

CyberOptics Award-Winning Inspection and Metrology Systems

A Global Leader in High-Precision Sensors and Systems for Improved Yields and Process Control.



NEW



Multi-Award Winning
MRS®-Enabled Inspection
and Measurement Systems

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

Expanding Capabilities for Multiple Industries

Proprietary Award- Winning 3D Multi-Reflection Suppression (MRS) Sensor Technology

CyberOptics' proprietary 3D sensing technology provides the ultimate combination of high speed, high accuracy, and high resolution. Our MRS sensor's unique architecture simultaneously captures and transmits multiple images in parallel while proprietary 3D fusing algorithms merge the images together resulting in ultra-high quality 3D images, high-speed inspection and metrology, and improved yields and processes.

MRS technology delivers unmatched accuracy by meticulously identifying and rejecting reflection based distortions caused by shiny components and surfaces. Effective suppression of multiple reflections is critical for highly accurate inspection and measurement, making MRS technology an ideal solution for a wide range of applications including those with very high quality requirements.



Ultra-High Resolution
5-Micron
MRS Sensor



Standard • High-Speed
High Resolution • Ultra-High Resolution
MRS Sensor



NanoResolution
MRS Sensor

MRS Sensor Technology for Multiple Applications and Industries

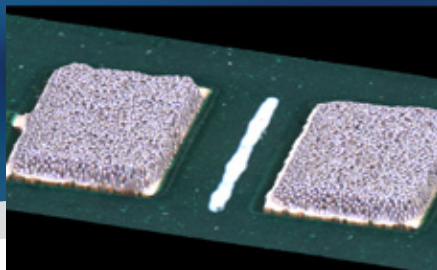
The new SQ3000™+ Multi-Function System for 3D AOI, SPI and CMM is powered by the new Ultra-High Resolution 5-Micron MRS sensor. Ideal for high-end applications including advanced packaging, mini/ micro LED, advanced SMT applications for automotive, medical, military, aerospace and advanced electronics, 008004/ 0201 solder paste inspection (SPI), socket metrology and other high-end coordinate measurement (CMM) applications where quality and reliability are critical.

The SQ3000™ and SE3000™ platforms are powered by a number of MRS sensor options for inspection and metrology with various speeds and resolutions. These models of MRS sensors are used on our AOI, SPI, CMM specific systems for standard SMT, semiconductor, and industrial/ machined parts. The MX3000™ for Automated Final Vision Inspection for memory modules is powered by two High-Speed MRS Sensors.

The WX3000™ Metrology and Inspection System for wafer-level and advanced packaging is powered by the NanoResolution MRS sensor. Provides sub-micrometer accuracy for features as small as 25µm, and 2-3X faster inspection performance.



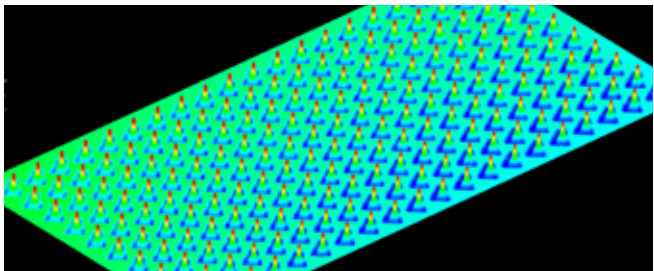
AOI



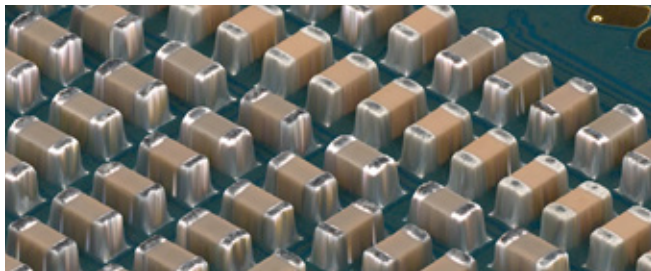
SPI



CMM



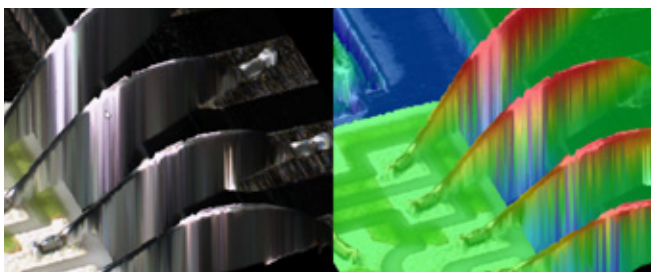
Socket Metrology



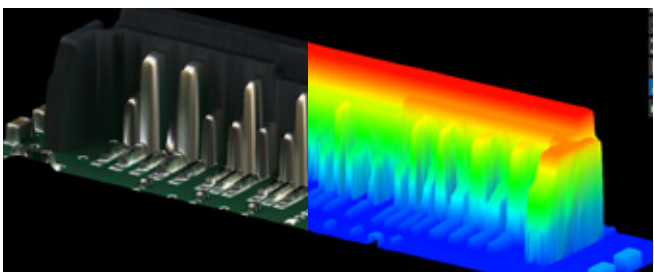
Packaging SMT



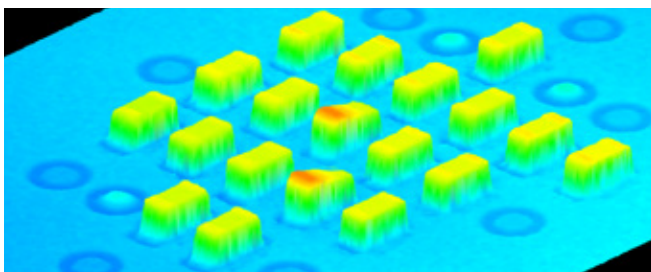
Mini/ Micro LED



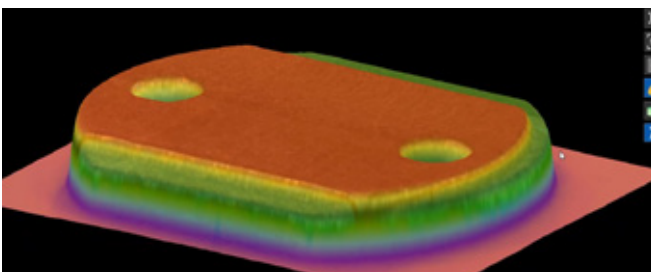
Wire Bond



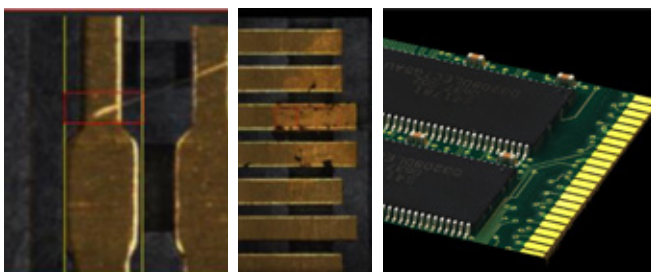
Automotive SMT - Pins



Medical

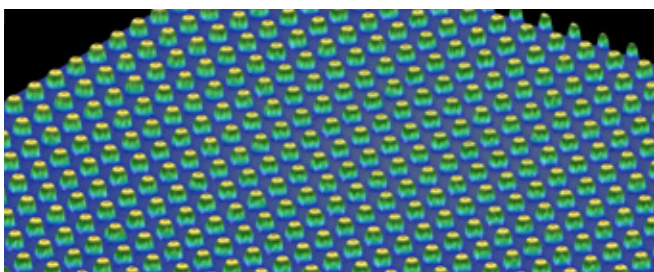


Industrial/ Machined Parts



Memory SMT

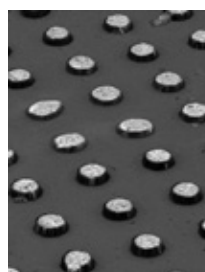
Semiconductor Applications



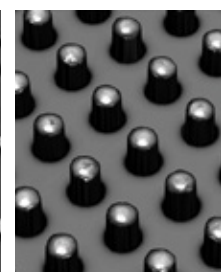
BGA/ Solder Ball and Bump



Copper Pillar



Micro Bump



Flip Chip (c4)

