Certificate of Accreditation: Supplement

Industrial Calibration Service (In-Cal)
71 Pine Road, Hudson, NH 03051
Contact Name: Richie Fiore Phone: 603-883-5558

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

Dimensional

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Calipers [FO]	0.05 in to 40 in	(230 + 9.3L) µin	Gage Blocks IC-DM-2
Height Gages [FO]	Up to 40 in	(570 + 23L) µin	Gage Blocks IC-DM-3
Gage Blocks [F]	0.05 in to 4 in	(2 + 1.1L) µin	Gage Block Comparator IC-DM-1
	0.05 in to 14 in	(3 + 1.1L) µin	P&W Labmaster IC-DM-1
Dial/Digital/Test Indicators [FO]	Up to 6 in	(55 + 24L) µin	Gage Blocks IC-DM-22
Cylindrical Plug Gages [FO]	Up to 6 in	(6.6 + 2.6L) µin	P&W Labmaster IC-DM-15
Plain Ring Gages [F]	0.02 in to 14 in	(15 + 2.9L) µin	P&W Labmaster IC-DM-8
Outside Micrometers [FO]	0.05 in to 40 in	(55 + 18L) µin	Gage Blocks IC-DM-2
Inside Micrometers [FO]	0.05 in to 40 in	(66 + 18L) µin	Gage Blocks IC-DM-29
Depth Micrometers [FO]	0.05 in to 12 in	(66 + 25L) µin	Gage Blocks IC-DM-26
Steel Rules [FO]	Up to 40 in	(1 200 + 110L) µin	Linear Calibrator IC-DM-31
Tape Measures [FO]	Up to 40 in	(1 200 + 110L) µin	Linear Calibrator IC-DM-28
Feeler Gages [FO]	0.001 in to 0.2 in	16 µin	Supermicrometer IC-DM-27

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Electrical

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Equipment to Measure DC Voltage [FO]	0.01 mV to 330 mV	20 µV/V + 1 µV	Multifunction Calibrator OEM Manual
	330 mV to 3.3 V	11 µV/V + 2 µV	
	3.3 V to 33 V	12 µV/V + 20 µV	
	33 V to 330 V	18 µV/V + 150 µV	
	330 V to 1 000 V	18 µV/V + 1.5 mV	
Equipment to Output DC Voltage [FO]	0.01 mV to 100 mV	11 µV/V + 3 µV/V	Multifunction Calibrator OEM Manual
	100 mV to 1 V	10 µV/V + 0.3 µV/V	
	1 V to 10 V	10 µV/V + 0.1 µV/V	
	10 V to 100 V	12 µV/V + 2.3 µV/V	
	100 V to 1 000 V	24 µV/V + 0.1 µV/V	
Equipment to Measure Capacitance [FO]	220 pF to 400 pF	10 pF + 0.5% of Reading	Multifunction Calibrator OEM Manual
	400 pF to 1.1 nF	0.01 nF + 0.5% of Reading	
	1.1 nF to 3.3 nF	0.01 nF + 0.5% of Reading	
	3.3 nF to 11 nF	0.01 nF + 0.25% of Reading	
	11 nF to 33 nF	0.1 nF + 0.25% of Reading	
	33 nF to 110 nF	0.1 nF + 0.25% of Reading	
	110 nF to 330 nF	0.3 nF + 0.25% of Reading	
	330 nF to 1.1 µF	1 nF + 0.25% of Reading	
	1.1 µF to 3.3 µF	3 nF + 0.25% of Reading	
	3.3 µF to 11 µF	10 nF + 0.25% of Reading	
	11 µF to 33 µF	30 nF + 0.4% of Reading	
	33 µF to 110 µF	100 nF + 0.45% of Reading	
	110 µF to 330 µF	300 nF + 0.45% of Reading	
	330 µF to 1.1 mF	1 µF + 0.45% of Reading	
	1.1 mF to 3.3 mF	3 µF + 0.45% of Reading	
	3.3 mF to 11 mF	10 µF + 0.45% of Reading	
	11 mF to 33 mF	30 µF + 0.75% of Reading	
	33 mF to 110 mF	100 µF + 1.1% of Reading	

