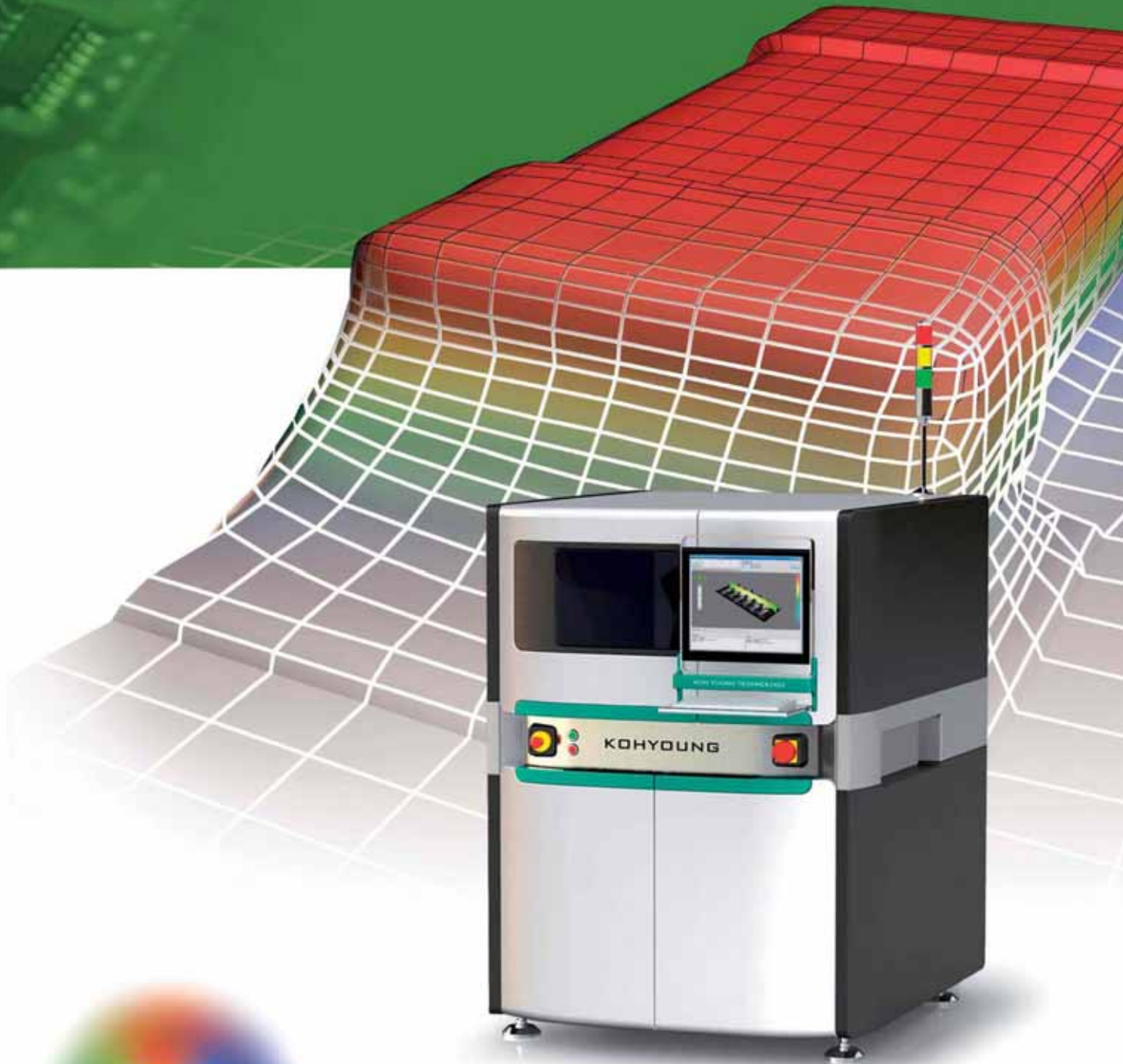


Zenith Profilometric 3D Automated Optical Inspection



ZENITH

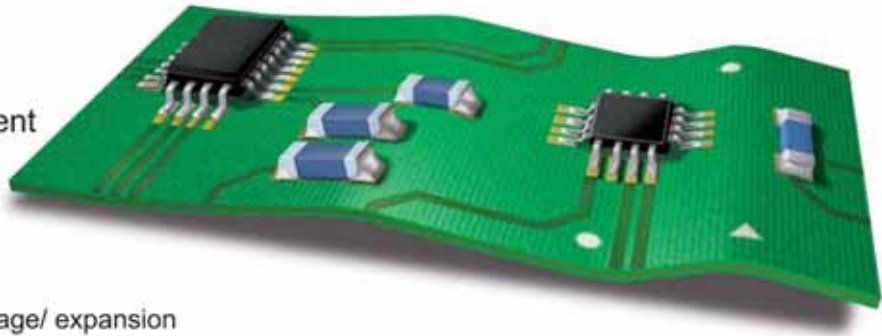
The Standard in 3D Measurement & Inspection

The Perfect Warp Compensation Solution

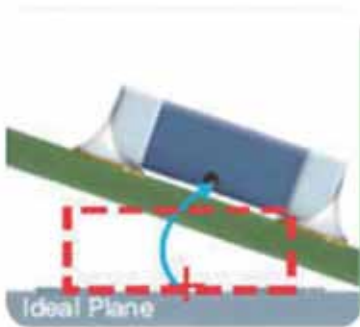
On warped PCBs, pad positions defined by PCB CAD or Gerber files appear distorted. Thus, conventional inspection systems will become confused during the inspection process and will provide incorrect data to the user. PCB warp becomes more pronounced during the reflow process due to the high temperatures required for processing. Ideally, every inspection system should have 3D measurement capability to deal with PCB warp, post reflow!

Dynamic PCB Environment

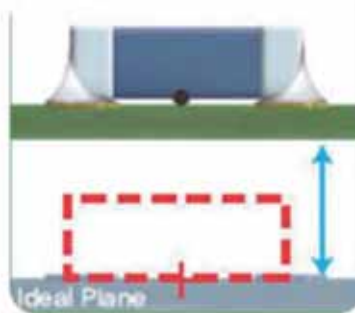
- ✓ flexible PCB
- ✓ board warp
