

Non-Contact Nano-depth 3D Surface Profiler

CARMAR TECHNOLOGY CO., LTD.

■ Scanning White-light Interferometric Microscope **SWIM Series**

■ Applications

The SUPRA Optix is the latest development in the field of Scanning White-light Interferometry. With the features of compact, flexible design, high speed, user-friendly, 3D measurement and up to 400µm vertical scanning range with nanometer resolution, the SUPRA Optix supports new applications in quantitative surface analysis:

- Wafer
- MEMS Structures
- LCD/CF Micro-structures
- High Density Connected PCB
- IC Package

and many other applications in materials and surface research.



SWIM 1510MS

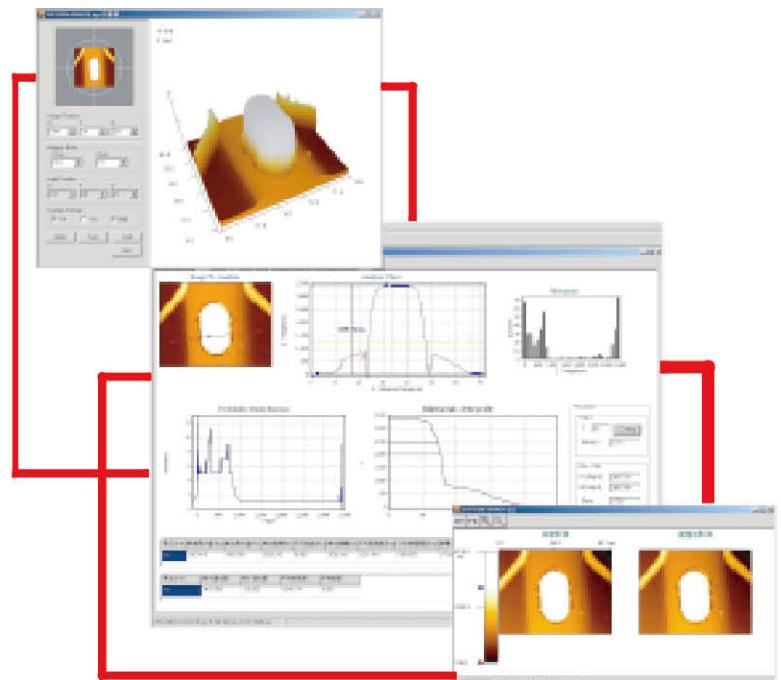
■ High-speed Scanning and Processing Software (ImgScan)

- ImgScan integrated with scanning hardware interpret the interference fringes.
- Innovative patented analysis software with vertical resolution up to 0.1nm.
- High-speed scanning design and algorithm.
- Easily selecting vertical scanning range.
- Optional 10X, 20X and 50X interferometric objective lense.
- Easy sample positioning by on-screen digital XYZ coordinates display.
- Manual/Automatic light intensity adjustment for optimal interfering fringe contrast.
- High precision PVSI mode and high speed VXI mode are selectable.
- Patented algorithm are developed to analyze half-transparent sample.
- Automatic patching.
- User selectable scanning directions.

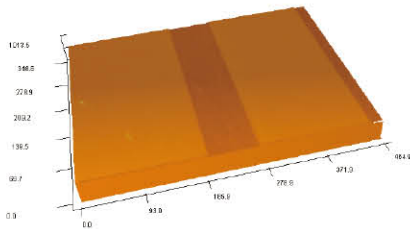


■ Professional 3D Graphic Analysis Software (PostTopo)

- Powerful and user-friendly 3D graphic analysis software
- Automatic surface leveling.
- Self-calibration function by step-height standards.
- Supporting depth/height analysis by line or local area.
- Line analysis results on surface roughness, waviness and step height are traced to ISO definition. The 17 ISO-defined parameters and 4 extra parameters are supported.
- Local area analysis supports graphic, statistics, and 2D-FFT analysis tool boxes. The 2D-FFT analysis includes smoothing, sharpening and many kinds of digital filtering.
- Measurement results can be files with different graphic formats or Excel files.

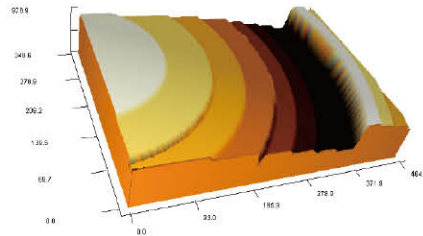


■ Inspection examples



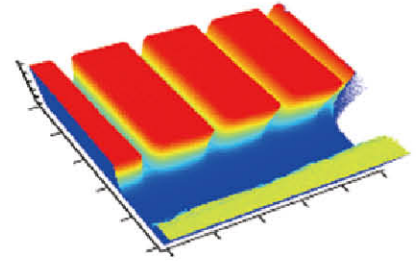
Step-Height Standards

(Depth: 28 nm)



