

CYBEROPTICS®

Revolutionary AOI Technology,
Unbelievable Speed

World's Fastest and
Most Accurate 3D SPI



The Recognized Leader for Quality Inspection Solutions



SPI SYSTEMS

WORLD'S FASTEST AND
MOST ACCURATE 3D SPI



SE600™
3D SPI

Ultimate Precision Accuracy
with World-class Usability

*State-of-the art dual
illumination sensor enabling
unrivalled GR&R, Intuitive
software enabling shortest
learning curve,
Future-proofed*



EM Asia Innovation Award
for SPIv5.0 software



EM Asia Innovation
Award for SE600



EM Asia Innovation
Award for
CyberPrint OPTIMIZER™



SMTA Best Exhibit Technology
Award for SE600



SMTA Best Emerging Exhibit
Award for SE600



SE500ULTRA™ | World-class Accuracy
3D SPI | at Fastest Speed

*High-Speed, 'All-in-one' scan,
On-the-fly measurement @
210cm²/sec, Future-proofed*



SE500-II™ | Unsurpassed
3D SPI | price-performance

*High-Speed, 'All-in-one'
scan, Intuitive software,
Future-proofed*



Note: Large board and dual lane configurations are also available.

*On standard parts only (excludes conveyor belts and other consumables); 1 year warranty on service

AOI SYSTEMS

REVOLUTIONARY AOI TECHNOLOGY,
UNBELIEVABLE SPEED



SQ3000™
3D AOI

Ultimate in Speed and Accuracy

*Powered by MRS Technology,
Metrology grade accuracy at
production speeds*



QX600™
2D AOI

Ultra Fast, Ultra Versatile

*Best in Class 01005 and
Solder Joint Inspection,
Future-proofed*



2014 Global Technology Award
for QX600





QX150i™
2D AOI

High Value, Flexible Inspection
for all Applications

*Ideal for Selective Solder and
Pre-Reflow Applications,
Future-proofed*



*SMT China Vision Award
for QX150i*



QX150™
2D AOI

Tabletop with In-Line
Performance

*Ideal for high-mix,
low-volume
environment*



Note: Conformal Coating Inspection, large board
and dual lane configurations are also available.

*On standard parts only (excludes conveyor belts and other consumables); 1 year warranty on service

SPI Features & Advantages



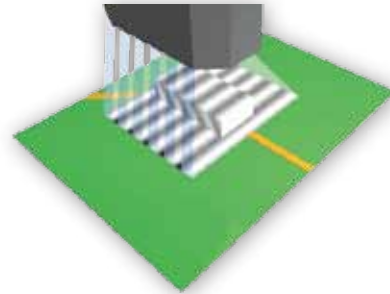
High Speed, On-The-Fly Inspection

CyberOptics' SPI systems use white strobe light to project patterns of structured light on the surface of a PCB (printed circuit board).

With white strobe light, full FOVs are acquired with each strobe and vibration effects are minimized - delivering good accuracy and consistent repeatability.

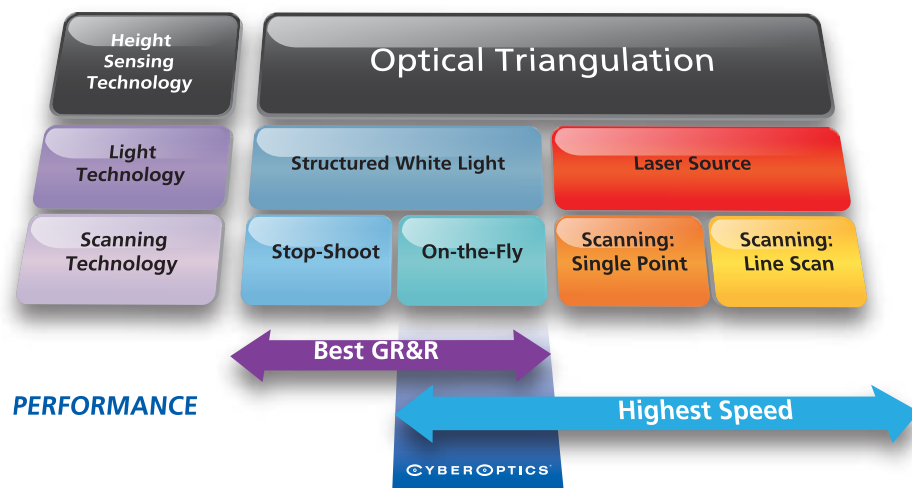
You can measure **any PCB surface** – including flexible circuits – as white light causes minimum diffusion. With its continuous image acquisition, you can be assured of fast, focused and reliable inspection.

