Koh Young Technology
Intelligent Inspection

True 3D Smart Factory Solutions, Powered by AI

aSPIre 3

The Industry's Highest Performing True 3D Solder Paste Inspection Solution

The aSPIre 3 delivers the highest standard in the metrology-level True 3D SPI market, ensuring incomparable performance for the most demanding applications. This inspection system leverages Koh Young's AI platforms for print process optimization with the award-winning Koh Young Process Optimizer (KPO).

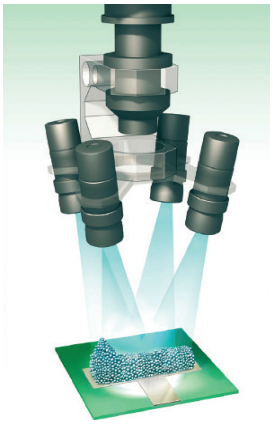
- The Highest Standard in Metrology-level 3D Inspection
- Beyond Solder Paste Inspection
- Self-Diagnosis for Optimal Performance Maintenance
- KSMART Solutions: True 3D Measurement-based Process Control System
- Zero-defect through AI-Powered Koh Young Process Optimizer(KPO)

aSPIre 3

The Industry's **Highest Performing**
True 3D Solder Paste Inspection Solution

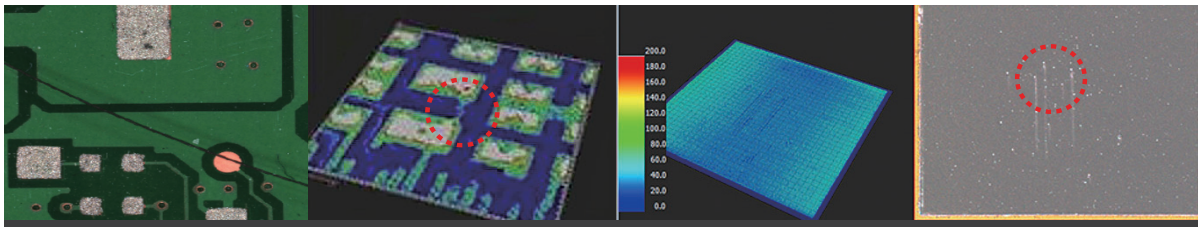
The Highest Standard in Metrology-level 3D Inspection

- The aSPIre 3 incorporates proprietary and multi-direction projection technology delivering outstanding accuracy and repeatability required to measure the emerging 03015M components used in high-volume production. Furthermore, the aSPIre 3 sets a higher standard in metrology-level 3D inspection by overcoming inspection challenges like shadow and specular reflection, as well as board warp and non-linear challenges.



Beyond Solder Paste Inspection

- Inspection is not limited to just solder deposits. Koh Young's SPI system provides whole-board foreign material inspection (WFMI), conductive glue, sinter paste inspection with full color image display results.

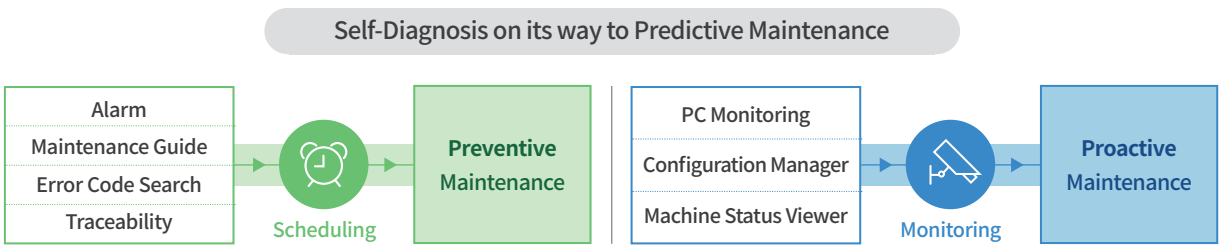


Full Color Image Display Results

Self-Diagnosis for Optimal Performance Maintenance

- Unscheduled downtime can cripple production. Self-Diagnosis allows operators to take precautionary measures through predictive maintenance in order to reduce process interruptions, enhance 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.