Automated Optical Inspection (AOI)

Best-in-Class 3D AOI Technology

Powered by
MRS™ Technology



SQ3000™+ | Multi-Function

Ultimate in Speed, Resolution and Accuracy for Advanced Applications

- Multi-process capability for 3D AOI, SPI and CMM
- Delivering metrology grade accuracy at production speed, powered by the new Ultra-High Resolution 5-Micron MRS Sensor Technology
- Ideal for high-end applications for advanced SMT, advanced packaging, and high-end coordinate measurement

NEW

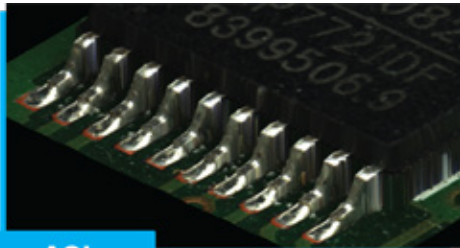
Ultimate Combination of High Speed, High Accuracy, at an even Higher Resolution

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.

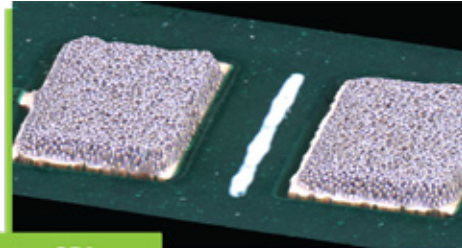
SQ3000+ offers unmatched accuracy with the advanced MRS sensor technology by meticulously identifying and rejecting reflection-based distortions caused by shiny components and surfaces. Effective suppression of multiple reflections is critical for accurate measurements. The new, Ultra-High Resolution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



NEW
5 Micron
 Ultra-High Res
 MRS Sensor



AOI



SPI



CMM

Inspection and Metrology Solution for Assembly and Process Improvement

The SQ3000+ with MRS technology is ideal for high-end inspection and metrology 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.



Automated Optical Inspection (AOI)

Best-in-Class 3D AOI Technology

Powered by
MRS™ Technology



SQ3000™ | Multi-Function Ultimate in Speed and Accuracy

- Multi-process capability for 3D AOI, SPI and CMM
- Delivering metrology grade accuracy at production speed, powered by MRS Technology
- SQ3000™ X available for Large Board capability
- SQ3000 for 3D AOI, SQ3000 for 3D SPI, SQ3000 for 2D AOI also available



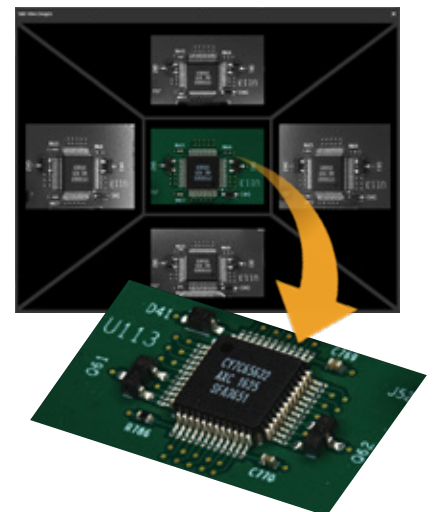
SQ3000™ DD | 3D AOI Dual Lane - Dual Sensor

- Dual MRS Sensors
- Delivering metrology grade accuracy at production speed, powered by MRS Technology
- Switch from dual to single lane to inspect large boards
- SQ3000™ D Dual Lane option available

Proprietary 3D Multi-Reflection Suppression (MRS) Sensor Technology

The revolutionary MRS technology delivers unmatched accuracy by meticulously identifying and rejecting reflections caused by shiny components and reflective solder joints. Effective suppression of multiple reflections is critical for highly accurate inspection and measurement, making MRS an ideal technology solution for a wide range of applications including those with very high quality requirements.

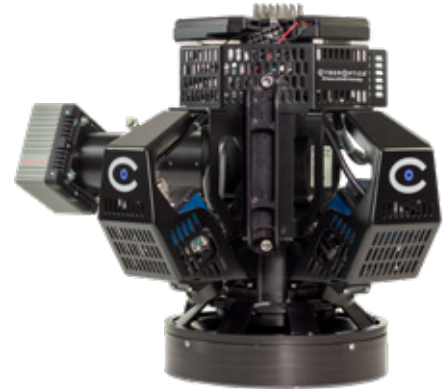
CyberOptics' unique sensor architecture with four multi-view 3D sensors and a parallel projector, simultaneously captures and transmits multiple images in parallel while proprietary 3D fusing algorithms merge the images together, delivers metrology grade accuracy at production speed. The SQ3000 platform has a number of MRS sensor options for inspection and metrology with various speeds and resolutions.



SQ3000 Multi-Function for 3D AOI, SPI & CMM

SQ3000 with MRS technology has multiple sensor options to meet even the most challenging applications. CyberOptics has advanced the proprietary Multi-Reflection Suppression (MRS) sensor to an even finer resolution. The Ultra-High Resolution MRS sensor enhances the SQ3000 platform, delivering superior inspection performance, ideally suited for the 0201 metric process and microelectronic applications where an even greater degree of accuracy and inspection reliability is critical.

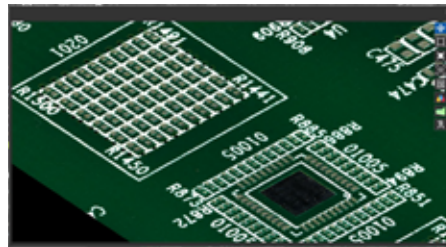
SQ3000 is an all-in-one solution that's loaded with powerful tools that cover inspection and measurement for AOI, SPI and CMM applications. SQ3000-X offers support of large board capability of up to 710 x 610 mm board sizes.



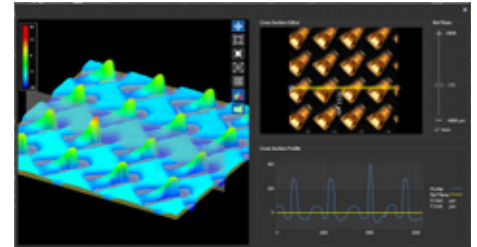
Standard • High-Speed
High Resolution • Ultra-High Resolution
MRS Sensor



Automated Optical Inspection (AOI)



Solder Paste Inspection (SPI)

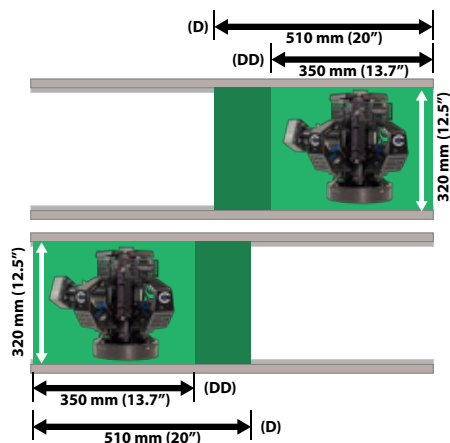


Coordinate Measurement (CMM)
Socket Metrology Example

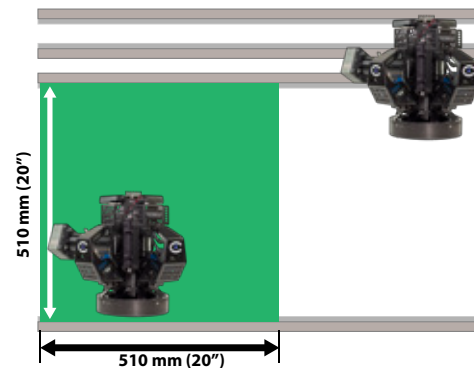
SQ3000 DD Dual Lane - Dual Sensor

The SQ3000 DD 3D Automated Optical Inspection (AOI) System is an extension of the award-winning SQ3000 3D AOI platform. The dual lane, dual sensor system maximizes flexibility catering to varying PCB widths. This unique design provides the ability to inspect high volume assemblies, the convenience of inspecting different assemblies and board sizes simultaneously on different lanes, or even switching from dual lane to single lane mode to inspect very large boards.

