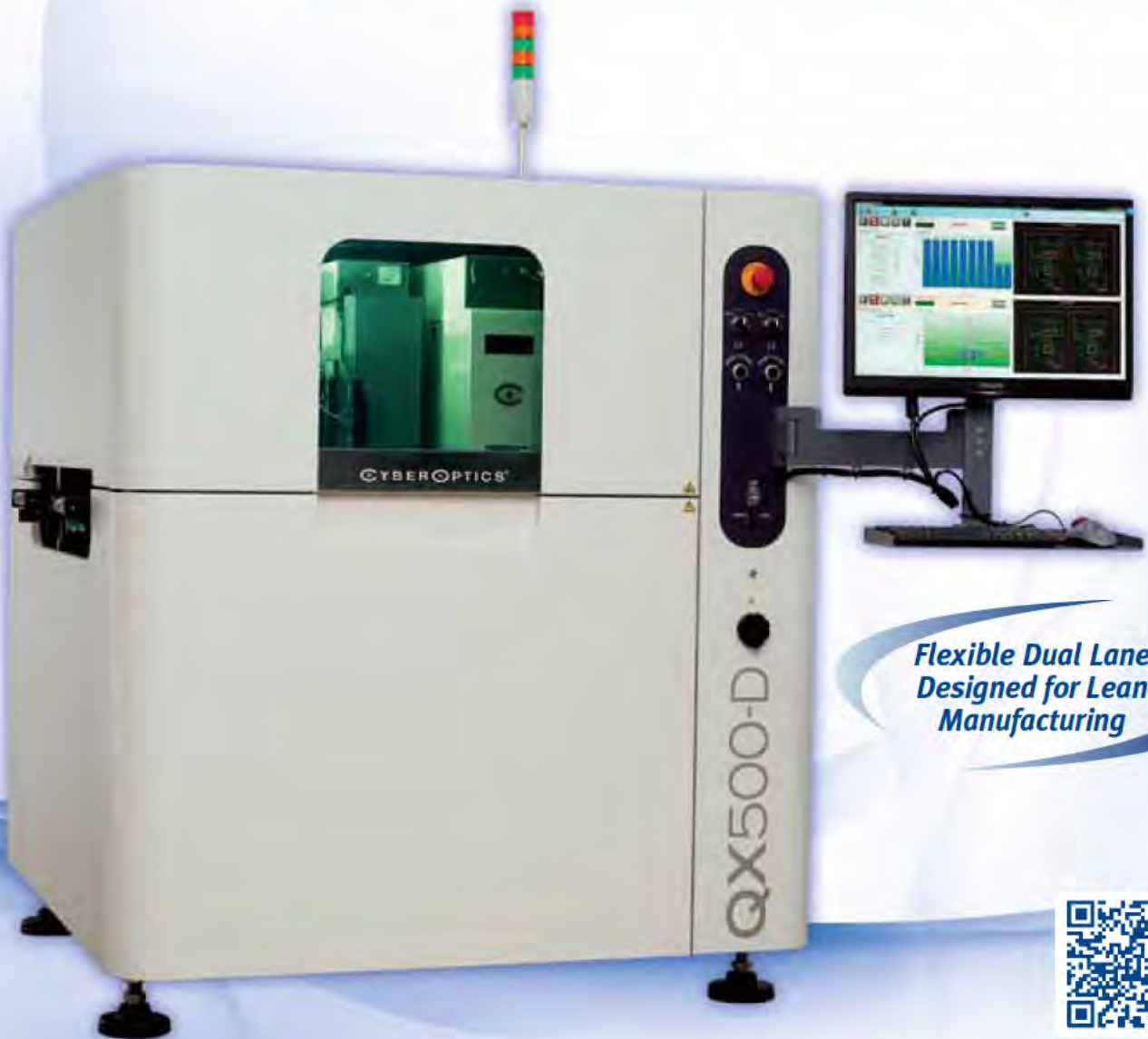


CYBEROPTICS®

QX500-D™

Optimum Performance at Astonishing Speed



*Flexible Dual Lane
Designed for Lean
Manufacturing*



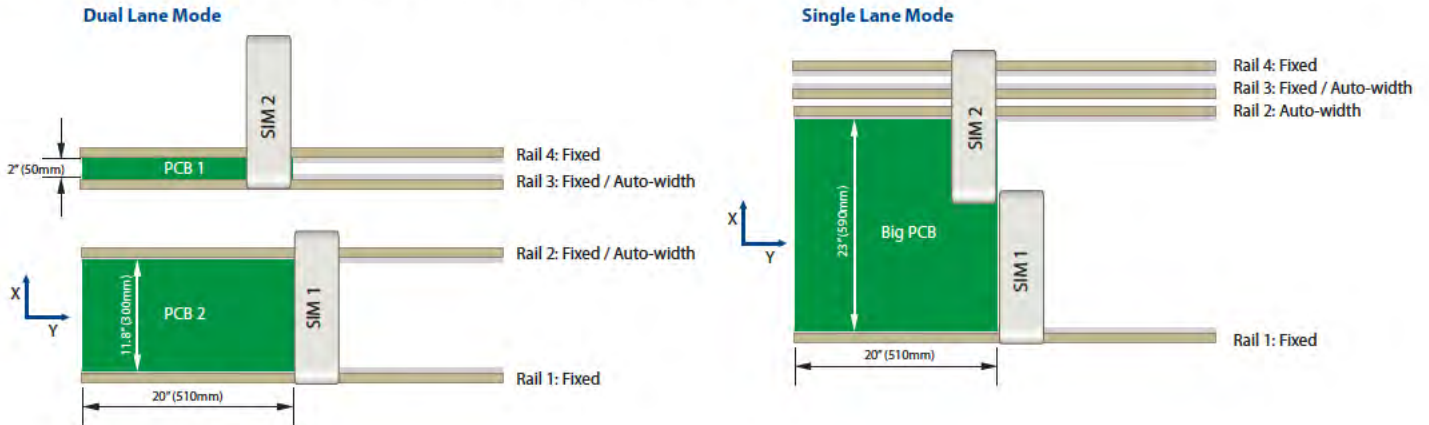
**LARGEST
BOARD
CAPABILITY WITH
FLEXIBLE
CONVEYOR
CONFIGURATION**

- **Largest Board Handling** capability with support for asynchronous inspection on separate lanes
- **On-the-fly inspection** using strobed inspection module at 200cm²/sec
- Supports different program on each lane
- **01005 inspection** capability
- Faster and simpler programming with AI² (Autonomous Image Interpretation) Technology
- **AOI-SPI Correlation Analysis** with CyberConnect™

FLEXIBILITY AT ITS BEST

QX500-D™ features a smart conveyor design solution providing maximum flexibility to cater to varying PCB (printed circuit board) widths. This unique design gives you the convenience of inspecting different board sizes on different lanes or even switching from dual lane to single lane mode to inspect very large boards.