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Equipment to Measure DC Current [FO]	330 uA to 3.3 mA	105uA/A + 0.05uA	Multifunction Calibrator OEM Manual
	3.3 mA to 33 mA	100 µA/A + 0.2 µA	
	33 mA to 330 mA	100 µA/A + 2.5 µA	
	330 mA to 1.1 A	200 µA/A + 40 µA	
	1.1 A to 3 A	380 µA/A + 40 µA	
	3 A to 11 A	500 µA/A + 500 µA	
	11 A to 20.5 A	1 000 µA/A + 750 µA	
Equipment to Output DC Current [FO]	0.01 nA to 100 nA	35 µA/A + 400 µA/A	8.5 Digit Multimeter OEM Manual
	1 nA to 1 µA	25 µA/A + 40 µA/A	
	1 µA to 10 µA	25 µA/A + 10 µA/A	
	10 µA to 100 µA	25 µA/A + 8 µA/A	
	100 µA to 1 mA	25 µA/A + 5 µA/A	
	1 mA to 10 mA	25 µA/A + 5 µA/A	
	10 mA to 100 mA	40 µA/A + 5 µA/A	
	100 mA to 1 A	115 µA/A + 10 µA/A	
	1.1 A to 20 A	0.02 % of Reading	
Equipment to Measure DC High Voltage [FO]	0 kV to 30 kV	0.01 % of Reading + 0.01 % of Full Scale	Vitrek 4700 HVL-35 Probe OEM Manual
Equipment to Measure DC Power [FO]			Multifunction Calibrator OEM Manual
0.33 mA to 330 mA	33 mV to 1 020 V	0.03 % of Reading	
0.33 A to 3 A	33 mV to 1 020 V	0.03 % of Reading	
3 A to 20.5 A	33 mV to 1 020 V	0.07 % of Reading	
Equipment to Measure AC Current (At the listed frequencies) [FO]			
10 Hz to 20 Hz	29 µA to 330 µA	0.2 % of Reading + 0.1 µA	Multifunction Calibrator OEM Manual
20 Hz to 45 Hz	29 µA to 330 µA	0.15 % of Reading + 0.1 µA	
45 Hz to 1 kHz	29 µA to 330 µA	0.13 % of Reading + 0.1 µA	
5 kHz to 10 kHz	29 µA to 330 µA	0.8 % of Reading + 0.2 µA	
10 kHz to 30 kHz	29 µA to 330 µA	1.6 % of Reading + 0.4 µA	

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Equipment to Measure AC Current (At the listed frequencies) FO			Multifunction Calibrator OEM Manual
10 Hz to 20 Hz	0.33 mA to 3.3 mA	0.2 % of Reading + 0.15 µA	
20 Hz to 45 Hz	0.33 mA to 3.3 mA	0.13 % of Reading + 0.15 µA	
45 Hz to 1 kHz	0.33 mA to 3.3 mA	0.1 % of Reading + 0.15 µA	
1 kHz to 5 kHz	0.33 mA to 3.3 mA	0.2 % of Reading + 0.2 µA	
5 kHz to 10 kHz	0.33 mA to 3.3 mA	0.5 % of Reading + 0.3 µA	
10 kHz to 30 kHz	0.33 mA to 3.3 mA	1 % of Reading + 0.6 µA	
Equipment to Measure AC Current (At the listed frequencies) FO			
10 Hz to 20 Hz	3.3 mA to 33 mA	0.18 % of Reading + 2 µA	
20 Hz to 45 Hz	3.3 mA to 33 mA	0.09 % of Reading + 2 µA	
45 Hz to 1 kHz	3.3 mA to 33 mA	0.04 % of Reading + 2 µA	
1 kHz to 5 kHz	3.3 mA to 33 mA	0.08 % of Reading + 2 µA	
5 kHz to 10 kHz	3.3 mA to 33 mA	0.2 % of Reading + 3 µA	
10 kHz to 30 kHz	3.3 mA to 33 mA	0.4 % of Reading + 4 µA	
Equipment to Measure AC Current (At the listed frequencies) FO			
10 Hz to 20 Hz	33 mA to 330 mA	0.18 % of Reading + 20 µA	
20 Hz to 45 Hz	33 mA to 330 mA	0.09 % of Reading + 20 µA	
45 Hz to 1 kHz	33 mA to 330 mA	0.04 % of Reading + 20 µA	
1 kHz to 5 kHz	33 mA to 330 mA	0.1 % of Reading + 50 µA	
5 kHz to 10 kHz	33 mA to 330 mA	0.2 % of Reading + 100 µA	
10 kHz to 30 kHz	33 mA to 330 mA	0.4 % of Reading + 200 µA	
Equipment to Measure AC Current (At the listed frequencies) FO			
10 Hz to 45 Hz	0.33 A to 1.1 A	0.18 % of Reading + 100 µA	
45 Hz to 1 kHz	0.33 A to 1.1 A	0.05 % of Reading + 100 µA	
1 kHz to 5 kHz	0.33 A to 1.1 A	0.6 % of Reading + 1 000 µA	
5 kHz to 10 kHz	0.33 A to 1.1 A	2.5 % of Reading + 5 000 µA	
Equipment to Measure AC Current (At the listed frequencies) FO			
10 Hz to 45 Hz	1.1 A to 3 A	0.18 % of Reading + 100 µA	
45 Hz to 1 kHz	1.1 A to 3 A	0.05 % of Reading + 100 µA	
1 kHz to 5 kHz	1.1 A to 3 A	0.6 % of Reading + 1 000 µA	
5 kHz to 10 kHz	1.1 A to 3 A	2.5 % of Reading + 5 000 µA	

