



CC-2634

CALIBRATION CERTIFICATE

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Godrej & Boyce Mfg. Co. Ltd., Calibration Services, Plant 18 B, 1st Floor, Pirojshanagar, Vikhroli, Mumbai - 400079. Dir.: +91-22-67965914-13

FR-QT-21

Certificate No. : M-240109-1-1 ULR No.: CC26342400000611F

Date of Calibration : 09-Jan-24 Date of Issue : 10-Jan-24

Recom. Due Date : 09-Jan-25

Customer Details :
 NATIONAL CENTRE FOR QUALITY CALIBRATION
 4, Abhishree Corporate Park, Nr. Swagat Bungalows BRTS,
 AMBLI ROAD AMBLI AHMEDABAD Ahmedabad
 Gujarat India-380001.

Calibrated at : Lab
 Date of Receipt : 09-Jan-24
 Cond. On Receipt : Satisfactory
 Receipt No. : M-240109-1

Details of Under Calibration instrument

Name : 6.5 Digit Multimeter	Make : Fluke
Model : 8846A	Sr. No. : 1086005
I.D. No. : NCQC/E-04	Range : As Per Report
L.C. : As Per Report	

Details of Master Equipment

Name	ID No./Sr. No.	Valid Upto	Traceability
Reference Multimeter(8508A)	LQE090/221965838	05-Dec-24	ETDC,Bangalore
Multifunction Calibrator(5720A)	LQE091/2216202	05-Dec-24	ETDC,Bangalore
Multi-Product Calibrator(5522A)	LQE311/5949905	19-Oct-24	Godrej & Boyce, Mumbai
Standard Resistor (1GΩ)	LQE129/221966171	21-Nov-24	ETDC,Bangalore

Work Instruction No. : WI-ET-04,15,18,20

Environmental Details :
 Temperature : 24.1°C
 Relative Humidity : 57%RH

REMARK :

1. Calibration Points are taken as per Customer's Request.
2. Discipline : Electro-Technical, Group : Direct Current, Alternating Current < 1 GHz, Time & Frequency, Temperature Simulation.

AUTHORIZED SIGNATORY : Asmita Parab
 DESIGNATION : Sr. Calibration Officer
 CALIBRATED BY : Lab Engineer : Ravi R Poojary

NCQC Valid up to 09/01/2025 Reviewed [Signature]



NCQC System Certificate No. 43

Validity unknown Digitally signed by DS/MS GODREJ AND BOYCE MFG CO LTD Date: 2024.01.10 15:36:17 +05:30 Reason: Calibration Certificate Location: Mumbai

NCQC Valid up to 09-01-2025 Reviewed

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NCQC System Certificate No. 43



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CALIBRATION CERTIFICATE

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Godrej & Boyce Mfg. Co. Ltd., Calibration Services, Plant 3B 6, 1st Floor, Pirojshanagar, Vikhroli, Mumbai - 400079, Dir.: +91-22-67965914-38

