

INSTRUCTION MANUAL
FOR
VOLUME RESISTIVITY SET
(DIGITAL RESISTANCE METER & SOLID ZIG)

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1 INTRODUCTION

SIVANANDA ELECTRONICS specialize in providing custom built solution to uses problem & requirement. This volume resistivity set is one such. The system comprises of Digital Resistance Meter & a suitable jig for measurement of Volume Resistivity of semi conducting/conducting material in sheet form.

The resistance meter is a specially designed meter with variable compliance voltage of 10-30VDC with a current capacity of 1 ampere maximum individually. The voltage & current are individually monitored & V/I is displayed as Resistance.

TECHNICAL SPECIFICATIONS:

Compliance Voltage	:	10-30 VDC
Test Current	:	1 Amp Maximum.
Resistance Meter	:	1.00 Ω - 1.999m Ω in six ranges (19.99 Ω ,199.9 Ω ,1.999k Ω , 19.99k Ω ,199.9k Ω ,1.999m Ω ,)
Resolution	:	0.01 Ω on first scale.
Accuracy	:	$\pm 0.5\%$ ± 2 digit
Power Supply	:	230VAC, Single phase, 50Hz.

OPERATING CONTROLS & INDICATIONS

Ref. No.	LEGEND	COMPONENT	FUNCTION
1	MAINS/ON	Illuminated Switch	To switch the instrument ON or OFF
2	OPERATE/ZERO	Toggle Switch	For putting the equipment in measurement mode (operate). In zero position the zero on the DPM can be adjusted (this is not used)
3	A	Screw Terminal (R)	This 4 terminals are used to connect jig to equipment using 4 terminal kelin connection
4	B	Screw Terminal (R)	
5	C	Screw Terminal (B)	
6	D	Screw Terminal (B)	
7	—	DPM	Displays the resistance value as per range selected
8	Range	6-Position Band switch	To select the desired resistance range.
9	SET VOLTS	POT	When Push Button is pressed the DPM displays the Set Voltage. Using pot the desired test voltage can be set.
10	PRESS TO SET VOLTS	PUSH BUTTON	

OPERATING PROCEDURE

- 1 Connect the instrument to 230 VAC , single phase, 50Hz mains supply using the mains cord provided.
- 2 Keep operate/zero switch in zero position.
- 3 Connect the jig to instrument using leads provided. Ensure that the connection are between similarly marked terminals on jig & instrument i.e. A-A, B-B, C-C, D-D.
- 4 Now switch on the instrument.
- 5 Set the compliance voltage (Test Voltage) as required.
- 6 Select the expected resistance range.
- 7 Now insert the test sample() in the jig & fix the jig properly.
- 8 Put operate/zero switch in operate position.
- 9 Now the test current flows through the sample & resistance is displayed on DPM.
- 10 Calculate the Volume Resistivity using the following formula:

$$P = \frac{r \times w \times t}{e}$$

Where,

P= Volume Resistivity

r= Resistance in ohm.

w= Width of strip

t = Thickness of strip in cm.

e = Length of strip(between inner electrode) in cm.