



National Accreditation Board for Testing and Calibration Laboratories

(A Constituent Board of Quality Council of India)



CERTIFICATE OF ACCREDITATION

KRISHNA INSTRUMENTS

has been assessed and accredited in accordance with the standard

ISO/IEC 17025:2005

"General Requirements for the Competence of Testing & Calibration Laboratories"

for its facilities at

"OM", 5B Gopal Nagar, Dhebar Road, Rajkot, Gujarat

in the field of

CALIBRATION

Certificate Number CC-2381 (in lieu of C-0670)

Issue Date 21/07/2017

Valid Until 20/07/2019

This certificate remains valid for the Scope of Accreditation as specified in the annexure subject to continued satisfactory compliance to the above standard & the relevant requirements of NABL.

(To see the scope of accreditation of this laboratory, you may also visit NABL website www.nabl-india.org)

Signed for and on behalf of NABL

Avijit Das
Program Director



89076970200020000092

Anil Relia
Chief Executive Officer



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SCOPE OF ACCREDITATION

Laboratory Krishna Instruments, "OM", 5B Gopal Nagar, Dhebar Road, Rajkot, Gujarat

Accreditation Standard ISO/IEC 17025: 2005

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Validity 21.07.2017 to 20.07.2019 **Last Amended on** 18.09.2017

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
<u>ELECTRO-TECHNICAL CALIBRATION</u>				
I.	SOURCE			
1.	DC Voltage [#]	1 mV to 200 mV 200 mV to 300 V 300 to 1000 V	1.4 % to 0.02 % 0.02 % to 0.015 % 0.015 % to 0.02 %	Using Fluke Multifunction Calibrator by Direct Method
2.	DC Current [#]	10 μ A to 300 mA 300 mA to 10 A	1.24 % to 0.07 % 0.07 % to 0.32 %	Using Fluke Multifunction Calibrator by Direct Method
3.	AC Voltage [#]	50 Hz & 60 Hz 30 mV to 300 mV 0.3 V to 3 V 3 V to 30 V 30V to 1000 V	0.7 % to 0.2 % 0.2 % to 0.13 % 0.13 % to 0.15 % 0.15 % to 0.2 %	Using Fluke Multifunction Calibrator by Direct Method
4.	AC Current [#]	50 Hz & 60 Hz 1 mA to 200 mA 1 A to 10 A 10 A to 100 A	0.29 % to 0.1 % 0.1 % to 0.08 % 0.08 %	Using MECO Calibrator by Direct Method
5.	AC Power [#] 1 ϕ	50 Hz & 60 Hz 300 & 480 VAC 1A to 100 A 0.2 PF to UPF (Lead / Lag) 300 W to 48 kW	0.35 % to 0.12 %	Using MECO Calibrator / Fluke Multifunction Calibrator by Direct Method
6.	Power factor [#]	50 Hz 0.2 PF to UPF	0.002 PF	Using MECO Calibrator by Direct Method

Sangeeta Kunwar
Convenor

Avijit Das
Program Director



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Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
7.	Resistance [#] (2W)	0.001 Ω to 10 Ω	6 %	Using High Precision Decade Box by Direct Method
		10 Ω to 190 Ω 190 Ω to 190 k Ω 190 k Ω to 190 M Ω	0.17 % to 0.05 % 0.05 % to 0.1 % 0.1 % to 1.16 %	Using Multifunction Calibrator (Discrete Values in Steps of 1-1.9-10 Ohm) by Direct Method
8.	High Resistance [#] (For Insulation Tester)	1 M Ω to 10 G Ω	0.6 % to 5.8 %	Using Decade Mega ohm Box by Direct Method
9.	Frequency [#]	10 Hz to 50 kHz	0.56 % to 0.03 %	Using GE Druck Multifunctional Calibrator by Direct Method
10.	Temperature Simulation (Calibration of Temperature Indicator, Controller, Recorder) [#]			
	Thermocouple			
	J Type	(-) 140 $^{\circ}$ C to 1200 $^{\circ}$ C	0.39 $^{\circ}$ C	Using GE Druck Multifunctional Calibrator by Direct Method
	K Type	(-) 200 $^{\circ}$ C to 1300 $^{\circ}$ C	0.6 $^{\circ}$ C	
T Type	(-) 50 $^{\circ}$ C to 400 $^{\circ}$ C	0.5 $^{\circ}$ C		
R Type	10 $^{\circ}$ C to 1760 $^{\circ}$ C	1.6 $^{\circ}$ C		
	RTD (Pt 100)	(-) 200 $^{\circ}$ C to 760 $^{\circ}$ C	0.15 $^{\circ}$ C	
II.	MEASURE			
1.	DC Voltage [#]	1 mV to 100 mV	0.41 % to 0.01%	Using Fluke 6 $\frac{1}{2}$ Digital Multimeter by Direct Method
		100 mV to 1 V	0.01 %	
		1 V to 1000 V	0.01 % to 0.05 %	