Not only does the SQ3000 DD provide PCB flexibility, it also provides the flexibility to choose two of the same or two different proprietary MRS sensors.



Dual Lane



Single Lane

Automated Optical Inspection (AOI)

High Value - Flexible Inspection 2D AOI Technology



SQ3000™ | 2D AOI

High-Performance, High-Resolution

- High Resolution 2D Sensor with Enhanced Illumination
- Ideally suited for wire bond, advanced packaging, solder ball and bump, lens inspection and more



QX600™ | 2D AOI

Ultra-Fast, Ultra-Versatile

- Strobed Inspection Module (SIM)
- Best-in-Class 01005 and solder joint inspection
- Large Board and Dual Lane options available



QX250i™ | 2D AOI

Fast, Flexible, High-Performance

- 2 Strobed Inspection Modules (SIM)
- Shortens production line and delivers ~50% productivity improvement vs. single SIM
- Ideally suited for pre-reflow, post wave and post selective solder inspection



QX150i™ | 2D AOI

High-Value, Flexible for All Applications

- Strobed Inspection Module (SIM)
- Ideally suited for pre-reflow and selective solder joint inspection
- QX150i™ B (bottom mounted sensor) and QX150i™ Tabletop options available

New High-Resolution 2D Sensor - High Precision Optical Sensor with Enhanced Illumination

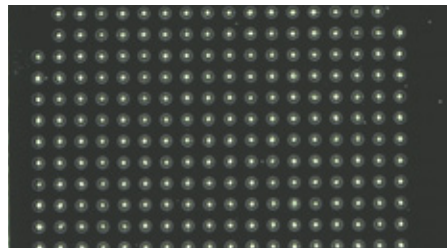
CyberOptics High-Resolution 2D Sensor for the SQ3000 provides crisp quality images at a 3µm resolution. The four independent white light LED ring light channels provide a great degree of flexibility for inspection, measurement, and defect review. The 2D Sensor provides versatility for various challenging applications including wire bond, advanced packaging, solder bump & ball, lens inspection and other applications where an even greater degree of accuracy and reliability is critical.



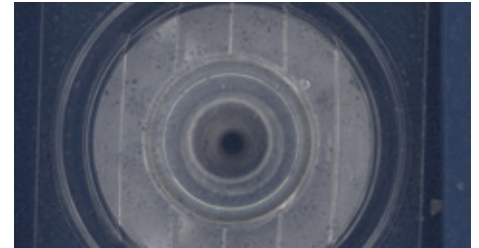
High Resolution 2D Sensor



Wire Bond



Solder Ball



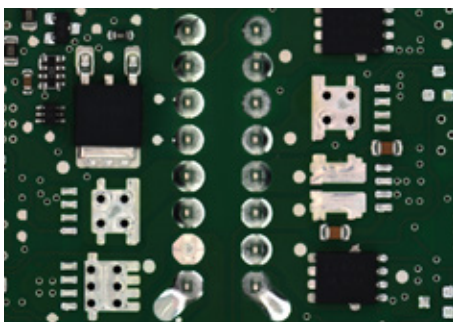
Lens Inspection

2D AOI Sensor Technology - High-speed, On-the-Fly Inspection

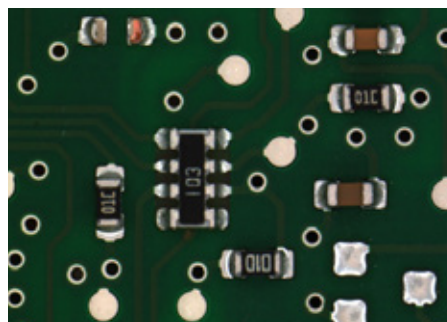
The SIM (Strobed Inspection Module) is at the core of every CyberOptics' QX Series 2D AOI systems. The SIM is designed with enhanced illumination using LED lighting - delivering the best 01005 and solder joint performance. With an 80 megapixel sensor and higher resolution (12µm), you get crisp, perfect quality images for accurate defect review. Common applications include pre-reflow, solder joint, post wave and post selective solder inspection.



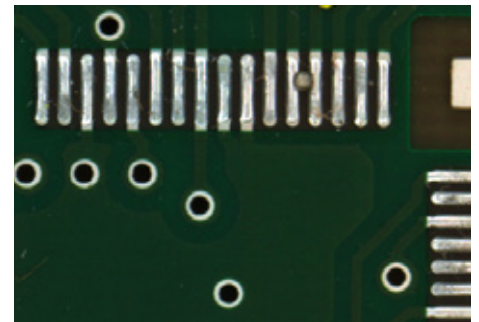
SIM (Strobe Inspection Module)



Missing Pin



Missing Component



Solder Bridge

Automated Final Vision Inspection (FVI)

Best-in-Class 3D and 2D AOI for FVI



MX3000™ | 3D AOI for FVI

Ultimate in Speed and Accuracy

- Powered by 2 High-Speed MRS Sensors
- Delivering metrology grade accuracy at production speed, powered by MRS Technology
- Simultaneous dual-sided 3D Automated Final Vision Inspection (FVI) for singulated memory modules



MX600™ | 2D AOI for FVI

Best Performance + Lower Cost of Ownership

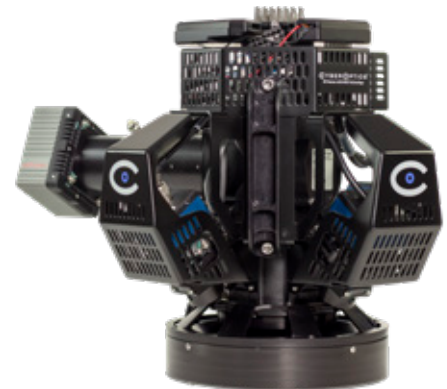
- 2 Strobed Inspection Modules (SIM)
- Simultaneous dual-sided 2D Automated Final Vision Inspection (FVI) for singulated memory modules

3D Multi-Reflection Suppression (MRS) Sensor Technology

The MX3000 is powered by CyberOptics' breakthrough 3D sensing technology comprising of two High-Speed MRS Sensors for metrology grade accuracy at production speed.

The MX3000 3D Automated Optical Inspection (AOI) system enables high resolution, simultaneous dual-sided final vision inspection that doubles productivity. In-line multiple module grippers minimize handling tact time, and auto conversion supports various memory module form factors (RDIMM, SODIMM, VLPDIMM, UDIMM and others.)

The system provides in-line defect review stations and auto sorts false calls into good trays after review, is fully automation-ready, and SECS/GEM and S2/S8 compliant.



High-Speed MRS Sensor
Sub 10µm Resolution

2D AOI Sensor Technology - High-speed, On-the-Fly Inspection

At the core of every MX600 system are two SIMs (Strobed Inspection Modules) enabling 'on-the-fly' inspection. The SIM is designed with enhanced illumination using LED lighting - delivering the best 01005 and solder joint performance. With an 80 megapixel sensor and higher resolution (12µm), you get crisp, perfect quality images for accurate defect review.



