

Advancing 3D Solder Paste Inspection



KY8030-3



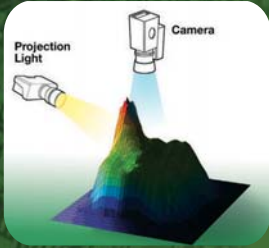
**KOH
YOUNG
TECHNOLOGY**
INTELLIGENT
INSPECTION

**Measure to Optimize:
A Complete 3D Inspection Solution**

KY8030-3

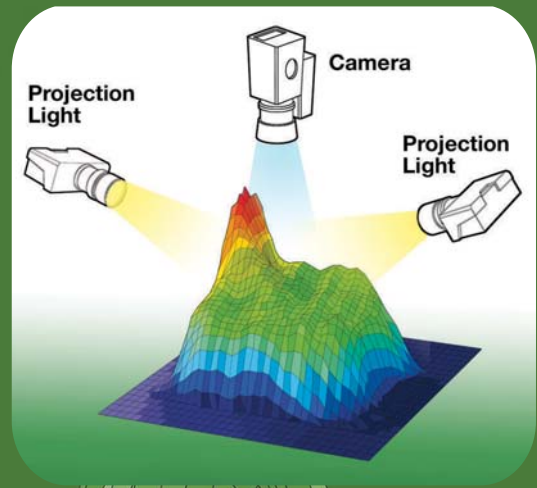
Next generation KY8030 series systems deliver globally-proven 3D SPI performance.

Shadow Problem



The Common Bottleneck for Conventional Inspection Systems

With single sided projection, all irregularly-shaped objects have shadowed areas that can result in imprecise measurements.



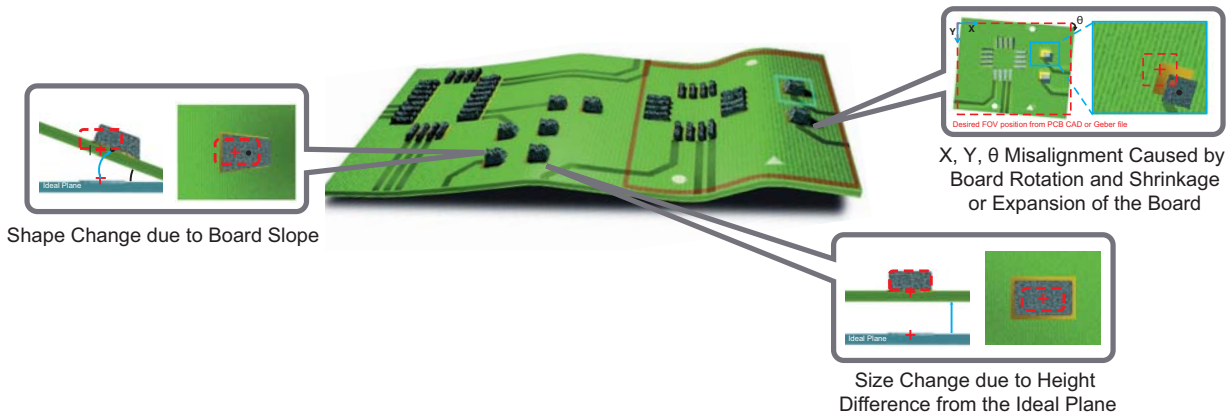
Patented Dual Projection Technology

Using Koh Young's patented 3D inspection technology, the KY8030-3 delivers true 3D inspection without concern for inaccuracies resulting from shadowing.

High Speed Option for the Maximum Throughput

Industry leading inspection speed at 0.24sec/FOV is achieved without sacrificing any performance.

PCB Warp Can Cause Inaccurate Measurements



Koh Young's Innovative 3D Solution for PCB Warp (KSMART Warp)

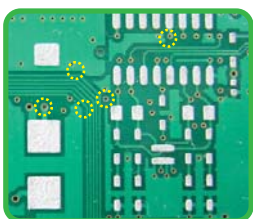
Z-tracking Technology

*Multi-frequency height measurement technology enables real-time measurement and compensation of board warp, with respect to the ideal plane. True color PCB warp images with measurement data are provided online in real time.

