Dainippon Screen announces the release of a high-resolution automatic optical inspection (AOI) system for printed circuit boards (PCB)
Can be used with extremely fine 12.5 micron line width patterns

Kyoto, Japan, May 20, 2004 — Dainippon Screen Mfg. Co., Ltd. (Headquarters: Kyoto, Japan / President: Akira Ishida) will release a new high-resolution AOI system for PCB called the PI-8500, which is suitable for extremely fine 12.5 micron line width patterns, in July 2004.

As electronic devices such as notebook computers and cellular phones become smaller and add functionality, PCB patterns must become finer. Demand is high in Japan and Asia for extremely fine pattern and test PCB, which require line widths of less than 15 microns. As a result, users now require inspection systems that are even more functional and more reliable, and the market for AOI systems that can handle extremely fine patterns is expected to continue to grow.

The PI-8500 is designed to meet the future needs of the PCB industry. It can inspect boards with line widths as small as 12.5 microns, making it perfect for extremely fine patterns. It is being introduced as the next model up from the more economical PI-8000, and is the successor to the PI-7900 extremely fine pattern AOI system. The PI-8500 features an ergonomic design and software that is easy for the user to operate (Windows XP). It inherits the strengths of the PI-8000's basic concept, and is about twice as productive as conventional high-speed AOI systems[1]. In fact, it can inspect 50 boards with an area of 406 x 457 mm with 12.5 micron line width patterns per hour.

[1]. Compared with Screen's conventional high-speed AOI systems.

* The PI-8500 inspection system will be introduced at the 2004 JPCA Show, which will be held at Tokyo Big Site from June 2 to 4.

PI-8500

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[Features]

1. Suitable for extremely fine PCB patterns

The PI-8500 features a high-resolution optical unit and high speed image processing unit, which makes it suitable for patterns that have line widths of 12.5 microns. It is perfect for use with high-precision, extremely fine package boards such as BGA, CSP, and COF, and is remarkably effective with build-up boards as well.

2. CAM data conversion software and verification and repair station[*2] **(optional)**

The PI-8500 features CAM data conversion software, and a verification and repair station can be added to the system as well. These make the cost of putting together a complete inspection system very reasonable.

*2. The verification and repair unit is an optional extra.

3. New DRC function

DRC (Design Rule Check) inspection reduces false alarms. It also increases the system's ability to detect extremely small shorts and broken circuits.

4. Dynamic screening

Dynamic screening automatically corrects for the difference between the CAM data and actual board dimensions. There is no need for the operator to make confusing scaling factor adjustments.

5. Improved inspection/non-inspection area settings

It is now easier to designate the areas to be inspected or skipped, for both Pattern Matching Inspection and DRC inspection. The area definitions are applied only after pattern matching positioning is complete, enabling extremely high-precision inspection.

6. Inspection of multiple patterns on a single board

If there are multiple examples of the same pattern on a single board, a particularly good example of the pattern can be set as the comparison pattern used to inspect other patterns on the board. In other words, in cases where CAD data is not available, as long as there is one acceptable example of the pattern, high-precision inspection is still possible.

7. Continuous tone image loading

Continuous tone images can be loaded from a specified position and displayed on the monitor. This enables fast, binary level determinations.

8. High precision pattern matching

High precision pattern matching is particularly well suited for the detection of defects in SMT pads, lands, wiring ground patterns, and analog patterns, which are not easy to read using DRC methods.

9. Display of defect position

The positions where defects were found during Pattern Matching or DRC inspection are displayed on the video monitor of the verification and repair station.

10. Detection of pattern offset

The PI-8500 can detect and calculate the offset from the master pattern's absolute position in the object pattern.

11. Visual inspection system network

The PI-8500 visual inspection system can function as part of a network when combined with the UP-8000 front-end system, which improves production system productivity.

12. Compatible with automated factory systems

The PI-8500 features an autoloader interface (optional; uses Screen standards). This labor-saving interface improves automation in mass production factories.

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[Option]

Verification and repair station VT-1850

The VT-1850, which can be added to the standard PI-8500 visual inspection system, displays information concerning board defects on the monitor. When an appropriate board that has already been inspected is placed on the table, and the number of the board is entered, the camera automatically moves to a defect position and zooms in. VT-1850 units can be added as necessary to accommodate the PI-8500's productivity, making the combination suitable for mass production lines.

＊ Windows is a registered trademark of Microsoft Corporation.