3Si / 3Di-GX Series Product Specifications
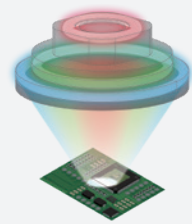
	3D-SPI	3D-AOI
Dimensions	L	L
Model Name	3Si-LS3GX	3Di-LS3GX
Resolution	15μm	15μm
Image Capture Time	6,800mm²/s *1	5,600mm²/s
Height Measurement Range	500μm	25mm
PCB Size (mm, in.)	50 × 60 ~ 510 × 510 1.97 × 2.36 ~ 20.07 × 20.07	
PCB Clearance	Top: 40mm, 1.57in. / Bottom: 60mm, 2.36 in.	
Electric Power	Single Phase ~ 200-240V+/-10%, 50/60Hz	
Air Requirement	0.5 MPa @ ≥5L/min (ANR)	
Noise Level	60 dB (A)	
PCB Weight	12kg	
Weight	660kg	

*1 High-speed camera scanning speed. The scanning speed of the standard camera is 3500mm²/s.

Front View (mm, in.)

2000 mm (78.74 in.)
1500 mm (59.06 in.)
1040 mm (40.95 in.)

Side View (mm, in.)

52 mm (2.05 in.)
900 mm (35.43 in.)
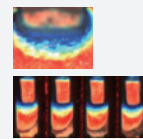293 mm (11.54 in.)
1440 mm (56.69 in.)
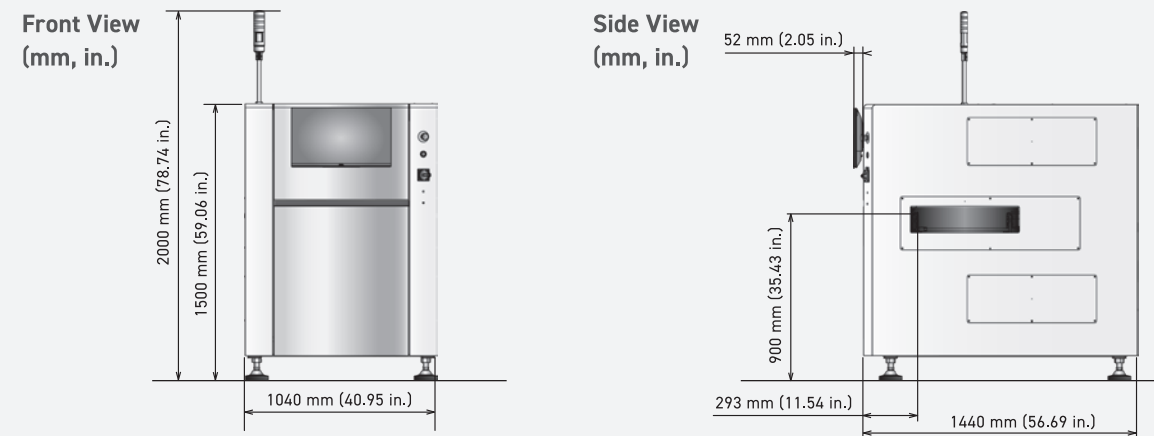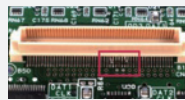
Optical Options

Dome Lighting

Dome lighting enhances color contrast in non-flat areas, ideal for automotive and other high-quality, high-reliability applications.
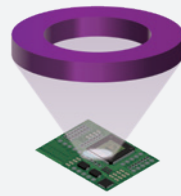
Side Cameras

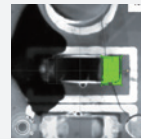Quad side camera system ensures inspection of dead angles and areas missed by overhead camera.

UV Lighting

UV Lighting ensures conformal coating inspection.

**When selecting UV lighting, 3D inspection cannot be used together.*

3D Solder Paste Inspection (3D-SPI) Systems |
3D Automated Optical Inspection (3D-AOI) Systems

3Si / 3Di-GX Series

Saki Corporation

Headquarters Office

DMG MORI Tokyo Digital Innovation Center 3-1-4, Edagawa, Koto-ku, Tokyo, 135-0051, Japan
Tel. +81-3-6632-7910   Fax. +81-3-6632-7915

Global Network
https://www.sakicorp.com/en/network/

3D-SPI

SAKI's 3D-SPI enable increased production efficiency with remarkable speed, as well as increased product and performance quality and takt-time control.