- ✓ slope
- ✓ height difference
- ✓ local board rotation/ shrinkage/ expansion



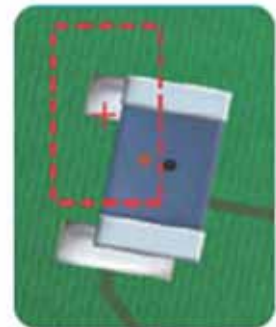
3D/2D Problems



- Shape Deformity
- False calls

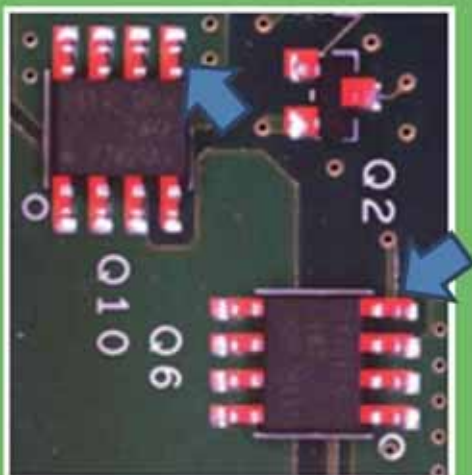


- Size change
- False calls/Escapes

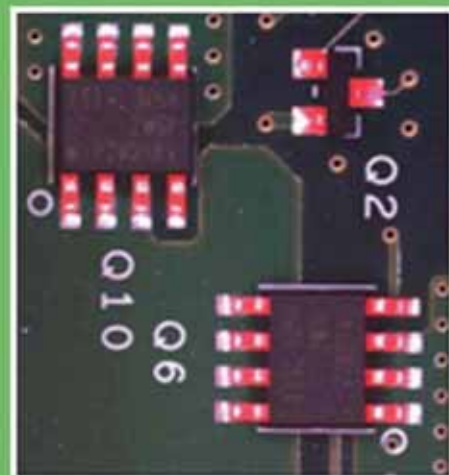


- X,Y,θ misalignment
- False offset

Koh Young's patented 3 Dimensional warp compensation with Multi-frequency height measurement technology ensures uninterrupted real-time inspection under any PCB environment and compensates board warp with respect to the ideal plane. 2 Dimensional warp compensation with Pad Referencing technology matches, in real time, non-inspection objects (patterns, holes and fiducial marks) on the PCB surface with the ideal PCB surface as defined by the CAD file or read from bare PCB.



