



CC - 3385

ZEAL MANUFACTURING AND CALIBRATION SERVICES PRIVATE LIMITED

S.No: 78/1, Pandhari Industrial Estate, Shivane, Pune - 411023, Maharashtra, INDIA
Calibration Laboratory:
Mob. No.: +91 9325714841, +91 9075014802, Email: calibration@zealmfg.com
Marketing : Mob. No.: +91 9371025315, +91 7030326565
Email : marketing@zealmfg.com, support@zealmfg.com, Web: www.zealmfg.com



CALIBRATION - CERTIFICATE

Date of Calibration	Next Due Date of Calibration	Date of Issue	Certificate No.	ULR No.		
06/09/2022	06/09/2023	08/09/2022	09/27 (2022-2023)	CC338522000000781F		
1	Name of Customer		M/s: National Centre For Quality Calibration 4, Abhishree Corporate Park, Nr. Swagat Bunglow BRTS Iskcon - Ambli Road, - Ambli, Ahmedabad, Gujarat, India 380058			
2	Calibration Carried out at		: Calibration Laboratory			
3	Date of Receipt of Item		: 06/09/2022			
4	Condition of the Item		: Item received in working condition			
5	Calibration to be done		: Without Adjustment			
6	Description & Identification of the Item:					
Nomenclature		Make	Model	Sr. No.	Id. No.	Accuracy
Decade Resistance Box		ZEAL	ZSDB	200809378	NCQC/E-08	As Per Manual
7	Environmental Conditions		: At Temperature 25°C ± 2 °C, Humidity 30 To 75 %RH			
8	Calibration Procedure No.		: CPM-26			
9	Parameter to be calibrated		: DC Resistance			
10. Details of Traceability Used For Calibration						
NAME		MAKE/MODEL	SR.NO. / ID.NO.	CALIBRATION CERT. NO. & DATE	CALIBRATED BY	
Reference Multimeter		FLUKE / 8588A	486776409 / ZS/8.5DMM/01	CC/ECL/0029/22-23 Dated: 11/04/2022	IDEMI, Mumbai.	

11. OBSERVATIONS: DISCIPLINE GROUP: ELECTRO-TECHNICAL

PARAMETER: DC RESISTANCE [1 Ω - 9 Ω] Residual Resistance: 0.24729 Ω					
DECADE SWITCH	SET POSITION ON U.U.C	READING ON STD. METER	DEVIATION	ERROR IN %	EXPANDED UNCERTAINTY %
		Ω	Ω	% Rdg	% Rdg
X 1 Ω	1	1.00017	-0.00017	-0.017	± 0.0042
	2	1.99758	0.00242	0.12	± 0.0015
	3	2.99635	0.00365	0.12	± 0.0015
	4	3.99575	0.00425	0.11	± 0.0015
	5	4.99125	0.00875	0.18	± 0.0015
	6	5.99301	0.00699	0.12	± 0.0015
	7	6.99121	0.00879	0.13	± 0.0015
	8	7.99844	0.00156	0.020	± 0.0015
	9	8.99846	0.00154	0.017	± 0.0015
PARAMETER: DC RESISTANCE [10 Ω - 90 Ω]					
DECADE SWITCH	SET POSITION ON U.U.C	READING ON STD. METER	DEVIATION	ERROR IN %	EXPANDED UNCERTAINTY %
		Ω	Ω	% Rdg	% Rdg
X 10 Ω	1	9.99835	0.00165	0.017	± 0.0015
	2	19.9956	0.0044	0.022	± 0.0015
	3	29.9998	0.0002	0.00067	± 0.0015
	4	39.9786	0.0214	0.054	± 0.0015
	5	49.9878	0.0122	0.024	± 0.0015
	6	59.9830	0.0170	0.028	± 0.0015
	7	69.9872	0.0128	0.018	± 0.0015
	8	79.9972	0.0028	0.0035	± 0.0015
	9	89.9928	0.0072	0.0080	± 0.0015

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NCQC Valid up to 06-05-2023 Reviewed

NCQC System Certificate No. 32



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ULR No-. CC338522000000781F

Certificate No. 09/27 (2022-2023)

PARAMETER: DC RESISTANCE [100 Ω - 900 Ω]					
DECADE SWITCH	SET POSITION ON U.U.C	READING ON STD. METER	DEVIATION	ERROR IN %	EXPANDED UNCERTAINTY %
		Ω	Ω	% Rdg	% Rdg
X 100 Ω	1	100.0241	-0.0241	-0.024	± 0.0015
	2	200.027	-0.027	-0.013	± 0.0015
	3	300.029	-0.029	-0.0097	± 0.0015
	4	400.009	-0.009	-0.0022	± 0.0015
	5	499.969	0.031	0.0062	± 0.0015
	6	599.985	0.015	0.0025	± 0.0015
	7	700.122	-0.122	-0.017	± 0.0015
	8	800.151	-0.151	-0.019	± 0.0015
	9	900.130	-0.130	-0.014	± 0.0015
PARAMETER: DC RESISTANCE [1 kΩ - 9 kΩ]					
DECADE SWITCH	SET POSITION ON U.U.C	READING ON STD. METER	DEVIATION	ERROR IN %	EXPANDED UNCERTAINTY %
		kΩ	kΩ	% Rdg	% Rdg
X 1 kΩ	1	1.000354	-0.000354	-0.035	± 0.0015
	2	1.99963	0.00037	0.019	± 0.0015
	3	3.00034	-0.00034	-0.011	± 0.0015
	4	4.00036	-0.00036	-0.0090	± 0.0015
	5	5.00027	-0.00027	-0.0054	± 0.0015
	6	6.00109	-0.00109	-0.018	± 0.0015
	7	6.99992	0.00008	0.0011	± 0.0015
	8	8.00082	-0.00082	-0.010	± 0.0015
	9	9.00107	-0.00107	-0.012	± 0.0015
PARAMETER: DC RESISTANCE [10 kΩ - 90 kΩ]					
DECADE SWITCH	SET POSITION ON U.U.C	READING ON STD. METER	DEVIATION	ERROR IN %	EXPANDED UNCERTAINTY %
		kΩ	kΩ	% Rdg	% Rdg
X 10 kΩ	1	10.00478	-0.00478	-0.048	± 0.0015
	2	20.0020	-0.0020	-0.010	± 0.002
	3	30.0011	-0.0011	-0.0037	± 0.002
	4	40.0002	-0.0002	-0.00050	± 0.002
	5	49.9969	0.0031	0.0062	± 0.002
	6	59.9959	0.0041	0.0068	± 0.002
	7	69.9996	0.0004	0.00057	± 0.002
	8	79.9991	0.0009	0.0011	± 0.002
	9	90.0026	-0.0026	-0.0029	± 0.002