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Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
2.	AC Voltage [#]	50 Hz & 60 Hz 20 mV to 100 mV 100 mV to 1 V 1 V to 1000 V	0.31 % to 0.11 % 0.11 % 0.11 % to 0.12 %	Using Fluke 6½ Digital Multimeter by Direct Method
3.	AC Current [#]	50 Hz & 60 Hz 29 µA to 400 mA 400 mA to 10 A	0.29 % to 0.25 % 0.25 % to 0.4 %	Using Fluke 6½ Digital Multimeter by Direct Method
		10 A to 100 A	0.3 % to 0.06 %	Using Power Std. by Direct Method
4.	AC Active Power/ Energy [#] (1Φ)	50Hz & 60 Hz 230 V 1 A to 100 A UPF 230 W to 1.15 kW	0.1 % to 0.8 %	Using Power Std. WS 2320A by Direct Method
5.	DC Current [#]	10 µA to 400 mA 2 A to 10 A	0.35 % to 0.064 % 0.064 % to 0.2 %	Using Fluke Multi meter by Direct Method
6.	Resistance [#]	100 mΩ to 10 Ω 10 Ω to 100 MΩ 100 MΩ to 1 GΩ	3.5 % to 0.05 % 0.05 % to 0.94 % 0.94 % to 2.35 %	Using Fluke Multi meter by Direct Method
7.	Frequency [#]	10 Hz to 1 kHz	0.03 % to 0.013 %	Using GE Druck Multifunctional Calibrator by Direct Method
8.	Timer [#]	10 s to 120 min	0.13 s to 0.52 s	Using Autonics (CT6M-I) by Comparison Method

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Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
9.	Temperature Simulation (Calibration of Temperature Indicator, Controller, Recorder) [#]			
	Thermocouple			Using GE Druck Multifunctional Calibrator by Direct Method
	J Type	(-) 140 °C to 1200°C	0.39 °C	
	K Type	(-) 200 °C to 1300°C	0.6 °C	
	T Type	(-) 50 °C to 400°C	0.5 °C	
	R Type	10 °C to 1760°C	1.3 °C	
	RTD Pt 100 Auto Ohms	(-) 200 °C to 760°C	0.14 °C	
10.	DC Capacitance [#]	1 nF to 100 μ F 100 μ F to 1 mF	5.2 % to 1.9 % 1.9 %	Using Fluke Multimeter by Direct Method

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Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
<u>FLUID FLOW CALIBRATION</u>				
I.	FLOW MEASURING DEVICES			
1.	Digital or Analog Water Flow Meter* (Fitted on Pipe Size DN 15 to DN 65)	0.782 m ³ /hr to 108 m ³ /hr	2.99 % to 4.73 %	Using Ultra Sonic Flow Meter & Clamp on Sensors by Comparison Method
2.	Digital Or Analog Water Flow Meter* (Fitted on Pipe Size DN 50 to DN 300)	36.5 m ³ /hr to 450 m ³ /hr	5.8 % to 2.07 %	Using Ultra Sonic Flow Meter & Clamp on Sensors by Comparison Method

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

*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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