

Zyvex sProber™

The Installable and Removable Solution for the Semiconductor Failure Analysis Industry

Patents Pending

Features and Benefits

The Zyvex sProber™, part of the NanoWorks® Tools product line, is designed and optimized to electrically probe sub-100nm features on semiconductor devices.

The system consists of a state-of-the-art Zyvex Nanomanipulator, a parametric analyzer, an advanced anti-contamination system, and custom software to control and integrate each component.

The sProber is uniquely designed for the customer's existing Scanning Electron Microscope (SEM) or Focused Ion Beam (FIB) System. The system is easily installable and removable by the user, allowing for optimum usage of the SEM/FIB.

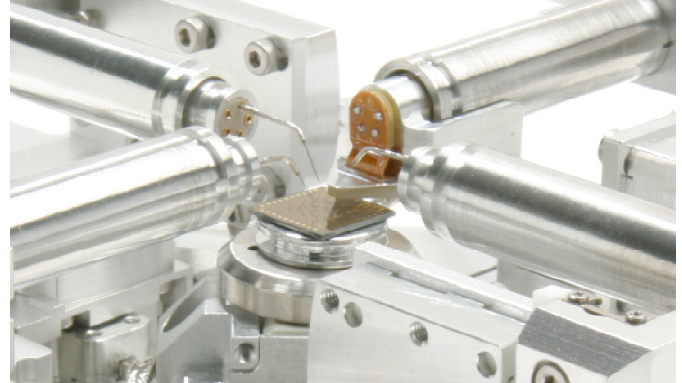
The system has four positioners with 5 nm resolution of movement. The user can manipulate the probes and positioners using a high precision joystick. The software provides accurate control by tuning the motors and joystick to each user's preference.

The center stage moves independently of the probes in the Z direction for higher throughput and easier operability. The center stage and sample holder can also be designed to integrate with the load lock if the SEM/FIB is equipped with one.

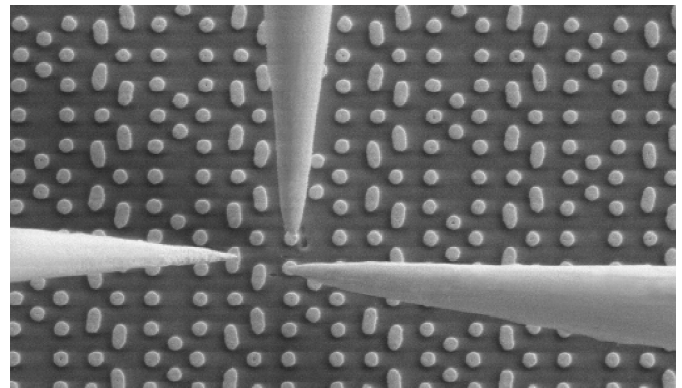
An easy-to-use Windows based software platform seamlessly integrates all of the components of the sProber. The software also provides instant feedback to the user and can be controlled via a powerful scripting engine.

The sProber's electrical characterization system is specifically designed for low-noise measurements. Our most advanced anti-contamination system rigorously cleans the SEM/FIB, enabling the user to achieve superior ohmic contact. The system can be further upgraded with most of the available application packages offered by Zyvex.

The sProber is a full-featured nanoprobing solution for semiconductor or failure analysis lab customers on a tight budget who already own an SEM or FIB system.



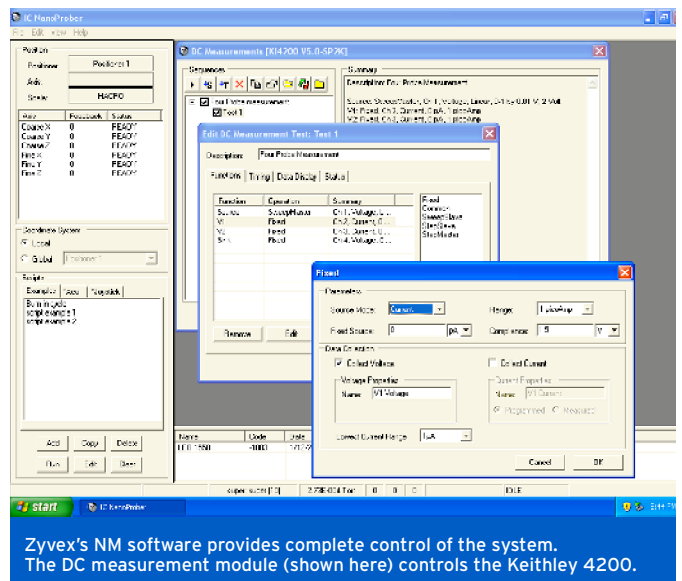
The sProber Head Unit with four positioners, configured with three NanoEffector® Probes.



