
Release: No. 758, 7th May, 2019

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Automatic inline inspection of all painted car bodies with 100% robot-guided sensors at production speed

Fully automated optical inspection in the paintshop for flawless painted surfaces

When they receive their new car, customers expect flawless painted surfaces. Surface inspection in the automotive sector is thus subject to extremely high standards in terms of safety and aesthetic properties. After all, demanding customers expect top quality. The requirements for inspection – guaranteeing maximum product quality at efficient costs – are just as high. Sufficient quality assurance can only be achieved with automated optical inline inspection.

The goal of achieving ever-shorter cycle times under often difficult production conditions demands highly efficient and robust inspection of painted surfaces. The demand for maximum quality and efficiency has created the pioneering role that the automotive sector plays in the automation of industrial production. Vehicle production is a model for many sectors and a driver of new technology adoption like almost no other. These market-related pressures to innovate bring about highly efficient solutions – and quality assurance is no exception. A high-end automation technology for paint inspection makes intelligent robot-guided production and inspection possible.

Today's complete systems – such as CarPaintVision (CPV) from ISRA VISION – link robotics with surface inspection. Fast and simple

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integration of new vehicle types and automatic offline robot path generation make them flexible to use. What is more, the entire relevant surface is inspected inline – either on the fly, during continuous movement of the vehicle, or in a cyclical stop and go process.

Fully automated inline paint inspection – time-saving and cost-efficient

CPV provides objective and consistent evaluation of the paint surface quality that can be individually adapted. It is more cost-effective than manual processes and supports process improvements with reliable statistical data.

For its solution, ISRA VISION uses the hybrid sensor PAINTSCAN, which combines two surface inspection methods. All topographical and non-topographical paint defects are thus detected reliably. Integrated analysis units ensure faster surface inspection times and reduce maintenance requirements. Meanwhile, data is processed at process speed, so that defect information is immediately available. The option of marking defects also makes reworking simple and saves time.

The oversampling method ensures continuous paint inspection: A high scan frequency and images that overlap in the direction of travel record every point on the bodywork multiple times. Redundant data with up to ten images ensures reliable inspection results with a detection rate of more than 95%. All relevant defects – such as inclusions, craters, pigment defects, scratches, dents, and indentations – are reliably detected and classified. The classification software is already pre-taught and the result of years of experience in the sector. Algorithms

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also enable self-teaching defect detection, so that line-specific defects can be recognized. Thanks to its flexible options for use, the system is ideal for multi-model lines, since CAD models are used to automatically plan a collision-free robot inspection path. Deployed in line-tracking operation, the robots need no additional linear axis for moving.

Software and connectivity are ready for the future

The inspection data collected enables continuous, long-lasting production optimization. In connection with the Enterprise **PRO**duction Management Intelligence solution, ^EPROMI, the collected statistical data is analyzed according to individual information requirements and presented on standardized or individual dashboards.

Configuration is fast and intuitive thanks to easy-to-use software. The system can also be easily retrofitted to existing plants. Moreover, compatibility with all common robot brands guarantees optimum integration into a particular plant environment usually specified by the customer.

With such flexible applications, CPV is already geared towards order-controlled multi-line production today. The system thus supports the industry in its vision of production facilities in which cars produced according to customer preferences automatically access processing stations depending on their equipment line or distinct design – in an order-controlled, intelligent and efficient way.

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Images



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PAINTSCAN's slim enclosure is home to state-of-the-art processors, high-resolution cameras and special LED matrix lighting.



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The PAINTSCAN is a hybrid sensor, which combines two surface inspection methods. All topographical and non-topographical paint defects are thus detected reliably.

PRESS NEWS

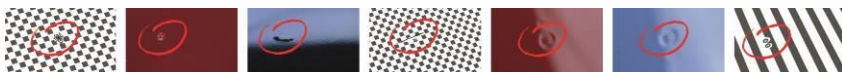
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