You can also inspect different programs on different lanes as well as perform on synchronous or asynchronous inspection.



INSPECT 'ANYTHING'

CyberOptics' AI² (Autonomous Image Interpretation) and Standard SAM (Statistical Appearance Modeling) 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 – AI²/SAM 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.

The unique combination of technology gives you the power to inspect the most comprehensive list of features and identify the widest variety of defect types – including those that you least expect.



AI²/SAM Software: Unique Image Processing Technique



Components Inspected/ Detected

Measurement Technique	Inspection Performance	Programming Simplicity
CyberOptics' AI ² /SAM Software	Lowest False Call Rate Reliable and Repeatable Discrimination	No complicated algorithms Faster Programming
Algorithm Based	✓	✓
Pattern Matching		✓

QX500-D™

Optimum Performance at Astonishing Speed

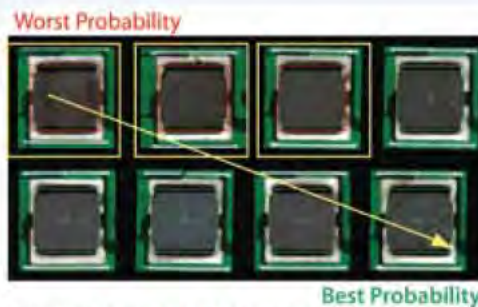
AI² – FASTER, SIMPLER AND SMARTER

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.



