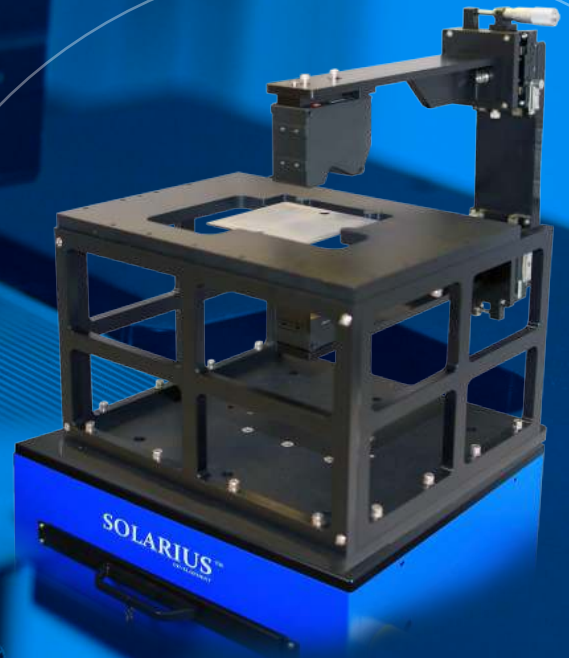


AOP-ThicknessP

Dual sensor thickness platform using two laser non-contact point sensors

State-of-the-art **DUAL SENSOR** thickness platform makes the AOP-ThicknessP a remarkable tool for **PRECISE** and **ACCURATE** surface measurement.



The evolution of materials and products such as plastic films, wafers, medical membranes, glass tubing, batteries, and IC packaging require more precise and accurate manufacturing processes. Therefore, Solarius has developed a state of the art dual sensor thickness platform using two laser non-contact point sensors.

The dual-sensor thickness measurement requires mounting the part to be measured between two sensors, where a separate sensor measures each side of the part. The difference of the measurements from the two sensors provides the final measurement of thickness. If the part moves toward one sensor, it moves away from the other; the changes in the sensors outputs will cancel each other. This eliminates the errors that would result from single-channel problems with deformity and/or contact with the reference surface. This optical technique also has the advantage of being able to measure the thickness of a single layer or multiple layers. The part can be measured with one sensor mounted in the resting surface, or the part can be otherwise suspended between the two sensors.

As with many non-contact applications, measurements are relative to a reference measurement. A known thickness is established as a reference point and all subsequent measurements indicate the amount of deviation from that reference.

CUSTOMER APPLICATIONS:

Multi-layer films, thin films.

IC Packaging

Wafer Thickness and Flatness

Engineering Surfaces

Plastic, Metal, and Ceramic Surfaces

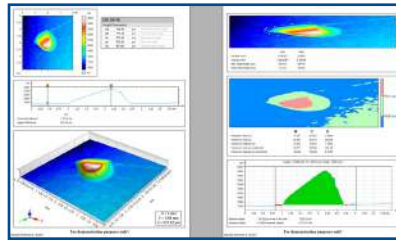
Minimize over-engineered product packaging and prevent waste

Take accurate, real-time measurements during the manufacturing process to reduce time to market

SOLARIUS™
DEVELOPMENT

Software

The SolarScan software solution is a combination of two software tools, a measurement creation tool and a flexible analysis tool. This unique combination is ideal for applications in research and development, failure analysis and low volume semi-automated measurement.



Designed for usability, the SolarScan software makes powerful 2D and 3D analysis accessible to users of all skill levels.

The data acquisition software utilizes a unique flow chart technique for entry of measurement specifications. This is a powerful tool for step and repeat applications, more than one measurement can be programmed forming a sequence of measuring steps. The SolarScan software allows for 3D measurement and 2D analysis (3D analysis optional), results are presented in graphical form. Numerical data can be displayed and then exported in a database format. The measurement routine can be easily edited or saved for future use.

Sensors

This laser optical distance sensor for non-contact measurement of surface profiles uses a CCD Laser sensor, which enables stable highly accurate height and thickness measurements regardless of the light quantity distribution of the spot.

Model	H008	H022/27	H052/50	H082/80	H157/155
Measuring Range (mm)	± 0.5	± 3	± 10	± 18	± 40
Vertical Resolution (µm)	0.5	1.2	4	7.2	16
Spot Size (µm)	20	25	50	70	120
Stand-off (mm)	8	20	50	80	150
Repeatability (µm)	0.005	0.02	0.025	0.1	0.25
Sampling Rate (kHz)	392	392	392	392	392
Camera (optional)	off-axis	off-axis	off-axis	off-axis	off-axis

Stages

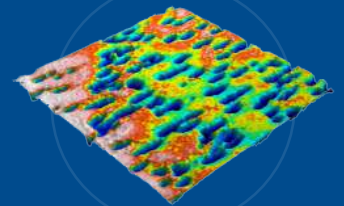
Solaris has both manual XY stage platforms with or without digital feedback for thickness spot checks, as well as the ability to map the delta thickness over the entire surface with automated linear XY stages.

The NanoPrecision Stage employs a center-driven, ironless linear motor as the driving element. Since the linear motor is a frictionless direct drive device, there is no backlash or hysteresis, wind-up or stiction limiting the motion performance. The linear motor drive also offers the advantage of higher speed, acceleration and system responsiveness with no wear to motor brushes or drive screws.

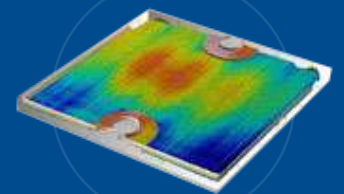
Maximum travel per axis [mm]:	150	200	250	300	400
Repeatability [µm]:	±0.5	±0.5	±0.5	±0.5	±0.5
Straightness / flatness [µm]:	< ± 2 µm over for 1 axis	< ± 2 µm over for 1 axis	< ± 3 µm over for 1 axis	< ± 3 µm over for 1 axis	< ± 3 µm over for 1 axis
Resolution [nm]:	5	5	5	5	5
Max. Speed [m/s]	2	2	2	2	2
Max. Acceleration [G]	4	4	4	4	4
Permissible loads [kg]	40	40	40	40	40



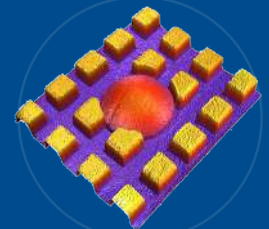
Chip Substrate



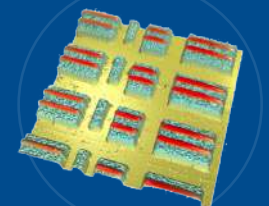
Automotive Door Panels



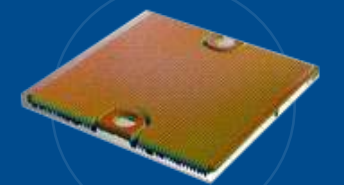
Fuel Cell Flatness



Integrated Circuit board



Particles on Substrate



Fuel Cell Thickness