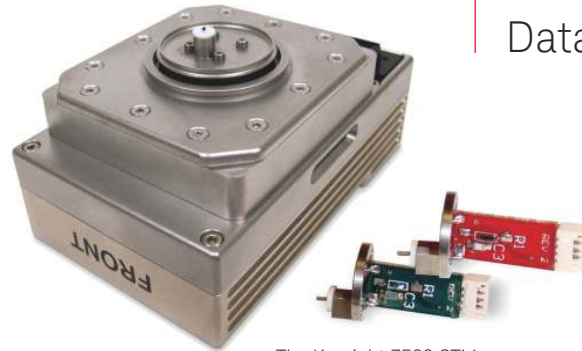


Keysight 7500 STM Scanner

Data Sheet



The Keysight 7500 STM scanner and 1nA/V and 10nA/V pre-amp modules.

Features and Benefits

- Wide range of current sensitivity provides guaranteed atomic resolution imaging of conducting surfaces
- Designed for imaging in ambient, controlled gas, or in a fluid environment
- Top-down configuration protects electronics and piezo elements from damage caused by harsh imaging environments
- Full compatibility with Keysight Technologies, Inc. modular AFM/SPM microscopes offers simple upgrade path for extended capabilities
- Easy fluid exchange permits greater EC-STM versatility

Overview

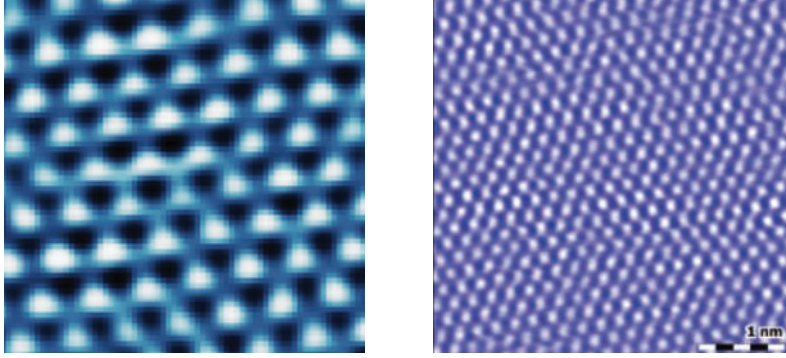
Scanning tunneling microscopy (STM) is a scanning probe microscopy (SPM) imaging technique that takes advantage of the extreme distance sensitivity of the tunneling current between two conducting electrodes. By measuring the tunnel-current variations as a probe is scanned over a sample's surface, STM consistently delivers the highest resolution SPM images.

Keysight STM scanners are designed to deliver optimal results on a variety of conducting materials. These low-current and ultra-low current STM scanners provide stable imaging at pico-ampere and sub-pico-ampere currents, sufficient to resolve individual atoms and molecules easily. Over the past twenty years, Keysight STM scanners have consistently delivered superior performance and results leading the market with the best atomic resolution with the shortest time to results.

A hermetically sealed, top-down configuration provides complete isolation of the scanning elements and electronics from the imaging environment. This design allows total environmental control, fluid friendly operation, and unparalleled thermal stability. The result is a system with stability to measure reliably at high resolution at up to 250°C for as long as 10 hours with no user intervention.

Temperature Control

While imaging with Keysight STM scanners, a wide range of sample temperatures (from -30°C to 250°C) can be precisely controlled with up to $\pm 0.025^\circ\text{C}$ accuracy, in ambient or in liquid.



STM image of HOPG, (left) 5nm scan, (right) 1nm scan.

Atomic STM Specifications

Size:	1.5 μm in XYZ
Noise level:	<1 \AA in XY, <0.2 \AA in Z
STM probe:	0.25mm Pt-Ir or W wire

AFM Instrumentation from Keysight Technologies

Keysight Technologies offers high precision, modular AFM solutions for research, industry, and education. Exceptional worldwide support is provided by experienced application scientists and technical service personnel. Keysight's leading-edge R&D laboratories are dedicated to the timely introduction and optimization of innovative, easy-to-use AFM technologies.

www.keysight.com/find/afm

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