CYBEROPTICS®

INSPECTION CAPABILITIES	
Typical Scanning Speed	150 cm²/sec (23.25 in.²/sec)
Minimum Component Size	0402 mm (01005 in.)
Board Width	50 mm to 308 mm (2.0 in. to 12.0 in.)
Board Length (without re-inspection)	50 mm to 457 mm† (2.0 in. to 18.0 in.)
Board Thickness	0.5 mm to 5 mm‡
Component Height Clearance (Max.)	Top: 30 mm (1.18 in.), Bottom: 30 mm (1.18 in.)
Board Edge Clearance (Min.)	3.0 mm (0.125 in.), bottom side only
Component Types Inspected	Standard SMT (chips, J-lead, gull-wing, BGA, etc.), through-hole, odd-form, clips, connectors, header pins, and others
Component Defect Categories	Missing, polarity, tombstone, billboard, flipped, wrong part, gross body and lead damage, and others
Solder Joint Defect Categories	Solder bridge, opens, lifted leads, wettability, excess and insufficient solder, debris, and others
Other Items Detected	Gold-finger contamination, pin-in-hole, bent pins, debris, and many others
Component Measurement Categories	Component X,Y position,and rotation
Measurement Gage R&R	<10% (down to 0402 mm components)

† With re-inspection support, the board length will be limited to 386 mm
‡ Boards up to 0.5 mm can be supported using the Board Edge Guide Option Kit

VISION SYSTEM	
Imagers	40 Megapixel Sensor
Image Transfer Protocol	PCIe
Lighting	Strobe white light (with dark/bright field)
Resolution	17µm pixel size
Image Processing	SAM (Statistical Appearance Modeling) technology. *Option: Autonomous Image Interpretation (AI²) technology
Board Warp Compensation	Up to ± 7 mm
Programming	Simple on-line or off-line
Programming Instruction	Quick-Start programming guide for easy initial setup
CAD Import	Any column separated text file (standard information required – ref. designator, XY, angle, part no.), Gerber input with ePM software

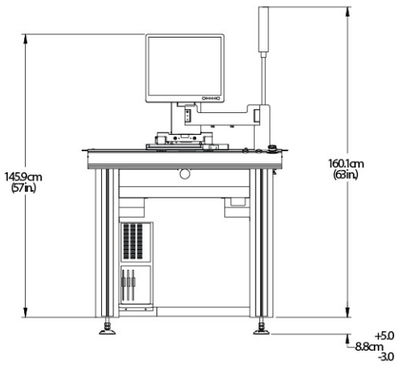
SYSTEM SPECIFICATIONS	
Conveyor Height	Adjustable to 835 – 990 mm (33 – 39 in.)
Machine Interface	SMEMA. RS422 and Ethernet
Alarms	Light pole and audible alarm
Power Requirements	100-120V, 15 Amp max or 220-240V, 10 Amp max, 50/60Hz
System Dimensions	100 x 88.6 x 132.1 cm
Weight	~219 kg (483 lbs.)
Machine Installation	<1 hour

OPTIONS

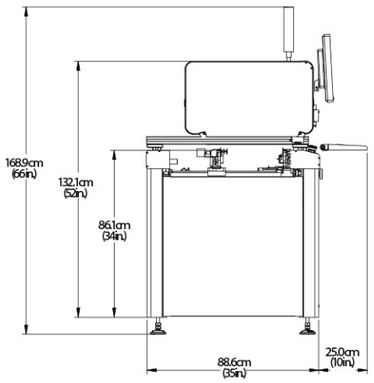
SPC Software, Offline Defect Rework Station, Sensor Alignment Target, Barcode Readers (1D/2D), Dual Side Inspection Kit, Right-to-left Configuration Kit

QX100i

FRONT



SIDE



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CYBEROPTICS®

QX100i™

High Value, Flexible Inspection for all Applications

Ideal for Selective Solder and Pre-Reflow Applications

3 YEAR WARRANTY*

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

BEST PERFORMANCE FOR BEST VALUE

- **Fast, On-the-fly Inspection** with Strobed Inspection Module (SIM)
- **Production Ready in <13 minutes* with AI²**
- Suitable for **High-mix Environment**
- **01005 Inspection** Capability
- **Easy Wedge-in Replacement** of Existing Conveyor
- **Lowest False Call Rate** and **Zero Escapes**

*For pre-defined parts

QX100i™

High Value, Flexible Inspection for all Applications

Revolutionary AOI Technology, Unbelievable Speed

www.cyberoptics.com

SMART SENSING TECHNOLOGY

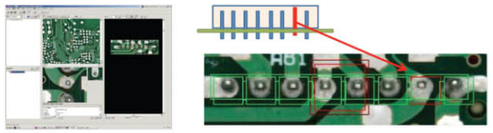
At the core of every QX100i™, is the SIM (Strobed Inspection Module) enabling 'on-the-fly' high performance inspection. The SIM is absolutely calibration-free and illuminates only when needed – reducing cost of ownership and power consumption.