Before Compensation



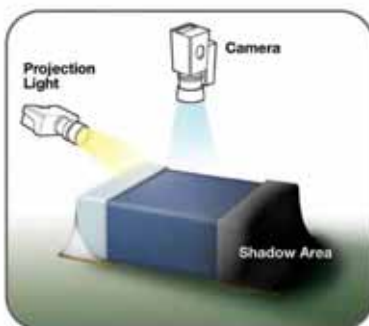
After Compensation

Zenith 3D AOI with Revolutionary New 3D Measurement

The ZENITH 3D AOI system measures the true profilometric shape of components, solder joints, patterns and even foreign material on assembled PCBs with true 3 dimensional measurement, overcoming the shortcomings and vulnerabilities of 2D AOI.

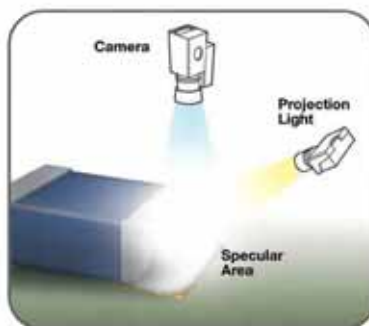
■ Benefits of 3D Measurement for Assembled PCBs

Many attempts have been made to overcome the limitations of conventional 2D AOI, without success. Now, Koh Young Technology makes complete, accurate and comprehensive 3D profilometry available with the ZENITH 3D AOI system.



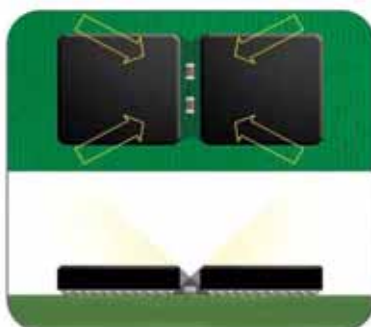
Illumination

Conventional AOI systems rely on repeatable and even illumination. In the absence of which, inspection is subjective. ZENITH performs 3D measurement and is indifferent to illumination and color changes.



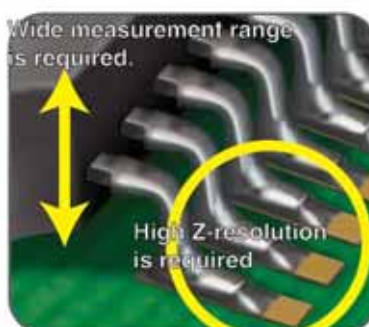
Specular Reflection

Shiny solder joints produce specular reflections and sensor saturation in conventional inspection. ZENITH performs volumetric measurement of the solder joint.



Tall Obstacles

Conventional AOI systems can not inspect components shadowed by tall neighboring components reliably. ZENITH has the ability to measure accurately even in shaded areas.



Measurement Range

ZENITH provides a large height measurement range without compromising Z-resolution, delivering an industry first 3D image accuracy and quality.



Using patented 3D and 2D imaging technology, ZENITH overcomes the common problems in 2D AOI and 3D measurement.

Utilizing proven technology of our 3D SPI, Koh Young now provides same accuracy measurement for the range of assembled and soldered boards.

