



Digital TURNS - LCRTZ Meter & Computerized Test System LCRTZ-S8



This Instrument is Specially designed for manufacturers and users of small transformers and coils like toroidal coils, Current Transformers, Bobbin Coils, SMPS Transformers, Pulse Transformers, Hybrid transformers, Potcore Transformers and RM-Core Transformers.

It has Multiple features of Digital LCR Meter, Digital Turns Tester (For testing Toroidal Coils and Air core coils / Bobbins), Digital transformation ratio Tester and Computerized LCRTZ Test System (For testing Transformers) with inbuilt 8pin scanner.

It can measure Inductance, Capacitance, AC/DC - Resistance, Impedance, Turns Ratio With Polarity. It has RS232C Port for PC control with control software for Multi Testing.

S.L.No	TestName	MeasVal	DQPR	LowLimit	HighLimit
1	Rac 1-2	10.029 e		9.9	10.1
2	Rac 2-1	10.029 e		9.9	10.1
3	Rac 2-3	100.03 e		99.0	101.0
4	Rac 3-4	1.0019Ka		0.99	1.01
5	Rac 4-5	10.032Ka		9.9	10.1
6	Rac 5-6	10.022 e		9.9	10.1
7	Rac 5-7	100.44 e		99.0	101.0
8	Rac 7-8	1.0013Ka		0.99	1.01
9	Rac 8-9	9.997Ka		9.9	10.1
10	Rac 9-10	10.012 e		9.9	10.1
11	Rac 10-11	100.03 e		99.0	101.0
12	Rac 11-12	1.0014Ka		0.99	1.01
13	Rac 12-13	10.040Ka		9.9	10.1
14	Rac 13-14	10.011 e		9.9	10.1
15	Rac 14-15	100.00 e		99.0	101.0
16	Rac 15-16	1.0014Ka		0.99	1.01
17	Rac 16-17	9.998Ka		9.9	10.1
18	Rac 17-18	10.016 e		9.9	10.1
19	Rac 18-19	100.01 e		99.0	101.0
20	Rac 19-20	1.0014Ka		0.99	1.01
21	Rac 20-19	1.0012Ka		0.99	1.01

TEST OVER REPLACE COMPONENT AND Press/Click START TEST

PC Control Software

The instrument is controlled by external PC through RS232C port under windows platform.

View & Print Test Results (Database)

All the test results will be transferred to fox-pro database table with connected file name. You can import these files to other softwares for creating graphs and other analysis.

Password Protection:

Level-1 user - Person with Password: A person who understands the transformer, its windings, drawings, specifications. This person will be provided with the password and will be able to access all menu items.

Level-2 user - Person without Password: This persons can select the test file, test the components and take reports. This person will not have access to modify test program.

Creating new Test Data

L 11-12

TestName: L 11-12 Meas.Mode: Ser LOW Pin1: []

Units: mH HIGH Pin2: []

Function: L MeasFreq: 1 KHz

Short1: Pin1-Pin2, Pin3-Pin4, Pin5-Pin6, Pin7-Pin8, Pin9-Pin10, Pin11

Short2: Pin1-Pin2, Pin3-Pin4, Pin5-Pin6, Pin7-Pin8, Pin9-Pin10, Pin11

Value: 5.3 LowerLimit: 4.87 UpperLimit: 5.83 D/Q/R/A: 8.0 TestV mV: 750

TestName	Fun1	Fun2	Mode	Units	MFreq	Low	High	Short1	Short2	Value	LowLimit	UpLimit	D/Q/R/A	TestV/s
L 11-12	L	Q.F	Ser	mH	1 KHz	Pin1	Pin2			5.3	4.87	5.83	8.0	750

There are FIVE different modes of testing.

Both Standalone & Computer Control Modes:

Mode - I : Digital LCRZ Meter to test Inductance, Resistance (AC/DC), Capacitance, Impedance.

Mode - II : Digital Transformation ratio tester with attachment of TR Jig.

Mode - III : Digital Toroidal Turns, polarity and Shorted Turns tester with attachment of Toroidal Turns Test Platform.

Mode - IV : Digital Bobbin Turns and polarity tester with attachment of Bobbin Turns Test Platform.

Computer Control Mode:

Mode - V : Computerized LCRTZ Test system with in-built 8 Pin Scanner. (external jig required).

DIGITAL LCRZ METER SPECIFICATIONS:

Measurement Freq.	: 50, 100, 500HZ, 1K, 5K, 10 KHZ
Measurement Voltage	: 0.1 V – 1.0 V RMS
4T or Kelvin Test	: For eliminating lead resistance/inductance.
Measure Mode	: Series/Parallel EQ. Selectable
Display	: Separate displays for simultaneous display of Value with Units and D.F./Q.F 0.5" LED Display : 4dgt -Value, 2dgt -Units 4 dgt - D.F./Q.F/P.A. Plus LED status indication.
Auto Ranging with Range-Hold facility.	
Inductance (L)	: 0.1uH-200H
Capacitance(C)	: 0.1pF-2000uF
Res. (Rac) & Impedance (Z)	: 0.01 Ohm-200KOhm
Res. (Rdc)	: 0.01Ohm-20KOhm
LCRZ Accuracy	: $\pm 0.2\% \pm 1\text{dgt}$ @ 1KHZ, $\pm 0.5\% \pm 1\text{dgt}$ @ Other Freq.
Tan Delta (D.F.)	: 0.0001-9.999 ($\pm 0.0002 \pm 1\% \text{rdg}$ @ 1KHZ, $\pm 0.001 \pm 2\% \text{rdg}$ @ Other Freq.)
Quality Factor (Q.F.)	: 0.001- 999 ($\pm 2\% \pm 0.1Q$ @ 1KHZ, $\pm 5\% \pm 0.5Q$ @ Other Freq. Q<100.0)
Power requirement	: 230V+10% 50 HZ AC MAINS

