

Orbotech Discovery™ II 9000

Automated Optical Inspection (AOI)

Orbotech Discovery™ II 9000

Moving the world's best-selling AOI series to the next level of performance, Orbotech Discovery™ II 9000 delivers new capabilities for greater operational efficiency. The system ensures high defect detection with full flexibility to handle today's challenging HDI mass production.



Benefits

Detection Accuracy with Proven SIP™ Technology

- Resolution down to 30µm line and space
- Full multi-layer panel understanding
- Patented LED illumination design

Efficient Smart Setup™ Operation

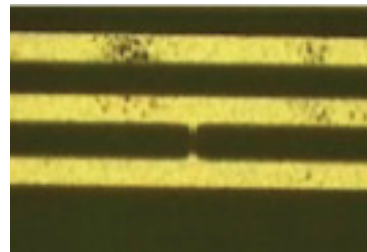
- Intuitive - Visual categorization of defects
- Short - Single cycle process (non-iterative)
- Optimal - Automatic generation of all setup parameters

Flexible Solution

- Patented vacuum table for optimal grip on any panel
- Fast and easy on-system defect verification
- Full automation support

Reduced Running Cost

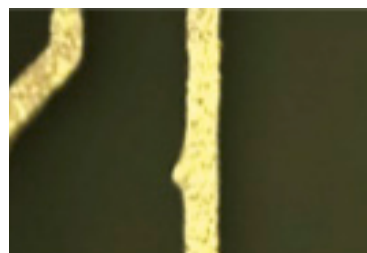
- Half the power consumption and small footprint
- Minimal consumables (no bulbs)
- Less training requirements



Fine Short



Nick



Protrusion



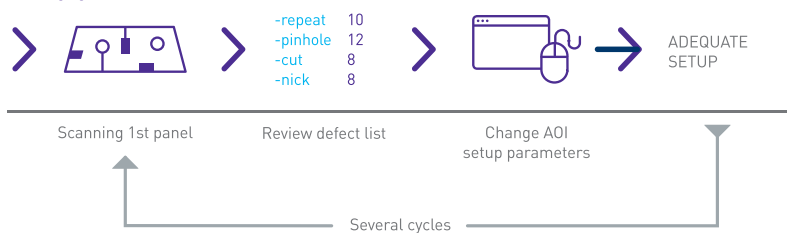
Detection Accuracy with SIP™ Technology

Powered by KLA's field-proven SIP Technology, Orbotech Discovery II 9000 delivers high detection accuracy and low false alarms with resolution down to 30µm on a diverse range of panels at full production speed. Full multi-layer panel understanding capabilities and feature-specific algorithms identify critical vs. non-critical defects. In addition, contextbased detection ensures that the right sensitivity is applied according to panel attribute. KLA's patented LED illumination provides powerful, multi-angle lighting intensity for improved image quality.

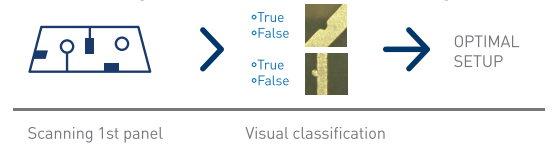
Efficient Smart Setup™ Operation

KLA's Smart Setup™ transforms the traditional AOI setup process to a single cycle with minimized process steps. Without the need for an expert, the operator can visually categorize true and false defects on the first panel of a job, then Smart Setup automatically does the rest. With KLA's advanced panel understanding capabilities, Smart Setup accurately categorizes the defects into groups and sorts the defects according to severity, from the most critical defect to the least. It then builds the optimal setup and automatically configures all relevant parameters accordingly. The result is an intuitive, optimal and much shorter setup process that increases the AOI effective throughput.

Setup process with other AOIs



Smart Setup™ with Orbotech Discovery™ II



Flexible Solution

Supporting multiple production modes, materials and applications, Orbotech Discovery™ II 9000 delivers expanded flexibility to handle a full range of production requirements. Using a patented vacuum table, the system ensures a firm grip on all panel types, including challenging bent and thin materials. With on-system verification capabilities, Orbotech Discovery II 9000 provides fast and easy access to defects. For efficient mass production, the system can be seamlessly integrated with the panel handling automation of any vendor, in any configuration.