FR-QT-21
Certificate No.:M-240109-1-1

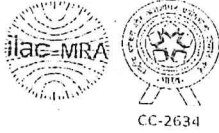
ULR No.:CC263-42-4000006111

Range		UUC Reading	Standard Reading	Error in Unit	Measurement Uncertainty (±)	Coverage Factor @ C.I 95.45 (k)
DC Voltage (Measure)	100mV	-99.9989 mV	-100.00000 mV	0.00110	0.0019 %	2
		0.9999 mV	1.00000 mV	-0.00010	0.0475 %	2
		10.0000 mV	10.00000 mV	0.00000	0.0056 %	2
		50.0012 mV	50.00000 mV	0.00120	0.0019 %	2
		100.0024 mV	100.00000 mV	0.00240	0.0019 %	2
DC Voltage (Measure)	1V	-0.999999 V	-1.0000000 V	0.0000010	0.0008 %	2
		0.100001 V	0.1000000 V	0.00000100	0.0019 %	2
		0.500002 V	0.5000000 V	0.0000020	0.0009 %	2
		1.000002 V	1.0000000 V	0.0000020	0.0008 %	2
DC Voltage (Measure)	10V	-10.00002 V	-10.000000 V	-0.000020	0.0007 %	2
		1.00000 V	1.0000000 V	0.0000000	0.0010 %	2
		5.00001 V	5.000000 V	0.000010	0.0007 %	2
		10.00003 V	10.000000 V	0.000030	0.0007 %	2
DC Voltage (Measure)	100V	-100.0002 V	-100.00000 V	-0.00020	0.0008 %	2
		9.9999 V	10.000000 V	-0.000100	0.0008 %	2
		49.9999 V	50.00000 V	-0.00010	0.0008 %	2
		100.0000 V	100.00000 V	0.00000	0.0008 %	2
DC Voltage (Measure)	1000V	-1,000.002 V	-1,000.0000 V	-0.0020	0.0009 %	2
		100.000 V	100.00000 V	0.00000	0.0010 %	2
		500.000 V	500.0000 V	0.0000	0.0010 %	2
		1,000.002 V	1,000.0000 V	0.0020	0.0009 %	2
AC Voltage (Measure)	100mV @ 50 Hz	1.0045 mV	1.000000 mV	0.004500	0.4760 %	2
		9.9988 mV	10.00000 mV	-0.00120	0.0579 %	2
		49.9937 mV	50.0000 mV	-0.0063	0.0272 %	2
	100mV @ 1k Hz	99.9905 mV	100.0000 mV	-0.0095	0.0200 %	2
		99.9916 mV	100.0000 mV	-0.0084	0.0200 %	2
AC Voltage (Measure)	1V @ 50 Hz	0.999962 V	0.1000000 V	-0.0000380	0.0200 %	2
		0.499944 V	0.5000000 V	-0.000056	0.0086 %	2
	1V @ 1kHz	0.999905 V	1.000000 V	-0.000095	0.0079 %	2
		0.999911 V	1.000000 V	-0.000089	0.0079 %	2
AC Voltage (Measure)	10V @ 50 Hz	0.99966 V	1.000000 V	-0.000340	0.0079 %	2
		4.99924 V	5.000000 V	-0.00076	0.0090 %	2
	10V @ 1k Hz	9.99845 V	10.00000 V	-0.00153	0.0086 %	2
		9.99851 V	10.00000 V	-0.00149	0.0086 %	2

Godrej & Boyce Mfg. Co. Ltd.

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Godrej & Boyce Mfg. Co. Ltd.
 Calibration Section
 Pirojshanagar, Vikhroli,
 Mumbai - 400079
 Dir: +91-22-6796511/111

