

ZENITH2

Revolutionary True 3D AOI Delivering Incomparable Capabilities

Zenith 2 is blazing a trail for AOI systems with novel SMT process management tools by combining advanced vision algorithms with innovative high-resolution optics, allowing a wider inspection coverage including advanced tall component inspection.



Incomparable True 3D
Inspection Performance



Powerful Side-View Camera



Self-Diagnosis for Optimal
Performance Maintenance



AI-Powered Auto
Programming (KAP)



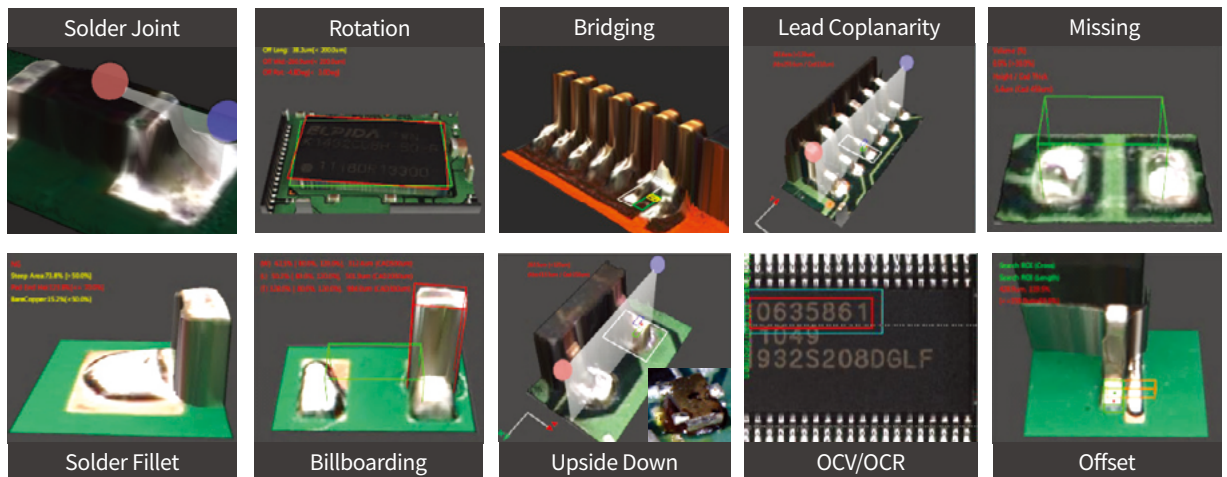
KSMART Solutions:
True 3D Measurement-based
Process Control System





Incomparable True 3D Inspection Performance

- The Zenith AOI series is the only solution in the industry to base its inspection criteria according to the IPC-610 standards for electronic assembly acceptability requirements. Koh Young's quantitative True 3D measurement-based approach allows a wider inspection coverage including advanced tall component inspection.
- The Zenith 2 delivers clear and concise AOI measurement to accurately identify multiple defects such as: Missing Solder, Offset, Polarity, Upside Down, OCV/OCR, Solder Fillet, Billboarding, Lifted Lead, Lifted Body, Tombstone, Bridging, and more.



Powerful Side-View Camera

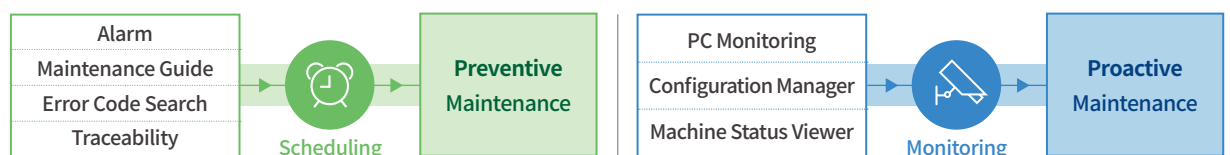
- [Optional Solution]** Zenith 2's powerful side-view camera solution quickly identifies, measures, and analyzes potential defects on hidden or obscured components.



Self-Diagnosis for Optimal Performance Maintenance

- The leading-edge Zenith 2 AOI incorporates a patented mechatronic technology, which positions it as the ultimate AOI solution. Self-Diagnosis allows operators to take precautionary measures through predictive maintenance in order to reduce process interruptions, enhance equipment 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.

