SHIMADZU

Excellence in Science

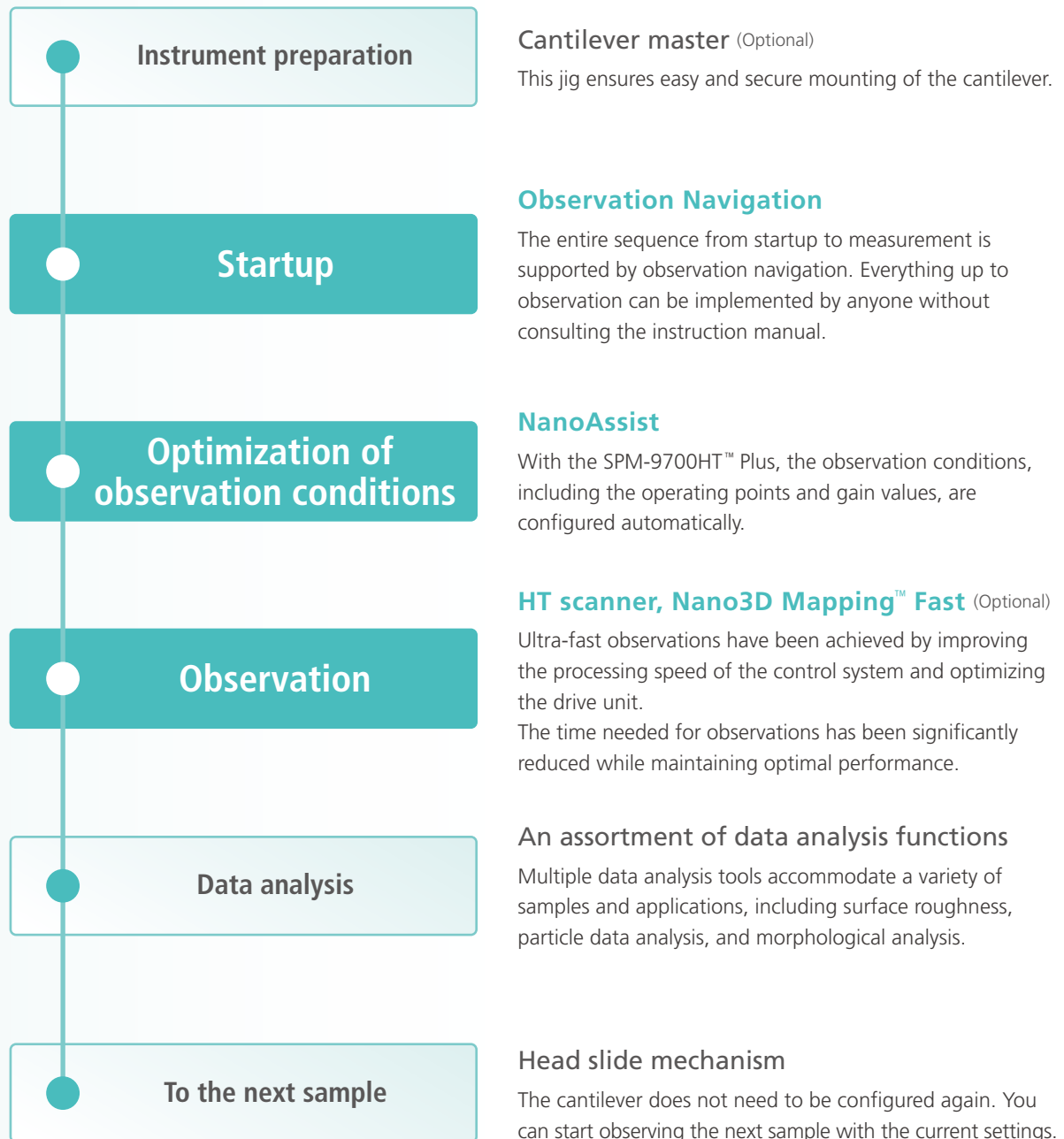Scanning Probe Microscope / Atomic Force Microscope

