KOH YOUNG TECHNOLOGY
INTELLIGENT INSPECTION

True 3D Smart Factory Solutions,
Powered by AI

ZENITH S

The Ultimate 3D Off-line AOI Solution

The Zenith S is a True 3D measurement-based off-line automated optical inspection machine designed to maximize production quality of large, complex boards like backplane and server panels, while delivering both versatility and flexibility for cost-conscious manufacturers.

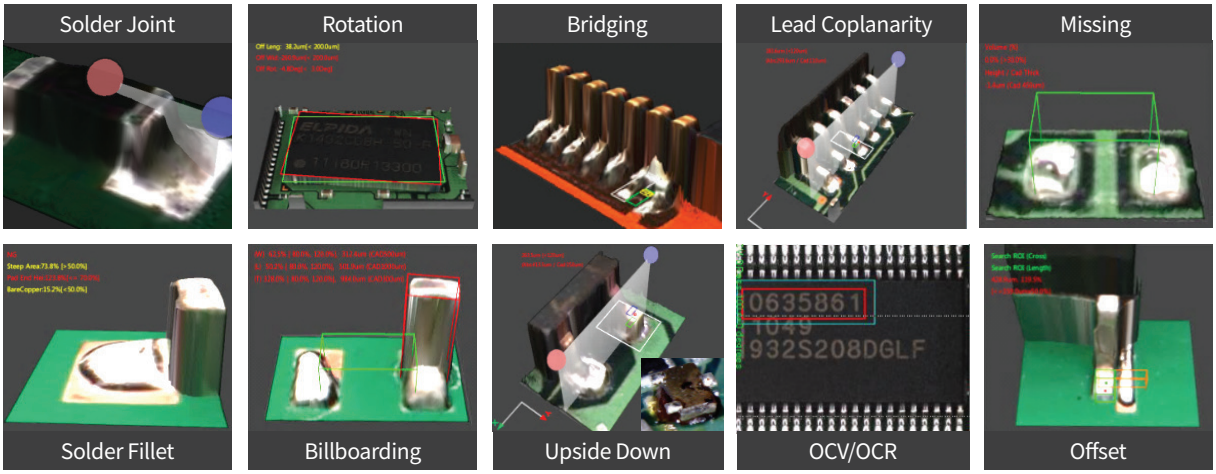
- Incomparable True 3D Inspection Performance
- Advanced Tall Component Inspection
- Reliable Selective Solder Joint Inspection Capability
- Whole-Board Foreign Material Inspection
- Integrated Versatility for a Wide Range of Applications
- Reciprocating Shuttle for Easy, Efficient PCB Loading
- Fully Compatible with Koh Young In-line 3D AOI

ZENITH S

The Ultimate 3D Off-line AOI Solution

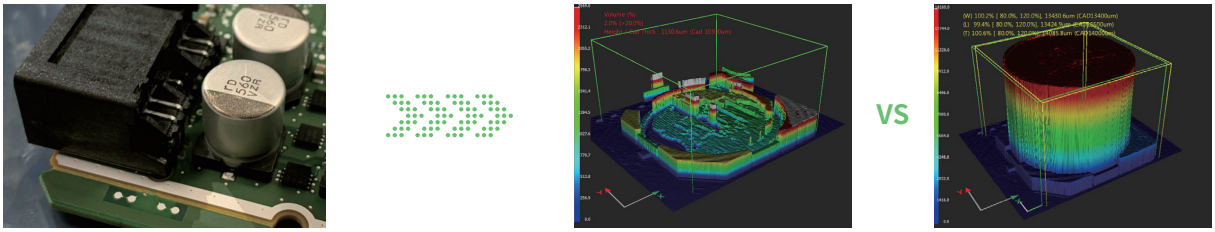
Incomparable True 3D Inspection Performance

- The new Zenith S, part of the Zenith AOI Series, is the industry's only solution based on the IPC-610 standard for end-product acceptance criteria for consumer and high reliability printed circuit assemblies. It provides clear, precise AOI measurements to accurately identify multiple defects, and because it uses a quantitative True 3D measurement-based approach, the system delivers trustworthy accuracy and repeatability.
- **True 3D Inspection Performance :** Missing Solder, Offset, Polarity, Upside Down, OCV/OCR, Solder Fillet, Billboarding, Lifted Lead, Lifted Body, Tombstone, Bridging, and more.