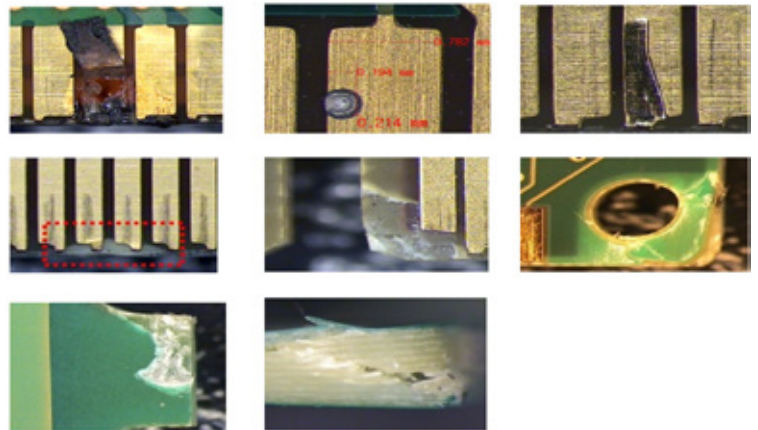
SIM (Strobe Inspection Module)

The system offers in-line multiple module grippers minimize handing tact time, 0402 inspection capability, and S2/S8 compliant.

Memory Module Post-Test Defect Types, Pre-Shipping Inspection

Inspection capability (2D+3D) includes:

- Components edge
- Damage PCB corner
- Gold finger discolored / burnt / badly scratched
- Gold tab inspection - Lifted tie bar, burnt, contamination
- Physically damaged components



Inspection and Metrology Capabilities

Component Types Inspected

- Standard SMT (chips, J-lead, gull-wing, BGA, etc.), through-hole, odd-form, clips, connectors, header pins, and more

Solder Joint Defects Categories

- Solder bridge, opens, lifted leads, wettability, excess and insufficient solder, debris, and more

3D Measurement Inspection (MX3000)

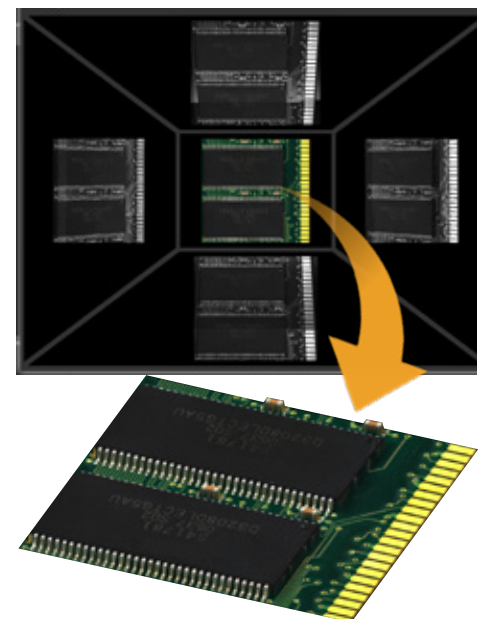
- Lifted Lead, package coplanarity, polarity dimple and chamfer identification

Other Items detected

- Gold finger contamination, pin-in-hole, bent pins, debris, OCR/OCV and many others

Component Measurement Categories

- Component X, Y position and rotation



Award-Winning AOI Software

Faster, Simpler and Smarter

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.



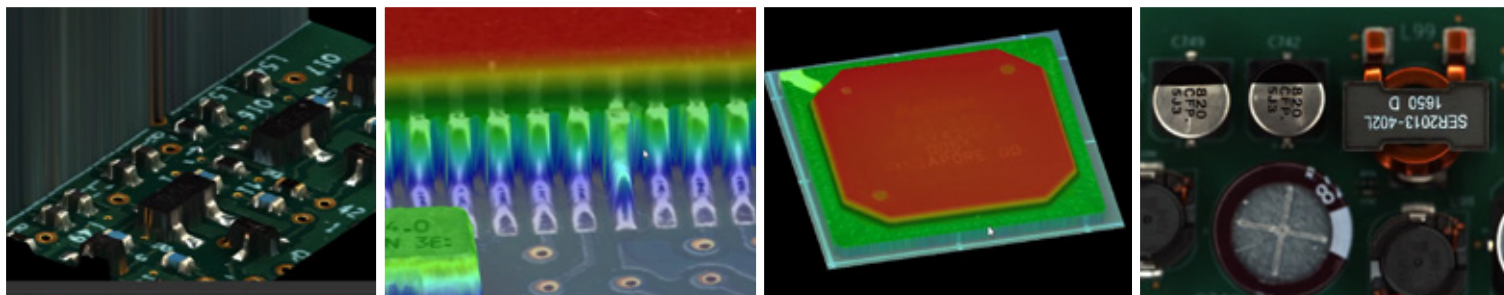
AOISoftware

AutoProgramming and AI²

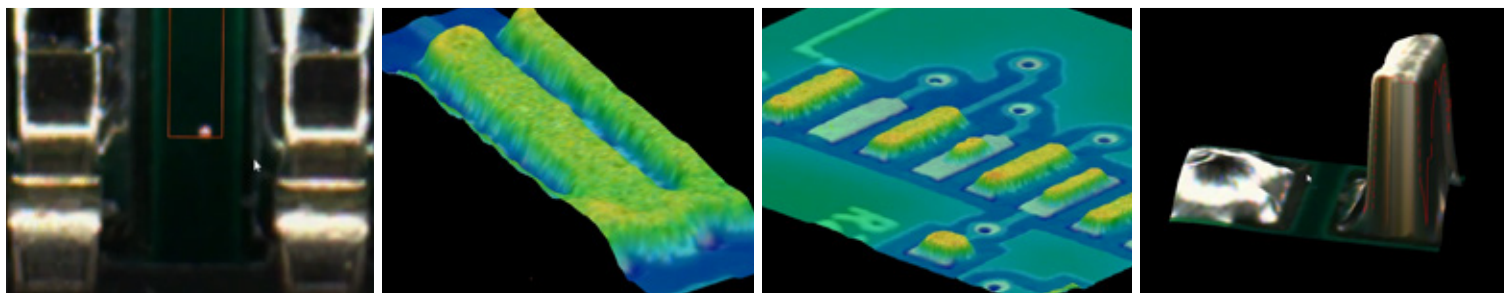
Superior in Programming & Performance - Enabling Smarter, Faster Inspection

Speed programming and tuning with new capabilities including AutoTeach, AutoDefine, and AutoTune for faster set-up and to simplify process.

CyberOptics AI² (Autonomous Image Interpretation) technology is all about keeping it simple - no parameters to adjust or algorithms to tune. And, you do not need to anticipate defects or pre-define variance either - AI² does it all for you. With AI², you have the power to inspect the most comprehensive list of features and identify the widest variety of defect types - including those that you least expect. Perfect for those high-mix or low volume applications. With its unique ability to 'ignore' bad examples in a model, AI² offers precise discrimination even with excessive variance and minimizes effects of outlier examples. The pixel marking feature highlights defective spots, so you can identify genuine defects instantly.



