ZENITH UHS
Ultra High-Speed

The Industry's **Fastest True 3D AOI Solution**

The Zenith UHS, industry's most popular 3D AOI Solution, measures true profilometric component shapes, foreign materials, patterns, and solder joints without compromising speed and overcoming inspection challenges with True 3D capabilities.

Ultra High-Speed Inspection

Incomparable True 3D Inspection Performance

Advanced Tall Component Inspection

**AI-powered Auto Programming (KAP)**

**KSMART Solutions:** True 3D Measurement-based Process Control System

Ultra High-Speed Inspection

▪ Faster than ever, the Zenith UHS measures components at high volume production rates for a wide range of defects without compromising inspection accuracy and repeatability.

20um
56.0 cm²/sec

ZENITH UHS Ultra High-Speed

Twice as Fast!

ZENITH

20um
26.2 cm²/sec
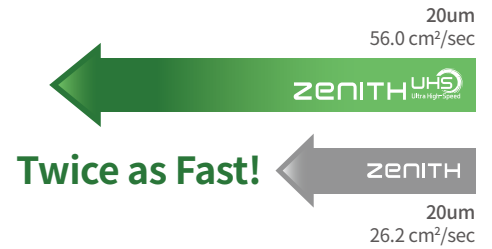
Incomparable True 3D Inspection Performance

▪ The Zenith AOI Series is the only solution in the industry to base its inspection criteria according to IPC-610 standards for electronic assembly acceptability requirements. It provides clear and concise AOI measurements to accurately identify multiple defects. Because it uses a quantitative True 3D measurement-based approach, the system delivers exceptional 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.


Solder Joint	Rotation	Bridging	Lead Coplanarity	Missing
Solder Fillet	Billboarding	Upside down	OCV/OCR	Offset
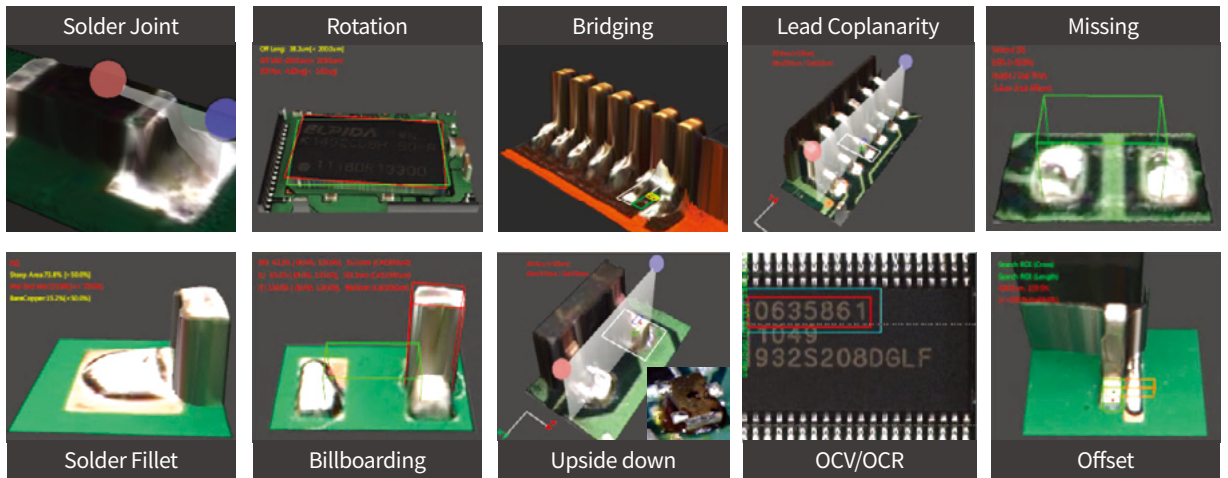
Advanced Tall Component Inspection

▪ Due to the shadows cast upon shorter components near a tall part, measurement capabilities on board with tall components has traditionally been a challenge for AOIs. As an optional feature (9-Way Projection), the Zenith UHS handles components up to 25mm tall. The Zenith UHS overcomes component shadow challenges by incorporating multi-projection Moiré interferometry system.
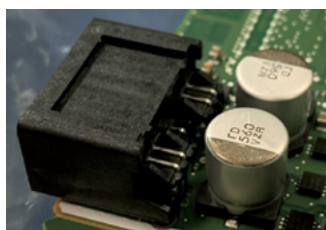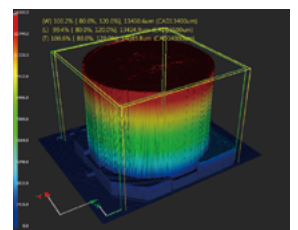

