Ultra Fusion™ 300

Automated Optical Inspection (AOI) System
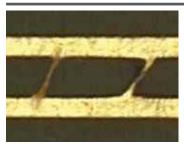
PCB Production Solutions

orbotech
Be Sure™

Ultra Fusion™ 300

Orbotech's Ultra Fusion™ 300 delivers leading-edge AOI performance for advanced IC substrate production down to 10μm. Featuring powerful Multi-Image Technology™, the system achieves the highest levels of detection accuracy and operational efficiency required for successful production of today's complex applications.

dust and fine-short

dust and fine-short look the same

clear distinction between dust and fine-short (dust is much brighter)

Benefits

Superior Detection Accuracy with Multi-Image Technology™
- Simultaneous acquisition of multiple images using different illumination sources
- Unprecedented detection of the finest defects
- Up to 70% false alarm reduction

Robust Inspection Performance Down to 10μm
- Highest throughput at all resolutions
- Patented vacuum table
- On-line defect verification

Intuitive Operation with Smart Setup™
- Intuitive – visual categorization of defects
- Short – a single cycle process (non-iterative)
- Optimal – automatic generation of all setup parameters

Major Running Cost Savings
- Lowest cost per scan with maximum production efficiency
- Minimum verification requirements
- Less consumables, power and floor space

Multi-Image Technology™

Fusion. Nothing But The Truth.

Superior Detection Accuracy with Multi-Image Technology™
Featuring powerful Multi-Image Technology, Ultra Fusion 300 achieves a major reduction in false alarms of up to 70% compared to conventional AOI results. The system utilizes an innovative optical head specially-designed to accommodate the requirements of semi-additive process (SAP /MSAP) and flip-chip structures. A patented LED based illumination system ensures dome-shaped, uniform light coverage.

Unlike conventional, gray-scale AOI, Ultra Fusion 300 performs inspection using different lights and from different angles revealing details unseen by other systems. Illuminating the panel with different wave lengths makes it possible to accurately classify materials such as clean copper, oxidized copper, dust and laminate. While two different defects might look the same under one illumination source, the true difference is revealed under the second illumination. By accurately detecting the subtle differences between actual defects and false alarms, Ultra Fusion 300 achieves highest detection results without compromising on throughput.

Robust Inspection Performance Down to 10µm
Ultra Fusion 300 is ready for the challenging demands of advanced IC substrate production with fine resolutions down to 10µm at high throughput. A patented vacuum table supports a wide variety of materials for maximum inspection flexibility. With on-line verification capabilities built into the system, Ultra Fusion 300 provides fast and easy access to the defect area, reducing handling damage and scrap.

Intuitive Operation with Smart Setup™
The system's Smart Setup operation transforms the traditional AOI setup process – from trial-and-error to a single cycle with minimized process steps. The result is intuitive, short and optimal setup.

Without the need for an expert, the operator visually categorizes critical and non-critical defects on the first panel of a job and Smart Setup automatically does the rest. Based on Orbotech's field-proven panel understanding capabilities, Smart Setup accurately classifies every feature then builds the optimal setup and configures all relevant parameters accordingly.

Major Running Cost Savings
Designed for maximum production efficiency, Ultra Fusion achieves the lowest cost-per-scan for advanced IC substrate inspection and ensures much lower final product scrap. Verification operations and other running costs are greatly reduced, including less consumables (no bulbs), maintenance time, power, air consumption and floor space.