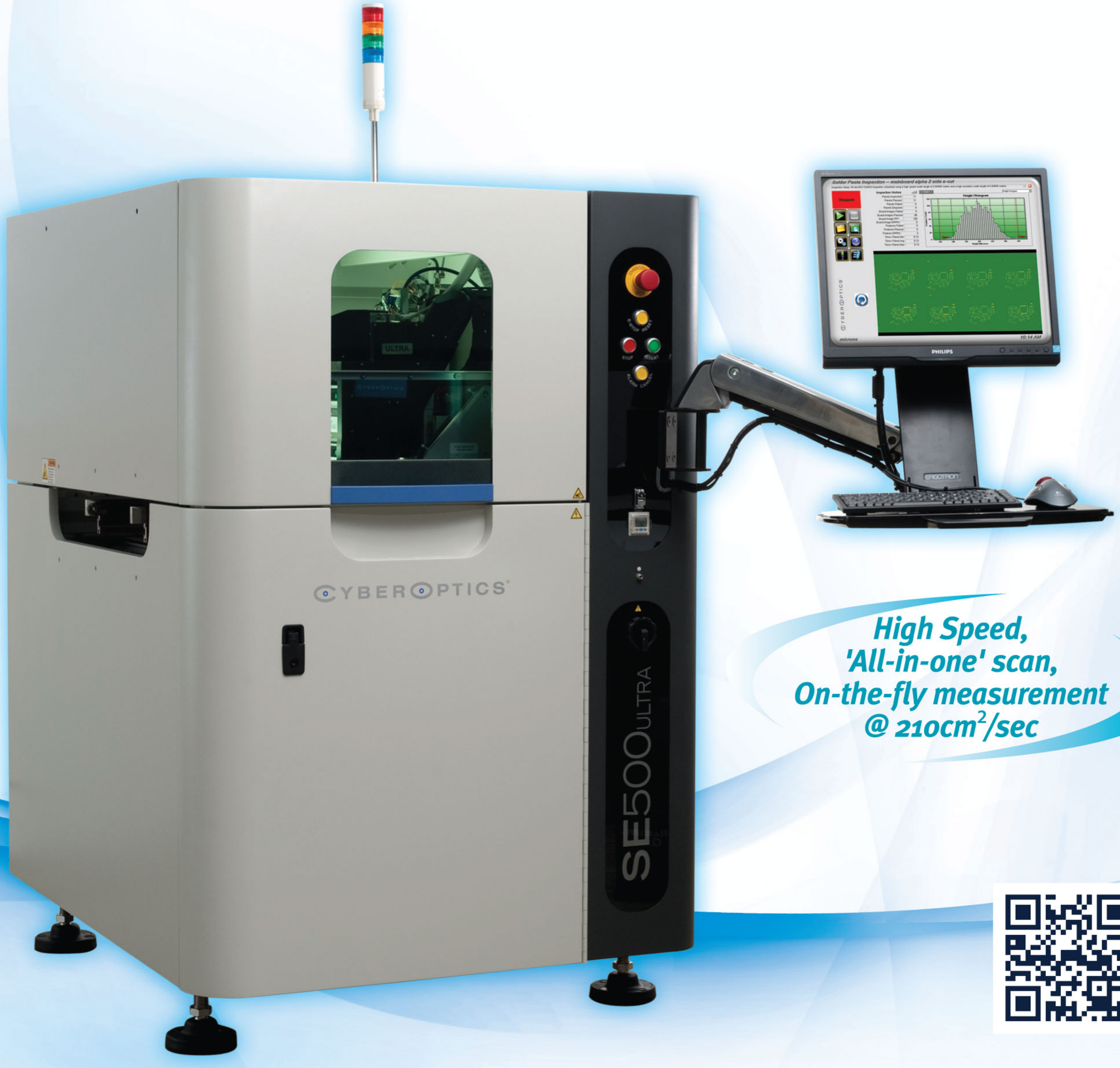
CYBEROPTICS®

SE ULTRA SERIES

World-class Accuracy at Fastest Speed



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

FASTEST, MOST ACCURATE 3-D SPI

- **All-new, Ultrafast sensor** with calibration-free design
- **30% faster** with unique 'all-in-one' scan sequence
- Improved repeatability with **dual illumination sensor option**
- **One-step programming** solution with ePM-SPI/AOI
- High magnification of small solder paste pads using Micropad sensor option
- **Closed Loop Feedback ready**
- **AOI-SPI Correlation Analysis** with CyberConnect™
- Full-range of process control tools with Process Monitor™ SPC software