SPM-9700HT Plus

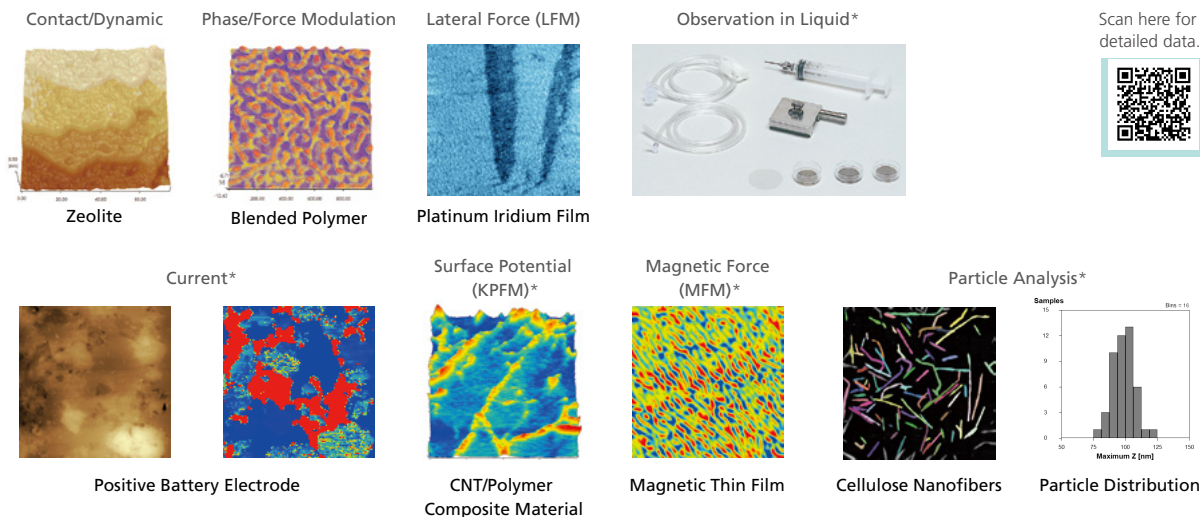# Observations Independent of the Operator

ANALYTICAL INTELLIGENCE

The system and software are equipped with Analytical Intelligence, our user support technology that provides maximum support for the overall workflow, from data acquisition to analysis.

Instrument preparation

Cantilever master (Optional)
This jig ensures easy and secure mounting of the cantilever.

Startup

Observation Navigation
The entire sequence from startup to measurement is supported by observation navigation. Everything up to observation can be implemented by anyone without consulting the instruction manual.

Optimization of observation conditions

NanoAssist
With the SPM-9700HT™ Plus, the observation conditions, including the operating points and gain values, are configured automatically.

Observation

HT scanner, Nano3D Mapping™ Fast (Optional)
Ultra-fast observations have been achieved by improving the processing speed of the control system and optimizing the drive unit.
The time needed for observations has been significantly reduced while maintaining optimal performance.

Data analysis

An assortment of data analysis functions
Multiple data analysis tools accommodate a variety of samples and applications, including surface roughness, particle data analysis, and morphological analysis.

To the next sample

Head slide mechanism
The cantilever does not need to be configured again. You can start observing the next sample with the current settings.

ANALYTICAL INTELLIGENCE

- Automated support functions utilizing digital technology, such as M2M, IoT, and Artificial Intelligence (AI), that enable higher productivity and maximum reliability.
- Allows a system to monitor and diagnose itself, handle any issues during data acquisition without user input, and automatically behave as if it were operated by an expert.
- Supports the acquisition of high quality, reproducible data regardless of an operator's skill level for both routine and demanding applications.

# Application Mode Accommodates an Assortment of Samples

Contact/Dynamic

Zeolite

Phase/Force Modulation

Blended Polymer

Lateral Force (LFM)

Platinum Iridium Film

Observation in Liquid*

Scan here for detailed data.

Current*

Positive Battery Electrode

Surface Potential (KPFM)*

CNT/Polymer Composite Material

Magnetic Force (MFM)*

Magnetic Thin Film

Particle Analysis*

Cellulose Nanofibers

Particle Distribution

* Option

NEW ## Nano3D Mapping Fast (Optional)

The time required for physical property mapping has been significantly reduced compared to the previous machine (SPM-9700HT). The shorter mapping time enables stable physical property evaluation.

