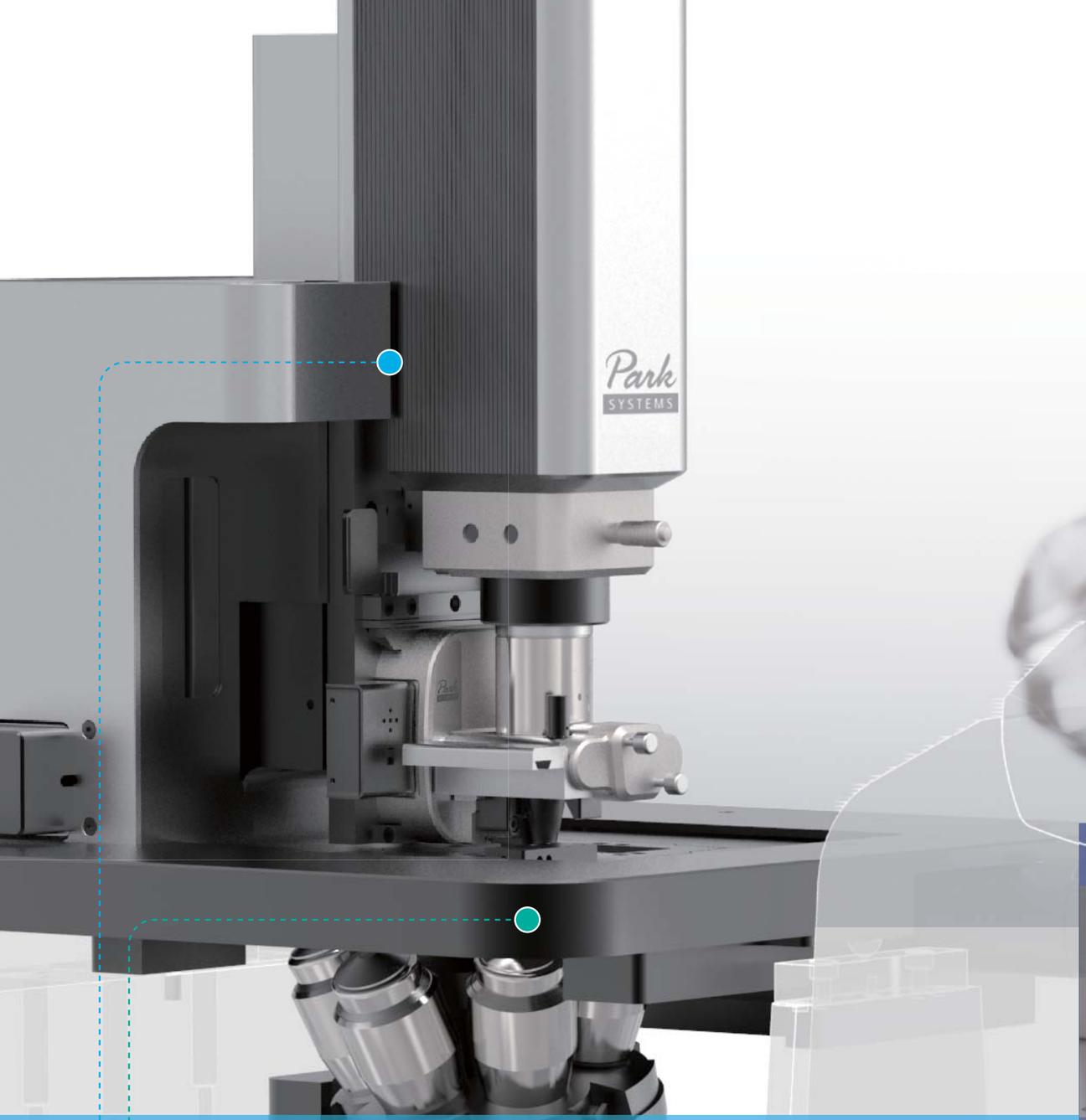
Park NX12

The most versatile AFM platform for your nanoscale microscopy needs

- Atomic Force Microscopy (AFM) for nanometer resolution imaging with electrical, magnetic, thermal, and mechanical property measurement capabilities
- Pipette-based scanning system for high resolution Scanning Ion Conductance Microscopy (SICM), Scanning Electrochemical Microscopy (SECM), and Scanning Electrochemical Cell Microscopy (SECCM)
- Inverted Optical Microscopy (IOM) for transparent material research and fluorescence microscopy integration

www.parkAFM.com

Park SYSTEMS



Proven NX10 Performance with NX-Bio's Sample Stage

Park NX12 couples the versatility and accuracy of Park's AFM with a sample stage for inverted optical microscopy. This enables the study of electrochemical properties in samples that are transparent, opaque, soft or hard.