True height measurement accuracy* is critical to SPI measurement as it has a direct correlation with solder volume and defects. The importance of true height increases with the continuous miniaturization and density of electronic components. CyberOptics' SPI systems set a new bar for height accuracy measurements.



Pattern of structured white light on PCB

3D Solder Paste Measurement System



* Scan here to understand why True Height Measurement accuracy is critical for SPI



SPI Features & Advantages



New, Award-winning Intuitive Software

The brand-new V5 series software delivers world-class user experience with its intuitive interface, completely changing the way users interact with our system. Yet, at the same time, the software is extremely stable and simple to use enabling shortest learning curve.

With full multi-touch experience, SPI V5 series software offers a range of revolutionary 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
- 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.



Newly Designed, Intuitive Software

SPI Features & Advantages



Faster, More Accurate Performance

Designed and built by CyberOptics, the sensor is manufactured as an integrated unit with no moving parts – which means no machine-to-machine variation either. Plus, there is no drift over time, no parts to wear and absolutely no recalibration needed.

For improved repeatability on smallest paste deposits, you can choose from the MicroPad and Dual Illumination sensor options. Pads as small as 100 microns (4 mils) can be accurately measured with the MicroPad sensor. And, it is easy to swap with the standard sensor too – so you can plug-and-play whenever you need to.

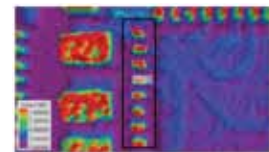


MicroPad Sensor

Dual Illumination Sensors



140 x 140 micron pads



100 x 150 micron pads



Future-Proofed

1. ULTRA Sensor Upgrade – *Get 30% more speed*

Includes: V2 series software with unique 'all-in-one' scan and all-new ULTRA sensor with improved speed (210 cm²/sec)

