



# PERRY JOHNSON LABORATORY ACCREDITATION, INC.

## Certificate of Accreditation

*Perry Johnson Laboratory Accreditation, Inc. has assessed the Laboratory of:*

***Modern Surveying Calibration & Testing Labs***  
***Main Gazna Road, Gazna 6, Kurdistan Region, Iraq***

*(Hereinafter called the Organization) and hereby declares that Organization 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  
(as outlined by the joint ISO-ILAC-IAF Communiqué dated April 2017):

***Chemical, Dimensional, Electrical, Mechanical, Thermodynamic and Time & Frequency Calibration***  
***(As detailed in the supplement)***

Accreditation claims for such testing and/or calibration services shall only be made from addresses referenced within this certificate. This Accreditation is granted subject to the system rules governing the Accreditation referred to above, and the Organization hereby covenants with the Accreditation body's duty to observe and comply with the said rules.

For PJLA:

Tracy Szerszen  
President

Perry Johnson Laboratory  
Accreditation, Inc. (PJLA)  
755 W. Big Beaver, Suite 1325  
Troy, Michigan 48084

*Initial Accreditation Date:*

September 17, 2020

*Issue Date:*

October 21, 2024

*Expiration Date:*

December 31, 2026

*Accreditation No.:*

106457

*Certificate No.:*

L24-797

*The validity of this certificate is maintained through ongoing assessments based on a continuous accreditation cycle. The validity of this certificate should be confirmed through the PJLA website: [www.pjllabs.com](http://www.pjllabs.com)*



# Certificate of Accreditation: Supplement

## Modern Surveying Calibration & Testing Labs

Main Gazna Road, Gazna 6, Kurdistan Region, Iraq  
 Contact Name: Charanjith PR Phone: + 964-751-234-0092

Accreditation is granted to the facility to perform the following calibration:

### Mechanical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY ( $\pm$ )	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED
Pneumatic Pressure – Measuring Equipment <sup>FO</sup> (Absolute)	-900 mbar to -0.00 mbar	0.001 %	Additel ADT 761-D/HA Automated Pressure Calibrator	MSL/CP/P/04 DKD-R-6-1
Pneumatic Pressure – Measuring Equipment, Calibration of Pressure Gauges & Transducer <sup>FO</sup>	Up to 2 500 mbar	0.001 %	DH-Budenberg CPB5800 Deadweight Tester	
	2.5 bar to 40 bar	0.002 5 %		
Hydraulic Pressure – Measuring Equipment, Calibration of Pressure Transducers & Gauges <sup>FO</sup>	40 bar to 200 bar	0.025 %		
	Up to 1 200 bar	0.006 %		
Liquid Flow Meters (Volumetric Flow Rate) <sup>FO</sup>	46 l/min to 465 l/min	0.35 %	Coriolis Flow Meter Promass F 300 DN40 / 1 1/2"	MSL/CP/FL/ 02 ,API MPMS 4.5, API MPMS 4.8
	49 l/min to 2 496 l/min	0.27 %	Coriolis Flow Meter 3"	
	33 l/min to 3 392 l/min	0.34 %	Coriolis Flow Meter Promass Q 300 4"	
	86 l/min to 7 159 l/min	0.12 %	Coriolis Flow Meter Promass Q 300 6",	
	150 l/min to 7 190 l/min	0.17 %	Coriolis Flow Meter Promass Q 300 8"	
Liquid Flowmeter (Liquid Volume) <sup>FO</sup>	20 l to 233 l	0.35 %	Coriolis Flow Meter Promass F 300 DN40 / 1 1/2"	
	25 l to 1 268 l	0.27 %	Coriolis Flow Meter 3"	
	22 l to 1 724 l	0.34 %	Coriolis Flow Meter Promass Q 300 4"	
	43 l to 3 639 l	0.12 %	Coriolis Flow Meter Promass Q 300 6",	
	75 l to 3 652 l	0.17 %	Coriolis Flow Meter Promass Q 300 8"	
Liquid Flow Meters (Mass Flow Rate) <sup>FO</sup>	46 kg/min to 464 kg/min	0.35 %	Coriolis Flow Meter 1-1/2"	
	49 kg/min to 2 483 kg/min	0.18 %	Coriolis Flow Meter 3" to 8"	
	99 kg/min to 3 295 kg/min	0.34 %	Coriolis Flow Meter 4"	
	86 kg/min to 7 130 kg/min	0.12 %	Coriolis Flow Meter 6"	
	215 kg/min to 7177 kg/min	0.1 %	Coriolis Flow Meter 8"	
Liquid Flow Meters (Volumetric Flow Rate) <sup>FO</sup>	318 m <sup>3</sup> /h to 2 000 m <sup>3</sup> /h	0.07 %	Small Volume Prover	API MPMS 4.5, API MPMS 4.8
Liquid Flowmeter (Liquid Volume) <sup>FO</sup>	283 l to 15 000 l	0.07 %		