Advanced, Tall Component Inspection

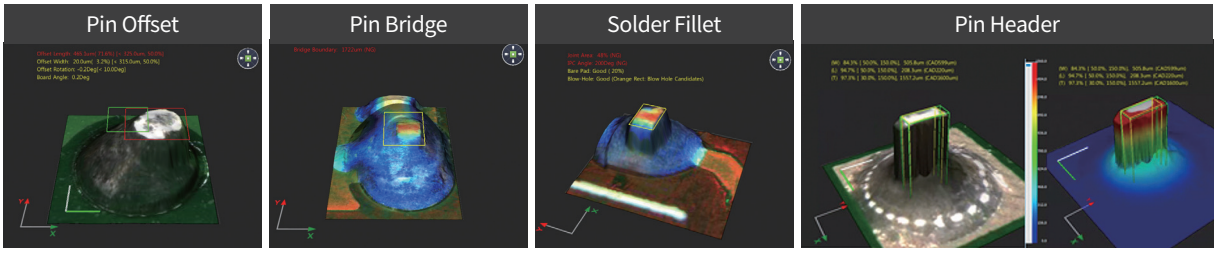
- During the inspection process, a tall component will naturally cast a shadow over nearby component placements, which has historically been a significant challenge for accurate inspection of the shorter components. Yet, the Zenith S, like other machines in the lineup, includes an option for 3D inspection of components up to 25mm tall. The Zenith S overcomes component shadow challenges by incorporating multi-projection moiré interferometry system.



Tall Component Inspection | Standard AOI | ZENITH S

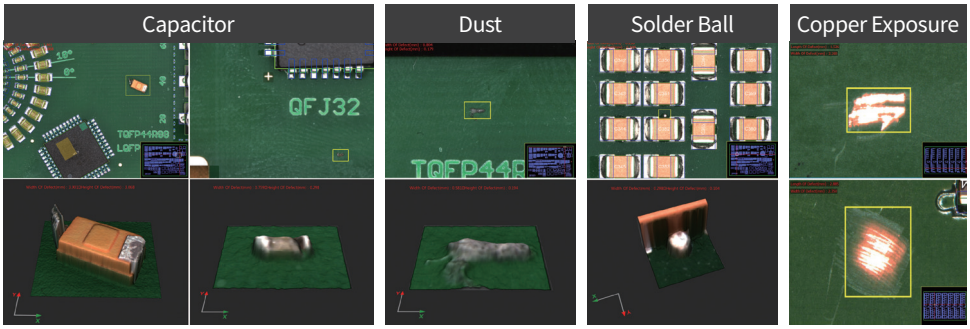
Reliable Selective Solder Joint Inspection Capability

- Combining innovative vision algorithms and advanced optical inspection technologies, Koh Young delivers highly-reliable inspection of through-hole and selective solder joints.



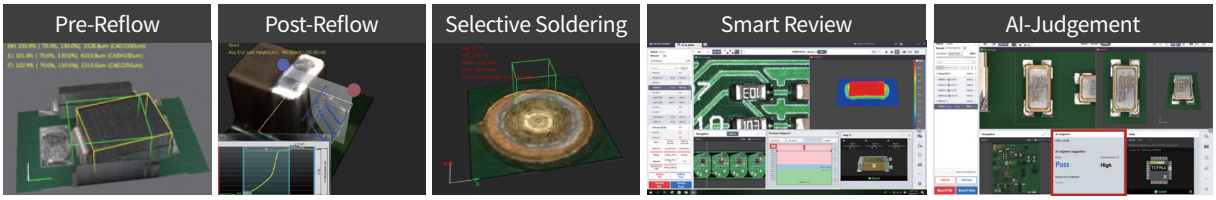
Whole-board Foreign Material Inspection (WFMI)

- With the Zenith series, inspection capabilities extend beyond components and solder joints. By combining 2D and True 3D technologies, the AOIs identify foreign object debris (FOD) across the whole board. WFMI technology provides solutions for dropped components, solder balls, dust, debris, and burrs, as well as copper exposure, markings, and more. By identifying these issues, the Zenith can help reduce field failures.



Integrated Versatility for a Wide Range of Applications

- The Zenith S system is a versatile inspection solution that is adaptable to many application scenarios, including pre-reflow, selective soldering, and post-reflow inspection. With a high degree of functionality, it can be configured as an offline Inspection-Verification-Repair work cell for an operator to perform all three functions efficiently. Since the program is compatible with our inline systems, the Zenith S can be used for offline program generation to maximize the SMT line for production.



Reciprocating Shuttle for Easy, Efficient PCB Loading

- The Zenith S system handles large PCB panel sizes up to 650 x 600mm (25.6x23.6”). With the open board loading area and reciprocating shuttle, board loading is simple, easy, and efficient. Additionally, this system can be configured with a third-party robot board handler or multi-axis robot to further simplify panel loading and unloading.