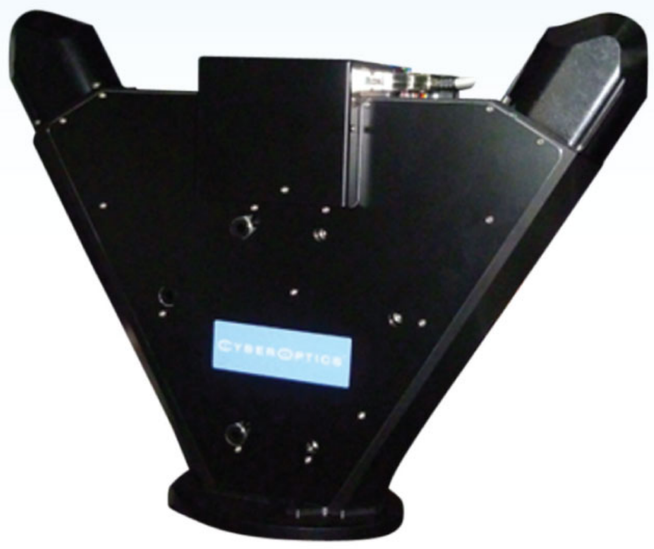
FASTER, MORE ACCURATE PERFORMANCE

An all-new, ultra-fast sensor combined with a unique 'all-in-one' scan sequence makes the SE ULTRA SERIES 30% faster than its predecessor SPI systems.

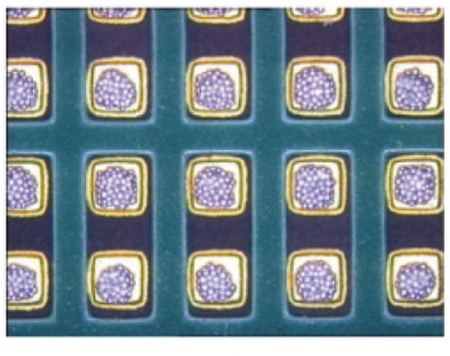
Designed and built by CyberOptics, the ULTRA sensor is manufactured as an integrated unit with no moving parts – which means no machine-to-machine variation either. Plus, there is no drift over time, no parts to wear and absolutely no recalibration needed.

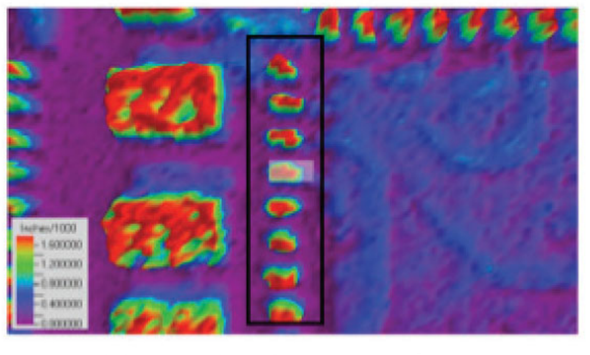
For improved repeatability on smallest paste deposits, you can choose the MicroPad or Dual Illumination sensor options. Pads as small as 100 microns (4 mils) can be accurately measured with the MicroPad sensor. And, it is easy to swap with the standard sensor too – so you can plug-and-play whenever you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

