KOH YOUNG TECHNOLOGY
INTELLIGENT INSPECTION

True 3D Smart Factory Solutions,
Powered by AI

ZENITH 2

Revolutionary True 3D AOI Delivering Incomparable Capabilities

Zenith 2 is blazing a trail for AOI systems with novel SMT process management tools by combining advanced vision algorithms with innovative high-resolution optics, allowing a wider inspection coverage including advanced tall component inspection.

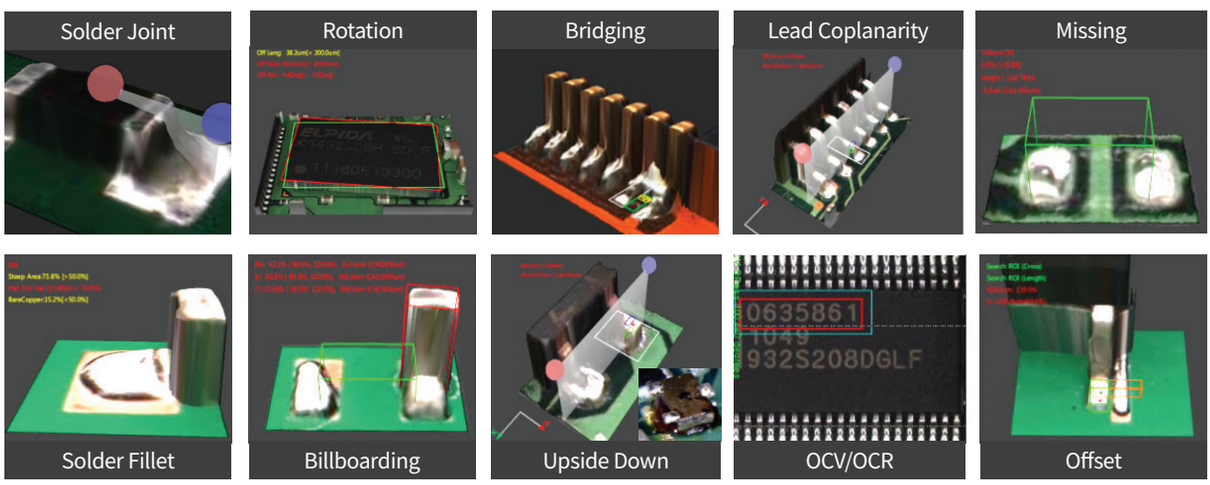
- Incomparable True 3D Inspection Performance
- Powerful Side-View Camera
- Self-Diagnosis for Optimal Performance Maintenance
- Zero-Defect Process Optimization, powered by AI
- KSMART Solutions: The Gateway to a Smart Factory

ZENITH 2

Revolutionary **True 3D AOI**
Delivering Incomparable Capabilities

Incomparable True 3D Inspection Performance

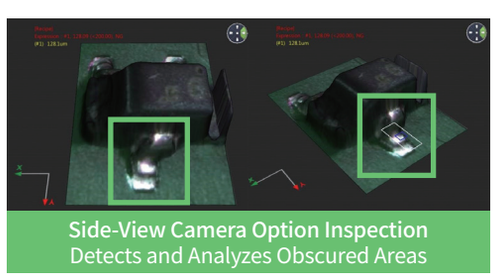
- The Zenith AOI series is the only solution in the industry to base its inspection criteria according to the IPC-610 standards for electronic assembly acceptability requirements. Koh Young's quantitative True 3D measurement-based approach allows a wider inspection coverage including advanced tall component inspection.
- The Zenith 2 delivers clear and concise AOI measurement to accurately identify multiple defects such as: Missing Solder, Offset, Polarity, Upside Down, OCV/OCR, Solder Fillet, Billboarding, Lifted Lead, Lifted Body, Tombstone, Bridging, and more.



Powerful Side-View Camera

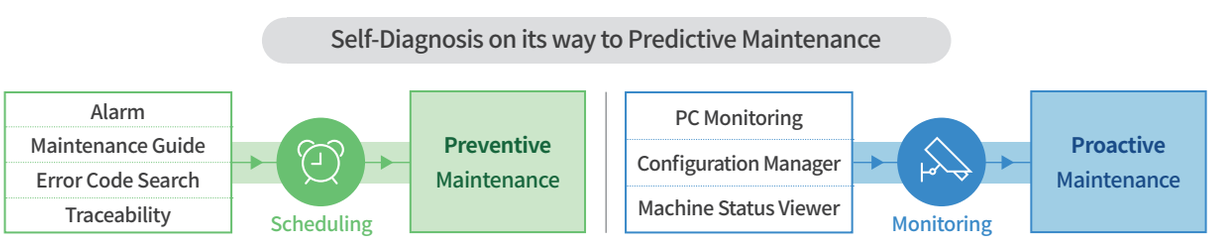
- **[Optional Solution]** Zenith 2's powerful side-view camera solution quickly identifies, measures, and analyzes potential defects on hidden or obscured components.