Fully Compatible with Koh Young In-line 3D AOI

- The Zenith S system is fully compatible with other Koh Young inline True 3D AOI systems. Manufacturers using the inline and standalone AOI systems like the Zenith S can prepare the job program on either machine. Additionally, operation and maintenance training is minimized thanks to the commonality between the platforms. Finally, the Zenith S uses the same central library, Offline Program Optimizer (OPO), and the AI-powered Koh Young Auto-Programming (KAP) features as the inline versions.

“Before we had the machine, we had too many escapes and false calls. They virtually disappears when the Koh Young AOI was added. It is truly the best-value, most capable standalone 3D AOI. What’s more, it is equipped with Koh Young’s AI-powered algorithms and capabilities at a cost-effective price point.”
- Mid-Tier SMT Manager

Must-Check Requirements of a 3D AOI System

Requirements	Solutions
Solution to shadow problem	3D shadow free moiré technology & 4-way projection
Specular problem	
Shadowed area between tall components	
Small (01005 in) component inspection	Multi-frequency moiré technology
Wide measurement range	
Real-time PCB warp compensation	Active warp compensation (Pad-referencing + multi-frequency moiré technology)
Dark component & white body component location	True 3D measurement
Component body, lead coplanarity inspection	
Solder joint profile inspection	
3D polarity inspection	
Component crack inspection	

Inspection Task	Missing, offset, rotation, 3D polarity, upside down, OCV/OCR, coplanarity, solder fillet, lifted lead, billboarding, tombstone, bridging, dimension error

Inspection Performance	Camera	Pixel Resolution	Full Speed Inspection Speed	Max. Measurement Height	Height Accuracy	Illumination
	8 Mpix	15 µm	Up to 31.1 cm²/sec	4 mm	±3 % (on Koh Young Calibration Target)	IR-RGB LED Dome-Styled Illumination

PCB Handling	Conveyor Width Adjustment		Automatic	Max. PCB Weight		10 kgs
	Conveyor Fix Type		Front Fix	Edge Clearance	Top	3.0 mm
	PCB Size	Max.	650 x 600 mm		Bottom	3.5 mm
		Min.	50 x 50 mm	Clearance	Top	50 mm
	PCB Thickness		0.4 ~ 8 mm		Bottom	70 mm

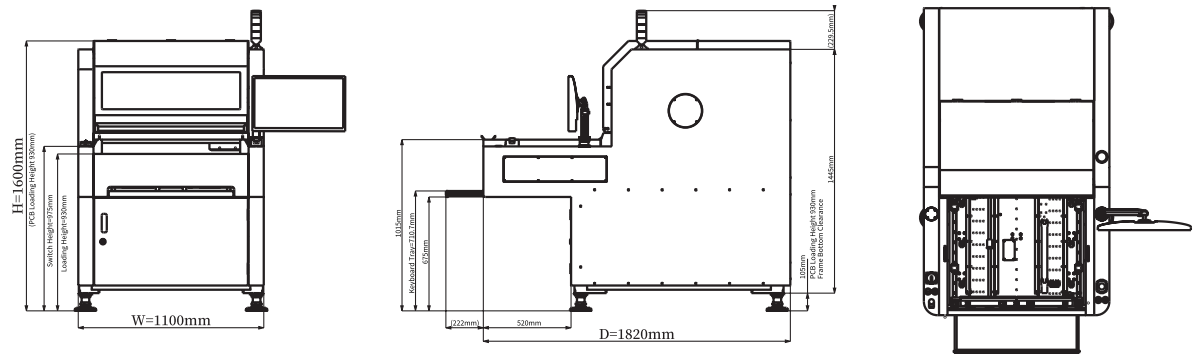
Software	Supported Input Format	GERBER Data (274X, 274D), ODB++, Placement File, Mounter JOB file, Allegro, Zuken, Mentor (Optional)
	Programing Software	ePM-AOI, AOI GUI
	Statistical Process Control Tool	AOI SPC, Review S/W
	User-Friendly Features	Library Manager, KYCAL (Auto Camera Calibration, Auto Illumination Calibration, Auto Height Calibration)
	Operating System	WINDOWS 10 IoT ENTERPRISE LTSC 2019

Add-On Solutions

- 1D & 2D Handy Barcode Reader
- Integrated Calibration Target
- 25 mm Height Inspection (5-Way Projection)
- Top Clearance Extention Up to 70mm
- KSMART Solutions
  (Monitoring & Analysis, Remote Access, Offline Optimizer, Link Data Analysis, Notification)

Installation Requirements	Machine Weight	600 kgs
	Machine Size (W x D x H)	1,100 x 1,820 x 1,600 mm
	Supplies	(Electrical Supply) 200~240 VAC, Single Phase, 50/60Hz (Compressed Air) 5 Kgf/cm² (0.45 MPa)

* The above specifications are subject to change without prior notice.



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