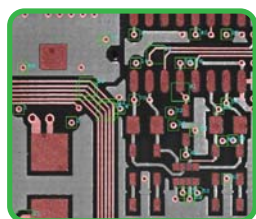
Pad Referencing Technology

*Pad Referencing technology matches, in real time, non-inspection objects (patterns and fiducial marks) on the PCB surface with the ideal PCB geometry as defined by the CAD file. Using IR light, reference teaching is fast and easy even without the CAD file.

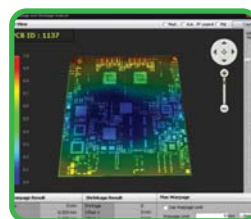
*Patent Pending



Patterns and Fiducial Marks on the PCB



Reference Points Automatically Taught Using IR Light



3D Display of Warped PCB

PadID	1402	1403	1404	1405
FovNo	10	10	10	11
OffsetX	0.017	0.021	0.026	-0.112
OffsetY	0.002	0.001	0.009	0.012

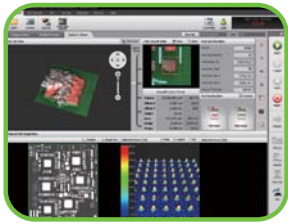
Result on Warped PCB

PadID	1402	1403	1404	1405
FovNo	10	10	10	11
OffsetX	-0.049	-0.075	-0.068	-0.057
OffsetY	-0.019	-0.026	0.009	-0.008

Results on Warped PCB with KSMART Warp

Renewal GUI with Maximized Readability and Usability

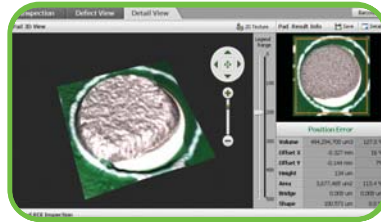
The latest Renewal GUI software on Windows 7 maximizes the SPI's defect readability and system usability. Faster, more intuitive, full-of-functions software enables the easiest process optimization ever. Users can review and confirm defects without real PCB verification with the Foreign Material Inspection using real color images.



