

Automated system for code reading on PCBs at Sony

Would you like to go from 95% success to 100%?

New MP3 players from a global electronics manufacturer like Sony are destined for a demanding consumer market and cannot be compromised in any way. In Malaysia, the company sought a code reading and traceability solution for the PCBs for these MP3 players. This kind of product tracking is essential allowing a company like Sony to protect itself against costly recalls and product mix-ups as well as allowing for "damage control" in the event of a problem. Previously, badly read



codes and the resulting rejection rates were costing the company a lot of money in terms of re-work and rejected units. Their old code reading system having proved incapable of rising to the challenge, Sony in Malaysia is now using the In-Sight® 5110 for code reading on PCBs destined for their new MP3 players.

Wanted! 100% reliable read rates and faster time to market

Each PCB passes along a conveyor on 9 production lines and is marked with a Data Matrix code containing product information in 10 characters measuring only 1 mm x 1 mm in size. Production volume at the plant is very high at 40,000 units a day and so the reading solution deployed should guarantee a read rate of 100% thus allowing the production line work nonstop, eliminating down time. Their existing code reading solution was clearly not up to the challenge with an average rejection rate per week of 10,000 units which was costing Sony money and was delaying time to market for an important product.

In-Sight ID reader meets the challenge

It is vital that the serial number marked on each PCB heading for product assembly lines be identified and tracked. If the code reader is not capable of adjusting to the product changeovers on lines a serial number can be missed and data is lost. No two read points are the same. Lighting, environment, or the way the piece is presented can differ greatly, and so a code reading equipment that has the robustness and flexibility to perform reliably under the variants in conditions is an huge.

Sony tested different readers available on the market. In the end, the only reader capable of meeting Sony's expectations was the Cognex In-Sight 5110 ID reader. The 5110 out-performed its rivals in the following areas:

- superior read rate in terms of decoding speed and sturdiness
- the In-Sight 5110 offers new perspective distortion support which ensures reliable reading even when at an angle to the PCBs
- the job is stored in the reader in such a way as to attempt reading several times using different exposure values - adapting itself to the surface of the PCB, thus increasing the chances of successful reading
- no reader retraining required for a product change
- flexible multiple communication channels
- versatile data gathering – essential for factory database
- Unlike competitors, the In-Sight 5110 can also ensure reliable OCR (original character recognition)

100% successful read rate is already saving Sony almost \$5,000 a week

In-Sight 5110 ID readers are now installed on 9 production lines replacing the existing readers. Code reading time is now 2 seconds per read whereas competitors took over 10 seconds to provide a reading. Code reading success rate has increased from 95% to 100%. With a 100% successful code reading rate, the production line no longer has to stop as a result of a badly read code. There is no longer the need to stop the line for product repositioning or focus adjustment. These factors are already saving Sony about \$5,000 a week, (this calculation comes from the 5% failure rate within 200,000 units per week based on a unit cost of RM1.5). The company expects a return on their investment within 10 months.

TK Tan, Staff Engineer at Sony, Penang says: *"The fact that we have improved our code reading times and increased our success rate to 100% saves us valuable time and boosts our production efficiency – we hope to implement these vision solutions elsewhere for other OCR applications".*