Tall Component Inspection
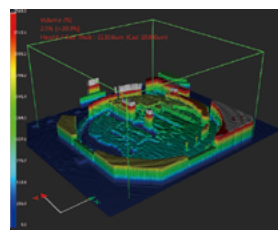
Standard AOI

VS

ZENITH UHS Ultra High-Speed

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 minimizes time to production and reduces costs.
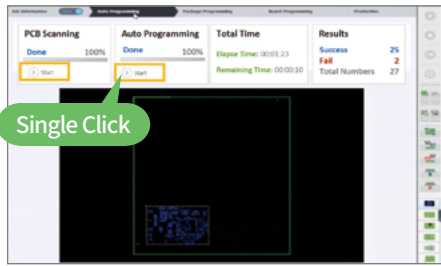
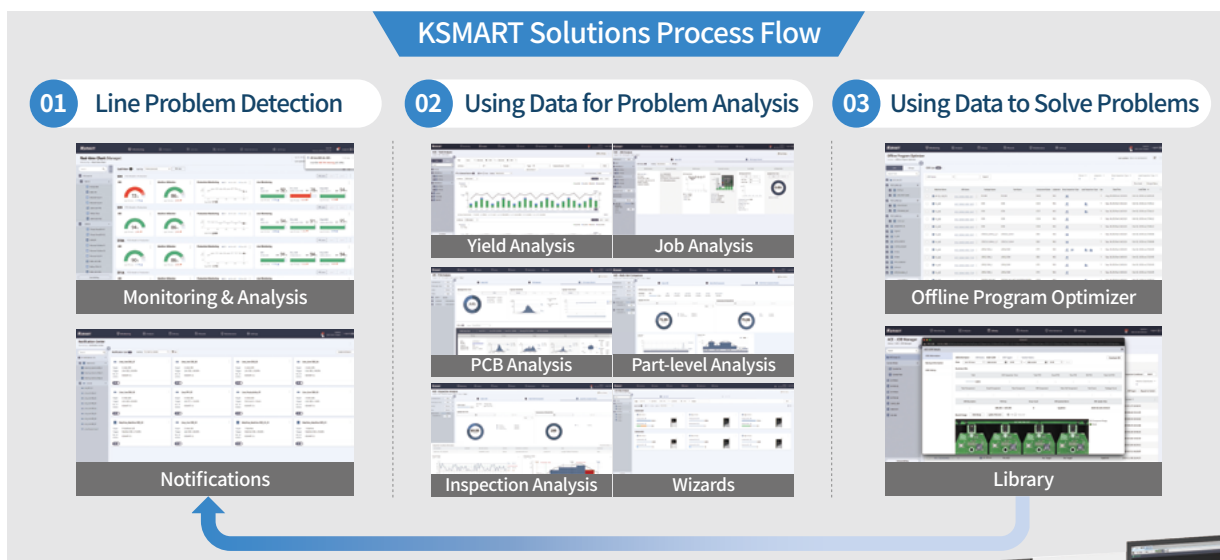One Click Needed To Start KAP

Programming Time Saved by 70%

KSMART Solutions: True 3D Measurement-based Process Control System

▪ Koh Young pioneered True 3D measurement technology 20 years ago to create a zero-defect future. This gave rise to KSMART Solutions and its continuous efforts to leverage data and connectivity.

▪ KSMART Solutions uses Artificial Intelligence to help automate process control while focusing on data management, analysis, and optimization. It collects data from across the factory line for defect detection, real-time optimization, enhanced decisions, and traceability to improve metrics, increase quality, and lower costs by eliminating variance, false calls, and escapes.

"KSMART Solutions is the Gateway to a Smart Factory"

▪ Converts data into knowledge for effective and quality-driven actions
▪ Delivers an AI-powered process analysis and optimization tool
▪ Achieves an autonomous process optimization facility

KSMART Solutions Process Flow

01 Line Problem Detection
- Monitoring & Analysis
- Notifications

02 Using Data for Problem Analysis
- Yield Analysis
- Job Analysis
- PCB Analysis
- Part-level Analysis
- Inspection Analysis
- Wizards

03 Using Data to Solve Problems
- Offline Program Optimizer
- Library

"Due to Koh Young's measurement data, operators no longer have to worry about defects. We want our operators to trust the equipment and let the machine do all the work. Koh Young has brought us to a point where we can completely trust the inspection machine." - OEM Lead Process Engineer

Specification

Requirements	Solutions
Solution to Shadow Problem	3D Shadow Free Moiré Technology & 8-Way Projection
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