True 3D Defect Viewer Window



More Intuitive Defective Pads Display

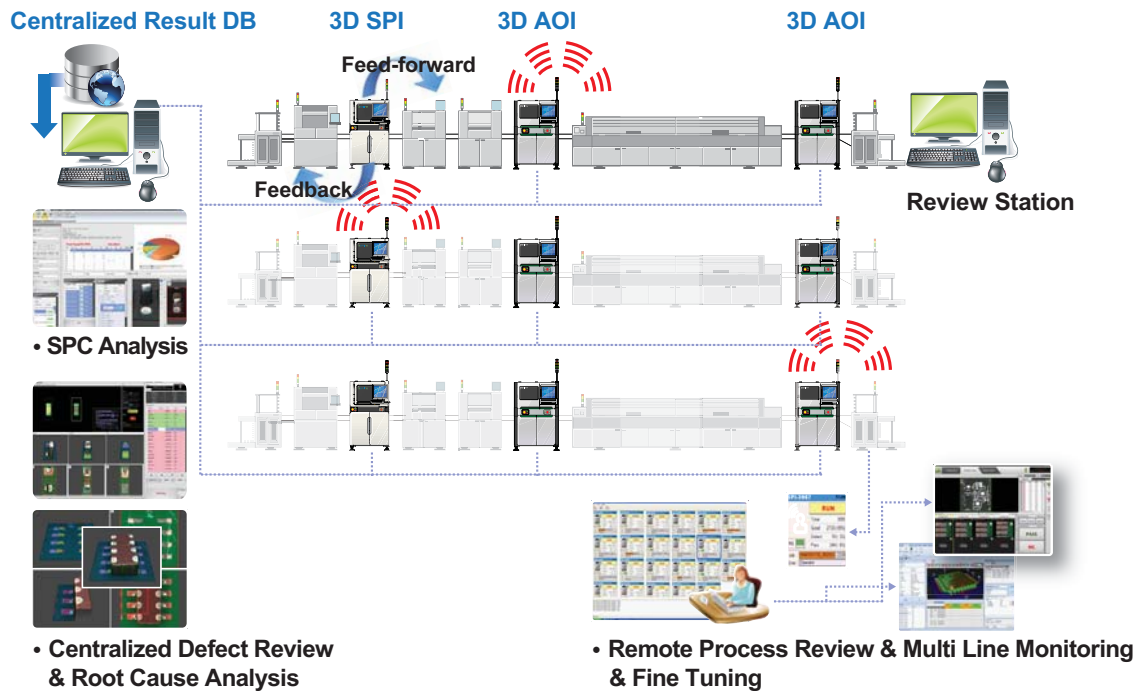


Real Color 3D Image



3D Foreign Material Inspection Support Real Color Images

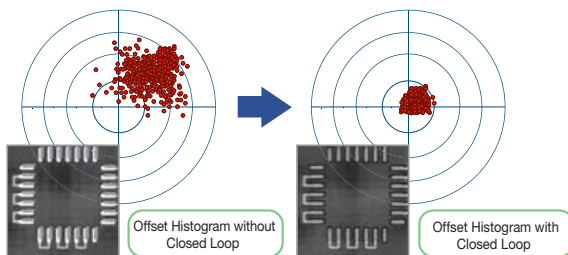
Smarter Communications for Total Process Control and Optimization



KSMART Link: Koh Young's 3D SPI and 3D AOI Now Communicates

Inspection results from Koh Young's 3D SPI system and 3D AOI systems are stored in the central result database, to be reviewed on the 3D AOI system's defect review station. True 3D measurement based inspection results offer the fastest & easiest understanding on the whole production process.

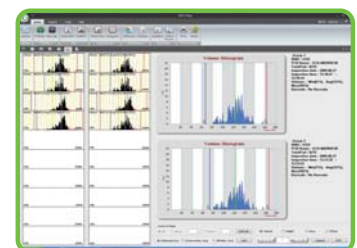
Real Time Closed Loop Communication



- ✓ Koh Young's 3D SPI inspection results feedback to any screen printers
- ✓ Offset inspection results communicated with screen printers in real time
- ✓ Improved results are reported on the SPC Plus SW

Stronger Statistical Process Control by SPC Plus SW

SPC Plus provides various intuitive statistical process analysis data based on true 3D measurement result.



Must-have Requirements of 3D SPI systems

◎ Excellent

Requirements

Solution to Shadow Problem	
Real-time	Solution to 2D Problem
PCB Warp Compensation	Solution to 3D Problem
Operator User Friendliness	
High Height Solder Measurement	
Foreign Material Inspection	

Solutions

◎	3D Shadow Free Moiré Technology & Dual Projection
◎	Pad Referencing (optional)
◎	Multi Frequency Moiré Technology + Z tracking
◎	EasyUse
◎	Up to 2 mm (optional)
◎	3D Foreign Material Defect Inspection (optional)

FOV(Field of View) Size	
Inspection Time per FOV *	Standard
	High Speed Option
Min. Paste Deposit Size	
Z Resolution	
Height Accuracy (on a KY Calibration Target)	
Pattern Moving Accuracy	
01005 Capability	Gage R&R (±50% tolerance)
Camera	

10 μm*	15 μm*	20 μm*
20×20 mm (0.8×0.8 inch)	30×30 mm (1.20×1.20 inch)	40×40 mm (1.60×1.60 inch)
0.20 sec	0.22 sec	0.24 sec
0.17 sec	0.19 sec	0.21 sec
100 μm (3.94 mils)	150 μm (5.91 mils)	200 μm (7.87mils)
0.37 μm		
1 μm		
2.5 nano meter		
< 10% at 6σ on 01005 deposits		
4M Pixel High Speed Camera		

*XY Resolution

※ Inspection time for the whole PCB varies by PCB condition.