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Equipment to Measure AC Current (At the listed frequencies) FO			Multifunction Calibrator OEM Manual
45 Hz to 100 Hz	3 A to 11 A	0.06 % of Reading + 2 000 µA	
100 Hz to 1 kHz	3 A to 11 A	0.1 % of Reading + 2 000 µA	
1 kHz to 5 kHz	3 A to 11 A	3 % of Reading + 2 000 µA	
Equipment to Measure AC Current (At the listed frequencies) FO			
45 Hz to 100 Hz	11 A to 20.5 A	0.12 % of Reading + 5 000 µA	
100 Hz to 1 kHz	11 A to 20.5 A	0.15 % of Reading + 5 000 µA	
1 kHz to 5 kHz	11 A to 20.5 A	3 % of Reading + 5 000 µA	
Equipment to Output AC Current (At the listed frequencies) FO			
10 Hz to 20 Hz	100 mA to 1 A	0.4 % of Full Scale + 0.02 % of Reading	
20 Hz to 45 Hz	100 mA to 1 A	0.16 % of Full Scale + 0.02 % of Reading	
45 Hz to 100 Hz	100 mA to 1 A	0.08 % of Full Scale + 0.02 % of Reading	
100 Hz to 5 kHz	100 mA to 1 A	0.1 % of Full Scale + 0.02 % of Reading	
5 kHz to 20 kHz	100 mA to 1 A	0.03 % of Full Scale + 0.02 % of Reading	
20 kHz to 50 kHz	100 mA to 1 A	1 % of Full Scale + 0.04 % of Reading	
Equipment to Output AC Current (At the listed frequencies) FO			
45 Hz to 5 kHz	1 A to 20 A	0.15 % of Reading + 16 mA	
Equipment to Measure AC Voltage (At the listed frequencies) FO			
10 Hz to 45 Hz	1 mV to 33 mV	800 µV/V + 6 µV	
45 Hz to 10 kHz	1 mV to 33 mV	150 µV/V + 6 µV	
10 kHz to 20 kHz	1 mV to 33 mV	200 µV/V + 6 µV	
20 kHz to 50 kHz	1 mV to 33 mV	1 000 µV/V 6 µV	
50 kHz to 100 kHz	1 mV to 33 mV	3 500 µV/V 12 µV	
100 kHz to 500 kHz	1 mV to 33 mV	8 000 µV/V + 50 µV	
Equipment to Measure AC Voltage (At the listed frequencies) FO			
10 Hz to 45 Hz	33 mV to 330 mV	300 µV/V + 8 µV	
50 kHz to 100 kHz	33 mV to 330 mV	800 µV/V + 32 µV	
100 kHz to 500 kHz	33 mV to 330 mV	2 000 µV/V + 70 µV	