MicroPad Sensor



Dual Illumination Sensor

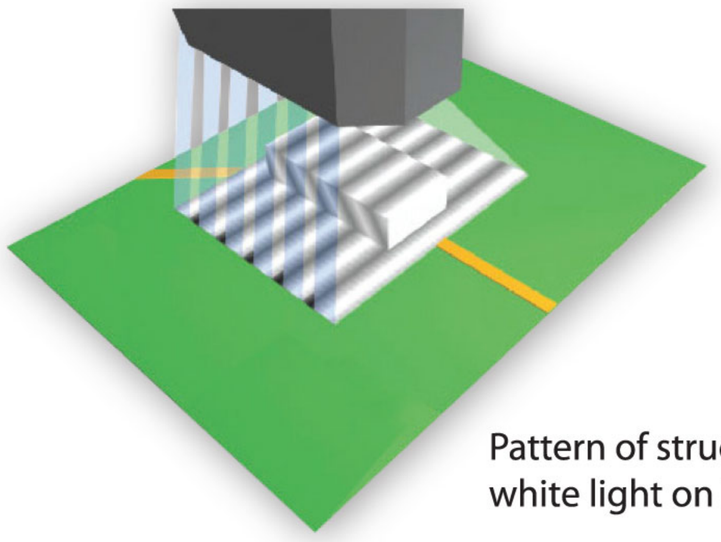

140 x 140 micron pads

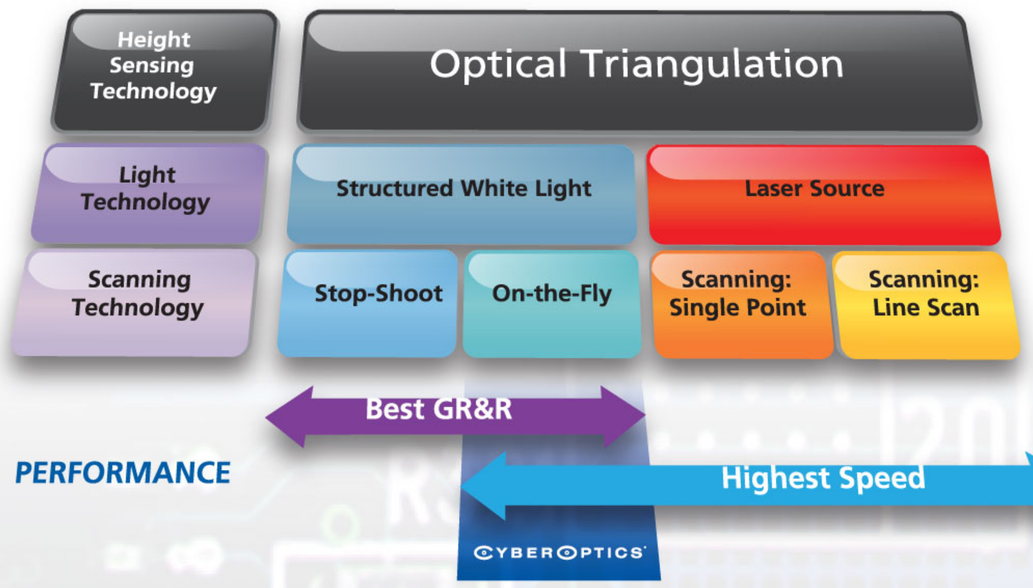

100 x 150 micron pads

HIGH SPEED, ON-THE-FLY INSPECTION

SE ULTRA SERIES incorporates CyberOptics' patented 3-D sensing technology that uses white strobe light to project patterns of structured light on the surface of a PCB (printed circuit board).

With the 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.


