



SQ3000+ Multi Function AOI, SPI & CMM

Automated Optical Inspection

www.nordson.com/TestInspect


Nordson
TEST & INSPECTION

Nordson TEST & INSPECTION

Founded in 1954, Nordson Corporation is a market leading industrial technology company with annual revenues of over \$2.1 billion and more than 7,500 employees worldwide.

Nordson TEST & INSPECTION offers its SMT & Semiconductor customers a robust product portfolio, including Acoustic, Optical and both Manual and Automated X-ray Inspection systems, X-ray Component Counting systems and Semiconductor measurement sensors. Nordson TEST & INSPECTION is uniquely positioned to serve its customers with best-in-class precision technologies, passionate sales and support teams, global reach, and unmatched consultative applications expertise.

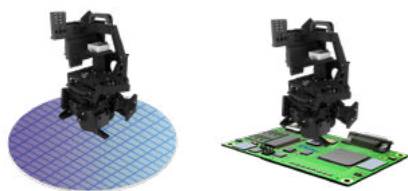


Exceptional support
from Nordson's worldwide network

AOI Products

Proprietary Advanced Technology

Optical Inspection & Metrology



WS Products

Improve Your Yields

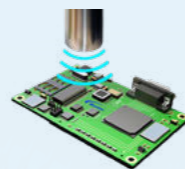
Semiconductor Metrology Sensors



AMI Products

Qualify Your Design

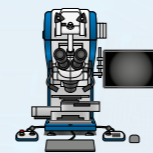
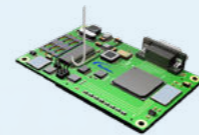
Acoustic Inspection



BT Products

Test Your Design

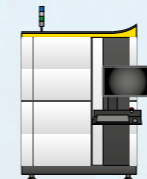
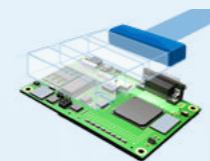
Bondtesters



AXI Products

High Speed High Flexibility

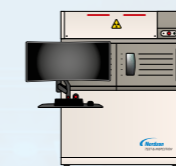
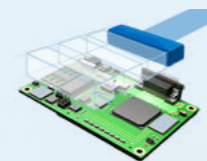
Automated X-ray Inspection



MXI Products

Making the Invisible, Visible

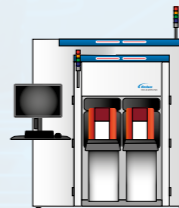
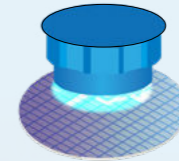
Manual X-ray Inspection



AXM Products

Measuring the Invisible

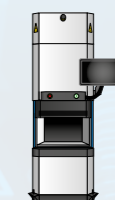
Automated X-ray Metrology



CC Products

Maximize Efficiency

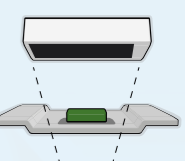
X-ray Component Counting



XRT Products

High Speed High Resolution

X-ray Technologies



Multi Function Advantages

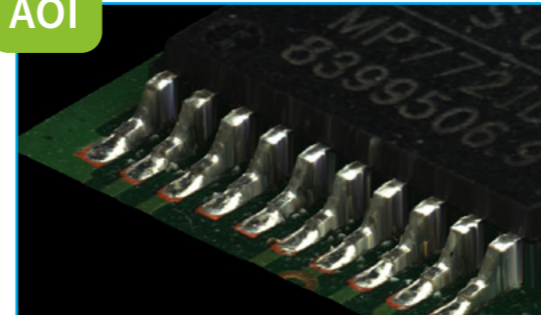
SQ3000+ Multi-Function System with Multi-Reflection Suppression® (MRS®) sensor technology provides the ultimate combination of high resolution, high accuracy and high speed for inspection and metrology.



AOI, SPI, CMM IN-LINE

The SQ3000+ remains the only system on the market capable of performing AOI, SPI and CMM in-line.

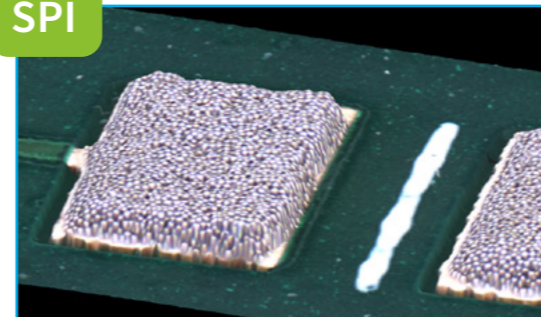
AOI



Automated Optical Inspection (AOI)

The system is specifically designed for high-end applications including advanced packaging, mini-LED, advanced SMT, 008004/0201 SPI, socket metrology and other challenging CMM applications.

SPI



Solder Paste Inspection (SPI)

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.

CMM



Coordinate Measuring Machine (CMM)

SQ3000+ utilizes CyberCMM™, a comprehensive software of coordinate measurement tools which provides highly accurate, 100% metrology-grade measurement on all critical points. A fast and easy set-up can be performed with the world's first in-line CMM system for programming complex applications.

