PowerSpector

BTL / BL

JTAz
JDz
JDAz

because inspection matters

MEK BTL/BL Dual side In-line AOI systems

√ Dual side or bottom up only inline full featured inspection	*Featuring industry leading GTAz head and optional high clearance JDAz head*
√ High Speed 60Fps main camera and USB 3 Vision Cameras side cameras	*The latest generation of high speed, high quality cameras No capture card requirements.*
√ Synchronized top and bottom inspection	*Top and bottom heads are linked to allow parallel inspection cycles*
√ Multi-color 3 angle lighting with Line Source Coaxial Lighting and Meniscus Profiler	*Reliable solder joint meniscus and pad surface analysis (to find meniscus and paste printing defects)*
√ 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 – THT solder inspection	*use inspection in all stages of the production process*
√ Flexible classification and reporting scenarios	*Integrate AOI efficiently in your existing operations and factory lay-out*
√ Line Sourced DOAL(Direct On Axis Lighting) coaxial lighting system with high resolution Telecentric Optics……	*Inspect solder joints without shadow effects from tall components nearby and accurate inspection model building*
√ Low Noise Large CCD High Speed 24 bit Color Camera	*Find defects easier including printing defects on Gold or Cu plated PCB's*
√ Synthetic Imaging and Spectral Analysis	*Powerful algorithms to achieve an optimal balance between defect detection and false reject levels in shortest time*
√ Triple use of side camera's	*Use for automatic inspection, classification and repair*
√ Prototype mode for 1st off inspection	*Program in minutes to verify your production line is set-up correctly before starting full production*
√ In height adjustable optical head	*Compensate for PCB warp and adapt to tall component and sandwich assemblies*

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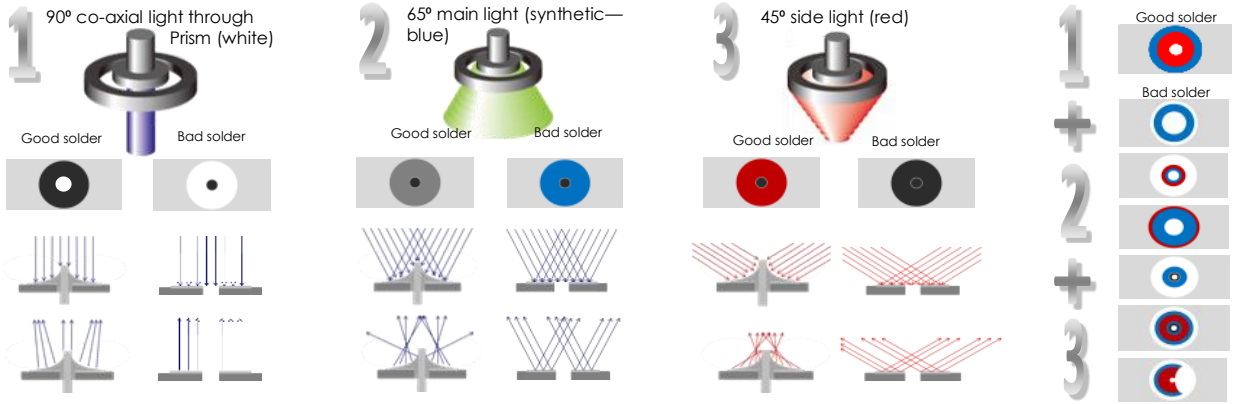
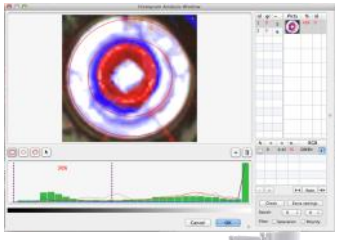
JTAz JDAz

Hardware and Software Features

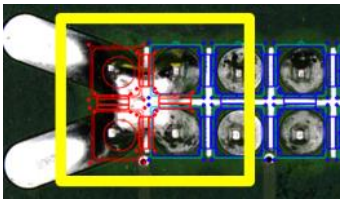
Sixteen possible head combinations
18 Cameras, 9 Top and 9 Bottom Cameras to 2 Camera Single top and Bottom Cameras. The D22X BTL is the ultimate in platform flexibility

THT Solder Inspection
Scalable inspection points for the wide variety of Solder land shapes and pin sizes, Bridge and solder ball detection algorithms.

