



ZENITH F

The Industry's Best-in-Class True 3D AOI Solution for FPCB Assembly

Based on its best-selling Zenith series, the Zenith F combines the best opto-mechatronics technology with unmatched vision algorithms to deliver a solution for the growing flexible printed circuit board (FPCB) assembly market.



Incomparable True 3D
Inspection Performance



FPCB Substrate Handling



Active Warp Compensation



AI-Powered Auto
Programming (KAP)



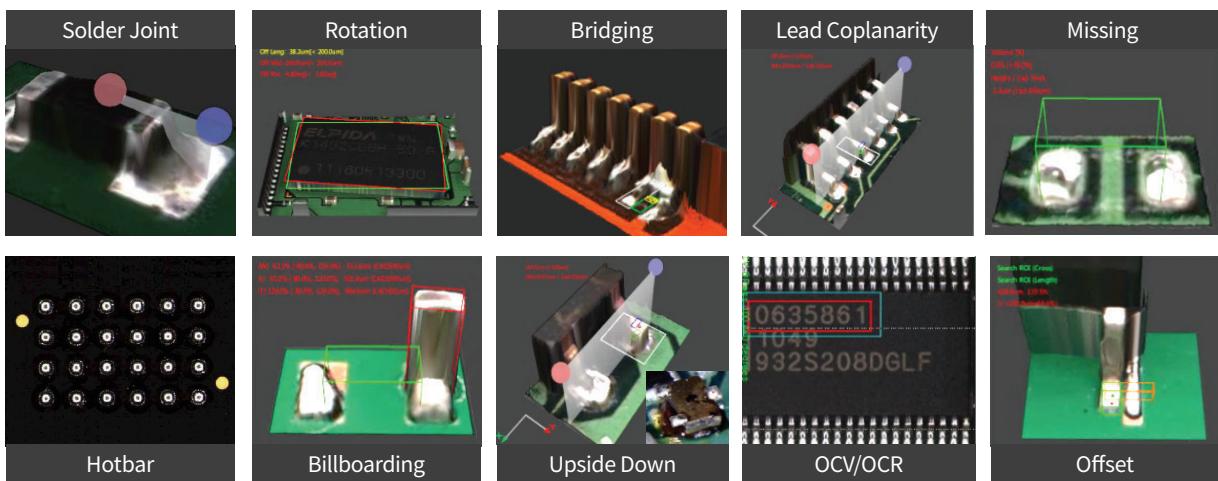
KSMART Solutions:
True 3D Measurement-based
Process Control System





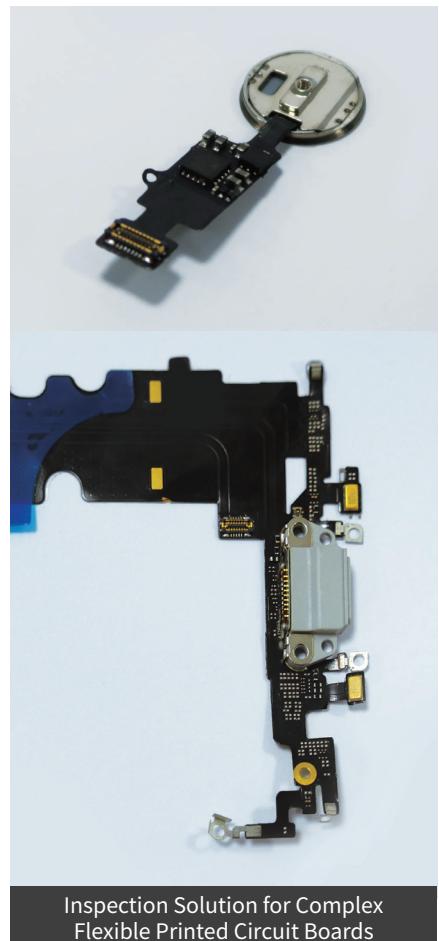
Incomparable True 3D Inspection Performance

- The **Zenith F**, among other Koh Young solutions, is the only solution in the industry to base its inspection criteria on the IPC-610 standards for electronic assembly acceptability requirements. It delivers clear and concise AOI measurements to accurately identify multiple defects.
- True 3D Inspection Performance:** Hotbar, Missing Solder, Offset, Polarity, Upside Down, OCV/OCR, Solder Fillet, Billboarding, Lifted Lead, Lifted Body, Tombstone, Bridging, and more.