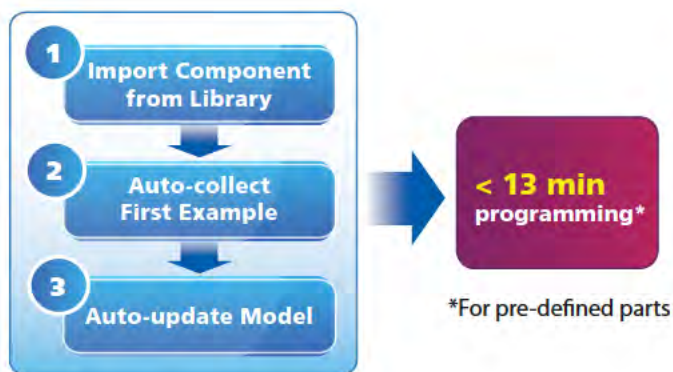
Intelligent ranking of examples



Active Pixel Marking

3-EASY-STEPS PROGRAMMING

Our latest software improvements take programming to a whole, new level – zero to 100% program complete 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.



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.



AOI-SPI Correlation

INSPECTION CAPABILITIES

Typical Scanning Speed	200 cm ² /sec (31 in. ² /sec)
Minimum Component Size	0402 mm (01005 in.)
Panel Size Capacity (Min)	50 x 50 mm (2.0 in. x 2.0 in.)
Panel Size Capacity (Max)	Single lane: 510 x 590 mm (20.0 x 23.3 in.), Dual lane: 480 x 300 mm (19.0 x 11.8 in.)
Conveyor Mode	Asynchronous, Synchronous
Board Thickness	0.5 mm to 5.0 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)

VISION SYSTEM

Imagers	Dual 40 Megapixel sensors
Image Transfer Protocol	PCIe
Lighting	Strobe white light (with dark/bright field)
Resolution	17µm pixel size
Image Processing	Statistical Appearance Modeling (SAM™) technology *Option: Autonomous Image Interpretation (AI ²) technology
Board Warp Compensation	Up to ± 7 mm
Programming	Simple on-line or off-line
CAD Import	Any column separated text file (standard information required – ref. designator, XY, angle, part no.), Gerber input with ePM software

SYSTEM SPECIFICATIONS

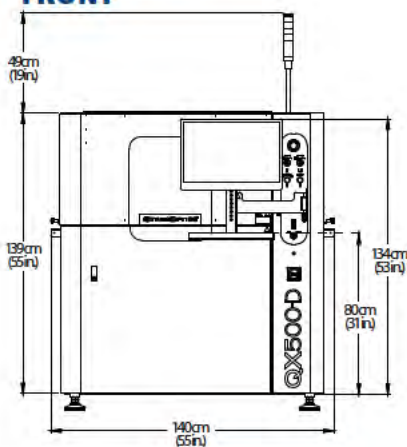
Conveyor Height	Adjustable to 832 – 990 mm (33 – 39 in.)
Machine Interface	SMEMA, RS232 and Ethernet
Alarms	Light pole and audible alarm
Power Requirements	100 – 120VAC or 220 – 240VAC, 50/60Hz, 10 amp max.
System Dimensions	140 x 159 x 139 cm
Weight	~600kg (1322 lbs.)
Machine Installation	<1 hour

OPTIONS

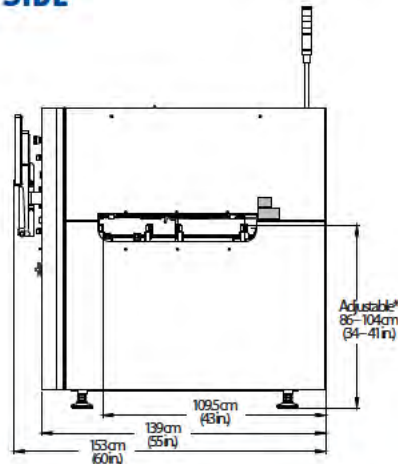
SPC Software, Offline Defect Rework Station, High Performance PC, Barcode Readers (1D/2D), Sensor Alignment Target, Programming Software: ePM-SPI/AOI



FRONT



SIDE



Americas

CyberOptics Corporation
Minneapolis, Minnesota
USA
Tel: + 1 763 542 5000

Asia Pacific

CyberOptics Singapore
Singapore
Tel: + 65 6744 3021

China

CyberOptics China Company, Ltd.
Shanghai
Tel: + 86 21 6468 8080

Europe

CyberOptics Ltd.
United Kingdom
Tel: + 44 1423 871 411

info@cyberoptics.com

QX500-D™

Optimum Performance at Astonishing Speed
Revolutionary AOI Technology, Unbelievable Speed

www.cyberoptics.com

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