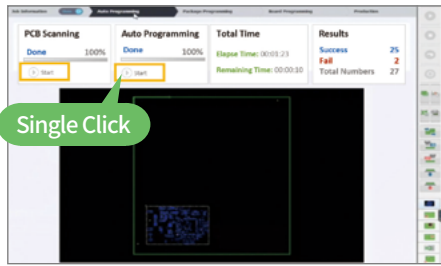
Self-Diagnosis on its way to Predictive Maintenance





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 reduce costs.



One Click Needed To Start KAP



Programming Time Saved by 70%

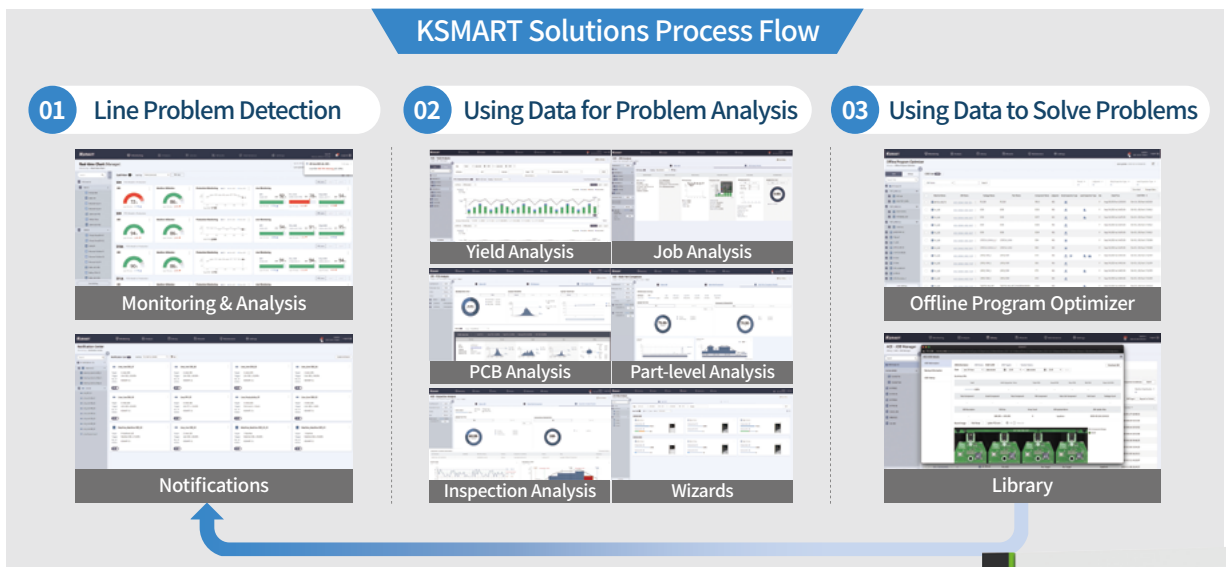


KSMART Solutions: True 3D Measurement-based Process Control System

- 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



“Everyone can be a vendor, but partnership is a different approach. Partnership means that you must grow with your customers and listen to their needs. Koh Young doesn't just sell a machine, they create a solution.”

- Tier 1 EMS Plant Manager



Must-check Requirements of a 3D AOI System

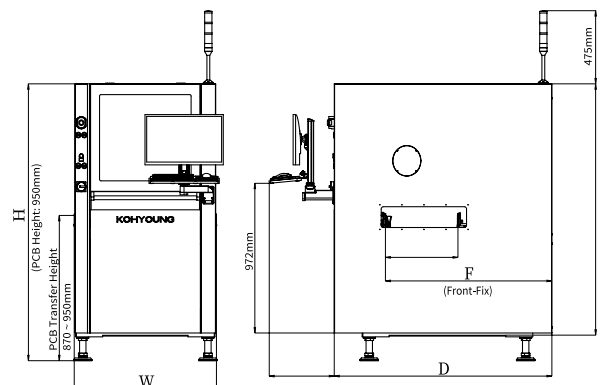
| Requirements | Solutions |
|---|--|
| Shadow Problem Solution | 3D Shadow Free Moiré Technology & 4-Way and 8-Way Projection (4W Side-View Camera Not Available) |
| Specular Problem Solution | |
| Shadowed Area Between Tall Components | |
| Small (01005 in) Component Inspection | Multi-Frequency Moiré Technology |
| Wide Measurement Range & Accuracy (Measurement Range Problem) | |
| Real-time PCB Warp Compensation | Warp Compensation (Pad Referencing + Multi-Frequency Moiré Technology) |
| Dark Component & White Body Component Location | True 3D Measurement |
| Component Body, Lead Coplanarity Inspection | |
| Solder Joint Profile Inspection | |
| 3D Polarity Inspection | |
| Component Crack Inspection | |

