

Laboratory

Regitech Calibration Pvt. Ltd., No. 9, Sathyavani Muthu Street,  
Gandhi Nagar, Avadi, Chennai, Tamil Nadu

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number

CC-2435

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Validity

30.10.2017 to 29.10.2019

Last Amended on 06.12.2017

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability ( $\pm$ )	Remarks
<b><u>ELECTRO-TECHNICAL CALIBRATION</u></b>				
<b>1.</b>	<b>SOURCE</b>			
1.	DC Voltage <sup>#</sup>	0.1mV to 100 mV 100mV to 1V 1V to 1000 V	1.18% to 0.0035% 0.0035% to 0.0015% 0.0015% to 0.0024%	Using Multifunction Calibrator by Direct Method
2.	DC Current <sup>#</sup>	1 $\mu$ A to 100 $\mu$ A 100 $\mu$ A to 100 mA 100 m A to 1A 1A to 20 A	2.33% to 0.040% 0.040% to 0.014% 0.014 % to 0.031% 0.031% to 0.12%	Using Multifunction Calibrator by Direct Method
		20A to 900A	0.58% to 0.36%	Using Current Coil
3.	DC Resistance <sup>#</sup>	1 $\Omega$ to 100 $\Omega$ 100 $\Omega$ to 100 k $\Omega$ 100K $\Omega$ to 1M $\Omega$ 1M $\Omega$ to 100 M $\Omega$ 100M $\Omega$ to 1G $\Omega$	1.16% to 0.02% 0.02% to 0.0045% 0.0045% to 0.0052% 0.0052% to 0.061% 0.061% to 1.79%	Using Multifunction Calibrator by Direct Method
4.	AC Voltage <sup>#</sup>	<b>45 Hz to 1kHz</b> 1mV to 100 mV 100 mV to 1V 1V to 1000V	0.72% to 0.078% 0.078% to 0.027% 0.027% to 0.04%	Using Multifunction Calibrator by Direct Method
		<b>10kHz to 100kHz</b> 30mV to 100 V	1.12% to 0.29%	
		<b>100 kHz to 450 kHz</b> 30 mV to 3 V	1.12% to 0.3%	
5.	AC Current <sup>#</sup>	<b>45Hz to 1kHz</b> 190 $\mu$ A to 1mA 1mA to 300 m A 300 mA to 20 A	0.21% to 0.13% 0.13% to 0.08% 0.08% to 0.2%	Using Multifunction Calibrator by Direct Method

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Program Director

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		<b>50 Hz</b> 20A to 800A  <b>1kHz to 10kHz</b> 30mA to 300 mA 300 m A to 3A  <b>1kHz to 5kHz</b> 1A to 20A	1.2% to 0.93%  1.2% to 0.53% 0.53% to 2.5%  3.5%	Using Current Coil
6.	Frequency <sup>#</sup>	120Hz to 100kHz 100kHz to 2MHz	0.00031% to 0.045% 0.045% to 0.03%	Using Multifunction Calibrator by Direct Method
7.	Capacitance <sup>#</sup>	<b>100 Hz</b> 1 $\mu$ F to 30 $\mu$ F <b>1kHz</b> 0.2 n F to 300 n F	0.4% to 0.6%  6.36% to 0.39%	Using Multifunction Calibrator by Direct Method
8.	AC Power <sup>#</sup>	<b>50Hz</b> 120V/240 V 0.1A to 20A UPF 12W to 4.8 KW	   0.15% to 0.22%	Using Multifunction Calibrator by Direct Method
9.	DC Power <sup>#</sup>	120 V/240 V 0.1A to 20 A 12W to 4.8kW	0.15%	Using Multifunction Calibrator by Direct Method
10.	Temperature Simulation <sup>#</sup>			
	Thermocouple K/J/N Type T Type E Type R/S Type B Type RTD/PRT	(-) 200°C to 1200°C (-) 250°C to 400°C (-) 250°C to 1000°C 0°C to 1760°C 600°C to 1800°C (-) 200°C to 800°C	0.45°C to 0.39°C 0.72°C to 0.17°C 0.57°C to 0.26°C 0.85°C to 0.47°C 0.75°C to 0.68°C 0.08°C to 0.32°C	Using Multifunction Calibrator by Direct Method