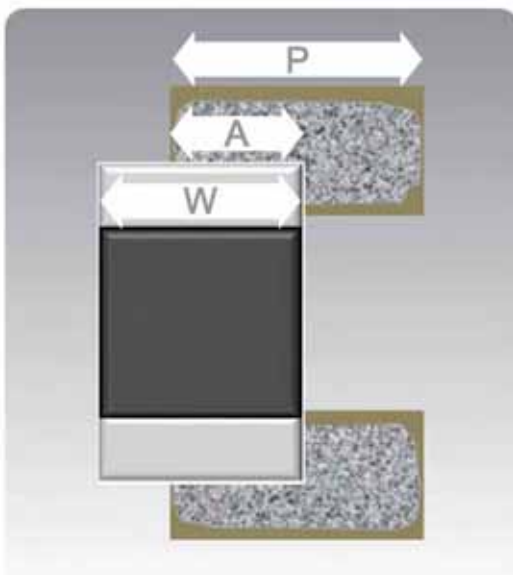
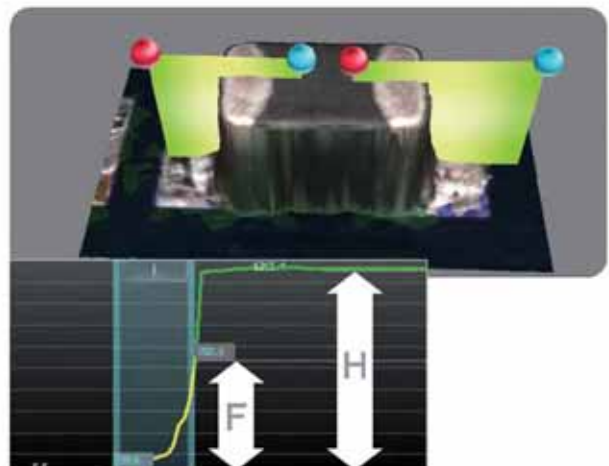
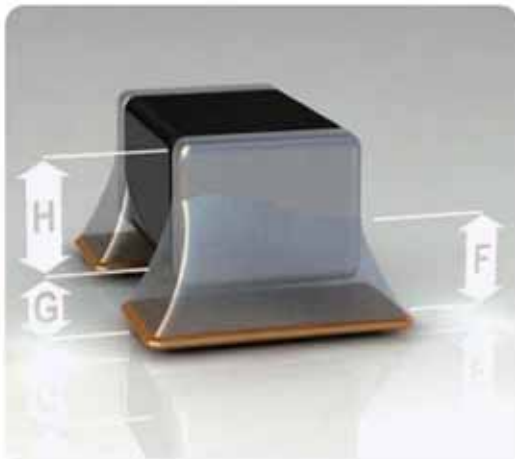
Intuitive Programming Using 3D Measurement

Using direct 3D measurement data, Koh Young enables a new concept of easy programming which has never before been possible. Utilizing Koh Young's 3D Component Library, setting up a test program is fast and intuitive. Zenith AOI doesn't require fine tuning, as all thresholds and inspection results are measurement values.

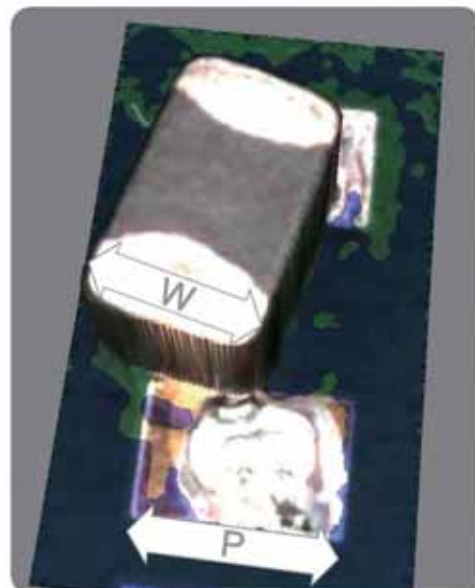
Total IPC 610 Compliance Solution

By importing PCB Gerber Data, Zenith is able to measure all aspects of the component and solder joint in accordance to the IPC-A-610 standard. This eliminates the need for a golden board and time consuming manual program set-up.

Library thresholds are defined as IPC-A-610 parameters, allowing the user to choose class I, II or III.

