

Nano-probe Electrical Measurement System

UMP-1000

The model UMP-1000 is an analyzer specially designed for the local electrical properties of the sample surface, nano-devices, etc. This system can be installed on any SEM stages. Independently, each probe is able to produce extremely fine position changes (XYZ) down to nanometer range.



Nano Probe Unit *

Stage unit optimized for use with your SEM

Notebook PC

Controller Electronics *

Features

- So compact and light multi-probe unit that can be installed on any SEM stages.
- Easy to control using notebook PC.
- Suitable for Ultrahigh-Vacuum applications.
- Unlimited resolution to produce precise positioning.

Options

- SPM (STM, AFM, etc.) Function
- Bending / Tensile Strength Test Attachment
- Sample Stage Positioning Sample Heating / Cooling
- The Number of Probe (add / decrease)
- Combine with Ultrahigh Vacuum System

Example of Use

- Measurement of electrical property
- Manipulation on nano-scale



Four probes over carbon nanotube

*Contribution by Prof. Sumiyama,
Nagoya Institute of Technology.*

Component

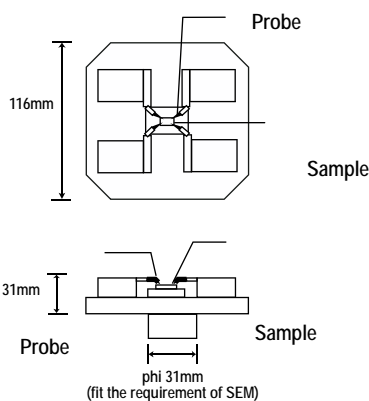
Nano Probe Unit	: 1
Controller Electronics	: 1
Notebook PC	: 1
Pt:Ir Probe	: 1
Accessories	: 1
Manual	: 1

Specifications

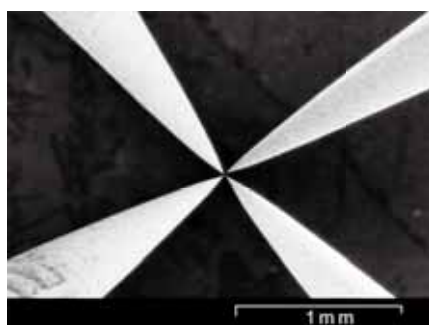
Nano Probe Unit

XY Range	
Coarse	+/- 2.5 mm in 150 nm steps
Fine	less than 1 um in 10 nm* steps
Z Range	
Coarse	+/- 1.5 mm in 150 nm steps
Fine	less than 1 um in 10 nm* steps
Sample Size	10 mm X 10 mm X 1 mm
Weight	less than 1000g

* 0.1nm resolution is possible with optional software.



The schematic drawings for a typical nano probe stage unit are shown above. The stage unit is fabricated to fit your SEM system. Ask for details.



Controller Electronics

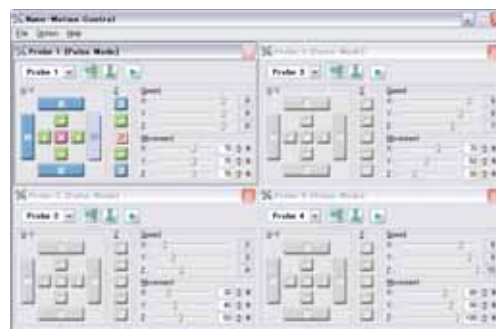
External Input	D-sub +/- 10 V
External Output	D-sub
Interface	Parallel I/O
Power Source	AC100V (50/60Hz)

Notebook PC

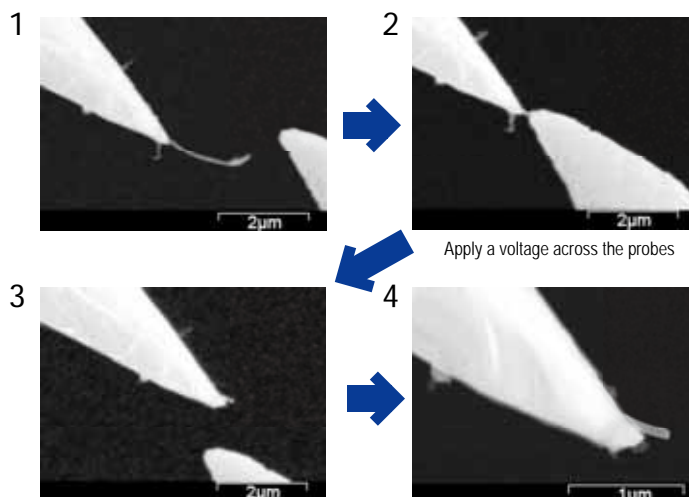
OS	Windows XP
Preinstalled exclusive software.	

Options

The Number of Probe (increase / decrease)
Sample Heating / Cooling
SPM (STM, AFM, etc.) Feedback control function
Others



Application Window



Apply a voltage across the probes

Contribution by M. Yoshimura, Ueda Lab., Toyota Technological Institute.

Instrumental components subject to change without prior notice for improvement in performance.

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