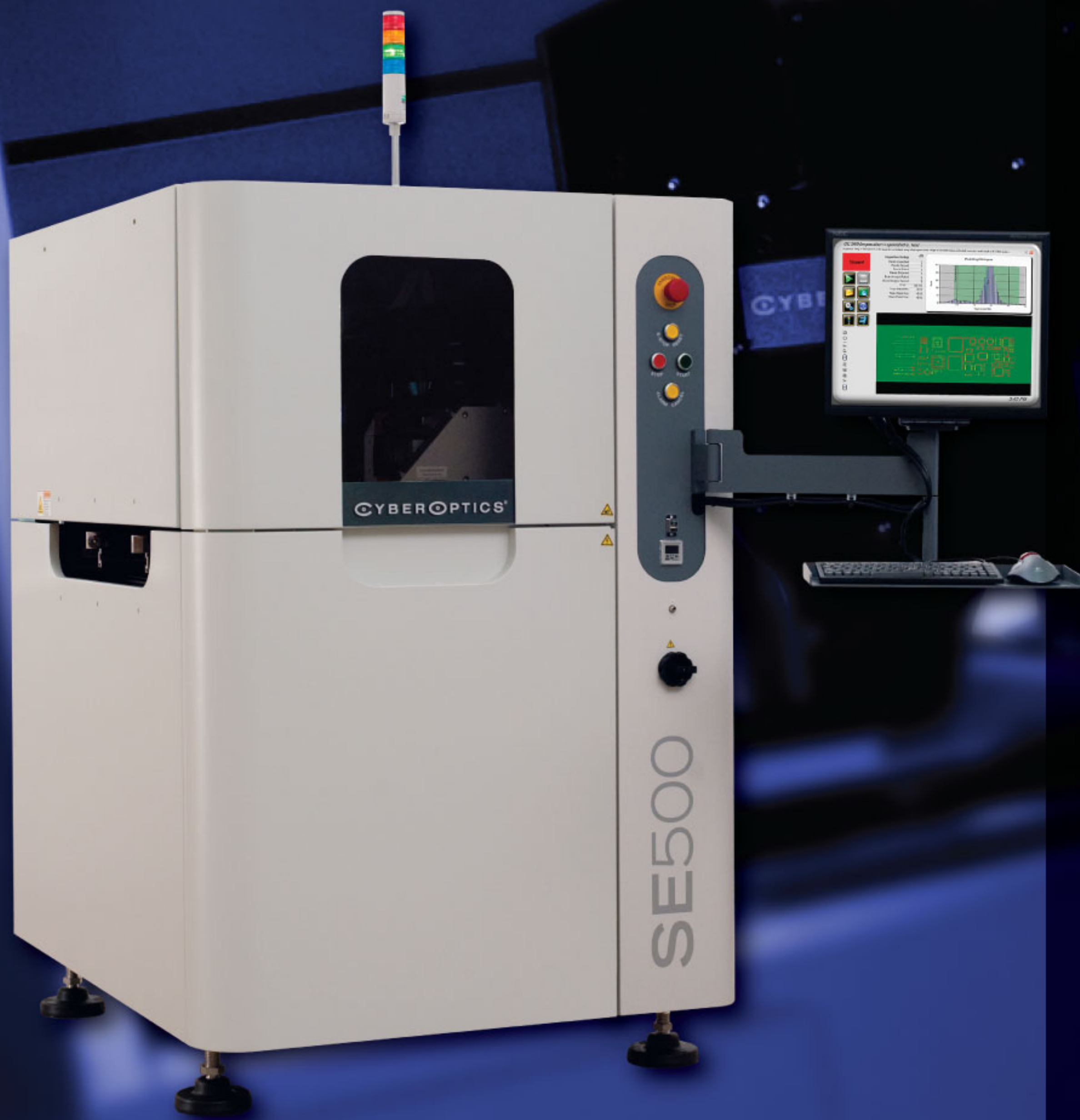# SE500™
SOLDER PASTE INSPECTION SYSTEM
