

The μ ScanTM Scatterometer

Quickly monitor surface degradation with a portable handheld instrument



This rugged hand held scatterometer provides a fast, non-destructive way to monitor surface roughness and optical characteristics. It can be used on mirrors, various reflectors and precision machined surfaces. It finds use in lab, field and manufacturing environments. A common use is in place monitoring of large difficult to move surfaces (such as telescope mirrors). Another use is surface finish quality control inspection of large manufactured sheet products (rolled metal, coated glass, etc) on the manufacturing floor. Results appear on an LCD screen and are saved for transmission can be transmitted

System Description

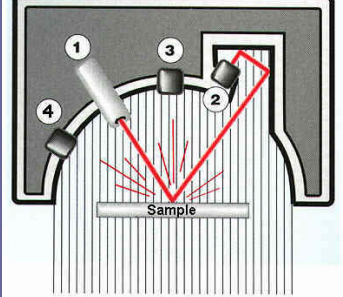
The μ Scan System consists of a hand held Control Unit (CU), an interchangeable measurement head, and a separate charging unit. The CU controls all aspects of the system operation.

Operators place the measurement head on the surface to be measured and presses a button, each measurement takes less than five 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. The results are digitally displayed and stored in system memory. Software is available for control, analysis and file conversion.

μScan® Technical Information

Measurements

Range:	(Ra, RMS, (Reflectance) (BRDF)	From 1Å up to 1100Å (.004 to 4.3 μin.) From 0.1 up to 100.0% From 1 ^{e-6} to 1 ^{e0} (sr ⁻¹)
Spatial Bandwidth:	Upper Lower	10 to 999 μm (selectable) 1.0 μm

<p>Measurement Head</p> <p>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)</p> <p>1. Laser diode (25° from surface normal) 2. Reflectance detector and specular beam trap 3. Scatter detector (0°, 0°) 4. Scatter detector (50°, 180°)</p>	<p>Measurement Head</p> 
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<p>Dimensions 1¼" h x 4½" w x 9½" d Weight 2 lbs. Power Source Batteries - Type Rechargeable NiCd - Duration > 5 hours - Charge Time Turbo < 3 hours, trickle 15 hours External 9 VDC to 11 VDC</p> <p>Data Transfer Baud rate selectable to 9600, 4800, 2400, 1200, 300 bps (no parity, 8 bits, 1 stop bit) Temperature Range Operations -10C to + 45C (LCD Limited) Storage -40C to + 50C</p>	<p>Temperature Coefficient</p> <p>Scatter detectors ±0.1% per °C Reflectance detector ±0.15% per °C</p> <p>Non-Volatile Memory</p> <p>Storage capacity 700 measurements Number of files 255 Real Time Clock</p> <p>Display</p> <p>Size 4 line x 20 character LCD Lighting LED backlit Contrast Control Keypad controllable</p>
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<p>Charger</p> <p>Dimension 4½" h x 4¾" w x 8½" d Weight 3¼ lbs. Power 100VAC and 220 VAC, 50/60 HZ</p>
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PC Software (Optional) 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.

<div style="border: 2px solid black; padding: 5px;"> <p style="font-size: 2em; font-weight: bold; text-align: center;">CAUTION</p> <p style="font-size: 0.8em; text-align: center;">LASER RADIATION DO NOT STARE INTO BEAM</p> <p style="font-size: 0.7em; text-align: center;">WAVELENGTH: 670nm MAX. OUTPUT: 1mW</p> <p style="font-size: 0.7em; text-align: center;">CLASS II LASER PRODUCT</p> </div>	<p>The Scatter Works, Inc. 2100 N. Wilmot Rd., #202 Tucson AZ 85712 (520) 325-6322 Phone (520) 325- 6323 FAX</p>
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On the web at <http://www.thescatterworks.com>