



Laboratory Accreditation Bureau

Certificate of Accreditation

ISO/IEC 17025:2005

Certificate Number L1048-1

Digital Measurement Metrology Inc.
26 Automatic Road, Unit 4
Brampton, ON L6S 5N7 Canada

has been accredited for technical competence in the major fields and related disciplines on the approved scope of accreditation. They have met the requirements set forth in L-A-B's policies and procedures, and all requirements of ISO/IEC 17025:2005 "General Requirements for the competence of Testing and Calibration Laboratories."

Accreditation approved on April 13, 2006 and valid through May 29, 2009

Peter B. Lake
Executive Director

R. Douglas Leonard, Jr., Chief Technical Officer
Laboratory Accreditation Bureau

Scope of Accreditation For Digital Measurement Metrology Inc.

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In recognition of a successful assessment to ISO/IEC 17025:2005, accreditation is granted to **Digital Measurement Metrology, Inc.** to perform the following **Calibrations**:

Accreditation granted through: **May 29, 2009**

Calibration

Calibration Parameter/Equipment	Range	Best Measurement Capability (+/-) ¹²	Remarks
Gauge Blocks	0.005 in to 20 in (0.5 mm to 500 mm)	(4 + 3.4L) μin (0.1 + 0.0034L) μm	Master gauge blocks and Gauge Block Comparator
Length Measuring Machine ¹	0.1 in to 4 in	(6 + 3.3L) μin	Gage Blocks
Step Gauges	0.5 in to 40 in (10 mm to 1000 mm)	(40 + 5L) μin (1 + 0.005L) μm	Step Gauge and Laser Measuring System
Coordinate Measuring Machine (Linear) ¹	0 in to 96 in (0 m to 2.4 m)	300 μin (8 μm)	Laser Measuring System (Linear only)
Surface Plates ¹ (Flatness)	3 in to 72 in x 144 in	0.1 F ² μin	Laser Measuring System
Squares	1 in to 40 in (25 mm to 1000 mm)	5L μin (0.005L μm)	Ceramic Square, Mu-Checker and Height Gauge
Calipers	0.01 in to 80 in (0.5 mm to 2000 mm)	0.001 in 0.025 mm	Length Standard



Calibration Parameter/Equipment	Range	Best Measurement Capability (+/-)¹²	Remarks
Depth Gauges	0.05 in to 12 in (1 mm to 300 mm)	0.001 in 0.025 mm	Depth Master
Outside Micrometers	0.01 in to 40 in (0.5 mm to 1000 mm)	(60 + 15L) μin (1.5 + 0.015L) μm	Gauge Blocks and Micmaster
Inside Micrometers	1 in to 60 in (25 mm to 1500 mm)	(250 + 10L) μin (7 + 0.01L) μm	Length Standard and Laser Measuring System
Micrometer Standards	1 in to 40 in (25 mm to 1000 mm)	(60 + 2L) μin (1.5 + 0.002L) μm	Step Gage Linear Height Gauge & Gage Blocks
Height Gauges	0.05 in to 40 in (1 mm to 1000 mm)	(80 + 4L) μin (2 + 0.004L) μm	Step Gage
Plain Ring Gauges	0.5 in to 8 in (10 mm to 200 mm)	(20 + 6L) μin (0.5 + 0.006L) μm	Length Measuring Machine and Master Ring Gauges
Threaded Go/No Go Plug Gauges	0.05 in to 4 in (1.6 mm to 100 mm) Pitch Diameter Thread Pitch	400 μin (10 μm) 234 μin (6 μm)	Length Measuring Machine, Thread Wire Set, and Optical Projector
Threaded Go/No Go Ring Gauges	1.6 mm to 40 mm (0.05 in to 1.5 in)	9.8 μm (386 μin)	Setting Thread Plug Gauge
Indicators	0.01 in to 2 in (0.5 mm to 50 mm)	63 μin (1.6 μm)	Indicator Tester
Precision Levels	4 in to 12 in	327 μin	Master Precision Level and Surface Plate

