Vipro Colour
AOI System

The solder joint inspection system ViproColour Inline is designed for high volume and inline productions. However, different methods of programming allow an easy and fast setup of test programs for different sizes of batches.

For small batches and prototyping programming can be done fast and easily by image comparison with a Golden Board. A manual and an automatic mode are available.

In the manual mode the Golden Board and the production board appear alternately at the computer monitor. Differences in the images (defects) will fast be recognised by the operator.

In the automatic mode the areas to be tested have to be predetermined. When using a bare board or a printed board, these test areas are created automatically. All of these test areas are later compared with the golden board. A report will be generated during the test.

If a Golden Board is not available, a normal production board can be used, with all the variations in process quality. These boards are not perfect references, but the programming is fast and easy.

If the batch size is bigger or a higher level of test depth and a lower quantity of pseudo defects are required, the programming with CAD-data is advised. The comprehensive component library, which is included, simplifies programming. The component library provides all parameters which can be modified by the operator. Additionally, new customer specific libraries can be set up.

CAD-data are also used in a special method for first sample inspection. Each component, one after another, appears magnified on the screen together with its corresponding value, such as parts number or value. The inspection will be recorded in a file.

An ultraviolet lamp (365nm) is optionally available for inspection of fluorescent conformal coating.

A conveyor loads a printed circuit board into the system, controlled by SMEMA-interface. The test starts automatically and at the end a report is sent to the rework station VAR. The system is based on a 5 Mega-Pixel colour camera and a coloured LED-lighting with different lighting angles. The algorithms have free access to the images captured at different lighting angles.

When using a red coloured light from the top and a blue coloured light from the side, only one image needs to be captured. Adding more cameras speeds up the test performance.

The rotating mirror camera with a 45° viewing angle can analyse solder joints which remain hidden if viewed from the top only.

General Features:

Automatic loading by conveyor
Manual optical inspection by displaying the reference and the live image on screen alternately
Smooth images by automatic alignment of the images
Automatic optical inspection by image comparison of Golden Board and production board
Automatic optical inspection using CAD-Data and component library
Alignment of pcb by fiducial marks or reference images
5 Megapixel- digital colour camera
Coloured LED-lighting at different angles
Image archive of defects
External rework station with statistical process control
Motor drive zoom lens with magnification 32x (Option)
Measurement tool for geometrical dimensions (Option)
UV-lamp (365nm) for inspection of fluorescent conformal coating (Option)

Test Features:

2D - Solder Paste Inspection
Pre-Reflow Inspection
Post-Reflow Inspection
First Sample Inspection
Optical Character Recognition (Option)
Inspection of fluorescent conformal coating (Option)
Inspection of hidden solder joints (i.e. PLCC) at a viewing angle of 45° (Option)

Technical Data:

Art.Nr. VC-I: Dimensions: 1650 mm * 1370 mm * 932 mm (H*W*D)
Max. PCB format: 500 mm * 400 mm
Thickness of pcb: 0,8mm – 4 mm
Weight: appr. 450kg
Compressed air: 5-6 bar
El. power consumption: 230 V / 2,7A / 50Hz
Feeding of pcb: inline or offline, ESD-belt conveyor, SMEMA-interface
Image aquisition: digital colour camera 5 MP, Hi-Speed USB 2.0 - Interface
Resolution: 15 µm per pixel
Magnification: 7x at 20" Monitor
Lighting: 2 LED rings, red and blue
Monitor: 20"-TFT-Display
Max. Component height: appr. 25 mm
Operating system: Windows XP

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