The New NanoScope V SPM Controller

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Fast, Dependable Data Capture: The new NanoScope® V controller utilizes advanced electronics, including A/D and D/A converters operating at 50MHz, to deliver reliable, high-speed data capture. This state-of-the-art fifth-generation controller allows measurement of tip-sample/cantilever dynamics, enabling researchers to study the influence of mechanical properties on the physics of probe-sample interactions at timescales previously inaccessible to SPM users. It also allows calibration of the cantilever spring constant at resonant frequencies up to 2MHz. High-speed data capture is simultaneous with imaging or ramping and independent of microscope mode.

Flexible Controller Features: The NanoScope V enables up to eight images to be simultaneously displayed in real-time (and captured for analysis) with unprecedented signal-to-noise ratio. The controller incorporates three independent lock-in amplifiers and provides thermal tune measurements of cantilever resonance up to 2MHz. It also affords easy access to most input and output signals through front-panel BNCs. Input of data into the controller from an external source (e.g., photomultiplier tube) is supported, as is user access to lock-in amplifiers and to signals to/from a microscope (e.g., XYZ sensors, amplitude, phase).

Highest Pixel Density: The ability to acquire up to 5120 x 5120-pixel images eliminates the need to capture several images at lower pixel densities as well as the requirement for offset adjustments to correlate information from multiple images. The high pixel density saves time when searching for low-density features distributed over large areas and allows observation of large structures and small features in the same image.

Outstanding Software Functionality: Veeco's NanoScript^{TM} open-architecture option provides a growing list of functions to control the SPM for custom experiments and nanoscale research (e.g., nanomanipulation in X, Y, Z; automated scanning; nanolithography with different tip-sample interactions). These functions can also be called from any programming language that can act as a client of Microsoft's Component Object Model (COM), including LabVIEW^{TM}, MATLAB®, Visual Basic, Ruby, Python, C++/MFC, Excel®, and Word®.

Easy-AFM, Remarkable Simplicity: For the ultimate in streamlined operational simplicity, Veeco's Easy-AFM^{TM}, offers an intuitive, easy-to-follow graphic user interface for new or infrequent SPM users. It reduces the time for initial setup by engaging the sample with the probe (in air), automatically adjusting the scanning parameters, and obtaining high-quality TappingMode^{TM} images on most samples at a push of a button. Easy-AFM is ideal for multi-user environments.