Pattern of structured white light on PCB

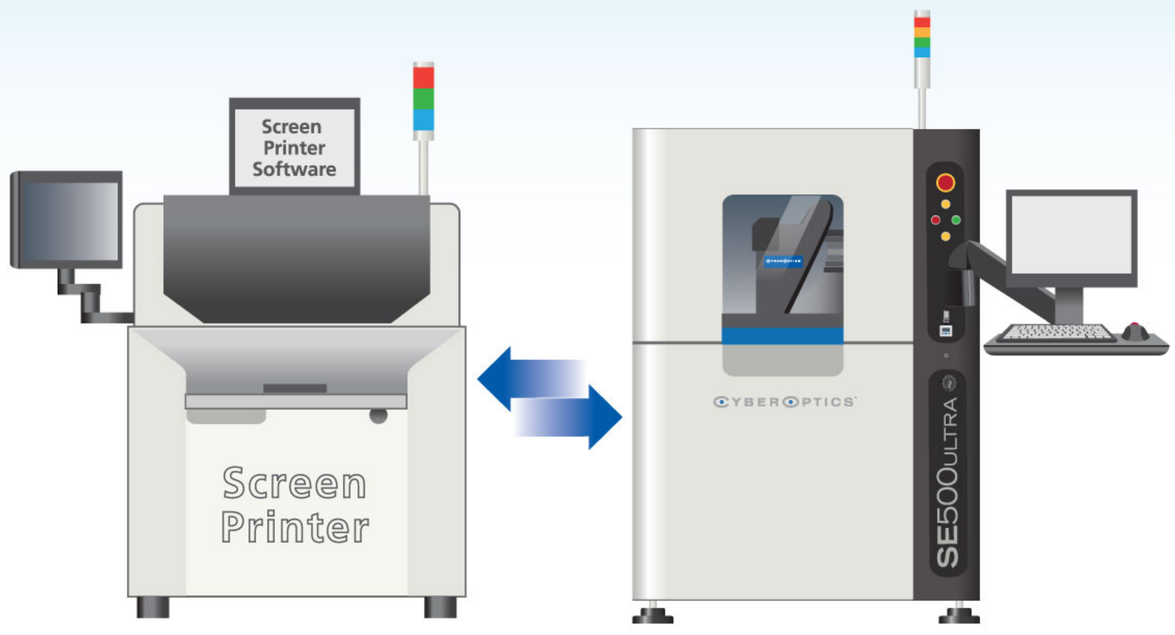


SE ULTRA SERIES

World-class Accuracy at Fastest Speed

CLOSED LOOP READY

SE ULTRA SERIES fully supports feedback and feed forward capability with leading Solder Paste Printers and Mounters 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. All this means reduced rework costs, increased production throughput and improved yields.

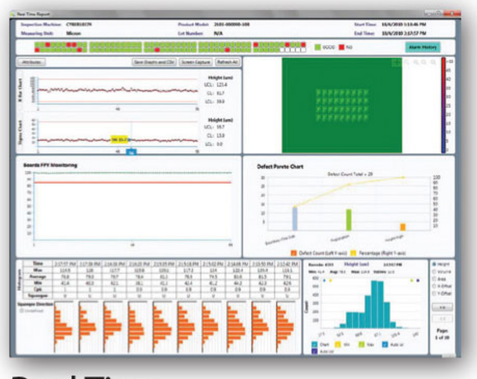


All Major Printers | CyberOptics

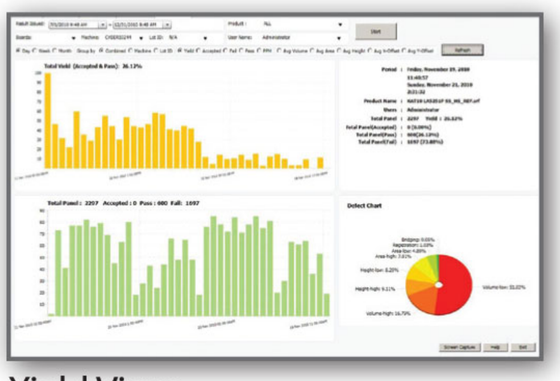
SMARTEST PROCESS CONTROL TOOL FOR BEST YIELD

Process Monitor™ SPC software offers a full-range of powerful real-time monitoring and historical data analysis tools. Its drill-down feature lets you deep dive for detailed data and trend analysis. And, with the auto-reporting tool, you can configure reports just the way you want and exactly when you want.

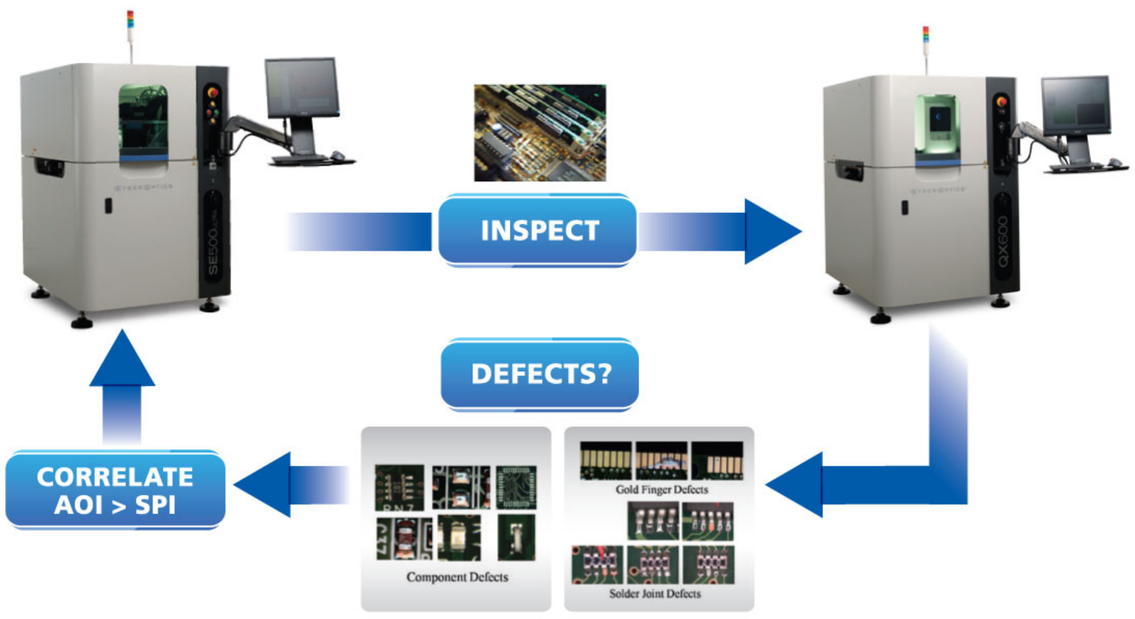
The AOI-SPI correlation tool enables effective traceability of defects between AOI and SPI systems. What you get is quicker turnaround, improved yield and better product quality.



