

Laboratory	Yadav Measurements Private Limited, 352/SRT, Sanjeev Reddy Nagar, Hyderabad, Telangana		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Electrical Testing	Issue Date	09.11.2015
Certificate Number	T-3671	Valid Until	08.11.2017
Last Amended on	-	Page	1 of 10

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
AT LABORATORY				
1.	MEASURING INSTRUMENTS- ELECTRICAL AND ELECTRONIC (STATIC) ENERGY METERS)			
1.	ac Static Transformer Operated Watthour and Var-Hourmeter, Class 0.2 s And 0.5 s, 1.0 s	Insulation Test	IS 14697: 1999 (RA 2009) Cl. No. 12.7.6.4 IS 13779: 1999 (RA 2004) Cl. No. 12.7.6.4 CBIP publication 325 (2015) Cl. No. 5.4.6.4	Upto 50 MΩ
	ac Static Watthour Meter, Class 1 & 2	Test on limits of error	IS 14697: 1999 (RA 2009) Cl. No. 11.1 IS 13779: 1999 (RA 2004) Cl. No. 11.1 IEC 62052-11: 2003 Cl. No. 8.1 IEC 62053-21: 2003 Cl. No. 8.1 IEC 62053-22: 2003 Cl. No. 8.1 IEC 62053-23: 2003 Cl. No. 8.1 CBIP publication 325 (2015) Cl. No. 5.6.8	40 V to 320 V 1 mA to 120 A 45 Hz to 65 Hz (+)1 to (-)1 Active Single Phase: 0.12 W to 38.4 kW Three Phase: 0.36 W to 115.2 kW Reactive :- Single Phase: 0.12 Var to 38.4 kVar Three Phase: 0.36 Var to 115.2 kVar
		Test of Meter constant	IS 14697: 1999 (RA 2009) Cl. No. 12.14, 11.6 IS 13779: 1999 (RA 2004) Cl. No. 12.15, 11.6 IEC 62052-11: 2003 Cl. No. 8.1 IEC 62053-21: 2003 Cl. No. 8.4 IEC 62053-22: 2003 Cl. No. 8.4 IEC 62053-23: 2003 Cl. No. 8.4 CBIP publication 325 (2015) Cl. No. 5.6.6	

Laboratory	Yadav Measurements Private Limited, 352/SRT, Sanjeev Reddy Nagar, Hyderabad, Telangana		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Electrical Testing	Issue Date	09.11.2015
Certificate Number	T-3671	Valid Until	08.11.2017
Last Amended on	-	Page	2 of 10

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	ac Static Transformer Operated Watthour and Var-Hourmeter, Class 0.2 s And 0.5 s, 1.0 s	Test of Starting condition	IS 14697: 1999 (RA 2009) Cl. No. 12.13, 11.5 IS 13779: 1999 (RA 2004) Cl. No. 12.14, 11.5 IEC 62052-11: 2003 Cl. No. 8.1 IEC 62053-21: 2003 Cl. No. 8.3.3 IEC 62053-22: 2003 Cl. No. 8.3.3 IEC 62053-23: 2003 Cl. No. 8.3.3 CBIP publication 325 (2015), Cl. No. 5.6.5	40 V to 320 V 1 mA to 120 A 45 Hz to 65 Hz (+)1 to (-)1 Active Single Phase: 0.12 W to 38.4 kW Three Phase: 0.36 W to 115.2 kW Reactive :- Single Phase: 0.12 Var to 38.4 kVar Three Phase: 0.36 Var to 115.2 kVar
	ac Static Watthour Meter, Class 1 & 2	Initial Start up of the Meter	IS 14697: 1999 (RA 2009) Cl. No. 12.13, 11.4.1 IS 13779: 1999 (RA 2004) Cl. No. 12.14, 11.4.1 IEC 62052-11: 2003 Cl. No. 8.1 IEC 62053-21: 2003 Cl. No. 8.3.1 IEC 62053-22: 2003 Cl. No. 8.3.1 IEC 62053-23: 2003 Cl. No. 8.3.1 CBIP publication 325 (2015), Cl. No. 5.6.1	

Laboratory	Yadav Measurements Private Limited, 352/SRT, Sanjeev Reddy Nagar, Hyderabad, Telangana		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Electrical Testing	Issue Date	09.11.2015
Certificate Number	T-3671	Valid Until	08.11.2017
Last Amended on	-	Page	3 of 10