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FR-QT-21
 Certificate No.:M-240109-1-1

ULR No.:CC2634-40000006111

Range		UUC Reading	Standard Reading	Error in Unit	Measurement Uncertainty (±)	Coverage Factor = C1 / 95.45 (k)
AC Voltage (Measure)	100V @ 50Hz	9.9966 V	10.00000 V	-0.00340	0.0086 %	2
		49.9895 V	50.0000 V	-0.0105	0.0098 %	2
	100V @ 1kHz	99.9805 V	100.0000 V	-0.0195	0.0092 %	2
		99.9819 V	100.0000 V	-0.0181	0.0092 %	2
AC Voltage (Measure)	1000V @ 50Hz	99.968 V	100.0000 V	-0.0320	0.0093 %	2
		499.919 V	500.000 V	-0.081	0.0166 %	2
	1000V @ 1kHz	999.772 V	1,000.000 V	-0.228	0.0164 %	2
		999.807 V	1,000.000 V	-0.193	0.0164 %	2
DC Current (Measure)	100µA	-100.0059 µA	-100.0000 µA	-0.0059	0.0117 %	2
		10.0068 µA	10.0000 µA	0.0068	0.0900 %	2
		50.0054 µA	50.0000 µA	0.0054	0.0186 %	2
		100.0005 µA	100.0000 µA	0.0005	0.0117 %	2
DC Current (Measure)	1mA	-1.000016 mA	-1.000000 mA	-0.000016	0.0050 %	2
		0.100009 mA	0.1000000 mA	0.0000090	0.0117 %	2
		0.500023 mA	0.500000 mA	0.000023	0.0058 %	2
		1.000027 mA	1.000000 mA	0.000027	0.0050 %	2
DC Current (Measure)	10mA	-9.99752 mA	-10.00000 mA	0.00248	0.0047 %	2
		1.00051 mA	1.000000 mA	0.000510	0.0050 %	2
		4.99972 mA	5.00000 mA	-0.00028	0.0051 %	2
		9.99848 mA	10.00000 mA	-0.00152	0.0047 %	2
DC Current (Measure)	100mA	-99.9762 mA	-100.0000 mA	0.0238	0.0062 %	2
		9.9982 mA	10.00000 mA	-0.00180	0.0047 %	2
		49.9888 mA	50.0000 mA	-0.0112	0.0070 %	2
		99.9763 mA	100.0000 mA	-0.0237	0.0062 %	2
DC Current (Measure)	400mA	-399.894 mA	-400.000 mA	0.106	0.0129 %	2
		39.989 mA	40.0000 mA	-0.0110	0.0075 %	2
		199.954 mA	200.0000 mA	-0.0460	0.0060 %	2
		399.893 mA	400.000 mA	-0.107	0.0129 %	2
DC Current (Measure)	1A	-1.000023 A	-1.000000 A	-0.000023	0.0109 %	2
		0.100048 A	0.1000000 A	0.0000480	0.0062 %	2
		0.500052 A	0.500000 A	0.000052	0.0122 %	2
		1.000028 A	1.000000 A	0.000028	0.0109 %	2
DC Current (Measure)	3A	-2.99991 A	-3.0000 A	0.00009	0.1010 %	2
		0.30007 A	0.300000 A	0.000070	0.0607 %	2
		1.50006 A	1.50000 A	0.00006	0.0760 %	2
		2.99967 A	3.0000 A	-0.00033	0.1010 %	2
DC Current (Measure)	10A	-9.99906 A	-10.0000 A	0.00094	0.0895 %	2
		1.00004 A	1.00000 A	0.00004	0.0770 %	2
		4.99943 A	5.0000 A	-0.00057	0.0944 %	2
		9.99932 A	10.0000 A	-0.00068	0.0895 %	2