Calibration Parameter/Equipment	Range	Best Measurement Capability (+/-)¹²	Remarks
Pin Gauges	0.01 in to 2 in (0.2 mm to 50 mm)	60 μ in (1.5 μ m)	Laser System
CNC Machine Tools ¹	1 mm to 2.2 m	12 μ m	Laser Measuring System
Optical Projectors ¹	12 in to 60 in (Screens)	Angular 0.04° Magnification 4 μ m Linear 5 μ m	Glass Masters, Precision Square and Gauge Blocks
Indicator Testers	0.05 in to 1 in (0.5 mm to 25 mm)	118 μ in (3 μ m)	Length Standard
Microscopes ¹	0.05 in to 2 in	133 μ in	Glass Masters
2 PT. & 3 PT. Bore Gauges	0.2 in to 7 in (5 mm to 175 mm)	150 μ in (4 μ m)	Bore Gauge Calibrator, Gauge Blocks and Ring Gauges
Thickness/Shim Feeler Gauges	0.001 in to 1 in (0.1 mm to 25 mm)	80 μ in (2 μ m)	Digital Micrometer
Thickness Gauges	0.0005 in to 1 in (0.1 mm to 25 mm)	500 μ in (12 μ m)	Gauge Blocks
Radius Gauges	0.05 in to 1 in (1 mm to 25 mm)	340 μ in (9 μ m)	Optical Projector
Rulers & Tape Measures	1 in to 100 ft (25 mm to 25 m)	0.0035 in (0.09 mm)	Length Measuring Machine

Calibration Parameter/Equipment	Range	Best Measurement Capability (+/-) ¹²	Remarks
Inclinometer/Digital Protractors	0.1° to 360°	0.15°	Sine Bar Plate and Gauge Blocks
Balances ^{1,2}	0 g to 210 g	ASTM E617 Class 0 (See Note)	Calibration Method Tolerances are in accordance with Handbook 44 and Digital Measurement Metrology Inc. procedures
	0 kg to 1.2 kg	ASTM E617 Class I Weights	
Balances ^{1,2}	0 lb to 50 lb	ASTM E617 Class 1 (See Note)	Calibration Method Tolerances are in accordance with Handbook 44 and Digital Measurement Metrology Inc. procedures
Scales ^{1,2}	0 lb to 1000 lb	ASTM 617 Class 6 (See Note)	Calibration Method Tolerances are in accordance with Handbook 44 and Digital Measurement Metrology Inc. procedures

Calibration Parameter/Equipment	Range	Best Measurement Capability (+/-) ¹²	Remarks
Class F Weights	1 mg 2 mg 5 mg 10 mg 20 mg 50 mg 100 mg 200 mg 500 mg 1 g 2 g 5 g 10 g 20 g 50 g 100 g 200 g 500 g 1000 g	0.13 mg 0.13 mg 0.13 mg 0.13 mg 0.13 mg 0.13 mg 0.13 mg 0.13 mg 0.13 mg 0.13 mg 0.13 mg 0.13 mg 0.13 mg 0.13 mg 0.13 mg 0.65 mg 0.65 mg 0.65 mg 4 mg 4.3 mg	Precision Balance and ASTM E617 Class 0 and Class 1 Weights
Class F Dead Weights	2 kg 5 kg 10 kg 20 kg 0.125 lb (2 oz) 0.25 lb (4 oz) 0.5 lb (8 oz) 1 lb (16 oz) 2 lb 5 lb 10 lb 20 lb 50 lb	0.32 g 0.32 g 0.32 g 0.55 g 1.5×10^{-6} lb 1.5×10^{-6} lb 9×10^{-6} lb 9×10^{-6} lb 9×10^{-6} lb 0.7×10^{-3} lb 0.7×10^{-3} lb 0.7×10^{-3} lb 1.2×10^{-3} lb	Precision Balance and ASTM E617 Class 0 and Class 1 Weights
Force Gauges ¹ Compression/Tension	0.001 lbf to 2 lbf 0.01 lbf to 25 lbf 0.1 lbf to 200 lbf	0.001 lbf 0.01 lbf 0.08 lbf	ASTM E 617 Class F weights
Force Gauges ¹ Compression/Tension	1 lbf to 10 000 lbf (1 kgf to 5000 kgf)	0.7 % of applied load	Load Cell System

