**Committed to Contribute to Impactful Science and Technological Development**

More than 25 years ago, the foundations of Park Systems were laid at Stanford University, where Park Systems’ founder, Dr. Sang-il Park, worked in Prof. Calvin Quate’s group, the group that invented the world’s first AFM. After years of development, Dr. Park introduced the first commercial AFM to the world, thus starting the successful path of Park Systems. With good foresight, a superior product and keen business acumen, Park has positioned themselves as the dominant industry leader in AFM Nanoscale Metrology and in 2020, Park Systems will roll out their most exciting line of AFM products in their history.

Park Systems continuously strives to live up to the innovative spirit of its origin. Throughout its long journey, the company has been committed to provide advanced, accurate, and reliable AFM instrumentation, with revolutionary features such as True Non-Contact™ mode and PinPoint™ Nanomechanical AFM. Cutting-edge AFM automation features, like SmartScan™, make Park Systems AFMs not only extremely easy to use, but they also enable users to obtain outstanding results faster, more efficiently, and more accurately.
Park XE15
AFM Technology

Flat Orthogonal XY Scanning without Scanner Bow
Park's Crosstalk Elimination scanner structure removes scanner bow, allowing flat orthogonal XY scanning regardless of scan location, scan rate, and scan size. It shows no background curvature even on flattest samples, such as an optical flat, and with various scan offsets. This provides you with a very accurate height measurement and precision nanometrology for the most challenging problems in research and engineering.

Decoupled XY and Z Scanners
The fundamental difference between Park and its closest competitor is in the scanner architecture. Park's unique flexure based independent XY scanner and Z scanner design allows unmatched data accuracy in nano resolution in the industry.

Unprocessed raw data

Accurate Surface Measurement
"Flat" sample surface as it is!
- Low residual bow
- No need for software processing
- Accurate results independent of scan location

The Most Convenient Sample Measurements with MultiSample Scan
- Automated imaging of multiple samples in one pass
- Specially designed multi-sample chuck for the loading of up to 16 individual samples
- Fully motorized XY sample stage travels up to 150 mm x 150 mm

Accurate XY Scan by Crosstalk Elimination
- Two independent, closed-loop XY and Z flexure scanners
- Flat and orthogonal XY scan with low residual bow
- Accurate height measurements without any need for software processing

Best Tip Life, Resolution and Sample Preservation by True Non-Contact™ Mode
- Fast Z servo speed enabling True Non-Contact™ Mode
- Minimum tip wear for prolonged high-quality and high-resolution imaging

Versatile Range of Modes and Options
- Comprehensive set of measurement modes and characterizations
- Expanded capabilities with optional accessories and upgrades
- Advanced electrical measurements for failure analysis (FA)
True Non-Contact™ Mode

True Non-Contact™ Mode is a scan mode unique to Park AFM systems that produces high resolution and accurate data by preventing destructive tip-sample interaction during a scan.

Accurate Feedback by Faste Z-servo enables True Non-Contact AFM
• Less tip wear → Prolonged high-resolution scan
• Non-destructive tip-sample interaction → Minimized sample modification
• Maintains non-contact scan over a wide range of samples and conditions

True Non-Contact™ Mode Preserves Tip Sharpness

AFM tips are so brittle that touching a sample will instantly reduce the resolution and quality of the image they produce. For soft and delicate samples, the tip will also damage the sample and result in inaccurate sample height measurements, something that can cost you valuable time and money. True Non-Contact™ mode, a scan mode unique to Park AFMs, consistently produces high resolution and accurate data while maintaining the integrity of the sample.

Deep trench image

Before taking image

After taking 20 images

FastApproach™

Click the Position button, and the Z scanner approaches the sample automatically and at a much higher speed than the typical manual approach. Park’s FastApproach™ safely takes the cantilever down to the sample surface at full speed without the user’s intervention and engages in just 10 seconds after loading the cantilever.

Easy to find an area of interest

After tip-to-sample engagement, the optical camera will automatically focus on the sample to find your area of interest (AOI). The UX of SmartScan™ easily enables intuitive navigation of the sample by controlling the motorized stages in the integrated optical window. You can move the AOI of the sample directly by clicking the desired position in the optical window.

Speeds up imaging with AdaptiveScan™

Park’s innovative AdaptiveScan™ controls the scan speed automatically based on the peaks and valleys of the sample surface. AdaptiveScan™ adjusts the optimum scan speed dynamically to acquire a quality image of an unknown morphology at a higher speed. This effectively shortens the imaging time while retaining tip image quality comparable to that obtained by a well-trained expert manually. When moving to neighboring locations or zooming in to a target, AdaptiveScan™ automatically applies a new optimal condition.
### Park Atomic Force Microscopy Modes

Get the data you need with Park’s selection of scanning modes

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**Multi-Layer Ceramic Capacitor**

**Scanning conditions**
Scan Mode: PFM (Lateral signal)
Cantilever: PPP-EFM (k=2.8 N/m, f=75kHz)

[Image of Multi-Layer Ceramic Capacitor]

**Height**

[Graph of Height vs. Sample Bias]

**PFM Amplitude**

[Graph of PFM Amplitude vs. Sample Bias]

**PFM Phase**

[Graph of PFM Phase vs. Sample Bias]

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**Block Copolymer**

**Scanning conditions**
Scan Mode: Tapping
Cantilever: AC160TS (k=26 N/m, f=300 kHz)

[Image of Block Copolymer]

**Height**

[Graph of Height vs. Sample Bias]

**Phase**

[Graph of Phase vs. Sample Bias]

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**Polymer Thin Film/Au/SiO₂**

**Scanning conditions**
Scan Mode: Tapping
Cantilever: AC160TS (k=26 N/m, f=300 kHz)

[Image of Polymer Thin Film/Au/SiO₂]

**Height**

[Graph of Height vs. Sample Bias]

**Phase**

[Graph of Phase vs. Sample Bias]

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* The image was measured after re-arranging the polymer direction by applying 1V tip bias at the center of the sample.