QX500™
AUTOMATED OPTICAL INSPECTION SYSTEM

OPTIMUM PERFORMANCE AT ASTONISHING SPEED

The QX500™ embraces CyberOptics' unique image acquisition solution – Strobed Inspection Module (SIM) and is capable of inspecting 01005 components and larger at 200cm²/sec, securely positioning itself as the fastest area-scanning Automated Optical Inspection system in the industry.

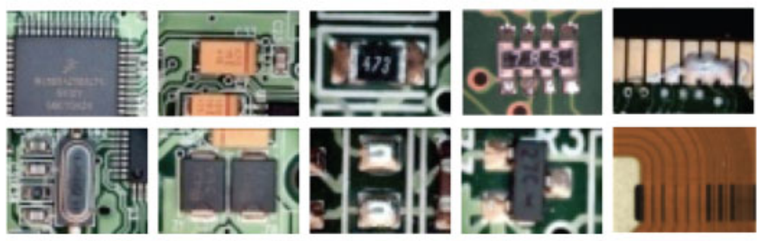
The QX500™ uses white strobed lighting, that consists of dual fixed angle lighting providing a superb image for defect review. You can further enhance component features by choosing a combination of lighting.

QX500™ is designed to provide the IDEAL platform that can be integrated in assembly lines which manufacture memory modules, notebook PCs, mobile phones, automotive products, and other industrial electronic assemblies.

Measurement Technique	High Performance	Simple Programming
Pattern Matching	✗	✓
Algorithm Based	✓	✗
CyberOptics' SAM™ Software	✓	✓

EDGE FOR INSPECTING "ANYTHING"

QX500 has taken a quantum leap in comparison to other AOI system performances in the market by combining the SIM and CyberOptics' patented SAM™ (Statistical Appearance Modeling) software. This dual advantage enables QX500 to help you inspect the most comprehensive list of features and detect the widest variety of defect types including defects that you least expected.

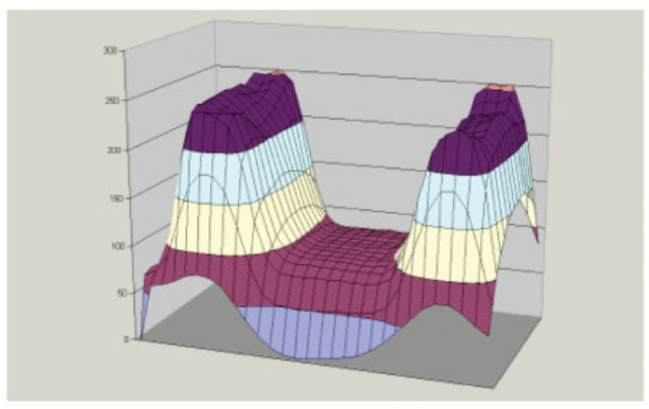


Components Inspected / Detected

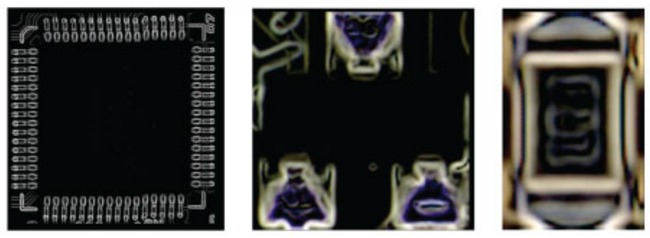
PROGRAMMING – SIMPLE, PORTABLE

Programming is as simple as it can get – just draw a box, train SAM™ with a few good examples, and you are ready to inspect any component, solder joint or feature. Unlike other AOI systems, there are no parameters to adjust and no algorithms to select or tune. You can reduce false-calls significantly over time by simply adding images to the model.

The central model repository is designed to support hassle-free sharing of component models and assembly programs between systems or even between manufacturing sites.