Probing a 65 nm transistor using the Zyvex sProber and NanoEffector® ultra-sharp tungsten probes.

Applications

- Electrical characterization for device quality or failure analysis.
 - 4 point probing
 - Contact-level probing
 - Metal1-level probing
- Nanostructure/nanomaterial/nanointerconnect R&D
- Surface science experiments
- Assembly and manipulation at the nanoscale



Zyvex's NM software provides complete control of the system. The DC measurement module (shown here) controls the Keithley 4200.



Zyx sProber cabinet includes a parametric analyzer and state-of-the-art anti-contamination system.

Zyx sProber Technical Specifications

Positioners

- Number of Positioners: 4
- Open Loop
- X, Y, Z course resolution: 100 nm open loop
- X, Y, Z fine resolution: 5 nm open loop
- X, Y, Z range of motion: 12 mm
- Degrees of Freedom: 3
- I/O per positioner: 5

Center Stage

- Z Range of motion: 12 mm
- Z resolution: 100 nm
- Load-lock sample exchange: Yes
- Max Sample Size: 12 mm X 12 mm X 4 mm

Electrical Measurement Capabilities

- 0.1 fA resolution
- Better than 10 pA accuracy
- Max Voltage per positioner: 100 V
- Max Current per positioner: 200 ma

Software and Control

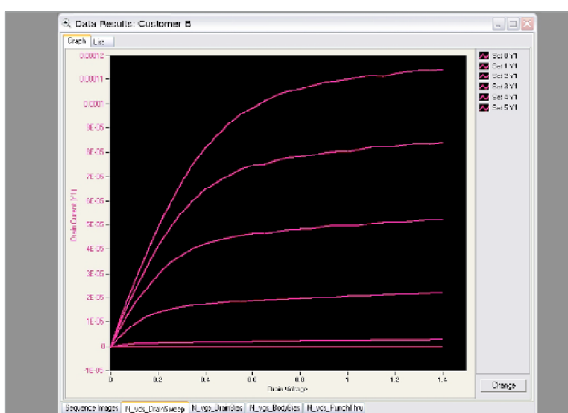
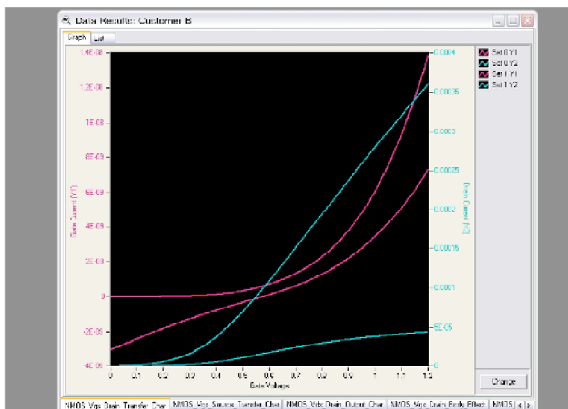
- Windows-based operating system
- Joystick movement
- DC measurement module
- Anti-contamination system module
- Scripting engine
- Data archiving module (DataViewer)

Load Lock Integration

- Custom sample holder and exchange piece
- Scripted procedure (if required)

System

- Operating Voltage: 220V and 115V
- Facilities: Air/Nitrogen: Nitrogen and 80%Oxygen/20%Argon mix



Zyx's DataViewer software displays transistor characteristics from 65 nm node technology (probed at the contact level).

Additional Accessories

- Zyx NanoEffector® ultra-sharp tungsten Probes.
- Low-noise characterization package.
- Temperature characterization package.
- Image capture package.

To place an order, call us toll-free at 1.877.ZYVEX99 (1.877.998.3999) ext. 271 or direct at 972.792.1671. For the most up-to-date information, please visit our web site at www.zyvx.com or email sales@zyvx.com.

