

SMT-1000 - The First Indenter Truly Designed for Teaching

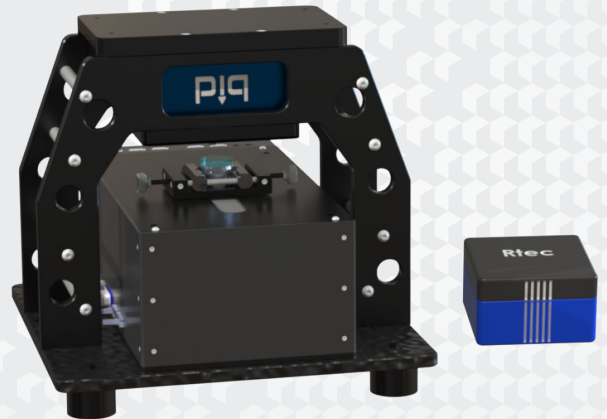


Bring professional nanomechanics into your classroom without the complexity or cost of research systems

The **SMT-1000 Educational Nanoindenter** is designed specifically for universities, engineering schools, and research training labs that want to teach material characterization using professional-grade instrumentation — without the complexity and cost of high-end research systems.

Intuitive, and robust, it enables students to explore independently mechanical properties at the micro and nanoscale with confidence and precision.

Teaching nanomechanics shouldn't be this complicated



Why an Educational Nanoindenter?

- Nanomechanical testing is now essential in:
 - Materials Science
 - Mechanical Engineering
 - Polymer Engineering
 - Thin Films & Coatings
 - Microelectronics
 - Biomedical Materials
 - Surface Engineering

The SMT-1000 PiQ Nano or Micro allows students to move beyond theory and directly measure:

- Hardness
- Elastic Modulus
- Creep behavior
- Viscoelastic properties
- Thin film properties

Students don't just learn equations — they generate real data.

Designed for Teaching, Built with Rtec-Instruments Precision

- Unlike research-oriented nanoindenters that require expert operators, the SMT-1000 was developed with education in mind.
 - User-Friendly Software
 - Guided workflows for first time users

- Step-by-step experiment setup
- Pre-configured teaching templates
- Real-time data visualization
- Automated report generation

Students can focus on understanding materials science — not on struggling with instrument complexity.

Professional Performance

- High-resolution force & displacement sensing
- Precise load control thanks to the piezo and capacitive sensor
- Automated indentation mapping with high accuracy
- Industry-relevant measurement methods



> Typical Student Experiments

The SMT-1000 PiQ enables a wide range of educational experiments:

- Hardness
- Elastic modulus
- Thin film properties
- Creep behaviour
- Load-displacement curve analysis
- Oliver-Pharr method validation

It is a perfect tool for:

- Undergraduate labs
- Master-level materials courses
- Research training programs
- Capstone projects

> Intuitive Software for Learning

- Visualize load-displacement curves in real time
- Clearly display hardness & modulus calculations
- Compare multiple samples instantly
- Export data to Excel or research software (csv or bin file)
- Generate automatic lab reports

Students can clearly connect theory to experimental result

> Reliable, Repeatable, Reproducible

- Excellent measurement stability
- Repeatable results across users
- Lower total cost of ownership
- Long probe lifetime

Engineered for academic environments where multiple users operate the system daily.

> Ready to Transform Your Teaching Labs?

Please Request:

- A live demonstration
- Academic pricing information

> Ideal For:

- Universities
- Engineering Schools
- Technical Institutes
- Research & Teaching Labs
- Materials Science Departments
- Physics Departments

> Flexible Configuration

Adapt the system to your curriculum:

- Multiple indenter tip options
- Different force ranges (nano, micro and ,macro)
- Optional optical microscope
- Optional enclosure
- Advanced modules (upgrade path available)

Start with a teaching configuration — expand later into research capability.

> Why Choose Rtec Instruments?

- Proven expertise in surface & nanomechanical instrumentation
- High-precision engineering
- Dedicated academic support
- Training programs for instructors

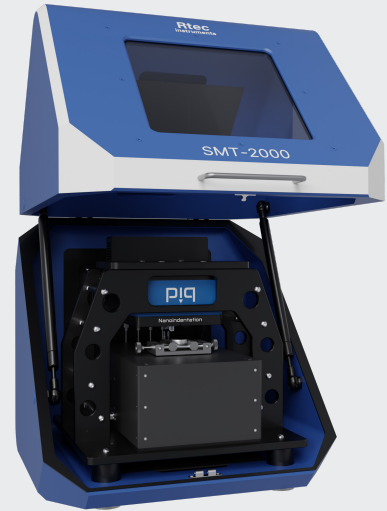
> Responsive technical service

- We don't just provide instruments — we support education.
- Prepare the next generation of materials scientists

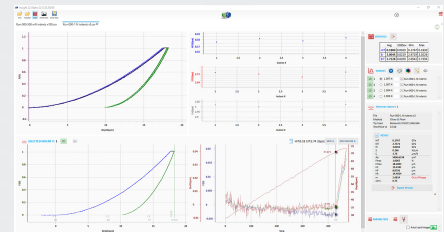
The SMT-1000 PiQ Educational Nanoindenter makes nanomechanics accessible, understandable, and inspiring.

> Contact Us:

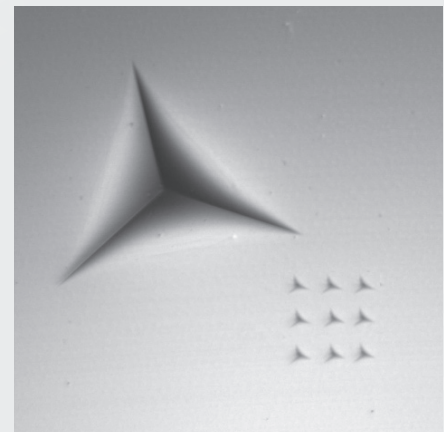
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SMT-1000 with optionnal enclosure



IIT software



Micro (300 mN) vs Nano (5 mN) Indentation

> Specifications

PiQ Nano:

Maximum load	500 mN
Load resolution	0.01 μ N

PiQ Micro:

Maximum load	20 N
Load resolution	1 μ N

Maximum depth	200 μ m
Depth resolution	0.005 nm
Data acquisition rate	1 MHz