OPTOSKY
Spectroscopy Solutions

Atomic Force Microscopy	ATRA8300-AFM

Features

- Can be combined with a Raman spectrometer to expand functionality.

- Precision probe positioning device, laser spot alignment adjustment is very simple.

- The laser detection head and sample scanning table are integrated, with a very stable structure and strong anti-interference ability.

- Single axis drive sample automatically approaches the probe vertically, making the needle tip to scan perpendicular to the sample.

- Intelligent needle feeding method for motor controlled piezoelectric ceramic automatic detection, protecting probes and samples.

- Ultra high magnification optical positioning system for precise positioning of probe and sample scanning areas.

- Integrated scanner nonlinear correction user editor for nano characterization and measurement accuracy better than 98%.

Application

- Polymers
- Semiconductors & microelectronics
- Material sciences
- Biomolecules & membranes
- Graphene & 2D materials

Description

Atomic Force Microscopy (AFM) was developed to overcome a fundamental drawback of scanning tunneling microscope (STM) - it can only image conductive or semiconducting surfaces. The advantage of AFM is that it can image almost any type of surface, including polymers, ceramics, composites, glass, and biological samples.

Unlike scanning tunneling microscopy, Atomic Force Microscopy does not require a conductive sample. Instead of using the quantum mechanical effects of tunneling, atomic forces are used to map the interaction of the tip with the sample.

Atomic Force Microscopy is simultaneously equipped with optical two-dimensional measurement and atomic force microscope three-dimensional measurement functions.
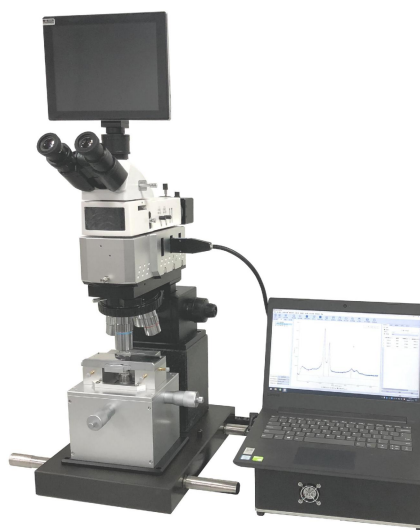
Performance parameters

Atomic Force Microscope performance	
Operating mode	Contact mode, tap mode
Optional mode	Friction/lateral force, amplitude/phase, magnetic/electrostatic force
Force spectrum curve	F-Z force curve, RMS-Z curve
XY scan range	50×50um，20×20um and 100×100um optional
Z scan range	5um，2.5um and 10um optional
Scan resolution	Horizontal 0.2nm, vertical 0.05nm
Sample size	Φ≤68mm，H≤20mm
Optical objective lens	5X/10X/20X/50X plan apochromatic objective lens
Optical eyepiece	10X
Illumination	LED Kohler illumination
Optical focus	Coarse and fine manual focusing
Camera	5 megapixel CMOS sensor
Monitor	10.1-inch flat panel display with image measurement function
Scan rate	0.6Hz~30Hz
Scan angle	0~360°
Operating environment	Windows XP/7/8/10 operation system
Communication interface	USB2.0/3.0