• No shadowing with small components next to tall components, Lifted Lead, Coplanarity, Text Detection



• Solder Ball/ Blob Analysis, Solder Bridge, Insufficient Solder, Tombstone

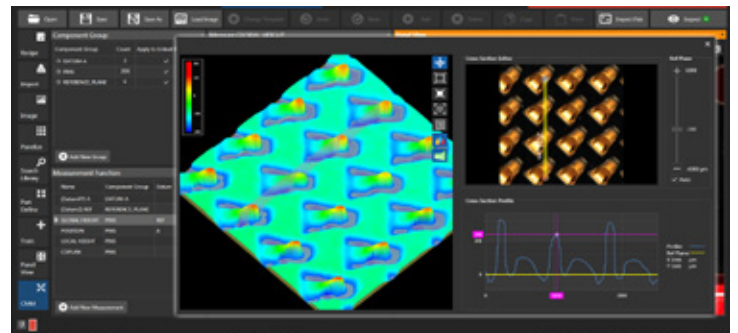
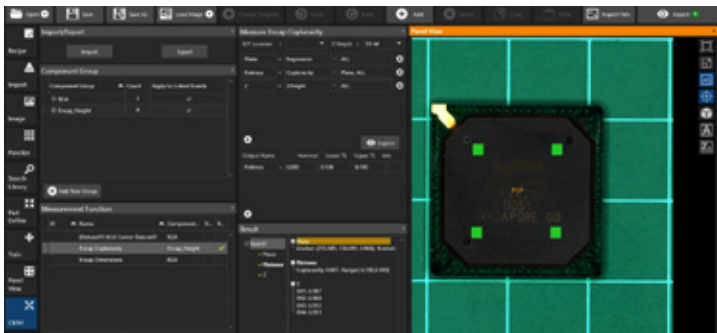
Faster, Highly Accurate Coordinate Measurement (CMM) Suite



CYBERCMM

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).



CyberReport™ - Fast, Scalable SPC Solution

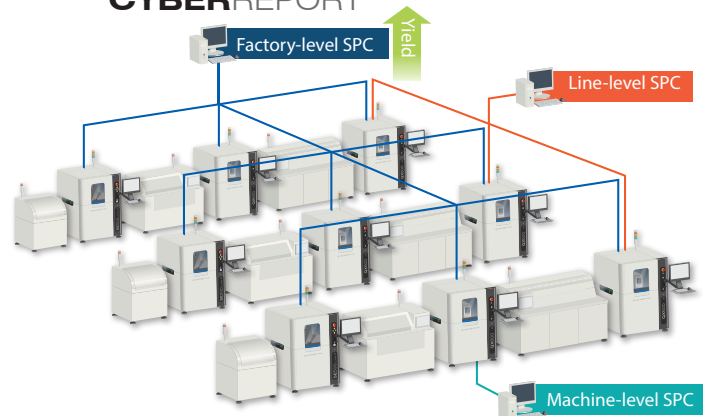
CyberReport offers full-fledged machine-level to factory-level SPC capability with powerful historical analysis and reporting tools delivering complete traceability for process verification and yield improvement. CyberReport is easy to setup and simple to use while providing fast charting with a compact database size.



Sample Report



CYBERREPORT



Solder Paste Inspection (SPI)

Ultimate Precision Accuracy with World-Class Usability



Multiple
MRS Sensor
Options

SQ3000™+ | Multi-Function

- Ultimate in Speed, Resolution and Accuracy for Advanced Applications
- Multi-process capability for 3D AOI, SPI and CMM
- Delivering metrology grade accuracy at production speed, powered by the new Ultra-High Resolution 5-Micron MRS Sensor Technology
- Ideal for high-end applications for advanced SMT, 008004/0201 SPI, advanced packaging, and high-end coordinate measurements



Multiple
MRS Sensor
Options

SQ3000™ | Multi-Function

- Ultimate in Speed and Accuracy
- Multi-process capability for 3D AOI, SPI and CMM
- Delivering metrology grade accuracy at production speed, powered by MRS Technology
- SQ3000™ X available for Large Board capability



SE3000™ | 3D SPI

- MRS Sensor for metrology grade accuracy at production speed
- Dual mode sensor with high resolution and high speed modes for maximum flexibility
- SE3000™ X available for Large Board capability



Multiple
MRS Sensor
Options

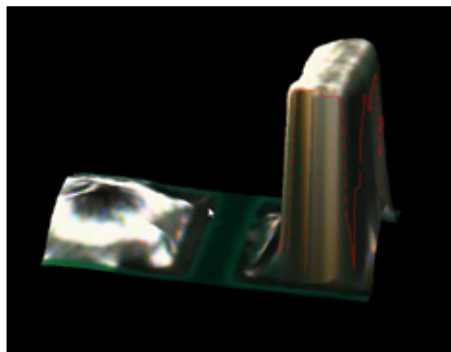
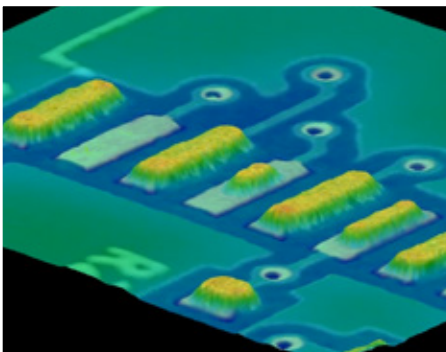
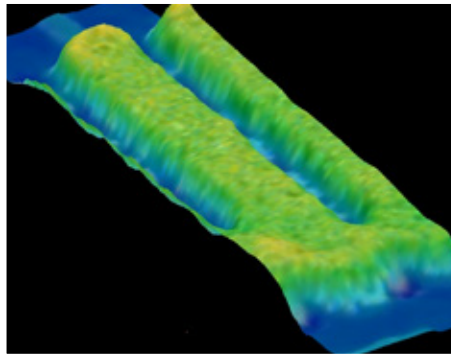
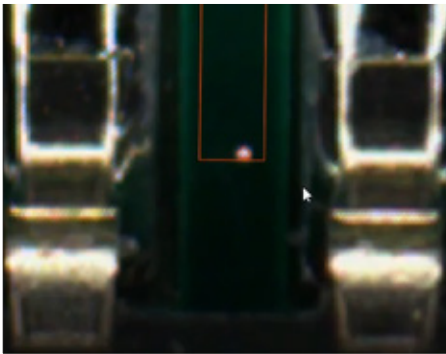
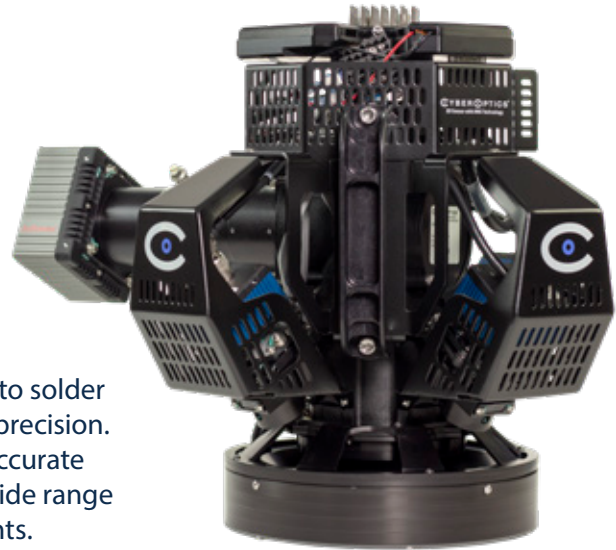
SE3000™ DD | 3D SPI Dual Lane - Dual Sensor

- Dual MRS sensors delivers metrology grade accuracy at production speed
- Flexibility to switch from dual to single lane for large boards
- SE3000™ D Dual Lane option available

MRS Technology for 3D SPI

The SE3000 SPI System brings the revolutionary MRS technology to solder paste inspection delivering higher performance in accuracy and precision. Effective suppression of multiple reflections is critical for highly accurate measurements, making MRS an ideal technology solution for a wide range of applications including those with very high quality requirements.

CyberOptics MRS Sensor architecture, extended from the award-winning SQ3000 AOI platform, has been designed for use in solder paste inspection applications. The unique sensor architecture with multi-view 3D sensors and a parallel projector, simultaneously captures and transmits multiple images in parallel while proprietary 3D fusing algorithms merge the images together, delivering metrology grade accuracy at production speed.