Multi-Reflection Suppression[®] (MRS[®]) Sensor Technology

The new, ultra-high resolution 5 micron MRS sensor incorporated into the SQ3000+ is specifically designed for advanced applications with the most demanding requirements.

Reflection based distortions

MRS is designed to Inhibit reflection-based distortions from shiny and specular surfaces Enabling the highest possible inspection accuracy at production speeds.

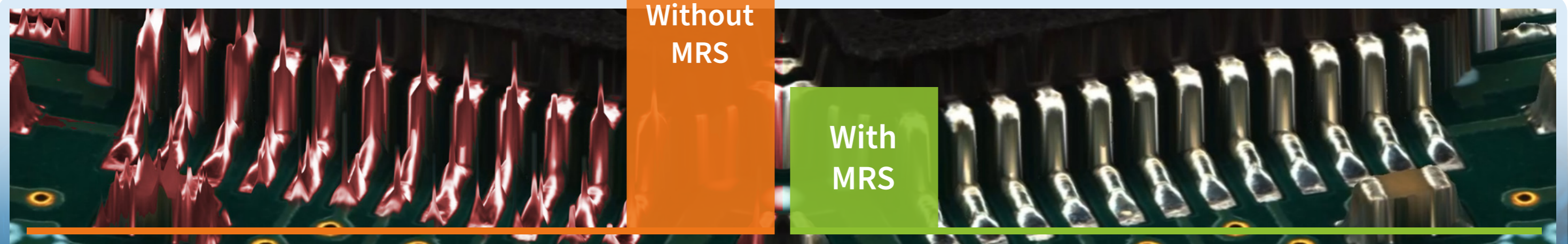
Unmatched accuracy

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.



The SQ3000+ is powered by Nordsons' 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.



AOI 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.

With AI², you have the power to inspect the most comprehensive list of features and identify the widest variety of defects. AI² offers precise discrimination with just one panel inspection making it a perfect solution for high-mix and high volume applications.

Enable smarter, faster inspection

Speed programming and performance with AI² (Autonomous Image Interpretation) technology for set-up in <13 minutes with a data-rich, pre-loaded library and automated scripts that collect and update models all on their own.

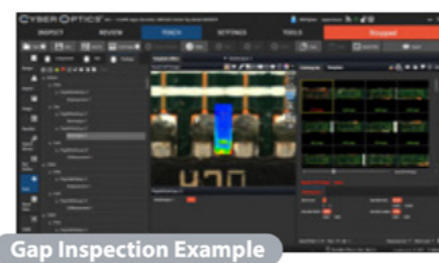


Inspect the most comprehensive list of features and identify the widest variety of defects. AI² offers precise discrimination with just one panel inspection making it the perfect solution for high-mix and high-volume applications.



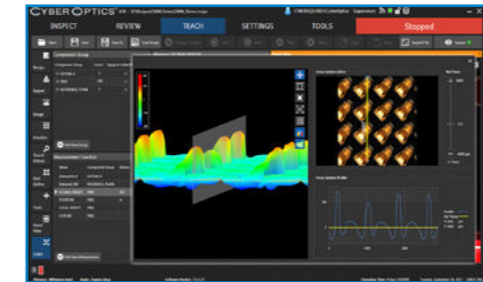
AI²

AI² 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. AI² 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.



Powerful Add Ons

Nordson Software Solutions provides our customers and partners the best added-value possible for inspection and measurement in electronics manufacturing.



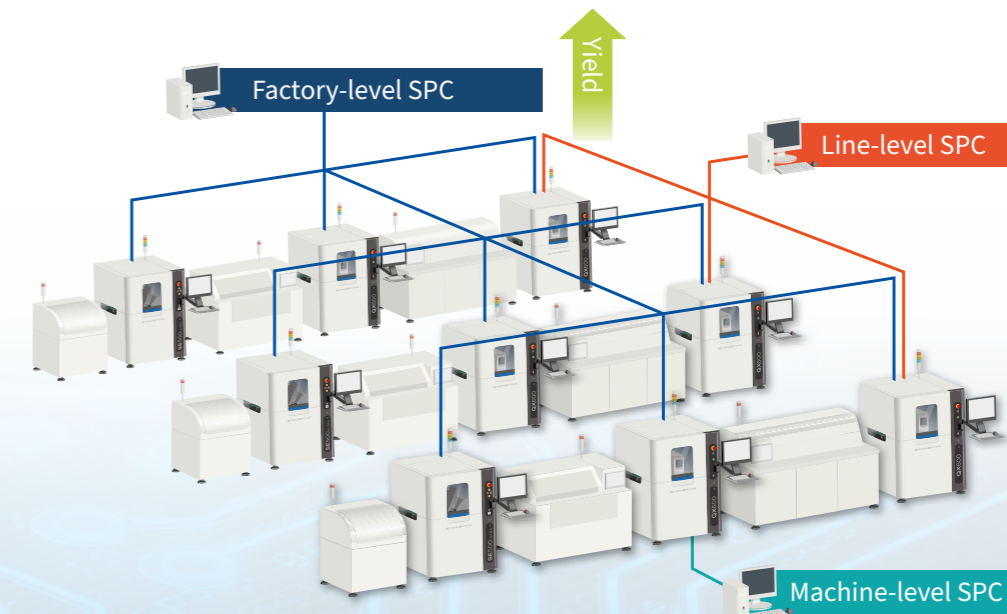
CyberCMM software suite

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).

