

Laboratory Perfect Instrumentation Systems and Controls, C-5, 1st Floor,
Classic Arcade, Ambad Link Road, Nashik, Maharashtra

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number CC-2488 (in lieu of C-1301 & C-1302) **Page** 1 of 3

Validity 21.12.2017 to 20.12.2019 **Last Amended on** -

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
<u>ELECTRO-TECHNICAL CALIBRATION</u>				
I.	SOURCE			
1.	DC Voltage [#]	1 mV to 100 mV 100 mV to 1 V 1 V to 12 V	0.75 % to 0.20 % 0.20 % to 0.75 % 0.75 % to 0.5 %	Using Masibus Calibrator Model MC 12 by Direct Method
2.	DC Current [#]	1 mA to 24 mA	0.63 % to 0.24 %	Using Masibus Calibrator Model MC 12 by Direct Method
3.	Frequency [#]	10 Hz to 10 kHz	0.07 % to 0.01 %	Using Masibus Calibrator Model MC 12 by Direct Method
4.	Resistance [#]	1 Ω to 4000 Ω	2.41 % to 0.7 %	Using Masibus Calibrator Model MC 12 by Direct Method
5.	Temperature Simulation [#]			
	RTD (PT-100)	(-) 200 °C to 800 °C	0.5 °C	Using Masibus Calibrator Model MC 12 by Direct Method
	Thermocouple			
	J Type	(-) 200 °C to 760 °C	0.65 °C	
	K Type	(-) 200 °C to 1200 °C	0.65 °C	
	R Type	300 °C to 1700 °C	1 °C	
	S Type	300 °C to 1700 °C	1 °C	
	N Type	0 to 1300 °C	0.85 °C	
II.	MEASURE			
1.	DC Voltage [#]	1 mV to 100 mV 100 mV to 10 V 10 V to 800 V	0.75 % to 0.05 % 0.05 % to 0.06 % 0.06 % to 0.07 %	Using Tektronix 6 1/2 DMM Model 4050 by Direct Method

Vishal Shukla
Convenor

Avijit Das
Program Director

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Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
2.	DC Current [#]	1 mA to 100 mA 100 mA to 1 A 1 A to 10 A	0.7 % to 0.08 % 0.08 % to 0.1 % 0.1 % to 0.34 %	Using Tektronix 6 ½ DMM Model 4050 by Direct Method
3.	Frequency [#]	5 Hz to 10 kHz 10 kHz to 1 MHz	0.18 % to 0.06 % 0.06 % to 0.09 %	Using Tektronix 6 ½ DMM Model 4050 by Direct Method
4.	Resistance [#]	10 Ω to 100 Ω 100 k Ω to 500 k Ω	1.10 % to 0.7 % 0.7 %	Using Tektronix 6 ½ DMM Model 4050 by Direct Method
5.	Temperature Simulation [#]			Using Masibus Calibrator Model MC 12 by Direct Method
	RTD (PT-100)	(-) 200 °C to 800°C	0.5 °C	
	Thermocouple			
	J Type	(-) 200 °C to 760°C	0.7 °C	
	K Type	(-) 200 °C to 1200°C	0.7 °C	
	R Type	300 °C to 1700°C	1 °C	
	S Type	300 °C to 1700°C	1 °C	
	N Type	0 to 1300°C	0.85 °C	
6.	AC Voltage [#]	10 V to 100 V 100 V to 650 V	0.59 % to 0.13 % 0.13 % to 0.14 %	Using Tektronix 6 ½ DMM Model 4050 by Direct Method
7.	AC Current [#]	1 mA to 100 mA 100 mA to 1 A 1 A to 10 A	0.21 % to 0.12 % 0.12 % to 1.17 % 1.17 % to 1.19 %	Using Tektronix 6 ½ DMM Model 4050 by Direct Method
8.	Time Interval [#]	60 Sec to 3600 Sec	0.16 Sec to 2.52 Sec	Using Racer Stop Watch by Comparison Method

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Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
<u>THERMAL CALIBRATION</u>				
I.	TEMPERATURE			
1.	RTD Sensor/ Thermocouple Sensor with and without Indicator, Analogue Temperature Gauge [§]	50 °C to 400 °C	1.86 °C	Using RTD Pt 100 Sensor with Indicator and Temperature Source By Comparison Method Using DKD R 6-5
2.	Thermocouple Sensor with and without Indicator [§]	400 °C to 1000 °C	2.86 °C	Using S Type Thermocouple with Universal Calibrator (Masibus) and Temperature Source By Comparison Method Using IEC 584.2
3.	Oven & Muffle Furnace, Pit furnace [*]	200 °C to 1000 °C	11.83 °C	Using Multi Sensor k Type Thermocouple with Data Logger By Comparison Method Using DKD R 6-5

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

[§] Only in Permanent Laboratory

^{*} Only for Site Calibration

[#] 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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