| Inspection Items | Inspection Task | | Missing, Offset, Rotation, 3D Polarity, Upside Down, OCV/VCR, Coplanarity, Solder Fillet, Lifted Lead, Billboarding, Tombstone, Bridging, Dimension | | | | |
|---------------------------------|--|---------------------|---|--|--|---|---------------------------------------|
| Zenith 2 Inspection Performance | Projection | Camera & Resolution | FOV Size | Full 3D Inspection Speed | Max. Measurement Height | Height Accuracy (KY Calibration Target) | Illumination |
| | 8 Way | 12M 15µm | 61 x 46 mm | 44.5 cm²/sec (0.63 sec/FOV) | 25 mm | ±3% | IR-RGB LED (Dome Styled Illumination) |
| | 8 Way | 8M 20µm 8M 15µm | 56 x 56 mm 42 x 43 mm | 49.9 cm²/sec (0.64 sec/FOV) 29.1 cm²/sec (0.62 sec/FOV) | | | |
| | 4 Way | 8M 20µm 8M 15µm | 56 x 56mm 42 x 43 mm | 61.5 cm²/sec (0.51 sec/FOV) 36.9 cm²/sec (0.49 sec/FOV) | | | |
| PCB Handling | Conveyer Width Adjustment | | Automatic | | | | |
| | Conveyer Fix Type | | Front / Rear Fixed (Factory Setting) | | | | |
| 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, 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 - Integrated Calibration Target | | - Offline SPC Pro Station - Review Station - Foreign Material Inspection | | - Side-View Camera - KSMART Solutions (Monitoring & Analysis, Remote Access, Offline Programming Optimizer, Link Data Analysis, Notification) | | |

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

| | L | | | | XL | | | |
|-----------------------------|--|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| | Single Lane | | Dual Lane | | Single Lane | | Dual Lane | |
| | Standard | Side Camera | Standard | Side Camera | Standard | Side Camera | Standard | Side Camera |
| Max. PCB Size (X x Y) | 510 x 510 mm (20.1 x 20.1 in) | 330 x 510 mm (13.0 x 20.1 in) | Single Mode* | | 700 x 690 mm (27.6 x 27.2 in) | 510 x 510 mm (20.1 x 20.1 in) | Single Mode* | |
| | | | 510 x 580 mm (20.1 x 22.8 in) | 330 x 580 mm (13.0 x 22.8 in) | | | 700 x 580 mm (27.6 x 22.8 in) | 510 x 580 mm (20.1 x 22.8 in) |
| | | | Dual Mode | | | | Dual Mode | |
| | | | 510 x 320 mm (20.1 x 12.6 in) | 330 x 320 mm (13.0 x 12.6 in) | | | 700 x 320 mm (27.6 x 12.6 in) | 510 x 320 mm (20.1 x 12.6 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) | | | | 0.4 ~ 8 mm (0.02 ~ 0.31 in) | 0.4 ~ 5 mm (0.02 ~ 0.20 in) | 0.4 ~ 8 mm (0.02 ~ 0.31 in) | 0.4 ~ 5 mm (0.02 ~ 0.20 in) |
| Max. PCB Weight | 4 kg (8.8 lbs) | | | | 10 kg (22.0 lbs) | 4 kg (8.8 lbs) | 10 kg (22.0 lbs) | 4 kg (8.8 lbs) |
| Machine Weight (Approx.) | 750 kg (1653.5 lbs) | | 800 kg (1763.7 lbs) | | 800 kg (1763.7 lbs) | 750 kg (1653.5 lbs) | 800 kg (1763.7 lbs) | |
| Bottom Clearance | 50 mm (2.0 in) | | | | | | | |
| Supplies | ± 220 Vac, 1Phase, 50/60Hz, 5KgF/cm² (0.45Mpa) | | | | | | | |
| W | 1000 mm (39.4 in) | | | | 1200 mm (47.2 in) | | | |
| D | 1530 mm (60.2 in) | | 1710 mm (67.3 in) | | 1710 mm (67.3 in) | 1530 mm (60.2 in) | 1710 mm (67.3 in) | |

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



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