Calibration Parameter/Equipment	Range	Best Measurement Capability (+/-) ¹²	Remarks
Force Test Stands ¹	(0.1 to 12) in/min	0.5 % of setting	Stop Watch
Torque Watches	4 in-ozf to 40 in-ozf	1 % of full scale	Torque Calibration System
Torque Wrenches	4 lbf-in to 250 lbf-ft	0.6 lbf-ft + 0.25 % of reading	Torque Calibration System
Torque Wrenches	100 lbf-ft to 2000 lbf-ft	0.65 % of full scale	Torque Calibration System
Torque Testers	1 lbf-in to 500 lbf-ft	0.05 % of reading	ASTM E617 Class F weights, Torque Arm
Durometer Test Blocks	20 duro to 90 duro	2 duro	ASTM D-2240 Using Durometers
Durometers	Spring Force Indenter Angle Indenter Diameter Indenter Length	0.9 duro 0.09° 10 μm 10 μm	ASTM D-2240 Using Arm & Weight and Optical Projector
Durometer Calibrators	Type A	6.3 g	ASTM D-2240 Using Force Gage
Durometer Calibrators	Type D	7.6 g	ASTM D-2240 Using Force Gage
Roughness Testers	16.1 Ra 119.5 Ra	1.9 μin 3.6 μin	Roughness Standard
Rockwell Hardness Testers	HRB High Mid Low HRC High Mid Low	1.2 HRB 1.3 HRB 1.3 HRB 1.3 HRC 1.3 HRC 1.3 HRC	Indirect comparison to test blocks
Pressure ¹ -generate	2 psi to 1000 psi	1.3 psi + 0.22 % of reading	Dead Weight Tester

Calibration Parameter/Equipment	Range	Best Measurement Capability (+/-) ¹²	Remarks
Temperature Controllers ^{1,6}			
Type K	-200 °C to 1372 °C	0.38 °C	Multifunction Calibrator (Thermocouple Simulation)
Type J	-210 °C to 1200 °C	0.27 °C	
Type S	0 °C to 1767 °C	0.47 °C	
Type C	0 °C to 2316 °C	0.38 °C	
Type E	-250 °C to 1000 °C	0.25 °C	
Type U	-200 °C to 600 °C	0.38 °C	
Type N	-200 °C to 1300 °C	0.38 °C	
Temperature Sensors (RTD's) ^{1,6}	32 °C to 1382 °C	0.6 °C	Process Calibrator
Thermocouple Probes	- 20 °C to 650 °C	1.3 °C	Temperature Calibrator and Reference Probe
Infrared Thermometers	50 °C to 400 °C (100 °F to 750) °F	0.95 °C (1.8 °F)	Infrared Calibrator
Thermohygrometers	19 °C to 25 °C (30 to 50) % RH	0.3 °C 2.5 % RH	Temperature & Humidity Standard
Liquid Flowmeters ¹	(0 to 100) U.S. gal/h	2.5 % of reading	Mass, Precision Balance and Test Rig ³
Transit Time Flowmeters ¹ Flow Volume	(0 to 1000) l/s (0 to 10) m ³	2.5 % of reading	Reference Flowmeter Stop Watch
Refractometers	1 mg/g to 100 mg/g	0.6 mg/g	Test Solution and Precision Balance


