

Scan Speed	1 s / frame (1 frame / sec) (Scan range: XY: 500 nm × 500 nm, resolution: 200 px × 200 px)
Scan Range	XY: 4 μm × 4 μm, Z: 0.7 μm
Image Resolution	XY: 500 px × 500 px
Observation Environment	In air / In liquid. The observation solution can be added during AFM observation.
Observation Solution Volume	150 μL
Sample Size	Φ1.5 mm
Attached Cantilever	10 mm (L), 2 mm (W)
Cantilever amplitude detection method	Sample and hold method
Resonance Frequency of Cantilever	Sine wave output for resonance: 10 kHz~1.0 MHz
Probe Sensing Method	Optical lever method
Scanning Method	Sample scan method
Scanner Vibration Control Method	Active dumping, Counter balance
Control System	PID control, Dynamic PID control
Measurement Mode	AC mode (Topography image, Error image, Phase image), and Contact mode
Piezo Driver Bandwidth	DC~100 kHz (-3 dB or more: No load)
Difference Amplifier	Number of input channels: 2 channels, Bessel low-pass filter (Fourth-order)
Bus Bridge	PCIExpress (7 slots) Equipped with AD board (12 bit), DA board (12 bit), DIO board
Digital Oscilloscope	Number of input channels: 2 channels, Frequency band: 25 MHz
Laser Diode Current Controller	Controllable range: 0~±100 mA, Current limit setting range: 0~100 mA Noise: Less than 0.2 mA
Laser	670 nm (R/NIR). Selectable with infra-red light when ordering (IR option)
Motor Controller Box	Motor control by PC software and manual control
PC	OS: Windows10, CPU: Intel Core i5 8500 3.0 GHz, HDD: 500 GB Memory: 8 GB, Monitor: 22 inch LCD color monitor × 2
Software	Video acquisition (Possible data collection, data storage) Control functions (Scan control, automatic approach control) Frequency characteristics analysis of cantilevers Number of frames: Save 1000 frames per video file File storage method: Formats can be converted to a general-purpose video file format (Including AVI format and MPEG format)
Anti-vibration table	Air spring method. Height control valves keep the surface table level automatically. Natural frequency: 1.5 Hz, Maximum loading weight: 50 kg
Rack	60 cm(L) × 60 cm(W) × 100 cm(H)

Note:
Standard equipment specification includes standard scanner.

High-Speed Atomic Force Microscope

MS-NEX



Module System High-speed AFM



The High-Speed Atomic Force Microscope (AFM) is a microscope that allows you to visualize a nanoscale sample in air or solution condition with a high-resolution movie.

MS-NEX is based on the SS-NEX (Sample Scan type High-speed AFM*) model, but with a much simpler and easier handling. It features a module system which allows you to select only the functions you need.

Various types of modules are available to be selected to fit your research and budgets.

**Developed by Prof.Toshio Ando (Kanazawa Univ.) and commercialized by RIBM.*

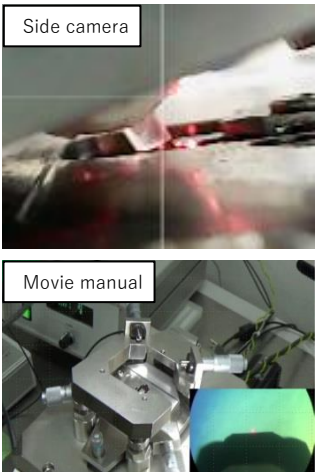
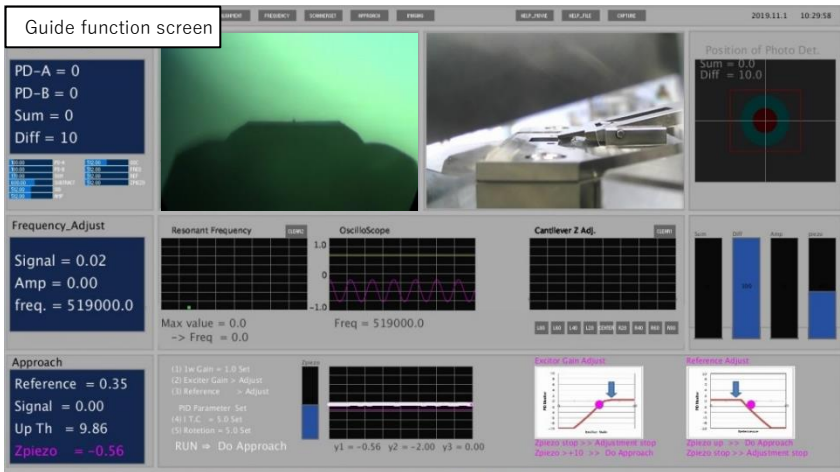
Features

Flexible selection of various functions

MS-NEX which uses a module system make it easier to choose various functions modules that can be customized to fit your needs. The modules can be added now, or later when needed. New developed function modules will also be in the lineup in the future.

