

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

CONTENTS

GENERAL

INTRODUCTION

TECHNICAL SPECIFICATIONS

OPERATING CONTROLS & INDICATIONS

OPERATING PROCEDURE

DRAWING

## **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 $\Omega$ - 1.999m $\Omega$ in six ranges (19.99 $\Omega$ ,199.9 $\Omega$ ,1.999k $\Omega$ , 19.99k $\Omega$ ,199.9k $\Omega$ ,1.999m $\Omega$ ,)
Resolution	:	0.01 $\Omega$ on first scale.
Accuracy	:	$\pm 0.5\%$ $\pm 2$ digit
Power Supply	:	230VAC, Single phase, 50Hz.

## OPERATING CONTROLS & INDICATIONS

<b>Ref. No.</b>	<b>LEGEND</b>	<b>COMPONENT</b>	<b>FUNCTION</b>
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.