

# PowerSpector

## GTAz

# NEW



### Desktop 3D Automatic Optical Inspection systems

- √ Revolutionary 3D imaging technology
- √ High Speed 90Fps USB 3 Vision Cameras
- √ 2X FOV over previous Generation
- √ Multi-color 4 angle lighting with Line Source Coaxial Lighting and Meniscus Profiler
- √ Inspects: .....
  - Components: SMT & THT (missing, type, polarity, offset, text, colors, etc.)
  - Component Height and Coplanarity
  - Solder Paste and CIP (Components in Paste; pre-reflow)
  - Soldering: Post Reflow, Post Wave, Selective, Manual
- √ Flexible classification and reporting scenarios .....
- √ Line Sourced DOAL(Direct On Axis Lighting) coaxial lighting system with high resolution Telecentric Optics.....
- √ Low Noise Large CCD High Speed 24 bit Color Camera
- √ Synthetic Imaging and Spectral Analysis .....
- √ Triple use of side camera's
- √ Prototype mode for 1st off inspection .....
- √ In height adjustable optical head

*True 3D imaging, Side cameras integrated in 3D processing.*

*The latest generation of high speed, high quality cameras  
No capture card requirements.*

*Up to 50% reduction of cycle time.*

*reliable solder joint meniscus and pad surface analysis (to find meniscus and paste printing defects)*

*use inspection in all stages of the production process*

*integrate AOI efficiently in your existing operations and factory lay-out*

*inspect solder joints without shadow effects from tall components nearby and accurate inspection model building*

*find defects easier including printing defects on Gold or Cu plated PCB's*

*powerful algorithms to achieve an optimal balance between defect detection and false reject levels in shortest time*

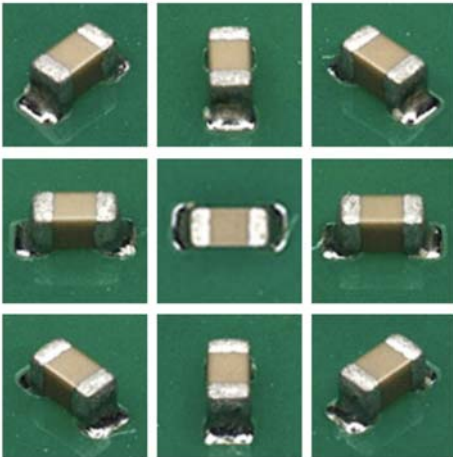
*Use for automatic inspection, classification and repair*

*program in minutes to verify your production line is set-up correctly before starting full production*

*Compensate for PCB warp and adapt to tall component and sandwich assemblies*

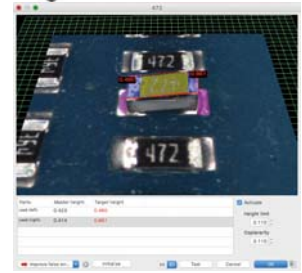
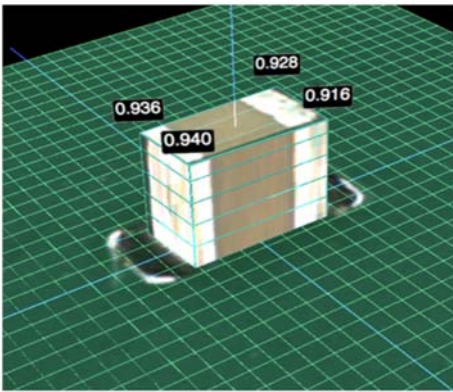
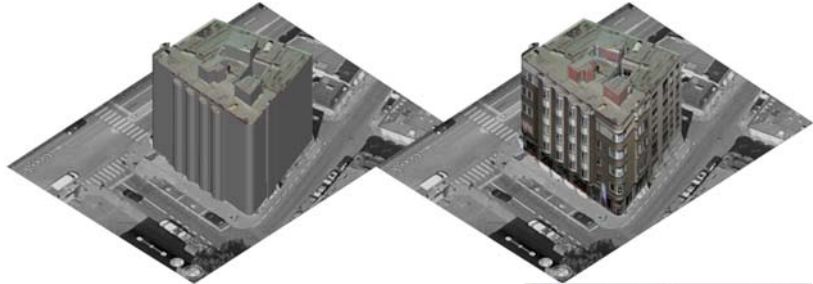
because inspection matters