The perfect platform for Fundamental Electrochemistry

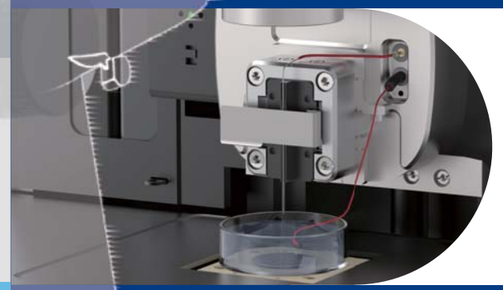
The study of the electrochemistry of batteries, fuel cells, sensors and corrosion is a rapidly growing field, yet many AFMs don't directly address its unique needs. Park NX12 offers the functionality and flexibility chemistry researchers require by giving them all the tools they need in one simple, easy-to use platform. **This includes:**

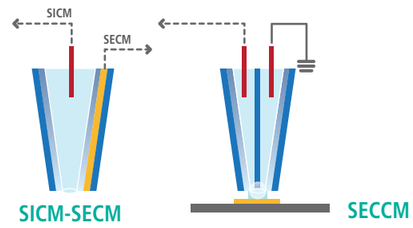
- EC (electrochemical)-AFM
- Humidity control option
- Inverted optical microscope (IOM)
- Fluorescence microscopy integration

Researcher can utilize the NX12 platform for various electrochemical applications:

- SICM-SECM (scanning electrochemical microscopy)
- AFM-SECM
- SECCM (scanning electrochemical cell microscopy)
- EC-STM (scanning tunneling microscopy)

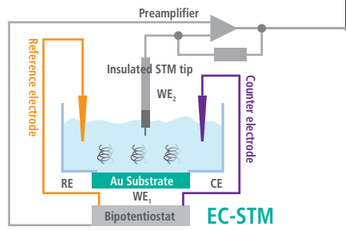
NX12 SICM platform for Ultramicroelectrode (UME) - based applications





SICM-SECM

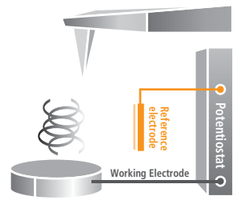
SECCM



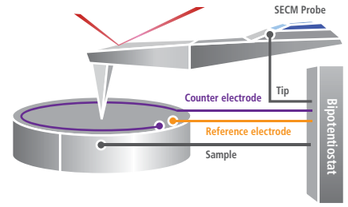
EC-STM

NX12 AFM platform for Cantilever-based applications

EC-AFM



AFM-SECM



A modular platform for shared user facilities and early career scientists

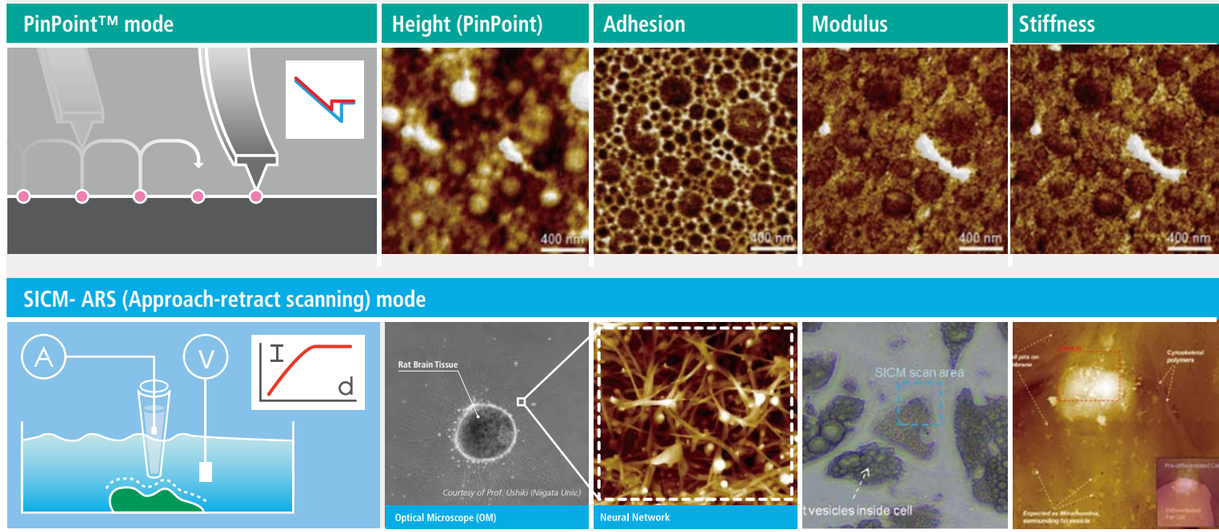
- The Park NX12 is an Atomic Force Microscopy platform specifically tailored to address the needs of analytical and electrochemistry researchers as well as those working in shared use facilities.
- It provides a versatile solution for SPM based characterization of chemical and electrochemical properties and surface characterization in both air and liquid media for a broad range of opaque and transparent materials.
- The Park NX12 is easy to use for pipette based SPM techniques with broad visual optical access to the scanning probe.
- The Park NX12's reasonable price and unparalleled accuracy makes it the ideal platform for multi-user facilities as well as early career researchers.