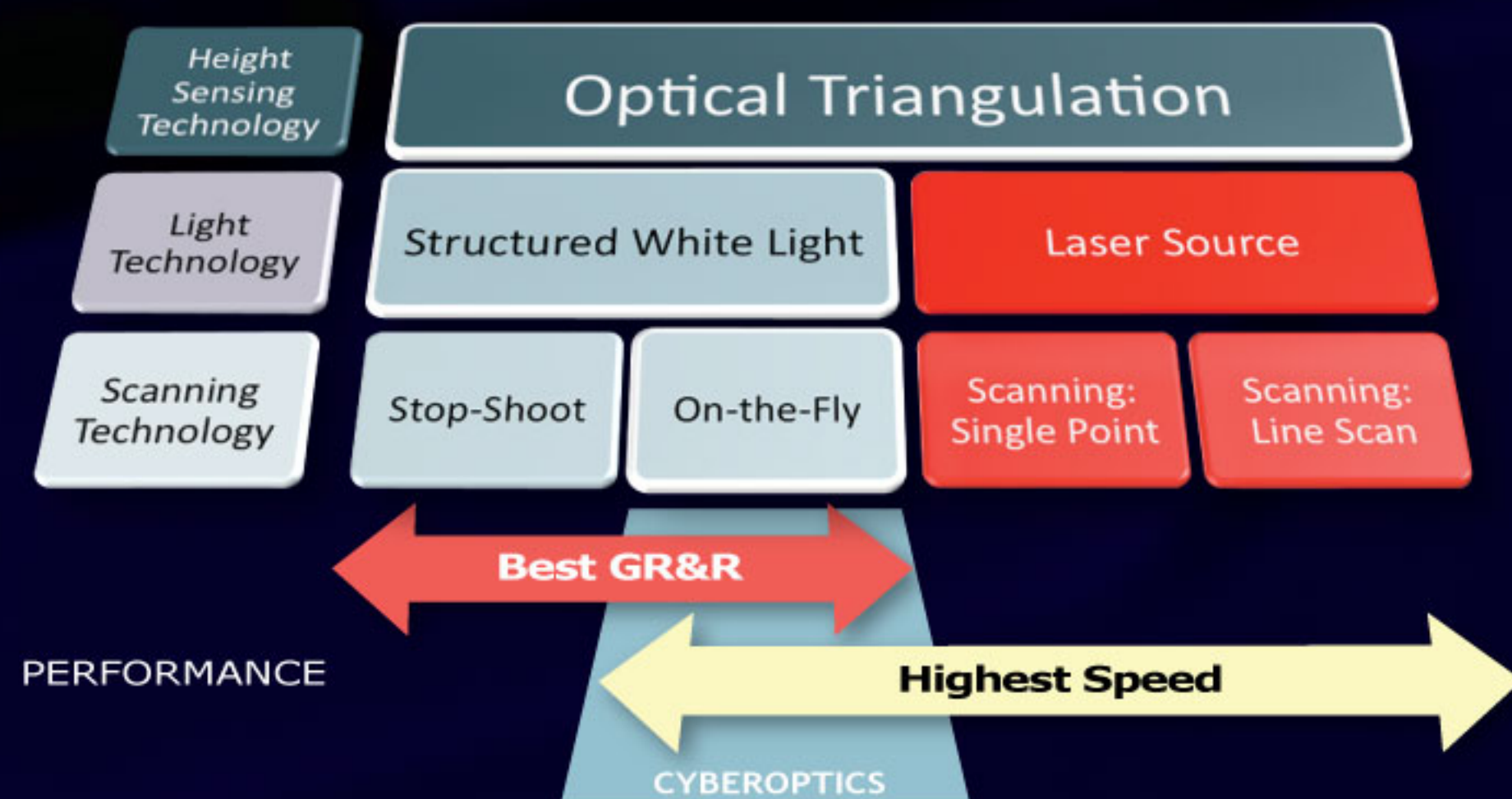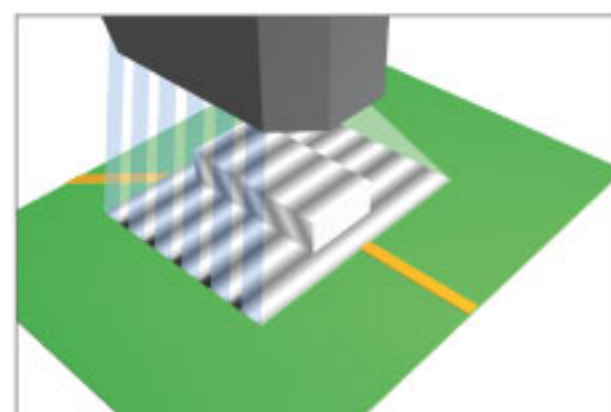
FASTEST, MOST ACCURATE 3-D SPI

