Fast, Intuitive Programming
True 3D Inspection Performance
A 3D Measurement based SMT Process Control System

Requirements
- Shadow Problem Solution
- Specular Problem Solution
- Shadowed Area between Tall Components
- Small (01005 inch) Component Inspection
- Wide Measurement Range + Accuracy (Measurement Range Problem)
- Real Time PCB Warp Compensation
- Dark Component & White Body Component Location
- Component Body, Lead Coplanarity Inspection
- Solder Joint Profile Inspection
- 3D Polarity Inspection
- Component Crack Inspection

Solutions
- Warp Compensation (Pad Referencing + Multi-Frequency Moiré Technology)
- 3D Shadow Free Moiré Technology & 8 Way Projection
- True 3D Measurement
- Multi-Frequency Moiré Technology

Inspection Task
- Missing, Offset, Rotation, 3D Polarity, Upside down, OCV/OCR, Coplanarity, Solder fillet, Lifted lead, Billboarding, tombstone, Bridging, Dimension

Conveyor Width Adjustment
- Automatic
- Front / Rear Fixed (factory setting)

PCB Handling
- 1D & 2D Handy Barcode Reader
- 1D & 2D Inline Barcode Reader
- Offline Programming Station
- Offline SPC Pro Station
- Standard Calibration Target

Add-on Solutions
- SPC@KSMART
- OPO@KSMART
- Foreign Material Inspection
- Review Station

Software
- Supported Input Format
- Operating System
- Operator User-friendliness
- Statistical Process Control Tool
- Programming S/W
- Library Manager@KSMART
- KYCal: Auto Camera Calibration, Auto Illumination Calibration, Auto Height Calibration
- Intel i7-3970X(6Core), 32GB, Windows 7 Ultimate 64bit
- GERBER Data (274X, 274D), ODB++, Placement file, Mounter JOB file, Allegro, Zuken, Mentor (optional)
- ePM-AOI, AOI GUI
- SPC@KSMART
- Review Station
- Remote Monitoring System

Camera Resolution
- FOV Size
- Full 3D Inspection Speed
- Height Accuracy (on KY Calibration Target)
- Camera
- Illumination
- Max. Measurement Height

- ±3%
- 4M Pixel High Speed Camera
- IR-RGB LED Dome Styled Illumination
- 5mm
- 30×30mm (1.18×1.18inch)
- 20 μm
- 40×40mm (1.57×1.57inch)
- 15μm
- 200~240VAC, 50/60Hz Single Phase, 5Kgf/cm^2
- 850kg(1874 lbs)
- 0.4~5mm (0.015~0.20inch)
- 850X690mm (33.4X27.1 inch)
- 850X510mm (33.4X20.3 inch)
- 50mm (1.97inch)
- 510X510mm (20X20 inch)
- 510X320mm (20X12.6 inch)
- 500X320mm (19.7X12.6 inch)
- 500X580mm (19.7X22.8 inch)
- 500X700mm (19.7X27.6 inch)
- 500X780mm (19.7X30.7 inch)
- 500X800mm (19.7X31.5 inch)
- 70X70mm (2.7X2.7 inch)
- 70X80mm (2.7X3.1 inch)
- 70X100mm (2.7X3.9 inch)
- 70X150mm (2.7X5.9 inch)
- 100X100mm (3.9X3.9 inch)
- 200X200mm (7.9X7.9 inch)
- 250X250mm (9.8X9.8 inch)
- 300X300mm (11.8X11.8 inch)
- 320X320mm (12.6X12.6 inch)
- 330X330mm (13X13 inch)
- 400X400mm (15.7X15.7 inch)
- 500X500mm (19.7X19.7 inch)
- 600X600mm (23.6X23.6 inch)
- 700X700mm (27.6X27.6 inch)
- 800X800mm (31.5X31.5 inch)
- 1000X1000mm (39.3X39.3 inch)
- 1000X1200mm (39.3X47.2 inch)
- 1200X1200mm (47.2X47.2 inch)
- 1250X1250mm (49.2X49.2 inch)
- 1500X1500mm (59.1X59.1 inch)
- 1800X1800mm (70.9X70.9 inch)

Min. PCB Size
- PCB Thickness
- Max. PCB Weight
- Machine Weight
- Bottom Side Clearance

- 18.3~ 30.4cm
- 2/seg (Inspection speed varies by PCB, and inspection condition.)

Supplies
- W
- D
- H
- F

M L DL XL
- 600kg(1322 lbs) 700kg (1543 lbs)550kg(1212 lbs)
- 1000mm(39.3 inch)1000mm(39.3 inch)
- 10kg(22 lbs)
- 0.5~8mm (0.02~0.31inch)
- 70X70mm (2.7X2.7 inch)
- 510X510mm (20X20 inch)
- Dual: 510X320mm (20X12.6inch)
- Single: 510X580mm (20X22.8 inch)
- 850X690mm (33.4X27.1 inch)
- 850X510mm (33.4X20.3 inch)
- 510X320mm (20X12.6 inch)
- 850X690mm (33.4X27.1 inch)
- 850X690mm (33.4X27.1 inch)
- 850X780mm (33.4X30.7 inch)
- 850X850mm (33.4X33.5 inch)
- 850X900mm (33.4X35.4 inch)
- 850X950mm (33.4X37.4 inch)
- 850X1000mm (33.4X39.3 inch)

※ Above specifications are subject to change without notice.

