



Scientific Instruments to the Future

Angstrom Advanced Inc.



Summary

- As a leading supplier of Scientific Instruments, Angstrom Advanced has extensive experience in designing, manufacturing, building and installing a variety of Scientific Instruments; especially Ellipsometer, Atomic Force Microscope, Scanning Probe Microscope, Scanning Electron Microscope, Lab & Industrial Hydrogen, Nitrogen, Air Gas Generators, X-ray Diffractometer, etc
- Angstrom Advanced's corporate headquarters are located in Massachusetts, USA. We have numerous partnerships and representatives in countries worldwide.





Angstrom Product Lines

Angstrom Advanced instruments have been delivered to many renowned universities, research institutes and companies worldwide. Angstrom Advanced's goal is to supply the most accurate and sustainable scientific instrument upholding the highest standard of customer satisfaction. Below are some of our customers:

US Army Research Lab
NASA
Sandia National Laboratories
NIST
NRC-Canada
Yale
Stanford

UC, Berkeley
MIT
UIUC
Duke University
University of Iceland
Los Alamos National Labs
Rice

Honeywell
Air Product
CIBA Vision Corporation
Lucent Technologies
Sharp Microelectronics
Hyundai



Angstrom Product Lines

AA2000 Atomic Force Microscope



High Performance

- Atomic-scale of resolution
- Large sample size
- With a DSP inside for great performance
- Real time operating system embedded
- Fast Ethernet connection with computer

Multi-Function

- Atomic Force Microscope (AFM)
- Scanning Tunneling Microscope (STM)
- Lateral Force Microscope (LFM)
- Force Analysis: I-V Curve, I-Z Curve, Force Curve

Easy Operation

- Fast automatically tip-engaging
- Simple change the tip holder to switch between STM and AFM

- **Function** : Atomic Force Microscope (AFM)
Lateral Force Microscope (LFM)
- **Resolution** AFM: 0.26nm lateral, 0.1nm vertical
- **Technical** X-Y scan scope: $\sim 10\mu\text{m}$
- **Parameters**: Z distance: $\sim 2\mu\text{m}$
Image Pixels: 128X128, 256X256,
512X512, 1024X1024
Scan Angle: $0\sim 360^\circ$
Scan Rate: $0.1\sim 100\text{Hz}$
- **Software** : Online Control Software and offline
Image Processing Software for Windows
Vista/XP/2000/9x;



Angstrom Product Lines

AA3000 Scanning Probe Microscope



AA3000 Scanning Probe Microscope is a very popular model. This unit is tailored toward research and industry applications, where the user can perform rapid and simple analysis. The detector is built directly into the base, eliminating the chance of damaging it through handling. AA3000 Scanning Probe Microscope is capable of performing contact mode, tapping mode, lateral force microscopy and scanning tunneling microscopy. The standard unit is equipped to view sample areas up to 10 micron by 10 micron. The system can be customized to measure larger areas. With a Digital Signal Processor (DSP) TMS320C642 inside the systems, AA3000 can handle complicated multi-functional tasks efficiently. A real-time operating system of SPM/DNA is embedded in AA3000 SPM system.

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Angstrom Product Lines

■ AA5000 Multi-function SPM Systems

Features

- Multi-function: AFM, LFM, STM, Conductive AFM, MFM and EFM;
- Multi-Mode: Contacting Mode, Tapping Mode, Phase Imaging and Lifting Mode;
- SPM can be in liquid;
- Real-time temperature and humidity detecting;
- Force Analysis: I-V Curve, I-Z Curve, Force Curve and Amplitude Curve;
- Nano-Processing and manipulating: Lithography Mode and Vector Scan Mode;
- Fast automatically tip-engaging
- Simply change the tip holder to switch between STM and AFM;
- Full digital control, auto system status recognition;
- Adjustable lighting inside.

Function

- Atomic Force Microscope (AFM) which has full coverage of Contacting Mode, Tapping Mode, Phase Imaging and Lifting Mode;
- Lateral Force Microscope (LFM);
- Scanning Tunneling Microscope (STM);
- Conductive AFM, SPM in liquid, Environmental Control SPM;
- Nano-Processing System including Lithography Mode and Vector Scan Mode;



Angstrom Product Lines

ADX-2500 X-ray Diffraction Instrument



Perfect incorporation of the hardware and software system, for the needs of researchers from various fields; High precision of the diffraction angle measurement system to obtain the more accuracy of the data; Higher stability of the X-ray generator controlling system provides excellent repeatable measurement accuracy; Programmed operate and incorporated design, convenient for operation and the apparentness looks handsome

- *Data Processing Software*

General diffraction data processing: automatic peak search, manual peak search, integral intensity, separation of $K\alpha_1$ 、 α_2 , background remove, pattern smoothing and magnifying, multiple plot, three-dimensional plot and simulation of XRD pattern et al.