## Hardware and Software Features



### Revolutionary 3D imaging

True Stereoscopic imaging using 9 cameras. Full colour 3D allows the ability to actually see the side of components rather than extruded 2D images. Using the addition of a 4th LED white light

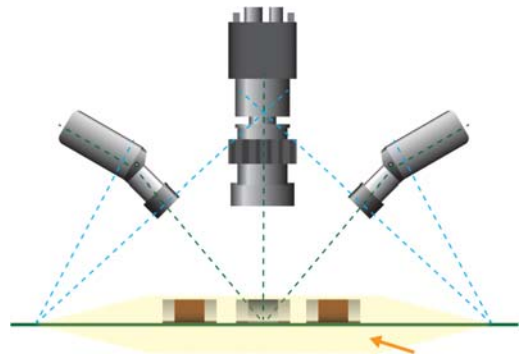


### The perfect combination of 3D and 2D inspection

Height, tilt and coplanarity measurement. Pin Height measurement Component Presence Absence, Polarity, Value, Angle, Offset, Colour, Extra part detection, Solder ball detection, Solder profile analysis and short detection. The thickness of chip capacitors in combination with colour makes a more reliable inspection when checking chip capacitors value.

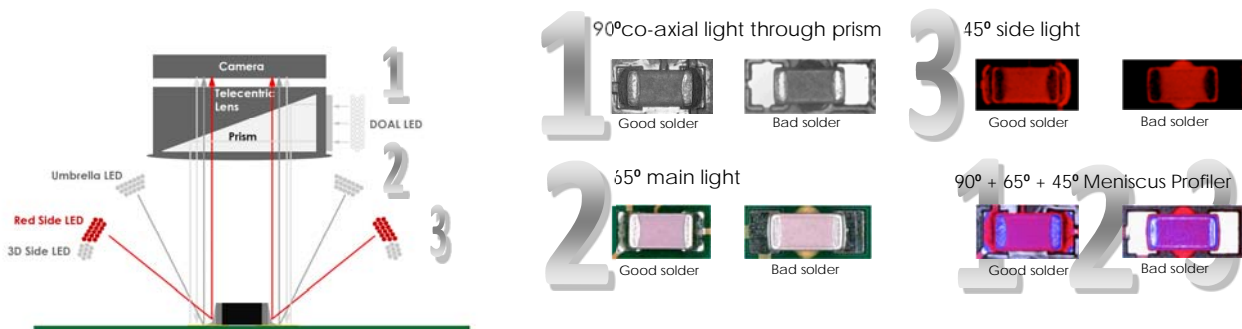
### Unique 3D Stereoscopic Vision

Utilizing the full 9 cameras of the MEK camera head. The image differential are merged and a vectorised map of the component is created. Then analyzed based on the programmers applied tolerances. The vectorised map of the components removes the minor imperfection of the component surface giving more accurate measurement of height and surface angle of the component with reduced chance of false readings.



### Omnidirectional multi angle, multi color LED lighting

Optimal light no matter component direction — 3D color profile of solder meniscus — Reliable defect decision by the software — Decide Good Solder, No Solder, Lack of Solder and Too much solder for SMT and THT solder joints

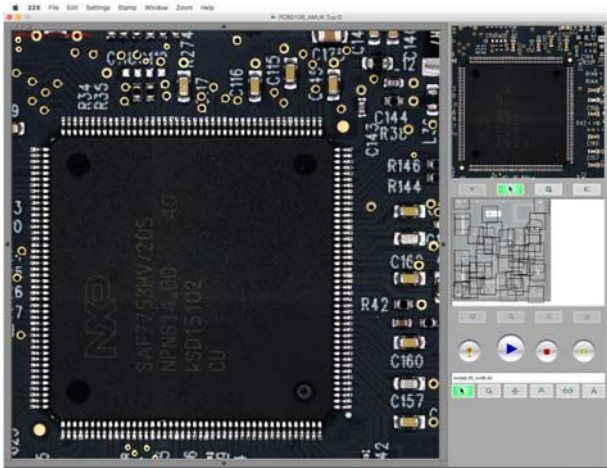


### 8x Angular Side Sensors (Only available for FDA and FDAz models)

Simultaneously operating, multiplexed side view sensors with CameraLink interface — 45/45 arrangement — Triple use: Active automatic inspection, classification and repair — clear 9 angles defect review — high magnification 50x (10µm/pixel) — Full Color — Auto highlight — Large sensor pixels — 9 view images also in backup database