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Equipment to Measure AC Voltage (At the listed frequencies) FO			Multifunction Calibrator OEM Manual
10 Hz to 45 Hz	0.33 V to 3.3 V	300 µV/V + 50 µV	
20 kHz to 50 kHz	0.33 V to 3.3 V	300 µV/V + 50 µV	
50 kHz to 100 kHz	0.33 V to 3.3 V	700 µV/V + 125 µV	
100 kHz to 500 kHz	0.33 V to 3.3 V	2 400 µV/V + 600 µV	
Equipment to Measure AC Voltage (At the listed frequencies) FO			
10 Hz to 45 Hz	3.3 V to 33 V	300 µV/V + 650 µV	
10 kHz to 20 kHz	3.3 V to 33 V	240 µV/V + 600 µV	
20 kHz to 50 kHz	3.3 V to 33 V	350 µV/V + 600 µV	
50 kHz to 100 kHz	3.3 V to 33 V	900 µV/V + 1 600 µV	
Equipment to Measure AC Voltage (At the listed frequencies) FO			
10 Hz to 45 Hz	1 mV to 33 mV	0.08 % of Reading + 6 µV	
45 Hz to 10 kHz	1 mV to 33 mV	0.015 % of Reading + 6 µV	
10 kHz to 20 kHz	1 mV to 33 mV	0.02 % of Reading + 6 µV	
20 kHz to 50 kHz	1 mV to 33 mV	0.1 % of Reading + 6 µV	
50 kHz to 100 kHz	1 mV to 33 mV	0.35 % of Reading + 12 µV	
100 kHz to 500 kHz	1 mV to 33 mV	0.8 % of Reading + 50 µV	
Equipment to Measure AC Voltage (At the listed frequencies) FO			
10 Hz to 45 Hz	33 mV to 330 mV	0.03 % of Reading + 8 µV	
45 Hz to 10 kHz	33 mV to 330 mV	0.013 % of Reading + 8 µV	
10 kHz to 20 kHz	33 mV to 330 mV	0.015 % of Reading + 8 µV	
20 kHz to 50 kHz	33 mV to 330 mV	0.035 % of Reading + 8 µV	
50 kHz to 100 kHz	33 mV to 330 mV	0.08 % of Reading + 32 µV	
100 kHz to 500 kHz	33 mV to 330 mV	0.2 % of Reading + 70 µV	
Equipment to Measure AC Voltage (At the listed frequencies) FO			
10 Hz to 45 Hz	0.33 V to 3.3 V	0.03 % of Reading + 50 µV	
45 Hz to 10 kHz	0.33 V to 3.3 V	0.012 % of Reading + 25 µV	
10 kHz to 20 kHz	0.33 V to 3.3 V	0.019 % of Reading + 50 µV	
20 kHz to 50 kHz	0.33 V to 3.3 V	0.03 % of Reading + 50 µV	
50 kHz to 100 kHz	0.33 V to 3.3 V	0.07 % of Reading + 125 µV	
100 kHz to 500 kHz	0.33 V to 3.3 V	0.24 % of Reading + 600 µV	