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	ac Static Transformer Operated Watthour and Var-Hourmeter, Class 0.2 s And 0.5 s, 1.0 s	Test of No- load condition	IS 14697: 1999 (RA 2009) Cl. No. 12.12, 11.4.2 IS 13779: 1999 (RA 2004) Cl. No. 12.13, 11.4.2 IEC 62052-11: 2003, Cl. No. 8.1 IEC 62053-21: 2003, Cl. No. 8.3.2 IEC 62053-22: 2003, Cl. No. 8.3.2 IEC 62053-23: 2003 Cl. No. 8.3.2 CBIP publication 325 (2015), Cl. No. 5.6.4	40 V to 320 V 1 mA to 120 A 45 Hz to 65 Hz (+)1 to (-)1 Active Single Phase: 0.12 W to 38.4 kW Three Phase: 0.36 W to 115.2 kW Reactive :- Single Phase: 0.12 Var to 38.4 kVar Three Phase: 0.36 Var to 115.2 kVar
		Test of Repeatability of error	IS 14697: 1999 (RA 2009) Cl. No. 12.16, 11.7 IS 13779: 1999 (RA 2004) Cl. No. 12.17, 11.7 CBIP publication 325 (2015), Cl. No. 5.6.9	40 V to 320 V 1 mA to 120 A 45 Hz to 65 Hz (+)1 to (-)1 Active Single Phase: 0.12 W to 38.4 kW Three Phase: 0.36 W to 115.2 kW Reactive :- Single Phase: 0.12 Var to 38.4 kVar Three Phase: 0.36 Var to 115.2 kVar
		Test of Power consumption test	IS 14697: 1999 (RA 2009) Cl. No. 12.7.1, 9.1 IS 13779: 1999 (RA 2004) Cl. No. 12.7.1, 9.1 IEC 62052-11: 2003 Cl. No. 8.1 IEC 62053-21: 2003 Cl. No. 7.1 IEC 62053-22: 2003 Cl. No. 7.1 IEC 62053-23: 2003 Cl. No. 7.1 CBIP publication 325 (2015), Cl. No. 5.4.1	40 V to 320 V 1 mA to 120 A 45 Hz to 65 Hz (+)1 to (-)1 Active Single Phase: 0.12 W to 38.4 kW Three Phase: 0.36 W to 115.2 kW Reactive :- Single Phase: 0.12 Var to 38.4 kVar Three Phase: 0.36 Var to 115.2 kVar

Laboratory	Yadav Measurements Private Limited, 352/SRT, Sanjeev Reddy Nagar, Hyderabad, Telangana		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Electrical Testing	Issue Date	09.11.2015
Certificate Number	T-3671	Valid Until	08.11.2017
Last Amended on	-	Page	4 of 10

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	ac Static Transformer Operated Watthour and Var-Hourmeter, Class 0.2 s And 0.5 s, 1.0 s	Test of Voltage variation	IS 14697: 1999 (RA 2009) Cl. No. 12.10, 11.2 IS 13779: 1999 (RA 2004) Cl. No. 12.11 IEC 62052-11: 2003 Cl. No. 8.1 IEC 62053-21: 2003 Cl. No. 8.2 IEC 62053-22: 2003 Cl. No. 8.2 IEC 62053-23: 2003 Cl. No. 8.2 CBIP publication 325 (2015) Cl. No. 5.6.2	
	ac Static Watthour Meter, Class 1 & 2	Test of Frequency variation	IS 14697: 1999 (RA 2009) Cl. No. 12.10, 11.2 IS 13779: 1999 (RA 2004) Cl. No. 12.11 IEC 62052-11: 2003 Cl. No. 8.1 IEC 62053-21: 2003 Cl. No. 8.2 IEC 62053-22: 2003 Cl. No. 8.2 IEC 62053-23: 2003 Cl. No. 8.2 CBIP publication 325 (2015) Cl. No. 5.6.2	
II. TRANSFORMERS AND REACTORS				
1.	Current Transformers	Verification of Terminal Marking and Polarity	IS 2705 (Part 1): 1992, Cl. No. 9.2 IEC 60044-1: 2003 Cl. No. 8.1	Qualitative
		Ratio & Phase Error.	IS 2705 (Part 2): 1992 Cl. No. 3.3 IEC 60044-1: 2003 Cl. No. 11.2	5 A to 2000 A

Laboratory	Yadav Measurements Private Limited, 352/SRT, Sanjeev Reddy Nagar, Hyderabad, Telangana		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Electrical Testing	Issue Date	09.11.2015
Certificate Number	T-3671	Valid Until	08.11.2017
Last Amended on	-	Page	5 of 10