2. Dual Illumination Sensor Upgrade – *Get best accuracy and GR&R results*

Includes: Dual Illumination Sensor

3. New SPI V5 series Software – *Get world-class user experience*

Includes: V5 series software, touch screen monitor, hard disk drive and USB key

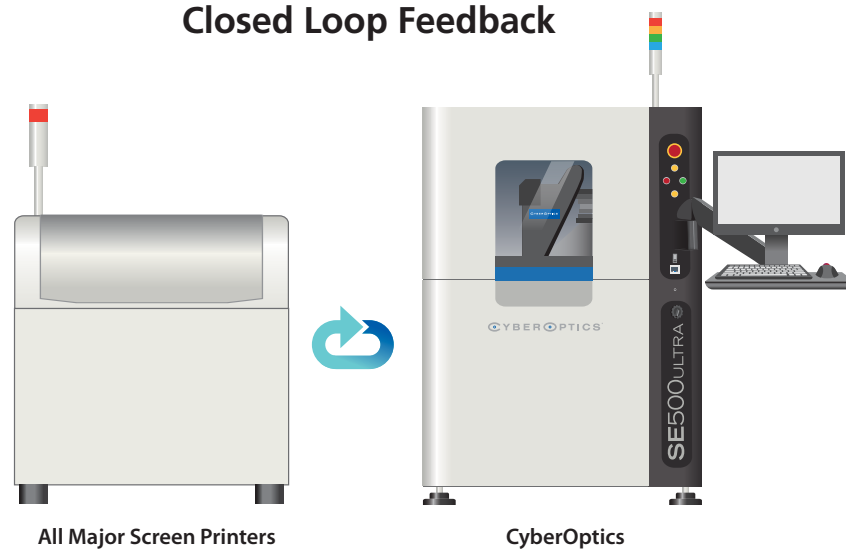
SPI Features & Advantages



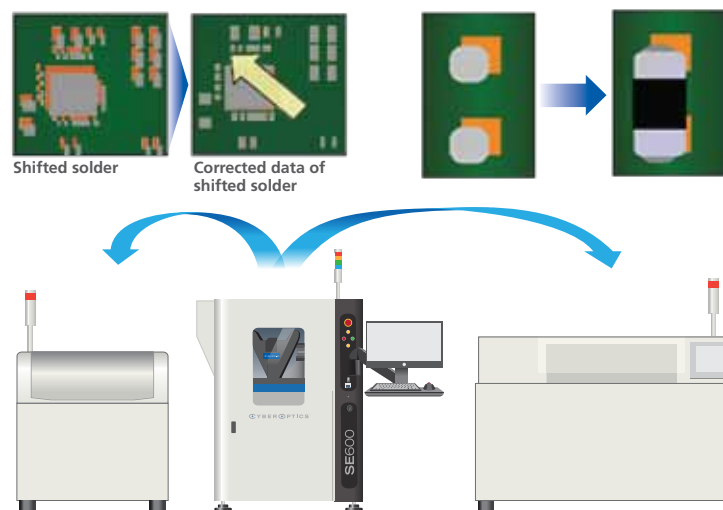
Closed Loop / APC Feed-forward Ready

CyberOptics' SPI systems fully support feedback and feed forward capability with leading Solder Paste Printer and SMT Mounter vendors respectively. 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



APC Feedback / Feed-forward



AOI Features & Advantages



Architecturally Superior 3D Sensor

The new SQ3000™ 3D AOI system is powered by CyberOptics' breakthrough 3D sensing technology comprising of four multi-view 3D sensors and a parallel projector delivering metrology grade accuracy at production speed. CyberOptics' unique sensor architecture simultaneously captures and transmits multiple images in parallel while proprietary 3D fusing algorithms merge the images together. The result is ultra-high quality 3D images and high-speed inspection.



Multi-view 3D Sensors



High-speed, On-the-fly Inspection

The SIM (Strobed Inspection Module) is at the core of every CyberOptics' 2D AOI system. Designed and manufactured exclusively by CyberOptics, the SIM delivers high performance inspection at 200cm²/sec - making our AOI systems the fastest in the world. And, it is absolutely calibration-free too!

An all-new SIM on the QX600™ is designed with enhanced illumination using LED lighting - delivering the best 01005 and solder joint performance ever. With an 80/150 Megapixel sensor and higher resolution (12µm), you get crisp, perfect quality images for more accurate defect review.



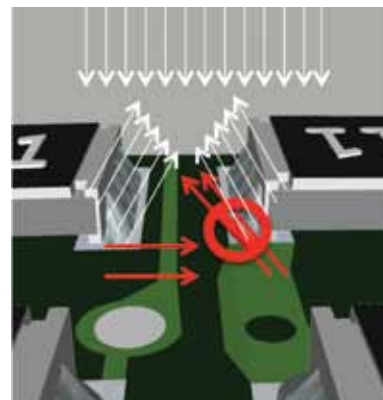
Strobed Inspection Module (SIM)

AOI Features & Advantages

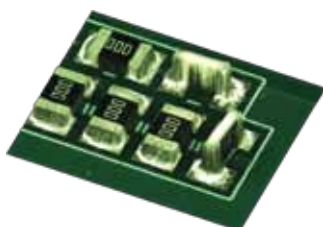


Multi-Reflection Suppression (MRS) Technology

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 true height measurement making MRS an ideal technology solution for a wide range of applications including those with very high quality requirements.



