



## Automatic Final Visual Inspector FP-8000 series

### **Faster, More Accurate Detection!**

Process automation is expected to advance further in the future, to meet the demand for lower inspection costs and improved final visual inspection reliability for printed circuit boards (PCBs). The market therefore needs high-speed inspection devices that offer highly accurate inspection - with no missed defects and a low rate of false calls - and reduce the need for supplemental visual verification.

Dainippon Screen developed the FP-8000 series of visual final inspectors to meet these needs. These advanced systems inspect both sides of each PCB automatically before the electronic components are mounted.

The FP-8000 series includes three models - the FP-8000, FP-8500, and FP-8000/8500AL - each designed for somewhat different user needs.

### **FP-8000/8500AL : Improved productivity with a continuous supply unit**

The FP-8000/8500AL offers automated operation with its continuous PCB supply unit. The result is a winning combination of the FP-8000/8500's superior inspection tact and functions with significantly better productivity. The continuous PCB loading unit can be added to existing FP-8000/8500 units as well.

### **FP-8500 : 10 $\mu$ m camera resolution enables high-precision detection**

The FP-8500 offers even higher precision than the FP-8000, with a camera resolution of 10 $\mu$ m, which makes it perfect for today's demanding inspection tasks. It uses the same high-quality proprietary camera, lighting system, and real color inspection function as the FP-8000, for superior inspection precision.

### **FP-8000 : Superior inspection and fewer false calls with exclusive color image processing technology**

Thanks to Dainippon Screen's unique color camera system and color image processing technology, the FP-8000 can even handle boards for which defect detection using monochrome image inspection has traditionally been difficult. The result is unparalleled inspection performance that provides exceptionally accurate detection and minimizes false calls. In addition, the use of an exclusive high-performance engine that offers high-speed processing of large volumes of image data, as well as an innovative transfer system that enables inspection and transport to be performed in parallel, ensures accurate and high-speed inspection. The FP-8000 is ideal for a wide range of inspection needs, thanks to its faster, more accurate detection capabilities.

### **New Function : Inspection data sharing**

The final inspection units available in the past were unable to share final inspection data due to minute differences in their color CCD and lens characteristics. For this reason, productivity did not increase significantly even if inspection units were added to the production line, since the inspection conditions had to be recreated from scratch for each individual unit. Dainippon Screen has successfully developed an inspection algorithm that corrects for the differences between units, making it possible to share

inspection data. Thanks to this algorithm, productivity improves dramatically when multiple inspection units are used.

**Features :**

**1. Proprietary camera system and image processing section**

The FP-8000 series includes a color camera system developed exclusively at Dainippon Screen, which employs a color CCD with the highest specifications in the world. The lighting system incorporates a new design that makes it perfect for capturing color images of materials such as electro and electroless gold plating, copper flux, and solder.

The image processing section utilizes unique color image processing technology that was originally developed for Dainippon Screen's renowned color scanners. It enables effective inspection even with boards for which defect detection using monochrome image inspection has traditionally been difficult, such as boards with multiple colors of solder-resist or a combination of plating materials.

**2. Automatic switching of inspection sensitivity**

Dainippon Screen's color image processing technology also allows the user to set the optimum inspection sensitivity for each area. For example, the FP-8000 series can locate not only defects in the fine wiring patterns, but also relatively large defects in the solder-resist coating areas. This prevents both false calls and missed defects.

**3. Solder-resist overlap inspection**

The FP-8000 series can also recognize overlapping solder-resist adjacent to contact pads, a problematic type of defect that is often missed in pattern matching inspection. Even minute overlaps can be detected while keeping the rate of false calls low, which prevents the outflow of problematic boards while maintaining productivity.

**4. Efficient parallel-processing conveyor**

The FP-8000 series uses Dainippon Screen's original rotating-suction stage to transport boards. Inspection and transport are performed in parallel, for more efficient inspection on both sides of the board.

**5. High-performance engine**

In order to handle color images in real time, it is necessary to process large volumes of data at high speed. That is why Dainippon Screen has installed its own exclusive, high-performance engine in the FP-8000, making the processing of a large amount of color image data at high speed a reality.

**6. Significantly shorter setup times with CAM data**

The FP-8000 series can use CAM data to create inspection conditions data, a method that significantly reduces setup time. Preparation time when CAM data is used is less than half the time required for preparation without CAM data. What's more, the equipment is only occupied during board image capture, and all other setup is carried out at a separate PC, so equipment dead time during preparation is kept to a bare minimum. This is one of the FP-8000 series' biggest strengths.

**For more information, please contact :**

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