Built with Multi-User Labs in Mind

Park NX12 was built from the ground up to accommodate the needs of multi-user facilities. Other AFM solutions lack the required versatility to address the diverse needs of users in these facilities, making it difficult to justify the equipment cost. The Park NX12, however, is built to accommodate standard ambient AFM imaging, in-liquid SPM, optical, and nano-optical imaging, making it one of the most flexible AFMs available.

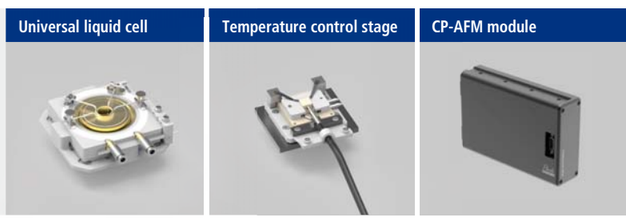
Multiple Applications

The Park NX12 can serve a wide range of functions, including PinPoint™in Liquid and Nanomechanical Mapping, inverted optical microscopy to locate transparent samples, SICM for imaging ultra-soft samples, and enhanced vision to improve optics for transparent samples.



Modular

Park makes it easy to modify the NX12 to suit the unique needs of your lab by installing optional hardware and software add-ons even after installation.

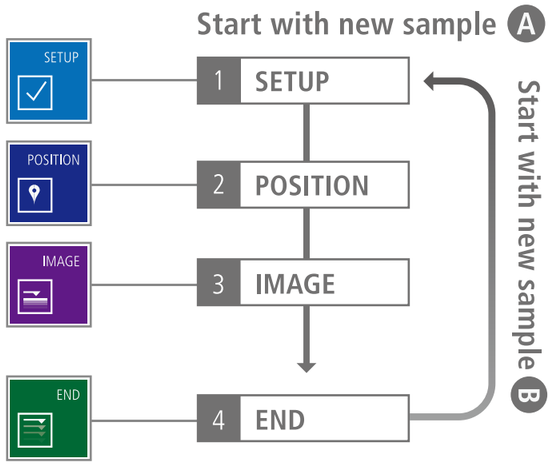


Competitive pricing and flexibility for early career researchers

Early career researchers often don't have the necessary budget to purchase expensive AFM solutions. The Park NX12 offers an affordable entry point while providing a modular platform that can grow with your career. Unlike other similarly priced AFMs, the Park NX12 features advanced research grade accuracy and functionality that can provide nanoscale resolution of surface morphology in air and liquid for both transparent and opaque materials. This allows it to offer one of the best returns on investments for a new chemistry, materials science, or biochemistry lab.

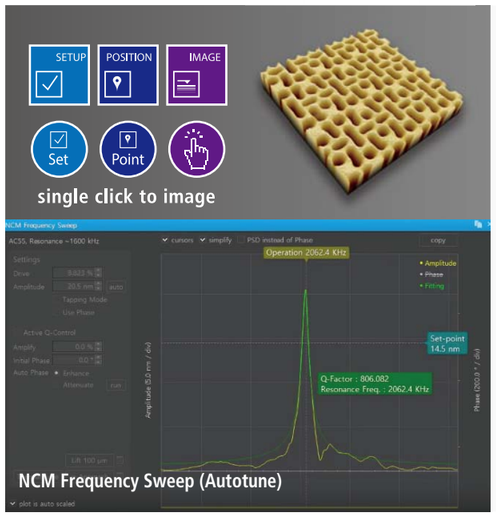
Park SmartScan™ makes scanning fast and simple

