

TMS-600/650 TopMap Interferometer



TMS TOPOGRAPHY MEASUREMENT SYSTEMS

- TMS-300/320 TopCam Interferometer
- TMS-600/650 TopMap Interferometer

LARGE AREA FLATNESS AND TOPOGRAPHY MEASUREMENT WITH NANOMETER RESOLUTION

Polytec's high precision TopMap Topography Measuring System is a state-of-the-art scanning white-light interferometer for non-contact surface profile measurements. Given the TMS-600/650's large vertical range and nanometer resolution, it is an ideal tool for determining smoothness, height differences and parallelism of large surfaces and structures, including soft materials.

Simple, Fast and Precise

The TopMap Topography Measurement System offers the maximum flexibility and accuracy for lab sample surface measurements used for quality control. The vertical resolution is in the nanometer range and intelligent filter systems and software solutions allow measurements on any surface from extremely rough to polished smooth. In addition, it is simple to preconfigure the instrument so that measurements and part evaluation can be made at the push of a button. Surface measurements are needed in many industries. Components and structures ranging from submillimeter to centimeter size can be found in the semiconductor and data storage industries, in microstructure and sensor markets, and in engineering and automotive applications.

Powerful Software

The TMS software package includes all the necessary commands for instrument operation, data acquisition, analysis and presentation. Outstanding 2-D and 3-D data representation can be enhanced with profile cuts and filter algorithms.

Features

- Non-contact optical interferometer
- Telecentric lenses for proper imaging along high, steep edges e.g. in drilled holes
- Vertical resolution down to 1 nm
- Vertical scan range of 50 mm
- Handles large image contrast variations by Overlay technique
- Large field-of-view: 30 mm x 40 mm

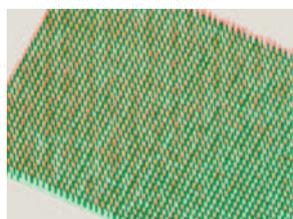
Specifications

TMS-600/650 TopMap – Hardware		
Interferometer type	Michelson	
Imaging system	telecentric	
Vertical scan range	50 mm ¹⁾	
Vertical resolution	1 nm (TMS-650); 10 nm (TMS-600)	
Camera	Standard	High resolution (optional)
Camera resolution, H x V	780 x 582 pixels	1300 x 1030 pixels
Lateral resolution	12 µm ... 53 µm	9 µm ... 29 µm
Field-of-view ²⁾	7 x 10 mm ² , 15 x 20 mm ² , 30 x 40 mm ²	10 x 13 mm ² , 20 x 27 mm ² , 29 x 38 mm ²
Dimensions, L x W x H	660 mm x 530 mm x 200 mm (15 in x 7.9 in x 4.7 in)	
Power	Universal Power Supply 100 ... 240 VAC ±10 %, 50/60 Hz	
Weight	~ 30 kg (~ 66 lbs)	
Operating temperature	+5 °C ... +35 °C (41 °F ... 95 °F)	
Storage temperature	-10 °C ... +65 °C (14 °F ... 149 °F)	
Relative humidity	max. 80%, non-condensing	

¹⁾ TMS-650: additional 15 µm piezo translation stage with phase shift evaluation

²⁾ Depending on configuration

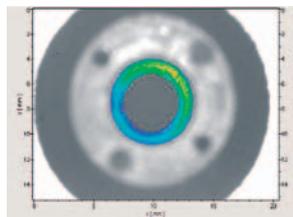
TMS Software
Live video for placement and adjustment of the measurement sample
Remote control via Polytec-provided COM/ActiveX or LabView™ drivers
Operator interface for TMS-600/650
Overlay Technology to compensate for significant contrast differences
Macro programming in Visual Basic®
Direct data import and export to EXCEL, MATLAB® or in-house databases



Application Examples

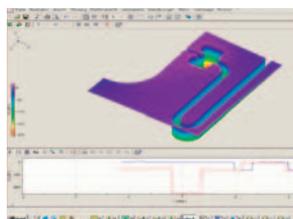
Solder Bump Heights

In the case of SMD printed circuit boards, the height of the solder bumps is of great importance. These bumps must be measured quickly across a large surface area right after creation and before assembly, without any cooling off time.



Bottom Flatness of Blind Holes

Inspecting blind hole bottoms for flatness and parallelism with respect to the top surface is difficult for high-aspect ratio holes (deep and narrow). The TMS-600/650 Topography Measuring System can make these measurements for holes under 50 mm deep.



Lab-on-a-Chip Topography

These chips are often made of transparent plastic in which channels and chambers for the biochemical reactions have been cut. The topographic measurement shows a section in a 3-D view and the surface profiles along two different sections.

For more information please contact your local Polytec sales engineer or visit our website www.topmap.info

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