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
2.	Voltage / Potential Transformer	Verification of Terminal Marking and Polarity	IS 3156 (Part 1): 1992, Cl. No. 9.1.2(a), 9.2 IEC: 60044-2: 2003 Cl. No. 9. 1	Qualitative
		Ratio & Phase Error	IS 3156 (Part 1): 1992 Cl. No. 9.1.1(e), 9.1.2(e) IS 3156 (Part 2): 1992 Cl. No. 5, 6, 8 IEC 60044-2: 2003, Cl. No. 12.2	6.6 kV to 33 kV (Upto 120 %)

Laboratory	Yadav Measurements Private Limited, 352/SRT, Sanjeev Reddy Nagar, Hyderabad, Telangana		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Electrical Testing	Issue Date	09.11.2015
Certificate Number	T-3671	Valid Until	08.11.2017
Last Amended on	-	Page	6 of 10

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
At Site				
I.	MEASURING INSTRUMENTS- ELECTRICAL AND ELECTRONIC (STATIC) ENERGY METERS)			
1.	ac Static Transformer Operated Watthour And Var-Hourmeter, Class 0.2 s And 0.5 s, 1.0 s	Insulation Test	IS 14697: 1999 (RA 2009), Cl. No. 12.7.6.4 IS 13779: 1999 (RA 2004), Cl. No. 12.7.6.4 CBIP publication 325 (2015), Cl. No. 5.4.6.4	Upto 50 MΩ
	ac Static Watthour Meter, Class 1 & 2	Test on limits of error	IS 14697: 1999 (RA 2009), Cl. No. 11.1 IS 13779: 1999 (RA 2004), Cl. No. 11.1 IEC 62052-11: 2003 Cl. No. 8.1 IEC 62053-21: 2003 Cl. No. 8.1 IEC 62053-22: 2003 Cl. No. 8.1 IEC 62053-23: 2003 Cl. No. 8.1 CBIP publication 325 (2015), Cl. No. 5.6.8	40 V to 320 V 1 mA to 120 A 45 Hz to 65 Hz (+)1 to (-)1 Active Single Phase: 0.12 W to 38.4 kW Three Phase: 0.36 W to 115.2 kW Reactive :- Single Phase: 0.12 Var to 38.4 kVar Three Phase: 0.36 Var to 115.2 kVar Reactive :- Single Phase: 0.12 Var to 38.4 kVar Three Phase: 0.36 Var to 115.2 kVar
		Test of Meter constant	IS 14697: 1999 (RA 2009) Cl. No. 12.14, 11.6 IS 13779: 1999 (RA 2004) Cl. No. 12.15, 11.6 IEC 62052-11: 2003 Cl. No. 8.1 IEC 62053-21: 2003 Cl. No. 8.4 IEC 62053-22: 2003 Cl. No. 8.4 IEC 62053-23: 2003 Cl. No. 8.4 CBIP publication 325 (2015) Cl. No. 5.6.6	Single Phase: 0.12 Var to 38.4 kVar Three Phase: 0.36 Var to 115.2 kVar Reactive :- Single Phase: 0.12 Var to 38.4 kVar Three Phase: 0.36 Var to 115.2 kVar

Laboratory	Yadav Measurements Private Limited, 352/SRT, Sanjeev Reddy Nagar, Hyderabad, Telangana		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Electrical Testing	Issue Date	09.11.2015
Certificate Number	T-3671	Valid Until	08.11.2017
Last Amended on	-	Page	7 of 10

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	ac Static Transformer Operated Watthour And Var-Hourmeter, Class 0.2 s And 0.5 s, 1.0 s	Test of Starting condition	IS 14697: 1999 (RA 2009) Cl. No. 12.13, 11.5 IS 13779: 1999 (RA 2004) Cl. No. 12.14, 11.5 IEC 62052-11: 2003 Cl. No. 8.1 IEC 62053-21: 2003 Cl. No. 8.3.3 IEC 62053-22: 2003 Cl. No. 8.3.3 IEC 62053-23: 2003 Cl. No. 8.3.3 CBIP publication 325 (2015), Cl. No. 5.6.5	
	ac Static Watthour Meter, Class 1 & 2	Initial Start up of the Meter	IS 14697: 1999 (RA 2009) Cl. No. 12.13, 11.4.1 IS 13779: 1999 (RA 2004) Cl. No. 12.14, 11.4.1 IEC 62052-11: 2003 Cl. No. 8.1 IEC 62053-21: 2003 Cl. No. 8.3.1 IEC 62053-22: 2003 Cl. No. 8.3.1 IEC 62053-23: 2003 Cl. No. 8.3.1 CBIP publication 325 (2015), Cl. No. 5.6.1	

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Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Electrical Testing	Issue Date	09.11.2015
Certificate Number	T-3671	Valid Until	08.11.2017
Last Amended on	-	Page	8 of 10