With SE500™ – a new 100% 3-D solder paste inspection system, CyberOptics pushes inspection speed to the highest level possible. The SE500™ is capable of inspecting the most demanding assemblies with >80cm²/second inspection speed without compromising on measurement accuracy and repeatability.

SE500™ upholds CyberOptics' reputation for providing solder paste inspection systems with industry-leading volume accuracy, through its ability to inspect pad sizes down to 01005 component size (150 x 150 μm) while keeping up with ever-increasing line speeds.

SE500™ is designed to help you achieve high quality solder joints in your SMT process through accurate volume measurement of each solder paste deposit every single time.

Height Sensing Technology	Optical Triangulation		
Light Technology	Structured White Light	Laser Source	
Scanning Technology	Stop-Shoot	On-the-Fly	Scanning: Single Point	Scanning: Line Scan

Best GR&R

PERFORMANCE   Highest Speed

CYBEROPTICS

SUPERIOR 3-D MEASUREMENT CAPABILITIES

The SE500™ provides 3-D height, volume and area measurements for PCBs with CSPs, micro-BGAs, 0201s, 01005s and other small pad sizes for which measuring solder volume is critical in verifying solder joint reliability.
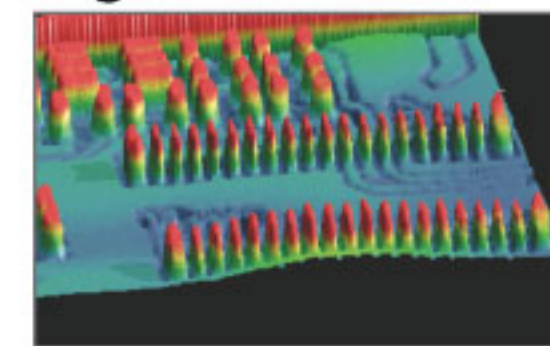
To help you inspect complex flexible circuits with ease, SE500™ is equipped with the flexible circuit warp compensation algorithm to compensate for warp on complex shapes within a field of view. A combination of exceptional measurement capabilities and industry-leading speed makes the SE500™ an ideal solution to effectively tackle today's and tomorrow's process challenges.
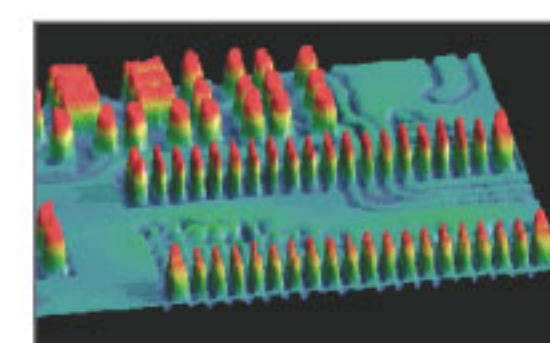
Pattern of structured white light on PCB

Integrated sensor assembly with no moving parts

OPTIMIZE PROCESS, MAXIMIZE YIELD

You can use SE500™ to optimize your screen printing process, fine-tune screen printer setup and monitor process variations. High speed and high resolution inspection modes can be combined within the same inspection program for optimal performance.

CLOSED LOOP READY

The SE500™ system supports closed loop feedback capability with major Solder Paste Printer vendors to further optimize the solder paste printing process, reduce rework and improve yield. The closed loop feature on SE500™ enables effective communication of inspection results back to the printer and triggers corrective actions to adjust printer parameters and activate stencil cleaning.

Flexible Circuit Algorithm

Without algorithm

With algorithm

CYBEROPTICS®

SE500

SE500-X

| SYSTEM SPECIFICATIONS	SE500	SE500-X
Panel Size Capacity (Max.)	510 x 510 mm (20.0 x 20.0 in.)	810 x 612 mm (32.0 x 24.1 in.)
Panel Size Capacity (Min.)	50 x 50 mm (2.0 x 2.0 in.)	100 x 100 mm (4.0 x 4.0 in.)
Dimensions (W x D x H)	100 x 127 x 139 cm	133 x 140 x 139 cm
Weight	~859 kg (1894 lbs.)	~1133 kg (2498 lbs.)
Maximum Panel Weight	3.0 kg (6.6 lbs.), 5.0 kg (11.0 lbs.)	10.0 kg (22.0 lbs.)
Board Thickness	0.3 to 5.0 mm (0.01 to 0.2 in.)	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)	

