

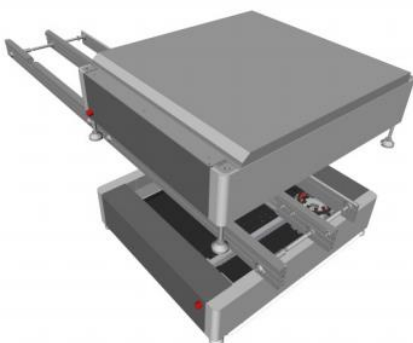
## Bottom-Up Modular AOI

Inline Bottom side PCB Inspection with up to 9 cameras, configurable to simultaneous Top & Bottom PCB inspection with up to 18 cameras addresses growing new needs in electronic assembly.

Emerging trends in printed circuit board assembly, in particular high power automotive electronics, present an increasing requirement for automated inspection of THT. Rework is increasingly forbidden, pressurizing selective and wave soldering yields, and making AOI the solution of choice.

Equipment and factory production configurations for wave and selective soldering are quite different than the familiar flow lines with SMEMA standardized interfaces common to convection reflow. This makes it difficult to apply conventional AOI systems in a cost and space effective manner. Inspection from the bottom up is fundamental to the solution, but assemblies in frames are typically returned to operators for removal on conveyors that are located very close to floor level. Intermediate board flipping stations and enormously sized top/bottom configurations of conventional AOI systems have been utilized, but the results are less than ideal. And, because of the absence of standardized interfaces these integrations are further characterized by the need for one-off custom designs.

### **A new approach, engineered for mechanical flexibility as well as inspection performance**



Optimized for the inspection of Wave & Selective soldering of THT & SMT components, the new SpectorBOX from Marantz Electronics can inspect PCBs inside solder frames directly on existing conveyors. [SpectorBOX Modular AOI machines](#) can be conveniently positioned at any conveyor position feed or return, and the ultra-compact engineered mechanics allow SpectorBOX to be positioned below existing return and feed conveyors. Employing an extremely low profile



inspection head, inspection for through hole technologies can be accomplished as close as 280mm above the floor. The elimination of flipping conveyors and ease of integration with existing conveyor systems reduces cost and floor space by as much as 75%. 2 Modules (one added above) can be combined for simultaneous top-bottom inspection without increasing line foot print. The particular intricacies of wave solder inspection are specially addressed by Mek Meniscus Profiling. This is accomplished by multi angle – multi color 360 degree lighting, including line sourced DOAL coaxial prism lighting and high resolution telecentric optics.

It's a totally new mechanical platform, and the only modular AOI in the market that can be equipped with 9 cameras: 1 top and 8 side cameras, and also equipped with a Z-axis moveable optical head to automatically focus and position optimally for varying PCB heights in their solder frames and for warp. A heavy duty XY drive gantry delivers 1500 cps/min high speed inspection while maintaining high accuracy and precision. This flexible configuration offers not only inspection capabilities, but includes an automatic microscope function to verify defects on the repair station, without any operator intervention. This minimizes human PCB handling for verification/repair purposes.

Its general purpose I/O facilitates simple interface with existing or new conveyor systems. SpectorBOX bottom-up modular AOI is available in sizes up to 550x520mm (21.7" x 20.5")

Find out more at : <http://marantz-electronics.com/bottom-up-aoi/>

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About MEK (Marantz Electronics Ltd)

A former division of Marantz well known for its high quality Audio/Video products, MEK Japan (Marantz Electronics Kabushiki Kaisha), developed its first AOI system in 1994. Developed to inspect PCB assemblies for correct component placement and soldering, the company's original AOI system was designed for use in Marantz factories. Proving to be a highly successful, cost-effective alternative to traditional human inspection, MEK developed its first generation commercial system in 1996. With a steadily growing installed base, MEK Japan and its European/American headquarters, MEK, have sold over 5000 units worldwide to date. Now well established as a leading force in AOI technologies, the company recently launched a 5D post-print SPI system which combines 3D and 2D image processing methodologies to deliver unprecedented defect detection. At the beginning of March 2014 the company opened US offices in Las Vegas.