



*INSTRUCTION MANUAL  
FOR  
AUTOMATIC AC DIELECTRIC  
BREAKDOWN TESTER  
MODEL : 35kV AC, 10mA*

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## GENERAL

Some twenty years ago we committed ourselves to fill up the void in indigenous production – oriented test equipments for our fast growing electronics and electrical industry, which was then dependent on costly imported equipments. Even the simplest of the equipments were being imported with the omnipresent menace of servicing problem.

True to our commitment over the years dedicated and hard-core professionals at Sivananda Electronics have come out with a wide range of test equipments to cater to the needs of the Indian Electronics and Electrical Components Industry. The types of equipment ranges from simple but vital equipments to the most sophisticated equipments using the latest state of the art ethnology.

Prime design criteria and production orientation, speed, accuracy, ease of operation and suitability for diverse climatic conditions and technical level of manpower leading to an ever-growing list of satisfied customers, shows that we have been successful in fulfilling our commitment.

Our constant endeavor is to update the present equipments and bring out new equipments as per International standards. A constant feedback from our customer is a source of encouragement in our endeavor.

As our equipments are production – oriented, every precaution is taken at each stage to ensure long life and trouble free operation. A well knit team of service engineer's support our after sales programmer.

***You have already selected a winner***

***Read the manual carefully and proceed to use the equipments with confidence.***



## INTRODUCTION

The instruments, fully Automatic AC Dielectric Breakdown Tester is specially designed in accordance with ASTM-D149 & IEC-243. This is cost effective and reliable for testing Insulation Breakdown of Solid material. Auto/Manual operating modes are also available.

This instrument can be used to test the solid insulation material such as paper, films, plastic, laminates ,Boards, glass, Mica, Ceramic, tapes, capacitors, wires & cable samples and other components.

### Salient Features

1. interlock facility for electrodes.
2. Automatic Test Cycle.
3. Digital down counter-1 Sec- 999Sec.
4. Variable voltage Set
5. Hold facility for voltage breakdown.
6. Adjustable rate of rise.
7. Facility for Auto/Manual.
8. Variable Trip Set.



### 3 TECHNICAL SPECIFICATION

- 3.1 Supply voltage : 230VAC $\pm$ 10%,50Hz, Single phase.
- 3.2 Output Voltage : Range : 19.99kV-35kV  
Resolution: 0.01KV, 0.1KV  
Accuracy:  $\pm$ 2%,  $\pm$ 2 digit.  
Indication: 3 ½ digit Digital Panel Meter.
- 3.3 Leakage Current : Range: 19.99mA(10 mA approx.)  
Resolution: 0.01mA  
Accuracy:  $\pm$ 2%,  $\pm$ 2 digit.  
Indication: 3 ½ digit Digital Panel Meter.
- 3.4 Timer : Range: 0 Sec to 999Sec.  
Resolution: 1 Sec.  
Accuracy:  $\pm$ 1 Sec.  
Indication: 3 digit display.



#### 4 OPERATING CONTROLS

- 4.1 Mains ON/OFF** : Self illumination type Mains ON/OFF switch.
- 4.2 Set Volts** : Microswitch & Potentiometer provided to set the Voltage to be applied to the Test specimen.
- 4.3 Set Current** : Microswitch & Potentiometer provided to set the maximum Leakage Current of the Test specimen.
- 4.4 Reset** : Microswitch provided to Reset the DPM(Volts) after hold.
- 4.5 Auto/Manual** : Toggle Switch provided to select the operating mode.  
**In Auto mode** : The set voltage is achieved automatically.  
**In Manual mode** : The Set Voltage can be achieved by toggle switch provided marked Increase & Decrease.
- 4.6 Toggle Switch for Voltage control** : Toggle switch type marked as Increase & Decrease to achieved set voltage in Manual mode.
- 4.7 Switch TEST ON** : Self illuminating type make High Voltage ON.
- 4.8 Switch TEST OFF** : Self illuminating type to make High Voltage OFF.
- 4.9 Range Selector** : Bandswitch provided to select range of operating range.  
**19.99kV/ 35kV**
- 4.10 Interlock LED** : Visual Indication for Cover Interlock open when the Front Acrylic door is in open condition.
- 4.11 Open Ground LED** : Visual Indication for Ground Open when the Mains Earth is not connected to the Terminal mark as Earth Symbol.
- 4.12 Motor Speed** : Bandswitch provided to change the speed of the motor i.e. rate of rise 0.2KV, 0.5KV, 1KV.
- 4.13 Fuse 5Amp** : For HV transformer.
- 4.14 Mains Socket** : Provided to connect AC supply 230V, 1Phase 50Hz.
- 4.15 Digital Timer** : Digital down timer to indicate set time in seconds three digits Thumbwheel switch provided to set the HV ON time. Time range is 1 Sec to 999 Sec.



## 5 OPERATING PROCEDURE:

- a. Connect the Mains Cord of the Instrument to 230VAC, 50HZ supply.
- b. Switch on the Instrument with the help of Mains ON/OFF.
- c. Instrument will be in HT OFF mode.
- d. Open the Acrylic Door, cut the sample piece/sheet of size 30cm X 30cm to avoid arching in air. Insert the sample in between the two electrodes provided where the Upper Electrode is LV & the Lower Electrode is HV.
- e. Close the Acrylic Door of the Instrument. Confirm that the Interlock Open Indication is OFF. If the door is open you will get the Interlock Open Indication & HV will never get ON.
- f. Set the Voltage on DPM (Volts) with the provided Microswitch and Potentiometer. If the breakdown of the sample is to be checked set 35V on DPM.
- g. Set the required leakage current on the DPM(mA) with the help of Microswitch & Potentiometer provided.
- h. Set the rate of rise i.e. Motor speed with the help of Bandswitch provided on the Front Panel.
- i. Select Auto/Manual mode with the help of toggle switch.
- j. In Auto mode: The set voltage is achieved automatically upto the set limit.
- k. In Manual Mode: Press HV ON Switch & with the help of toggle switch. Increase the Voltage after reaching the Set Voltage, motors gets OFF automatically.
- l. Select the withstand time (secs) for the voltage with the Thumbwheel switch provided for the timer on the front panel.
- m. If the selected Mode is Auto Mode then after pressing HV ON. Switch motor will start. After reaching the Set Value Timer starts down counting from the set Time. After reaching zero HV will get OFF automatically & the Withstand Voltage latched on DPM, then press Reset Microswitch.



- n. If the test sheet gets Breakdown while reaching the Set Voltage i.e. whenever the Leakage Current exceeds the Set Current at the same time , HV will get OFF & the Reading will be latched on the DPM(volts) it means that the sheet Breakdown takes place. Note the Breakdown Value and press Reset switch the motor will move to zero position.
- o. If the selected mode is manual. Press Test ON switch if HV does not gets on it means that the motor is not at zero position. Then Switch Increase/Decrease switch to Decrease position to make the motor to zero position and then press Test ON after HV gets ON, Switch Increase/Decrease switch to Increase position to achieve the Set Voltage as Set Voltage is achieved Timer will get ON & motor will stop after elapsed time. HV will turn OFF, then Switch Increase/Decrease switch to Decrease position to make motor to zero position and press Reset.
- p. After the Test is completed remove the sample after 5 to 10 secs. & take a new sample on which testing is to be done.
- q. After 5 to 10 samples Breakdown cleans the Brass electrodes with Brass or Petrol or getting better results as due to arching carbon particles get deposited on the electrodes and due to this the result may vary.