



सत्यमेव जयते

TEST/CALIBRATION REPORT



ELECTRONICS REGIONAL TEST LABORATORY (WEST)

MINISTRY OF COMMUNICATIONS & INFORMATION TECHNOLOGY, (STQC Dte.)

Government of India

Plot No, F 7 & 8, MIDC Area, Opp. SEEPZ,
Andheri (E), Mumbai - 400 093.

Phone : {022} 2832 5134, 2830 1468. 2830 1138 Fax : (022) 2822 5713

E-mail: ertlbom@bom4.vsnl.net.in

MEMORANDUM

The Test/Calibration Report issued by ERTL (W) is a record of the measurements conducted on the products submitted to it for testing / calibration and the results thereof. Unless otherwise specified in the report, the results are applicable only to those products which have been tested / calibrated and do not apply to other products even though declared to be identical.

This Report, if reproduced for any purpose-commercial or otherwise should be reproduced in full. Reproduction of a part of the report or an abstract thereof must be specifically approved from The ERTL (W).

LIABILITY CLAUSE

1. ERTL(W) shall not be liable for any change in test/calibration data and performance specification on account of malfunctioning of the standard / instrument / equipment due to any damage caused to it after the report, in respect of it has been issued.
2. The report shall not be regarded in any way diminishing the normal contractual responsibilities / obligations between the customer and ERTL (W).
3. The results reported in this report are valid only at the time of and under the stated conditions of the measurements.

ELECTRONICS REGIONAL TEST LABORATORY (WEST) DEPARTMENT OF INFORMATION TECHNOLOGY		REPORT NO. ERTL (W) / 2005 E&S 184	
SUBJECT: TESTING OF TRANSDUCER		DATE 12.8 OCT 2005	PAGE 1 OF 7

1. SCOPE

1.1 Service Request No : ERTL(W) / 2005 1345 Dated. 10th August, 2005

1.1.1 Service Request finalised on : 10th August, 2005

1.2 Requested by (Name and address of organisation) : SETO TEKNOLOG PVT LTD.
406, HILL VIEW INDL. ESTATE
OFF. LBS MARG, AMRUT NAGAR
GHATKOPAR(W), MUMBAI 400086

1.3	Description	Qty	Manufacturer	Type No.	Serial Nos.
	Watt Transducer, Input: 110V AC, 1 A (3 Phase 3 Wire), output: 4-12-20 mA (DC), Range: 190.52-0-192.5 W, Class: 0.3% Isolation: 4 kV, User Category: II	01 No.	SETO TEKNOLOG PVT LTD.	STE-B-3T	350985

1.4 Test specifications : IEC 60688 (Limited Parameters)

1.5 Lab Ambient : Temperature: (25 ±2) deg. C
RH : (55 ±5) % RH

1.6 Test Equipment used

1. Power Energy Calibrator (E&S/126)
2. High Voltage Tester (E&S/66)
3. Impulse Voltage Tester (COM/209)
4. Variac (E&S/99)
5. Clamp Meter (SAF/137)
6. DC Power Supply
7. Magnetic Influence Jig
8. Timer

Released by : _____



ELECTRONICS REGIONAL TEST LABORATORY (WEST) DEPARTMENT OF INFORMATION TECHNOLOGY		REPORT NO. ERTL (W) / 2005 E&S 184	
SUBJECT: TESTING OF TRANSDUCER		DATE 12.8 OCT 2005	PAGE 2 OF 7

2.0 Test Results.

Sr.No.	Test/Parameter (Cl. No.)	Test Condition	Test Requirement	Observation	Remark
2.1	Intrinsic error (4.2)	Phase to phase voltage: 110 V AC. At Wattage & Power factor as per Annexure-I	Class index (0.3 %) ± 0.048 mA DC (Max)	See Annexure-1	Complied
2.2	Variation due to ambient temp. (6.4)	Phase to phase voltage: 110 V AC. At Wattage & Power factor as per Annexure-I Temperature Varied from 0 to 45	100% of Class index ± 0.048 mA DC (Max)	See Annexure-1	Complied
2.3	Variation due to distortion of input quantities (6.10)	Introduce 3 rd harmonics distortion at 20 % of: Voltage & Current	200% of Class index ± 0.096 mA DC (Max)	See Annexure-11	Complied
2.4	Variation due to magnetic field of external origin (6.11)	Phase to phase voltage: 110 V AC. At Wattage & Power factor as per Annexure-I	100% of Class index ± 0.048 mA DC (Max)	See Annexure-1 II	Complied
2.5	Permissive excessive inputs (6.18)				
2.5.1	Continuous excessive inputs (6.18.1)	Apply 120 % of nominal upper value on aux. Supply, voltage inputs and current inputs.	Continue to comply the accuracy class after test	See Annexure-11	Complied

