

PYLON ELECTRONICS INC.

Mississauga Calibration Lab

***STATEMENT OF MEASUREMENT
CAPABILITIES***

ELECTRICAL

ELECTRICAL

Measured Quantity	Units	Range	Best Measurement Uncertainty ±	Capability
DC Voltage	Volts (V)	1 μ V to 1 kV 100 mV 1.0 V to 10 V 10 V to 1 kV 1 kV to 10 kV	- 0.0015% 0.0010% 0.0012% 2.0 %	<i>Generate</i> <i>Measure</i> <i>Measure</i> <i>Measure</i> <i>Measure</i>
DC Current	Amperes (A)	0 A to 20 A 0 A to 20 A 20 A to 100 A	- 0.01% 0.25%	<i>Generate</i> <i>Measure</i> <i>Measure</i>
Resistance Four Terminal	Resistance (Ω)	0.1 to 1 1 to 1 k 1 k to 100 k 100 k to 1 M 1 M to 100 M 100 M to 1 G	0.0515% 0.0065% 0.0011% 0.0020% 0.0550% 0.5010%	<i>Measure</i> <i>Measure</i> <i>Measure</i> <i>Measure</i> <i>Measure</i> <i>Measure</i>
Capacitance Fixed Standards	Farads (F)	10 pF to 1.0 μ F	0.1%	<i>Generate</i>
Inductance Fixed Standards	Henries (H)	100 μ H 1 mH to 1 H	0.25% 0.1%	<i>Generate</i> <i>Generate</i>

ELECTRICAL (Continued)

Measured Quantity	Units	Range	Best Measurement Uncertainty ±	Capability
AC Voltage	Volts (V)	10 mV (1 Hz to 20 kHz) (20 kHz to 100 kHz) (100 kHz to 300 kHz)	≤ 0.060% ≤ 0.511% ≤ 4.020%	<i>Measure</i>
		100 mV to 10 V (1 Hz to 20 kHz) (20 kHz to 100 kHz) (100 kHz to 2 MHz)	≤ 0.016% ≤ 0.082% ≤ 1.510%	<i>Measure</i>
		100 V (1 Hz to 20 kHz) (20 kHz to 100 kHz) (100 kHz to 1 MHz)	≤ 0.024% ≤ 0.122% ≤ 1.510%	<i>Measure</i>
		1000 V (700 V Max) (1 Hz to 20 kHz) (20 kHz to 100 kHz)	≤ 0.062% ≤ 0.302%	<i>Measure</i>

ELECTRICAL (Continued)

Measured Quantity	Units	Range	Best Measurement Uncertainty ±	Capability
AC Current	Amperes (A)	10 μ A to 20 A		<i>Generate</i>
		100 μ A	0.43%	<i>Measure</i>
		(10 Hz to 20 Hz)	0.18%	<i>Measure</i>
		(20 Hz to 45 Hz)	0.09%	<i>Measure</i>
		(45 Hz to 5 kHz)		
		1 mA to 100 mA	0.42%	<i>Measure</i>
		(10 Hz to 20 Hz)	0.17%	<i>Measure</i>
		(20 Hz to 45 Hz)	0.08%	<i>Measure</i>
		(45 Hz to 100 Hz)	0.05%	<i>Measure</i>
		(100 Hz to 5 kHz)	0.08%	<i>Measure</i>
		(5 kHz to 20 kHz)	0.44%	<i>Measure</i>
		(20 kHz to 50 kHz)	0.70%	<i>Measure</i>
		(50 kHz to 100 kHz)		
		1 A	0.42%	<i>Measure</i>
(10 Hz to 20 Hz)	0.18%	<i>Measure</i>		
(20 Hz to 45 Hz)	0.10%	<i>Measure</i>		
(45 Hz to 100 Hz)	0.12%	<i>Measure</i>		
(100 Hz to 5 kHz)	0.32%	<i>Measure</i>		
(5 kHz to 20 kHz)	1.04 %	<i>Measure</i>		
(20 kHz to 50 kHz)				
1 A to 20 A	0.05%	<i>Measure</i>		
(50 Hz to 5 kHz)				
20 A to 100 A	0.05%	<i>Measure</i>		
(60 Hz)				

ELECTRICAL (Continued)

Measured Quantity	Units	Range	Best Measurement Uncertainty ±	Capability
Ratio, DC	DCV	0 to 1.0	5 ppm	<i>Ratio</i>
Low Frequency	decibels (dB)	40 Vpk-pk (1 μHz to 100 kHz)	0.1 dB	<i>Generate</i>
Frequency	Hertz (Hz)	1 mHz to 1.30 GHz	3×10^{-7} to 2×10^{-9}	<i>Measure</i>
Time	Seconds (s)	10 to 10^4 s	0.001 s	<i>Measure</i>