## Hardware and Software Features — Continued



### Double size FOV (Field of view)

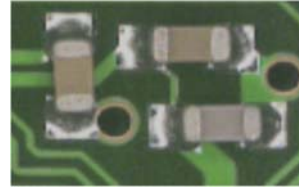
Up to 2x faster inspection over previous generations of machines. Square FOV combined with circular lighting allows for program rotation without time consuming debugging.

### Large pixel image capturing sensor

18.8µm<sup>2</sup> pixel size — less noise — smooth and detailed image— great dynamic range



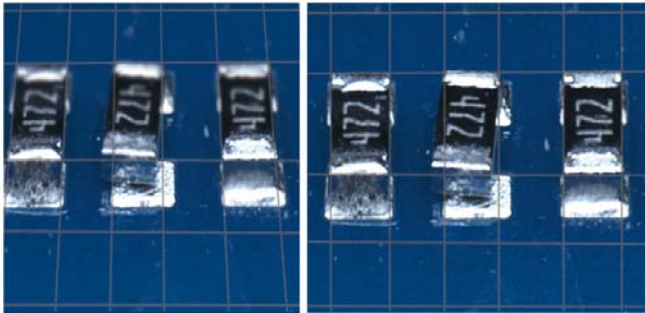
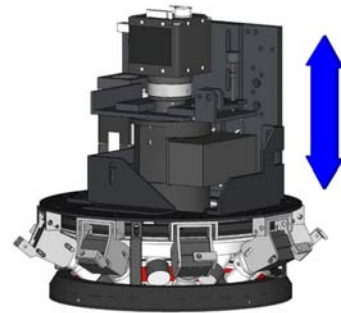
High dynamics sensor



Conventional sensor

### In Height Adjustable Optical Head

In Z-Axis moving Top Camera, Light and Side View cameras — Adaption to any PCB Thickness — PCB Warp Compensation — Inspection of PCB's with very tall components — Reliable text and/or polarity inspection on tall components  
Inspection of "Sandwich" assemblies without need of jigs and multiple inspections

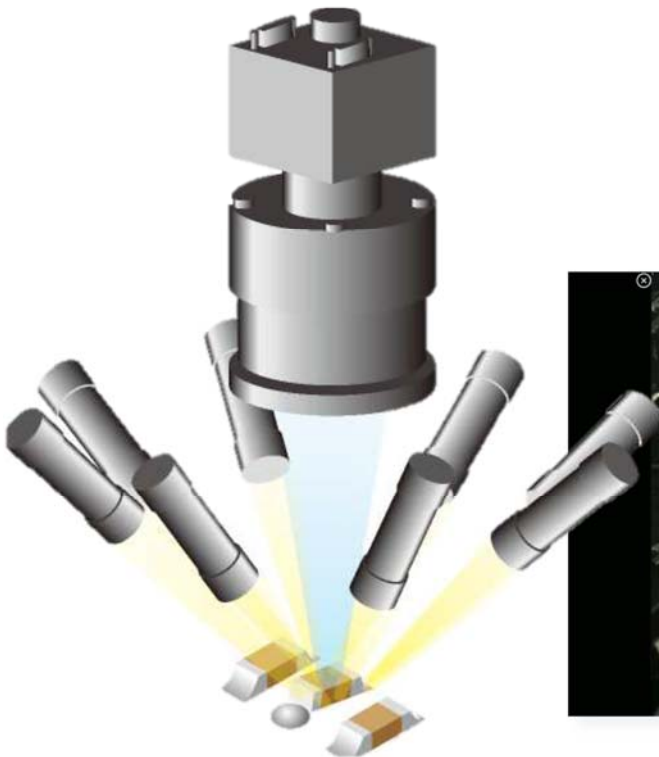
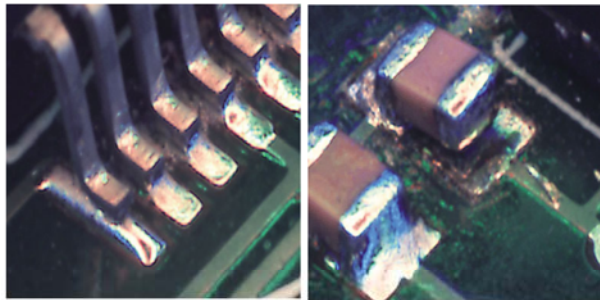


