

Two Probe Setup

TPX-600N

SES Instruments Pvt. Ltd.

Two Probe Method for resistivity measurement of near insulators at different temperatures



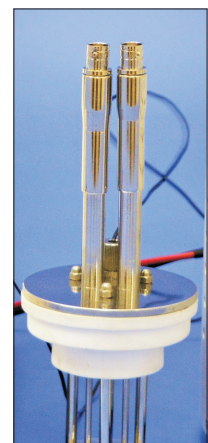
Description

The Two Probe Method is one of the standard and most commonly used method for the measurement of resistivity of very high resistivity samples like sheets/films of polymers. The resistivity measurement of such samples is beyond the range of Four Probe Method.

Description of Experimental Set-up

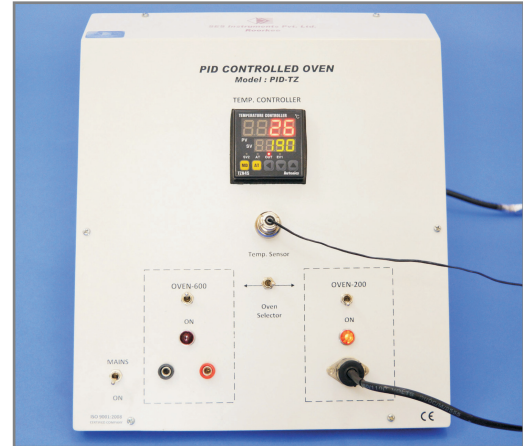
1. Two Probe Arrangement

It has two spring load contact probes. These probes move in a pipe and are insulated by Teflon washers. This probes arrangement is mounted in a suitable stand, which also holds the sample plate and RTD sensor. The stand also serves as the lid of PID Controlled Oven. Teflon coated leads are provided for connecting with High Voltage Power Supply EHT-11 and Digital Picoammeter DPM-111. With this set-up assuming max.



2. PID Controlled Oven, PID-TZN

The unit is a high quality PID controller wherein the temperatures can be set and controlled easily. The P, I and D parameters are factory set for immediate use however the user may adjust these for specific applications as well as autotune the oven whenever required. The steps for these are given in the user manual. Although the controller may be used either for our small oven, up to 200°C or a larger oven up to 600°C, however, in the present setup only large oven is to be used. The controller uses thermocouple as temperature sensor.



Specifications of the Temperature Controller

The controller is designed around Autonics Temperature Controller Model TZN4S. Although this is a very versatile piece of equipment, below is a summary of the specifications that are relevant to the present application. The PID parameters are factory set to a reasonable level (P = 1.8; I = 300; D = 80) for immediate operation of the unit.

- Temperature Range: Ambient to 600°C
- Oven: Specially designed for Four Probe Set-Up
- Display Accuracy: $\pm 0.3^\circ\text{C}$
- Sensor: Thermocouple (Chromel-Alumel)
- Setting Type: Front push buttons
- Display: 7 segment LED, two rows
- Control Method: PID, PIDF, PIDS
- Values: Process Value, PV and Set Value, SV
- Temperature control range: Ambient to 600°C
- Power: 150W



3. High Voltage Power Supply, EHT-11-C1

Specifications as per datasheet attached

4. Digital Picoammeter, DPM-111-C2

Specifications as per datasheet attached

The setup is complete in itself

Optional Attachments

This Two Probe Setup may be connected to a