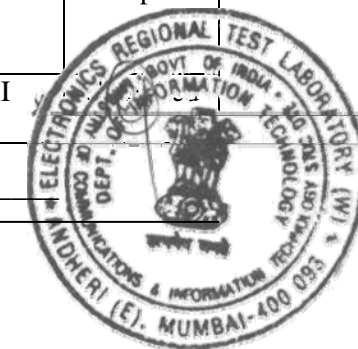
Released by _____



ELECTRONICS REGIONAL TEST LABORATORY (WEST) DEPARTMENT OF INFORMATION TECHNOLOGY		REPORT NO. ERTL (W) / 2005 E&S 184		
SUBJECT: TESTING OF RTD TRANSDUCER		DATE 12.8 OCT 2005	PAGE 3	OF 7

Sr.No.	Test/Parameter (Cl. No.)	Test Condition	Test Requirement	Observation	Remark
2.5.2	Excessive inputs of short duration (6.18.2)	a) For voltage inputs: 200 % of the nominal value of the measured voltage applied for 1 s and repeated 10 times at 10 s interval. b) For current inputs: 20 times the nominal value of the measured current applied for 1 s and repeated 5 times at 300 s interval	Continue to comply the accuracy class after test	See Annexure-II	Complied
2.5.3	Intrinsic error (4.2)	As in 2.1 above	Class index (0.3 %) ± 0.048 mA DC (Max)	See Annexure-II	Complied
2.6	Voltage test, (6.19)	At 4 kV AC between shorted terminals and foil wrapped over body	No breakdown	No flash over or breakdown	Complied
2.7	Impulse voltage tests (6.20)	At peak test voltage of 5 kV in both positive and negative senses having the standardized impulse waveform of 1.2/50 us, applied between terminals of each circuit in turn and all other circuit connected together.	There shall be no flashover or breakdown.	No flash over or breakdown	Complied
2.7.1	Intrinsic error (4-2)	As in 2.1 above	Class index (0.3 %) ± 0.048 mA DC (Max)	See Annexure-III	Complied
2.7.2	High frequency disturbance test (6.21)	2.5 kV peak between independent circuits. 1kV peak between terminals of the same circuit. As in 2.1 above	The variation due to the effect of disturbance shall not be twice of class index.	See Annexure-III	Complied
2.8	Intrinsic error (4.2)	As in 2.1 above	Class index (0.3 %) ± 0.048 mA DC (Max)	See Annexure-III	

Released by _____



ELECTRONICS REGIONAL TEST LABORATORY (WEST) DEPARTMENT OF INFORMATION TECHNOLOGY	REPORT NO. ERTL (W) / 2005 E&S 184		
SUBJECT: TESTING OF TRANSDUCER	DATE 12.8 OCT 2005	PAGE 4	OF 7

3.0 General Remarks : - NIL -

REPORT APPROVED BY

REPORT RELEASED BY

Abdul Moid
ABDUL MOID
HEAD (E&S)



ELECTRONICS REGIONAL TEST LABORATORY (WEST) DEPARTMENT OF INFORMATION TECHNOLOGY	REPORT NO. ERTL (W) / 2005 E&S 184		
SUBJECT: TESTING OF TRANSDUCER	DATE 12.8 OCT 2005	PAGE 5	OF 7

ANNEXURE -I

INPUT			OUTPUT at 25 deg C	
PF	WATTS	STANDARD (mA DC)	OBSERVATION. (mA DC)	Error
UPF	190.52	20.000	20.006	0.006
UPF	-190.52	4.000	3.994	0.006
UPF	95.26	16.000	15.998	0.002
UPF	-95.26	8.000	8.003	0.003
UPF	0	12.000	12.000	0.000
0.5 Lag	95.26	16.000	16.007	0.007
0.5 Lag	-95.26	8.000	7.999	0.001
0 Lag	0	12.000	12.000	0.000
0.5 Lead	95.26	16.000	16.006	0.006
0.5 Lead	-95.26	8.000	7.998	0.002
0 Lead	0	12.000	12.000	0.000