URNS TESTER ATTACHMENTS

Toroidal Turns Test Platforms:

TTPT100 : 5 T - 1000 T , TTPT1000 : 500T-10000 T

Accuracy : $\pm 0.2\% \pm 0.5T$ for high and medium permeability cores at suitable test frequency.

Internal Diameter must be able to pass a wire as thin as 0.2 mm.

External Diameter as high as 200 mm. Test Frequency 50, 100, 500, 1, 5, 10 KHZ.

The Platform has 2 connections for the coil and 2 for the probe wire. Measurement principle is based on dynamic comparison of the voltages across one turn and the coil. You will be able to get the polarity or winding indication with respect to the one turn reference.

Possible Tests: Can test Turns, Inductance, Polarity, DC resistance at one go by PC control..

Turns test for non-toroidal coils or transformers: Test turns for any transformer or coil with core. The core can be EI, EE, UU, RM, POT etc. You must be able to pass any thin probe wire around the winding. The core must not have air gap.

Inter Turn Shorting Test: For CT's with high number of turns >1000 you can find out interturn shorting.

Bobbin Turns Test Platform

BTPT10000 Range : 1 T to 10,000T in 2 ranges.

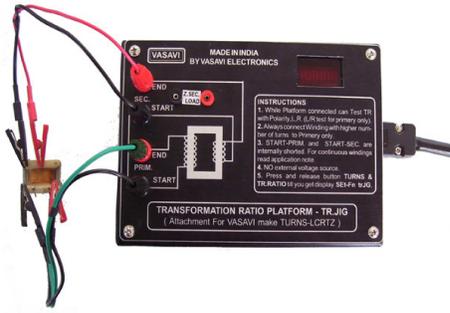
Accuracy : $\pm 0.5\% \pm 0.5T$.

Coil : I.D. >11mm , O.D. < 60 mm , Ht < 80 mm

Calibration (Bobbin Turns test Platforms only): With master coil required for each type of coil.

Insert the coil in the vertical open probe and connect the wire ends to the 2 terminals. Calibration with master coil required as the pickup of the magnetic probe varies with geometry and placement.





Transformation Ratio Platform / Turns Ratio Platform

Most suitable for SMPS and impedance matching Audio Transformers. Can test Turns ratio of Primary to Secondary Winding.

When connected to PC can test L-Prim, L-sec, Rdc - Prim, Rdc - Sec , Z-prim , Z-sec and Turns Ratio. Provision to connect lode on at secondary. And can show PASS/FAIL results.

Trans.Ratio & POLARITY: 0.001-1.0000 (±0.2%±1 dgt @ 1KHZ ±0.5%±1 dgt @ OTHER) With TRJIG (Supplied on option)

Computerized LCRTZ Test System with 8 Pin Scanner

This Mode is ideal for fast and fool proof testing of COILS AND SMALL TRANSFORMERS like SMPS transformers, Telecom transformers (HYBRID, POT CORE, RM-CORE), Pulse transformers, Automobile Coils , etc. The system scans at one stroke, all the windings of a transformer or assembly and tests as per definition of test procedure. The test procedure can be pre-programmed and stored under **User friendly menu driven software**. Any semiskilled and unskilled person can be engaged for actual testing purpose. Can Select test frequency, pin number, parameters, test conditions, limits for each test. **Test any pin to any other pin any defined parameter.**

Test Parameters include: Inductance, Capacitance, DC Resistance, AC Resistance, Impedance, Unbalance, Transformation Ratio, Winding Phase / Polarity.

Programmable winding selection. Test any of following parameters and test conditions.

S8: 8 pin scanning with 8 individual shorting relays to arrange 1 row of shorting .

Shorting provision: (For measurement of series aiding and for leakage inductance test)

In addition to multi-pin scanning the system has 1 row of shorting relays to short between any two or more defined pins . Where ever you need programmed shorting, define in your test procedure. This shorting is very handy for testing parameters like Impedance and leakage inductance. With the help of these two rows you can also make two windings in series for measurement.

Kelvin Test: The instrument has 2 pairs of connections. One pair for drive and the other pair for sense. This separate connection can be utilized for testing transmission / transformation parameters. You will be able to test transformation ratio.

Impedance Test: Though impedance is 2 pin test, it also involves connection of load impedance or load resistance. If you are testing impedance only, you can connect the load impedance permanently to the test jig. However if you want to test multiple windings and other parameters along with impedance, you can use the shorting provided in the system.

Winding Polarity Test: In addition to Transformation ratio test, the system also checks the polarity of winding

Unbalance Test: This test calculates the percentage unbalance of the previous two tests. You can measure unbalance of Inductance, Capacitance, Resistance and Impedance. If the individual readings are R1 and R2 then

$$\text{UNBALANCE} = \frac{(R1-R2) \times 100}{(R1+R2)}$$

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