Calibration Parameter/Equipment	Range	Best Measurement Capability (+/-) ¹²	Remarks
pH	(0 to 14) pH Unit	0.017 pH Unit	pH Meter Calibrator (Electrical Simulation)
Tachometers (Contact Type)	1 rpm to 4000 rpm	0.4 rpm	Tachometer Calibrator
Tachometers (Non-Contact Type)	(500 to 40 x 10 ³) rpm	1.4 rpm	Tachometer Calibrator
Stopwatch	1 s to 24 h	0.14 s	Master Stopwatch & Camera
Sound level Meters	94 dB 114 dB	0.7 dB 0.7 dB	Sound Calibrator
Resistance-generate	0 Ω to 1 Ω 1 Ω to 10 Ω 10 Ω to 100 Ω 100 Ω to 1 kΩ 1 kΩ to 10 kΩ 10 kΩ to 100 kΩ 100 kΩ to 1 MΩ 1 MΩ to 10 MΩ 10 MΩ to 100 MΩ 100 MΩ to 110 MΩ	129 μΩ + 0.01 Ω/Ω 139 μΩ + 0.01 Ω/Ω 124 μΩ + 0.015 Ω/Ω 3.3 mΩ + 0.02 Ω/Ω 33 mΩ + 0.1 Ω/Ω 339 mΩ + 1 Ω/Ω 3.4 Ω + 10 Ω/Ω 38 Ω + 250 Ω/Ω 1.4 kΩ + 3 kΩ/Ω 58 kΩ + 3 kΩ/Ω	Multifunction Calibrator
DC Voltage-generate	0 mV to 300 mV 300 mV to 3 V 3 V to 30 V 30 V to 300 V 300 V to 1000 V	7 μV + 1 μV/V 40 μV + 2 μV/V 429 μV + 20 μV/V 6.3 mV + 150 μV/V 21 mV + 1.5 mV/V	Multifunction Calibrator
Capacitance-generate 10 Hz to 10 kHz	1 nF to 10 nF 10 nF to 100 nF 100 nF to 1 μF 1 μF to 5 μF 5 μF to 11 μF	0.008 nF + 0.01 nF/F 0.06 nF + 0.1 nF/F 0.6 nF + 1 nF/F 6 nF + 10 nF/F 16 nF + 30 nF/F	Multifunction Calibrator
Frequency-generate 1 Volt	120 Hz 1 kHz 10 kHz 100 kHz	355 μHz + 5 μHz/Hz 3 mHz + 5 μHz/Hz 297 mHz + 5 μHz/Hz 1.5 Hz + 5 μHz/Hz	Multifunction Calibrator