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Equipment to Measure AC Voltage (At the listed frequencies) FO			Multifunction Calibrator OEM Manual
10 Hz to 45 Hz	3.3 V to 33 V	0.03 % of Reading + 650 µV	
45 Hz to 10 kHz	3.3 V to 33 V	0.015 % of Reading + 200 µV	
10 kHz to 20 kHz	3.3 V to 33 V	0.024 % of Reading + 600 µV	
20 kHz to 50 kHz	3.3 V to 33 V	0.035 % of Reading + 600 µV	
50 kHz to 100 kHz	3.3 V to 33 V	0.09 % of Reading + 1.6 mV	
Equipment to Measure AC Voltage (At the listed frequencies) FO			
45 Hz to 1 kHz	33 V to 330 V	0.019 % of Reading + 2 mV	
1 kHz to 10 kHz	33 V to 330 V	0.02 % of Reading + 6 mV	
10 kHz to 20 kHz	33 V to 330 V	0.025 % of Reading + 6 mV	
20 kHz to 50 kHz	33 V to 330 V	0.03 % of Reading + 6 mV	
50 kHz to 100 kHz	33 V to 330 V	0.2 % of Reading + 50 mV	
Equipment to Measure AC Voltage (At the listed frequencies) FO			
45 Hz to 1 kHz	330 V to 1 020 V	0.03 % of Reading + 10 mV	
1 kHz to 5 kHz	330 V to 1 020 V	0.025 % of Reading + 10 mV	
5 kHz to 10 kHz	330 V to 1 020 V	0.03 % of Reading + 10 mV	
Equipment to Measure AC Voltage -Bandwidth < 2 MHz (At the listed frequencies) FO			Multifunction Calibrator OEM Manual
1 Hz to 40 Hz	1 mV to 10 mV	0.03 % of Reading + 3 µV	
40 Hz to 1 kHz	1 mV to 10 mV	0.02 % of Reading + 1.1 µV	
1 kHz to 20 kHz	1 mV to 10 mV	0.03 % of Reading + 1.1 µV	
20 kHz to 50 kHz	1 mV to 10 mV	0.1 % of Reading + 1.1 µV	
50 kHz to 100 kHz	1 mV to 10 mV	0.5 % of Reading + 1.1 µV	
100 kHz to 300 kHz	1 mV to 10 mV	4 % of Reading + 2 µV	
Equipment to Measure AC Voltage -Bandwidth < 2 MHz (At the listed frequencies) FO			
1 Hz to 40 Hz	100 mV to 10 V	0.007 % of Reading + 0.4 mV	
40 Hz to 1 kHz	100 mV to 10 V	0.007 % of Reading + 0.2 mV	
1 kHz to 20 kHz	100 mV to 10 V	0.014 % of Reading + 0.2 mV	
20 kHz to 50 kHz	100 mV to 10 V	0.03 % of Reading + 0.2 mV	
50 kHz to 100 kHz	100 mV to 10 V	0.08 % of Reading + 0.2 mV	
100 kHz to 300 kHz	100 mV to 10 V	0.3 % of Reading + 1 mV	
300 kHz to 1 MHz	100 mV to 10 V	1 % of Reading + 1 mV	
1 MHz to 2 MHz	100 mV to 10 V	1.5 % of Reading + 1 mV	

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Equipment to Measure AC Voltage -Bandwidth < 2 MHz (At the listed frequencies) [FO]			Multifunction Calibrator OEM Manual
1 Hz to 40 Hz	10 V to 100 V	0.02 % of Reading + 4 mV	
40 Hz to 1 kHz	10 V to 100 V	0.02 % of Reading + 2 mV	
1 kHz to 20 kHz	10 V to 100 V	0.02 % of Reading + 2 mV	
20 kHz to 50 kHz	10 V to 100 V	0.035 % of Reading + 2 mV	
50 kHz to 100 kHz	10 V to 100 V	0.12 % of Reading + 2 mV	
100 kHz to 300 kHz	10 V to 100 V	0.4 % of Reading + 10 mV	
300 kHz to 1 MHz	10 V to 100 V	1.5 % of Reading + 10 mV	
Equipment to Measure AC Voltage -Bandwidth < 2 MHz (At the listed frequencies) [FO]			
1 Hz to 40 Hz	100 V to 1 000 V	0.04 % of Reading + 40 mV	
40 Hz to 1 kHz	100 V to 1 000 V	0.04 % of Reading + 20 mV	
1 kHz to 20 kHz	100 V to 1 000 V	0.06 % of Reading +20 mV	
20 kHz to 50 kHz	100 V to 1 000 V	0.12 % of Reading + 20 mV	
50 kHz to 100 kHz	100 V to 1 000 V	0.3 % of Reading + 20 mV	
Equipment to Measure AC Voltage -Bandwidth > 2 MHz (At the listed frequencies) [FO]			
45 Hz to 100 kHz	0.01 mV to 10 mV	0.09 % of Reading + 6 µV	
100 kHz to 1 MHz	0.01 mV to 10 mV	1.2 % of Reading + 5 µV	
1 MHz to 4 MHz	0.01 mV to 10 mV	7 % of Reading + 7 µV	
4 MHz to 8 MHz	0.01 mV to 10 mV	20 % of Reading + 8 µV	
Equipment to Measure AC Voltage -Bandwidth > 2 MHz (At the listed frequencies) [FO]			
45 Hz to 100 kHz	100 mV to 10 V	0.09 % of Reading + 6 mV	
100 kHz to 1 MHz	100 mV to 10 V	2 % of Reading + 5 mV	
1 MHz to 4 MHz	100 mV to 10 V	4 % of Reading + 7 mV	
4 MHz to 8 MHz	100 mV to 10 V	4 % of Reading + 8 mV	
8 MHz to 10 MHz	100 mV to 10 V	15 % of Reading + 10 mV	
Equipment to Measure AC Voltage -Bandwidth > 2 MHz (At the listed frequencies) [FO]			
45 Hz to 100 kHz	10 V to 100 V	0.12 % of Reading + 2 mV	
Equipment to Measure AC Voltage -Bandwidth > 2 MHz (At the listed frequencies) [FO]			
45 Hz to 100 kHz	100 V to 1 000 V	0.3 % of Reading + 0.1 V	