SAM™ Software:
Unique Image Processing Technique



SAM™ Software: Modeling

CYBEROPTICS®

AUTOMATED OPTICAL INSPECTION SYSTEM

QX500™

QX500

QX500-L

INSPECTION CAPABILITIES	QX500	QX500-L
Typical Scanning Speed	200 cm²/sec (31 in.²/sec)	
Minimum Component Size	0402 mm (01005 in.)	
Board Width	50 mm to 308 mm (2.0 in. to 12.0 in.)	50 mm to 510 mm (2.0 in. to 20.0 in.)
Board Length (without re-inspection)	50 mm to 457 mm† (2.0 in. to 18.0 in.)	50 mm to 510 mm‡ (2.0 in. to 20.0 in.)
Board Thickness	1 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

‡ With re-inspection support, the board length will be limited to 253 mm and can be extended to 510 mm using conveyor extension kit

VISION SYSTEM

Imagers	Multiple 5.0 Megapixel color CMOS cameras
Image Transfer Protocol	PCIe
Lighting	Strobe white light (with dark/bright field)
Resolution	17µm pixel size
Image Processing	Statistical Appearance Modeling (SAM™) 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.)

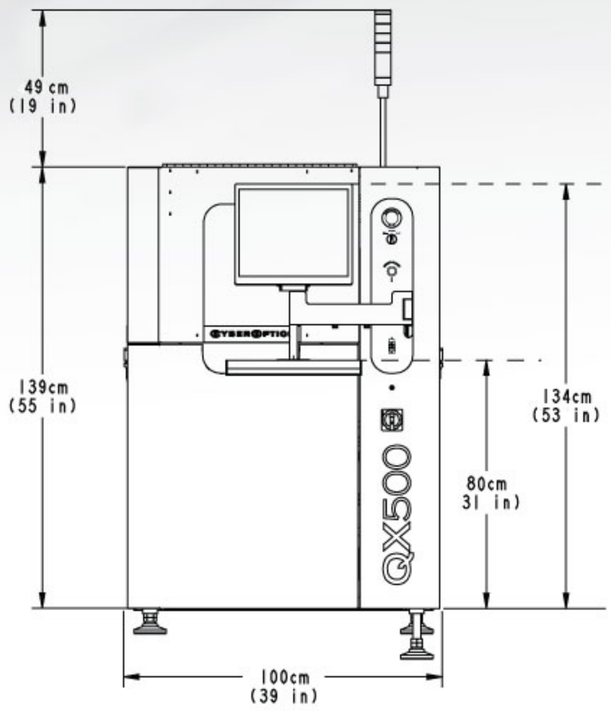
SYSTEM SPECIFICATIONS

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 – 120V 60Hz or 220 – 240V 50Hz, 10 amp max.
System Dimensions	100 x 127 x 139 cm
Weight	~ 410 kg (904 lbs.)
Machine Installation	<1 hour

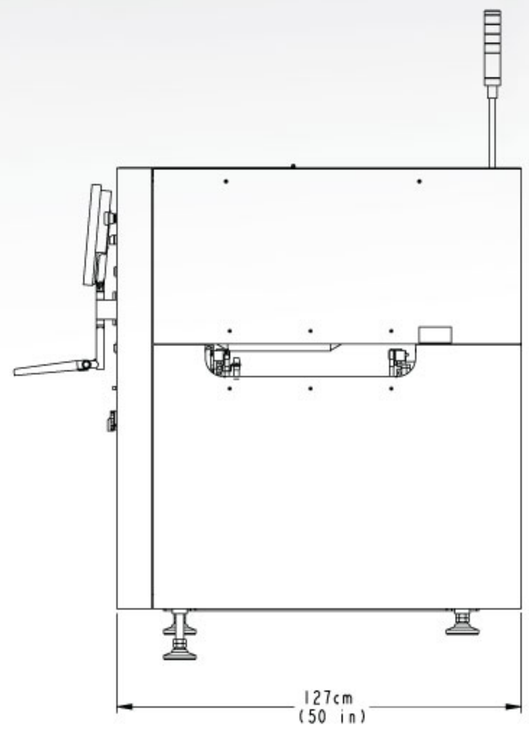
OPTIONS

SPC Software, Offline Defect Rework Station, Cross-mount Board Detection Kit, Barcode Readers (1D/2D), Sensor Alignment Target, Dual Monitor Kit, 300 mm Conveyor Extension Kit

FRONT



SIDE



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