

Scope of Calibration For Precision Equipment Rental Inc.

June 2012

Electrical – Capacitance

Calibration Parameter/Equipment	Range	Calibration and Measurement Capability(+/-)	Remarks
Capacitance-Generate Meters to 4.5 digits 10 Hz to 10 kHz	(1 to 10) nF	18.3 pF	Multifunction Calibrator
	(10 to 100) nF	72.2 pF	
	(0.1 to 1) μ F	0.7 nF	
	(1 to 5) μ F	7.2 nF	
	(5 to 11) μ F	44.2 nF	

Electrical – Current

Calibration Parameter/Equipment	Range	Calibration and Measurement Capability(+/-)	Remarks
DC Current-Generate Meters to 4.5 digits	(0 to 3) mA	0.4 μ A	Multifunction Calibrator
	(3 to 30) mA	3.8 μ A	
	(30 to 300) mA	38 μ A	
	(0.3 to 3) A	1.3 mA	
	(3 to 20) A	8.6 mA	

Electrical – Capacitance

Calibration Parameter/Equipment	Range	Calibration and Measurement Capability(+/-)	Remarks
Capacitance- Measure Meters to 4.5 digits 10 Hz to 10 kHz	(1 to 10) nF	18.3 pF	HP 3458 Multimeter With Option 002
	(10 to 100) nF	72.2 pF	
	(0.1 to 1) μ F	0.7 nF	
	(1 to 5) μ F	7.2 nF	
	(5 to 11) μ F	44.2 nF	

Electrical – Current

Calibration Parameter/Equipment	Range	Calibration and Measurement Capability(+/-)	Remarks
DC Current- Measure Meters to 4.5 digits	(0 to 3) mA	0.4 μ A	HP 3458 Multimeter With Option 002
	(3 to 30) mA	3.8 μ A	
	(30 to 300) mA	38 μ A	
	(0.3 to 3) A	1.3 mA	
	(3 to 20) A	8.6 mA	

Electrical – Current

Calibration Parameter/Equipment	Range	Calibration and Measurement Capability(+/-)	Remarks
Clamp Style Meters to 4.5 digits (0 to 1 000) A	(0 to 50) A	0.14 A	Multifunction Calibrator & 10 or 50 Turn Coil
	(50 to 500) A	0.9 A	
	(500 to 1 000) A	2.5 A	
AC Current-Generate Meters to 4.5 digits (0 to 3) mA	(10 to 20) Hz	34.2 μ A	Multifunction Calibrator
	(20 to 45) Hz	17.4 μ A	
	45 Hz to 1 kHz	17.4 μ A	
	(1 to 5) kHz	30.7 μ A	
	(5 to 10) kHz	73 μ A	
	(10 to 30) kHz	0.14 mA	
(30 to 300) mA	(10 to 20) Hz	0.3 mA	
	(20 to 45) Hz	0.1 mA	
	45 Hz to 1 kHz	0.1 mA	
	(1 to 5) kHz	0.4 mA	
	(1 to 5) kHz	0.8 mA	
	(10 to 30) kHz	1.6 mA	
(0.3 to 3) A	45 Hz to 1 kHz	2 mA	
	(1 to 5) kHz	0.02 A	
(3 to 10) A	60 Hz to 1 kHz	0.015 A	
	(1 to 5) kHz	0.35 A	

Electrical – Current

Calibration Parameter/Equipment	Range	Calibration and Measurement Capability(+/-)	Remarks
Clamp Style Meters to 4.5 digits (0 to 1 000) A	(0 to 50) A	0.14 A	Multifunction Calibrator & 10 or 50 Turn Coil
	(50 to 500) A	0.9 A	
	(500 to 1 000) A	2.5 A	
AC Current- Measure Meters to 4.5 digits (0 to 3) mA	(10 to 20) Hz	34.2 μ A	HP 3458 Multimeter With Option 002
	(20 to 45) Hz	17.4 μ A	
	45 Hz to 1 kHz	17.4 μ A	
	(1 to 5) kHz	30.7 μ A	
	(5 to 10) kHz	73 μ A	
	(10 to 30) kHz	0.14 mA	
(30 to 300) mA	(10 to 20) Hz	0.3 mA	
	(20 to 45) Hz	0.1 mA	
	45 Hz to 1 kHz	0.1 mA	
	(1 to 5) kHz	0.4 mA	
	(1 to 5) kHz	0.8 mA	
	(10 to 30) kHz	1.6 mA	
(0.3 to 3) A	45 Hz to 1 kHz	2 mA	
	(1 to 5) kHz	0.02 A	
(3 to 10) A	60 Hz to 1 kHz	0.015 A	
	(1 to 5) kHz	0.35 A	