Accurate 3D measurements

Multi-frequency digital projectors provide accurate 3D measurements for high-quality images and quantitatively detect solder printing failures.
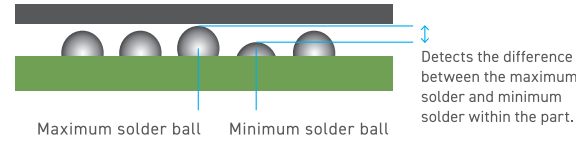
IPC-compliant inspection quality

Positional deviation of pad size is inspected based on the IPC-7527 quality standard for measurement allowances.
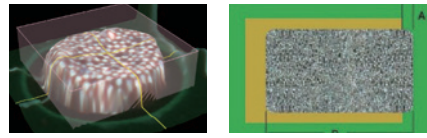
Printing Deviation Standard Paste solder printing from the pad class 1,2,3: less than 25%

Coplanarity inspection

High I/O count device inspections benefit from improved coplanarity, with solder range analysis for height, volume, area that helps prevent post-reflow wetting.

Detects the difference between the maximum solder and minimum solder within the part.

Maximum solder ball   Minimum solder ball

Coordination with Printer

Feed-back from SPI to screen printer

SPI feeds back misalignment data, preventing print errors and triggering automatic stencil cleaning alerts.

Feed-back

Printer   SPI

Automatic cleaning instructions

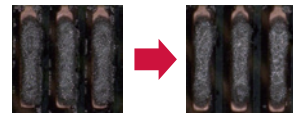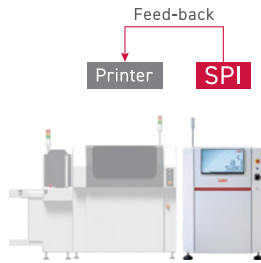#### SPC functions for visualization of solder quality

Solder quality is managed and maintained through comprehensive monitoring of board solder amounts and defect trend analysis. Extensive reporting functions and data analysis tools allow for export of defect type rankings and yield charts.

*Saki partners with the leading PCB equipment manufacturers. Ask us which products we connect with.

3D-AOI

Fully compatible with both SMT and through-hole processes, the 3D-AOI meets all quality requirements for complex inspection targets, such as high-density printed circuit boards and boards housing a mix of both extremely small and tall components.

Solder Fillet Inspection

"Fillet Shape" Solder Inspection Algorithm supports the inspection of various types of components and enables solder fillet inspection in compliance with IPC inspection standards.
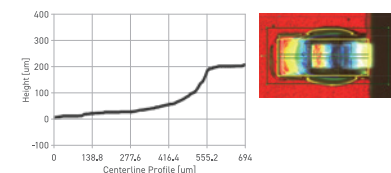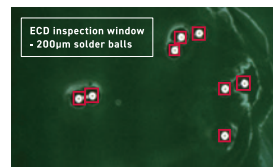
THT Solder Inspection

The FUJIYAMA solder inspection algorithm has been upgraded. In addition to the inspection of pins, holes, and solder fillets, further functions now also inspect for overabundance excessive solder.

Bottom
Top
3D-AOI image
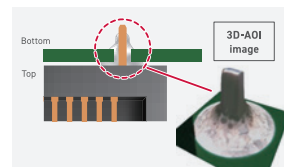
Full Surface Inspection for Foreign Objects & Solder Balls

This feature detects foreign bodies and fallen objects across the entire board. With the latest software, solder ball detection tests can be conducted across the entire board simultaneously with normal foreign object inspection.

ECD inspection window - 200μm solder balls

OCR Inspection

Achieves high-precision inspection of characters and polarity on components with a maximum component height of 10mm. By focusing on both the board surface and the component surface, solder inspection and character polarity inspection can be performed simultaneously.
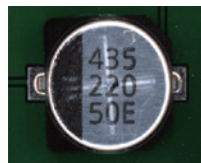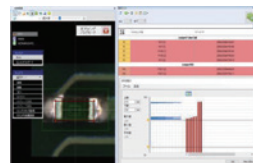
UV lighting for Conformal Coating Inspection

Defects whether the entire PCB has been coated. Simultaneously identifies foreign materials, ensuring superior inspection quality.
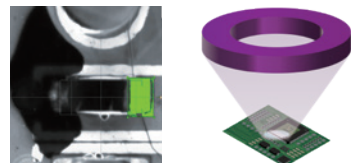
Offline Debugging

In a mass production environment, this feature visualizes operator assessment results (false calls, NG) and adjusts inspection parameters accordingly.


Advanced Software Solutions

Optimize your production line with the latest software.

