

REVOLUTIONIZING PROCESS CONTROL

Semiconductor Applications

More Visibility. Better Control.

Quantum Analytics has partnered with a number of equipment manufacturers to deliver customers a product suite like no other. From high-throughput metrology solutions for wafer analysis to energizing MEMS devices to real-time, comprehensive gas analysis. Our products deliver results that give you better control over your processes and more confidence in your results.



Metrology

Contact-free, non-destructive, high-speed metrology solutions help keep pace with growing demand for accurate process control. With platforms ranging from table-top to fully-automated systems, the Sentronics metrology systems are totally configurable (optical sensors, stages, and automation) to address particular needs. Measure multi-layer thickness, bow & warp, 3D topography and roughness using one, flexible instrument.

Digital Holography

Full field measurements of static and dynamic 3D topography in unrivalled speed using Lyncee Tec's Digital Holography Microscope (DHM®). Precisely measure, in real time, how materials deform, flex, move, and with sub-nm vertical resolution at any magnification. DHM® opens up a wide range of benefits for innovative R&D and advanced quality control processes as well as material characterization. It functions as an industrial profilometer that is robust against vibrations.

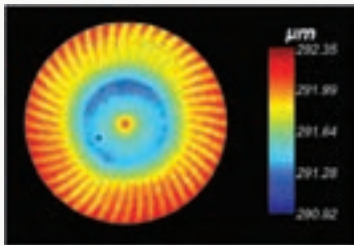


Real -Time Gas Analysis

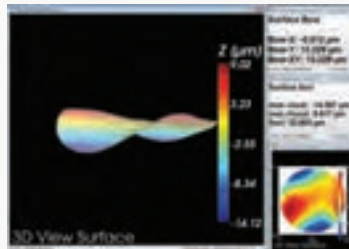
Measure diverse volatile organic compounds (VOCs) and inorganic gases at parts-per-trillion (PPT) trace levels. Our selected ion flow tube mass spectrometry instrument (SIFT-MS) from Syft Technologies can be deployed in a number of applications, including the monitoring of airborne molecular contamination in cleanrooms, FOUPs, raw materials and finished product quality screening, as well as stack and fenceline monitoring.

High density maps and high-precision measurements

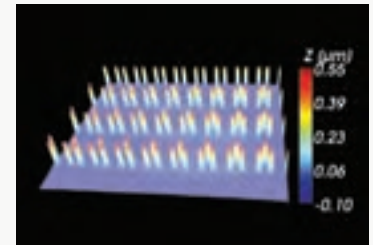
Explore our high throughput, contact-free, non-destructive technologies that lead to the generation of high density maps for process control in HVM and high-precision measurements for R&D. Here are some examples of the measurements made possible using our state-of-the-art non-contact metrology and DHM technology.



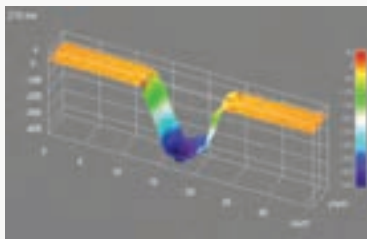
Substrate thickness variation full wafer maps in just seconds with the StraDex f sensor



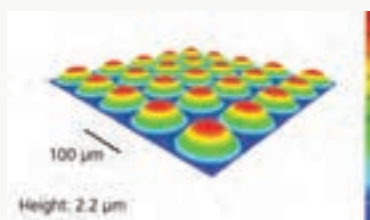
Bow and warp and site flatness with the StraDex f Sensor



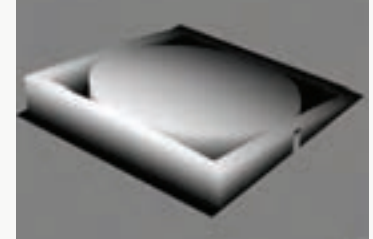
TSV/Bumps Diameter and Height 3D Topography with StraDex a