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Equipment to Output Frequency FO	0.01 Hz to 2 MHz	2.5 Hz/MHz + 5 µHz	8.5 Digit Multimeter OEM Manual
Equipment to Measure Frequency FO	1 Hz to 10 MHz	0.05 % of Reading	Multifunction Calibrator OEM Manual
	1 Hz to 40 Hz	0.05 % of Reading	
	40 Hz to 10 MHz	0.01 % of Reading	
Temperature Calibration, Indication and control Equipment used with Thermocouple Type B FO	600 °C to 800 °C	0.44 °C	Electrical Simulation of Thermocouple Output OEM Manual
	800 °C to 1 000 °C	0.34 °C	
	1 000 °C to 1 550 °C	0.3 °C	
	1 550 °C to 1 820 °C	0.33 °C	
Temperature Calibration, Indication and control Equipment used with Thermocouple Type C FO	0 °C to 150 °C	0.3 °C	
	150 °C to 650 °C	0.26 °C	
	650 °C to 1 000 °C	0.31 °C	
	1 000 °C to 1 800 °C	0.5 °C	
	1 800 °C to 2 316 °C	0.84 °C	
Temperature Calibration, Indication and control Equipment used with Thermocouple Type E FO	-250 °C to -100 °C	0.5 °C	
	-100 °C to -25 °C	0.16 °C	
	-25 °C to 350 °C	0.14 °C	
	350 °C to 650 °C	0.16 °C	
	650 °C to 1 000 °C	0.21 °C	
Temperature Calibration, Indication and control Equipment used with Thermocouple Type J FO	-210 °C to -100 °C	0.27 °C	
	-100 °C to -30 °C	0.16 °C	
	-30 °C to 150 °C	0.14 °C	
	150 °C to 760 °C	0.17 °C	
	760 °C to 1 200 °C	0.23 °C	
Temperature Calibration, Indication and control Equipment used with Thermocouple Type K FO	-200 °C to -100 °C	0.33 °C	
	-100 °C to -25 °C	0.18 °C	
	-25 °C to 120 °C	0.16 °C	
	120 °C to 1 000 °C	0.26 °C	
	1 000 °C to 1 372 °C	0.4 °C	

