

# Flex

*Understanding Process Variation*



## Flex Automated Optical Inspection

CyberOptics® Flex AOI system is an automated inspection solution for all stages of the SMT production process. Combining CyberOptics® patented Statistical Appearance Modeling (SAM™) technology with a simple user-interface, the Flex has a single programming paradigm that enables fast programming of AOI inspection tasks and the industry's lowest false call rate. It can be used as a screening tool to increase yields, decrease scrap and reduce the ICT bottleneck or as a full process characterization tool, providing measurement information that historically has only been available through the use of expensive offline measurement systems. The Flex uses full color, high resolution digital cameras to construct a photo-mosaic of the printed circuit board (PCB) and then employs SAM™ to analyze the image. It has the accuracy and repeatability to be used post-placement as a measurement tool and the ability to characterize legitimate process variation post-reflow and post-wave, with a unique economic proposition that makes it essential on any SMT line.

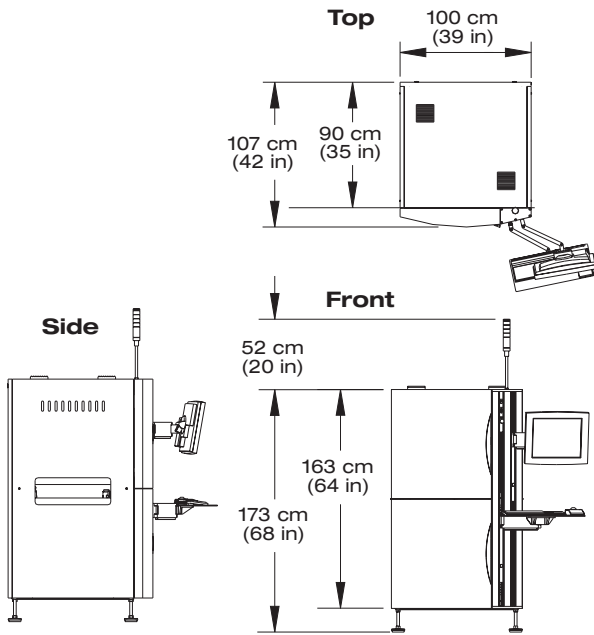
## System Options

- Single or dual head 1D/HD/2D barcode reader
- Calibration target
- Half meter access conveyor
- Offline programming/rework station
- Process Advisor™ SPC software
- Uninterruptible power supply
- Extended warranty

Conventional first and second generation vision systems use algorithms and classifiers that require the programmer to imagine and foresee ways in which components may vary in their appearance, inevitably meaning an inspection program is only as good as the engineer's programming and vision skills. Flex negates the need for complex programming and vision skills by providing a single, simple, powerful method to model any SMT component, from passive devices through to solder joints, screw heads and hand-placed components. Using a number of good examples, SAM™ creates real world models of components or joints that transparently characterize legitimate variations in their appearance. SAM™ can then predict acceptable variations in the process, discriminate against unacceptable variations and so produce the industry's lowest false call rates.

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## Specifications

<b>Maximum board size</b>	457x508 mm (18x20 inches)
<b>Minimum board size</b>	110x63 mm (4.3x2 inches)
<b>Typical inspection speed</b>	3000-5000 components per minute
<b>Conveyor width adjustment</b>	Automatic software controlled
<b>Conveyor height range</b>	813-965 mm (32-38 inches)
<b>Board transport requirement</b>	3 mm (0.125 inches)
<b>Underside component clearance</b>	32 mm (1.125 inches)
<b>Sensor array</b>	Digital color CCD cameras
<b>Image processing unit</b>	Dual Pentium® IV Xeon, 2Gb RAM, CD-RW
<b>Operating system</b>	Windows XP Professional
<b>Monitor</b>	17 inch flat panel display
<b>Communications</b>	SMEMA, Ethernet
<b>Power</b>	100-120V 60 Hz, 220-240V 50Hz, 10 amp max
<b>Dimensions (width x depth x height)</b>	100x107x225 cm (39x42x88 inches)
<b>Weight</b>	420kg (925 lb)

### For More Information

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