

SQ3000™ 3D AOI, SPI, & CMM

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

SQ3000™

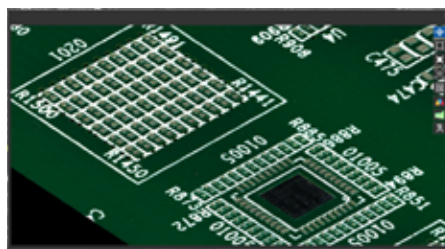
- SQ3000 is an all-in-one solution that's loaded with powerful tools that cover inspection and measurement for AOI, SPI and CMM applications. SQ3000™ X offers support of large board capability of up to 710 x 610 mm board sizes.
- The SQ3000 offers unmatched accuracy with the revolutionary Multi-Reflection 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.



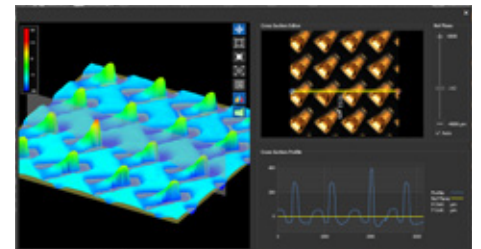
AOI
SPI & CMM
All-in-one



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.



AOI SOFTWARE



CYBERCMM



CYBERREPORT

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.



SPI SOFTWARE



CYBER
PRINTOPTIMIZER

Inspection Capabilities	Standard MRS Sensor	High-Speed MRS Sensor	High-Resolution MRS Sensor	Ultra-High Resolution MRS Sensor
Inspection Speed	40 cm ² /sec (2D+3D)	50 cm ² /sec (2D+3D)	20 cm ² /sec (2D+3D)	15 cm ² /sec (2D+3D)
Minimum Component Size	0402 mm (01005 in.)		0201 mm (008004 in.)	
PCB Size	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: 710 x 610 mm (27.9 x 24 in.)			
Component Height Clearance	Top: 50 mm ; Bottom: 30mm			
PCB Thickness	0.3 - 5 mm			
Component Types Inspected	Standard SMT (chips, J-lead, gull-wing, BGA, etc.), through-hole, odd-form, clips, connectors, header pins, and more			
Component Defects	Missing, polarity, tombstone, billboard, flipped, wrong part, gross body and lead damage, and more			
Solder Joint and Other Defects	Gold finger contamination, excess solder, insufficient solder, bridging, through-hole pins			
3D Measurement Inspection	Lifted Lead, package coplanarity, polarity dimple and chamfer identification			
Measurement Gage R&R	<10% @ ±3σ (±80 μm process tolerance)			
Z Height Accuracy	1 μm on certification target			
Z Height Measurement Range	6 mm at spec, 24 mm capability		3 mm at spec, 8 mm capability	
CMM Capabilities				
Accuracy XY / Z	6 μm / 2 μm		5 μm / 2 μm	
Resolution XY / Z	10 μm / 0.5 μm		7 μm / 0.5 μm	
Maximum Weight	SQ3000: 3 kg, SQ3000-X: 10 kg			
Min./ Max. Feature Height	Min. 50 μm ; Max. 24mm		Min. 50 μm ; Max. 8mm	
Maximum Feature Size	SQ3000: 510 x 510 mm (20 x 20 in.); SQ3000-X: 710 x 610 mm (27.9 x 24 in.)			
Carrier Thickness	0.3 - 5 mm (10 mm Option)			
Coordinate Measurement Capability	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				
Imagers	Multi-3D sensors			
Resolution	Sub 10 μm		7 μm	
Field of View (FOV)	36 x 30 mm	36 x 36 mm	26 x 26 mm	21 x 21 mm
Image Processing	Autonomous Image Interpretation (AI ²) Technology, Coplanarity and Lead Measurement			
Programming Time	<13 minutes (for established libraries)			
CAD Import	Any column-separated text file with ref designator, XY, Angle, Part no info; Valor process preparation			
System Specifications				
Machine Interface	SMEMA, RS232 and Ethernet			
Power Requirements	100-120 VAC or 220-240 VAC, 50/60 hz, 10-15 amps			
Compressed Air Requirements	5.6 Kg/cm ² to 7.0 Kg/cm ² (80 to 100 psi @ 4 cfm)			
System Dimensions	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)			
Weight	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				