AT 0 deg C					AT 45 deg C		
INPUT			OUTPUT		OUTPUT		
PF	WATTS	STD. (mA DC)	OBS. (mA DC)	Variation	STD.	OBS.	Variation
UPF	190.52	20.000	20.001	0.005	20.000	19.991	0.015
UPF	-190.52	4.000	3.989	0.005	4.000	3.976	0.018
UPF	95.26	16.000	15.989	0.009	16.000	15.981	0.017
UPF	-95.26	8.000	8.006	0.003	8.000	7.995	0.008
UPF	0	12.000	12.003	0.003	12.000	11.991	0.009
0.5 Lag	95.26	16.000	16.001	0.006	16.000	15.989	0.018
0.5 Lag	-95.26	8.000	8.003	0.004	8.000	7.991	0.008
0 Lag	0	12.000	12.003	0.003	12.000	11.991	0.009
0.5 Lead	95.26	16.000	16.001	0.005	16.000	15.991	0.015
0.5 Lead	-95.26	8.000	8.005	0.007	8.000	7.989	0.009
0 Lead	0	12.000	12.003	0.003	12.000	11.991	0.009

Released by _____



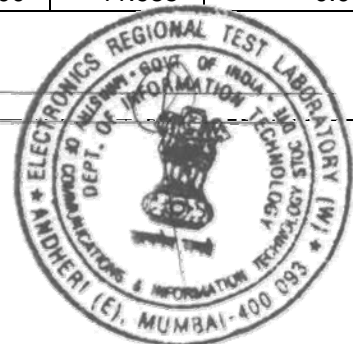
ELECTRONICS REGIONAL TEST LABORATORY (WEST) DEPARTMENT OF INFORMATION TECHNOLOGY		REPORT NO. ERTL (W) / 2005 E&S 184	
SUBJECT: TESTING OF TRANSDUCER		DATE 12.8 OCT 2005	PAGE 6
			OF 7

ANNEXURE -II

3rd Harmonic Distortion of Voltage					3rd Harmonic Distortion of Current		
INPUT			OUTPUT		OUTPUT		
PF	WATTS	STD. (mA DC)	OBS. (mA DC)	Variation	STD. (mA DC)	OBS. (mA DC)	Variation
UPF	190.52	20.000	19.990	0.016	20.000	20.002	0.004
UPF	-190.52	4.000	3.986	0.008	4.000	3.983	0.011
UPF	95.26	16.000	15.980	0.018	16.000	15.967	0.031
UPF	-95.26	8.000	7.990	0.013	8.000	7.981	0.022
UPF	0	12.000	11.985	0.015	12.000	11.989	0.011
0.5 Lag	95.26	16.000	15.993	0.014	16.000	15.988	0.019
0.5 Lag	-95.26	8.000	7.982	0.017	8.000	7.985	0.014
0 Lag	0	12.000	11.985	0.015	12.000	11.989	0.011
0.5 Lead	95.26	16.000	15.989	0.017	16.000	15.996	0.010
0.5 Lead	-95.26	8.000	7.987	0.011	8.000	7.986	0.012
0 Lead	0	12.000	11.985	0.015	12.000	11.989	0.011

Continues excessive input					Excessive input of Short Duration.		
INPUT			OUTPUT		OUTPUT		
PF	WATTS	STD. (mA DC)	OBS. (mA DC)	Variation	STD. (mA DC)	OBS. (mA DC)	Variation
UPF	190.52	20.000	20.003	0.003	20.000	19.990	0.016
UPF	-190.52	4.000	3.985	0.009	4.000	3.986	0.008
UPF	95.26	16.000	15.996	0.002	16.000	15.980	0.018
UPF	-95.26	8.000	7.991	0.012	8.000	7.990	0.013
UPF	0	12.000	11.990	0.010	12.000	11.985	0.015
0.5 Lag	95.26	16.000	15.998	0.009	16.000	15.993	0.014
0.5 Lag	-95.26	8.000	7.982	0.017	8.000	7.982	0.017
0 Lag	0	12.000	11.990	0.010	12.000	11.985	0.015
0.5 Lead	95.26	16.000	15.997	0.009	16.000	15.989	0.017
0.5 Lead	-95.26	8.000	7.987	0.011	8.000	7.987	0.011
0 Lead	0	12.000	11.990	0.010	12.000	11.985	0.015