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Certificate No. 09/27 (2022-2023)

PARAMETER: DC RESISTANCE [100 k Ω - 900 k Ω]					
DECADE SWITCH	SET POSITION ON U.U.C	READING ON STD. METER	DEVIATION	ERROR IN %	EXPANDED UNCERTAINTY %
		k Ω	k Ω	% Rdg	% Rdg
X 100 k Ω	1	100.0029	-0.0029	-0.0029	± 0.002
	2	200.062	-0.062	-0.031	± 0.002
	3	300.039	-0.039	-0.013	± 0.002
	4	400.066	-0.066	-0.016	± 0.002
	5	500.164	-0.164	-0.033	± 0.002
	6	600.229	-0.229	-0.038	± 0.002
	7	700.387	-0.387	-0.055	± 0.002
	8	800.447	-0.447	-0.056	± 0.002
	9	900.525	-0.525	-0.058	± 0.002
PARAMETER: DC RESISTANCE [1 M Ω - 9 M Ω]					
DECADE SWITCH	SET POSITION ON U.U.C	READING ON STD. METER	DEVIATION	ERROR IN %	EXPANDED UNCERTAINTY %
		M Ω	M Ω	% Rdg	% Rdg
X 1 M Ω	1	1.000060	-0.000060	-0.0060	± 0.002
	2	1.99943	0.00057	0.029	± 0.0034
	3	3.00015	-0.00015	-0.0050	± 0.0034
	4	4.00063	-0.00063	-0.016	± 0.0034
	5	5.00098	-0.00098	-0.020	± 0.0034
	6	6.00149	-0.00149	-0.025	± 0.0034
	7	6.99921	0.00079	0.011	± 0.0034
	8	8.00041	-0.00041	-0.0051	± 0.0034
	9	9.00289	-0.00289	-0.032	± 0.0034
PARAMETER: DC RESISTANCE [10 M Ω - 90 M Ω]					
DECADE SWITCH	SET POSITION ON U.U.C	READING ON STD. METER	DEVIATION	ERROR IN %	EXPANDED UNCERTAINTY %
		M Ω	M Ω	% Rdg	% Rdg
X 10 M Ω	1	9.99679	0.00321	0.032	± 0.0034
	2	20.0003	-0.0003	-0.0015	± 0.015
	3	29.9976	0.0024	0.0080	± 0.015
	4	39.9921	0.0079	0.020	± 0.015
	5	49.9921	0.0079	0.016	± 0.015
	6	60.0097	-0.0097	-0.016	± 0.015
	7	70.0131	-0.0131	-0.019	± 0.015
	8	80.0334	-0.0334	-0.042	± 0.015
	9	90.0241	-0.0241	-0.027	± 0.015





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PARAMETER: DC RESISTANCE [100 MΩ - 900 MΩ]					
DECADE SWITCH	SET POSITION ON U.U.C.	READING ON STD. METER	DEVIATION	ERROR IN %	EXPANDED UNCERTAINTY %
		MΩ	MΩ	% Rdg	% Rdg
X 100 MΩ	1	99.9906	0.0094	0.0094	± 0.15
	2	200.577	-0.577	-0.29	± 0.17
	3	299.982	0.018	0.0060	± 0.17
	4	400.231	-0.231	-0.058	± 0.17
	5	499.347	0.653	0.13	± 0.17
	6	598.271	1.729	0.29	± 0.17
	7	698.304	1.696	0.24	± 0.17
	8	797.492	2.508	0.31	± 0.17
	9	895.775	4.225	0.47	± 0.17

12. Remarks:

- 1) This certificate refers only to particular items submitted & results are observed at the time of calibration.
- 2) This certificate shall not be reproduced, except in full, without written approval of the Laboratory.
- 3) All measurements are traceable to National / International standards.
- 4) The reported expanded uncertainty of measurement is calculated at approximately 95.45% of confidence level with coverage factor $k = 2$.

13. A glossary of terms used in this Certificate includes:

- | | |
|--------------------------------------|---------------------------------------|
| 1. U. U. C. : Unit Under Calibration | 2. STD. : Standard |
| 3. RDG. : Reading | 4. DGT. : Digit |
| 5. INST. : Instrument | 6. ULR No. : Unique Lab Report Number |

Calibrated By

Calibration Engineer
(Mr. Bhauraj S. Gulik)



Authorised By

Technical Manager
(Mr. Vikas B. Rathod)