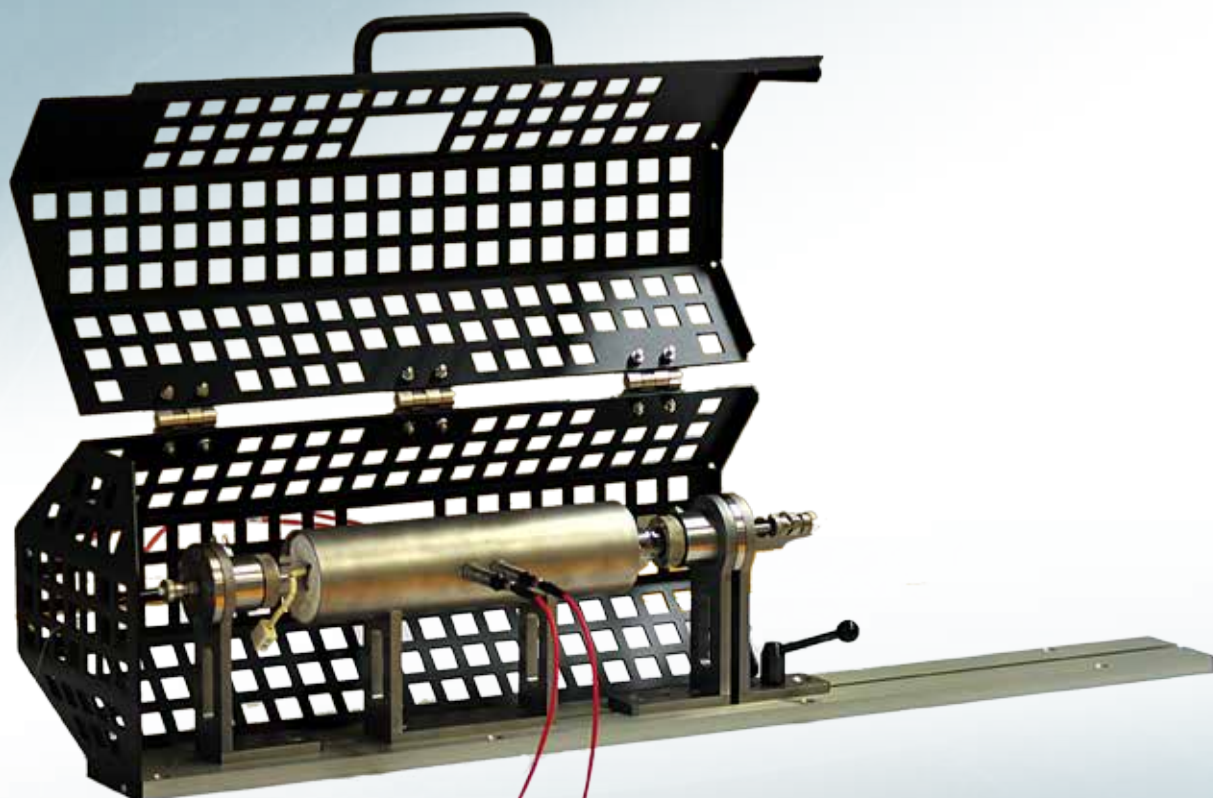# Insplorion X1

Study Reactions and Processes at Nanomaterial Interfaces

● **Ultrasensitive measurements at the nano-scale**
Monitor dynamic processes in/on nanoparticles, nanostructures, and thin films in the few to few 10 nm size-range and at the hidden internal interface of thick coatings.

● **Integrated gas flow control**
The X1 system can be configured to interface with up to 16 mass flow controllers for precise and timely control of gas mixture and flow.

● **Real-time analysis**
Measure with sub-second temporal resolution.

● **Easy and Robust**
Get started quickly with the Insplorer software which offers complete instrument control.

● **In-situ measurements**
Measure under practically relevant conditions at temperatures up to 600°C.

● **Dual sample system**
Measure simultaneously on up to two samples.

High Temperature Reactor

Sensor Chip Positions	Single or Dual Channel
Connections	Inlet: 1/8 inch, Outlet: 1/4 inch
Mass flow regulation*	Up to 16 Mass Flow Controllers can be connected
Materials	Quartz, Stainless Steel
Temperature range	Room temperature to 600ºC

* Not included, The Insplorer Sofware is compatible with Mass Flow Controllers from Bronkhorst.

Sensor chip

Substrate	Fused silica
Size	9.5 x 9.5 mm, 1 mm thick
Surface	Nanostructured gold
Standard coatings*	Au, SiO_2, Si_3N_4, TiO_2, Al_2O_3

* Sensors can be ordered with custom thin film coatings.

Optical readout characteristics

Light source*	Tungsten-Halogen lamp, minimum lifetime 2000 hours
Measured spot size	Circular area ~ 2 mm in diameter
Wavelength range**	450 - 1000 nm
Time resolution	Up to 10 sample points per second
Typical noise***	< 0.01 nm

* Custom choices and replacements are available, ** Custom wavelength ranges are available. *** At a sample rate of 1 Hz.

Dimensions (Width x Depth x Height)

High Temperature Reactor incl. safety guard	28 x 28 x 100 cm
Optics Unit	25 x 27 x 9 cm
Temperature Control Unit (2 parts)	25 x 27 x 9 cm and 22 x 40 x 9 cm

Software

Operating system	Microsoft Windows compatible
Output data format	ASCII compatible for straightforward use with any graph-drawing software
Analyzed parameters	Multiparameter output (e.g. resonance wavelength, width, and extinction)

Insplorion