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	ac Static Transformer Operated Watthour And Var-Hourmeter, Class 0.2 s And 0.5 s, 1.0 s	Test of No- load condition	IS 14697: 1999 (RA 2009) Cl. No. 12.12, 11.4.2 IS 13779: 1999 (RA 2004) Cl. No. 12.13, 11.4.2 IEC 62052-11: 2003, Cl. No. 8.1 IEC 62053-21: 2003, Cl. No. 8.3.2 IEC 62053-22: 2003, Cl. No. 8.3.2 IEC 62053-23: 2003 Cl. No. 8.3.2 CBIP publication 325 (2015), Cl. No. 5.6.4	
	ac Static Watthour Meter, Class 1 & 2	Test of Repeatability of error	IS 14697: 1999 (RA 2009) Cl. No. 12.16, 11.7 IS 13779: 1999 (RA 2004) Cl. No. 12.17, 11.7 CBIP publication 325 (2015), Cl. No. 5.6.9	40 V to 320 V 1 mA to 120 A 45 Hz to 65 Hz (+)1 to (-)1 Active Single Phase: 0.12 W to 38.4 kW Three Phase: 0.36 W to 115.2 kW Reactive :- Single Phase: 0.12 Var to 38.4 kVar Three Phase: 0.36 Var to 115.2 kVar Reactive :- Single Phase: 0.12 Var to 38.4 kVar Three Phase: 0.36 Var to 115.2 kVar

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Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Electrical Testing	Issue Date	09.11.2015
Certificate Number	T-3671	Valid Until	08.11.2017
Last Amended on	-	Page	9 of 10

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	ac Static Transformer Operated Watthour And Var-Hourmeter, Class 0.2 s And 0.5 s, 1.0 s	Test of Power consumption test	IS 14697: 1999 (RA 2009) Cl. No. 12.7.1, 9.1 IS 13779: 1999 (RA 2004) Cl. No. 12.7.1, 9.1 IEC 62052-11: 2003 Cl. No. 8.1 IEC 62053-21: 2003 Cl. No. 7.1 IEC 62053-22: 2003 Cl. No. 7.1 IEC 62053-23: 2003 Cl. No. 7.1 CBIP publication 325 (2015), Cl. No. 5.4.1	
	ac Static Watthour Meter, Class 1 & 2	Test of Voltage variation	IS 14697: 1999 (RA 2009) Cl. No. 12.10, 11.2 IS 13779: 1999 (RA 2004) Cl. No. 12.11 IEC 62052-11: 2003 Cl. No. 8.1 IEC 62053-21: 2003 Cl. No. 8.2 IEC 62053-22: 2003 Cl. No. 8.2 IEC 62053-23: 2003 Cl. No. 8.2 CBIP publication 325 (2015) Cl. No. 5.6.2	
		Test of Frequency variation	IS 14697: 1999 (RA 2009) Cl. No. 12.10, 11.2 IS 13779: 1999 (RA 2004) Cl. No. 12.11 IEC 62052-11: 2003 Cl. No. 8.1 IEC 62053-21: 2003 Cl. No. 8.2 IEC 62053-22: 2003 Cl. No. 8.2 IEC 62053-23: 2003 Cl. No. 8.2 CBIP publication 325 (2015) Cl. No. 5.6.2	

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Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Electrical Testing	Issue Date	09.11.2015
Certificate Number	T-3671	Valid Until	08.11.2017
Last Amended on	-	Page	10 of 10

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II. TRANSFORMER AND REACTORS				
1.	Current Transformers	Verification of Terminal Marking and Polarity	IS 2705 (Part 1): 1992, Cl. No. 9.2 IEC 60044-1: 2003 Cl. No. 8. 1	Qualitative
		Ratio & Phase Error.	IS 2705 (Part 2): 1992, Cl. No. 3.3 IEC 60044-1: 2003 Cl. No. 11.2	5 A to 2000 A
2.	Voltage / Potential Transformer	Verification of Terminal Marking and Polarity	IS 3156 (Part 1): 1992, Cl. No. 9.1.2(a), 9.2 IEC: 60044-2: 2003 Cl. No. 9. 1	Qualitative
		Ratio & Phase Error	IS 3156 (Part 1): 1992 Cl. No. 9.1.1(e), 9.1.2(e) IS 3156 (Part 2): 1992 Cl. No. 5, 6, 8 IEC 60044-2: 2003, Cl. No. 12.2	6.6 kV to 33 kV (Upto 120 %)
-X-X-X-X-X-X-X-X-X-X-X-X-				