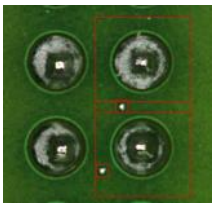




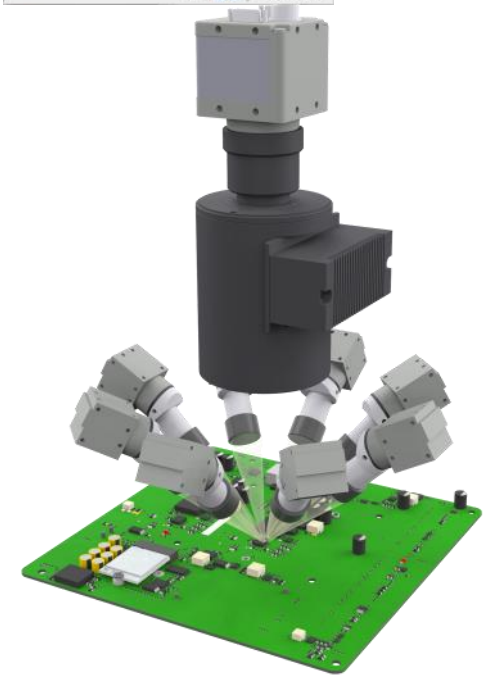
Histogram Analysis algorithms
Condition based decision. Tolerances can be set tightly
Close to zero false alarms

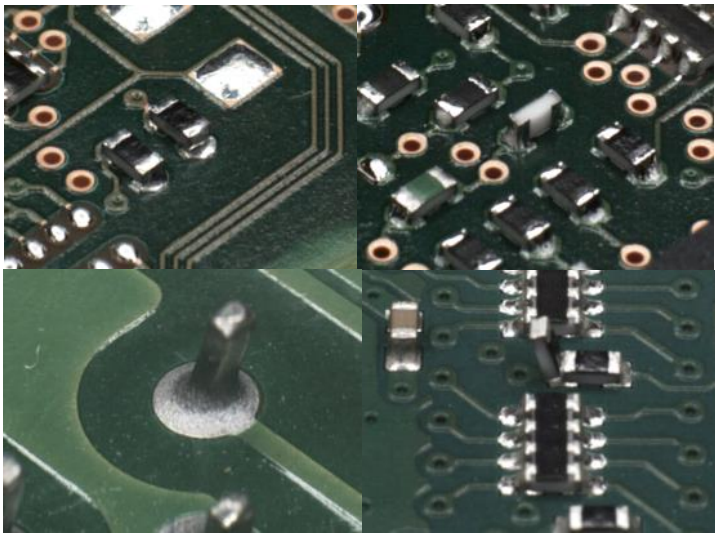


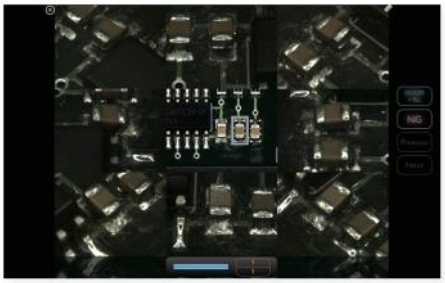
Powerful algorithms for solder bridge detection
Simple and scalable



Dedicated algorithms for solder balls detection







8x Angular Side Sensors (Only available for GTAz and GDAz 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

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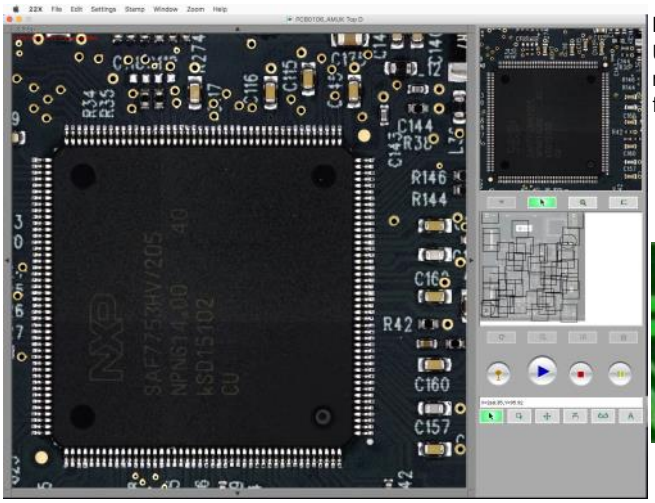
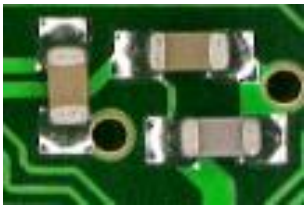
Hardware and Software Features — Continued



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.

