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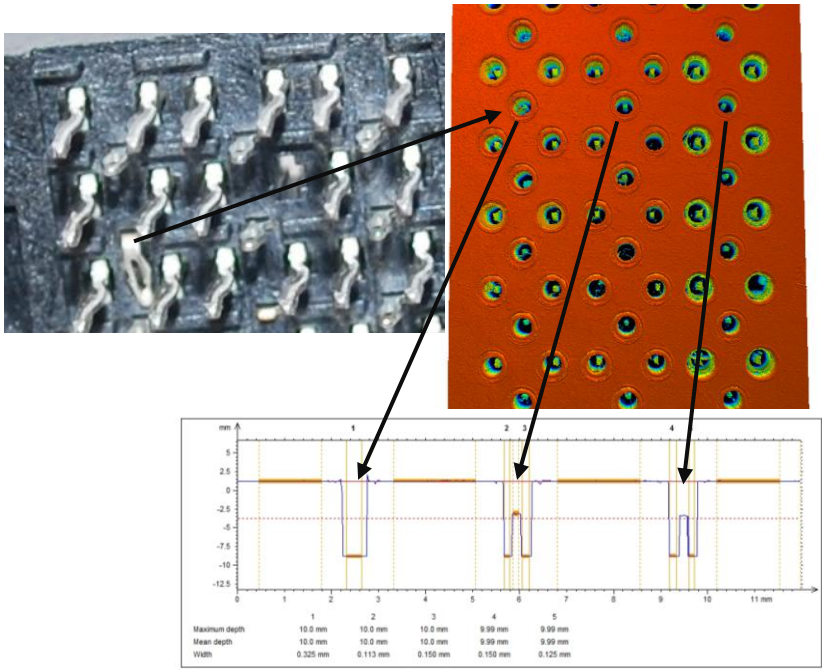
Model 603d

3 Dimensional Backplane Profiling System

High Reliability Detection of Connector Pin Defects

A major problem in the backplane industry is detecting bent & broken connector pin defects. The most difficult being when the pin bends underneath the shroud rather than going into the hole. Many times this defect cannot be detected electrically as the connector pin is touching the conductive annular ring of the hole, allowing electrical test to pass. Unfortunately, it is an intermittent connection and will fail later on as there is not an actual mechanical connection.

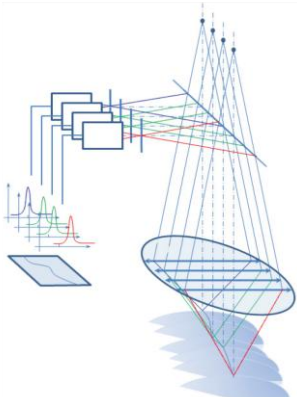
The Testronics Model 603d was developed specifically to identify not only bent pin defects, but virtually all other pin defects found on today's high density, high bandwidth backplanes.



Bent-Under Connector Pin Defect
(Precise measurement of each pin's depth within the PCB hole)

Defects Detected:

- Missing pins
- Bent under pins
- Broken pins
- Bent male pins
- Wrong depth pins
- Wrong height pins
- Wrong or missing backdrilled holes
- Connectors not completely pressed into the backplane
- Tilted connectors, (one side of the connector inserted more than the other side)



Quantitative, Metrology Based Measurements:

The Testronics 603d utilizes the world's first Chromatic Confocal line sensor, providing high resolution, Non-Contact measurements of the connector, connector pins and the pins within the holes.

The sensor consists of 180 individual beams, positioned in a single line. Each beam's spot diameter is 50 microns, easily small enough to measure inside even the smallest holes on the thickest backplanes.

Using a high resolution X,Y,Z stage, the Testronics Model 603d scans the sensor across the backplane, creating a 3d topographical profile of the backplane, pins and holes. Advanced software processes the data and reports to the operator the defect type, location and reference designator.

FOR MORE INFORMATION, PLEASE VISIT US AT OUR WEB SITE:
www.testronics.com

Model 603d System Specifications & Details

Overview	The Testronics 603d system utilizes a Confocal Chromatic line sensor which projects a total of 180 individual beams (spots) onto the backplane at the same time. The profile (height / depth) data of all 180 beams is acquired simultaneously within .0005 seconds, (.5 mS). The system scans the connector up and down & back and forth, creating a complete 3d profile of the connector, (pins, pin tips, holes, pins in the holes, back drilled holes, etc). +/- tolerences on each pin can be assigned. Because quantifiable measurement data is acquired on each pin, pass / fail decisions are very reliable and repeatable.
Maximum Board Size:	127cm x 76cm (50" x 30")
OptoElectronic Controller	
Maximum measuring rate	1,800 lines per second x 180 points per line = 324,000 measured points per second
Number of measured points along a line	180 points in a line
Maximum measuring rate per line	.0005 seconds per line
Optical Head	
Line length (x axis)	44.75mm (1.76")
Number of points along the line	180
Spot size diameter (for each point)	50 microns (1.97 mil")
Pitch (distance between 2 points)	250 microns (9.84 mil")
Working distance	36mm (1.4")
Measuring range	2mm (.078")
Resolution	0.5 micron (.0197 mil")
Accuracy	2.5 micron (.098 mil")
Stage	
X axis	Travel: 127cm (50"), Speed: 15cm (6") per second, Positional accuracy: 2.6 microns (.1 mil")
Y axis	Travel: 76cm (30"), Speed: 15cm (6") per second, Positional accuracy: 2.6 microns (.1 mil")
Z axis	Travel: 15cm (6"), Speed: 5cm (2") per second, Positional accuracy: 2.6 microns (.1 mil")
Scanning Process	Individual connectors are scanned to create a complete topographical profile. A typical connector will be scanned 5 times, along the long axis (Y axis). Each scan will be offset (in the X asis) from the previous scan by 50 microns (.0197 mil") in order to insure 100% coverage. The Z axis is used to position the Optical Head at the optimum height above the item to be measured / profiled. (Measuring male connector pin tips would be at a different height than the height used to measure the depths of pins within the holes.)
Throughput / Inspection Time	Approximately 18 seconds for a 25cm (10") connector. (5 scans * 3.5 seconds per scan = 17.5 seconds total)
Failure Reporting	Color printout of defect, serial number, operator, date, time, X-Y location, reference designator and reason of failure
System Software	Windows XP/7 operating system Parts library viewer / browser User definable error messages & error codes
Programming	CAD data plus pre-defined connector models (library). Typical programming time is approximately 3 - 4 hours for top side and 1 - 2 hours for bottom side.
Off Line Programming	Optional Off-Line programming station is available.
Datalogging	The results of all measurements, (or only failures) can be information is stored in a database for subsequent processing.
Support & Warranty	One year parts and labor Free world wide telephone / e-mail support Free factory training during the first year
Dimensions & Facilities	213cm wide x 203cm deep x 229cm high, (84" x 80" x 90") 1200 kg., Power: 90-240 VAC @ 20A, 50/60 Hz

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