Zenith UHS Inspection Performance	Camera	FOV Size	Inspection Speed	Max. Measurement Height	Height Accuracy (KY Calibration Target)	Illumination
	8M 7um	20 x 20 mm	8 cm²/sec (0.50 sec/FOV)	2 mm	±3%	IR-RGB LED (Dome-Styled Illumination)
	8M 10um	28 x 28 mm	15 cm²/sec (0.52 sec/FOV)	5 mm		
	8M 15um	42 x 43 mm	31 cm²/sec (0.58 sec/FOV)	10 mm		
	8M 20um	56 x 57 mm	56 cm²/sec (0.57 sec/FOV)	10 mm		
	12M 10um	41 x 31 mm	23 cm²/sec (0.54 sec/FOV)	5 mm		
	12M 15um	61 x 46 mm	46 cm²/sec (0.61 sec/FOV)	10 mm		

PCB Handling	Conveyer Width Adjustment	Automatic
	Conveyer Fix Type	Front / Rear Fixed (Factory Setting)

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 - Offline Programming Station - Review Station - Foreign Material Inspection	- KSMART Solutions (Monitoring & Analysis, Remote Access, Offline Programming Optimizer, Link Data Analysis, Notification) - 25mm Height Inspection (9-Way Projection)

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

	M		L		XL	
	Single Lane	Dual Lane	Single Lane	Dual Lane	Single Lane	Dual Lane
Max. PCB Size (X x Y)	310 x 320 mm (12.2 x 12.6 in)	**Single Mode °** 310 x 580 mm (12.2 x 22.8 in) **Dual Mode** 310 x 320 mm (12.2 x 12.6 in)	490 x 510 mm (19.2 x 20.1 in)	**Single Mode °** 490 x 580 mm (19.2 x 22.8 in) **Dual Mode** 490 x 320 mm (19.2 x 12.6 in)	690 x 690 mm (27.2 x 27.2 in)	**Single Mode** 690 x 580 mm (27.2 x 22.8 in) **Dual Mode** 690 x 320 mm (27.2 x 12.6 in)
Min. PCB Size	50 x 50 mm (1.9 x 1.9 in)					
PCB Thickness	0.4 ~ 5 mm (0.02 x 0.2 in)				0.4 ~ 8 mm (0.02 x 0.3 in)	
Max. PCB Weight	4 kg (8.8 lbs)				10 kg (22.0 lbs)	
Machine Weight	550 kg (1212.5 lbs)	600 kg (1322.7 lbs)	600 kg (1322.7 lbs)	700 kg (1543.2 lbs)	750 kg (1653.5 lbs)	
Bottom Clearance	50 mm (1.9 in)					
Supplies	220 VAC ± 10%, 1 Phase, 50/60Hz, 5Kgf/cm² (0.45MPa)					
Width	820 mm (32.2 in)		1000 mm (39.3 in)		1200 mm (47.2 in)	
Depth	1295 mm (51.0 in)	1475 mm (58.0 in)	1295 mm (51.0 in)	1475 mm (58.0 in)	1475 mm (58.0 in)	
Height	1627 mm (64.0 in)					
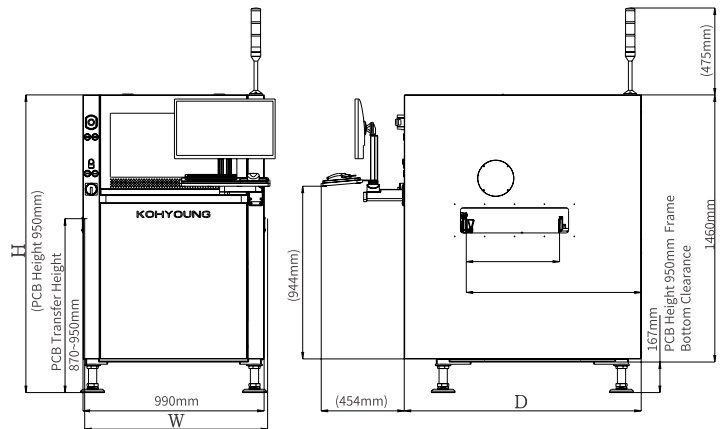
° Please contact us for more information about PCB Sizes.
(The above specifications are subject to change without notice.)

KOHYOUNG

(PCB Height 950mm) PCB Transfer Height 870~950mm
H
990mm
W

(944mm)
(454mm)
D

(475mm)
PCB Height 950mm Frame
1460mm
167mm PCB Height 950mm Bottom Clearance

Zenith UHS NE_HQ_S_V01_ENG_202107