



Yadav Measurements

CERTIFICATE OF CALIBRATION

Issued by :
YADAV MEASUREMENTS PRIVATE LIMITED
 Plot no. F-373-375 RIICO Bhamashah Industrial Area,
 Kaladwas ,Udaipur-Rajasthan-313003, INDIA
 Tel: 0091-294-2650127,28, Fax: 0091-294-2650129
 Email: Yadav.Measurements@yadavmeasurements.com
 website: www.yadavmeasurements.com
 CIN number: U31909RJ2003PTC018450

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CC-2735

Certificate number:-YMP/344294/142899A1

ULR-CC273523000003016F

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Amendment to Certificate number:-YMP/344294/142899

1 Name and Address of Customer	:- NATIONAL CENTRE FOR QUALITY CALIBRATION 4, ABHISHREE CORPORATE PARK, NR. SWAGAT BUNGALOWS BRIS, OPP. SHELL PETROL PUMP, ISCKON-BOPAL ROAD, AMBLI, AHMEDABAD – 380058
2 Reference	Service request form number :- 2022-23/1424 Date of receipt of EUC :- 3-Mar-2023 Condition of EUC on receipt :- Satisfactory
3 Location of Calibration	:- Yadav Measurements Private Limited Plot No. F-373-375 RIICO Bhamashah Industrial Area, Kaladwas, Udaipur-Rajasthan-313003, India
4 Calibration Details	Date of issue :- 17-Mar-2023 Date of calibration :- 4-Mar-2023 Due Date of calibration :- 3-Mar-2025
5 Description of equipment under calibration	Name :- Accuchek-LT+ Sr.No. :- GJU72231 Equipment ID :- NCQC/E-153 Make :- Secure Meters Limited Model :- LT+ Type :- 1P2W / 3P4W ; 50Hz Voltage :- 1X240V / 3X240V Basic current (Ib) :- -15A(10A) & -1A(2A) Direct Mode 100A Class :- 0.2s for Direct mode & 0.5s for clamp on CT Meter constant :- 800 imp/Unit (kWh/kVAh) for 100A clamp on CT 8000 imp/Unit (kWh/kVAh) for -15A internal CT 40000 imp/Unit (kWh/kVAh) for -1A internal CT YMPL Seal Number :- YMPL028557
6 Environmental conditions of measurements:-	Temperature :- 25.3-26.8°C Relative Humidity :- 40-45%

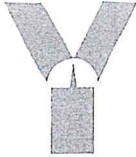


NCQC System Certificate No. 153

NCQC Valid up to 03-03-2025 Reviewed [Signature]

Checked by : [Signature]
 Hemant Prajapat
 [Signature]

Approved by : [Signature]
 S. Rajkumar Prayaga
 (Executive - I)





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7	Description of reference standards used :-			
	Reference standard	Calibration valid up to	Traceability	Parameters
	Three phase precision measuring instrument EI No.: 2557 Sr. No.: 050052476 Model.: EPZ 303-8	3-Apr-2023	IDEMI Mumbai Via YMPL	Active Energy, Reactive Energy
8	Calibration Procedure:CP-ETCH-P-2.1			
	Before starting calibration, both standard and E.U.C. (Equipment Under Calibration) were warmed-up for one hour. For calibration of E.U.C voltage and current were taken from electronic source and fed to E.U.C. and reference standard for measurement of energy. The metrological pulse output was used for calibration of energy measurement. The pulse output of E.U.C. was fed to the input of reference standard. The errors reported were directly calculated and displayed by above reference standard. At least 3 measurements were made for each calibration point and an average of these was reported in the results.			
9	Electro Technical Calibration			
	Results: - The calibration results are given below.			

