

Advancing 3D Measurement & Inspection



KY8030-3



**KOH
YOUNG
TECHNOLOGY**
INTELLIGENT
INSPECTION

The Standard in 3D Measurement & Inspection

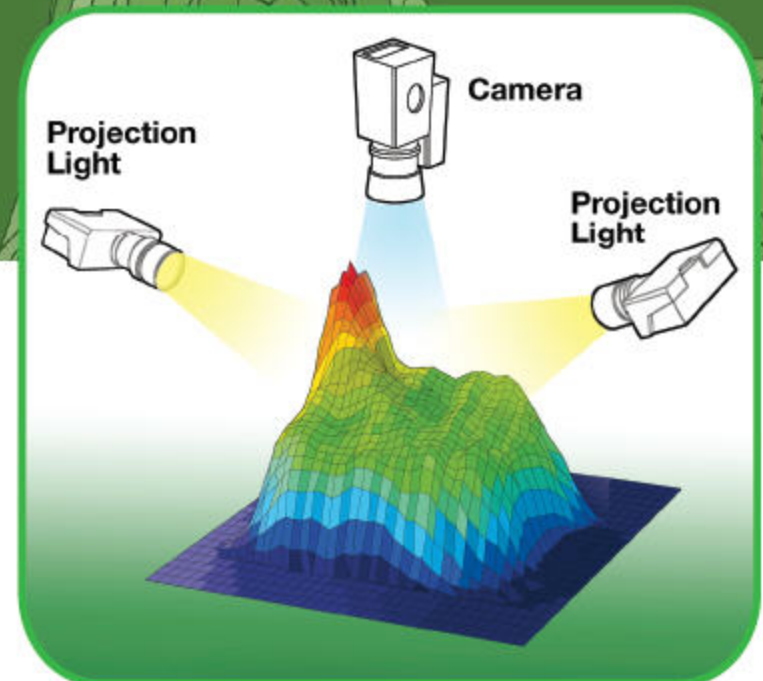
KY8030-3

Next Generation KY-8030 series systems Deliver Globally-Proven SPI Performance.

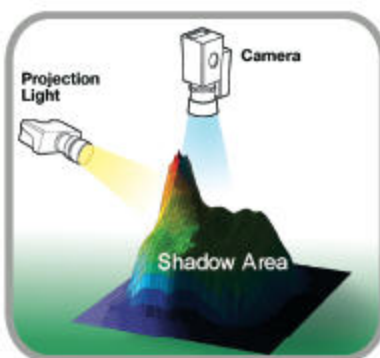
The new KY8030-3 delivers 3x faster inspection without compromising performance and accuracy.

Using patented dual projection, the system eliminates the critical Shadow problem that all 3D SPI systems can be vulnerable to.

Additionally, the new KY8030-3 has solved the PCB warp problem that seriously impacts inspection accuracy and reliability of results.



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.

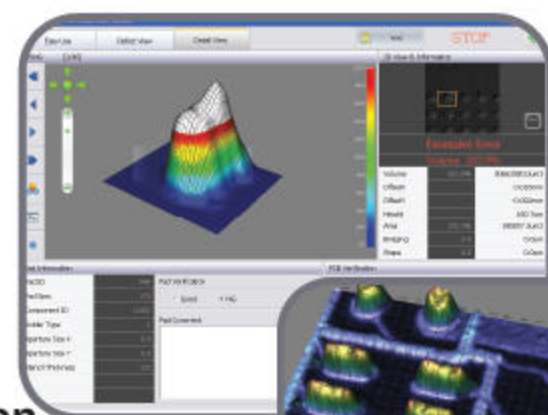
Unmatched Inspection Speed with Guaranteed Best Accuracy

Typical Inspection time of Laptop board(250x225mm) : 8 sec.
(at 20 μ m resolution)

<< 10% GR&R on 01005 deposits

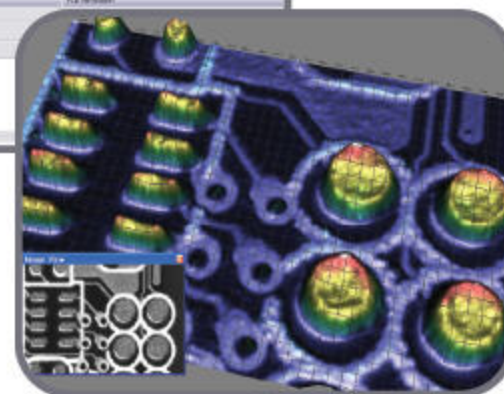
Volume repeatability < 1 % at 3σ on a KY calibration target

Volume repeatability < 3 % at 3σ on a PCB



New EasyUse GUI interface with simple Touch-Screen operation maximizes customer convenience

New, streamlined menus and a revolutionary new interface make operation easier and simpler. Intuitive 3D viewer gives the operator an at-a-glance instant assessment of test results.