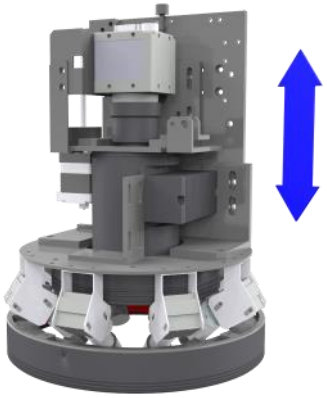
Large pixel image capturing sensor
15µm² pixel size — less noise — smooth and detailed image— great dynamic range



High dynamics sensor

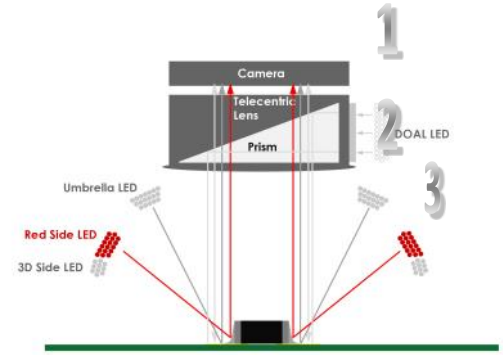
Conventional sensor

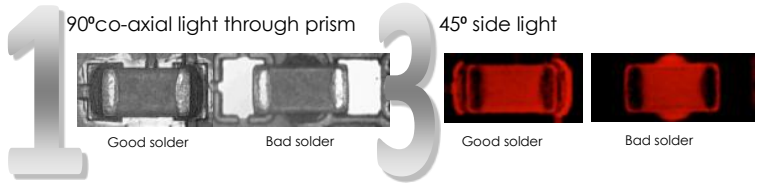
Height Adjustable Optical Head
Z-Axis moving Top Camera, Light and Side View cameras — Adaption to any PCB Thickness — PCB Warp Compensation — Inspection of PCB's with very tall components — Reliable text and/or polarity inspection on tall components Inspection of "Sandwich" assemblies without need of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

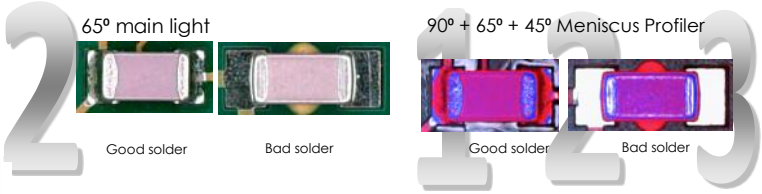


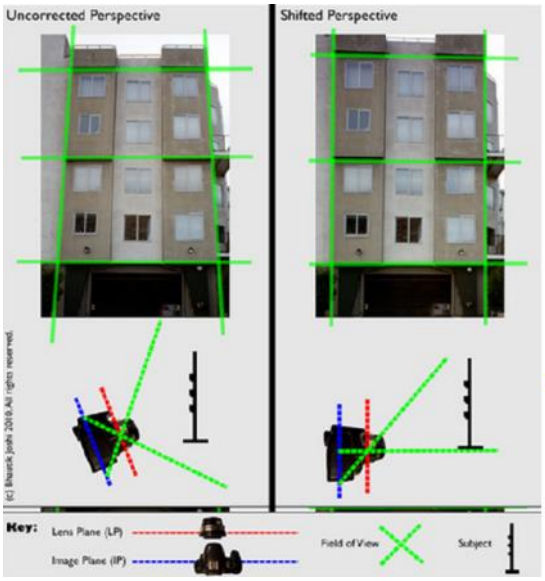
Omnidirectional multi angle, multi color LED lighting
Optimal light no matter component direction — 3D color profile of solder meniscus — Reliable defect decision by the software — Decide Good Solder, No Solder, Lack of Solder and Too much solder for SMT and THT solder joints

SMT Solder Inspection
Full solder profiling and histogram algorithm analysis. Simple prebuilt solder inspection libraries

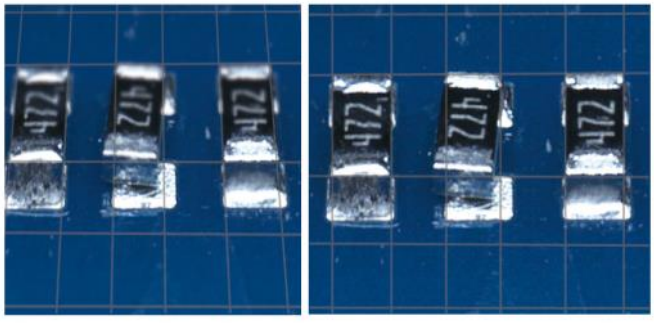








Shift & Tilt Side View lenses
Distortion free side images across whole FoV. Every point on the PCB within the FoV has same distance to the capturing sensor despite the angle of the optics