Reduced Running Cost

Featuring significant enhancements that improve AOI performance, Orbotech Discovery II 9000 achieves increased efficiency for a lower cost of operation. The system utilizes minimal consumables (no bulbs), approximately half the power consumption of previous Orbotech Discovery™ models and has a small footprint for minimal floor space. In addition, with Smart Setup, Orbotech Discovery II 9000 significantly reduces the labor training time.

Specifications

Technology Range	Down to 1.2mil (30µm) line/space																		
Products Inspected	<p>Inner layers: Signal, power and ground, mixed, cross shielding, inner with holes, buildup</p> <p>Outer layers: Signal, mixed, cross shielding, buildup</p> <p>Build-up layers: Laservias (conformal and non-conformal masks)</p>																		
Materials Inspected	<p>Conventional: Bare copper (shiny, matte), etched additive or plated copper, reverse treated foil (RTF), double-treated copper, gold-plated conductors. Any laminate including FR4, Tetra function, Teflon, Roger, etc.</p> <p>Flex material: Polyimide, polyester</p> <p>Advanced build-up board materials: Any laminate including RCC</p> <p>Photoresist: Blue, purple & brown</p>																		
Defects Detected	Shorts, opens, minimum line/space violations, nicks, protrusions, dishdowns, copper splashes, pinholes, missing or excess features, wrong size and position of features, clearance and split plane violations, blocked holes, annular ring violations, SMT violations																		
Inspection Methods	<p>Full reference comparison</p> <ul style="list-style-type: none"> - Model-based, contour comparison and specific criteria per feature - Full multi-layer panel understanding (SIP-based) 																		
Panel Dimensions	<p>Thickness range: 1-300mil (25-7,500µm)</p> <p>Maximum panel size/inspected area: Standard - 24" x 30" (610mm x 762mm) Large table* - 36.5" x 30" (927mm x 762mm)</p>																		
Throughput	<table border="1"> <tr> <td>Line width (mil) →</td> <td>4</td> <td>3</td> <td>2</td> <td>1.5</td> <td>1.2</td> </tr> <tr> <td>Line width (µm) →</td> <td>100</td> <td>75</td> <td>50</td> <td>38</td> <td>30</td> </tr> <tr> <td>Sides/hour</td> <td>220</td> <td>210</td> <td>180</td> <td>135</td> <td>105</td> </tr> </table> <p>Based on panel size: 18" x 24" (457 mm x 610 mm) with 1" margin</p>	Line width (mil) →	4	3	2	1.5	1.2	Line width (µm) →	100	75	50	38	30	Sides/hour	220	210	180	135	105
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Sides/hour	220	210	180	135	105														
Defect Verification	Verification and repair stations: Orbotech VeriSmart™, Orbotech VeriWide™, Orbotech VeriFine™, Orbotech VeriSmart™-A, Orbotech VeriWide™-A, Orbotech VeriFine™-A																		
Defect Shaping	Orbotech Precise™ Series, Orbotech PerFix™/ Orbotech Ultra PerFix™Series																		
Setup Data Sources	CAM																		
Panel Registration Method	Pinless registration - panel edge alignment																		
Options	Stamper/Marker; automation ready; large table* (36.5" x 30")																		
Dimensions (W x D x H)	<p>161cm x 178cm x 186cm</p> <p>(Large table*: 161cm x 220cm x 186cm)</p>																		
Weight	<p>900Kg</p> <p>(Large table*: 920 Kg)</p>																		

*Not upgradable from the existing Orbotech Discovery™ II AOI.

* Available table size for automation is 32.5" x 30" (825mm x 762mm)

Specifications are subject to change without notice.
Orbotech Discovery™ II 9000 is class-1 laser product.

KLA SERVICES

From tool installation and system optimization to productivity enhancements and global supply chain management, KLA Services is a trusted partner to customers around the world — delivering an unrivaled experience focused on maximizing tool performance and availability.

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