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Prover Base Volume (Pipe Prover, Compact prover, Tank Prover) To Contain <sup>FO</sup>	75 gal	0.029 %	Water Draw System	API MPMS 4.9.2, API MPMS 12.2.4, API MPMS 4.3.7
Liquid Flowmeter (Liquid Mass) <sup>FO</sup>	20 kg to 233 kg	0.35 %	Coriolis Flow Meter Promass F 300 DN40/1 1/2"	MSL/CP/FL/ 02 ,API MPMS 4.5, API MPMS 4.8
	50 kg to 1 512 kg	0.18 %	Coriolis Flow Meter Promass Q 300 3"	
	50 kg to 2 514 kg	0.34 %	Coriolis Flow Meter Promass Q 300 4"	
	43 kg to 3 626 kg	0.12 %	Coriolis Flow Meter Promass F 300 6",	
	150 kg to 3 948 kg	0.1 %	Coriolis Flow Meter Promass Q 300 8"	
Liquid Flow Meters (Volumetric Flow Rate) <sup>FO</sup>	318 m <sup>3</sup> /h to 2 000 m <sup>3</sup> /h	0.07 %	Small Volume Prover &	API MPMS 4.5, API MPMS 4.8
Liquid Flowmeter (Liquid Volume) <sup>FO</sup>	283 l to 15 000 l	0.07 %	Small Volume Prover, API	
Vertical Cylindrical Tank <sup>O</sup>	100 m <sup>3</sup> to 50 000 m <sup>3</sup>	0.1 % of volume	Total station Measuring Tape Dipping Tape Ultrasonic Thickness Gauge	ISO 7507-1 ISO 7507-2

### Time & Frequency

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY ( $\pm$ )	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED
Timer & Stopwatches <sup>FO</sup>	10 s to 36 000 s	0.04 s	Tektronix FCA3100 Timer/Counter/Analyzer	NIST 960-12 Special Publication

### Chemical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY ( $\pm$ )	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED
Density Meter <sup>FO</sup>	0.65 g/ml to 1.7 g/ml	0.23 %	Density Standard Solution	MSL-CP-A-02



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Outside Micrometer <sup>F</sup>	Up to 25 mm	(2.6 + 0.12 L) $\mu$ m	Mitutoyo- 516-106-10 Gauge Block Set- Gauge Block Set-Tesa	BS 870
Inside Micrometer <sup>F</sup>	Up to 25 mm	(6.5 + 0.15 L) $\mu$ m		BS 959
Depth Micrometer <sup>F</sup>	Up to 25 mm	(5.8 + 0.01 L) $\mu$ m		BS 6468
Calipers (Vernier, Dial & Digital) <sup>FO</sup>	Up to 600 mm	(6.1 + 0.3 L) $\mu$ m	Mitutoyo- 515-556-2 Caliper checker	BS 887
Measuring Tapes <sup>F</sup>	Up to 30 m	(580 + 0.12 L) $\mu$ m	Octagon MSTC-1000 Measuring Scale & Tape Calibration System	OIML R 35-1
Steel Ruler <sup>F</sup>	Up to 1 000 mm	580 $\mu$ m		OIML R 35-2
Indicator (Dial/Digital) <sup>F</sup>	Up to 100 mm	6 $\mu$ m	Mitutoyo 170-102-12 Dial Indication Tester- Gauge Block Set-Tesa	MSL/CP/D/07 BS EN ISO 463
Ultrasonic Thickness Gauge <sup>F</sup>	2.5 mm to 20 mm	10 $\mu$ m	Five Step Block	ASTM-E317

