



Calibration Technologies
ATLANTIC REGION

PYLON ATLANTIC STATEMENT OF MEASUREMENT CAPABILITIES



Measured Quantity and Range of Instrument	Best Measurement Capability Expressed as an Uncertainty (\pm)	Capability
DC VOLTS		
1 μ V to 10 kV		Generate
1 μ V to 2.0 V	0.0005% + 0.5 μ V	Measure
2.0 V to 1 kV	0.0005%	Measure
1 kV to 10 kV	1.0%	Measure
DC Volt Transfer Standard	0.0003%	Measure
DC CURRENT		
0 to 20 Amps		Generate
0 to 100 Amps	0.01%	Measure
100 Amps to 1000 Amps	0.25%	Measure
100 Amps to 5000 Amps	0.25%	Measure
DC RESISTANCE		
Four Terminal		
0.001 to 0.01 Ω	0.1%	Measure
0.01 to 0.1	0.01%	Measure
0.1 to 1 Ω	0.0015%	Measure
1 Ω	0.0005%	Measure
1 Ω to 1 M Ω	0.0006%	Measure
1 M Ω to 100 M Ω	0.001%	Measure
1 Ω to 20 Ω	28 ppm + 40 $\mu\Omega$ *	Measure
20 Ω to 200 Ω	24 ppm + 100 $\mu\Omega$ *	Measure
200 Ω to 2 k Ω	24 ppm + 1 m Ω *	Measure
2 k Ω to 20 k Ω	13 ppm + 10 m Ω *	Measure
20 k Ω to 200 k Ω	14 ppm + 100 m Ω *	Measure
200 k Ω to 2 M Ω	22 ppm + 2 Ω *	Measure
2 M Ω to 20 M Ω	44 ppm + 100 Ω *	Measure
TWO TERMINAL UP TO 1000 V		
100 M Ω to 1 T Ω	1%	Measure

* Note: Type II CLAS Accreditation for Resistance Ranges indicated.



Measured Quantity and Range of Instrument	Frequency	Best Measurement Capability Expressed as an Uncertainty (\pm)	Capability
AC CURRENT			
10 μ A to 20 Amps			Generate
10 μ A to 10 mA	50 Hz to 1 kHz	0.08%	Measure
10 mA to 5 A	5 Hz to 20 kHz	0.02%	Measure
	20 kHz to 50 kHz	0.03%	Measure
	50 kHz to 100 kHz	0.05%	Measure
5 A to 20 A	5 Hz to 20 kHz	0.03%	Measure
	20 kHz to 50 kHz	0.05%	Measure
20 A to 400 A	60 Hz	0.5%	Measure
AC VOLTAGE			
1 mV to 1000 V	5 Hz to 1 MHz		Generate
0.5 V to 500 V	5 Hz to 50 kHz	0.03%	Measure
1000 V	5 Hz to 20 kHz	0.02%	Measure
1000 V	20 kHz to 50 kHz	0.04%	Measure
0.5 V to 50 V	50 kHz to 100 kHz	0.05%	Measure
20 V to 50 V	100 kHz to 500 kHz	0.1%	Measure
0.5 V to 10 V	500 kHz to 1 MHz	0.05%	Measure
100 V to 500 V	50 kHz to 100 kHz	0.05%	Measure
HIGH FREQUENCY VOLTAGE			
25 mV to 50 V	4 Hz to 100 kHz		Generate
0.5 V to 50 V	1 MHz	0.01%	Measure
0.5 V	10 MHz	0.1%	Measure
0.5 V	30 MHz	0.6%	Measure
1 V to 10 V	10 MHz	0.03%	Measure
1 V to 10 V	30 MHz to 50 MHz	0.1%	Measure
20 V to 50 V	10 MHz	0.05%	Measure
20 V to 50 V	30 MHz	0.1%	Measure
25 mV to 5 V	100 kHz to 1.2 GHz	2.5%	Measure



Measured Quantity and Range of Instrument	Frequency	Best Measurement Capability Expressed as an Uncertainty (\pm)	Capability
RF AND MICROWAVE POWER (50 Ω)			
60 W	1300 MHz	1%	Generate
100 W	30 MHz, 100 MHz, 300 MHz, 400 MHz, 500 MHz	1%	Generate
+15 dBm	10 kHz - 1030 MHz	N/A	Generate
+10 dBm	1.0 GHz - 20 GHz	N/A	Generate
+5 dBm	20 GHz - 50.0 GHz	N/A	Generate
0 dBm	50 MHz	2.00%	Measure
-30 dBm to +20 dBm	100 kHz - 4 GHz	2.40%	Measure
-70 dBm to -30 dBm	10 MHz - 18 GHz	2.40%	Measure
-30 dBm to +20 dBm	10 MHz - 18 GHz	2.40%	Measure
-25 dBm to +10 dBm	8.2 GHz - 26.5 GHz	2.00%	Measure
-25 dBm to +20 dBm	18 GHz - 26.5 GHz	3.90%	Measure
-25 dBm to +10 dBm	33 GHz - 50 GHz	4.20%	Measure
-25 dBm to +10 dBm	26.5 GHz - 40 GHz (waveguide)	4.20%	Measure
PULSE POWER			
5 kW	950 - 1220 MHz	0.6 dB	Generate/ Measure
LOW FREQUENCY			
40 V p-p	1 μ Hz - 10 Hz	0.1 dB	Generate
FREQUENCY			
	1 mHz to 18.0 GHz	\pm 3 parts in 10^{-7} to 2 parts in 10^{-9}	Measure
Time Base Standard	1, 5 and 10 MHz	3×10^{-12}	Generate/ Measure