Without Shift&Tilt

Shift&Tilt

### Shift & Tilt Side View lenses

Distortion free side images across whole FoV. Every point on the PCB within the FoV has same distance to the capturing sensor despite the angle of the optics



# Desktop

# PowerSpector

## GTAz

350, 520, 650, 800

Desktop Series Specifications	PowerSpector GTAz 350	PowerSpector GTAz 520	PowerSpector GTAz 650	PowerSpector GTAz 800
Maximum PCB Size	350x250mm (13.8" x 9.8")	520x460mm (20.5" x 18.1")	650x550mm (25.6" x 21.6")	800x550mm (31.5"x21.6")
<i>Characteristics</i>				
Product type	Automatic Optical Inspector			
In-line/Off-line	Off-Line			
Camera movement	X Direction	X + Y Direction	X + Y Direction	X + Y Direction
PCB movement	Moving in Y	Stationary	Stationary	Stationary
PCB fixation	Direct Loading	Direct Loading	Manual Drawer Options: Motorized Drawer, Transverse loader	Manual Drawer Options: Motorized Drawer, Transverse loader
Parts inspection	Presence, Polarity, Offset, Correctness, Soldering, Height			
Printing/paste inspection	Offset, Smearing, Bridges, Uniformity			
Image Processing	Synthetic Imaging, Spectral Analysis, Greyscale limits			
Image Parameters	Brightness, Hue, Saturation via Filters			
Camera type	Digital <i>color</i> Thunderbolt interface 90 Fps			
Camera Field Of View/Resolution	38.5x38.5mm/18.75µm or 19.5x19.5mm/10µm			
Lens	Telecentric lens with built in prism for DOAL Lighting			
Lighting system	Omnidirectional Quad LED rings: Side White, Side Red, Main, Line Sourced DOAL Diffused On Axis Lighting (Coaxial))			
<i>Specifications</i>				
Minimum inspection component size	01005" (0.4x0.2mm)(10µm resolution)			
Positioning accuracy	Pixel related Feedback Loop			
Component clearance (top)	30mm (1.2")			
Side Cameras	8x Digital <i>color</i> USB 3.0 Vision in 45/45 orientation			
Z-Axis movement range	30mm (1.2")			
Component clearance (bottom)	70mm (2.8")	70mm (2.8")	70mm (2.8")	70mm (2.8")
Maximum PCB Size	350x250mm (13.8" x 9.8")	520x460mm (20.5" x 18.1")	650x550mm (25.6" x 21.6")	800x550mm (31.5"x21.6")
Movement speed	720mm/s			
Inspection capacity typical	2750ppm			
Electrical Requirement	100-240 VAC / 150W			
<i>Interfacing</i>				
Control PC type	Apple Mac Mini or iMac			
Data interface	USB and Thunderbolt			
Programming Interface	CSV Centroid file (Placement file)			
Repair/Monitor/SPC System/MES-interface	Mek Catch System (Windows 7/8/10) (option)			
3rd party Interfacing (MES) & Data Storage	Enterprise SQL DB/XML Files/Socket (Catch System Option)			
<i>General</i>				
Operating temperature	15-30 deg. C(60-90 deg. F)			
Operating humidity	15-80 % RH			
External size	W736 x D874 x H450 (29.0" x 34.4" x 7.7")	W1110 x D1040 x H600 (43.7" x 50" x 23.6")	W940 x D1015 x H500 (37.0" x 34.0" x 19.7")	W1157 x D1015 x H500 (45.55" x 34.0" x 19.7")
Weight	65kg (143lbs)	200kg (350lbs)	110kg (243lbs)	120kg (265lbs)

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