SQ3000™ + 3D AOI • SPI • CMM

The Ultimate in Speed, Resolution and Accuracy with Multi-Function Capability for Advanced Applications

SQ3000™ +

Powered by MRS® Technology

NEW 5 Micron Ultra-High Res MRS Sensor

Multi-Award Winning MRS-Enabled Inspection and Measurement Systems

Nordson TEST & INSPECTION

CYBEROPTICS®

SQ3000™ + 3D AOI • SPI • CMM

High Precision Accuracy with Multi-Reflection Suppression® (MRS®) Sensor Technology

SQ3000+ Multi-Function System with Multi-Reflection Suppression (MRS) sensor technology provides the ultimate combination of high resolution, high accuracy and high speed for inspection and metrology. It remains the only system on the market capable of performing AOI, SPI and CMM in-line.

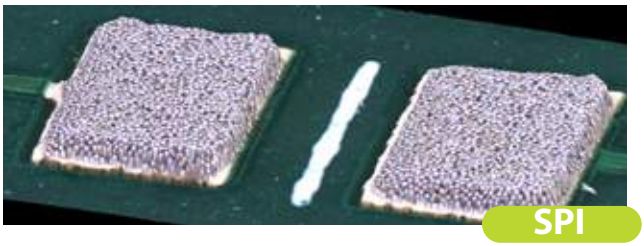
NEW
5 Micron
Ultra-High Res
MRS Sensor

Multi-Reflection Suppression (MRS) Technology

The SQ3000+ is powered by CyberOptics' proprietary 3D sensing technology with sophisticated fusing algorithms that enables metrology grade accuracy at production speed. The result is ultra-high quality 3D images, high-speed inspection and metrology, and improved yields and processes.

SQ3000+ offers unmatched accuracy with the advanced MRS sensor technology by meticulously identifying and rejecting reflection-based distortions caused by shiny components and surfaces. Effective suppression of multiple reflections is critical for accurate measurements. The new, ultra-high resolution 5 micron MRS sensor incorporated into the SQ3000+ is specifically designed for advanced applications with the most demanding requirements.

AOI



SPI

CMM

Inspection and Metrology Solution for Assembly and Process Improvement

The SQ3000+ with MRS technology is ideal for high-end applications including advanced packaging, mini/micro LED, advanced SMT applications for automotive, medical, military, aerospace and advanced electronics, 008004/0201 solder paste inspection (SPI), socket metrology and other high-end coordinate measurement (CMM) applications where quality and reliability are critical.

AOISOFTWARE

Intuitive, Easy-to-Use Software

The multi-award winning SQ3000 AOI software is a more powerful yet extremely simple software suite designed with an intuitive interface and multi-touch control with 3D image visualization tools. Ultra-fast programming capabilities bring the ease-of-use to a completely new level and significantly speeds setup, simplifies the process, reduces training efforts and minimizes operator interaction – all saving time and cost.

Enable Smarter, Faster Inspection

Speed programming and tuning with new capabilities including AutoTeach, AutoTune and AutoDefine for faster set-up and a simplified process. AI^2 (Autonomous Image Interpretation) technology is all about keeping it simple - no parameters to adjust or algorithms to tune. And, you don't need to anticipate defects or pre-define variance either. AI^2 does it all for you, powered by a data-rich, pre-loaded library and automated scripts that collect and update models all on their own. With AI^2 , you have the power to inspect the most comprehensive list of features and identify the widest variety of defects. AI^2 offers precise discrimination with just one panel inspection making it a perfect solution for high-mix and high-volume applications.

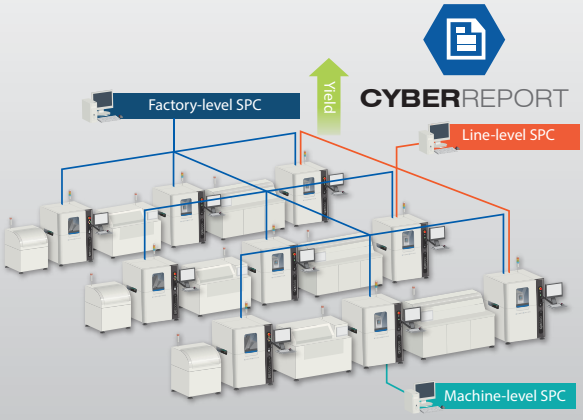
Faster, Highly Accurate Coordinate Measurement (CMM) Suite

CyberCMM™, a comprehensive software suite of coordinate measurement tools, provides highly accurate, 100% metrology-grade measurement on all critical points much faster than a traditional CMM, including coplanarity, distance, height and datum X, Y to name a few. A fast and easy set-up can be performed with the world's first in-line CMM system for programming complex applications as compared to slow, engineering resource-intensive set-up that typically requires multiple adjustments with traditional coordinate measurement machines (CMMs).

CYBERCMM

Fast, Scalable SPC Solution

CyberReport™ offers full-fledged machine to factory-level SPC capability with powerful historical analysis and reporting tools. The software delivers complete traceability for effective process verification and yield improvement. CyberReport is designed for simple set-up and intuitive use, while simultaneously delivering scalability, fast charting, and an extremely compact database size.



Inspection Capabilities	5 Micron Ultra-High Resolution MRS Sensor
Inspection Speed	16 cm^2/sec (2D+3D)
Minimum Component Size	0201 mm (008004 in.)
PCB Size	Minimum: 50 x 50 mm (2 x 2 in.); Maximum: 420 x 320 mm (16.5 x 12.5 in.)
Component Height Clearance	Top: 20 mm ; Bottom: 50 mm
PCB Thickness	0.1 - 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 (±30 µm process tolerance)
Z Height Accuracy	0.5 µm on certification target
Z Height Measurement Range	400 µm at spec, 2.4 mm capability
CMM Capabilities	
Accuracy XY / Z	2 µm / 0.5 µm
Resolution XY / Z	5 µm / 0.1 µm
Maximum Weight	10 kg
Min./ Max. Feature Height	Min. 10 µm ; Max. 400 µm at spec, 2.4 mm capability
Maximum Feature Size	420 x 320 mm (16.5 x 12.5 in.)
Carrier Thickness	0.1 - 5 mm
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	5 µm
Field of View (FOV)	25 x 25 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 (±10%), 50/60 hz, 10-15 amps
Compressed Air Requirements	5.6 Kgf/cm^2 to 7.0 Kgf/cm^2 (80 to 100 psi @ 4 cfm)
System Dimensions	135 x 148 x 175 cm (W x D x H)
Weight	≈1670 kg (3681 lbs.)

Options

Barcode Reader, Rework station, CyberReport SPC Software, Alignment Target

SQ3000™, SQ3000™ X (Large Board), SQ3000™ D (Dual Lane), and SQ3000™ DD (Dual Lane - Dual Sensor) models available

Nordson TEST & INSPECTION

CYBEROPTICS®

Contact CyberOptics today for more information
+1 800.366.9131 or +1 763.542.5000 | CSsales@cyberoptics.com | www.cyberoptics.com