High-Density Polyethylene

Observation time Approx. **27 min**
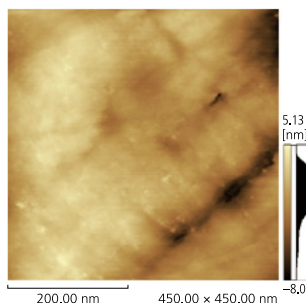
Surface Shape
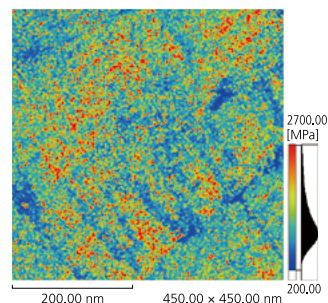
Elastic Modulus Map

NEW ## NanoAssist Optimizes Observation Conditions

ANALYTICAL INTELLIGENCE

Only the observation range needs to be set. Other observation conditions are set automatically.

**Shape Images Obtained with NanoAssist**
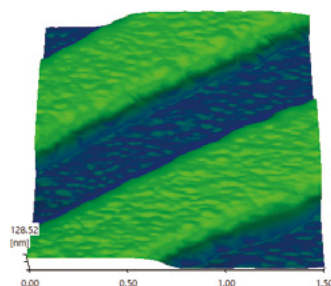
Diffraction Grating
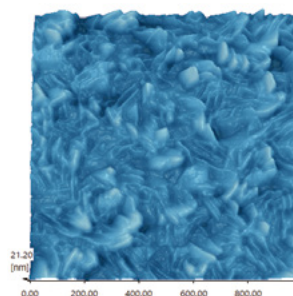
Vapor-Deposited Nb Coating

# High-Throughput Observations

Head Slide Mechanism

The design allows space around the sample, while maintaining a high level of rigidity.

- Samples can be replaced without removing the cantilever holder.
- Samples can be accessed even during SPM observations.
- Samples are approached automatically, regardless of the sample thickness.
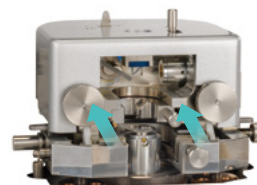
Cantilever Master
Cantilever Mounting Jig (Optional)

Even small cantilevers can be attached with ease.
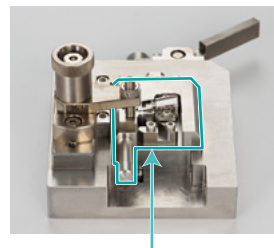
Cantilever holder

Installation Specifications

- **Installation Environment**

  The following conditions are preferable for the installation environment.
  Temperature   23 °C ± 5 °C
  Humidity   60 % max. (no condensation)

- **Power Supply**

  The power supply listed is required for operating this instrument.
  SPM-9700HT Plus

  Single-phase   100 to 120 V, 50/60 Hz, 15 A, 2 circuits
  Grounding   Type D grounding (maximum resistance 100 Ω)

    - The above-mentioned is the power supply for the basic SPM-9700HT Plus specifications. This will change depending on the optional configuration. For details, refer to the specifications.
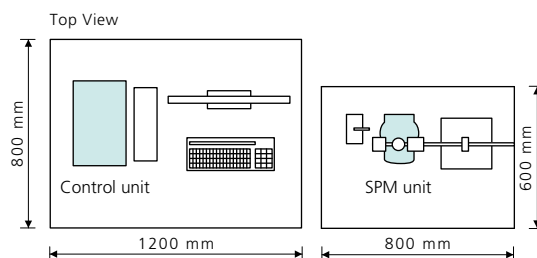
- **Size and Weight**

  SPM unit: W180 × D255 × H260 mm, 5.5 kg
  Control unit: W250 × D420 × H454 mm, 18.5 kg

- **Laser product classification**

  Class 1 Laser product (IEC 60825-1:2014)

Top View

800 mm

Control unit

1200 mm

SPM unit

600 mm

800 mm

- This figure is one example of a configuration.
- The sizes of the OA table and desk-type air-spring vibration damper are for reference.

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