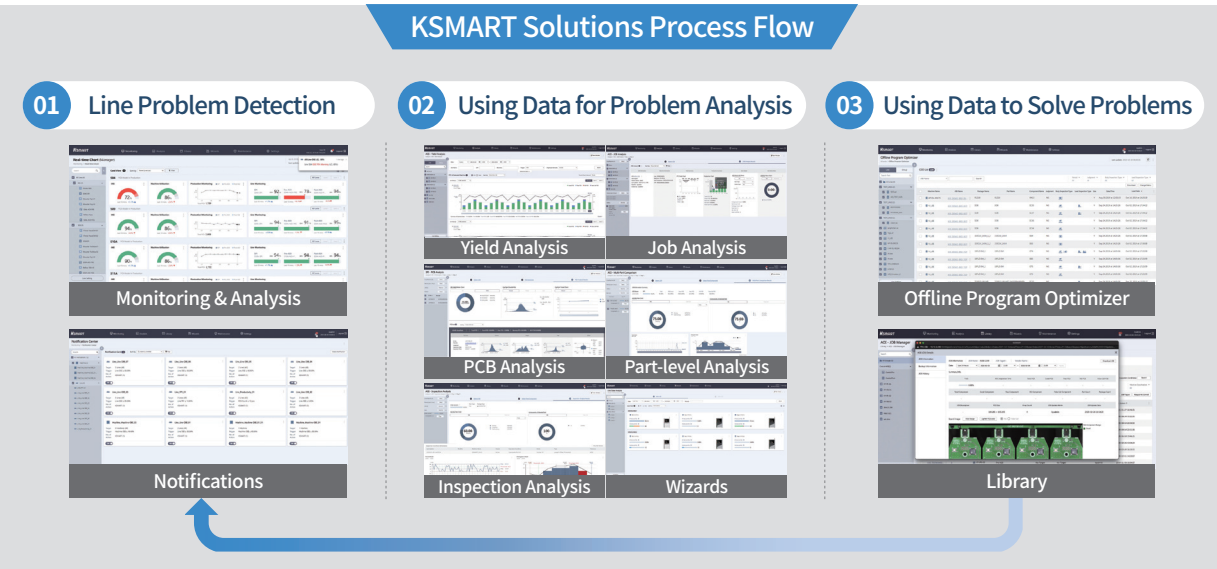


KSMART Solutions: True 3D Measurement-based Process Control System

- 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.

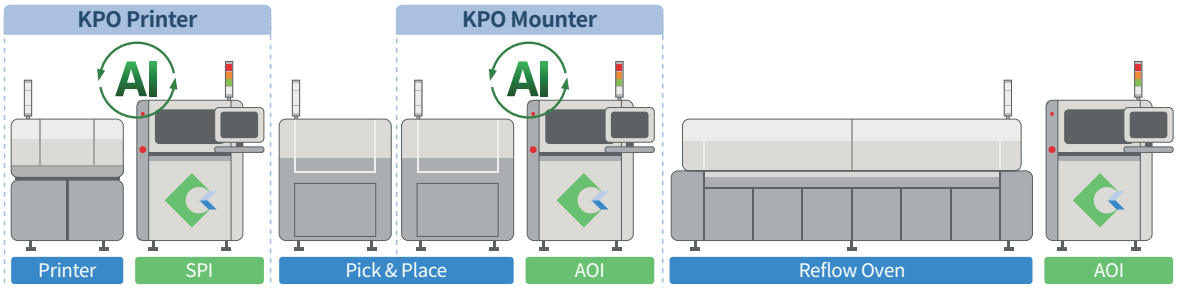
"KSMART Solutions is the Gateway to a Smart Factory"

- 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



Zero-defect through AI-Powered Koh Young Process Optimizer (KPO)

- Koh Young is driven to help customers achieve a Zero-defect print process scenario. The AI-powered Koh Young Process Optimizer (KPO) solution automatically exercises complex algorithms to develop and implement print process improvements. By actively monitoring the print process, KPO sends operators real-time performance diagnostics and threshold alerts – it even implements process change automatically. KPO ensures real-time print process reliability without dedicated experts.



"Koh Young's True 3D SPI systems have contributed greatly to guaranteeing great quality products for our customers. Their strong and dedicated global support organization has also been a great value to our worldwide production facilities. We look forward to more fruitful partnership in coming years." - Top Tier Global Automotive Company

Must-check Requirements of a 3D SPI System

Requirements	Solutions
Solution to Shadow Problem	3D Shadow Free Moiré Technology & Quad Projection
PCB Warp Compensation (2D + 3D Solution)	Active Warp Compensation (Z-Tracking & Pad Referencing)
User Friendly Operation	Renewal GUI, Real Color 3D Image
Foreign Material, Sinter Paste, Conductive Glue Inspection	3D Foreign Material Inspection

Inspection Items	Metrology Capability	Volume, Area, Height, Offset, Bridging, Shape Deformity, Coplanarity
	Types of Defects	Insufficient, Excessive, Missing Paste, Bridging, Shape Deformity, Paste Offset, Coplanarity

Inspection Performance

Camera	Pixel Resolution	FOV Size	Projection	Full 3D Inspection Speed	Min. Distance between Pads	Max. Inspection Height
12 Mpix	10 µm	41 x 31	4-Way	28.2 cm²/sec (0.45 sec/FOV)	100 µm	300 µm / 11.8 mils
			2-Way (Optional)	38.5 cm²/sec (0.33 sec/FOV)		
	15 µm	61 x 46	4-Way	58.5 cm²/sec (0.48 sec/FOV)	150 µm	
			2-Way (Optional)	77.9 cm²/sec (0.36 sec/FOV)		
8 Mpix	15 µm	42 x 42	4-Way	39.7 cm²/sec (0.44 sec/FOV)	150 µm	450 µm / 17.7 mils
			2-Way (Optional)	53.5 cm²/sec (0.33 sec/FOV)		