A. Active energy measurement (for 5A Direct mode) in 3 phase, 4 wire balance mode at 50 Hz :-

EUC Range	Applied Voltage (V)	Applied Current (A)	Cos Φ	% Error	(±) Expanded Uncertainty (%)	Coverage Factor (k)
240V, 5A	240	10	UPF	-0.03	0.033	2.00
			0.5 Ind	-0.07	0.060	2.00
			0.8 Cap	-0.03	0.040	2.00
		5	UPF	-0.03	0.032	2.00
			0.5 Ind	0.05	0.060	2.00
			0.8 Cap	-0.02	0.039	2.00
		2.5	UPF	0.03	0.032	2.00
			0.5 Ind	-0.06	0.059	2.00
			0.8 Cap	0.04	0.039	2.00
		0.5	UPF	0.04	0.032	2.00
			0.5	-0.07	0.060	2.00
			0.8 Cap	0.05	0.040	2.00
		0.25	UPF	-0.03	0.033	2.00
		0.1	0.5 Ind	0.08	0.059	2.00
			0.8 Cap	-0.05	0.039	2.00
		0.05	UPF	0.10	0.032	2.00

Checked by : 	Approved by : 
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B. Reactive energy measurement (for 5A Direct Mode) in 3 phase, 4 wire balance mode at 50 Hz :-

EUC Range	Applied Voltage (V)	Applied Current (A)	Sin Φ	% Error	(\pm) Expanded Uncertainty (%)	Coverage Factor (k)
240V, 5A	240	10	1	-0.03	0.033	2.00
			0.5 Ind	-0.09	0.059	2.00
			0.8 Cap	-0.04	0.040	2.00
		5	1	-0.03	0.032	2.00
			0.5 Ind	-0.06	0.060	2.00
			0.8 Cap	-0.08	0.039	2.00
		2.5	1	0.04	0.032	2.00
			0.5 Ind	0.07	0.059	2.00
			0.8 Cap	0.04	0.040	2.00
		0.5	1	0.05	0.033	2.00
			0.5 Ind	0.09	0.060	2.00
			0.8 Cap	0.04	0.039	2.00
		0.25	1	0.05	0.032	2.00
		0.1	0.5 Ind	0.10	0.059	2.00
			0.8 Cap	0.08	0.040	2.00
		0.05	1	0.07	0.032	2.00

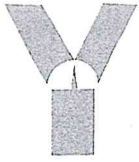
C. Active energy measurement (for 5A Direct mode) in 1 phase, 2wire balance mode at 50 Hz :-

EUC Range	Applied Voltage (V)	Applied Current (A)	Cos Φ	% Error	(\pm) Expanded Uncertainty (%)	Coverage Factor (k)
240V, 5A	240	10	UPF	-0.05	0.032	2.00
			0.5 Ind	-0.07	0.060	2.00
			0.8 Cap	-0.04	0.038	2.00
		5	UPF	-0.03	0.033	2.00
			0.5 Ind	0.09	0.059	2.00
			0.8 Cap	-0.02	0.040	2.00
		2.5	UPF	0.05	0.032	2.00
			0.5 Ind	0.05	0.059	2.00
			0.8 Cap	0.04	0.039	2.00
		0.5	UPF	0.05	0.032	2.00
			0.5 Ind	-0.09	0.060	2.00
			0.8 Cap	-0.04	0.040	2.00
		0.25	UPF	-0.05	0.032	2.00
		0.1	0.5 Ind	-0.07	0.060	2.00
			0.8 Cap	-0.06	0.039	2.00
		0.05	UPF	-0.07	0.033	2.00

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D. Active energy measurements (for 1A Direct Mode) in 3 phase, 4 wire balance mode at 50 Hz :-

EUC Range	Applied Voltage (V)	Applied Current (A)	Cos Φ	% Error	(\pm) Expanded Uncertainty (%)	Coverage Factor (k)
240V, 1A	240	2	UPF	-0.02	0.032	2.00
			0.5 Ind	-0.06	0.060	2.00
			0.8 Cap	0.04	0.040	2.00
		1	UPF	-0.03	0.033	2.00
			0.5 Ind	0.08	0.060	2.00
			0.8 Cap	-0.04	0.039	2.00
		0.5	UPF	0.03	0.033	2.00
			0.5 Ind	-0.05	0.060	2.00
			0.8 Cap	0.06	0.039	2.00
		0.1	UPF	0.03	0.034	2.00
			0.5 Ind	-0.06	0.060	2.00
			0.8 Cap	0.05	0.039	2.00
		0.05	UPF	0.04	0.033	2.00
		0.02	0.5 Ind	-0.05	0.060	2.00
			0.8 Cap	0.05	0.039	2.00
		0.01	UPF	0.05	0.084	2.00