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Temperature Calibration, Indication and Control Equipment Used with Thermocouple Type L FO	-200 ºC to -100 ºC	0.37 ºC	Electrical Simulation of Thermocouple Output OEM Manual
	-100 ºC to 800 ºC	0.26 ºC	
	800 ºC to 900 ºC	0.17 ºC	
Temperature Calibration, Indication and control Equipment used with Thermocouple Type N FO	-200 ºC to -100 ºC	0.4 ºC	
	-100 ºC to -25 ºC	0.22 ºC	
	-25 ºC to 120 ºC	0.19 ºC	
	120 ºC to 410 ºC	0.18 ºC	
	410 ºC to 1 300 ºC	0.27 ºC	
Temperature Calibration, Indication and control Equipment used with Thermocouple Type R FO	0 ºC to 250 ºC	0.57 ºC	
	250 ºC to 400 ºC	0.35 ºC	
	400 ºC to 1 000 ºC	0.33 ºC	
	1 000 ºC to 1 767 ºC	0.4 ºC	
Temperature Calibration, Indication and control Equipment used with Thermocouple Type S FO	0 ºC to 250 ºC	0.47 ºC	
	250 ºC to 1 000 ºC	0.36 ºC	
	1 000 ºC to 1 400 ºC	0.37 ºC	
	1 400 ºC to 1 767 ºC	0.46 ºC	
Temperature Calibration, Indication and control Equipment used with Thermocouple Type T FO	-250 ºC to -150 ºC	0.63 ºC	
	-150 ºC to 0 ºC	0.24 ºC	
	0 ºC to 120 ºC	0.16 ºC	
	120 ºC to 400 ºC	0.14 ºC	
Temperature Calibration, Indication and Control Equipment Used with Thermocouple Type U FO	-200 ºC to 0 ºC	0.56 ºC	
	0 ºC to 600 ºC	0.27 ºC	
Temperature Calibration, Indication and control Equipment used with RTD Type Pt 395, 100 Ω FO	-200 °C to 800 °C	0.23 °C	Electrical Simulation of RTD Output OEM Manual
Temperature Calibration, Indication and control Equipment used with RTD Type Pt 3926, 100 Ω FO	-200 °C to 630 °C	0.12 °C	
Temperature Calibration, Indication and control Equipment used with RTD Type Pt 3916, 100 Ω FO	-200 °C to 630 °C	0.25 °C	

Industrial Calibration Service (In-Cal)
71 Pine Road, Hudson, NH 03051
Contact Name: Richie Fiore Phone: 603-883-5558

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

Electrical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Temperature Calibration, Indication and control Equipment used with RTD Type Pt 385, 200 Ω [FO]	-200 °C to 630 °C	0.16 °C	Electrical Simulation of RTD Output OEM Manual
Temperature Calibration, Indication and control Equipment used with RTD Type Pt 385, 500 Ω [FO]	-200 °C to 630 °C	0.11 °C	
Temperature Calibration, Indication and control Equipment used with RTD Type Pt 385, 1 000 Ω [FO]	-200 °C to 630 °C	0.23 °C	
Temperature Calibration, Indication and control Equipment used with RTD Type Pt Ni 385, 120 Ω [FO]	-80 °C to 260 °C	0.14 °C	
Temperature Calibration, Indication and control Equipment used with RTD Type Cu 427, 10 Ω [FO]	-100 °C to 260 °C	0.3 °C	
Equipment to Measure Resistance [FO]	Up to 11 Ω	40 µΩ/Ω + 1 mΩ	Multifunction Calibrator OEM Manual
	11 Ω to 33 Ω	30 µΩ/Ω + 1.5 mΩ	
	33 Ω to 110 Ω	28 µΩ/Ω + 1.4 mΩ	
	110 Ω to 330 Ω	28 µΩ/Ω + 2 mΩ	
	330 Ω to 1.1 kΩ	28 µΩ/Ω + 2 mΩ	
	1.1 kΩ to 3.3 kΩ	28 µΩ/Ω + 20 mΩ	
	3.3 kΩ to 11 kΩ	28 µΩ/Ω + 20 mΩ	
	11 kΩ to 33 kΩ	28 µΩ/Ω + 200 mΩ	
	33 kΩ to 110 kΩ	28 µΩ/Ω + 200 mΩ	
	110 kΩ to 330 kΩ	32 µΩ/Ω + 2 Ω	
	330 kΩ to 1.1 MΩ	32 µΩ/Ω + 2 Ω	
	1.1 MΩ to 3.3 MΩ	60 µΩ/Ω + 30 Ω	
	3.3 MΩ to 11 MΩ	130 µΩ/Ω + 50 Ω	
	11 MΩ to 33 MΩ	250 µΩ/Ω + 2.5 kΩ	
	33 MΩ to 110 MΩ	500 µΩ/Ω + 3 kΩ	
	110 MΩ to 330 MΩ	0.3 mΩ/Ω + 100 kΩ	
	330 MΩ to 1 100 MΩ	1.5 mΩ/Ω + 500 kΩ	