### Thermodynamics

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY ( $\pm$ )	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED
Temperature – Measuring Equipment <sup>F</sup>  Dry Block Calibrators	-40 °C to 140 °C	0.06 °C	Fluke Black Stack 1560 with modules 2560, 2561, 2562, 2565 & 2566, SPRT Fluke 5698 PRTs Fluke-5626 & Fluke 5628,	EURAMET Calibration Guide No.13
	140 °C to 300 °C	0.12 °C		
	300 °C to 400 °C	0.14 °C		
	400 °C to 650 °C	0.16 °C		
Infrared Temperature – Measuring Equipment <sup>FO</sup>	-30 °C	2 °C	Portable Infrared Calibrator-Fluke 9133	ASTM E2847
	-25 °C	1.8 °C		
	-20 °C	1.6 °C		
	-10 °C	1.1 °C		
	-5 °C	0.94 °C		
	0 °C	0.72 °C		
	23 °C	0.31 °C		
	50 °C	0.67 °C		
	75 °C	1.1 °C		
	100 °C	1.5 °C		
	125 °C	1.9 °C		
150 °C	2.3 °C			



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### Thermodynamics

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Temperature Controlled Chambers <sup>FO</sup>  Accuracy Test	-40 °C to -18 °C	0.58 °C	Fluke-2638A Hydra Series III Data Acquisition System DATA Logger Rotronics-HL-20D High Temperature Data Logger- Madgetech-Hi Temp 140 Thermocouple Wire- PRT Sensor	BS EN 60068-3-5
	-18 °C to 0 °C	0.58 °C		
	0°C to 8 °C	0.58 °C		
	8 °C to 45 °C	0.1 °C		
	45 °C to 100 °C	0.1 °C		
	100 °C to 250 °C	0.13 °C		
Thermal Uniformity Survey <sup>FO</sup>	-40 °C to -18 °C	0.96 °C		
	-18 °C to 0 °C	2.1 °C		
	0°C to 8 °C	2.1 °C		
	8 °C to 45 °C	0.14 °C		
	45 °C to 100 °C	0.21 °C		
	100 °C to 250 °C	0.32 °C		
Temperature – Measuring Equipment <sup>FO</sup>  Digital Thermometers, Thermocouples & RTD	-40 °C to 0°C	0.046 °C	PRT Fluke 5626 & 5628, Black Stack Thermometer Fluke-1560 SPRT Module Fluke- 2560. High TempPRT Module Fluke-2561 Precision Thermocouple Fluke-2565 Precision Baths: Fluke 6331, 7381, Multi-function Calibrator Wika- CTM9100-150 Metrology Wells: Fluke 9170, 9173 & Type S Thermocouple Standard-Fluke 5650	MSL/CP/T/05
	0°C to 50 °C	0.046 °C		
	50 °C to 100 °C	0.057 °C		
	100 °C to 175 °C	0.074 °C		
	175 °C to 250 °C	0.12 °C		
	250 °C to 400 °C	0.17 °C		
400 °C to 600 °C	0.2 °C			

### Electrical

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Equipment to Measure DC Voltage <sup>FO</sup>	Up to 330 mV	25 $\mu$ V/V + 1 $\mu$ V	Fluke 5522A Multi-Product Calibrator	MSL/CP/E/01 OEM procedure
	0.33 V to 3.3 V	14 $\mu$ V/V + 2 $\mu$ V		
	3.3 V to 30 V	9 $\mu$ V/V + 20 $\mu$ V		
	30 V to 330 V	12 $\mu$ V/V + 150 $\mu$ V		
	330 V to 1000 V	12 $\mu$ V/V + 1.5 mV		