E. Reactive energy measurement (for 1A Direct mode) in 3 phase, 4 wire balance mode at 50Hz :-

EUC Range	Applied Voltage (V)	Applied Current (A)	Sin Φ	% Error	(\pm) Expanded Uncertainty (%)	Coverage Factor (k)
240V, 1A	240	2	1	-0.05	0.032	2.00
			0.5 Ind	0.04	0.059	2.00
			0.8 Cap	-0.06	0.039	2.00
		1	1	-0.02	0.033	2.00
			0.5 Ind	-0.05	0.059	2.00
			0.8 Cap	0.03	0.039	2.00
		0.5	1	-0.04	0.032	2.00
			0.5 Ind	-0.08	0.059	2.00
			0.8 Cap	-0.05	0.039	2.00
		0.1	1	-0.06	0.032	2.00
			0.5 Ind	-0.09	0.060	2.00
			0.8 Cap	-0.03	0.039	2.00
		0.05	1	-0.06	0.032	2.00
		0.02	0.5 Ind	-0.07	0.059	2.00
			0.8 Cap	-0.02	0.039	2.00
		0.01	1	0.06	0.084	2.00

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Approved by :

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F. Active energy measurement (for 1A Direct mode) in 1phase, 2 wire balance mode at 50 Hz :-

EUC Range	Applied Voltage (V)	Applied Current (A)	Cos Φ	% Error	(\pm) Expanded Uncertainty (%)	Coverage Factor (k)
240V, 1A	240	2	UPF	-0.02	0.032	2.00
			0.5 Ind	-0.06	0.059	2.00
			0.8 Cap	-0.03	0.040	2.00
		1	UPF	0.03	0.033	2.00
			0.5 Ind	0.05	0.060	2.00
			0.8 Cap	0.03	0.039	2.00
		0.5	UPF	0.05	0.032	2.00
			0.5 Ind	0.06	0.059	2.00
			0.8 Cap	0.05	0.040	2.00
		0.1	UPF	-0.06	0.032	2.00
			0.5 Ind	-0.09	0.059	2.00
			0.8 Cap	-0.06	0.040	2.00
		0.05	UPF	-0.08	0.032	2.00
			0.5 Ind	-0.12	0.059	2.00
		0.02	0.8 Cap	-0.07	0.039	2.00
			UPF	-0.08	0.084	2.00




G. Active energy measurement (for Clamp on CT) in 3 phase, 4 wire balance mode at 50 Hz :-

EUC Range	Applied Voltage (V)	Applied Current (A)	No. Of Turns	Cos Φ	% Error	(\pm) Expanded Uncertainty (%)	Coverage Factor (k)
240V, 100A	240	120	1	UPF	0.03	0.029	2.00
				0.5 Ind	0.15	0.051	2.00
				0.8 Cap	-0.07	0.033	2.00
		100	1	UPF	0.04	0.032	2.00
				0.5 Ind	0.25	0.060	2.00
				0.8 Cap	-0.06	0.040	2.00
		50	1	UPF	-0.03	0.033	2.00
				0.5 Ind	0.24	0.059	2.00
				0.8 Cap	-0.14	0.039	2.00
		10	1	UPF	-0.04	0.032	2.00
				0.5 Ind	0.18	0.059	2.00
				0.8 Cap	-0.09	0.039	2.00
		5	1	UPF	-0.04	0.032	2.00
				0.5 Ind	-0.12	0.059	2.00
		2	1	0.8 Cap	0.07	0.040	2.00
				UPF	-0.08	0.033	2.00

Checked by :

Approved by :



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

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H. Reactive energy measurement (For Clamp on CT) in 3 phase, 4 wire balance mode at 50 Hz :-