Godrej & Boyce Mfg. Co. Ltd.

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Godrej & Boyce Mfg. Co. Ltd.,
Calibration Service, Plant 18 B, 1st Floor,
Pirojshanagar, Vikhroli,
Mumbai - 400079.
Dist. No. 191-22-67965914-18

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FR-QT-21
Certificate No.:M-240109-1-1

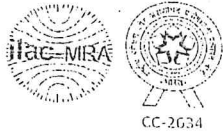
ULR No.:CC26342-000000611F

Table with 7 columns: Range, UUC Reading, Standard Reading, Error in Unit, Measurement Uncertainty (±), Coverage Factor or C.I. 95.45 (k). Rows include AC Current (Measure) at various ranges (100µA to 10A) and RTD Pt 385, 100 Ω Measure at -200°C to 800°C.

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Godrej & Boyce Mfg. Co. Ltd.
 Calibration Service
 Plot No. 185, 1st Floor,
 Pirojshanagar, Vikhroli,
 Mumbai - 400079
 Tel: +91-22-67965914-15

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FR-QT-21
 Certificate No.:M-240109-1-1

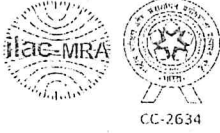
ULR No.:CC263424C00000611F

Range	UUC Reading	Standard Reading	Error in Unit	Measurement Uncertainty (±)	Coverage Factor @ C.I. 95.45 (k)	
Frequency (Measure)	10Hz to 1000kHz	10.00001 Hz	10.00 Hz	0.00001	0.1200 %	2
		40.0000 Hz	40.00 Hz	0.0000	0.1200 %	2
		49.9999 Hz	50.00 Hz	-0.0001	0.1200 %	2
		99.9999 Hz	100.00 Hz	-0.0001	0.1200 %	2
		499.999 Hz	500.0 Hz	-0.001	0.1200 %	2
		1.000001 kHz	1.0000 kHz	0.000001	0.1200 %	2
		2.99998 kHz	3.000 kHz	-0.00002	0.1200 %	2
		4.99997 kHz	5.000 kHz	-0.00003	0.1200 %	2
		9.99995 kHz	10.000 kHz	-0.00005	0.1200 %	2
		99.9995 kHz	100.00 kHz	-0.0005	0.1200 %	2
		499.997 kHz	500.0 kHz	-0.003	0.1200 %	2
999.995 kHz	1,000.0 kHz	-0.005	0.1200 %	2		
Resistance (Measure)	10Ω - 4 wire	0.99994 Ω	0.9998171 Ω	0.0001229	0.0120 %	2
		1.89982 Ω	1.8999518 Ω	-0.0001318	0.0111 %	2
		9.99929 Ω	9.997855 Ω	0.001435	0.0030 %	2
Resistance (Measure)	100Ω - 4 wire	9.9950 Ω	9.997855 Ω	-0.002855	0.0030 %	2
		18.9954 Ω	18.996737 Ω	-0.001337	0.0030 %	2
		100.0035 Ω	99.99618 Ω	0.00732	0.0013 %	2
Resistance (Measure)	1kΩ - 4 wire	0.100004 kΩ	0.09999618 kΩ	0.00000782	0.0014 %	2
		0.189999 kΩ	0.18999344 kΩ	0.00000556	0.0013 %	2
		0.999999 kΩ	0.9999774 kΩ	0.0000216	0.0011 %	2
Resistance (Measure)	10kΩ - 4 wire	0.99999 kΩ	0.9999774 kΩ	0.0000126	0.0013 %	2
		1.89997 kΩ	1.8999574 kΩ	0.0000126	0.0012 %	2
		9.99986 kΩ	9.999642 kΩ	0.000218	0.0011 %	2
Resistance (Measure)	100kΩ - 4 wire	9.9998 kΩ	9.999642 kΩ	0.000158	0.0013 %	2
		18.9988 kΩ	18.998503 kΩ	0.000297	0.0012 %	2
		100.0018 kΩ	100.00065 kΩ	0.00115	0.0014 %	2
Resistance (Measure)	1MΩ - 4 wire	0.100002 MΩ	0.10000065 MΩ	0.00000135	0.0015 %	2
		0.189987 MΩ	0.18998361 MΩ	0.00000339	0.0014 %	2
		0.999962 MΩ	0.9999582 MΩ	0.0000038	0.0030 %	2
Resistance (Measure)	10MΩ - 4 wire	1.00000 MΩ	0.9999582 MΩ	0.0000418	0.0030 %	2
		1.89996 MΩ	1.8998802 MΩ	0.0000798	0.0030 %	2
		9.99903 MΩ	9.999065 MΩ	-0.000035	0.0050 %	2
Resistance (Measure)	100MΩ - 4 wire	10.0003 MΩ	9.999065 MΩ	0.001235	0.0050 %	2
		19.0024 MΩ	19.000109 MΩ	0.002291	0.0060 %	2
		100.0009 MΩ	100.02343 MΩ	-0.02253	0.0130 %	2
Resistance (Measure)	1000MΩ - 4 wire	999.009 MΩ	1000.242 MΩ	-1.233	0.0340 %	2
Resistance (Measure)	10Ω - 2 wire	1.00036 Ω	0.9998171 Ω	0.0005429	0.0120 %	2
		1.90048 Ω	1.8999518 Ω	0.0005282	0.0111 %	2
		10.0014 Ω	9.997855 Ω	0.003545	0.0030 %	2
Resistance (Measure)	100Ω - 2 wire	10.0012 Ω	9.997855 Ω	0.003345	0.0030 %	2
		19.0008 Ω	18.996737 Ω	0.004063	0.0030 %	2
		99.9994 Ω	99.99618 Ω	0.00322	0.0013 %	2

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 Calibration Services, Plant 18 B, 1st Floor,
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FR-QT-21
 Certificate No.:M-240109-1-1