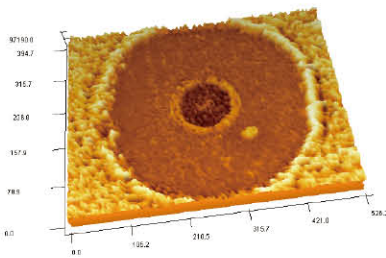
Fresnel Diffractive Micro-lens

(Height: 452 nm)



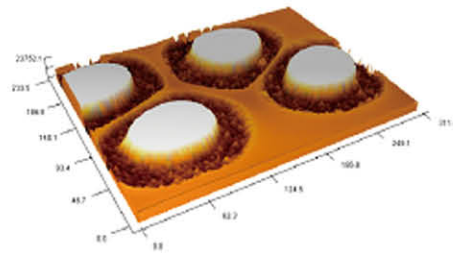
Optical Wave-guide

(Height: 38 μm)



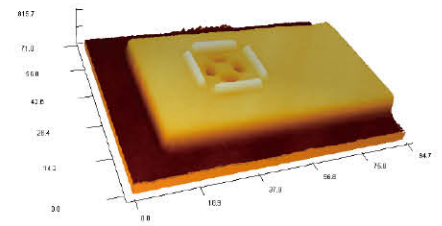
Laser Drilling on PCB

(Depth: 30 μm)



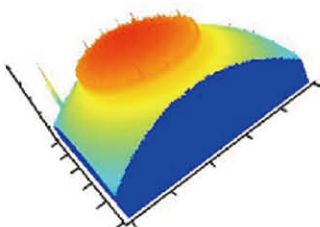
LCD Back-light Plate

(Height: 12 μm)

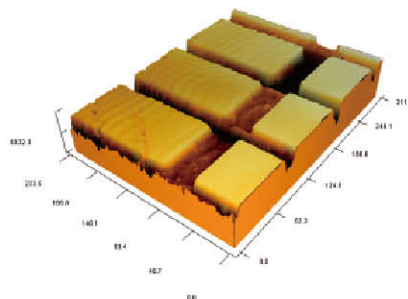


Overlay Mark on Wafer

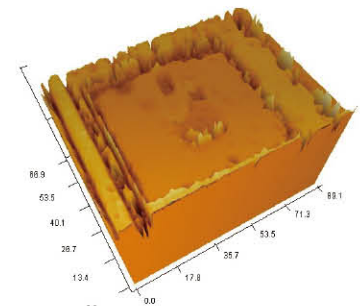
(Height: 1 μm)



Optical Fiber in Ceramic Ferrule



RGB Layer on LCD Color Filter



IC Chip Bumper

■ Specifications (Motorized stage and Auto-focus module are optional)

Model		SWIM 1510MS			
Objectives Magnification		10X	20X	50X	
Field of View (Length X Width) Unit: mm	Standard	0.43 X 0.32	0.21 X 0.16	0.088 X 0.066	
	Enhanced	1.67 X 1.33	0.84 X 0.67	0.34 X 0.27	
Optical resolution (μm)		1.12	0.84	0.61	
Working distance(mm)		7.4	4.7	3.4	
Optical system		Scanning White-light Microscope System			
Height measurement		Scanning Range	100 μm (400 μm, optional)		
		Resolution	0.1 nm		
		Repeatability (σ)	≤ 0.1 % (Range : > 10 μm) ≤ 10 nm (Range : > 1 μm~ 10 μm) ≤ 5 nm (Range : <1μm)		
		Control mode	Auto		
		Scanning speed(μm/s)	12 (Max.)		
Light source		Type	Halgon		
		Life	1000 hours		
		Light intensity adjustment	Auto / Manual		
Imaging Unit		Image sensor	High speed CCD Camera		
		Resolution	Standard	640 x 480 pixels	
			Enhanced	1280 x 1024 pixels	
Sample stage		Stage	Travel	150 mm x 100 mm, Manual	
			Load	> 10 kg	
		Travel range of Z axis		80 mm , Manual	
		Displacement Display		3-axis linear encoder (resolution 1μm)	
		Tilt adjustment stage		Manual	
		Base		Granite	
Data processing Computer		CPU	Intel CPU		
		Display Unit	17" LCD Monitor		
		Data storage device	160 GB Hard driver		
		Operation system	WindowsXP ⁽²⁾		
Power		AC110V / 220V , 50Hz / 60Hz			
Weight		~150 kg (Including granite base)			
Analysis software		Windows XP Compatible			
Step Height Standard (Optional)		50 nm~ 150 mm			
Dimensions (mm)		570 x 606 x 881			

■ Windows XP is the trademark of microsoft in U.S.A.