Solder Ball/ Blob Analysis, Solder Bridge, Insufficient Solder, Tombstone

Award-Winning SPI Software

Intuitive Design, Exceptional Usability

CyberOptics' software delivers world-class user experience with its intuitive interface that is extremely stable and simple to use, enabling the shortest learning curve. With full multi-touch experience, SPI software offers a range of features that enable smarter and faster inspection:

- Seamless integration of all applications - Teach, Inspection, Defect Review and Real-time SPC
- Unlimited undo-redo and global search options in Teach
- Loads of smart, informative and relevant charts that provide yield summary, FPY information, hotspot display, top 10 pad failures, historical panel and more.
- Easy, hassle-free operation using multi-touch, multi-selection, pinch-zoom and pan-move options.



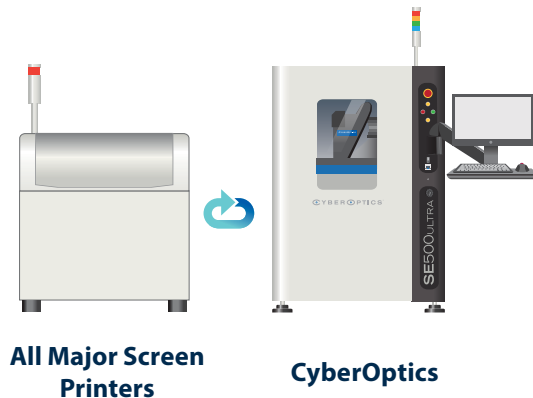
SPI SOFTWARE

Closed Loop/ Feed-forward Ready

Reduce rework costs, increase production throughput and improve quality

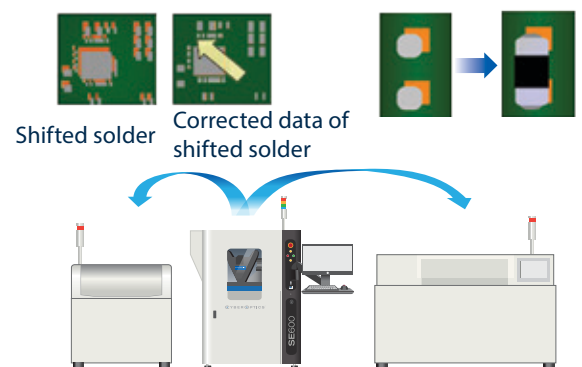
CyberOptics' SPI systems fully support feedback and feed forward capability with leading Solder Paste Printer and SMT Mounter vendors. Closed loop feedback gives you the power to do more with SPI results – optimize printing process, establish stencil cleaning cycles and fine-tune printer setup. While feed-forward capability improves the solderability of smaller components by using the printing offset data for compensating parts placement. All this means reduced rework costs, increased production throughput and improved quality.

Closed Loop Feedback



Gives you the power to do more with SPI results - optimize printing process, establish stencil cleaning cycles and fine-tune printer set-up

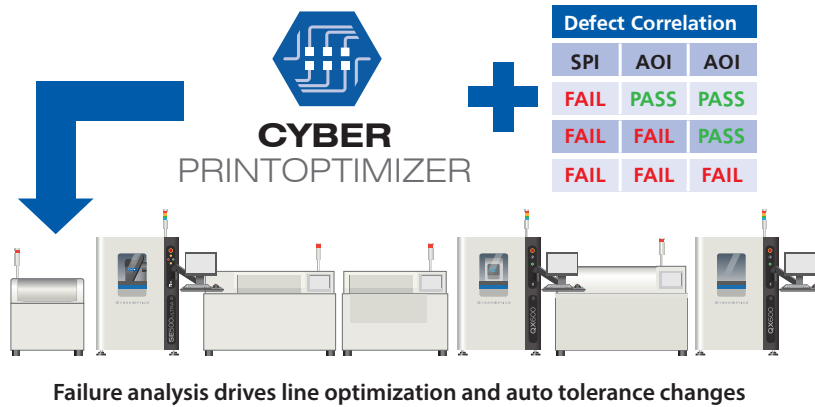
Feed Forward Ready



Improves solderability of smaller components for reduced rework cost, improved production throughput and improved quality

CyberPrint OPTIMIZER™

Automatically optimizes the print process by proactively analyzing accurate trend data – first-ever in the industry! Pre-defined templates help you get started quickly while customizable rules support perfect customization for specific product needs. With its predictive process improvement capability, you can get better yields and reduce downtime.

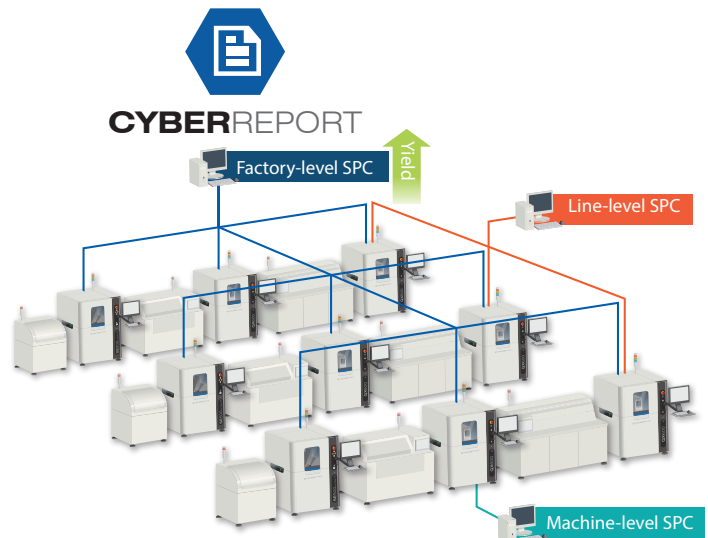


CyberReport™ - Fast, Scalable SPC Solution

CyberReport offers full-fledged machine-level to factory-level SPC capability with powerful historical analysis and reporting tools delivering complete traceability for process verification and yield improvement. CyberReport is easy to setup and simple to use while providing fast charting with a compact database size.



Sample Report



Coordinate Measurement (CMM)

The World's First In-Line CMM - Ultimate in Speed and Accuracy for SMT, Semiconductor, Microelectronics and Metrology Applications



Multiple
MRS Sensor
Options

SQ3000™ | 3D CMM

- World's first in-line CMM system
- Delivering metrology grade accuracy at production speed, powered by MRS Technology



Fastest - Seconds, not Hours

- Significantly speeds attaining coordinate measurements vs. traditional CMMs
- Reduces engineering resource time



Easy-to-use Interface

- Simplifies process with award-winning, intuitive, touch screen experience
- Quick programming for complex applications
- Multi-process capable - AOI, SPI, AOM, CMM

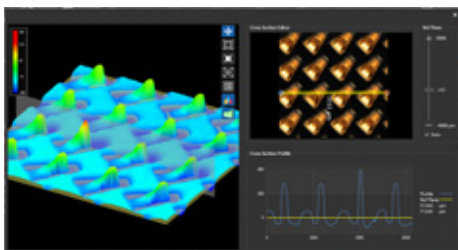


Metrology Grade Accuracy

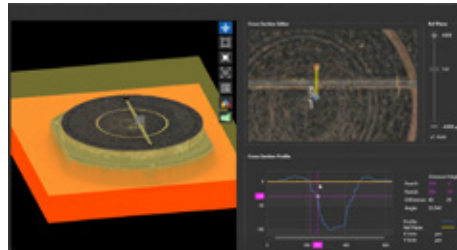
- Achieve metrology-grade accuracy with MRS-enabled technology
- Repeatable and reproducible measurements for SMT, semiconductor, microelectronics and metrology applications

SQ3000 offers unmatched accuracy with the revolutionary MRS technology by meticulously identifying and rejecting reflections caused by shiny components. Effective suppression of multiple reflections is critical for true height measurement making MRS an ideal technology solution for a wide range of applications including those with very high quality requirements.