Inspection Range

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

Max. Paste Size	10×10 mm	0.39×0.39 inch
Max. Paste Height	400 μm (2 mm optional)	15.75 mils (78.74 mils optional)
Min. Distance between Paste Deposit	100 μm (at 150 μm paste height)	3.94 mils (at 5.91 mils paste height)
PCB Color Sensitivity	None	

PCB Handling

Conveyor Width Adjustment	Automatic
Conveyor Fix Type	Front/Rear Fixed (Factory Setting)

Software

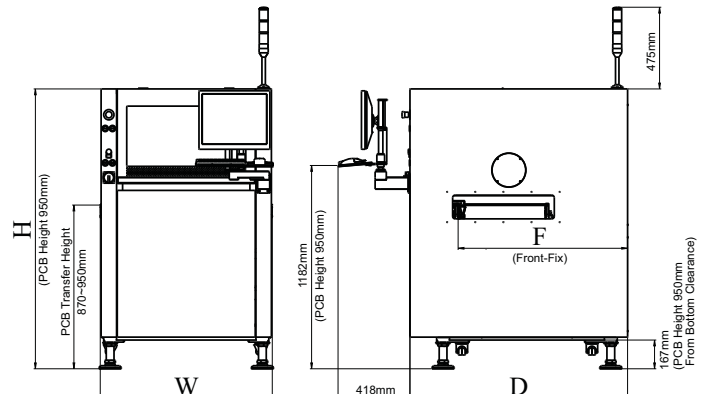
Inspection Program Generation	Import GERBER Data (274X, 274D) / ODB++ (optional)
Statistical Analysis Tool	SPC Plus - Histogram, Xbar&R Chart, Xbar&S Chart, Cp&Cpk, %Gage R&R - Real Time SPC & Multiple Display - SPC Alarm - Automatic Report from Remote Computer
User Friendliness	Size Dependant Library for Inspection Condition Setting User Defined Process Stop by Software
Operation System	Windows XP Professional / Windows 7

Options

- 1D & 2D Hand-held barcode reader
- Off-line Programming S/W (ODB++)
- Closed Loop / APC
- 1D & 2D In-line barcode reader
- SPC Plus S/W
- KSMART Warp
- Camera Barcode Reader
- Net Monitoring S/W
- Foreign Material Inspection
- UPS
- Certified Calibration Target

※ These specifications are subject to change without notice.

	M	L	DL	XL
Max. PCB Size	330x330mm (13x13 inch)	510x510mm (20x20 inch)	Dual : 510x320mm (20x12.6 inch) Single : 510x580mm (20x22.8 inch)	850x690mm (33.4x27.1 inch)
Min. PCB Size	50x50mm (1.97x1.97inch)		70x70mm (2.7x2.7 inch)	
PCB Thickness	0.4~5mm (0.015~0.20 inch)		0.5~8mm (0.02~0.31 inch)	
Max. PCB Weight	Ring Belt : 2kg (4.4 lbs), Timing Belt : 5kg (11 lbs)		10kg (22 lbs)	
Machine Weight	550kg (1212 lbs)	600kg (1322 lbs)	700kg (1543 lbs)	850kg (1874 lbs)
Bottom Side Clearance	50mm (1.97 inch)			
Supplies	200~240VAC, 50/60Hz Single phase, 5Kgf/cm ²			
W	820mm (32.2 inch)	1000mm (39.3 inch)	1000mm (39.3 inch)	1350mm (53.1 inch)
D	1265mm (49.8 inch)	1265mm (49.8 inch)	1445mm (56.9 inch)	1445mm (56.9 inch)
H	1627mm (64 inch)			
F	985mm (38.7 inch)		1165mm (45.8 inch)	



KOH YOUNG TECHNOLOGY INC.

14th & 15th Floor, Halla Sigma Valley Building, 53, Gasan Digital 2-ro, Geumcheon-gu, Seoul 153-706 Korea
Tel. 02-6343-6000 / Fax. 02-6343-6001 E-mail: info@kohyoung.com