RF/Microwave Frequency

Measured Quantity	Units	Range	Best Measurement Uncertainty ±	Capability
RF/Microwave Power (50 OHM)	decibels (dBm)	+23 dBm (1 MHz to 20 MHz)	N/A	<i>Generate</i>
		- 130 dBm to +10 dBm (10 MHz to 1024 MHz)	N/A	<i>Generate</i>
		- 80 dBm to +15 dBm (10 MHz to 20 GHz)	4%	<i>Measure</i>
		-70 dBm to -20 dBm (10 MHz to 20 GHz)	4%	<i>Measure</i>
		-15 dBm to +35 dBm (10 MHz to 20 GHz)	4%	<i>Measure</i>
Attenuation 50 ohm	decibels (dB)	0 to 100 dB (DC to 1 kHz)	1.0 dB	<i>Measure</i>
		0 to 100 dB (DC to 2.0 GHz)	Greater of 0.2 dB or 3%	<i>Generate</i>
Return Loss 50 ohm Type N	decibels (dB)	(10 MHz – 18 GHz)	Directivity > 38 dB	<i>Measure</i>

PHYSICAL PROPERTIES

PHYSICAL/DIMENSIONAL

NOTE

Metric equivalents can be provided based on the application of appropriate conversion factors.

Measured Quantity	Units	Range	Best Measurement Uncertainty ±
Gauge Blocks Length	inches	0.050" to 1" 1" to 4"	8 μ inch 8 μ inch (+ 1 μ inch/inch)
Length Standards	inches	5" to 11" 11" to 20" 20" to 29"	25 μ inch 40 μ inch 50 μ inch
External Dimensions Cylindrical Plug Gauges External Measurements	inches	0.01" to 10.0" 0" to 12" 12" to 40"	0.0002 inch Consult Lab. Consult Lab.
Internal Dimensions Cylindrical Hole Gauges Internal Measurements	inches	0.06" to 6.0" Up to 24"	40 μ inch Consult Lab.
Straightness	inches	Consult Lab.	50 μ inch
Surface Plate	inches	Consult Lab.	Grade "A" for most common sizes.
Parallels	inches	-	50 μ inch
Indicator Dial	inches	Up to 1.0"	0.0001 inch

PHYSICAL/DIMENSIONAL (Continued)

Measured Quantity	Units	Range	Best Measurement Uncertainty \pm
Calipers Micrometers	inches		
Outside		Up to 40 inch	<i>20 μinch up to 4 inch</i>
Inside		Up to 12 inch	<i>40 μinch 4 inch to 24 inch</i>
Depth		Up to 12 inch	<i>80 μinch 24 inch to 40 inch</i>
Hardness Testers	Rockwell units		
Rockwell		"A" Scale HRA 82, 68, 47 "B" Scale HRB 93, 70, 59 "C" Scale HRC 63, 41, 22	<i>1 unit</i>
Flatness	inches	Area covered by 3" diameter optical flat	<i>0.000005"</i>
Level	inch per foot	-	<i>0.001 inch / foot</i>
Load Cells	pounds	500 lbs	<i>0.1% of Indicated Reading</i>
Compression and Tension			
Torque Measure	-		
		5 in.lb. to 250 ft.lb.	<i>0.25% of Indicated Reading</i>
		20 in.oz. to 200 in.oz.	<i>1.0% of Indicated Reading</i>
		0.5 in.oz. to 25 in.oz.	<i>0.25% of Indicated Reading</i>

PHYSICAL/DIMENSIONAL (Continued)

Measured Quantity	Units	Range	Best Measurement Uncertainty \pm
Balance and Scales Physician	kilograms / pounds	1 g to 1 kg 1 lb to 500 lbs	<i>ASTM class 1 mass comparison</i> <i>ASTM class 5 mass comparison</i>
Tensiometer	pounds	0 to 400 lbs	<i>Consult Lab.</i>
Temperature	$^{\circ}\text{C}$	-5 $^{\circ}\text{C}$ to 125 $^{\circ}\text{C}$	± 0.25 $^{\circ}\text{C}$
Protractor	degree	00 $^{\circ}$ 00' to 360 $^{\circ}$ 00'	$\pm 00^{\circ} 05''$ (Second)
Pneumatic Pressure	PSI	Up to 300 PSI	$\pm 0.03\%$
Hydraulic Pressure	PSI	Up to 10000 PSI	± 1 PSI
Hand Crimper (Dia.)	inches	0.060 inch to 0.50 inch	± 0.0002 inch
Hand Crimper (Height)	inches	Up to 1.000 inch	± 0.00015 inch
Hand Crimper (Pull Test)	pounds	Up to 100 lbs	<i>0.300 lbs</i>