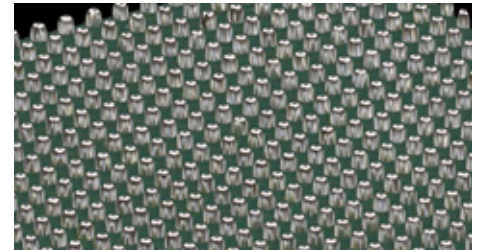
CyberOptics has advanced the proprietary Multi-Reflection Suppression (MRS) sensor to an even finer resolution. The Ultra-High Resolution MRS sensor enhances the SQ3000 3D CMM platform, delivering superior inspection performance, ideally suited for socket metrology, machined parts inspection, microelectronics and SMT applications where an even greater degree of accuracy and inspection reliability is critical.



Socket Metrology



Industrial/ Machined Parts



Solder Ball and Bump

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).

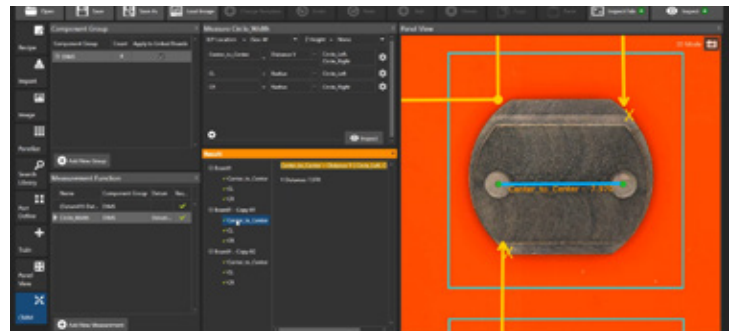
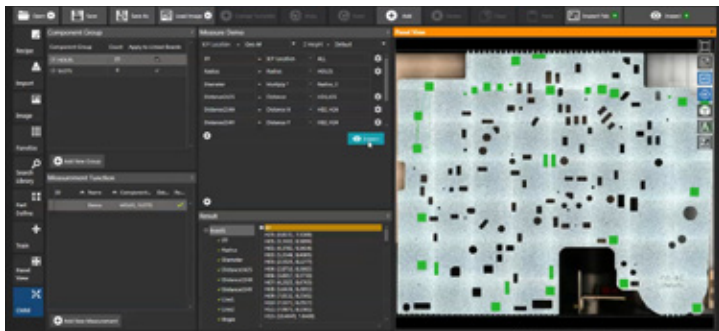
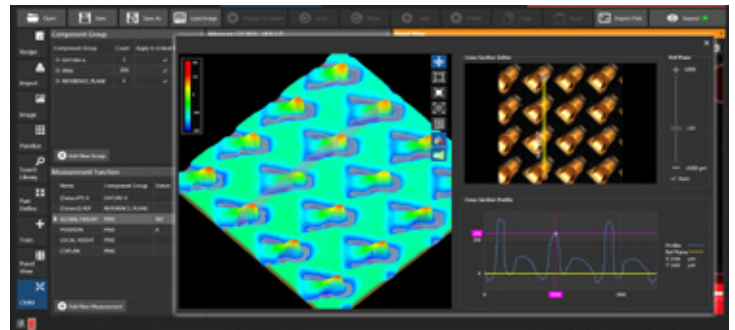
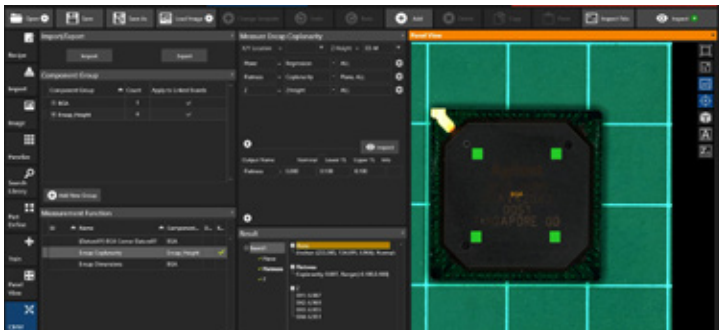


CYBERCMM

Coordinate Measurement Capability

CyberCMM provides fast and highly accurate with repeatable and reproducible coordinate measurements for SMT, semiconductor, microelectronics and metrology applications.

- 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 / Multiply



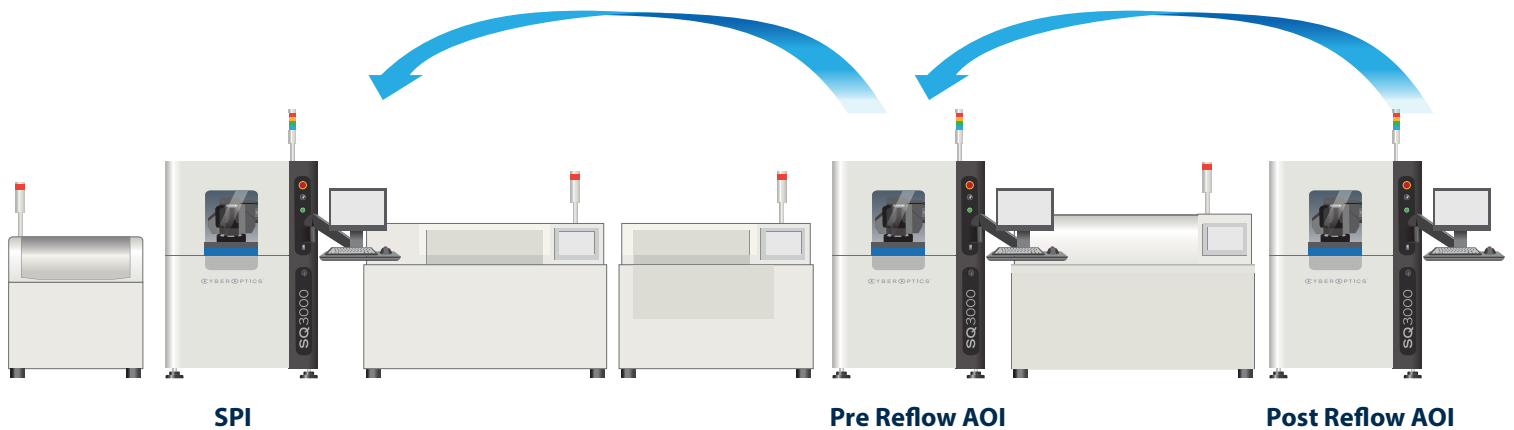
Industry 4.0

Intelligent Self-Learning, Self-Adjusting Zero Defect Line
Smart Factory Solution

Save Time, Save Expense and Improve Yields with CyberOptics' Powerful Value-Add Solutions

CyberOptics offers a range of unique value-add software solutions that enable automation, reduce rework costs, minimize scrap and optimize print process.

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



As members and participants in the IPC-Connected Factory Initiative and The Hermes Standard, CyberOptics is committed to advancing machine-to-machine communication in SMT assembly and maximize line throughput and traceability in an open protocol.



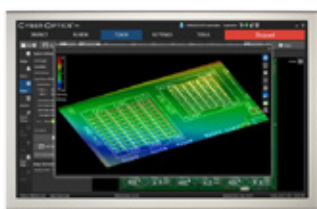
IPC-HERMES-9852
The global standard for "M2M" in SMT assembly



AOISoftware

Enables smarter and faster inspection

- Ultra-fast programming capabilities, auto tuning and enhancements that significantly speed setup, simplify the process, reduce training efforts and minimize operator interaction.
- 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.



SPISoftware

Enables smarter and faster inspection

- Reduce training efforts and minimize operator interaction saving time and cost with the powerful yet simple software with intuitive multi-touch interface and 3D visualization tools.
- Optimize printing process, establish stencil cleaning cycles and fine-tune printer set-up.
- Gain the power to do more with SPI results with closed loop feedback.
- Improve the solderability of smaller components by using the printing offset data for compensating parts placement with forward capability.