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11.	Oscilloscope <sup>#</sup>			
	DC Amplitude <sup>#</sup>	<b>50<math>\Omega</math> Load</b> 5mV to 3V	1.18% to 0.2%	Using Multifunction Calibrator by Direct Method
		<b>1M<math>\Omega</math> Load</b> 5mV to 40V	1.18% to 0.33%	
	AC Amplitude <sup>#</sup>	<b>1 kHz @ 50<math>\Omega</math></b> 5mV to 3Vp-p	1.18% to 0.2%	
		<b>1 kHz @ 1M<math>\Omega</math></b> 5mV to 40Vp-p	1.18% to 0.33%	
Time Marker <sup>#</sup>	20ns to 5s	1.13% to 0.52%		
Band Width <sup>#</sup>	500kHz to 240MHz	6.67%		
II.	<b>MEASURE</b>			
1.	DC Voltage <sup>o</sup>	0.1mV to 100 mV 100mV to 100 V 100V to 1000 V	0.53% to 0.0006% 0.00060% to 0.00064% 0.00064% to 0.0008%	Using 8½ Digital Multimeter By Direct / Comparison
	DC Voltage <sup>*</sup>	100 mV to 1V 1V to 100V 100 V to 1000V	0.0097% to 0.0053% 0.0053% to 0.016% 0.0016% to 0.0062%	Using 6½ Digital Multimeter By Direct / Comparison
2.	DC Current <sup>o</sup>	100 $\mu$ A to 100mA 100mA to 1A 1A to 10A	0.00025% to 0.0041% 0.0041% to 0.02% 0.02% to 0.05%	Using 8½ Digital Multimeter By Direct / Comparison
	DC Current <sup>*</sup>	1mA to 20 mA 20mA to 3A	0.34% to 0.091% 0.091 % to 0.16%	Using 6½ Digital Multimeter By Direct / Comparison

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3.	Resistance <sup>s</sup>	1 $\Omega$ to 100 $\Omega$ 100 $\Omega$ to 1M $\Omega$ 1M $\Omega$ to 100 M $\Omega$ 100 M $\Omega$ to 1G $\Omega$	0.006% to 0.00086% 0.00086% to 0.0013% 0.0013% to 0.025% 0.025% to 0.29%	Using 8½ Digital Multimeter By Direct / Comparison
	Resistance*	1 $\Omega$ to 100 $\Omega$ 100 $\Omega$ to 100k $\Omega$ 100k $\Omega$ to 100 M $\Omega$	1.3% to 0.015% 0.015% to 0.012% 0.012% to 0.92%	Using 6½ Digital Multimeter By Direct / Comparison
4.	AC Voltage <sup>s</sup>	<b>20 Hz to 1 kHz</b> 100mV to 1V 1V to 1000V  <b>1 kHz to 20kHz</b> 1mV to 1000V  <b>20kHz to 100kHz</b> 100 mV to 100V  <b>500 kHz</b> 1V to 3V	0.022% to 0.015% 0.015% to 0.022  2.0% to 0.07%  0.11%  3.5%	Using 8½ Digital Multimeter By Direct / Comparison
	AC Voltages*	<b>50Hz</b> 100mV to 100V 100V to 750V	0.11% to 0.102% 0.102% to 0.11%	Using 6½ Digital Multimeter By Direct / Comparison
	AC High Voltage*	<b>50Hz</b> 2kV to 25kV	0.72kV to 2.59kV	Using HV probe Fluke 80-40K with DMM By Direct / Comparison
5.	AC Current <sup>s</sup>	<b>300Hz to 1kHz</b> 100 $\mu$ A to 1mA 1mA to 10A  <b>1kHz to 5kHz</b> 10 m A to 10A	0.058% to 0.093% 0.093% to 0.12%  0.057% to 0.31%	Using 8½ Digital Multimeter By Direct / Comparison

