

# Multifunctional Small Unit AFM5100N

The AFM5100N is user-friendly and supports a wide range of measurement modes. Flexible configurations and various accessories will meet the needs of all levels of SPM users.



Select your own configuration

## 1 Detection System

**Self-detection**

**Optical lever**

## 2 Scanner

XY 20  $\mu\text{m}$  Z: 1.5  $\mu\text{m}$     XY 100  $\mu\text{m}$  Z: 15  $\mu\text{m}$     XY 150  $\mu\text{m}$  Z: 5  $\mu\text{m}$

## 3 Optical Microscope

**Microscope with Cover**    **Desktop Zoom Microscope**

Lens magnification: x4    Zoom ratio: x7

**Zoom Microscope**    **Metallurgical Microscope**

Zoom ratio: x7    Lens magnification: x5, x20, x50

**Desktop (passive)**    **Floor model (passive)**

## 4 Anti-vibration

Accessories

Multifunctional Modes

## Detection System

The AFM5100N offers both Optical Lever System and Self-detection System. Optical Lever System supports electromagnetic and mechanical modes and is compatible with environmental controls, such as in-liquid and temperature control. You can achieve multiple measurements without exchanging the cantilever holder, since it can cover all measurements mode except STM and in-liquid imaging. Self-detection System simplifies difficult SPM operations. Its self-sensing cantilever has a sensor on itself, therefore this detection method does not require laser alignment. These two detection systems can be easily swapped by plugging in/out their cables to the main SPM unit.

### Measurement flow of Self-Detection System

Place a sample on the stage    Mount the self-sensing cantilever    Mount Self-detection System and press "Start"    RealTune™II will automatically adjust parameters

The self-sensing cantilever has a piezoresistive sensor, assembled by MEMS technology. The cantilever can be easily exchanged, since it is mounted on a substrate, which makes it easy to grip the cantilever. The cantilever bends from a force that acts on the probe, changing the resistance of the piezo-resistance sensor in the narrow part of the cantilever. Cantilever's deflection changes the resistance, which is detected by the bridge circuit together with the resistance of the temperature compensator dummy resistor.

## Optical Microscope

### Metallurgical Microscope

Metallurgical Microscope enables precise positioning of a cantilever.

**Crystallinity in polymer**    **Patterns on a silicon wafer**

## Impact Stage (optional)

The impact stage is a function that can easily change measurement positions by the operation on the screen display. This greatly improves operability for measuring multiple locations on the same sample.

**Before moving (when measuring A)**    **After moving (when measuring B)**

**Before moving**    **After moving**