Electrical – Current

Calibration Parameter/Equipment	Range	Calibration and Measurement Capability(+/-)	Remarks
Clamp Style Meters to 4.5 digits (0 to 50) A	(45 to 60) Hz	0.17 A	Multifunction Calibrator & 10 or 50 Turn Coil
	(60 to 400) Hz	0.26 A	
(50 to 500) A	(45 to 60) Hz	0.91 A	
	(60 to 400) Hz	1.8 A	
(500 to 1 000) A	(45 to 60) Hz	2.6 A	
	(60 to 400) Hz	4.8 A	

Electrical – Resistance

Calibration Parameter/Equipment	Range	Calibration and Measurement Capability(+/-)	Remarks
Resistance-Generate Meters to 4.5 Digits	(0 to 1) Ω	0.13 m Ω	Multifunction Calibrator
	(1 to 10) Ω	0.14 m Ω	
	(10 to 100) Ω	1.6 m Ω	
	(0.1 to 1) k Ω	4.9 m Ω	
	(1 to 10) k Ω	35 m Ω	
	(10 to 100) k Ω	360 m Ω	
	(0.1 to 1) M Ω	3.5 Ω	
	(1 to 10) M Ω	40 Ω	
	(10 to 100) M Ω	1.6 k Ω	
	(100 to 110) M Ω	62 k Ω	

Electrical – Current

Calibration Parameter/Equipment	Range	Calibration and Measurement Capability(+/-)	Remarks
Clamp Style Meters to 4.5 digits (0 to 50) A	(45 to 60) Hz	0.17 A	HP 3458 Multimeter With Option 002
	(60 to 400) Hz	0.26 A	
(50 to 500) A	(45 to 60) Hz	0.91 A	
	(60 to 400) Hz	1.8 A	
(500 to 1 000) A	(45 to 60) Hz	2.6 A	
	(60 to 400) Hz	4.8 A	

Electrical – Resistance

Calibration Parameter/Equipment	Range	Calibration and Measurement Capability(+/-)	Remarks
Resistance-Measure Meters to 4.5 Digits	(0 to 1) Ω	0.13 m Ω	HP 3458 Multimeter With Option 002
	(1 to 10) Ω	0.14 m Ω	
	(10 to 100) Ω	1.6 m Ω	
	(0.1 to 1) k Ω	4.9 m Ω	
	(1 to 10) k Ω	35 m Ω	
	(10 to 100) k Ω	360 m Ω	
	(0.1 to 1) M Ω	3.5 Ω	
	(1 to 10) M Ω	40 Ω	
	(10 to 100) M Ω	1.6 k Ω	
	(100 to 110) M Ω	62 k Ω	

Electrical – Voltage

Calibration Parameter/Equipment	Range	Calibration and Measurement Capability(+/-)	Remarks
DC Voltage-generate Meters to 4.5 digits	(0 to 300) mV	9 μ V	Multifunction Calibrator
	(0.3 to 3) V	42 μ V	
	(3 to 30) V	453 μ V	
	(30 to 300) V	6.5 mV	
	(300 to 1000) V	23 mV	
AC Voltage-generate Meters to 4.5 digits (0 to 30) mV	(10 to 45) Hz	12 μ V	Multifunction Calibrator
	5 Hz to 1 kHz	12 μ V	
	(1 to 10) kHz	12 μ V	
	(10 to 20) kHz	14 μ V	
	(20 to 50) kHz	42 μ V	
	(50 to 100) kHz	135 μ V	
	(100 to 500) kHz	336 μ V	
(30 to 300) mV	(10 to 45) Hz	61 μ V	Multifunction Calibrator
	45 Hz to 1 kHz	61 μ V	
	(1 to 10) kHz	61 μ V	
	(10 to 20) kHz	66 μ V	
	(20 to 50) kHz	131 μ V	
	(50 to 100) kHz	315 μ V	
	(100 to 500) kHz	778 μ V	