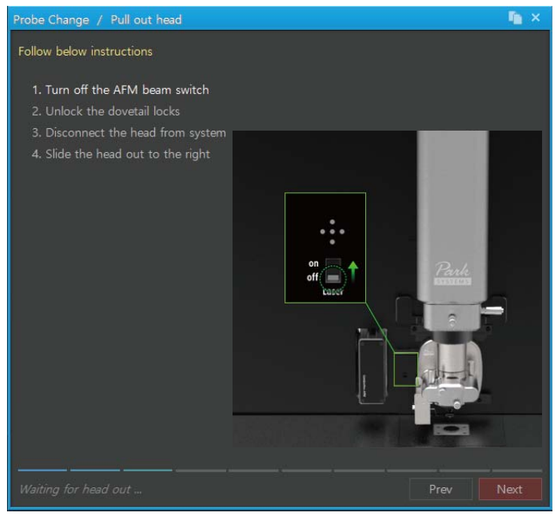
The Park NX12 is equipped with our SmartScan™ OS, making it one of the easiest to use AFMs in the market. With an intuitive but extremely powerful interface, even untrained users can quickly scan a sample without supervision. This lets senior researchers focus their experience on solving bigger problems and developing better solutions.

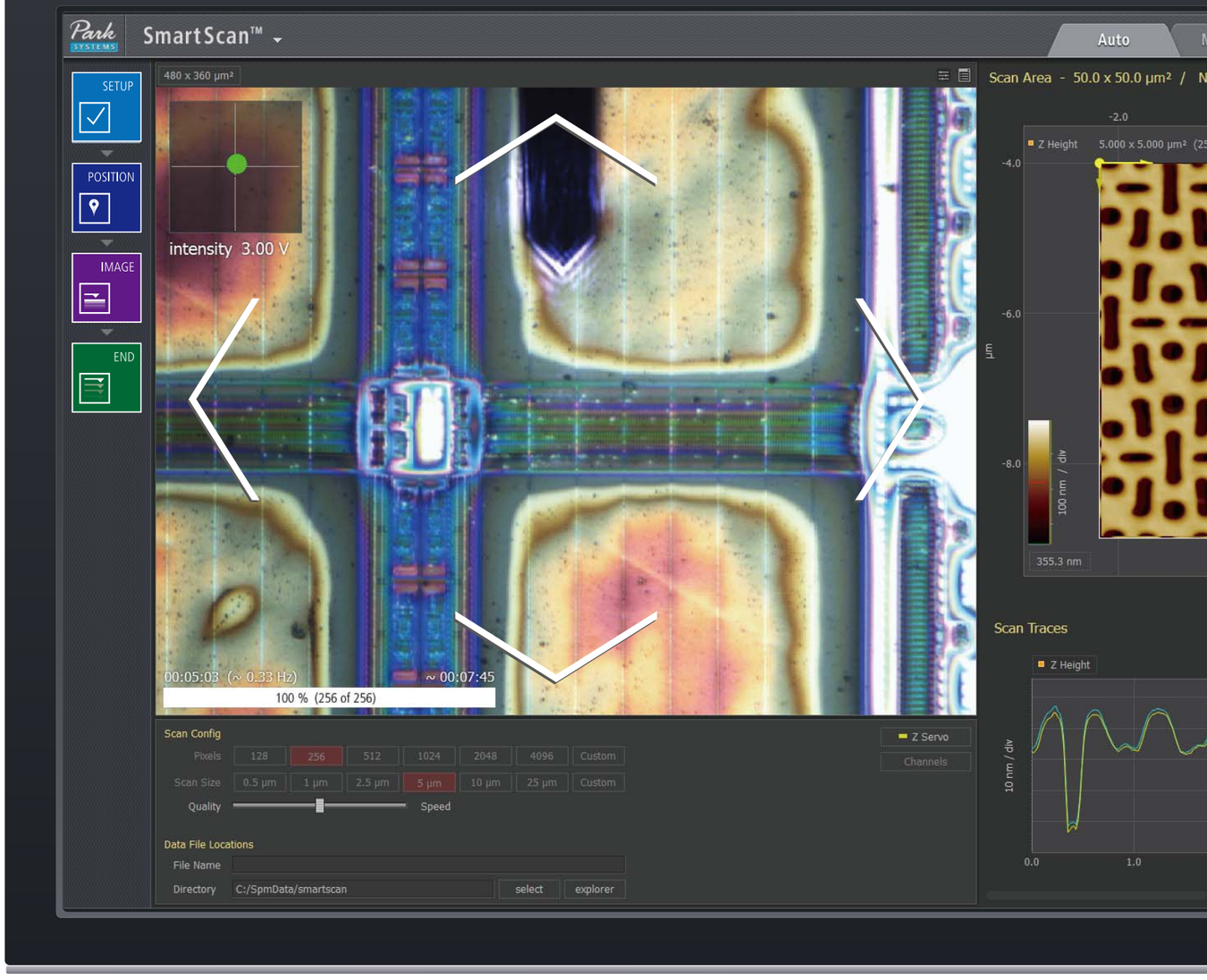


Easy-to-use

Shared labs often have users from a wide range of backgrounds and experience levels. The NX12 can accommodate every user with its simple point and click interface and automated SmartScan™ mode.







Advanced features, affordable price

The NX12 offers features and accuracy usually found only in higher priced solutions, including:

- **Motorized focus stage**
  Fully integrated AFM optics follows tip to reduce the need for oversight.
- **SmartScan makes automated multiple high quality scans simple**
  Park's innovative SmartScan™ automation allows users to take scans and create automated scripts with a click of the button. The NX12 also offers SmartScan™ for SICM.
- **Inverted Optical Microscope (IOM)**
  The NX12's IOM allows users to easily use pipette based techniques and work with transparent samples
- **PinPoint Chemical (SECM)**
  The NX12's PinPoint™ mode allows users to perform SECM with high resolution AFM tips for unparalleled accuracy.
- **Bi-potentiostat compatibility**
  Allows for simple transition between STM, AFM, and SICM.
- **Versatile Humidity and Temperature Control Options**
  The Park NX12 features the ability to control humidity and temperature before and while taking measurements.
- **Easy optical access**
  The system allows top, side, and bottom optical access to the probe from various angles during the measurements. This broad optical access combined with the device's modular design also allows for the addition of optical or nano-optics add-ons.
- **Comprehensive force spectroscopy solution**
  The Park NX12 provides a complete package for nanomechanical characterization in-liquid and in-air, making it ideal for a wide range of applications.

SPECIFICATION

Scanner

XY scanner range: 100 µm × 100 µm
AFM head Z scanner range: 15 µm, 30 µm