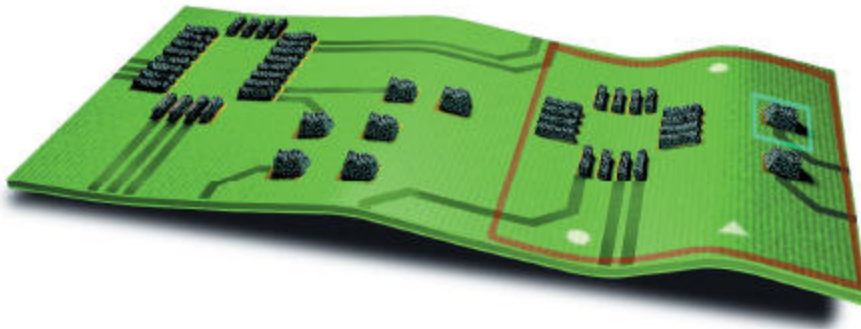
More powerful SPC toolkit

KY8030-3's SPC toolkit is intuitive, powerful, and multi-featured.



PCB Warp Can Cause Inaccurate Measurements

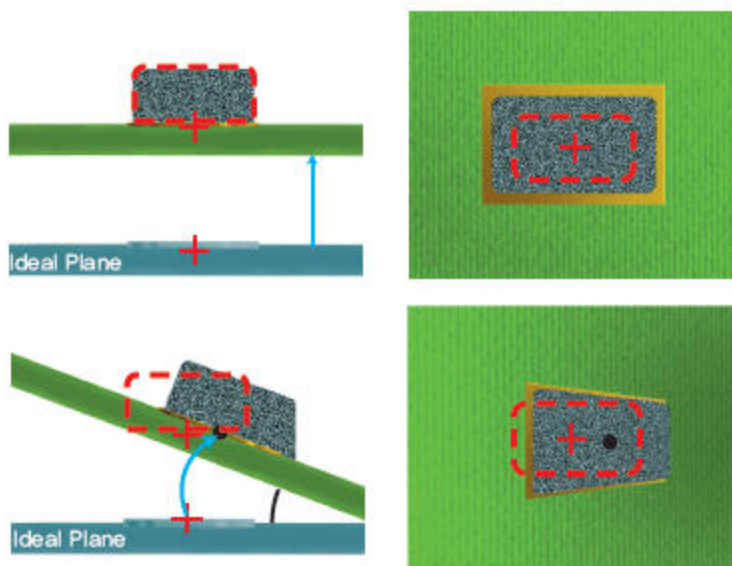
On warped PCBs, pad positions defined by PCB CAD or Gerber files appear distorted. The precise location of printed solders may look different from their real value. Thus, conventional inspection systems will become confused during the inspection process and may provide incorrect data to the user.



PCB warp causes the following critical problems:

3D	<ul style="list-style-type: none"> ● Size change due to height difference from the ideal plane ● Shape change due to board slope
2D	<ul style="list-style-type: none"> ● Offset due to board shift ● X, Y, θ misalignment caused by board rotation ● X, Y, θ misalignment caused by shrinkage or expansion of the board

3D Problems



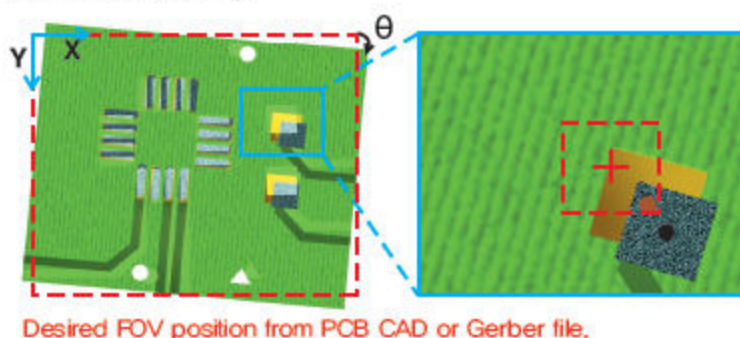
When a PCB moves up or down relative to the ideal plane, the size of an object, from the camera's viewpoint, will appear to be either larger or smaller, respectively.