Released by _____



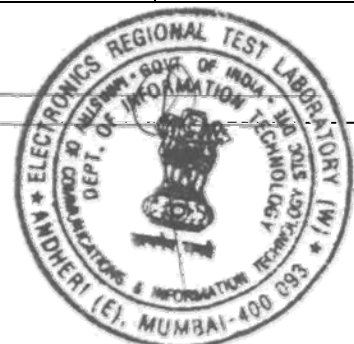
ELECTRONICS REGIONAL TEST LABORATORY (WEST) DEPARTMENT OF INFORMATION TECHNOLOGY	REPORT NO. ERTL (W) / 2005 E&S 184		
SUBJECT: TESTING OF TRANSDUCER	DATE 12.8 OCT 2005	PAGE 7	OF 7

ANNEXURE –III

Impulse Voltage					Magnetic Field		
INPUT			OUTPUT		OUTPUT		
PF	WATTS	STD.	OBS.	Variation	STD.	OBS.	Variation
		(mA DC)	(mA DC)		(mA DC)	(mA DC)	
UPF	190.52	20.000	20.009	0.003	20.000	19.995	0.011
UPF	-190.52	4.000	3.985	0.009	4.000	3.983	0.011
UPF	95.26	16.000	15.992	0.006	16.000	15.973	0.025
UPF	-95.26	8.000	7.987	0.016	8.000	7.981	0.022
UPF	0	12.000	11.993	0.007	12.000	11.987	0.013
0.5 Lag	95.26	16.000	15.992	0.015	16.000	15.992	0.015
0.5 Lag	-95.26	8.000	7.986	0.013	8.000	7.982	0.017
0 Lag	0	12.000	11.993	0.007	12.000	11.987	0.013
0.5 Lead	95.26	16.000	15.992	0.014	16.000	15.987	0.019
0.5 Lead	-95.26	8.000	7.990	0.008	8.000	7.987	0.011
0 Lead	0	12.000	11.993	0.007	12.000	11.987	0.013

HF Disturbance test				
INPUT			OUTPUT	
PF	WATTS	STD.	OBS.	Variation
		(mA DC)	(mA DC)	
UPF	190.52	20.000	19.987	0.019
UPF	-190.52	4.000	3.982	0.012
UPF	95.26	16.000	15.988	0.010
UPF	-95.26	8.000	7.980	0.023
UPF	0	12.000	11.985	0.015
0.5 Lag	95.26	16.000	15.986	0.021
0.5 Lag	-95.26	8.000	7.981	0.018
0 Lag	0	12.000	11.985	0.015
0.5 Lead	95.26	16.000	15.989	0.017
0.5 Lead	-95.26	8.000	7.982	0.016
0 Lead	0	12.000	11.985	0.015

Released by _____



OUR ACCREDITATION STATUS

ERTL (WJ set tip under the STQC Directorate, Ministry of Communications & Information Technology, Govt of India has been accredited under number of national / international systems as follows :

SYSTEM	AREA	STATUS
IECQ [International Electro-technical Commission on Quality Assessment System for Electronic Components)	Component Testing • Resistors (Fixed) • Capacitors (Fined)	Accredited as ITL (Independent Test Laboratory)
NABL(C), India National Accreditation Board for Test & Calibration laboratories (Calibration System)	Calibration • Eteciro-technical discipline • Thermal discipline • Mechanical discipline	Accredited Calibration Laboratory
NABL (T). India National Accreditation Board for Test & Calibration laboratories (Testing System)	Electronic & Electrical Testing	Accredited Test Laboratory
IECEE-CB-Scheme	• Wains Operated Electronic Consumer Products • IT Products • Safely critical components	Approved as a CB Test Laboratory
SASO	Electronics & Electrical Testing	Recognised by Saudi Arabian Standard Organisation
Other recognit ions	Electronics & Electrical Testing	Recognised by CSPO of State Govt., DOT. OGS & D, LCSO, RDSO. DRDO and BIS.