Without Shift&Tilt

Shift&Tilt

because inspection matters

Inline BTL

PowerSpector

Bottom & Top Simultaneous inspection

JTAz + JDAz

In-Line Series Specifications	PowerSpector JTAz + JDAz 350BTL	PowerSpector JTAz + JDAz 550BTL
Maximum PCB Size	350x250mm (13.8"x9.8")	550x550mm (21.6"x21.6")
Characteristics		
Product type	Automatic Optical Inspector	
In-line/Off-line	In-Line	
Camera movement	X + Y Direction	
PCB movement	Stationary during inspection	
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 *color* USB Vision interface 60 Fps	
Camera Field Of View/Resolution	36 x30mm/15µm	
Lens	Telecentric lens with built in prism for DOAL Lighting	
Lighting system	Omnidirectional T Triple LED rings: Side Red, Main, Line Sourced DOAL (Diffused On Axis Lighting (Coaxial))	
Specifications		
Smallest inspection component size	01005" (0.4x0.2mm)	
Positioning accuracy	Pixel related Feedback Loop	
Component clearance (top)	**JTAz 30mm (1.2") JDAz 60 mm (2.4")**	
Side Cameras	**8x Digital *color* USB 3.0 Vision in 45/45 orientation**	
Z-Axis movement range	30mm (1.2")	
Component clearance (bottom)	30mm (1.2") with JTAz bottom camera or 60mm (2.4") JDAz bottom camera	
Maximum PCB Size	350x250mm (13.8" x 9.8")	550x550mm (21.6" x 21.6")
Movement speed	720mm/s	
Inspection capacity typical	2750ppm	
Electrical requirements	100-240 VAC / 330W	
Conveyor		
Conveyor belt speed	10-500mm/s (0.4-19.7"/s)	
Conveyor configuration	Left>Right, Front rail fixed, Height 830-950mm	
PCB Clamping	Top Justified, Ruler Blade, Top & Edge Clamping, Sensor Stopper	
Minimum board size	50x50mm (2.0" x 2.0")	
Board thickness	0.6-4mm (24mils - 79mils)	
Interfacing		
Control PC type	Apple Mac Mini or iMac x2	
Control interface	SMEMA (conveyer)	
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)	
General		
Operating temperature	15-30 deg. C(60-90 deg. F)	
Operating humidity	15-80 % RH	
External size	W878 x D916 x H1313 (34.6" x 36.1" x 51.7")	W1078 x D1320 x H1317 (42.4" x 52" x 51.8")
Weight	240kg (397lbs)	400kg (529lbs)

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Bottom & Top Simultaneous inspection JDz + JDz

In-Line Series Specifications	PowerSpector JDz + JDz 350BTL	PowerSpector JDz + JDz 550BTL
Maximum PCB Size	350x250mm (13.8"x9.8")	550x550mm (21.6"x21.6")
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In-line/Off-line	In-Line	
Camera movement	X + Y Direction	
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Image Parameters	Brightness, Hue, Saturation via Filters	
Camera type	Digital *color* USB Vision interface 60 Fps	
Camera Field Of View/Resolution	36x30mm/15µm	
Lens	Telecentric lens with built in prism for DOAL Lighting	
Lighting system	Omnidirectional D Triple LED rings: Side Red, Main, Line Sourced DOAL (Diffused On Axis Lighting (Coaxial))	
Specifications		
Smallest inspection component size	01005" (0.4x0.2mm)	
Positioning accuracy	Pixel related Feedback Loop	
Component clearance (top)	**JDz 40mm (1.5") extendable to 60mm**	
Side Cameras	**NA**	
Z-Axis movement range	30mm (1.2")	
Component clearance (bottom)	30mm (1.2")	
Maximum PCB Size	350x250mm (13.8" x 9.8")	550x550mm (21.6" x 21.6")
Movement speed	720mm/s	
Inspection capacity typical	2750ppm	
Electrical requirements	100-240 VAC / 330W	
Conveyor		
Conveyor belt speed	10-500mm/s (0.4-19.7"/s)	
Conveyor configuration	Left>Right, Front rail fixed, Height 830-950mm	
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Repair/Monitor/SPC System/MES-interface	Mek Catch System (Windows 7/8/10) (option)	
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General		
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