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Equipment to Measure DC Current <sup>FO</sup>	100 $\mu$ A to 330 $\mu$ A	4 $\mu$ A/A + 0.02 $\mu$ A	Fluke 5522A Multi-Product Calibrator	MSL/CP/E/01 OEM procedure
	0.33 mA to 3.3 mA	25 $\mu$ A/A + 0.05 $\mu$ A		
	3.3 mA to 33 mA	25 $\mu$ A/A + 0.25 $\mu$ A		
	33 mA to 330 mA	25 $\mu$ A/A + 2.5 $\mu$ A		
	0.33 A to 1.1 A	41 $\mu$ A/A + 40 $\mu$ A		
	1.1 A to 3 A	50 $\mu$ A/A + 40 $\mu$ A		
	3 A to 11 A	470 $\mu$ A/A + 750 $\mu$ A		
	11 A to 20 A	800 $\mu$ A/A + 1 500 $\mu$ A		
Equipment to Measure AC Voltage <sup>FO</sup>  @ 45 Hz to 1 kHz	Up to 33 mV	600 $\mu$ V/V + 6 $\mu$ V		
	33 mV to 330 mV	120 $\mu$ V/V + 8 $\mu$ V		
	0.33 V to 3.3 V	82 $\mu$ V/V + 160 $\mu$ V		
	3.3 V to 33 V	55 $\mu$ V/V + 600 $\mu$ V		
	33 V to 330 V	65 $\mu$ V/V + 2 000 $\mu$ V		
	330 V to 1 000 V	90 $\mu$ V/V + 10 mV		
Clamp - On Meters to Measure DC Current <sup>FO</sup>	10 A to 16.5 A	0.19 % + 1.6 mA	Fluke 5522A Multi-Product Calibrator & Fluke 5500A With 50 Turns Coil	
	16.5 A to 150 A	0.19 % + 12 mA		
	150 A to 1 000 A	0.19 % + 39 mA		
Clamp - On Meters to Measure AC Current <sup>FO</sup> @ 45 Hz to 1 kHz	10 A to 16.5 A	0.22 % + 2.33 mA		
	16.5 A to 150 A	0.22 % + 19.38 mA		
	150 A to 1 000 A	0.22 % + 69.77 mA		
Equipment to Measure AC Current <sup>FO</sup> @ 45 Hz to 1 kHz	29 $\mu$ A + 330 $\mu$ A	0.12 % + 0.1 $\mu$ A	Fluke 5522A Multi-Product Calibrator	
	0.33 mA to 3.3 mA	0.11 % + 0.15 $\mu$ A		
	3.3 mA to 33 mA	0.048 % + 2 $\mu$ A		
	33 mA to 330 mA	0.05 % + 20 $\mu$ A		
	0.33 A to 1.1 A	0.06 % + 0.1 mA		
	1.1 A to 3 A	0.08 % + 0.1 mA		
	3 A to 11 A	0.09 % + 2 mA		
	11 A to 20 A	0.2 % + 5 mA		
Equipment to Measure Resistance <sup>F</sup> (Fixed Points)	1 m $\Omega$	0.000 1 m $\Omega$	Burster- 1240 Calibration Resistor	
	10 m $\Omega$	0.001 m $\Omega$		
	100 m $\Omega$	0.01 m $\Omega$		