SICM head Z scanner range: 15 µm, 30 µm

Electronics

ADC: 18 channels
4 high-speed ADC channels
24-bit ADCs for X, Y, and Z position sensor

DAC: 12 channels
2 high-speed DAC channels
20-bit DACs for X, Y, and Z positioning
3 channels of integrated lock-in amplifier

AFM/SPM Modes

Basic modes: True Non-contact™ mode, Tapping mode, and Phase imaging, Contact mode and LFM, PinPoint™ imaging, F/D spectroscopy, Force volume imaging, MFM, Enhanced EFM (Basic EFM, DC-EFM, PFM and SKPM), FMM, Nanoindentation
NX option modes: CP-AFM Options (Basic CP-AFM, ULCA, VECA, SSRM), High Voltage option, SCM, SThM, STM

Vision (AFM)

Direct on-axis vision of sample surface and cantilever
Field-of-view: 480 × 360 µm (with 10× objective lens)
CCD: 1 Mpixel, 5 Mpixel (optional)

Objective lens
10x (0.21NA) ultra-long working distance lens (1µm resolution)
20x (0.42 NA) high-resolution, long working distance lens (0.6 µm resolution) for 25 µm z scanner head

Software - Park SmartScan™

AFM system control and data acquisition software
Auto mode, Manual mode
Batch mode for recipe-automated,
sequential multiple-site measurement AFM operation

Inverted Optical Microscopy

Objective lens: up to 100x
Fluorescence microscopy (optional)
Confocal microscopy (optional)

Faraday cage

For stable SICM operation

The transparent conductive mesh blocks electric fields and shields external static or non-static electromagnetic field of 50/60 H

Technical Support

Park Systems highly values the quality of your research. We are dedicated to helping you with your requests for assistance for any technical issues you may encounter. The sincerity and skill of the engineering team here makes Park one of the most trusted names in the AFM industry. For more information, please contact one of our representatives today.

If you want to learn more about the **Park NX12**, please visit us at www.parkafm.com or contact one of our representatives today.

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***Please consult ParkSystems for details**
Note: All specifications are subject to change without notice.
Please visit our website for the most up-to-date specifications.

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www.parkAFM.com