Measured Quantity and Range of Instrument	Best Measurement Capability Expressed as an Uncertainty (\pm)	Capability
CAPACITANCE		
<i>Fixed Standards</i> 10 pF to 1.0 μ F		Generate
<i>Variable Standards</i> From 5 pF to 1150 pF		Generate
1000 pF at 1 kHz	0.002%	Measure
0.01 pF to 1.2 μ F	0.01%	Measure
Up to 0.2 F	3%	Measure
INDUCTANCE		
1 mH to 10 H		Generate
10 μ H to 100 μ H	1%	Measure
100 μ H to 1 mH	0.1%	Measure
1 mH to 100 mH	0.025%	Measure
100 mH to 10 H	0.1%	Measure

Measured Quantity and Range of Instrument	Frequency	Best Measurement Capability Expressed as an Uncertainty (\pm)	Capability
ATTENUATION			
<i>600 Ω</i> 0 to 111 dB in 0.1 dB steps	D.C. - 10 kHz		Generate
<i>50 Ω</i> 0 to 121 dB	D.C. - 18 GHz 10 Hz to 150 MHz	0 to -30 dB, <0.05 dB -30 to -40 dB, <0.1 dB -40 to -50 dB, <0.3 dB -50 to -60 dB, <0.5 dB -60 to -70 dB, <0.7 dB	Generate Measure Measure Measure Measure
0 to 127 dBm	2.5 MHz - 1300 MHz	0.05 dB + 0.25/10 dB	Measure
0 to 70 dBm	1300 MHz - 18.0 GHz	0.02 dB + 0.02/10 dB	Measure
70 to 85 dBm		0.05 dB + 0.02/10 dB	Measure
85 to 95 dBm		0.10 dB + 0.02/10 dB	Measure
95 to 100 dBm		0.20 dB + 0.02/10 dB	Measure
100 to 110 dBm		0.6 dB	Measure
RETURN LOSS (50 Ω) TYPE "N" CONNECTOR			
	10 MHz to 18 GHz	directivity >35 dB	Measure
RETURN LOSS (50 Ω) TYPE "SMA/K" CONNECTOR			
1 to 10 dB	10 MHz to 40 GHz	directivity >35 dB	Measure



Measured Quantity and Range of Instrument	Frequency	Best Measurement Capability Expressed as an Uncertainty (\pm)	Capability
RATIO, AC			
-0.0111111 to 1.111111 Linearity	50 Hz to 1 kHz 1 kHz to 5 kHz 5 kHz to 10 kHz	2 ppm 15 ppm 60 ppm	Ratio Ratio Ratio
RATIO, DC			
0 to 1.0		0.2 ppm	Ratio
PHASE ANGLE			
0 Degrees to 360 Degrees	1 Hz to 100 kHz		Generate
50mV to 120V	1 Hz	0.005°	Measure
	6.25 kHz	0.005°	Measure
	6.25 kHz to 50 kHz	0.010°	Measure
	50 kHz to 100 kHz	0.020°	Measure
50mV to 100V	1 Hz	0.030°	Measure
	6.25 kHz	0.060°	Measure
	6.25 kHz to 50 kHz	0.090°	Measure
	50 kHz to 100 kHz	0.240°	Measure
100V to 120V	1 Hz	0.060°	Measure
	6.25 kHz	0.120°	Measure
	6.25 kHz to 50 kHz	0.180°	Measure
	50 kHz to 100 kHz	0.600°	Measure