Certificate of Accreditation: Supplement

Industrial Calibration Service (In-Cal)

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

Mechanical

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Torque Tools - Wrenches, Drivers, Watches, Limiters, Multipliers [FO]	5 ozf*in to 100 ozf*in 5 lbf*in to 1 000 lbf*in 25 lbf*ft to 250 lbf*ft 250 lbf*ft to 600 lbf*ft	0.9% of Reading + 0.087 ozf*in 1.1% of Reading + 0.15 lbf*in 1% of Reading + 0.01 lbf*ft 0.61% of Reading + 0.73 lbf*ft	Torque Tester IC-ME-5

Thermodynamic

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Equipment to Measure Pneumatic Pressure [FO]	Up to 29 psi 29 psi to 290 psi 290 psi to 2 900 psi	0.011 % + 0.0018 psi 0.0054 % + 0.013 psi 0.0057 % + 0.13 psi	Pressure Calibrator IC-TH-8
Equipment to Measure Hydraulic Pressure [FO]	Up to 5 000 psi 5 000 to 20 000 psi 20 000 to 40 000 psi	0.083 % + 0.56 psi 12 psi 25 psi	Pressure Calibrator IC-TH-8
Equipment to Measure Vacuum [FO]	-14.5 to 0 psi	0.002 psi	Pressure Calibrator IC-TH-8
Temperature Measuring Equipment [FO]	-196 °C to 0 °C 0 °C to 200 °C 200 °C to 1 000 °C	0.045 °C 0.035 °C 2.9 °C	Metrology Well/Bath/Furnace, PRT IC-TH-3
Infrared Thermometers [FO]	35 °C to 500 °C	0.38 % + 0.3 °C	Blackbody IC-TH-16
Equipment to Measure Humidity [FO]	10 % RH to 95 % RH	0.53 % RH	Thunder Scientific 2500 IC-TH-4

Time & Frequency

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Timers/Stopwatches [FO]	Up to 24 hrs	0.058 s/day	Timometer Time Base Method NIST 960-12

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

Mass, Force & Weighing Devices

MEASURED INSTRUMENT, QUANTITY OR GAUGE	RANGE OR NOMINAL DEVICE SIZE AS APPROPRIATE	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	CALIBRATION EQUIPMENT AND REFERENCE STANDARDS USED
Weight [FO]	Up to 2 kg	0.001 1 g	Mass Comparator Class 2 Std. Weights IC-ME-1
	2 kg to 5 kg	0.045 g	
	5 kg to 25 kg	0.29 g	
Analytical Balances[FO]	1 g to 5 000 g	0.000 56 % of Reading + 0.000 23 g	Ultra Class Weights IC-ME-3
Scales [FO]	Up to 600 lbf	0.014 % of Reading + 0.008 lbf	Class F Weights IC-ME-2
Equipment to Measure Force - Compression [FO]	10 lbf to 500 lbf 500 lbf to 2 000 lbf 2 000 lbf to 800 klbf	0.005 3 % of Reading + 0.034 lbf 0.016 % of Reading 0.5 % of Reading	Load Cell IC-ME-11
Equipment to Measure Force - Tension [FO]	10 lbf to 500 lbf 500 lbf to 2 000 lbf	0.005 3 % of Reading + 0.034 lbf 0.016 % of Reading	

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. Example: Outside MicrometerF would mean that the laboratory performs this calibration at its fixed location.

4. The presence of a superscript FO means that the laboratory performs calibration of the indicated parameter both at its fixed location and onsite at customer locations. Example: Outside MicrometerFO would mean that the laboratory performs this calibration at its fixed location and onsite at customer locations.

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

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 inches or millimeters as appropriate to the uncertainty statement.

7. The term Wt represents weight in pounds or grams (including SI multiple and submultiple units) appropriate to the uncertainty statement.