FUNCTIONAL SPECIFICATIONS	SE500	SE500-X
Maximum Inspection Area	508 x 503 mm (20.0 x 19.8 in.)	810 x 603 mm (32.0 x 23.7 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	
Machine Interface	SMEMA, RS232 & Ethernet	
Power Requirements	100 – 130/220 – 240 V, 50/60 Hz, 10 – 15 amps	
Compressed Air Requirements	5.6 to 7.0 kgf/cm² (80 to 100 psi @ 4 cfm)	

| PERFORMANCE SPECIFICATIONS	SE500	SE500-X
Inspection Speeds	High Speed: 80.0 cm²/sec (12.3 in²/sec) High Resolution: 50.0 cm²/sec (7.6 in²/sec)	
Load / Unload and Fiducial Find	4 – 5 sec	
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 & GC-PowerPlace, High Performance PC, Offline Defect Review, Certification Target, Dual Monitor Kit, Dual Illumination Upgrade Kit

FRONT
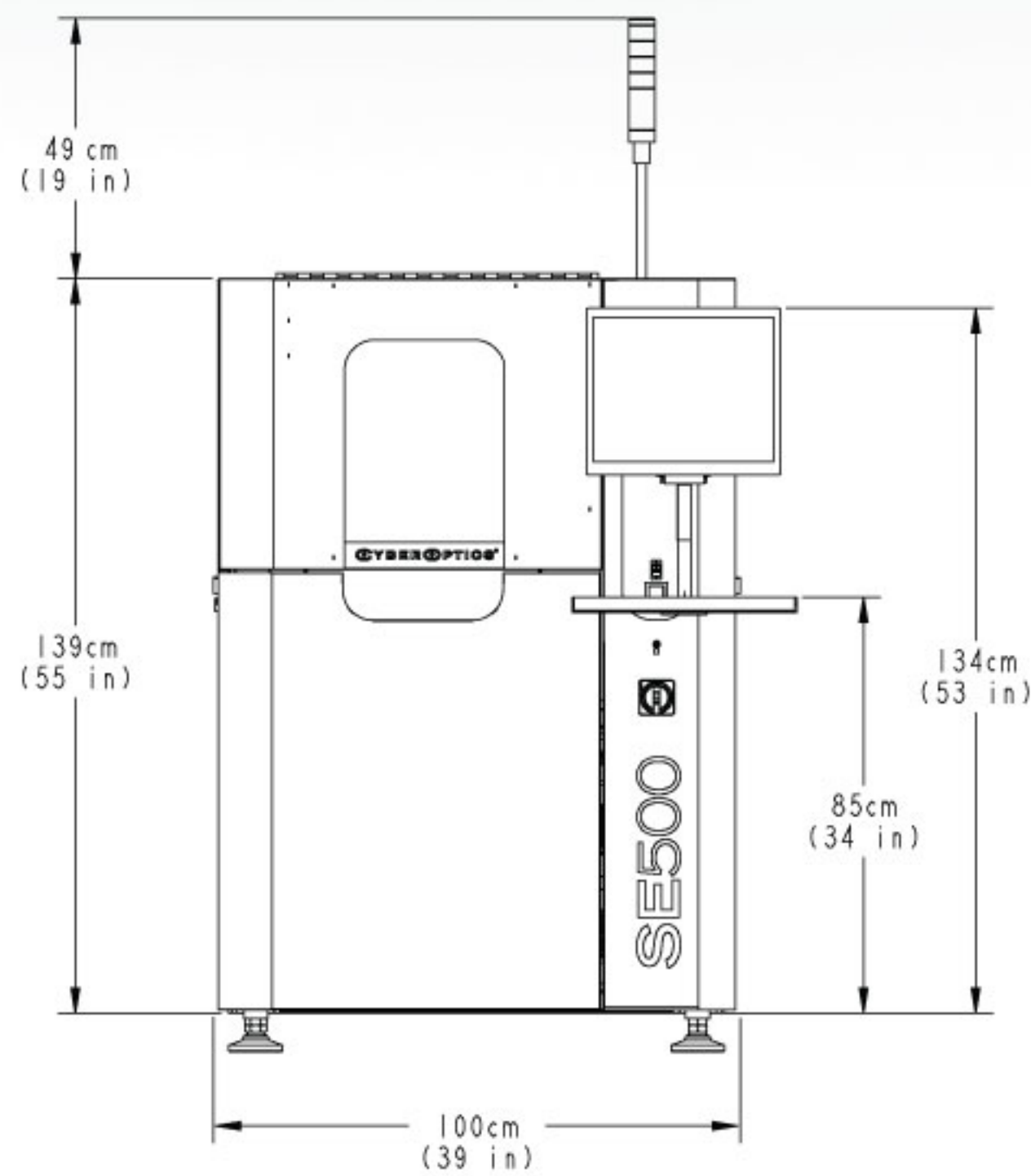
SIDE
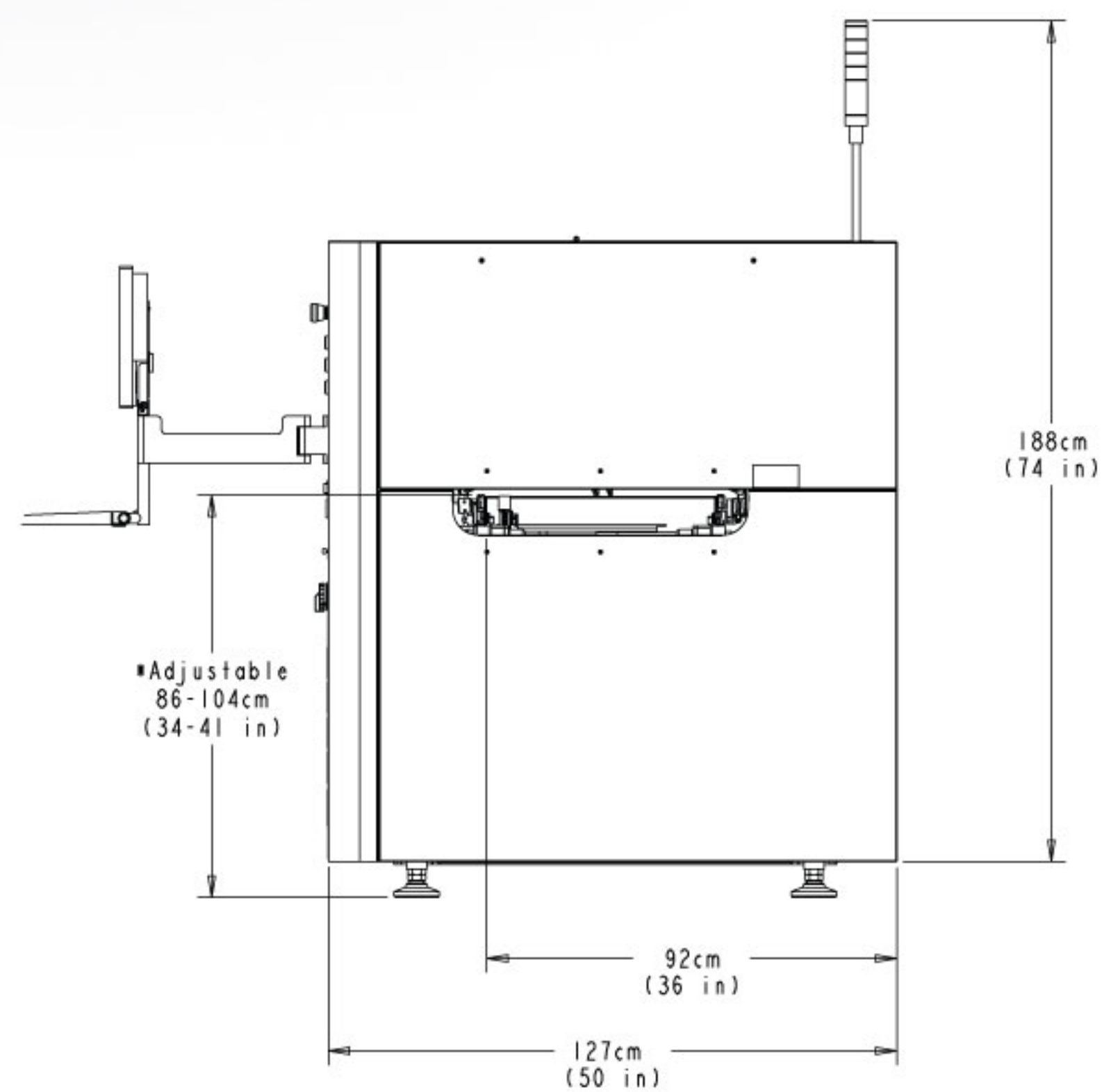
* To achieve the lowest conveyor height measurement of 83 – 96 cm (33 – 38 in), a customized conversion kit is available. Contact CyberOptics for more information.

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www.cyberoptics.com