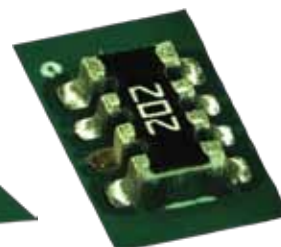
Multi-Reflection Suppression (MRS) Technology



Billboard



Lifted Leads



Insufficient Solder



Intuitive, Easy-to-use Software

The newly designed software for SQ3000™ is a powerful yet extremely simple software with an intuitive interface that reduces training efforts and minimizes operator interaction – saving time and cost. Based on the award-winning SPI V5 software, the SQ3000™ software includes multi-touch control and 3D image visualization tools, taking ease-of-use to a whole new level.



AOI Features & Advantages



AI² – Faster, Simpler and Smarter

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.

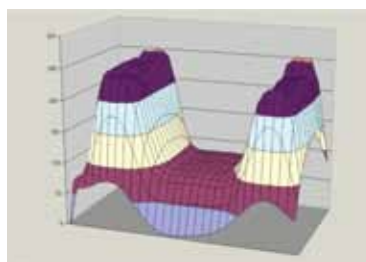
Just draw a box, show a few good examples and you are ready to inspect just about anything. Add more images to the model and watch false call rates get even lower. With AI², you have the power to inspect the most comprehensive list of features and identify the widest variety of defect types - including those that you least expect.

A 90% reduction in examples required enables even faster programming - so you get superior defect detection and low false call rates even with just one example. This means significantly lower tuning time and quality results with one panel inspection. 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.

Measurement Technique	Inspection Performance	Programming Simplicity
CyberOptics' AI² Software	Lowest False Call Rate Reliable and Repeatable Discrimination Robust ✓	No complicated algorithms Faster Programming Lesser Examples ✓
Algorithm Based	✓	
Pattern Matching		✓



AI² Software:
Unique Image Processing Technique



Active Pixel Marking

To know more about our unique AOI approach, please refer to the whitepaper
"Advanced modelling techniques achieves near to zero AOI set up time and minimal tuning."

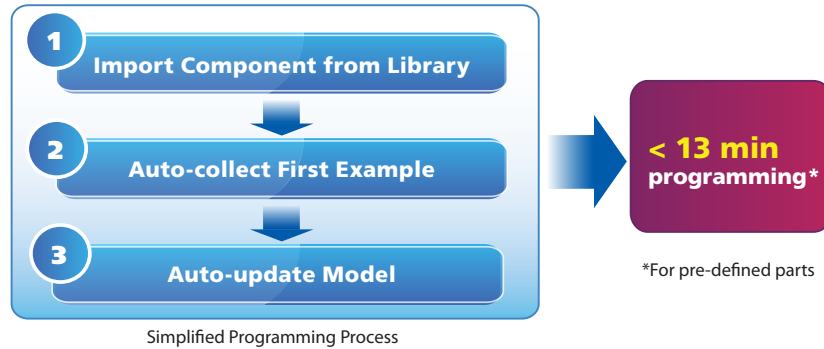


AOI Features & Advantages



3-Easy-Steps Programming

Our latest software improvements take programming to a whole, new level - zero to production ready in less than 13 minutes! All this is made possible, with an all-new data-rich, pre-loaded library and automated scripts that collect examples and update models - all on their own.



Future-proofed

Upgrade to a higher resolution SIM (12µm) with enhanced illumination for improved gold finger and solder joint inspection performance. With this 80 Megapixel sensor, you get crisp, quality images for accurate defect review.

Includes: 12µm resolution SIM, advanced computer and new gantry.

SPC Features & Advantages

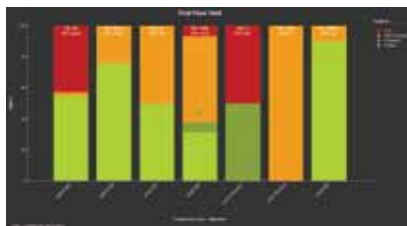


Fast, Intuitive and Scalable SPC

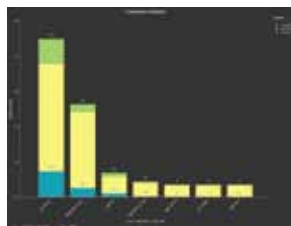
CyberReport™, a complete SPC solution, offers full-fledged machine-level to factory-level SPC capability, historical analysis and reporting tools.