PCB surface slope deforms the apparent shape of an object under inspection. It also creates an X, Y offset from the center of the ideal position.

Koh Young's Innovative 3D solution

Multi-frequency height measurement technology* enables real-time measurement and compensation of board warp with respect to the ideal plane.

2D Problems



Desired FOV position from PCB CAD or Gerber file.

Even after the abovementioned three-dimensional issues have been solved, other problems still remain, including X, Y, and θ misalignment resulting from board shift, rotation, shrinkage or stretch.

Koh Young's Innovative 2D solution

Pad referencing technology* matches, in real time, non-inspection objects (patterns, holes and fiducial marks) on the PCB surface with the ideal PCB surface as defined by the CAD file.

*Patent Pending

Koh Young's KY8030 Series system with authentic 3D inspection is the *only* solution for eliminating false calls.

Must-have Requirements of 3D SPI systems

◎ Excellent

		Solution	
Solution to Shadow Problem	◎	3D Shadow Free Moiré Technology & Dual Projection	
Real-time Solution to 2D Problem	◎	Pad Referencing	
PCB Warp Compensation Solution to 3D Problem	◎	Multi Frequency Moiré Technology	
Operator User Friendliness	◎	EasyUse, Touch Screen Operation	
FOV(Field of View) Size		15 μ m*	20 μ m*
		35.3 x 25.9 mm (1.39 x 1.02 inch)	47 x 34.6 mm (1.85 x 1.36 inch)
Inspection Time per FOV		0.27 sec	0.29 sec
Min. Paste Deposit Size	Rect.	120 μ m (4.72 mils)	150 μ m (5.91 mils)
	Circle	150 μ m (5.91 mils)	200 μ m (7.87 mils)
Z Resolution		0.37 μ m	
Volume Repeatability		< 1% at 3 σ (on a KY Calibration Target) , < 3% at 3 σ (on a PCB)	
Height Accuracy (on a KY Calibration Target)		1.5 μ m (15 μ m* resolution)	
01005 Capability Gage R&R (\pm 50% tolerance)		<< 10 % at 6 σ on 01005 deposits	
Camera		4MPix High Speed Camera	

*XY Resolution

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

Inspection Range

Metrology Capability	Volume, Area, Height, Offset, Bridging and Shape Deformity
Types of Defects	Insufficient/Excessive/Missing Paste, Bridging, Shape Deformity, Paste Offset, and Smear

Inspection Performance

Max. Paste Size	10 x 10 mm	0.39 inch x 0.39 inch
Max. Paste Height	400 μ m	15.75 mils
Min. Distance between Paste Deposit	100 μ m (at 150 μ m 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
Operating System	Windows XP Professional

Options

- Off-line SPC & Defect Review Station
- Off-line Programming Station
- Barcode Reader (1D/2D)
- Certified Calibration Target
- ODB++ File Conversion
- HDD Raid 1 (Mirrored)
- UPS

* These specifications are subject to change without notice.

	M	L
Max. PCB Size	330 x 250 mm (12.99 x 9.84 inch)	510 x 510 mm (20.08 x 20.08 inch)
Min. PCB Size	50 x 50 mm (1.97 x 1.97 inch)	
PCB Thickness	0.4 ~ 4.0 mm (0.016 ~ 0.16 inch)	0.4 ~ 5.0 mm (0.016 ~ 0.20 inch)
Max. PCB Weight	1.0 kg (2.2 lbs)	2.0 kg (4.4 lbs)
Machine Weight	500 kg (1102 lbs)	550 kg (1213 lbs)
Bottom Side Clearance	30 mm (1.18 inch)	
Electrical Supply	200 ~ 240VAC, 50/60 Hz Single phase	
Air Supply	5 Kg/cm ²	

