



Surface Roughness and Scatter Measurement Instrumentation

Surface Measurements on Reflectance and BRDF
Roughness (Ra, RMS or P-V) Measurements in Angstroms, or Micro-inches



μScan Control Unit, Measurement Head and cable

System Description

The SMS μScan System consists of a hand held Control Unit (CU), an interchangeable measurement head, and a separate charging unit. The CU controls all aspects of the system operation.

To perform a measurement, the operator places the measurement head on the surface to be measured and presses the button. Each measurement takes less than five seconds.

The results are clearly displayed and stored in system memory. The μScan can store 700 measurements in 255 files and provides the capability to program pass/fail criteria. Software is available for control, analysis and file conversion.

SMS, the leader in light scatter measurement technology, is proud to announce our portable surface measurement instrument, the SMS μScan System.

The SMS μScan System allows the operator to rapidly take measurements at the sample - where you need them - in seconds. From a single measurement, a user can determine RMS surface roughness, reflectance and scattered light level (BRDF) on flat or curved surfaces under any lighting conditions.

Applications

- Optical surfaces
- Semiconductor wafers

Features

- Microprocessor controlled
- Interchangeable measurement heads
- RS232 serial port
- Rechargeable battery or external power
- PC compatible software

- Precision machined surfaces
- Rolled & formed surfaces

Benefits

- Surface roughness/reflectance
- Scatter characterization (BRDF)
- Accommodates flat or curved surfaces
- Nondestructive
- Adaptable for in-process control
- Retrievable data storage for future analysis

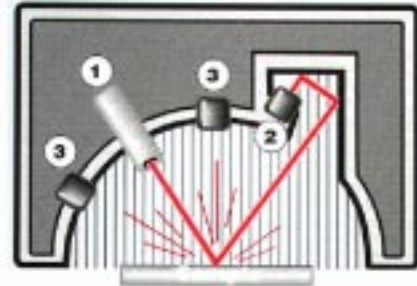
Measurements

Range:	(Ra, RMS, P-V) (Reflectance) (BRDF)	From 1Å up to 1100Å From 0.1 up to 100.0% From 1 ^{e-6} to 1 ^{e0} (sr ⁻¹)	.01 to 5 µin.
Spatial Bandwidth:	Upper Lower	10 to 999 µm (selectable) 1.0 µm	

Measurement Head

Dimensions	5"h x 3½"d
Weight	1¼ lbs.
Time of Measurement	< 5 seconds
Spot Size	1 mm
Repeatability	±0.5%
Accuracy	±2% Reflectance ±3% Scatter
Wavelength	670nm (1300nm available)
1.Laser diode	
2.Reflectance detector and specular beam trap	
3.Scatter detectors	

Measurement Head



Control Unit

Dimensions	1¾"h x 4½"wx9½"d	Storage	-40C to + 50C
Weight	2 lbs.	Temperature Coefficient	
Power Source		Scatter detectors	±0.1%per °C
Batteries		Reflectance detector	±0.15%per °C
- Type	Rechargeable NiCd	Non-Volatile Memory	
- Duration	> 5 hours	Storage capacity	700 measurements
- Charge Time	Turbo < 3 hours, trickle 15 hours	Number of files	255
External	9 VDC to 11 VDC	Real Time Clock	
Data Transfer	Baud rate selectable to 9600, 4800, 2400, 1200, 300 bps (no parity, 8 bits, 1 stop bit)	Display	
Temperature Range		Size	4 line x 20 character LCD
Operations	-10C to + 45C (LCD Limited)	Lighting	LED backlit
		Contrast Control	Keypad controllable

Charger

Dimension	4½"h x 4¾"wx8½"d
Weight	3¼ lbs.
Power	110 VAC, 50/60 HZ (100VAC and 220 VAC, 50/60 HZ Available)

P.C. Software

Functions	Downloads files to PC for statistical analysis of data. Provides selection of on board process control limits. Formats data and statistics for printing. Converts data to ASCII format. Provides PC control of µScan.
System Requirements	One (1) 1.44Meg -3½" flexible drive and hard drive. 100% PC/AT Compatible 512K available memory



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Specifications subject to change.