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Perfecting Inspection Performance with True 3D

- Measurement & Inspection of an Array of Defects
  ZENITH has the ability to make a clear and concise ‘go-or-no-go’ decision for a solder joint inspection, detecting an array of potential defects including Missing solder, Offset, Rotation, Polarity, Upside down, OCV/OCR, Solder fillet, Billboarding, Lifted Lead, Lifted Body, Tombstone, Bridging and more.

- Template Management for Fast and Intuitive Programming
  ZENITH’s intuitive interface makes setup easy, reducing programming time in package registration and setting of inspection conditions. The evaluation benchmark can then be easily managed by an operator, simplifying and speeding up programming, while also making identification universal.
KSMART: Cutting-Edge Process Optimization Tools for Smart Factory Realization

**SPC@KSMART**
- Reliable 3D Data-based Statistical Process Control
  The SPC@KSMART module helps operators perform critical process analyses and accelerate root cause analysis for increased equipment uptime, all from an intuitive graphical interface.

**OPO(Offline Program Optimizer) @KSMART**
- Job Fine-tuning with Minimum Downtime
  The Offline Program Optimizer makes program creation, debugging and updates seamless. Allowing operators to automatically deploy modified inspection conditions and fine tune processes starting from the next PCB without stopping the production line or altering the production schedule.

**LM(Library Manager) @KSMART**
- Job and User Level Management
  The KSMART Library Manager simultaneously enhances job and user level management, storing job files and inspection conditions in a centralized database and distributing the data to multiple AOs in real-time.

**Link@KSMART**
- 3D data based SPI-AOI communication solution
  Merging images, trends, charts and inspection results including detailed analysis from Koh Young’s 3D SPI and 3D AOI Systems for total line communication and process analysis, and tracing the root cause of defects by storing and communicating inspection information.
Must-check Requirements of 3D AOI System

Requirements

Shadow Problem Solution
Specular Problem Solution
Shadowed Area between Tall Components
Small (01005 inch) Component Inspection
Wide Measurement Range + Accuracy (Measurement Range Problem)
Real Time PCB Warp Compensation
Dark Component & White Body Component Location
Component Body, Lead Coplanarity Inspection
Solder Joint Profile Inspection
3D Polarity Inspection
Component Crack Inspection

Specifications

Inspection Items

- Inspection Task
- Camera Resolution
- FOV Size
- Full 3D Inspection Speed
- Height Accuracy (on KY Calibration Target)
- Camera Illumination
- Max. Measurement Height

Inspection Performance

- 30/40mm (1.18×1.57 inch)
- IR-RGB LED Dome Styled Illumination

PCB Handling

- Conveyor Width Adjustment
- Conveyor Fix Type
- Supported Input Format
- Programming SW
- Operating System

Software

- Statistical Process Control Tool
- Operator User-friendliness
- Operating System

Add-on Solutions

- 1D & 2D Handy Barcode Reader
- 1D & 2D Inline Barcode Reader
- Offline Programming Station
- Offline SPC Pro Station
- Standard Calibration Target

Solutions

- 3D Shadow Free Moiré Technology & 8 Way Projection
- Multi-Frequency Moiré Technology
- Warp Compensation (Pad Referencing + Multi-Frequency Moiré Technology)
- True 3D Measurement

- Missing, Offset, Rotation, 3D Polarity, Upside down, OCV/OCR, Coplanarity, Solder fillet, Lifted lead, Billboarding, tombstone, Bridging, Dimension

- Automatic
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- GERBER Data (274X, 274D), ODB++, Placement file, Mounter JBC file, Allegro, Zulken, Mentor (optional)
- ePM-ADL, AOI GUI
- AOI GUI
- SPC@KSMART
- OPO@KSMART
- Foreign Material Inspection
- Review Station

- 4M Pixel High Speed Camera
- Maximum Measurement Height: 20μm
- Max. PCB Size 330X330mm (13X13 inch)
- PCB Thickness: 50μm
- Max. PCB Weight: 500kg (1100 lbs)
- Machine Height: 1182mm
- Machine Width: 2800mm

- Minimum Clearance: 1.97X1.97 inch
- Supplies: 20.4~5mm (0.8~0.2 inch)
- PCB Transmiss: 20.4~5mm (0.8~0.2 inch)
- Maximum Height: 950mm (37.4 inch)

- Minimum Clearance: 0.015~0.20inch
- Supplies: 0.02~0.31inch
- PCB Transmiss: 0.02~0.31inch
- Maximum Height: 950mm (37.4 inch)

- Minimum Clearance: 1.18×1.57 inch
- Supplies: 1.57X1.57inch
- PCB Transmiss: 1.57X1.57inch
- Maximum Height: 37.4 inch

- Minimum Clearance: 30×30mm
- Supplies: 1.18×1.18inch
- PCB Transmiss: 1.18×1.18inch
- Maximum Height: 1.18 inch

- Minimum Clearance: 50×50mm
- Supplies: 1.97X1.97 inch
- PCB Transmiss: 1.97X1.97 inch
- Maximum Height: 0.79 inch

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The World’s First True 3D AOI Solution

KOH YOUNG TECHNOLOGY INC.