



# TEST CERTIFICATE

**Issued By :**

**YADAV MEASUREMENTS PVT. LTD.**

Post Box No. : 169, Plot No. : 373-375

RIICO Bhamashah Industrial Area, Kaladwas, Udaipur - Rajasthan, INDIA

Tel : 0091-294-2650127, 2650128 ; Telefax : 0091-294-2650129

E-mail : yadav.measurements@ymilabs.com ; Website : www.ymilabs.com

Certificate number: YMPL/133941/19533		Page 1 of 4
1a.	Tested for:-	TRINITY ENERGY SYSTEMS PVT. LTD. 366/A/12, G.I.D.C. Estate, Makarpura, Vadodara-390010, GUJRAT
1b.	Submitted by:-	TRINITY ENERGY SYSTEMS PVT. LTD. 366/A/12, G.I.D.C. Estate, Makarpura, Vadodara-390010, GUJRAT
2.	Reference:-	Customer order number : Nil Service request form number: 2008-09/490 Date: 6 <sup>th</sup> August, 2008 Date of receipt of the instrument: 6 <sup>th</sup> August, 2008 Condition of item on receipt: Satisfactory
3.	Test certificate:	Date of issue: 6 <sup>th</sup> August, 2008 Date of testing: 6 <sup>th</sup> August, 2008
4.	Description of equipment under test:-	
	Number of sample(s) :	1
	Nature of sample(s) :	Energy meter
	Serial Number(s) :	08-08-STD.05
	Type :	3 $\phi$ 4W
	Model :	SATURN
	Standard reference voltage :	120V AC, 208V AC
	C.T. Ratio :	-/1A & -/5A Selectable
	Standard reference current :	5A
	Class of accuracy :	1.0
	Standard reference frequency :	60Hz
	Auxiliary Supply :	80 to 270 V AC
	Make :	TRINITY

This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.	
Checked by :	Approved by : Sign. : Name : (SUNIL HARKAWATI)

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5.	Tests details:- D=Test done, ND=Test not done, NA= Test not applicable, PD=Test partially done	
5.1	Test specification:- Test procedure as per customer requirement	
A.	<b>Test of Accuracy Requirements</b>	
A1	Accuracy test	D
A2	Power factor measurement	D
A3	Active energy measurement	D
A4	Reactive energy measurement	D
A5	Apparent energy measurement	D
A6	Frequency error test	D
A7	Voltage error test	D
6.	Note:- 1) This Certificate relates only to the particular samples received for testing at YMPL. 2) Only the test(s) asked by the customer has been carried out. 3) This certificate, in full or in part, shall not be published, advertised, used for any legal action ,unless Prior permission has been secured. 4) Any anomaly/discrepancy in this test report/certificate should be brought to our notice within 45 days from the date of issue.	
7.	Test results:-The test results are given on next pages.	

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Sr. No.	Particulars of tests & clause number	Requirement as per Specification			Measured value/observation							
8.	<b>Test of accuracy requirements (As per customer requirement)</b>											
8.1	Line current measurement	Voltage	Current	cos $\phi$	% Error (line current)							
					R-Phase	Y-Phase	B-Phase					
		120 V (p-n), 60Hz	1.2 lb	UPF	-0.09	-0.50	-0.08					
			1.2 lb	0.5 Lag	-0.09	-0.42	-0.09					
			1.2 lb	0.8 Lead	0.00	-0.42	-0.08					
			lb	UPF	0.00	-0.42	-0.09					
			lb	0.5 Lag	-0.01	-0.49	-0.09					
			lb	0.8 Lead	-0.08	-0.33	-0.17					
			0.5 lb	UPF	-0.01	-0.42	-0.09					
			0.5 lb	0.5 Lag	-0.01	-0.42	-0.01					
			0.5 lb	0.8 Lead	-0.09	-0.42	-0.08					
			0.1 lb	UPF	-0.01	-0.41	-0.01					
			0.1 lb	0.5 Lag	-0.01	-0.41	-0.01					
0.1 lb	0.8 Lead	-0.09	-0.33	-0.08								
8.2	Power factor measurement	Voltage	Current	cos $\phi$	Power factor measurement(cos $\phi$ )							
					Measured by reference				Measured by EUT			
		120 V (p-n), 60Hz	1.2 lb	UPF	1.0000	1.0000	1.0000	1.0000	0.999	0.999	0.999	0.999
			1.2 lb	0.5 Lag	0.4995	0.4996	0.4994	0.4995	0.501	0.500	0.500	0.500
			1.2 lb	0.8 Lead	-0.800	-0.800	-0.800	-0.800	-0.798	-0.797	-0.796	-0.796
			lb	UPF	1.0000	1.0000	1.0000	1.0000	1.000	0.999	0.999	0.999
			lb	0.5 Lag	0.4996	0.4996	0.4993	0.4995	0.503	0.501	0.498	0.501
			lb	0.8 Lead	-0.800	-0.800	-0.800	-0.800	-0.797	-0.797	-0.797	-0.796
			0.5 lb	UPF	1.0000	1.0000	1.0000	1.0000	0.999	0.999	1.000	0.999
			0.5 lb	0.5 Lag	0.4996	0.4995	0.4992	0.4995	0.502	0.501	0.501	0.501
			0.5 lb	0.8 Lead	-0.800	-0.800	-0.800	-0.800	-0.797	-0.796	-0.797	-0.795
			0.1 lb	UPF	1.0000	1.0000	1.0000	1.0000	0.999	0.999	0.999	0.999
			0.1 lb	0.5 Lag	0.4996	0.4995	0.4995	0.4995	0.504	0.503	0.501	0.502
0.1 lb	0.8 Lead	-0.800	-0.800	-0.800	-0.800	-0.797	-0.795	-0.796	-0.795			
8.3	Active energy measurement	Voltage	Current	cos $\phi$	% Error (Active energy)							
					R-Phase	Y-Phase	B-Phase	Total				
		120 V (p-n), 60Hz	1.2 lb	UPF	0.24	0.14	0.19	0.18				
			1.2 lb	0.5 Lag	0.88	0.51	0.53	0.69				
			1.2 lb	0.8 Lead	-0.04	-0.22	-0.22	-0.46				
			lb	UPF	0.21	0.09	0.23	0.23				
			lb	0.5 Lag	1.05	0.42	0.43	0.69				
			lb	0.8 Lead	-0.05	-0.27	-0.16	-0.41				
			0.5 lb	UPF	0.12	0.00	0.31	0.20				
			0.5 lb	0.5 Lag	0.71	0.42	0.47	0.75				
			0.5 lb	0.8 Lead	-0.18	-0.39	-0.18	-0.44				
0.1 lb	UPF		-0.02	0.01	-0.02	-0.02						