Expected effect ▶ Unified user interface across SPI, AOI, and AXI   ▶ Increased work efficiency for inspection program creation.
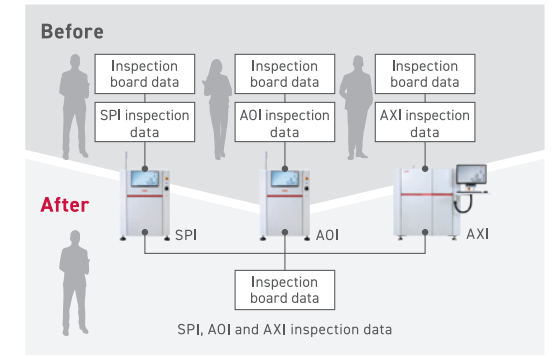▶ Enhanced production with AI-AOI with improving inspection quality.

Easy Programming

● Decrease programming time and effort with automated creation of inspection program

● Eliminate programming errors with comprehensive automated inspection data creation

Manual

Auto
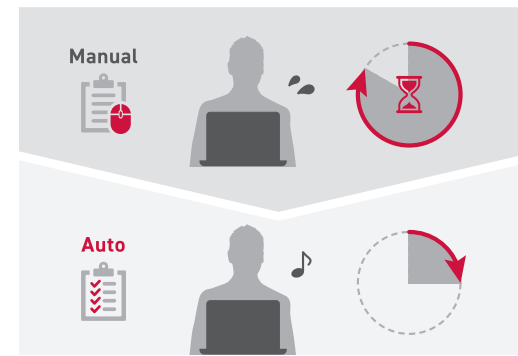
One Programming

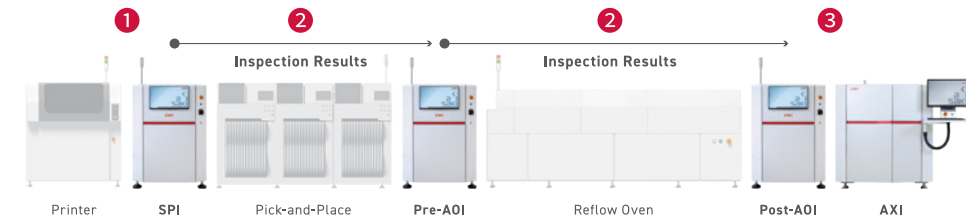Standardized inspection program data for SPI, pre-AOI, and post-AOI, eliminates duplicate tasks and reduces line setup by approximately 30%.

Before

Inspection board data | Inspection board data | Inspection board data
SPI inspection data | AOI inspection data | AXI inspection data

After

SPI   AOI   AXI

Inspection board data

SPI, AOI and AXI inspection data

*AXI support scheduled for 2026

Saki Link

Saki's SPI-AOI are linked to improve the efficiency of inspection.

❶   ❷   ❷   ❸

Inspection Results   Inspection Results

Printer   SPI   Pick-and-Place   Pre-AOI   Reflow Oven   Post-AOI   AXI

❶ One Operation Control

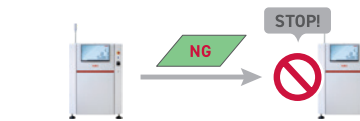**All inspection machines can be operated from a single unit**

Load a single inspection program to start/stop all connected devices automatically.

GO!

❷ Process Check
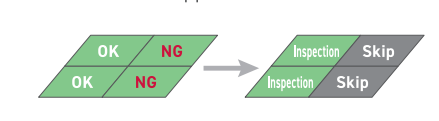
Prevent defective boards from moving to post-processing

If an upstream inspection machine flags a board as NG, it is marked as an "Operation Error".

NG   STOP!

❸ Bad Board Skip Function

Reduce X-ray inspection time

Sharing AOI inspection results with our X-ray machine, enabling bad-marked boards to be skipped.
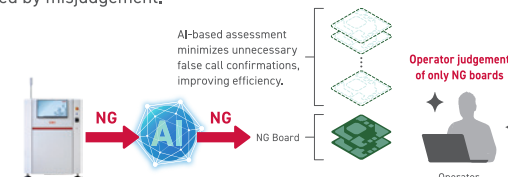
OK | NG   Inspection | Skip
OK | NG   Inspection | Skip

AI solutions

AI Assist

**Uses AI to re-assess, reducing operator workload**

AI performs a second assessment on parts marked NG, drastically reducing the operator's workload by requiring manual verification only for AI-determined NG parts. This system helps prevent overlooked errors caused by misjudgement.

AI-based assessment minimizes unnecessary false call confirmations, improving efficiency.

Operator judgement of only NG boards

NG   AI   NG   NG Board

Operator

AI Inspection (AI OCR)

Ensures consistent inspection quality without operator expertise

AI OCR detects and recognizes characters, enabling stable inspection regardless of print misalignments or font variations.
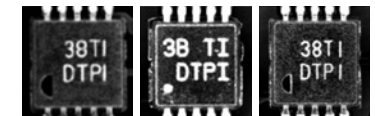
It overcomes discrepancies from different part manufacturers.