ELECTRONICS MANUFACTURING

Application Case Study: IPTE, Belgium

Ultra-compact imagers from Microscan ensure high-quality direct part markings for laser marker manufacturer

Company Profile

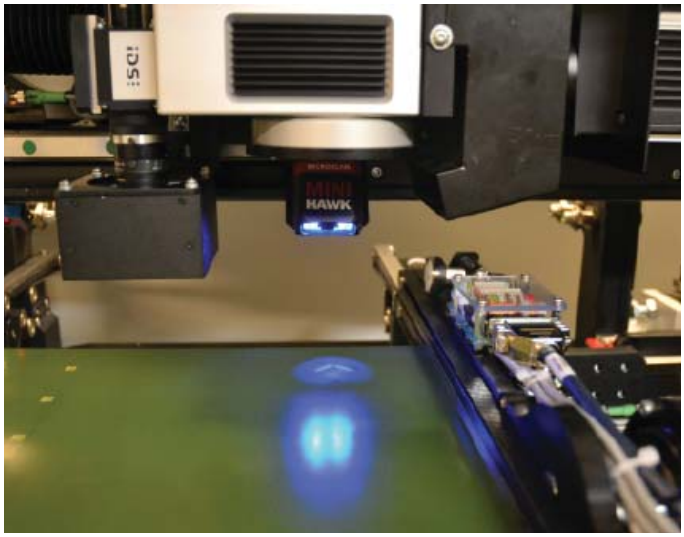
IPTE is a worldwide supplier of automated production equipment for the manufacturing industry. The IPTE Factory Automation division develops standard machinery and turnkey automation systems for the assembly and testing of PCBs, as well as solutions for final assembly of goods, mainly for the automotive, telecommunications and consumer electronics industries. IPTE is locally present in Belgium, France, Germany, Portugal, Spain, Romania, Estonia, Mexico, Brazil, USA, and Asia, and the dynamic company has been growing rapidly in recent years.

The Challenge

Traceability is key in electronics manufacturing, both for end products as well as components and boards. The marking process has to be seamlessly integrated into the production line without any interruptions in the workflow. For these tasks, IPTE provides a full portfolio of marking solutions for fast, high-quality and error-free marking, labeling and writing.

IPTE delivers production lines to its customers that empower them to manufacture their products within the given budget, output rate and quality, including options for product change-over and product traceability.

IPTE laser markers enable traceability and identification of parts during manufacturing processes. They are economical in footprint and cost, and embrace all the latest concepts in lean design. The markers are used for direct marking onto board assemblies or products. The laser systems can write conventional bar codes, 2D Data Matrix codes and images followed by an optional verification check.



Microscan's MINI Hawk imagers check the barcode quality in IPTE's laser markers.

If the barcode is unreadable, the entire board with all of its components becomes untraceable and may need to be scrapped. IPTE needed a compact barcode reader integrated into the laser markers to ensure the quality and readability of the DPM codes.

The Solution

After evaluation, IPTE opted for the MINI Hawk miniature imager from Microscan that met IPTE's stringent selection criteria. The barcode reader had to be lightweight and easily integrated into IPTE's laser markers. The MINI Hawk measures only 25.4 mm x 45.7 mm x 53.3 mm and weighs just 57 g. However, it provides aggressive barcode reading algorithms and is easy to setup for any 1D, 2D, or direct part mark (DPM) application.

- **Requirement:** Barcode reader integrated into the laser markers to ensure the quality and readability of DPM codes.
- **Project:** Quality checks and verification of 2D Data Matrix codes in IPTE laser marking machines with integrated ultra-compact barcode imagers.
- **Solution:** MINI Hawk imagers from Microscan.
- **Result:** High-quality markings, full traceability and increased efficiency. Costs and the amount of scrap are reduced.

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The MINI Hawk can read symbols as large as 50.8 mm square as close as 25.4 mm with diffractive field illumination. Its reading angle allows IPTE to read the marked code from a steep angle without the need for any mechanical movement.

The autofocus functionality of the MINI Hawk makes job change-overs simple and fast. The MINI Hawk automatically adjusts focal distance and sets internal parameters to optimize the symbol on change-over, no user action to adjust focus is required.

Connectivity was another important factor for IPTE. Thanks to a single connection cable, which includes both communication and power supply, IPTE is able to reduce integration costs. Combined with the MINI Hawk's extreme reliability and long MTBT (mean time between failures) the maintenance costs are also reduced.

The MINI Hawk imager is capable of code quality control based on the ISO 16022 standard on Data Matrix symbology specifications. It can for example check the contrast, pixels per element and quiet zone. "We needed a reliable solution, but we were not looking for a reader that would simply read very low-quality markings," said Kevin Noben, Process Engineer at IPTE. "We want to ensure that IPTE only delivers high-quality markings, as the marked codes need to be readable during and beyond the total manufacturing process."

IPTE uses their proprietary HMI software TS1 in all of their equipment. "We implemented the communication and control of the MINI Hawk camera using the TS1 software, which ensures a common look and feel and makes operation, control and maintenance flawless," Kevin commented.

The Benefits

With the MINI Hawk imagers integrated in their laser markers, IPTE can be sure that they deliver reliable solutions that produce high-quality markings. Their customers can benefit from full traceability and efficiency as well as reduce scrap and costs. IPTE has already noticed an increase in demand for their solutions, thanks to the integrated imagers. "We and our customers have been very pleased with the imagers, as well as the excellent support that we have received and the constructive cooperation with the Microscan team," said Kevin Noben.

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The ultra-compact MINI Hawk barcode readers are integrated inside the in-line laser marking solutions from IPTE.

OVERVIEW

- **Customer:** IPTE, Belgium
- **Industry:** Electronics
- **Application:** Laser Marking for the Electronics Industries
- **Products:** MINI Hawk miniature imager from Microscan

Founded in 1982, Microscan has a strong history of technology innovation which includes the invention of the first laser diode barcode scanner and the 2D symbology, Data Matrix. In 2008, Microscan acquired the Siemens Machine Vision division. Today, Microscan remains a technology leader in automatic identification and machine vision with extensive solutions for ID tracking, traceability and inspection.

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