Measured Quantity Instrument or Gauge	Specification Class or Method	Range	Best Measurement capability Expressed as an Uncertainty (\pm)
LENGTH STANDARDS			
		0.010" to 1" 1" to 4" 5" to 8" 9" to 11" 12" to 18" 19" to 24" 24" to 32"	3 μ inch 3 μ inch + 1 μ inch/inch 13 μ inch 14 μ inch 130 μ inch 150 μ inch 180 μ inch
EXTERNAL DIAMETER			
<i>Cylindrical Plug Gauges</i>			
		0.01 to 6.0" 6" to 12"	5 μ inch 15 μ inch
<i>Thread Gauge Plugs</i>			
		48 to 4 t.p.i.	**
INTERNAL DIAMETER			
<i>Cylindrical Ring Gauges</i>			
		0.01" to 6.0" 6.00" to 8.04"	5 μ inch to 1 inch (+ 3 μ inch/inch) 15 μ inch
<i>Thread Gauge Rings</i>			
		48 to 4 t.p.i.	**
STRAIGHTNESS			
	CGSB 39-GP-37	3" to 60"	**
SURFACE PLATE			
		up to 12 ft. Overall Flatness	0.000050"
PARALLELS			
	CGSB 39-GP-40A		**
CALIPERS			
<i>Micrometers</i>			
Outside	CGSB 39-GP-18A	up to 32"	**
Inside	CGSB 39-GP-18A	up to 32"	**
Depth	CGSB 39-GP-18A	up to 32"	**
<i>Vernier</i>			
Inside and Outside	CGSB 39-GP-19A	up to 32"	**
INDICATOR DIAL			
	CGSB 39-GP-39	up to 1"	**

**Performance Adequate to Confirm Accuracy Requirement of Applicable Standard



Measured Quantity Instrument or Gauge	Range	Best Measurement capability Expressed as an Uncertainty (\pm)
TEMPERATURE		
<i>Ice Point</i>		
	0°C	0.03°C
<i>Thermometer</i>		
	-50°C to 150°C	0.1°C
	-70°C to 480°C*	0.1°C
*Note: Due to the lag bath technique employed it is proposed to calibrate at a temperature approximating the specified temperature $\pm 1^\circ\text{C}$.		
HARDNESS		
Rockwell	B Scale	1.5 Rockwell
	C Scale	1.0 Rockwell
TIME		
<i>Mechanical</i>		
	C65-131-00NK-00	0.5 sec/6 hours
<i>Electronic-Electrical</i>		
	10 to 10^4 seconds	0.001 seconds
FLATNESS		
	Area covered by 1" optical flat	0.000005"
ACCELERATION**		
pc/ms ²	10 Hz to 5 kHz	2%
**Note: Amount of acceleration is inversely proportional to the load applied to the table.		



Measured Quantity Instrument or Gauge	Specification Class or Method	Range	Best Measurement Capability Expressed as an Uncertainty (\pm)
SOUND			
Acoustics Sensitivity	Measure	1/2" to 1" Microphone @ 250Hz	0.17dB
	Generate	67dB to 123dB	0.3dB
	Generate	125Hz to 4 KHz	0.001%
PRESSURE			
Absolute Pressure (air)		0.3 to 15 psia	0.02% of Indicated Reading
Gauge Pressure (air)		0.3 to 50 psig	0.02% of Indicated Reading
Gauge Pressure (air)		15 to 500 psig	0.03% of Indicated Reading
Gauge Pressure (air)		0 to 10,000 psig	0.2% of Indicated Reading
Gauge Pressure (oil)		0 to 10,000 psig	0.02% of Indicated Reading
BALANCE AND SCALES			
	ANSI/ASTM E617	1mg to 400mg	Class 4
		1 g to 1000 g	Class 4
		0.001 lb to 97.22 lb	Class 3
		0.5 lb to 300 lb	Class 5
		5 lb to 1500 lb	Class T
TORQUE			
		0.5 oz in to 215 oz in	0.2% of Indicated Reading
		10 lb in to 5000 lb ft	0.5% of Indicated Reading
TENSIOMETER			
		0 to 2400 lb	1% to 7%
LOAD CELLS			
<i>Compression</i>			
		100 to 60000 lb	0.06% F.S.
<i>Tension</i>			
		100 to 60000 lb	0.06% F.S.



Measured Quantity Instrument or Gauge	Specification Class or Method	Range	Best Measurement Capability Expressed as an Uncertainty (\pm)
GAS FLOW			
		1.1 to 10.0 SCCM	0.42% Indicated Reading
		11.0 to 30.0 SCCM	0.61% Indicated Reading
		31.0 to 100.0 SCCM	0.60% Indicated Reading
		101.0 to 300.0 SCCM	0.51% Indicated Reading
		0.31 to 1.0 SLPM	0.49% Indicated Reading
		1.1 to 3.0 SLPM	0.45% Indicated Reading
		3.1 to 10.0 SLPM	0.62% Indicated Reading
		11.0 to 30.0 SLPM	0.43% Indicated Reading
		31.0 to 100.0 SLPM	0.49% Indicated Reading
		101.0 to 300.0 SLPM	0.46% Indicated Reading
		301.0 to 1000.0 SLPM	0.51% Indicated Reading