Illumination	IR-RGB LED Dome Styled Illumination	Max. Inspection Size	< FOV
Z-Resolution	0.37 µm / 0.01 mils	Multi-Colored PCB Inspection	Possible
Height Accuracy (on KY calibration target)	1 µm / 0.04 mils	Optional	2-Way Projection
01005mm Inspection Capability	Gage R&R < 10 % at 6 Sigma (± 50 % Tolerance)		

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

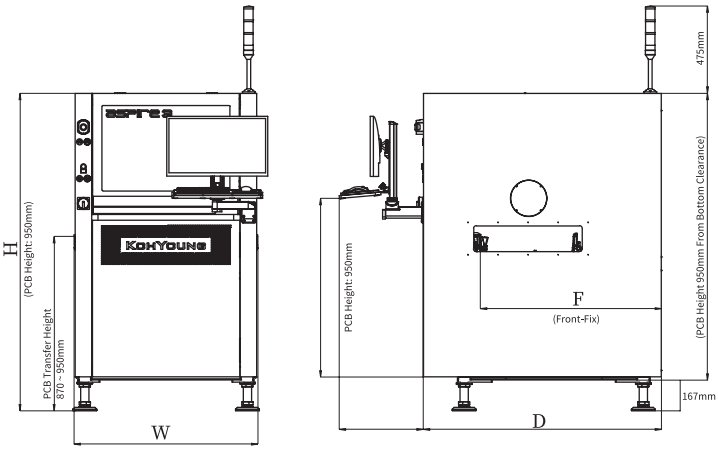
Software	Supported Input Format	GERBER Data (274X, 274D), ODB++ (Optional)
	Programing Software	ePM-SPI
	Statistical Process Control Tool	SPC Plus (Histogram, X-bar & R-Chart, X-bar & S-Chart, Cp & Cpk, % Gage R&R / Real Time SPC & Multiple Display / SPC Alarm / Automatic Report from Remote Computer)
	User-Friendly Operator	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
- 1D & 2D Inline Barcode Reader
- Auto-Verification
- Auto-Rework*
- UPS
- Integrated Calibration Target
- Long Board Option
- Review Station
- Offline Programming Station
- ODB++
- SPC Plus for Remote Computer
- Offline SPC Plus Station
- Panasonic APC Interface (FF/FB)
- Panasonic iLNB Interface
- Closed Loop Interface
- IPC-CFX Interface
- KSMART Solutions (Monitoring and Analysis, Remote Access, Offline Program Optimizer, Link Data Analysis, Notification)
- KPO Printer (Printer Diagnosis, Printer Advisor, Printer Optimizer)
- Fuji Nexim Interface
- iTAC Interface
- ASYS OIC

The above specifications are subject to change without notice.
* Machine dimensions, PCB Size, and clearance will change if the Auto-Rework option is selected.

	L		XL	
	Single Lane	Dual Lane	Single Lane	Dual Lane
Max. PCB Size (X x Y)	490 x 510 mm (19.2 x 20.0 in)	Single Mode * 490 x 580 mm (19.2 x 22.8 in) Dual Mode 490 x 320 mm (19.2 x 12.5 in)	690 x 690 mm (27.1 x 27.1 in)	Single Mode 690 x 580 mm (27.1 x 22.8 in) Dual Mode 690 x 320 mm (27.1 x 12.5 in)
Min. PCB Size	50 x 50 mm (1.9 x 1.9 in)			
Long Board PCB Size (Optional)**	600 x 510 mm (23.6 x 20.0 in)	-	940 x 510 mm (37.0 x 20.0 in)	-
PCB Thickness	0.4 ~ 5 mm (0.01 ~ 0.19 in)		0.4 ~ 8 mm (0.01 ~ 0.31 in)	
Max. PCB Weight	4 kg (8.8 lbs)		10 kg (22.0 lbs)	
Machine Weight	600 kg (1322.7 lbs)	700 kg (1543.2 lbs)	750 kg (1653.4 lbs)	750 kg (1653.4 lbs)
Clearance Top	14 mm (0.55 in)		20 mm (0.79 in)	
Clearance Bottom	50 mm (1.96 in)			
Supplies	(Electrical Supply) 200~240 VAC, Single Phase, 50/60 Hz (Compressed Air) 5 Kgf/cm2 (0.45 MPa)			
W	1000 mm (39.3 in)		1200 mm (47.2 in)	
D	1295 mm (50.9 in)	1475 mm (58.0 in)	1475 mm (58.0 in)	
H	1627 mm (64.0 in)			



The above specifications are subject to change without notice.
*Please contact us for more information about PCB Sizes.
**Extension rail will be added depends on long board size.

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

aSPIre 3_HQ_LP_S_ENG_202404_V01