Standard
Top Camera View


Side-View Camera Option Inspection
Detects and Analyzes Obscured Areas

Self-Diagnosis for Optimal Performance Maintenance

- The leading-edge Zenith 2 AOI incorporates a patented mechatronic technology, which positions it as the ultimate AOI solution. Self-Diagnosis allows operators to take precautionary measures through predictive maintenance in order to reduce process interruptions, enhance equipment uptime, and ensure optimal machine performance.
- The Self-Diagnosis feature comes with distinct modules which offers periodical machine checkups on critical items such as 3D/2D light intensity, PZT feed, height accuracy, and XY offset.



Zero-Defect Process Optimization, powered by AI

- Creating a closed-loop, connected electronics manufacturing floor for defect-free production by applying an ever-evolving AI-powered suite of interconnected software modules.

Real-time Koh Young Process Optimizer (KPO) Mounter

Based on Koh Young's accurate True 3D measurement data and its proprietary deep learning technology, KPO Mounter enables real-time mounting process optimization. With seamless communication between the mounter and a pre-reflow AOI, the software analyzes defects, provides real-time feedback, identifies the root causes, and provides actionable information- all based on Koh Young's proprietary AI engine.

Koh Young Offline Program Optimizer (OPO)

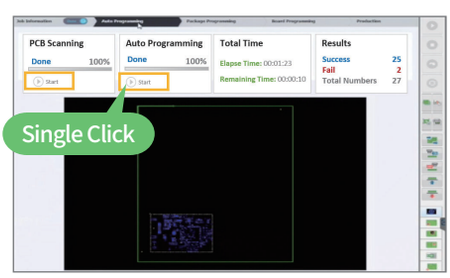
Cyber-physical system to optimize programs in a simulated environment using the identical machine and actual historical 3D images and measurement data.

The Gateway to a Smart Factory

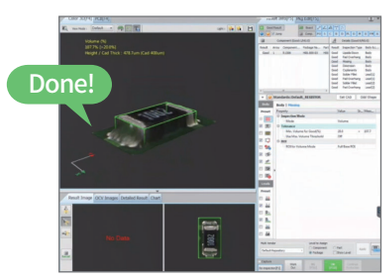
- Maximizing production efficiency by combining industry standards with AI engines to go beyond simple machine connectivity and open the gates to a smart factory to everyone.

AI-powered Auto-Programming (KAP)

Industry-leading 3D profilometry technology converges with Koh Young's proprietary AI technology to deliver true automatic programming. The innovative geometry-based Koh Young Auto Programming (KAP) software solution reduces the programming process to minimize production preparation and reduces costs.



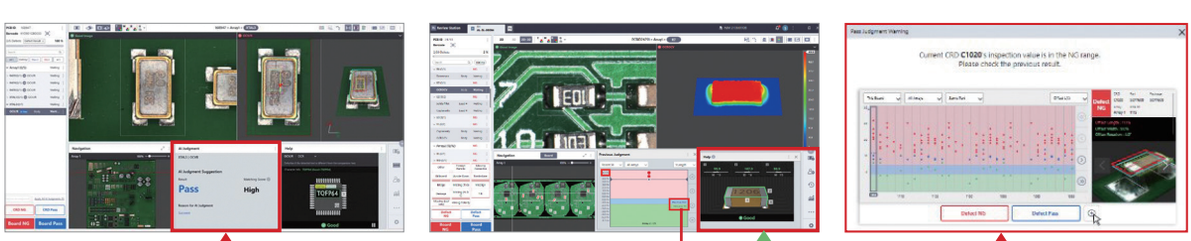
One click needed to start KAP



Programming time saved by 70%

Smart Review: Autonomous Judgement and Classification

Combining proprietary vision algorithms with a learning-based AI engine from Koh Young, the Smart Review system reduces false calls and operator intervention by automatically assessing OCV and OCR readings. By minimizing false calls, the Smart Review system increases line operator efficiency and boost production line utilization to reduce overall costs. The system also maximizes production performance by reviewing defects from multiple lines, offering judgment history and the help cards with auto-classified defect information.