Guide system

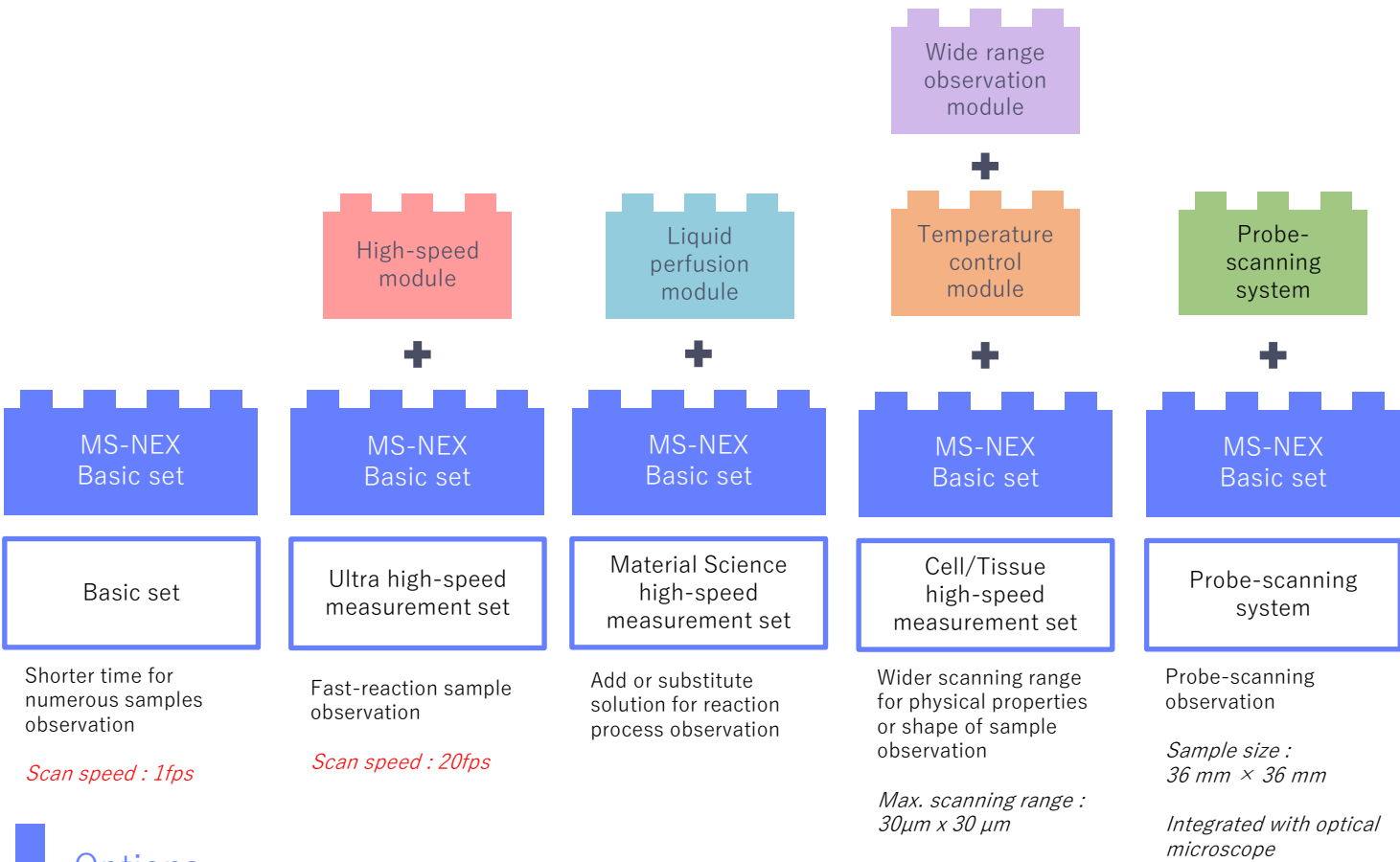
MS-NEX incorporates a guide system. It is feasible even for a beginner to operate the MS-NEX. The guide system will assist from sample preparation to sample observation.



Comprehensive warranty service

MS-NEX is the original Japanese product based on the technology developed by Kanazawa University. We promise quick and detailed after-sales services unique to Made in Japan.

Example of module selection



Options

High-speed module	Scan speed	50 ms / frame (20 frames / sec)	Suitable for high-speed observation such as enzyme reactions and protein structure changes. * Scanner included 【Under development】 Higher speed observation (50fps)
	Scan range	XY: 0.7 μm × 0.7 μm, Z: 0.4 μm	
Wide range observation module	Scan speed	10 s / frame (0.1 frames / sec)	Suitable for relatively large samples with a high scanning rate. * Scanner included
	Scan range	XY: 30 μm × 30 μm, Z: 0.7 μm	
Liquid perfusion module	Possible to change the observation solution during AFM observation. Eg.: pH value and/or the buffer composition can be gradually changed during the measurement.		
Temperature control module	Possible to increase the observation solution temperature from room temperature up to 40°C.		
Illumination module	UV, visible and other excitation light is possible to be used. Example of use: Caged ATP, photoisomerizable molecule		
Probe-scanning system	Scan speed	150 ms / frame (6.7 frames / sec)	Sample size: 36 mm x 36 mm x 3 mm (Φ 50mm) Simultaneous observation of fluorescence image and AFM image by integrating optical microscope.
	Scan range	XY : 4 μm × 4 μm, Z : 2 μm	

Note:
The maximum scanning range for each module is a typical value.
Scan speed is a value under the conditions determined for each module and does not guarantee the scanning speed in the maximum scanning range.