- *Qualitative Analysis:*

The data processing software has the search and match function on the base of whole profile and diffraction angle. The whole profile matching procedure employs the designed mode to do the qualitative analysis by reducing the search range from major, minor, to micro phase without indicating the diffraction angle. The diffraction angle matching procedure is based on the peaks position and intensity and usually used for the qualitative analysis of the data with large angle error.



Angstrom Product Lines

ADX-2700 θ - θ Powder X-ray Diffraction Instrument



ADX-2700 θ - θ Powder X-ray Diffraction Instrument is multi-function Diffractometer with exceptional analysis speed, reliability and reproducibility. The ADX2700 has unique designed features for the challenges of modern materials research, where the lifetime of a Diffractometer is considerably longer than the horizon of any research project. Every main components are fresh and powerful.

- *ADX-DWZ* Combination of Eulerian cradle for stress and texture investigations, Thin film and Quantity Analysis attachment with control and analysis software with alignment-free feature



- *ADCX* Sample changer is compact and rugged. Integrated spinning improves particle statistics in polycrystalline sample measurements. Fully automatic alignment.



Angstrom Product Lines

ADX-8000 Mini $\theta - \theta$ X-ray Diffraction Instrument



ADX-8000 mini $\theta - \theta$ Powder X-ray Diffraction Instrument is a multi-function desktop diffractometer with exceptional analysis speed, reliability and reproducibility. The ADX-8000 has been uniquely designed for the challenges of modern materials research, where the lifetime of a diffractometer is considerably longer than the horizon of any research project. Components are top of the line and provide for a powerful system.

■ Features

- Smaller size but same performance level as ADX-2700
- High precision of the diffraction angle measurement allows ADX-8000 to obtain more accurate data;
- Higher stability of the X-ray generator control system provides excellent measurement accuracy;
- Simple and effective design makes ADX-8000 convenient for operation and user friendly.





Angstrom Product Lines

AA 800/900 Handheld XRF Analyzer



Safety

- Radiation Tested – Double Layer Lead Coating for prevention of X-ray Leakage
- Self-contained password manager mode.
- Waterproof, dust-proof and shockproof suitcase
- CE Certified/ISO9001 Certified

Performance

- Small, light and easy to carry. High-speed processing chip, advanced algorithm and high-responsive software, resulting in even faster analysis.*
- High-performance X-ray Tube, Ultra-high Resolution Detector combined with Digital Multi-channel Processing Technology, yielding super-high detection resolution.*
- Industrial resistive touch screen, superior to capacitor screen in back-light and clearer against sunlight in the field.*
- AA Handheld XRF adjusts air pressure factor automatically based on altitude it has detected. This function increases excitation effect of light elements by 40% and that of rare earth elements by 30%.*

Application

- Alloy
- Precision Metals
- Mineral
- RoHS
- Thickness
- Soil
- Etc...



Angstrom Product Lines

Gas Generator



- *HGH-300 and HGH-500* high purity hydrogen generators are based on the technology of astronautic fuel cells, in which hydrogen is produced by the electrolysis of water, and the produced oxygen is released into the atmosphere.



- *HGN-300 & HGN-500* nitrogen gas generators utilize theories of physical adsorption and electrochemical separation and use rare metal as catalytic agent. The instrument can directly extract highly pure (as high as 99.999%) nitrogen from the air. There is no need of deoxidation. The generators are compact and advanced in technology. They are very suitable for gas chromatographs and micro coulomb meters.



- *Model GNA-300 (500)* combined nitrogen and air generator is an organic combination of nitrogen generator and air generator. It generates high purity nitrogen and pure air simultaneously and has the same advantages as HGN and HYA generators. Suitable for use with gas chromatograph.



Angstrom Product Lines

Gas Generator



- ***HGH3000/5000 Hydrogen Generator*** : HGH5000 has been designed to supply the highest purified hydrogen and it meets high levels of expectations in the demanding markets. The internal mechanisms that run this generator are integrated with the latest electrolytic cell technology, using stainless steel alloy as its hard body. The new ergonomic design and user-friendly interface have been modified for comfort and reliability for the consumer.