Provide a smart judgement guide based on AI engine

Explain the defect and what OP should check

Must-check Requirements of a 3D AOI System

Requirements	Solutions
Shadow Problem Solution	3D Shadow Free Moiré Technology & 4-Way and 8-Way Projection (4W Side-View Camera Not Available)
Specular Problem Solution	
Shadowed Area Between Tall Components	
Small (01005 in) Component Inspection	Multi-Frequency Moiré Technology
Wide Measurement Range & Accuracy (Measurement Range Problem)	
Real-time PCB Warp Compensation	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 Items	Inspection Task	Missing, Offset, Rotation, 3D Polarity, Upside Down, OCV/VCR, Coplanarity, Solder Fillet, Lifted Lead, Billboarding, Tombstone, Bridging, Dimension

	Projection	Camera & Resolution	FOV Size	Full 3D Inspection Speed	Max. Measurement Height	Height Accuracy (KY Calibration Target)	Illumination
Zenith 2 Inspection Performance	8 Way	12M 15μm	61 x 46 mm	44.5 cm^2/sec (0.63 sec/FOV)	25 mm	±3%	IR-RGB LED (Dome Styled Illumination)
	8 Way	8M 20μm 8M 15μm	56 x 56 mm 42 x 43 mm	49.9 cm^2/sec (0.64 sec/FOV) 29.1 cm^2/sec (0.62 sec/FOV)			
	4 Way	8M 20μm 8M 15μm	56 x 56mm 42 x 43 mm	61.5 cm^2/sec (0.51 sec/FOV) 36.9 cm^2/sec (0.49 sec/FOV)			

PCB Handling	Conveyer Width Adjustment	Automatic
	Conveyer Fix Type	Front / Rear Fixed (Factory Setting)
	Flipper Option	Available
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	SPC Plus, Review Station
	User-Friendly Operator	Library, 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
- 1D & 2D Inline Barcode Reader
- Integrated Calibration Target
- Offline SPC Pro Station
- Review Station
- Foreign Material Inspection
- Side-View Camera
- KSMART Solutions
  (Monitoring & Analysis, Remote Access, Offline Programming Optimizer, Link Data Analysis, Notification)

(The above specifications are subject to change without notice.)

	L (Flipper)	L				XL			
	Single Lane	Single Lane		Dual Lane		Single Lane		Dual Lane	
	Side Camera	Standard	Side Camera	Standard	Side Camera	Standard	Side Camera	Standard	Side Camera
Max. PCB Size (X x Y)	500 x 500 mm (19.6in x 19.6in)	510 x 510 mm (20.1 x 20.1in)	330 x 510 mm (13.0 x 20.1in)	Single Mode* 510 x 580 mm (20.1 x 22.8 in) Dual Mode 510 x 320 mm (20.1 x 12.6 in)	Single Mode* 330 x 580 mm (13.0 x 22.8 in) Dual Mode 330 x 320 mm (13.0 x 12.6 in)	700 x 690 mm (27.6 x 27.2 in)	510 x 510 mm (20.1 x 20.1 in)	Single Mode* 700 x 580 mm (27.6 x 22.8 in) Dual Mode 700 x 320 mm (27.6 x 12.6 in)	Single Mode* 510 x 580 mm (20.1 x 22.8 in) Dual Mode 510 x 320 mm (20.1 x 12.6 in)
Min. PCB Size	100 x 100 mm (3.9 x 3.9 in)	50 x 50 mm (2.0 x 2.0 in)							
PCB Thickness	1 ~ 5 mm (0.03 ~ 0.20 in)	0.4 ~ 5 mm (0.02 ~ 0.20 in)				0.4 ~ 8 mm (0.02 ~ 0.31 in)	0.4 ~ 5 mm (0.02 ~ 0.20 in)	0.4 ~ 8 mm (0.02 ~ 0.31 in)	0.4 ~ 5 mm (0.02 ~ 0.20 in)
Max. PCB Weight	2 kg (4.4 lbs)	4 kg (8.8 lbs)				10 kg (22.0 lbs)	4 kg (8.8 lbs)	10 kg (22.0 lbs)	4 kg (8.8 lbs)
Machine Weight (Approx.)	850 kg (1873.9 lbs)	750 kg (1653.5 lbs)		800 kg (1763.7 lbs)		800 kg (1763.7 lbs)	750 kg (1653.5 lbs)	800 kg (1763.7 lbs)	
Bottom Clearance	70 mm (2.7 in)	50 mm (2.0 in)							
Supplies	± 220 Vac, 1Phase, 50/60Hz, 5Kgf/cm^2 (0.45Mpa)								
W	1200 mm (47.2 in)	1000 mm (39.4 in)				1200 mm (47.2 in)			
D	1800 mm (70.8 in)	1530 mm (60.2 in)		1710 mm (67.3 in)		1710 mm (67.3 in)	1530 mm (60.2 in)	1710 mm (67.3 in)	
H	1810 mm (71.2 in)	1805 mm (71.1 in)							

* Please contact us for more information about PCB Sizes.
(The above specifications are subject to change without notice.)

KOH YOUNG TECHNOLOGY
INTELLIGENT INSPECTION

Koh Young Technology Inc.

18, Poeun-daero 59 beon-gil, Suji-gu, Yongin-si, Gyeonggi-do, 16864, Korea

T +82.31.5181.8000 F +82.31.5181.8677 E kohyoung@kohyoung.com

Zenith2_HQ_S_V01_ENG_202410