ULR No.:CC26342-4C0000061 HF

Range	UUC Reading	Standard Reading	Error in Unit	Measurement Uncertainty (%)	Coverage Factor @ C.I 95.45 (k)
Resistance (Measure) 1kΩ - 2 wire	0.100002 kΩ	0.09999618 kΩ	0.00000582	0.0014 %	2
	0.189998 kΩ	0.18999344 kΩ	0.00000456	0.0013 %	2
	0.999998 kΩ	0.9999774 kΩ	0.0000206	0.0011 %	2
Resistance (Measure) 10kΩ - 2 wire	1.00003 kΩ	0.9999774 kΩ	0.0000526	0.0013 %	2
	1.90001 kΩ	1.8999574 kΩ	0.0000526	0.0012 %	2
	9.99988 kΩ	9.999642 kΩ	0.000238	0.0011 %	2
Resistance (Measure) 100kΩ - 2 wire	10.0004 kΩ	9.999642 kΩ	0.000758	0.0013 %	2
	18.9991 kΩ	18.998503 kΩ	0.000597	0.0012 %	2
	100.0029 kΩ	100.00065 kΩ	0.00225	0.0014 %	2
Resistance (Measure) 1MΩ - 2 wire	0.100003 MΩ	0.10000065 MΩ	0.00000235	0.0015 %	2
	0.189987 MΩ	0.18998361 MΩ	0.00000339	0.0014 %	2
	0.999965 MΩ	0.9999582 MΩ	0.0000068	0.0030 %	2
Resistance (Measure) 10MΩ - 2 wire	1.00001 MΩ	0.9999582 MΩ	0.0000518	0.0030 %	2
	1.89996 MΩ	1.8998802 MΩ	0.0000798	0.0030 %	2
	9.99908 MΩ	9.999065 MΩ	0.000015	0.0050 %	2
Resistance (Measure) 100MΩ - 2 wire	10.0004 MΩ	9.999065 MΩ	0.001335	0.0050 %	2
	19.0025 MΩ	19.000109 MΩ	0.002391	0.0060 %	2
	100.0055 MΩ	100.02343 MΩ	-0.01793	0.0130 %	2
Resistance (Measure) 1000MΩ - 2 wire	999.586 MΩ	1000.242 MΩ	-0.656	0.0340 %	2
Capacitance (Measure) 1nF	1.002 nF	1.0000 nF	0.0020	1.9000 %	2
Capacitance (Measure) 10nF	1.05 nF	1.0000 nF	0.0500	1.9000 %	2
	5.02 nF	5.000 nF	0.020	0.5590 %	2
	9.99 nF	10.000 nF	-0.010	0.4500 %	2
Capacitance (Measure) 100nF	10.1 nF	10.000 nF	0.100	0.7260 %	2
	50.1 nF	50.00 nF	0.10	0.5590 %	2
	100.1 nF	100.00 nF	0.10	0.4500 %	2
Capacitance (Measure) 1μF	0.100 μF	0.10000 μF	0.00000	0.7260 %	2
	0.500 μF	0.50000 μF	0.0000	0.5590 %	2
	1.000 μF	1.00000 μF	0.0000	0.4500 %	2
Capacitance (Measure) 10μF	1.00 μF	1.0000 μF	0.0000	0.7260 %	2
	5.00 μF	5.000 μF	0.000	0.5590 %	2
	10.01 μF	10.000 μF	0.010	0.4500 %	2
Capacitance (Measure) 100μF	10.0 μF	10.000 μF	0.000	0.7260 %	2
	50.0 μF	50.00 μF	0.00	0.7790 %	2
	100.1 μF	100.00 μF	0.10	0.6610 %	2
Capacitance (Measure) 1mF	0.100 mF	0.10000 mF	0.00000	0.8760 %	2
	0.500 mF	0.5000 mF	0.0000	0.7790 %	2
	1.011 mF	1.0000 mF	0.0110	0.6610 %	2
Capacitance (Measure) 10mF	1.01 mF	1.0000 mF	0.0100	0.8760 %	2

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Calibration Services, Plant 18 B, 1st Floor,
Pirojshanagar, Vikhroli,
Mumbai - 400079.
Dir.: +91 22-67965914-43

FR-QT-21

Certificate No.:M-240109-1-1

ULR:CC26342400000611F

Remarks:

1. Equipment used for calibration were calibrated & traceable to National & International Standards.
2. This report refers only to particular item (s) submitted for calibration.
3. Godrej Calibration Services is not liable for any change in calibration data & performance specifications on account of malfunctioning of Standards / Instruments / Equipment covered by this report due to damage caused to it after issuance of this report.
4. The calibration results reported are valid at the time of and under the stated conditions of the measurements.
5. The Certificate should not be reproduced except in full without the prior permission from Godrej Calibration Service.
6. Satisfactory calibration report in no ways implies that the equipment calibrated is approved by NABL.
7. All precautions have been taken for any error or omission while calibrating the instruments and issuing this certificate. However Godrej Calibration Services shall not be liable for any loss or liability that may arise to any party in this regards.
8. Readings given are average of 3 Measurements.
9. The reported Expanded Uncertainty is calculated at 95.45 % Confidence level with coverage factor $k=2$.

----- End Of Certificate -----

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Godrej & Boyce Mfg. Co. Ltd.

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