With its white strobe lighting - featuring dual fixed-angle illuminators - you can capture crisp quality images. And, choose a combination of lighting to further enhance component features and achieve perfect contrast. The result is: lowest false call rates and improved performance.

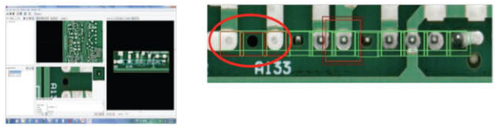
SIM (Strobe Inspection Module)

Selective Soldering Inspection

Floating Pin

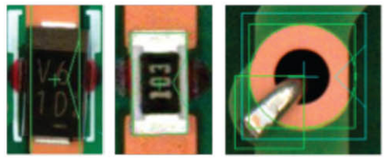


Missing Pin



Pre-Reflow Inspection

OK



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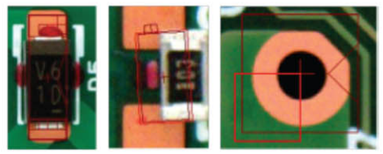
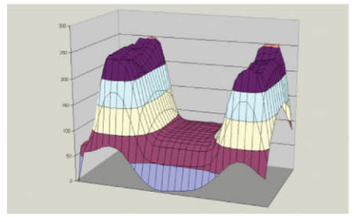


INSPECT 'ANYTHING'

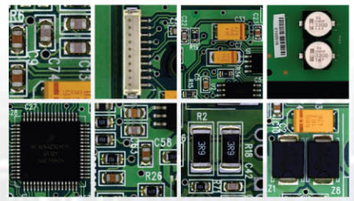
CyberOptics' AI² (Autonomous Image Interpretation) technology is a complete refactor of our proven Statistical Appearance Modeling techniques. AI² is all about keeping it simple - no parameters to adjust or algorithms to tune. And, you don't need to anticipate defects or pre-define variance either – AI² does it all for you.

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.

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



Components Inspected/ Detected

QX100i™

High Value, Flexible Inspection for all Applications

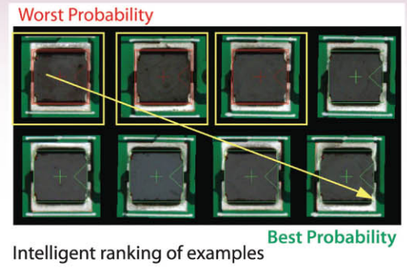
AI² – FASTER, SIMPLER AND SMARTER

With AI² technology, programming gets *even* faster – with a 90% reduction in examples required – 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!

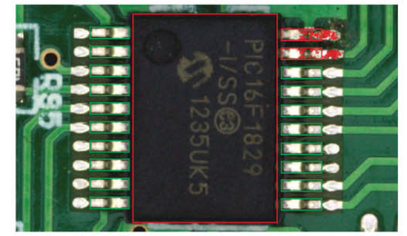
With its unique ability to 'ignore' bad examples in a model, AI² offers precise discrimination even with excessive variance and minimizes effects of outlier examples.

Plus, it is a lot simpler with full support for unsupervised and semi-automatic model training. And, examples are pre-sorted so you can select and clear the ones you don't need – very quickly.

The pixel marking feature highlights defective spots, so you can identify genuine defects instantly.



Intelligent ranking of examples

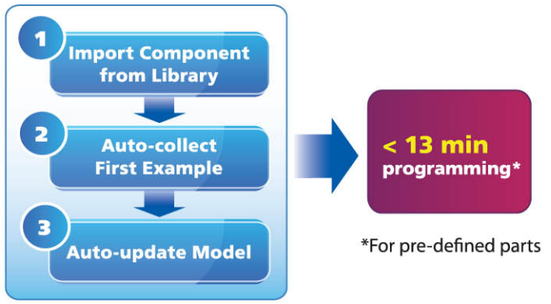


Active Pixel Marking

Scan to know about achieving Near-to-zero Setup Times using Modeling Techniques

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.



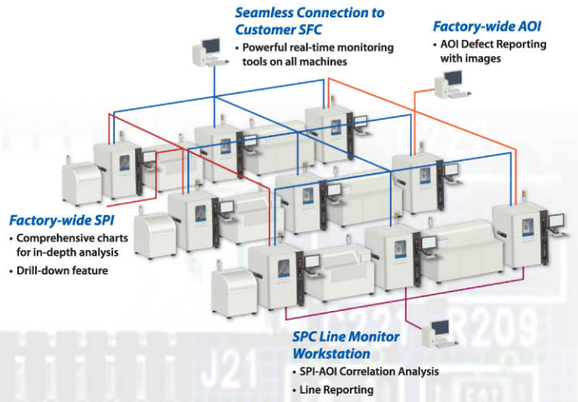
*For pre-defined parts

Simplified Programming Process

SMARTEST PROCESS CONTROL TOOL FOR BEST YIELD

Process Monitor™ SPC software offers a full-range of powerful real-time monitoring and historical data analysis tools.

The unique AOI-SPI correlation tool offers effective traceability of defects between AOI and SPI systems enabling reduced rework costs and improved yield.



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