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.



High End Applications

The SQ3000+ is Nordson's Inspection and Metrology Solution for Assembly and Process Improvement. MRS technology is essential for high-end applications where quality and reliability are critical.



Advanced Packaging



Fine pitch component inspection. BGA solder ball inspection, diameter measurement, uniformity. BGA coplanarity inspection.



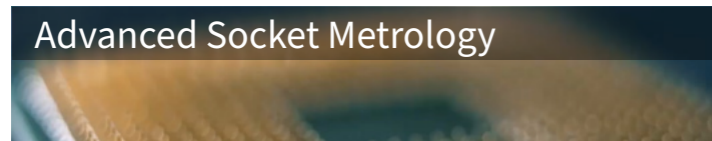
LED



Backlight. Five point & solder paste inspection. Pad Gap inspection. Warpage coplanarity, Illumination Intensity & Adhesive Squeeze out measurements. Dye chip out.



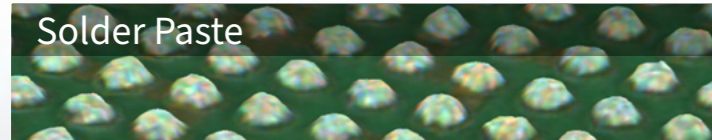
Advanced Socket Metrology



Pin inspection, True position, Inspection on dispensed material, Inspecting dispensed patterns.

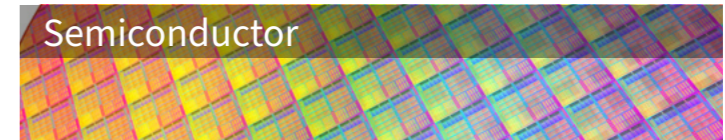


Solder Paste



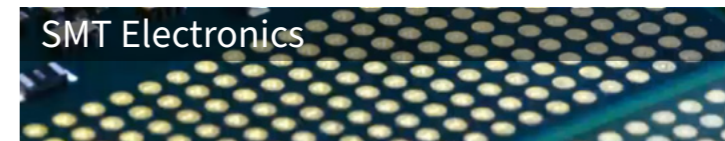
Tight area, Off water bridging, Speed and accuracy, Jet print paste, Type 4 paste.

Semiconductor



Highly reflective dye, Wirebond, Ribbons, Ball bond, Wirebonding and wedgebond inspection, Wirebond loop height of wire bond, Cornerfill/Underfill inspection.

SMT Electronics



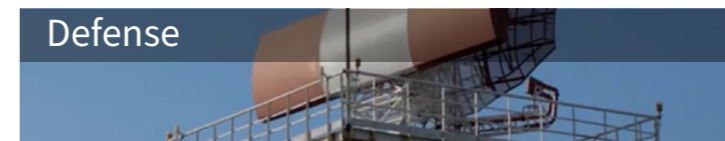
Microelectronics, Fast and accurate inspection with low false calls, Fast programming, Speed and Accuracy, Quick programming.

Medical



Tighter tolerance, Higher demand for accuracy, Small components, More micro electronics, Conformal coating, Life Critical.

Defense



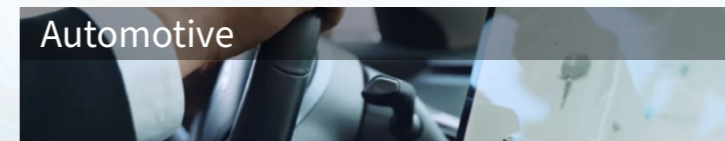
Component Verification, Counterfeit part detection, High map & Point cloud output capabilities, Adhesive & epoxy inspection.

Aerospace



Metal modules that have cavities, Substrate & Critical inspection on highly reflective material, Wire bond and ribbon inspection.

Automotive



Tuning forks, connector, True position for key features, True position for key component for high precision placement, Smaller Modules, Critical pin inspection

Specifications

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 & Measurement Range	Z Height Accuracy: 0.5 μm on certification target • Z Height Measurement Range: 400 μm at spec, 2.4 mm capability

CMM Capabilities	
Accuracy & Resolution XY / Z	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 Kg/cm ² to 7.0 Kg/cm ² (80 to 100 psi @ 4 cfm)
System Dimensions	135 x 148 x 175 cm (W x D x H)
Weight	2,350kg (5180 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

For more information, speak with your Nordson representative or contact your Nordson regional office

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