement; RPM and Time			
RPM Measurement	5 RPM to 2000 RPM	1.10 RPM	SOP: AIMS-TM-LCP-E-002 Digital Tachometers
	2001 RPM to 6000 RPM	1.04 RPM	

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Timers & Stopwatches	1 s to 3600 s	0.034 s	SOP: NIST 960-12 Digital Stopwatches, Frequency Counter and Frequency Generator
Field of Measurement: Electrical High Voltage			
Source & Meter AC Hi Volts @50 Hz	0.5 kV to 8.0 kV	0.060 kV	SOP: TM/LCP/E-01 Precision HV Meter & Divider
	8.1 kV to 20.0 kV	0.090 kV	
	20.1 kV to 40.0 kV	0.10 kV	
Source & Meter DC Hi Volts	1.0 kV to 8.0 kV	0.060 kV	SOP: TM/LCP/E-01 Precision HV Meter & Divider

* **Expanded Uncertainty:**

- Expanded Uncertainty is the measurement uncertainty at a coverage probability of 95 %, which usually requires the use of a coverage factor of $k = 2$. This measurement uncertainty is a value for which the laboratory has been accredited using the procedure that was the subject of assessment. In certificates issued under its accreditation scope an accredited laboratory is not permitted to quote an uncertainty that is smaller than the published uncertainty for respective ranges as given above.

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