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Equipment to Measure Resistance <sup>F</sup> (Fixed Points)	1 $\Omega$	0.000 011 $\Omega$	Fluke 742 A Resistance Standards	MSL/CP/E/01 OEM procedure
	10 $\Omega$	0.001 $\Omega$		
	100 $\Omega$	0.01 $\Omega$		
	1 K $\Omega$	0.000 08 K $\Omega$		
	10 K $\Omega$	0.000 8 K $\Omega$		
	1 M $\Omega$	0.008 K $\Omega$		
	10 M $\Omega$	0.002 M $\Omega$		
Equipment to Measure Inductance <sup>F</sup> @ 1 kHz	10 $\mu$ H to 10 mH	1 % + 1.5 $\mu$ H	IET Labs- PLS -1492 Programmable Inductance Substituter	
	10 mH to 100 mH	1 % + 1.5 $\mu$ H		
	100 mH to 1 H	2 % + 1.5 $\mu$ H		
	1 H to 10 H	2 % + 1.5 $\mu$ H		
Equipment to Measure Capacitance <sup>F</sup> @ 1 kHz	0.19 nF to 0.399 9 nF	0.61 % + 0.01 nF	Fluke 5522A Multi-Product Calibrator	
	0.4 nF to 1.099 9 nF	0.58 % + 0.01 nF		
	1.1 nF to 3.299 9 nF	0.58 % + 0.01 nF		
	3.3 nF to 10.999 9 nF	0.30 % + 0.01 nF		
	11 nF to 32.999 9 nF	0.30 % + 0.1 nF		
	33 nF to 109.999 nF	0.30 % + 0.1 nF		
	110 nF to 329.999 nF	0.30 % + 0.3 nF		
	0.33 $\mu$ F to 1.099 99 $\mu$ F	0.30 % + 1 nF		
	1.1 $\mu$ F to 3.299 99 $\mu$ F	0.30 % + 3 nF		
	3.3 $\mu$ F to 10.999 9 $\mu$ F	0.30 % + 10 nF		
	11 $\mu$ F to 32.999 9 $\mu$ F	0.47 % + 30 nF		
	33 $\mu$ F to 109.999 $\mu$ F	0.54 % + 100 nF		
	110 $\mu$ F to 329.999 $\mu$ F	0.52 % + 300 nF		
	0.33 mF to 1.099 99 mF	0.52 % + 1 $\mu$ F		
	1.1 mF to 3.299 99 mF	0.52 % + 3 $\mu$ F		
	3.3 mF to 10.999 9 mF	0.52 % + 10 $\mu$ F		
	11 mF to 32.999 9 mF	0.87 % + 30 $\mu$ F		
	33 mF to 110 mF	1.3 % + 100 $\mu$ F		
33 mF to 110 mF	1.3 % + 100 $\mu$ F			