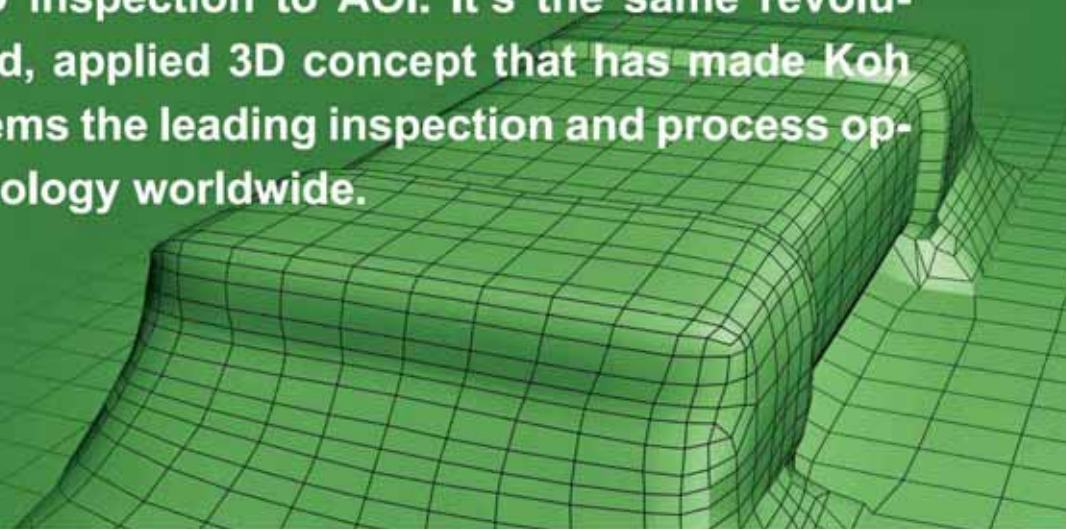


IPC-A-610 Parameters



Measurement from Zenith

Koh Young Technology's Zenith system now brings true profilometric 3D inspection to AOI. It's the same revolutionary, patented, applied 3D concept that has made Koh Young SPI systems the leading inspection and process optimization technology worldwide.

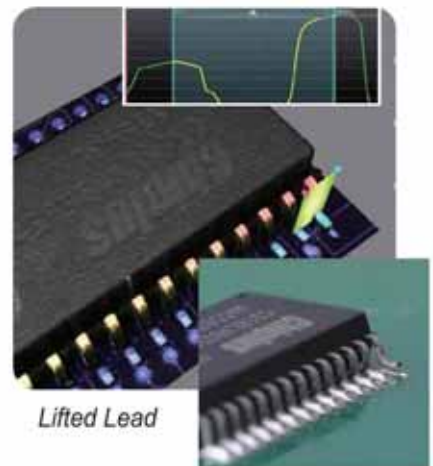


True Measurement of the 3rd Dimension

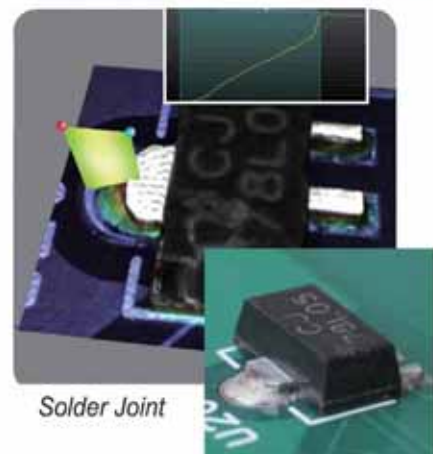
Sense and measure the Z dimension of assembled PCB including electronic components and solder joints, regardless of their color or texture.

