Technical Specifications

Hardware

- Fully digital control system, based on the powerful Texas Instruments TMS3206701 digital signal processor.

- 16 independent, user-programmable 16-bit A/D channels with sample rates up to 100kHz. Each channel can be recorded during scanning.

- 16 x 16-bit D/A channels, with update rates up to 100kHz - mainly used for drive signal generation, but there are 4 user-programmable channels for novel user applications.

- X-Y-Z drive voltages up to +/-150V, with noise levels <2mV$_{rms}$ for a 10kHz bandwidth.

- Signal monitor outputs for most significant channels.

- Fully modular design for flexibility.

- Compatible with most commercial SPM systems.

Software

- Windows™ XP - based, for maximum performance.

- Powerful configurable measurement system enabling sequences of complex experiments to be performed on single atoms or molecules.

- Fully customizable through a plugin mechanism. Plug-ins can be written in a wide range of languages and have full control of the SPM tip, all outputs and the system's user interface.

- Unlimited user-defined channels can be recorded during a scan.

- Real-time oscilloscope display of all signal channels.

- Image analysis and file management facilities.

Optional extras

- Wide range of plugin modules for specific applications.

- Extra-large scanner drive voltage modules up to +/-350V

- Range of coarse positioning driver modules for stepper motors, inertial sliders etc.

- Signal access module, providing access to all I/O channels.

- Software development kit (SDK) for custom applications includes plugin samples and device driver API documentation.

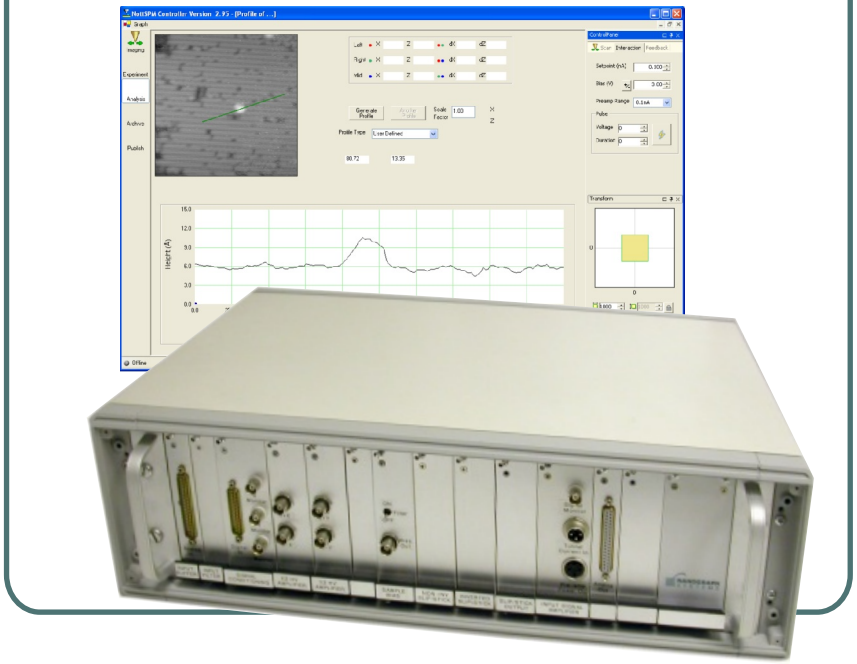
- Closed loop control module for precise tip positioning.

Nanograph Studio SPM controller

Nanograph Systems Limited
School of Physics & Astronomy,
University Park,
Nottingham,
NG7 2RD

Tel: +44 (0)115 8467709
Fax: +44 (0)115 9515180
Email: info@nanographsystems.co.uk
Web: www.nanographsystems.co.uk

NANOGRAPH SYSTEMS



Modular SPM control system

- Ideal upgrade for older SPM heads or custom systems
- Control virtually any scanning probe microscope
- Unique user-defined experiment mode for lithography, spectroscopy, manipulation and more
- Modular design for ultimate upgradability and flexibility

NANOGRAPH SYSTEMS

Nanograph Studio

Take Control

You have a choice

In recent years SPM has become much more than just a powerful imaging technology. It is now routinely used in applications as diverse as the formation of nanostructures to the study of membrane protein interactions.

