LSM2™ INSPECTION SYSTEM

Affordable, Easy-to-Learn SMT Inspection

LSM2 is the latest technological advance in laser-based non-contact measurement from the world's leading supplier of post-print solder paste inspection equipment. This versatile system offers an economical method of measuring solder paste and performing other SMT inspection tasks. LSM2 is the successor to CyberOptics' popular LSM, currently in use at hundreds of locations worldwide.

System Features

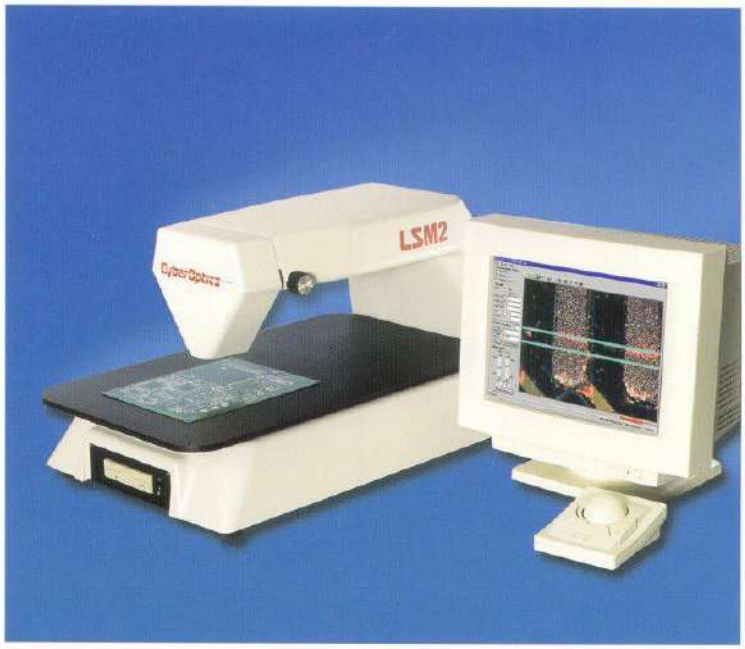
- Measures height, length, width, area, volume and averages
- Live video image of measurement site; choice of two magnification levels
- User-friendly Windows® '95 interface
- Data stored in Excel®-compatible format; can be saved to diskette or transmitted via serial port

System Includes

- System base with non-contact sensor and anti-static work surface
- Integral video camera with two magnification lenses
- Color monitor and trackball
- Pre-loaded Windows '95 and application software
- User Reference Guide and online Help

System Options

- Mobile, above-the-line platform
- NIST-traceable calibration standard
- Large work surface



Laser-Based Non-Contact Measurement

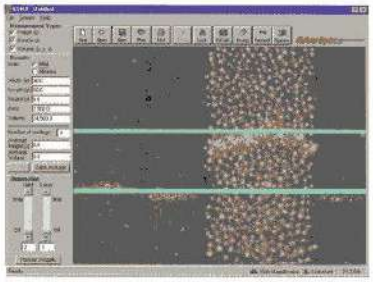
LSM2 combines CyberOptics' proven laser technology with a new PC-based user interface to produce a versatile benchtop system for performing various manual inspection tasks. LSM2 offers more precision and repeatability than visual inspection methods and provides a ***practical first step toward process control*** for maximum yields.

- **Off-line applications**
  (benchtop or laboratory)
  Measure solder paste or glue dots
  Check stencil apertures
  Examine reflowed solder joints
  Verify component placement
  Inspect BGA devices
  Evaluate process

- **On-line applications**
  (mounted above conveyor)
  During printer setup, measure solder paste on sample boards to compare various combinations of settings
  During production, spot-check boards and fine-tune process

Mobile, adjustable platform is available for mounting the LSM2 above the production line, adjacent to the screen printer.

LSM2



A live video image of the measurement area at one of two magnification levels.

Measurement Procedure

To perform a measurement, the operator uses the trackball to move and align the cursors on the feature to be measured. Exact measurements are obtained for height, length, width, area, volume and averages.

The LSM2 software controls the cursors, reports measurements and stores the data in Excel-compatible format for easy analysis. Data can be saved to diskette or transmitted via the serial port.

Platform Specifications

Adjustable mobile platform (optional) for above-the-line mounting:

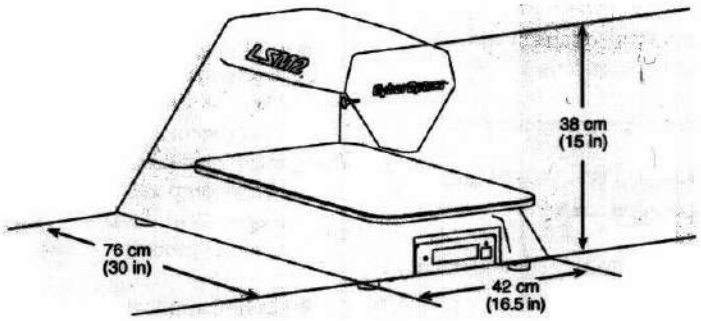
Dimensions (w x l)	47 x 102 cm (18.5 x 40 in)
adjustable (h)	91-129 cm (36-51 in)
Weight	25 kg (55 lbs)

System Specifications

Maximum object thickness	5 cm (2 in)
Maximum z differential (high magnification)	1440 µm (57 mils)
Maximum x differential (high magnification)	1877 µm (74 mils)
Maximum y differential (high magnification)	2473 µm (97 mils)
Standard-size work surface (w x l)	36 x 61 cm (14 x 24 in)
Large work surface (optional) (w x l)	91 x 61 cm (36 x 24 in)
Throat depth (laser spot to rear support column)	406 mm (16 in)
System CPU	Pentium® Processor, 16 MB RAM, hard drive, 3.5 in. diskette drive
Color monitor	14 in VGA, 600 x 800 resolution
Electrical requirements	100 - 240 VAC, 50 - 60 Hz, 2.0 amps
Ambient operating temperature	5° C to +40° C (+40° F to +100° F)
Ambient operating humidity	<90% non-condensing
Dimensions (w x l x h)	42 x 76 x 38 cm (16.5 x 30 x 15 in)
Weights (system without monitor)	32 kg (70 lbs)
monitor	13 kg (28 lbs)

Sensor Specifications

Laser type		1mW, 670 nm laser diode
Height resolution	high magnification	3.8 µm (0.15 mil)
	low magnification	25.4 µm (1.0 mil)
Video camera		Solid-state CCD
Field of View	high magnification (approx 85X)	2.6 x 1.9 mm (102 x 75 mils)
	low magnification (approx 15X)	14.8 x 11.1 mm (583 x 437 mils)



Safety Considerations
The LSM2 system complies with all applicable laws for the manufacture of laser devices. This system is classified as a Class II laser device by the Center for Devices and Radiological Health (CDRH). This classification requires two safety precautions: Do not stare directly into the laser source and do not point the laser at anyone else's eye.

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