Deformation of graphene membrane with the DHM



Micro-Lens Inspection with the DHM



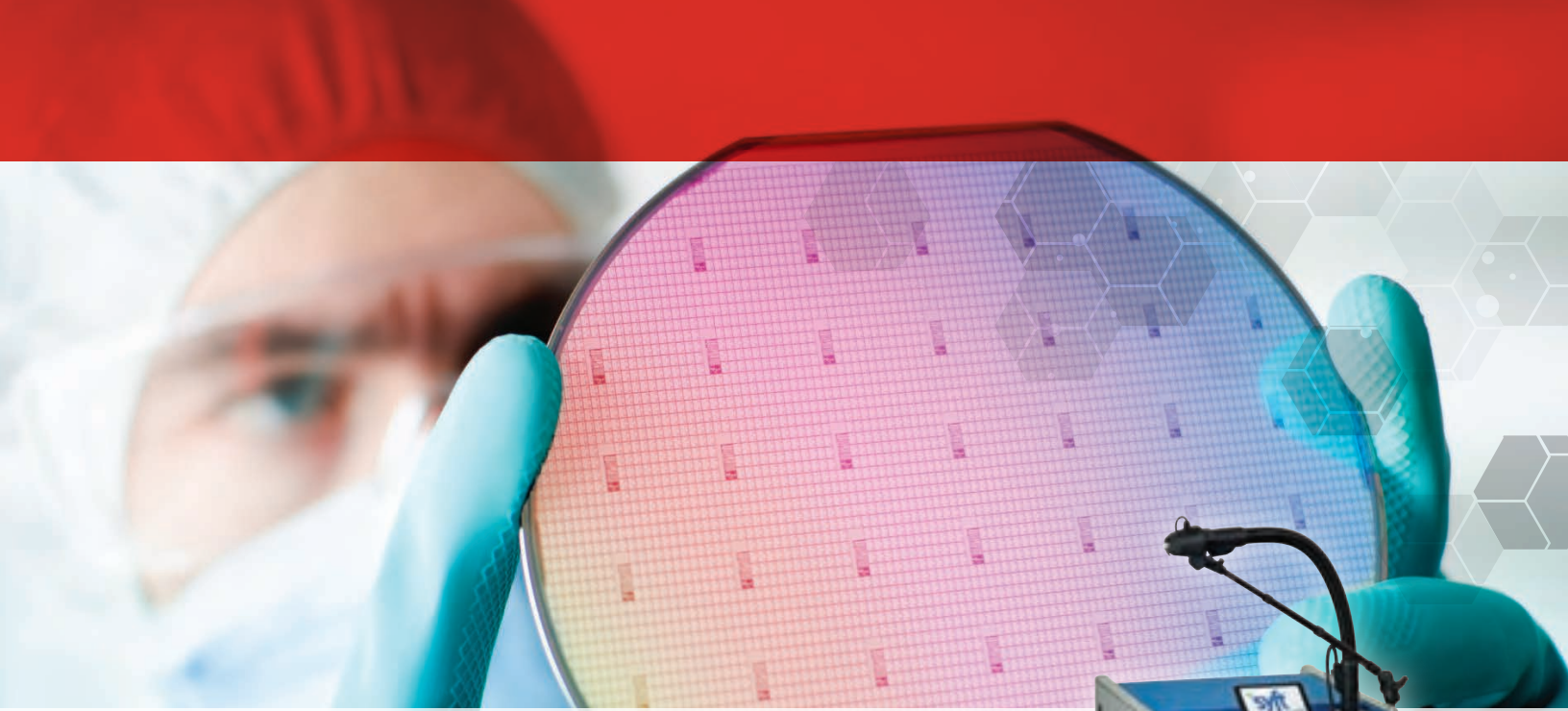
Moving MEMS Device with the DHM

Optical Metrology Solutions

SemDex turnkey measurement modules enable high-volume wafer inspection for in-line production control and R&D environments. Recipe-driven programs allow the user to instruct the tool to automatically measure their regions of interest without contacting the surface of the wafer. The SemDex platform is a versatile metrology solution for continuous process improvement. Each modular system can be equipped with sensors using different technologies like spectral coherence interferometry, white light interferometry and digital holographic microscopy.



Digital Holography Microscopes (DHM[®]) are powerful, non-contact optical profilometers which instantaneously capture 3D topography with interferometric resolution, without any lateral or vertical scanning. This unique acquisition mode makes DHM[®] very robust against environmental production vibrations and noise. Measurements can be performed in-line, making them ideal for investigation of dynamical processes: sample deformation consecutive to mechanical, electrical, magnetic forces, chemical action, or change of environmental pressure, temperature, and humidity.



How Safe is Your Cleanroom?

Airborne molecular contaminants (AMCs) cause major product quality issues in modern semiconductor fabrication, even at very low levels (ppb concentrations and below). SIFT-MS is a unique analytical tool that provides comprehensive, high-sensitivity detection of volatile organic, and semi-volatile organic compounds (VOCs and SVOCs), and inorganic gases (including HCl, HF, and SO_x) within seconds.

As a single, comprehensive tool with rapid analysis, SIFT-MS lets you know exactly what is in your cleanroom in seconds. It provides economic value by detecting and indentifying issues faster, resulting in reduced production losses and better quality product.



Features

- Airborne molecular contaminant monitoring in the cleanroom
- Quality screening raw materials and finished product
- Assuring employee well-being by real-time hazard detection
- Stack and fenceline monitoring
- FOUP monitoring

About Quantum Analytics

Quantum Analytics is a value-added distributor of analytical equipment, offering customized instrument financing solutions and technical services, including cross-platform system integration, installation, training and support.

Our products deliver the sensitivity, reliability and performance to meet your application requirements.

Learn more at www.LQA.com/semiconductor