CYBERCMM

Enables smarter and faster coordinate measurement (Add-on)

- Extensive suite of CMM tools for precise measurement of critical features
- Significantly speed measurements compared to traditional CMM systems, with high accuracy and repeatability
- Multi-process capable – 3D AOI, 3D AOM, 3D CMM

Automatically optimizes the print process by proactively analyzing current trend data.

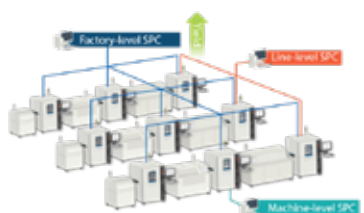
- Improve yields and reduce downtime with its predictive process improvement capability.
- Get started quickly with pre-defined templates
- Customize with customizable rules for specific product needs.

A complete Statistical Process Control (SPC), offers full-fledged machine-level SPC to factory-level SPC capability to improves yields

- Attain effective process verification and control with traceability.
- Identify trends and enhance line yields with real-time monitoring tools for historical analysis and reporting.
- Reduce training with easy-to-set-up intuitive interface that facilitates quick learning.
- Achieve fast parsing and charting speed with the robust and scalable software, while enabling an extremely compact database size.



CYBER PRINTOPTIMIZER



CYBERREPORT

Wafer-Level & Advanced Packaging

Metrology and Inspection Systems



12" and 8"
Wafer
Size

WX3000™ | 12" and 8" Wafer 3D+2D Metrology and Inspection

- Delivering metrology grade accuracy at production speed, powered by NanoResolution MRS Sensor Technology
- 12" and 8" wafer sizes
- Delivers throughput of 25 wafers (300mm) per hour



8" and 6"
Wafer
Size

WX3000™ | 8" and 6" Wafer 3D+2D Metrology and Inspection

- Delivering metrology grade accuracy at production speed, powered by NanoResolution MRS Sensor Technology
- 8" and 6" wafer sizes
- Delivers throughput of 55 wafers (200mm) per hour

Powered by NanoResolution Multi-Reflection Suppression (MRS) Sensor Technology

WX3000 3D and 2D metrology and inspection system provides the ultimate combination of high speed, high resolution and high accuracy for wafer-level and advanced packaging applications to improve yields and productivity. Offering an unparalleled combination of high accuracy, high resolution and speed, MRS sensors are widely used for inspection and measurement in the SMT and semiconductor markets.

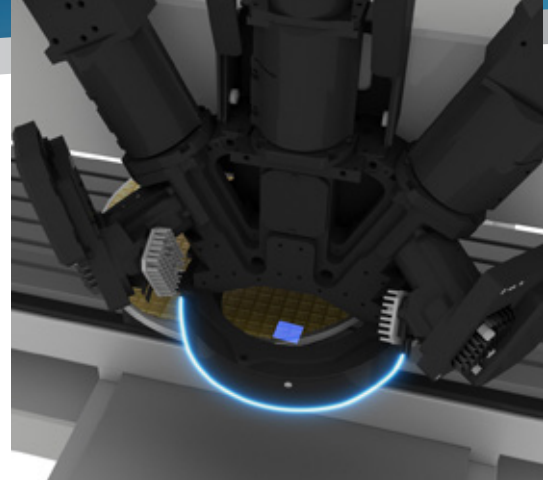
Proprietary MRS sensor technology, deemed best-in-class, meticulously identifies and rejects multiple reflections caused by shiny components and mirror-like surfaces. Effective suppression of multiple reflections is critical for highly accurate measurements. The 3-micron NanoResolution (X/Y resolution of 3 micron, Z resolution of 50 nanometer) MRS sensor enables metrology grade accuracy with superior 100% 3D and 2D measurement performance for features as small as 25-micron.



NanoResolution
MRS Sensor

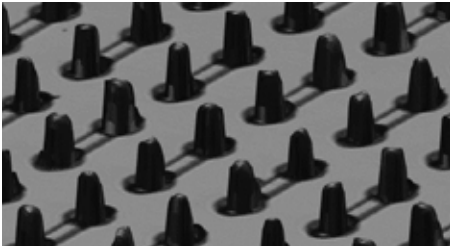
Fast, Superior Inspection Performance

Performing two to three times faster than alternate technologies at data processing speeds in excess of 75 million 3D points per second, the NanoResolution MRS Sensor delivers throughput greater than 25 wafers (300mm) per hour. 100% 3D and 2D metrology and inspection can be completed simultaneously at high speed, versus an alternate, slow method that requires two separate scans for 2D and 3D, and only a sampling of a few die.

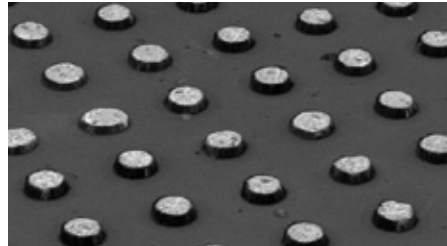


Versatility for Wafer-Level and Advanced Packaging Applications

Measure and inspect a wide range of semiconductor applications including gold bumps, solder balls and bumps, wafer bumps, copper pillars and other wafer-level and advanced packaging applications. Measure and inspect critical packaging features including bump height, coplanarity, diameter and shape, relative location and variety of other measurements.



Copper Pillar



Micro Bump

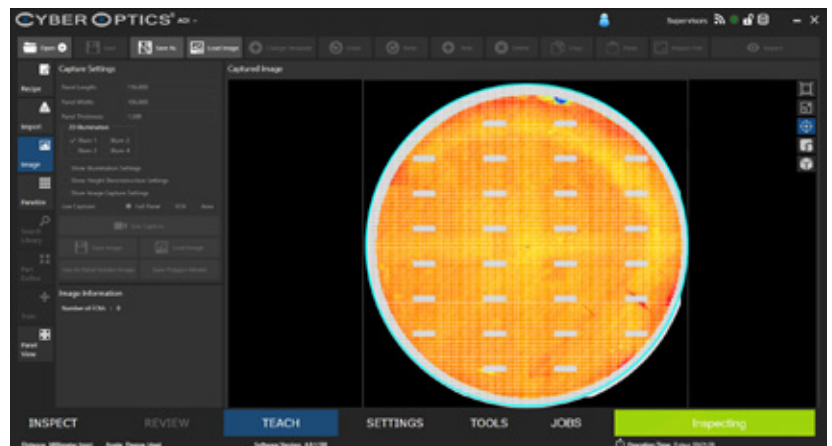


Flip Chip (c4)

Benefits of 100% Wafer Bump Metrology and Inspection

The WX3000 enables 100% 3D metrology and inspection for wafer bumps that can identify:

- Cluster Defect, indication of equipment or process issue
- Repeating Defect, potentially mask/ reticle defect
- Bump Height Distribution of Each Wafer, identify performance differences between different plating machines and individual plating cells
- Non-uniform Bump Heights, indication of uneven current density distribution of the plater
- Wafer Edge Tall Bumps, avoid probe card damage



WXSOFTWARE

CyberOptics Corporation is a leading global developer and manufacturer of high-precision 3D sensing technology solutions. CyberOptics' sensors are used for inspection and metrology in the SMT and semiconductor capital equipment markets to significantly improve yields and productivity. By leveraging its leading edge technologies, the Company has strategically established itself as a global leader in high precision 3D sensors, allowing CyberOptics to further increase its penetration of key vertical markets.

Headquartered in Minneapolis, Minnesota, CyberOptics conducts worldwide operations through its facilities in North America, Asia and Europe. Through continuous technology advancements, a rich patent portfolio, and our sensor expertise CyberOptics continues to be an industry leader at the forefront of technology.



Contact CyberOptics today for more information

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