Real Time



Yield View



AOI-SPI Correlation

ONE-STEP PROGRAMMING

With ePM-SPI/AOI software, one step is all it takes to generate both SPI and AOI programs – so you can do so much more in lesser time. ePM-SPI/AOI simplifies tedious programming setup tasks by automatically creating the setup areas – so that you can get started in a flash.

One-Step Programming with ePM-SPI/AOI

CYBEROPTICS®

CYBEROPTICS®

SE500ULTRA™

SE500ULTRA

SYSTEM SPECIFICATIONS

Panel Size Capacity (Max.)	510 x 510 mm (20.0 x 20.0 in.)
Panel Size Capacity (Min.)	50 x 50 mm (2.0 x 2.0 in.)
Dimensions (W x D x H)	100 x 127 x 139 cm
Weight	~859 kg (1894 lbs.)
Maximum Panel Weight	3.0 kg (6.6 lbs.)
Board Thickness	0.3 to 5.0 mm (0.01 to 0.2 in.)
Board Edge Clearance	Top: 2.5 mm (0.10 in.), Bottom: 3.0 mm (0.12 in.)
Component Clearance	Top (above belt): 20.1 mm (0.78 in.), Bottom: 25.4 mm (1.0 in.)
Conveyor Speed Range	150 - 450 mm/sec (5.9 – 17.7 in./sec)
Conveyor Adjustment	Automatic

FUNCTIONAL SPECIFICATIONS

Maximum Inspection Area	508 x 503 mm (20.0 x 19.8 in.)
Field-of-View	32 x 32 mm (1.26 x 1.26 in.)
X and Y Pixel Size	High Resolution: 15 µm (0.6 mils), High Speed: 30 µm (1.2 mils)
Paste Height Range	50 – 500 µm (2 – 20 mils)
Height Resolution	0.2 µm (0.008 mils)
Maximum Board Warp	<2% of PCB diagonals or a max. of 6.35 mm (0.25 in.) total
Maximum Pad Size in FOV	15 x 15 mm (0.6 x 0.6 in.)
Measurement Types	Height, Area, Volume, Registration, Bridge Detection, Defect Review
Machine Interface	SMEMA, RS232 & Ethernet
Power Requirements	100 - 130/220 - 240 V (±10%), 50/60 Hz, 10 - 15 amps
Compressed Air Requirements	5.6 to 7.0 kgf/cm² (80 to 100 psi @ 4 cfm)