Flags and Quantifies All Defects

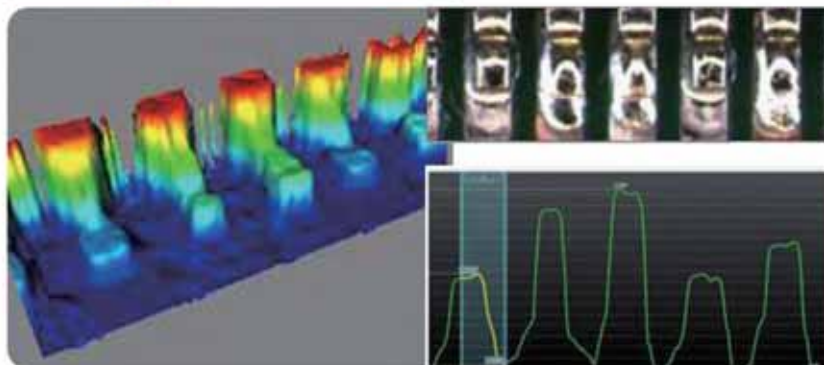
Including Missing, Offset, Rotation, Polarity, Upside down, OCV, Coplanarity, Solder filet, Lifted lead, Billboarding, Tombstone, Bridging and more.



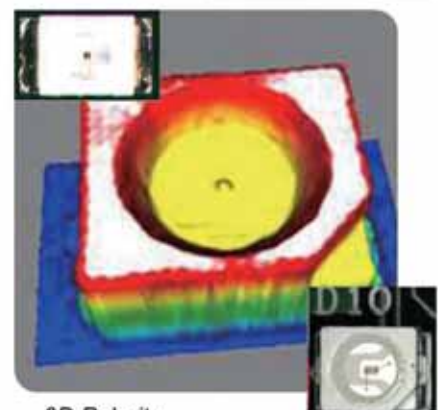
Lifted Lead



Solder Joint



3D Measurement of Lead Joint



3D Polarity

Requirements

Shadowed Object Measurement
 Specular Solder Joint Measurement
 Shadowed Area between Tall Components
 Wide measurement range + Accuracy
 Real time PCB Warp Compensation
 Dark Component & White Body Component Location
 Legending and specular regions on PCB
 Lifted Lead Measurement
 Shallow Polarity Dimple Measurement
 Solder Joint Profile Measurement

Solutions

3D Shadow Free Moiré Technology & 8 Way Projection
 Multi Frequency Moiré Technology
 Pad Referencing + Multi Frequency Moiré Technology
 True 3D Measurement

Inspection Items

Inspection Task: Missing, Offset, Rotation, Polarity, Upside down, OCV, Coplanarity, Solder fillet, Lifted lead, Billboarding, Tombstone, Bridging

Inspection Performance

Camera: 4MPix Camera
 Camera Pixel Resolution: 20um
 FOV Size: 40 x 40mm (1.57 x 1.57inch)
 Inspection Speed: 24cm²/sec (3.7in²/sec) 0.65sec/FOV
 Height Accuracy(on a KY Calibration Target): 2um
 Inspection Speed: RGB LED Dome Illumination

PCB Handling

Conveyor Width Adjustment: Automatic
 Conveyor Fix Type: Front/Rear Fixed (factory setting)
 PCB Thickness: 0.4-5mm(0.016-0.20inch)
 Max. PCB Height: 5mm
 Max. PCB Size: **L** **XL**
 510x490mm 810x610mm
 (20x19inch) (32x24inch)
 Max. PCB Weight: 6kg(13.23lbs) 10kg(22lbs)

Software

Supported Input Format: ODB++, PCB Gerber, Placement file, Mounter job file, Allegro, Zuken, Mentor(Optional)
 Operating System: Windows 7 64Bit
 Barcode Recognition: Barcode Reading Software Using System Camera

Installation Specifications

	L	XL
Machine Weight	650kg(1433lbs)	850kg(1873lbs)
Machine Size(without Tower Lamp and Monitor)	1020x1660x1634mm (40x65x64inch)	1310x1560x1690mm (51x61x66 inch)
Top/Bottom Side Clearance	50mm (1.96inch)	
Supplies	200-240VAC, 50/60Hz Single Phase, 5kgf/cm ²	
Others	UPS(Basic option)	

Options

Data Server	Network Based SPC Analysis Software	Network Based Review Station
Offline Programming Station	In-line Barcode Reader(1D,2D)	Standard Calibration Target

Above specifications are subject to change without notice