FPCB Substrate Handling

- The **Zenith F** is the ideal solution for high-volume FPCB inspection. Due to the thinner and pliable nature of the flexible printed circuit boards, special handling with dedicated expertise is required in comparison to traditional rigid printed circuit boards. As such, FPCBs have been difficult to handle in the inspection industry until now.



Active Warp Compensation

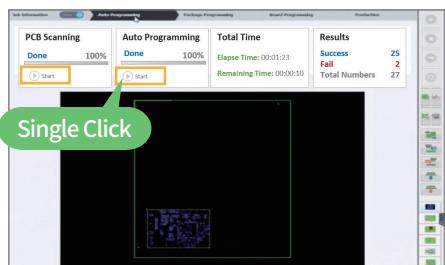
- Koh Young's unique FPCB warp calculates and detects any substrate warpage. Using its exclusive 3D imaging and algorithms, the **Zenith F** considers multiple elements, like slope, stretch, twist, bow, and shrinkage, to guarantee an accurate measurement and the ultimate inspection system criteria.

Inspection Solution for Complex
Flexible Printed Circuit Boards



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 time to production and reduces costs.



One Click Needed To Start KAP



Programming Time Saved by 70%

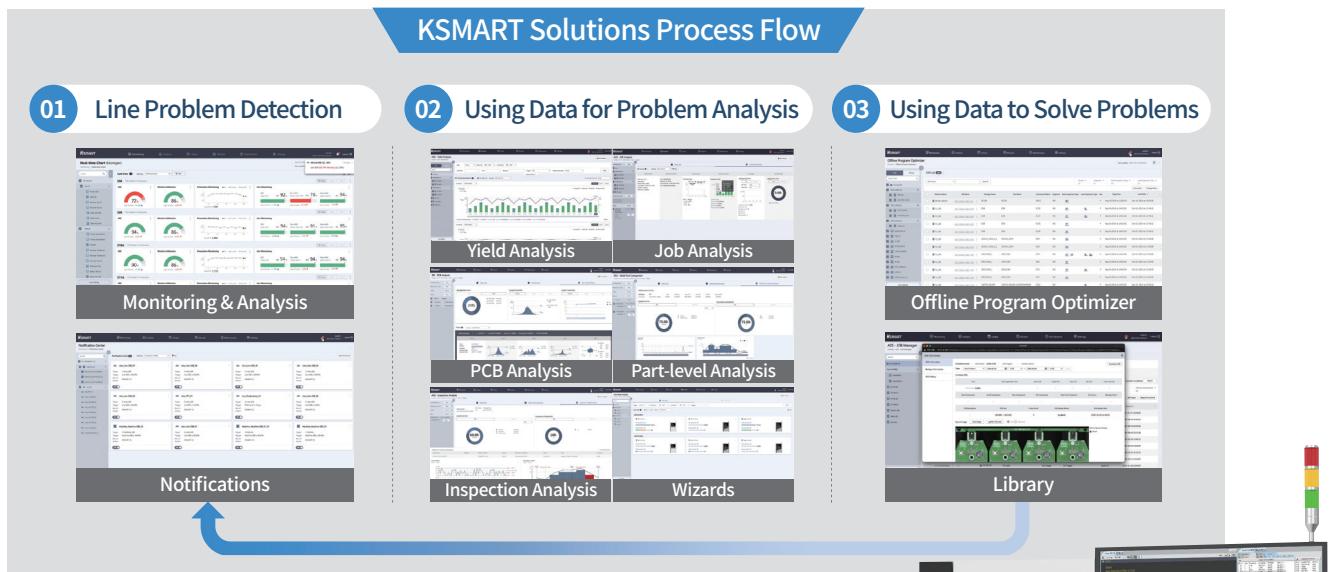


KSMART Solutions: True 3D Measurement-based Process Control System

- 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



“Koh Young's AOI is very stable and the results are repeatable and consistent – this allows Koh Young to stand out from other vendors.”