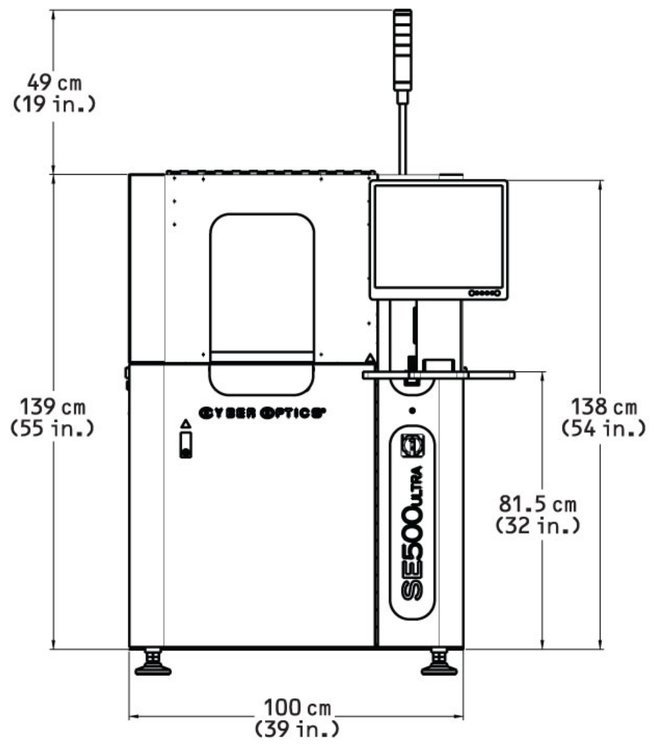
PERFORMANCE SPECIFICATIONS

Inspection Speeds @ 30um	Up to 210 cm²/sec (32.5 in²/sec)
Inspection Speed @ 15um	80 cm²/sec (12.3 in²/sec)
Fiducial, Barcode and Skip Mark	All-in-one scan
Height Accuracy	2 µm on a Certification Target
Volume Repeatability	<1%,3 σ, on a Certification Target
Volume Repeatability	<3%,3 σ, on a Circuit Board
Gage R&R	<<10%, 6 σ

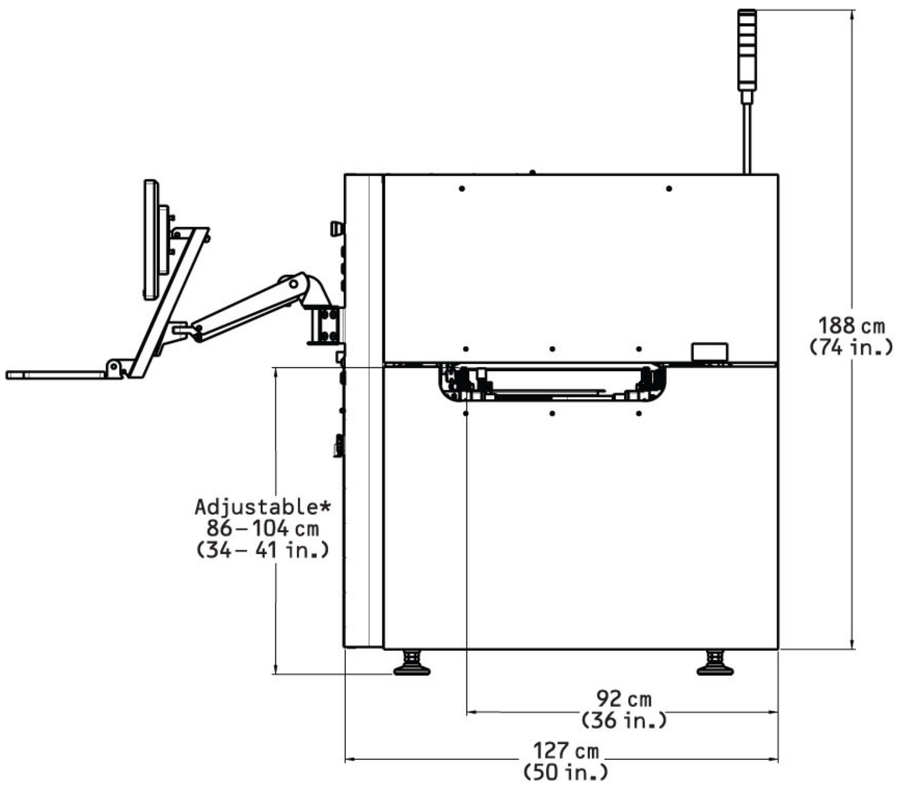
OPTIONS

SPC Software, Barcode Readers (1D/2D), Programming Software: ePM-SPI/AOI & GC-PowerPlace, High Performance PC, Offline Defect Review, Certification Target

FRONT



SIDE



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World's Fastest and Most Accurate 3D SPI

www.cyberoptics.com

Specifications subject to change without notice.
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