With so many different applications, the days of the "all in one" SPM system are numbered. Why should you pay for a wealth of techniques that you know you will never use?

Nanograph Studio is different

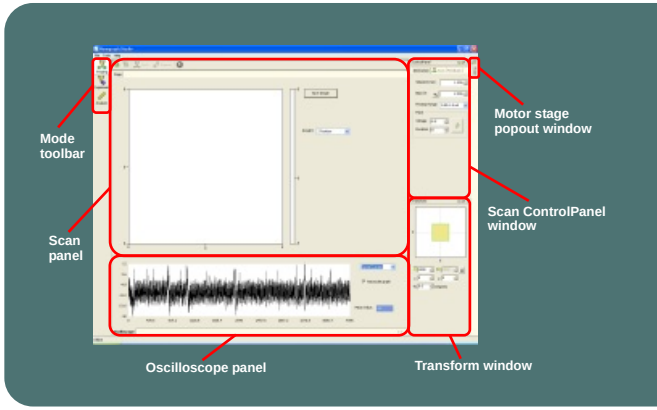
It has been designed from the ground up with customization in mind. A totally modular approach enables us to offer you exactly what you need with none of what you don't. You choose the modules you would like, and only pay for those. So you get a system tailored to your specific needs.

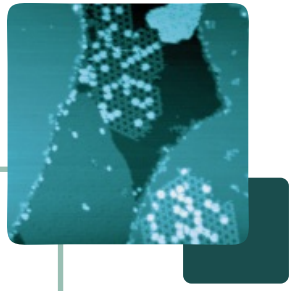
Prepare for the future

Peoples needs change. Who knows what you will need your SPM to do in the future?

Don't gamble

With Nanograph Studio you don't need to take a chance on what might come in handy at a later date. You can easily upgrade your system at any time by purchasing additional modules to meet your current needs. You will be able to take advantage of the latest developments in the field, without the expense of a completely new system.





Design your own experiments

Nanograph Studio's unique Experiment Mode enables you to perform a virtually infinite range of measurements and tasks at pre-defined points on a sample, all with a simple point-and-click interface.

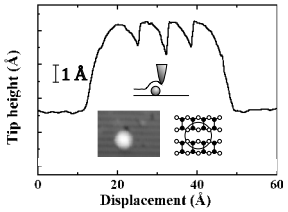
Just define a sequence of points on the surface, select an experiment to perform at each one and let the microscope do the rest! For example you could measure I(V) characteristics along the length of a nanotube, measure force curves as you move over a molecule or even locally oxidise lines or shapes.

Writing custom experiments is also possible through the powerful plug-in system, giving you complete control of every aspect of the system during an experiment.

Total commitment

We are obsessive about meeting our customer's needs. So much so, that we will always sit down with you to establish exactly what you are trying to achieve, what you need from a system and how we can help.
Since we can't always have a ready-made solution to every problem, each system comes with one custom-developed module free of charge*.

We are happy to become involved at any stage of your project. We have even been named as a commercial partner on several recent grant applications. Feel free to talk to us about your requirements at any time.



**Subject to terms and conditions*

State-of-the-art

The purpose-built electronics have one of the lowest noise levels of any commercial SPM control system. Originally designed for use with UHV STMs, where imaging dimensions are routinely an order of magnitude lower than AFM, they have been systematically refined to ensure noise is kept to an absolute minimum.

As with the software, flexibility was also a primary design goal. Its modular design means that the electronics can easily be configured to meet virtually any customer's needs. Innovations such as hardware scan rotation and configurable filters also set the hardware apart from other systems.

The all-digital feedback control ensures no unnecessary noise enters the signal path. The system uses a powerful digital signal processor, capable of 1 GFLOP (10^9 floating point calculations per second), which means that complex feedback algorithms and control techniques can be accommodated with ease.