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Equipment to Measure Resistance <sup>F</sup> (4 wires connection) (2 wires connection)	0.1 $\Omega$ to 11 $\Omega$	0.006 % + 0.5 m $\Omega$	Fluke 5522A Multi-Product Calibrator	MSL/CP/E/01 OEM procedure
	11 $\Omega$ to 33 $\Omega$	0.001 % + 1 m $\Omega$		
	33 $\Omega$ to 110 $\Omega$	0.001 % + 4 m $\Omega$		
	110 $\Omega$ to 330 $\Omega$	0.001 % + 4 m $\Omega$		
	0.33 K $\Omega$ to 1.1 K $\Omega$	0.001 % + 4 m $\Omega$		
	1.1 K $\Omega$ to 3.3 K $\Omega$	0.001 % + 4 m $\Omega$		
	3.3 K $\Omega$ to 11 K $\Omega$	0.001 % + 1 $\Omega$		
	11 K $\Omega$ to 33 K $\Omega$	0.08 % + 4 $\Omega$		
	33 K $\Omega$ to 110 K $\Omega$	0.001 % + 4 $\Omega$		
	110 K $\Omega$ to 330 K $\Omega$	0.001 % + 11 $\Omega$		
	0.33 M $\Omega$ to 1.1 M $\Omega$	0.001 % + 36 $\Omega$		
	1.1 M $\Omega$ to 3.3 M $\Omega$	0.006 % + 0.2 k $\Omega$		
	3.3 M $\Omega$ to 11 M $\Omega$	0.036 % + 1.5 k $\Omega$		
	11 M $\Omega$ to 33 M $\Omega$	0.1 % + 8.3 k $\Omega$		
	33 M $\Omega$ to 110 M $\Omega$	0.01 % + 55 k $\Omega$		
110 M $\Omega$ to 330 M $\Omega$	0.01 % + 0.1 M $\Omega$			
330 M $\Omega$ to 1 100 M $\Omega$	0.74 % + 0.1 M $\Omega$			
Equipment to Output AC Current <sup>F</sup> @ 45 Hz to 1 kHz	1 $\mu$ A to 200 $\mu$ A	0.054 % + 20 nA	Fluke -8508A Reference Multimeter	
	0.2 mA to 2 mA	0.032 % + 0.2 $\mu$ A		
	2 mA to 20 mA	0.033 % + 2 $\mu$ A		
	20 mA to 200 mA	0.031 % + 20 $\mu$ A		
	0.2 A to 2 A	0.063 % + 0.2 mA		
	2 A to 20 A	0.84 % + 2 mA		
Equipment to Output DC Current <sup>F</sup>	1 $\mu$ A to 200 $\mu$ A	42 $\mu$ A/A + 0.023 $\mu$ A		
	0.2 mA to 2 mA	26 $\mu$ A/A + 0.003 $\mu$ A		
	2 mA to 20 mA	28 $\mu$ A/A + 0.03 $\mu$ A		
	20 mA to 200 mA	28 $\mu$ A/A + 0.03 $\mu$ A		
	0.2 A to 2 A	220 $\mu$ A/A + 0.02 $\mu$ A		
	2 A to 20 A	0.48 mA/A + 0.4 mA		
Equipment to Output AC Voltage <sup>F</sup> @ 45 Hz to 1 kHz	1 mV to 200 mV	0.011 % + 0.002 mV		
	0.2 V to 2 V	0.008 6 % + 20 $\mu$ V		
	2 V to 20 V	0.008 6 % + 0.2 mV		
	20 V to 200 V	0.009 % + 2 mV		
	200 V to 1 000 V	0.011 % + 2 mV		





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Equipment to Output DC Voltage <sup>F</sup>	1 mv to 200 mv	10 $\mu$ V/V + 0.07 $\mu$ V	Fluke -8508A Reference Multimeter	MSL/CP/E/01 OEM procedure
	0.2 V to 2 V	5 $\mu$ V/V + 1.4 $\mu$ V		
	2 V to 20 V	5 $\mu$ V/V + 40 $\mu$ V		
	20 V to 200 V	8 $\mu$ V/V + 36 $\mu$ V		
	200 V to 1 000 V	10 $\mu$ V/V + 0.49 mV		
Equipment to Output Inductance <sup>F</sup> @ 1 kHz	100 $\mu$ H to 1 mH	0.12 %	IET 1693 Precision RLC Digibridge	
	1 mH to 1 H	0.035 %		
	1 H to 5 H	0.014 %		
	5 H to 10 H	0.25 %		
Equipment to Output Resistance <sup>F</sup> (4 wires connection) (2 wires connection)	1 m $\Omega$ to 2 $\Omega$	0.002 %	Fluke -8508A Reference Multimeter	
	2 $\Omega$ to 20 $\Omega$	0.002 %		
	20 $\Omega$ to 200 $\Omega$	0.000 9 %		
	0.2 K $\Omega$ to 2 K $\Omega$	0.001 %		
	2 k $\Omega$ to 20 K $\Omega$	0.001 %		
	20 K $\Omega$ to 200 K $\Omega$	0.001 %		
	0.2 M $\Omega$ to 2 M $\Omega$	0.001 %		
	2 M $\Omega$ to 20 M $\Omega$	0.003 %		
	20 M $\Omega$ to 200 M $\Omega$	0.009 %		
0.2 G $\Omega$ to 2 G $\Omega$	0.1 %			
Equipment to Output Capacitance <sup>F</sup> @ 1 kHz	Up to 10 pF	0.37 % + 0.002 pF	IET 1693 Precision RLC Digibridge	
	10 pF to 100 pF	0.014 % + 0.003 pF		
	100 pF to 1 000 pF	0.007 % + 0.01 pF		
	1 nF to 10 nF	0.010 % + 0.08 pF		
	10 nF to 100 nF	0.016 %		
	100 nF to 1 000 nF	0.01 %		
	1 $\mu$ F to 10 $\mu$ F	0.01 %		
	10 $\mu$ F to 100 $\mu$ F	0.008 %		
	100 $\mu$ F to 1 000 $\mu$ F	0.02 %		
	1 000 $\mu$ F to 10 000 $\mu$ F	0.10 %		