- ***HYA-2L (5L) and HYA-10L (20L) Air generator*** : The gas route system adopts two levels of pressure stabilizers and over-pressure protectors to improve the stability of gas flow and ensure the safety and reliability of the gas production



- ***GHA-300/500 Combined Hydrogen and Air Generator*** : GHA-series generator combines the two with great quality and user friendly design. It is a perfect combination of safety, convenience and reliability, featuring advanced technique and stable performance



Angstrom Product Lines

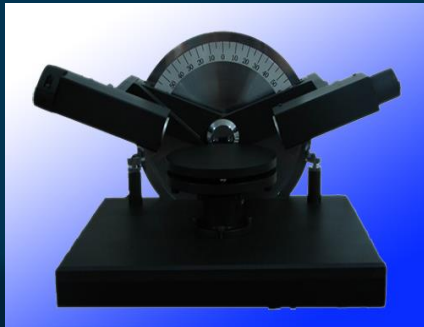
Ellipsometer



- ***PHE101 Discrete Wavelength*** : is an ideal discrete wavelength ellipsometer designed for measuring the refractive index and thickness of single and multi-layer films. The PHE101 ellipsometer takes quick and accurate readings due to its precision optical analyzer/detector and its stable mechanical design. The standard wavelength of PHE101 ellipsometer is HeNe laser at 632.8nm. However, The wavelength can be selected from 543nm, 594nm, 612nm, 633nm to 1150nm. Infrared sources at 0.83, 1.31 and 1.52 mm are also available.



- ***PhE101S Variable Angle Discrete Wavelength*** : is a high speed discrete wavelength ellipsometer designed for measuring the refractive index and thickness of single and multi-layer films with up to 9 layers. The PhE101S takes quick and accurate readings due to its precision optical analyzer/detector and its stable mechanical design.



- ***PHE101M Multi-Wavelength*** : is an ideal discrete wavelength ellipsometer for measuring the refractive index and thickness of single and multi-layer films at several wavelengths. It has the widest variable angle (10-90°) which is adjustable in steps of 5°, with an accuracy of 0.01°. The PHE101 ellipsometry software is prepared for material library with predetermined measurement parameters allowing the operator to select an application and quickly execute measurement.



Angstrom Product Lines

Ellipsometer

- *PHE 102 Spectroscopic* : is a variable angle spectroscopic ellipsometer operating in the spectral range 250 - 1100nm, 250-1700nm or 250-2100nm. Two technical concepts are available for the PHE-102
 - ❖ uses a photo-diode array(or CCD) as a detector.
 - ❖ uses instead of the photo-diode array a monochromator for wavelength selection
 - ❖ Quick measurement in the UV/VIS/NIR range of 250 - 1100 nm with diode array detector or motor spectrometer (monochromator)
 - ❖ Rotating polarizer provides accurate measurement of any polarization state
 - ❖ Step scan analyzer for high speed and low noise acquisition
 - ❖ Variable angle from 10-90° automated angle from 10-90° is also available
 - ❖ Fast determination of thickness and refractive index of single or multi-layer samples
 - ❖ Broad range Psi and Delta data are measured automatically and fitted through the PHE-102 software
 - ❖ PHE-102 software is the most comprehensive program available for data acquisition and analysis. It combines state-of-the-art mathematical fitting algorithms with a large selection of modeling options for fast and accurate data analysis. An advanced spectroscopic ellipsometry software.





Service

- We have built our reputation on the quality of service that we offer our customers. All members of our service team are experienced and factory trained to handle installations and provide after sales support. We are committed to providing quality service to ensure that users get the most from their instruments.
- Our after sales teams are dedicated to delivering the highest levels of technical support and customer service, as well as maintenance to keep your instruments and equipment at optimal performance.
- With Angstrom Service and support team of highly qualified, factory trained staff, we can assist you with all of your service and application questions.





Contact Information

Dear Customers,

At Angstrom Advanced Inc., we are committed to placing our customers first by combining quality products with the latest technology to ensure top performance and flawless results with every style. Add our knowledgeable staff and supporting engineered Manufacturing and specifications, and you will find Angstrom Advanced Inc. backing up this commitment. As we continue to grow, we look forward to confidently supporting our customers needs and ideas today and throughout the future.

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