Electrical – Voltage

Calibration Parameter/Equipment	Range	Calibration and Measurement Capability(+/-)	Remarks
DC Voltage-Measure Meters to 4.5 digits	(0 to 300) mV	9 μ V	HP 3458 Multimeter With Option 002
	(0.3 to 3) V	42 μ V	
	(3 to 30) V	453 μ V	
	(30 to 300) V	6.5 mV	
	(300 to 1000) V	23 mV	
AC Voltage-Measure Meters to 4.5 digits (0 to 30) mV	(10 to 45) Hz	12 μ V	HP 3458 Multimeter With Option 002
	5 Hz to 1 kHz	12 μ V	
	(1 to 10) kHz	12 μ V	
	(10 to 20) kHz	14 μ V	
	(20 to 50) kHz	42 μ V	
	(50 to 100) kHz	135 μ V	
	(100 to 500) kHz	336 μ V	
	(10 to 45) Hz	61 μ V	

Electrical – Voltage

(0.3 to 3) V	(10 to 45) Hz	592 μ V	Multifunction Calibrator
	45 Hz to 1 kHz	592 μ V	
	(1 to 10) kHz	592 μ V	
	(10 to 20) kHz	730 μ V	
	(20 to 50) kHz	1.1 mV	
	(50 to 100) kHz	2.6 mV	
	(100 to 500) kHz	9.1 mV	
(3 to 30) V	(10 to 45) Hz	5.9 mV	Multifunction Calibrator
	45 Hz to 1 kHz	5.9 mV	
	(1 to 10) kHz	5.9 mV	
	(10 to 20) kHz	9 mV	
	(20 to 50) kHz	12.9 mV	
	(50 to 100) kHz	33 mV	
(30 to 300) V	45 Hz to 1 kHz	69 mV	Multifunction Calibrator
	(1 to 10) kHz	77 mV	
	(10 to 20) kHz	94 mV	
	(20 to 50) kHz	115 mV	
	(50 to 100) kHz	760 mV	
(300 to 750) V	(45 Hz to 1) kHz	302 mV	
	(1 to 10) kHz	359 mV	

Electrical – Voltage

(0.3 to 3) V	(10 to 45) Hz	592 μ V	HP 3458 Multimeter With Option 002
	45 Hz to 1 kHz	592 μ V	
	(1 to 10) kHz	592 μ V	
	(10 to 20) kHz	730 μ V	
	(20 to 50) kHz	1.1 mV	
	(50 to 100) kHz	2.6 mV	
	(100 to 500) kHz	9.1 mV	
(3 to 30) V	(10 to 45) Hz	5.9 mV	HP 3458 Multimeter With Option 002
	45 Hz to 1 kHz	5.9 mV	
	(1 to 10) kHz	5.9 mV	
	(10 to 20) kHz	9 mV	
	(20 to 50) kHz	12.9 mV	
	(50 to 100) kHz	33 mV	
(30 to 300) V	45 Hz to 1 kHz	69 mV	HP 3458 Multimeter With Option 002
	(1 to 10) kHz	77 mV	
	(10 to 20) kHz	94 mV	
	(20 to 50) kHz	115 mV	
	(50 to 100) kHz	760 mV	
(300 to 750) V	(45 Hz to 1) kHz	302 mV	
	(1 to 10) kHz	359 mV	

Calibration Parameter/Equipment	Range	Calibration and Measurement Capability(+/-)	Remarks
Micrometer Heads	(0.01 to 2) in	47 μ in	Gage Blocks
Indicators	(0.01 to 2) in (0.5 to 50) mm	76 μ in	Indicator Tester
Indicator Testers	(0.05 to 1) in (0.5 to 25) mm	39 μ in	Gage Blocks
Optical Levels	100 ft.	$\frac{1}{2}$ arc sec	Optical wedge
Torque Wrenches	(4 to 1100) lbf·in	0.4 % rdg	Torque Testers
Theodolite	100 ft.	$\frac{1}{2}$ arc sec	Optical wedge
Pressure Gauges	(0 to 5000) psi	0.05 psi	Comparison
Pressure Gauges	(5000 to 10000) psi	1 division	Comparison