CyberReport™ provides complete traceability for effective process verification and control resulting in improved yields.

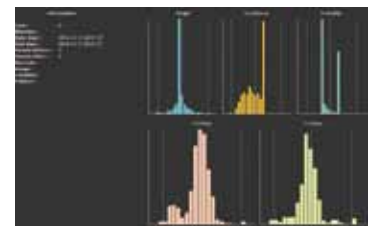
CyberReport™ is easy to setup in a few clicks while its intuitive interface facilitates quick learning with minimal or no training at all. CyberReport™ is robust and scalable while enabling an extremely compact database size, fast parsing and charting speed.



FPY by Line



Defects by Type



SPC by Feature



Panel View



Defect List View

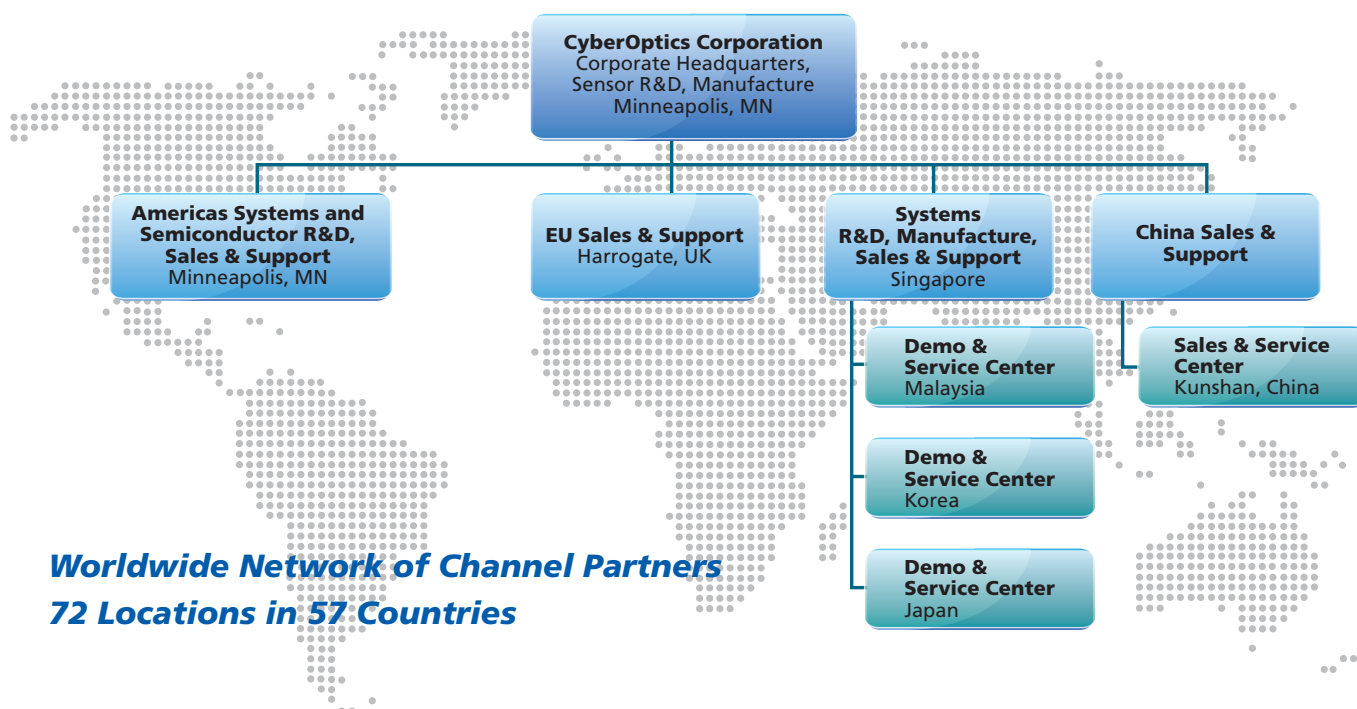


Sample Report

Our Areas of Focus Driving Customer Value



24/7 Global Sales and Support Network





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For information about other
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