Calibration Parameter/Equipment	Range	Best Measurement Capability (+/-) ¹²	Remarks
AC Voltage-generate			
0 mV to 30 mV	10 Hz to 45 Hz	6 μ V + 6 μ V/V	Multifunction Calibrator
	45 Hz to 1 kHz	6 μ V + 6 μ V/V	
	1 kHz to 10 kHz	8 μ V + 6 μ V/V	
	10 kHz to 20 kHz	35 μ V + 6 μ V/V	
	20 kHz to 50 kHz	121 μ V + 12 μ V/V	
	50 kHz to 100 kHz	277 μ V + 50 μ V/V	
	100 kHz to 500 kHz	278 μ V + 50 μ V/V	
30 mV to 300 mV	10 Hz to 45 Hz	51 μ V + 8 μ V/V	
	45 Hz to 1 kHz	51 μ V + 8 μ V/V	
	1 kHz to 10 kHz	56 μ V + 8 μ V/V	
	10 kHz to 20 kHz	122 μ V + 8 μ V/V	
	20 kHz to 50 kHz	278 μ V + 32 μ V/V	
	50 kHz to 100 kHz	693 μ V + 70 μ V/V	
	100 kHz to 500 kHz	697 μ V + 70 μ V/V	
300 mV to 3 V	10 Hz to 45 Hz	523 μ V + 60 μ V/V	
	45 Hz to 1 kHz	523 μ V + 60 μ V/V	
	1 kHz to 10 kHz	661 μ V + 60 μ V/V	
	10 kHz to 20 kHz	1 mV + 50 μ V/V	
	20 kHz to 50 kHz	2.4 mV + 125 μ V/V	
	50 kHz to 100 kHz	8.3 mV + 600 μ V/V	
	100 kHz to 500 kHz	8.4 mV + 600 μ V/V	
3 V to 30 V	10 Hz to 45 Hz	5.3 mV + 600 μ V/V	
	45 Hz to 1 kHz	5.3 mV + 600 μ V/V	
	1 kHz to 10 kHz	8.4 mV + 600 μ V/V	
	10 kHz to 20 kHz	12 mV + 0.6 mV/V	
	20 kHz to 50 kHz	31 mV + 1.6 mV/V	
	50 kHz to 100 kHz	31 mV + 1.6 mV/V	
30 V to 300 V	45 Hz to 1 kHz	70 mV + 6 mV/V	
	1 kHz to 10 kHz	87 mV + 6 mV/V	
	10 kHz to 20 kHz	104 mV + 6 mV/V	
	20 kHz to 50 kHz	694 mV + 50 mV/V	
	50 kHz to 100 kHz	703 mV + 50 mV/V	
300 V to 750 V	45 Hz to 1 kHz	219 mV + 10 mV/V	
	1 kHz to 10 kHz	262 mV + 10 mV/V	

Calibration Parameter/Equipment	Range	Best Measurement Capability (+/-) ¹²	Remarks
DC Current-generate	0 mA to 3 mA	0.35 μ A + 0.05 μ A/A	Multifunction Calibrator
	3 mA to 30 mA	3.47 μ A + 0.25 μ A/A	
	30 mA to 300 mA	34.7 μ A + 2.5 μ A/A	
	300 mA to 3 A	1.7 mA + 500 μ A/A	
AC Current-generate	0 mA to 3 mA	10 Hz to 20 Hz	Multifunction Calibrator
		20 Hz to 45 Hz	
		45 Hz to 1 kHz	
		1 kHz to 5 kHz	
		5 kHz to 10 kHz	
		10 kHz to 30 kHz	
	30 mA to 300 mA	10 Hz to 20 Hz	
		20 Hz to 45 Hz	
		45 Hz to 1 kHz	
		1 kHz to 5 kHz	
		5 kHz to 10 kHz	
		10 kHz to 30 kHz	
300 mA to 3 A	45 Hz to 1 kHz		
	1 kHz to 5 kHz		
Ultrasonic Thickness Gauges	0.001 in to 4 in (0.01 mm to 100 mm)	0.0028 in (0.07 mm)	Steel Gauge Blocks

Notes:

- 1) On site calibration services available for these items. This laboratory offers commercial calibration service and on site calibration services is dependent on local conditions
- 2) The uncertainty associated when calibrating a balance/scale is dependent on local conditions, such as the resolution of the unit being calibrated and the environment in which the balance/scale is operated. Therefore, a statement of the best measurement capability can be misleading. The class of the weights used by the laboratory for each range is identified in the BMC column. The Specified Metrological Method is specified in the remarks column.
- 3) This test is performed in accordance with ISO 4185.
- 4) Best Measurement Capabilities are expressed as expanded uncertainties at approximately the 95 % level of confidence using a coverage factor of $k = 2$.
- 5) L = Length in inch and/or mm, F = the diagonal length of the surface plate in inch, R = Resolution.
- 6) Thermocouple and RTD simulation best measurement capability represents the capability for all ranges.

Approved by:  Date: April 25, 2006
R. Douglas Leonard
 Chief Technical Officer

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Recalibration screen allows you to identify items that are due for recalibrations and then select the ones for which you want to request a quotation. **DMM** offers customers the ability to request an on-line quote for instrument calibration and repair services.

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