# Certificate of Accreditation: Supplement

## Modern Surveying Calibration & Testing Labs

Main Gazna Road, Gazna 6, Kurdistan Region, Iraq  
Contact Name: Charanjith PR Phone: + 964-751-234-0092

Accreditation is granted to the facility to perform the following calibration:

### Electrical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY ( $\pm$ )	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED	CALIBRATION MEASUREMENT METHOD OR PROCEDURES USED
Calibration of Temperature Indicators and controls by Electrical Simulation <sup>F</sup>				
Thermocouple Type J	-210 °C to -100 °C	0.21 °C	Fluke 5522A Multi-Product Calibrator	EURAMET cg-11
	-100 °C to -30 °C	0.12 °C		
	-30 °C to 150 °C	0.08 °C		
	150 °C to 760 °C	0.12 °C		
	760 °C to 1 200 °C	0.18 °C		
Thermocouple Type K	-200 °C to -100 °C	0.25 °C		
	-100 °C to -25 °C	0.12 °C		
	-25 °C to 120 °C	0.09 °C		
	120 °C to 1 000 °C	0.19 °C		
	1 000 °C to 1 372 °C	0.57 °C		
Thermocouple Type R	0°C to 250 °C	0.21 °C		
	250 °C to 400 °C	0.27 °C		
	400 °C to 1 000 °C	0.35 °C		
	1 000 °C to 1 767 °C	0.47 °C		
Thermocouple Type S	0°C to 250 °C	0.38 °C		
	250 °C to 1 000 °C	0.29 °C		
	1 000 °C to 1 400 °C	0.41 °C		
	1 400 °C to 1 767 °C	0.49 °C		

1. The CMC (Calibration and Measurement Capability) stated for calibrations included on this scope of accreditation represents the smallest measurement uncertainty attainable by the laboratory when performing a more or less routine calibration of a nearly ideal device under nearly ideal conditions. It is typically expressed at a confidence level of 95 % using a coverage factor  $k$  (usually equal to 2). The actual measurement uncertainty associated with a specific calibration performed by the laboratory will typically be larger than the CMC for the same calibration since capability and performance of the device being calibrated and the conditions related to the calibration may reasonably be expected to deviate from ideal to some degree.
2. The laboratories range of calibration capability for all disciplines for which they are accredited is the interval from the smallest calibrated standard to the largest calibrated standard used in performing the calibration. The low end of this range must be an attainable value for which the laboratory has or has access to the standard referenced. Verification of an indicated value of zero in the absence of a standard is common practice in the procedure for many calibrations but by its definition it does not constitute calibration of zero capacity.
3. The presence of a superscript F means that the laboratory performs calibration of the indicated parameter at its fixed location.



## *Certificate of Accreditation: Supplement*

### **Modern Surveying Calibration & Testing Labs**

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*Accreditation is granted to the facility to perform the following calibration:*

4. The presence of a superscript O means that the laboratory performs calibration of the indicated parameter onsite at customer locations.
5. Measurement uncertainties obtained for calibrations performed at customer sites can be expected to be larger than the measurement uncertainties obtained at the laboratories fixed location for similar calibrations. This is due to the effects of transportation of the standards and equipment and upon environmental conditions at the customer site which are typically not controlled as closely as at the laboratories fixed location.
6. The term L represents length in meter.
7. The term T represents temperature in °C or °F as appropriate to the uncertainty statement.
8. % values represented at CMCs, represent % from reading unless otherwise specified