Checked by:

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Approved by:

*Screen*

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Sr. No.	Particulars of tests & clause number	Requirement as per Specification			Measured value/observation				
		Voltage	Current	cos $\phi$	R-Phase	Y-Phase	B-Phase	Total	
8.4	Reactive energy measurement		0.1 lb	0.5 Lag	0.06	0.09	0.07	0.63	
			0.1 lb	0.8 Lead	-1.01	-1.00	-1.01	-0.66	
		120 V (p-n), 60Hz	<b>% Error (Reactive energy)</b>						
			1.2 lb	0.5 Lag	-0.08	0.38	0.59	0.29	
			1.2 lb	0.8 Lead	0.73	1.32	1.20	0.69	
			lb	0.5 Lag	-0.10	0.26	0.39	0.28	
			lb	0.8 Lead	0.91	1.18	1.18	0.67	
			0.5 lb	0.5 Lag	-0.19	0.23	0.56	0.27	
			0.5 lb	0.8 Lead	0.76	1.31	1.03	0.86	
0.1 lb	0.5 Lag	0.02	0.05	0.01	0.02				
0.1 lb	0.8 Lead	-0.07	1.32	-0.08	-0.86				
8.5	Apparent energy measurement	Voltage	Current	cos $\phi$	<b>% Error (Apparent energy)</b>				
					R-Phase	Y-Phase	B-Phase	Total	
		120 V (p-n), 60Hz	1.2 lb	UPF	0.31	0.06	0.12	0.19	
			1.2 lb	0.5 Lag	0.16	0.15	0.69	0.41	
			1.2 lb	0.8 Lead	0.12	0.28	0.27	-0.03	
			lb	UPF	0.28	-0.08	0.23	0.23	
			lb	0.5 Lag	0.12	0.43	0.55	0.40	
			lb	0.8 Lead	0.17	0.18	0.34	0.00	
			0.5 lb	UPF	0.28	0.15	0.31	0.19	
			0.5 lb	0.5 Lag	0.12	0.33	0.63	0.42	
			0.5 lb	0.8 Lead	0.17	0.16	0.33	0.01	
			0.1 lb	UPF	-0.03	0.00	-0.02	-0.02	
			0.1 lb	0.5 Lag	-0.02	0.00	-0.03	0.26	
0.1 lb	0.8 Lead	0.00	-0.01	-0.01	0.00				
8.6	Frequency error test	Frequency	Load point		<b>% Error (frequency)</b>				
		50 Hz	120 V (p-n), lb		0.00				
		55 Hz			0.02				
		60 Hz			-0.08				
		65 Hz			0.00				
8.7	Voltage error test	Load point	<b>% Error (voltage)</b>						
			Vr-n	Vy-n	Vb-n	Vr-y	Vy-b	Vb-r	
		Reference voltage 208V (p-p)	-0.02	-0.41	-0.09	-0.40	-0.43	-0.41	
		Reference voltage +20%	-0.08	-0.41	-0.08	-0.56	-0.59	-0.17	
Reference Voltage -20%	0.12	0.51	0.12	-0.76	-0.79	-0.16			

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