- Quality Engineering Manager



Specification

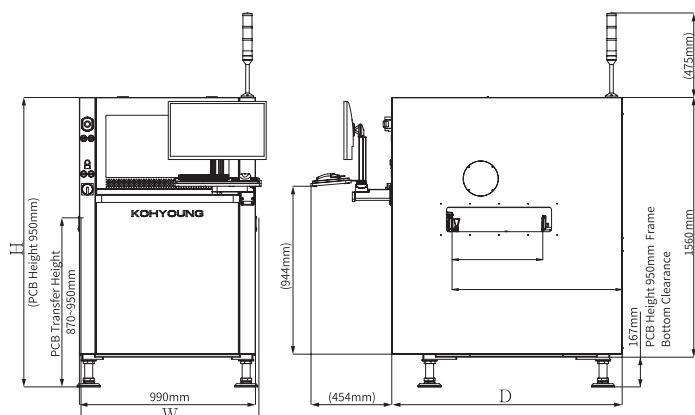
Requirements		Solutions	
Shadow Problem Solution			
Specular Problem Solution		3D Shadow Free Moiré Technology & 8-Way Projection	
Shadowed Area Between Tall Components			
Small (01005 in) Component Inspection			
Wide Measurement Range & Accuracy (Measurement Range Problem)		Multi-Frequency Moiré Technology	
Real-time PCB and FPCB Warp Compensation		Warp Compensation (Pad Referencing + Multi-Frequency Moiré Technology)	
Dark Component and White Body Component Location			
Component Body and Lead Coplanarity Inspection			
Solder Joint Profile Inspection		True 3D Measurement	
3D Polarity Inspection			
Component Crack Inspection			

Inspection Items	Inspection Task		Hotbar, Missing, Offset, Rotation, 3D Polarity, Upside Down, OCV/VCR, Coplanarity, Solder Fillet, Lifted Lead, Billboarding, Tombstone, Bridging, Dimension, and more.			
Zenith F Inspection Performance	Camera & Resolution	FOV Size	Full 3D Inspection Speed	Max. Measurement Height	Height Accuracy (KY Calibration Target)	Illumination
	12M 10um	41 x 31 mm	21.18 cm ² /sec (0.61 sec/FOV)	1 mm	±3%	IR-RGB LED (Dome Styled Illumination)
PCB Handling	Conveyor Width Adjustment		Automatic			
	Conveyor Fix Type		Front / Rear Fixed (Factory setting)			
(Optional Built-In Flipper) Machine Size	PCB Size (X*Y)			PCB Thickness	Clearance (Top / Bottom)	PCB Weight
	Max: 500 x 500 mm (19.7 x 19.7 in) Min: 100 x 100 mm (3.9 x 3.9 in)			1.0 ~ 5 mm (0.04 ~ 0.2 in)	Clearance: 40 mm / 50 mm (1.6 x 2.0 in) Edge Clearance: 3 mm / 3 mm (0.1 x 0.1 in)	
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, KY Cal (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 - Offline Programming Station		- Integrated Calibration Target - Review Station - Offline SPC Pro Station		- KSMART Solutions (Monitoring & Analysis, Remote Access, Offline Programming Optimizer, Link Data Analysis, Notification)	

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

	L	
	Single Lane	Dual Lane
Max. PCB Size (X x Y)	490 x 510 mm (19.2 x 20.1 in)	Single Mode ^o 490 x 580 mm (19.2 x 22.8 in) Dual Mode 490 x 320 mm (19.2 x 12.5 in)
Min. PCB Size	50 x 50 mm (2.0 x 2.0 in)	
PCB Thickness	0.4 ~ 5 mm (0.02 ~ 0.20 in)	
Max. PCB Weight	4 kg (8.8 lbs)	
Machine Weight (Approx.)	600 kg (1322.8 lbs)	700 kg (1543.2 lbs)
Bottom Clearance	50 mm (2.0 in)	
Supplies	220 VAC ± 10%, 1 Phase, 50/60 Hz, 5Kgf/cm ² (0.45 Mpa)	
W	1000 mm (39.4 in)	
D	1295 mm (50.1 in)	1475 mm (58.1 in)
H	1727 mm (68.0 in)	

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



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