Model 1100 Series
Four-Point Probe System
For Far Reaching Measurements

Four Dimensions Inc.
advanced metrology system

Model 1100 Series
Four-Point Probe System

Model 1100 Automatic Four Point Probe is an automated four point probe system for measuring sheet resistivity of conductive or semiconductive film on rectangular insulating substrate. Its basic model (Model 1100SI) can measure film with sheet resistivity ranging from 1m ohm/sq to 800k ohm/sq. The measurement range can be optionally extended up to 8G ohm/sq or 800G ohm/sq. Typical test samples are metal, alloy, or polysilicon film on insulating substrate.The substrate can be of any size between 100mm x 100mm to 2.5m x 2.5m. This system is capable of making mapping, doing custom-site measurements, making geometric and other corrections, doing repeatability tests, analyzing data, and many others.

Model 1100 can be a bench-top system with or without light cover or a cassette to cassette with or without robot system.

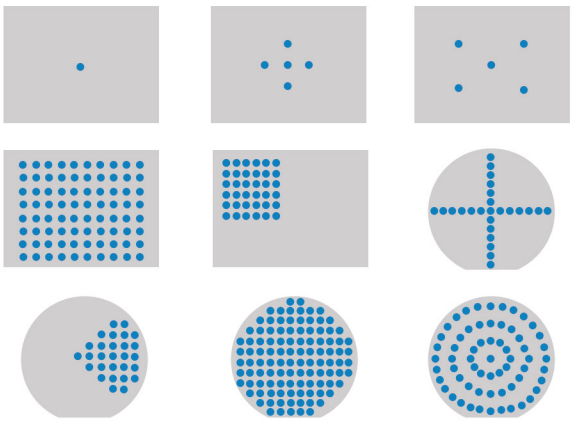
Advantage

- No robot is necessary. Our automatic end effector can be used to transporting flat panel. This makes servicing easier and faster.
- No need of using mechanical pushing to align the flat panel, we use pattern recognition to the edges for aligning the probing sites to the flat panel.
- Simultaneous measurement with two probe heads can be optionally arranged for speeding up the multi-site measurements.
- Automatic probe head switching is an option.

Model 1100 SI Series

X-Y Movements to Reach the the Measurmeent Sites

Up to 5000 sites can be measured automatically. The contour and 3-D maps can be generated from these data. The array of measurement sites can be circular, cartersian, in a window or in specially assigned pattern. Some of the arrays are shown below:



It is possible to aim and make measurements at some small patterns on a production plate.

High Performance and Versatile System

The 1100 series four point probe system give you all the advantages you have come to expect from Four Dimensions Inc. – measurement quality and reliability.

The 1100 series includes versions SI and DI.
The SI version is computer controlled with capability to do mapping, process setup, data management, SECS/GEM, SPC, auto calibration, probe repeatability check, ASCII data extraction, subtraction and many others.
The DI version has the capabilities of the SI version plus extension of its measurement range to 8E+9 ohm/sq or 8E+11 ohm/sq for amorphous Si films.

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Software

Data are stored and retrieved in librarian way.
Millions of data set can be stored and easily retrieved.
Trend chart, SPC, individual site multiplier, partial wafer mapping, automatic geometric correction, LAN or SECS linking and hierarchical measurement and data management control are standard. Two probes simultaneous measurment and automatic probe head switching can be done.
Measurement calibration can be made in minutes.

Analysis Capabilities:

- Color Contour Map
- 3D Map
- P/N Type Testing
- Bulk Resistivity Measurement
- Statistical Process Control (SPC)
- Feature Trend Chart, by Wafer/Day/Month
- Diameter Scan
- Partial Wafer Numerical Data Printout
- Data Transfer to Spread Sheet / ASCII File
- Thickness, Temperature and Edge Correction
- Data Comparison

Computer

- Computer Type: Advanced PC Based System
- Monitor Type: SVGA High Resolution Color
- Printer Type: HP color DeskJet
- Data Transfer: RS-232, SECS/GEM, and LAN

Facilities Requirements

- Power: 100/115/230 VAC, 50/60 Hz, 0.5 KVA
- Vacuum: 20" Hg at 1 liter/min air flow capability

Measurement Specifications

The 1100 series measurement capability is defined by the following specifications:

- Sheet resistivity range:
  from 1m ohm/sq to 800k ohm/sq for all versions except version DI version's range extends from 1m ohm/sq to 8E+9 ohm/sq
  or 8E+11 ohm/sq for DI version
- Accuracy of the electronics: 0.2% typical
- Repeatability of the electronics: <0.05% typical
- Input impedance: >1E+12 ohms throughout the measurement range
- Measurement Repeatability: < 0.2% one sigma typical
- Two configurations switching for improved measurement performance and automatic edge correction
- Current and voltage set automatically for measurement.
- Compliance voltage:
  ± 110 volts in current range 0.25μA to 2.5mA
  ± 10 volts in current range higher than 2.5mA
- Current resolution: 16 bit A/D
- Measurement calibration NIST/VLSI traceable

Probes

- Probe Spacing: 1mm(standard), 0.5mm(optional)
- Probe Force Range: 60-200g(standard)
- Probe Head Type:
  - Type A:
    - Tip Radius: 40μm
    - Application: Bulk, Thick, Epi, Metal Films
  - Type B:
    - Tip Radius: 100μm.
    - Application: General
  - Type M:
    - Tip Radius: 300μm.
    - Application: Implant, Diffusion, Shallow, Implant, Thin Epi Customized

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Call today. For more information, call 1-510-782-1843 or visit us at www.4dimensions.com