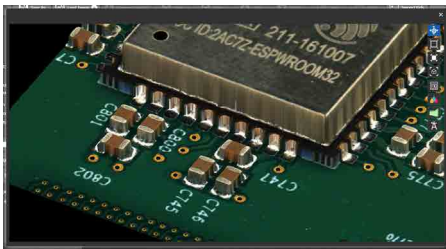


# SQ3000™ 3D AOI, SPI, & CMM

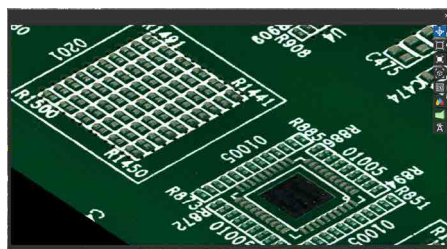
The Ultimate in Speed and Accuracy with Multi-Process Capability.

SQ3000™

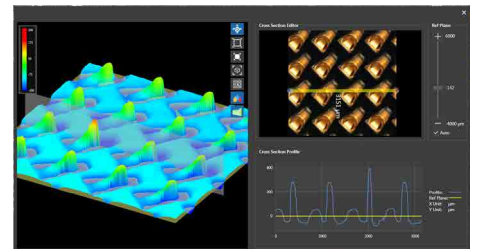
- SQ3000 is an all-in-one solution that's loaded with powerful tools that cover inspection and measurement for AOI, SPI and CMM applications. SQ3000™ X offers support of large board capability of up to 720 x 620 mm board sizes.
- The SQ3000 offers unmatched accuracy with the revolutionary Multi-Reflection Suppression™ (MRS) technology by meticulously identifying and rejecting reflections caused by shiny components. Effective suppression of multiple reflections is critical for accurate measurement, making MRS™ an ideal technology solution for a wide range of applications including those with very high quality requirements.



Automated Optical Inspection (AOI)



Solder Paste Inspection (SPI)



Coordinate Measurement (CMM)

## Metrology-Grade Accuracy at Production Speed

- Achieve metrology-grade accuracy at production speed enabled by MRS technology.
- Attain repeatable and reproducible measurements for SMT, semiconductor, microelectronics and metrology applications.

## Faster, Smarter, Award Winning Software

- Ultra-fast programming capabilities, auto tuning and enhancements that significantly speed setup, simplify the process, reduce training efforts and minimize operator interaction.
- Take ease-of-use to a whole new level of inspection with multi touch controls and 3D image visualization tools with CyberOptics 3D AOI software that includes full SPI capability, and expanded coordinate measuring capabilities with CyberCMM™.
- Add on CyberReport™ for full-fledged machine-level to factory-level SPC capability.



## Richer SPI Experience with Closed Loop, Feedback - Feed Forward

- Optimize printing process by proactively analyzing current trend data with the standalone SPI software and CyberPrint Optimizer.
- Enable smarter and faster inspection that provides reduction in rework costs, minimizes scrap and optimizes print process.



Inspection Capabilities	Standard MRS Sensor	High-Speed MRS Sensor	High-Resolution MRS Sensor	Ultra-High Resolution MRS Sensor
<b>Inspection Speed</b>	40 cm <sup>2</sup> /sec (2D+3D)	50 cm <sup>2</sup> /sec (2D+3D)	20 cm <sup>2</sup> /sec (2D+3D)	15 cm <sup>2</sup> /sec (2D+3D)
<b>Minimum Component Size</b>	0402 mm (01005 in.)		0201 mm (008004 in.)	
<b>PCB Size</b>	SQ3000: Minimum: 50 x 50 mm (2 x 2 in.); Maximum: 510 x 510 mm (20 x 20 in.) SQ3000-X: Minimum: 50 x 120 mm (2 x 4.7 in.); Maximum: 720 x 620 mm (28.3 x 24.4 in.)			
<b>Component Height Clearance</b>	Top: 50 mm ; Bottom: 30mm			
<b>PCB Thickness</b>	0.3 - 5 mm			
<b>Component Types Inspected</b>	Standard SMT (chips, J-lead, gull-wing, BGA, etc.), through-hole, odd-form, clips, connectors, header pins, and more			
<b>Component Defects</b>	Missing, polarity, tombstone, billboard, flipped, wrong part, gross body and lead damage, and more			
<b>Solder Joint and Other Defects</b>	Gold finger contamination, excess solder, insufficient solder, bridging, through-hole pins			
<b>3D Measurement Inspection</b>	Lifted Lead, package coplanarity, polarity dimple and chamfer identification			
<b>Measurement Gage R&amp;R</b>	<10% @ ±3σ (±80 μm process tolerance)			
<b>Z Height Accuracy</b>	1 μm on certification target			
<b>Z Height Measurement Range</b>	6 mm at spec, 24 mm capability		3 mm at spec, 8 mm capability	

CMM Capabilities				
<b>Accuracy XY / Z</b>	6 μm / 2 μm		5 μm / 2 μm	
<b>Resolution XY / Z</b>	10 μm / 0.5 μm		7 μm / 0.5 μm	
<b>Maximum Weight</b>	SQ3000: 3 kg, SQ3000-X: 10 kg			
<b>Min./ Max. Feature Height</b>	Min. 50 μm ; Max. 24mm		Min. 50 μm ; Max. 8mm	
<b>Maximum Feature Size</b>	SQ3000: 510 x 510 mm (20 x 20 in.); SQ3000-X: 720 x 620 mm (28.3 x 24.4 in.)			
<b>Carrier Thickness</b>	0.3 - 5 mm (10 mm Option)			
<b>Coordinate Measurement Capability</b>	Line / Distance / X,Y / Mid Line, Inter Point / Regression Shifted, Datum X,Y / LSF X,Y Offset, X,Y Offset / Value / Location / List of X,Y Values, Height / Local Height / Regression / Radius, Coplanarity/ Distance to plane / 2nd Order fitting, Difference / Absolute / 2sqrt / VC, Max / Min / Ave / Sigma / Plus / Minus / Multiple			

Vision System & Technology				
<b>Imagers</b>	Multi-3D sensors			
<b>Resolution</b>	Sub 10 μm		7 μm	
<b>Field of View (FOV)</b>	36 x 30 mm	36 x 36 mm	26 x 26 mm	21 x 21 mm
<b>Image Processing</b>	Autonomous Image Interpretation (AI <sup>2</sup> ) Technology, Coplanarity and Lead Measurement			
<b>Programming Time</b>	<13 minutes (for established libraries)			
<b>CAD Import</b>	Any column-separated text file with ref designator, XY, Angle, Part no info; Valor process preparation			

System Specifications				
<b>Machine Interface</b>	SMEMA, RS232 and Ethernet			
<b>Power Requirements</b>	100-120 VAC or 220-240 VAC, 50/60 hz, 10-15 amps			
<b>Compressed Air Requirements</b>	5.6 Kgf/cm <sup>2</sup> to 7.0 Kgf/cm <sup>2</sup> (80 to 100 psi @ 4 cfm)			
<b>System Dimensions</b>	SQ3000: 110 x 127 x 139 cm (W x D x H) SQ3000-X: 134 x 139 x 139 cm (W x D x H)			
<b>Weight</b>	SQ3000: ≈965 kg (2127 lbs.) SQ3000-X: ≈1242 kg (2738 lbs.)			

**Options**  
Barcode Reader, Rework station, SPC Software, Alignment Target., Programming Software: ePM-SPI/AOI & GC-PowerPlace, Offline Defect Review. SQ3000™ D (Dual Lane), and SQ3000™ DD (Dual Lane - Dual Sensor) models available



Contact CyberOptics today for more information

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