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6.	AC Current*	50Hz 0.1A to 3.0A	0.6% to 0.24%	Using 6½ Digital Multimeter By Direct / Comparison
7.	Frequency <sup>s</sup>	10Hz to 15MHz	0.00079%	Using 8½ Digital Multimeter By Direct / Comparison
	Frequency*	120Hz to 100kHz	0.48% to 0.012%	Using 6½ Digital Multimeter By Direct / Comparison
8.	Time Interval <sup>s</sup>	10s to 5400s	0.028s to 0.014s	Using 8½ Digital Multimeter By Direct / Comparison
9.	Temperature Simulation <sup>#</sup>			
	Thermocouple			
	K/J/N Type	(-) 200°C to 1370°C	0.033°C to 0.012 °C	Using Black stack by Direct / Comparison Method
	T Type	(-) 250°C to 400°C	0.076°C to 0.057 °C	
	E Type	(-) 250°C to 1000°C	0.053°C to 0.010 °C	
	R/S Type	0°C to 1820°C	0.067°C to 0.042 °C	
B Type	600°C to 1820°C	0.089°C to 0.05°C		
RTD/PRT	(-) 200°C to 800°C	0.0012°C to 0.059°C		

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<b><u>MECHANICAL CALIBRATION</u></b>				
<b>1.</b>	<b>PRESSURE INDICATING DEVICES</b>			
	<b>Hydraulic Pressure</b>			
<b>1.</b>	Pressure Gauges (Digital/Analogue), Transducers/ Transmitters with Indicator <sup>\$</sup>	6 bar to 60 bar 60 bar to 1200 bar	0.22 % rdg 0.34% rdg	Using Hydraulic Dead Weight Tester based on DKD-R6-1
<b>2.</b>	Pressure Gauges (Digital/Analogue), Transducers/ Transmitters with Indicator <sup>#</sup>	0 bar to 700 bar	1.35% rdg	Using Digital Pressure Gauge and Hydraulic Comparator based on DKD-R6-1
	<b>Pneumatic Pressure</b>			
<b>3.</b>	Pressure Gauges (Digital/Analogue), Differential Pressure/ Transducers/ Transmitters with Indicator, Manometer <sup>\$</sup>	0 to 10 kPa	5.78 % rdg	Digital Pressure Manometer with low pressure pump based on DKD-R6-1
<b>4.</b>	Pressure/ Vacuum Gauges (Digital/ Analogue), Transducer/ Transmitters with Indicator <sup>#</sup>	0 to (-) 0.90 bar 0 to 20 bar	2.38 % rdg 0.39 % rdg	Using Digital Compound Gauge based on DKD-R6- 1

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II.	UTM, TENSION CREEP AND TORSION TESTING MACHINE			
1.	Verification of Class '0.5' Uniaxial Testing Machines (UTM/TTM and CTM)* Compression	10 N to 500 kN	0.61 %	Using Class '0.5' Force Proving Instrument (Load Cell) and Digital Indicator as per IS 1828 (Part 1): 2015
	Tension	10 N to 50 kN 100 N to 500 kN	0.61 %	

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<b><u>THERMAL CALIBRATION</u></b>				
<b>I.</b>	<b>TEMPERATURE</b>			
1.	Digital Thermometer/ Temp. Gauge RTD & Thermocouple with/ Without Indicator/ Data Logger/ Recorder, Temperature Transmitter, Thermistor with Indicator <sup>#</sup>	(-) 30 °C to 0 °C 0 °C to 150 °C 150 °C to 600 °C  600 °C to 1200 °C	0.064 °C 0.38 °C 0.60 °C  1.94 °C	Using PRT Sensor with Black stack 6½ Digital Multimeter By Comparison method Liquid baths & Dry Block Calibrators  Using S-TYPE Thermocouple with Black stack Comparison method Dry Block Calibrators
2.	Temperature Indicator With Sensor of Freezers, Ovens, Furnaces <sup>*</sup>	50 °C to 400 °C  250 °C to 1000 °C	50 °C to 400 °C 1.63 °C  250 °C to 1000 °C 2.4 °C	Using PRT Sensor with Black stack / 6½ Digital Multimeter By Comparison method  Using PRT Sensor & S- Type Thermocouple with Black stack / 6½ Digital Multimeter By Comparison method

\* Measurement Capability is expressed as an uncertainty ( $\pm$ ) at a confidence probability of 95%

<sup>§</sup> Only in Permanent Laboratory

<sup>^</sup> Only for Site Calibration

<sup>#</sup> The laboratory is also capable for site calibration however, the uncertainty at site depends on the prevailing actual environmental conditions and master equipment used.

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