EUC Range	Applied Voltage (V)	Applied Current (A)	No. Of Turns	Sin ϕ	% Error	(\pm) Expanded Uncertainty (%)	Coverage Factor (k)	
240V, 100A	240	120	1	1	-0.04	0.028	2.00	
				0.5 Ind	-0.13	0.050	2.00	
				0.8 Cap	0.09	0.033	2.00	
		100	1	1	1	-0.04	0.033	2.00
					0.5 Ind	-0.17	0.059	2.00
					0.8 Cap	0.12	0.040	2.00
		50	1	1	1	-0.04	0.032	2.00
					0.5 Ind	-0.21	0.059	2.00
					0.8 Cap	0.09	0.039	2.00
		10	1	1	1	-0.03	0.033	2.00
					0.5 Ind	-0.14	0.060	2.00
					0.8 Cap	0.08	0.040	2.00
5	1	1	1	-0.05	0.032	2.00		
			0.5 Ind	-0.07	0.060	2.00		
2	1	1	0.5 Ind	-0.07	0.060	2.00		
			0.8 Cap	0.11	0.039	2.00		
1	1	1	1	-0.07	0.032	2.00		

I. Active energy measurement (For Clamp on CT) in 1 phase, 2 wire balance mode at 50 Hz :-

EUC Range	Applied Voltage (V)	Applied Current (A)	No. Of Turns	Cos ϕ	%Error	(\pm) Expanded Uncertainty (%)	Coverage Factor (k)	
240V, 100A	240	120	1	UPF	-0.06	0.028	2.00	
				0.5 Ind	0.32	0.050	2.00	
				0.8 Cap	-0.23	0.034	2.00	
		100	1	1	UPF	-0.05	0.032	2.00
					0.5 Ind	0.37	0.059	2.00
					0.8 Cap	-0.23	0.039	2.00
		50	1	1	UPF	-0.05	0.032	2.00
					0.5 Ind	0.42	0.060	2.00
					0.8 Cap	-0.23	0.039	2.00
		10	1	1	UPF	-0.08	0.032	2.00
					0.5 Ind	0.43	0.060	2.00
					0.8 Cap	-0.23	0.040	2.00
5	1	1	UPF	-0.08	0.032	2.00		
			0.5 Ind	0.42	0.060	2.00		
2	1	1	0.5 Ind	0.42	0.060	2.00		
			0.8 Cap	-0.23	0.039	2.00		
1	1	1	UPF	-0.07	0.032	2.00		

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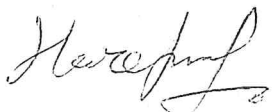


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10 REMARKS :-

1. For $k = 2$
The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor $k=2$, providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with NABL requirements.
2. For $k \neq 2$
The reported expanded uncertainty is based on a standard uncertainty multiplied by coverage factor k , for which a t-distribution corresponds to coverage probability of approximately 95%. The uncertainty evaluation has been carried out in accordance with NABL requirements.
3. This certificate is specific for E.U.C. for environmental and other conditions mentioned in this certificate.
4. The reported uncertainty applies only to the measured values and gives no indication of the long term stability of device.
5. Calibration points and due date mentioned as per customer's requirement.
6. Any anomaly/discrepancy in this calibration certificate should be brought to our notice within 45 days from the date of issue.
7. Authenticity of this certificate can be verified by sending details of certificate to Yadav.Measurements@yadavmeasurements.com
8. This certificate is issued in accordance with the laboratory accreditation requirements of the NABL (Govt.of India). It provides traceability of measurement to the SI system of units and / or to units of measurement realised at the National Physical Laboratory or other recognised national metrology institutes. This certificate may not be reproduced other than in full, except with prior written approval of the issuing laboratory.
9. The results reported related only to the equipment calibrated.
10. Description of the equipment under calibration which is mentioned in the calibration certificate is taken from the name plate of EUC and / or customer.
11. Amendment remark:
 - a. In calibration certificate number YMPL/344294/142899, at page no. 1 of 7, sr no. 4, Due date of calibration read 3-Mar-2025 instead of 3-Mar-2024.
 - b. In calibration certificate number YMPL/344294/142899, at page no. 1 of 7, sr no. 5, Description of Equipment Under calibration, Equipment ID, 153 read NCQC/E-153 instead of 153.
 - c. Certificate number YMPL/344294/142899 entirely replaced by certificate number YMPL/344294/142899A1.

TL.CP.CALB.1D.01.00

Checked by : 		Approved by : 	
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QF.CP.CALB.4B.01.01