
Release: No. 757, 2nd May, 2019

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High accuracy, high speed, high usability: New quad-camera sensor from the 3D precision measurement technology portfolio

Top speed and absolute results in 3D inline measurement: Minimal measurement distance for optimum feature monitoring

A new sensor with maximum measurement precision now enables highly efficient quality control in automotive production thanks to an ideal ratio of distance and measurement volume. That is why a leading premium automotive manufacturer has now chosen the multi-stereo 3D scanner and begun using it for 3D inline measurement at a German plant. The system is characterized by enhanced accuracy and the minimum measurement distance. This extremely close proximity is crucial for accessing hard-to-reach features, such as in the wheel house or transmission tunnel, and for flexible use inline, at-line and off-line.

Even under the most difficult conditions, the all-in-one sensor detects all object shapes in next to no time thanks to four high-resolution cameras and a high-performance LED projector. The innovative multi-stereo technology creates a particularly complete, ultra-fine point cloud with stereometric images from six different pairs of cameras. The various perspectives keep even reflective areas in focus, as they can be optimally captured from another angle. More so in mixed material inspections – a challenge for previous solutions – the system provides reliable data.

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The premium German automotive manufacturer uses the new sensor version with higher accuracy and reduced measurement distance (190 mm) at four robot measurement stations on the line. Symmetrical measurement volume makes robot positioning especially simple, as the sensor has no preferred orientation. The optimized embedded software measures all the usual measurement features, such as holes, bolts, edges, etc. All feature measurements are analyzed directly at the sensor, reducing the costs for additional PCs to analyze. An absolutely calibrated robot ensures high absolute accuracy for the coordinates and enables high comparability with CMM measurements. Moreover, connection to the manufacturer's database system allows the sensor to be set up automatically on the basis of existing data as well as making a comparison of the results.

Optimum quality control with point cloud technology

If a CAD data set for a component is already available, dimension deviations can be determined quickly by means of a CAD comparison. X-GAGE3D uses this process to examine all object features simultaneously, considerably speeding up quality control. For object digitization, the sensor creates the CAD data itself and makes it available for further processing in all conventional formats. X-GAGE3D is especially precise at this task thanks to its ultra-fine point cloud technology: The minimal spacing between the data points delivers a high information density and depicts the object surface precisely. This makes it ideally suited for applications in the quality lab and for integration in an automated line. As a flexible solution, X-GAGE3D is available in multiple formats covering all difficult and complex surfaces and geometries.

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Object digitization as quality control

X-GAGE3D also displays high operational capability: It is suitable for every inspection from the shop floor to the laboratory, while the robust design also makes the sensor ideally suited for robot-guided applications. Another version of the system can be used for object digitization, resulting in precise digital images that depict the components fully and in detail and provide the images in all common formats for further processing. This allows even freely shaped areas to be inspected precisely and provides ideal results for additive manufacturing with a 3D printer or for reverse engineering. If a CAD data set for a component is already available, dimension deviations can be determined quickly by means of a CAD comparison. The system uses this process to examine all object features simultaneously, considerably speeding up quality control.

Designed for simple operation and Industry 4.0

An intuitive user interface with tile design allows for safe operation of the sensor even without prior experience – trouble-free operation is guaranteed. Equipped with Wi-Fi and the OPC/UA protocol, the sensor is also optimally positioned for connected production and Industry 4.0. X-GAGE3D also complements ISRA's equipment range for absolute measurement tasks. These reference systems determine the absolute sensor position in the space in relation to a higher-level coordinate system, thus producing the most objective results possible.

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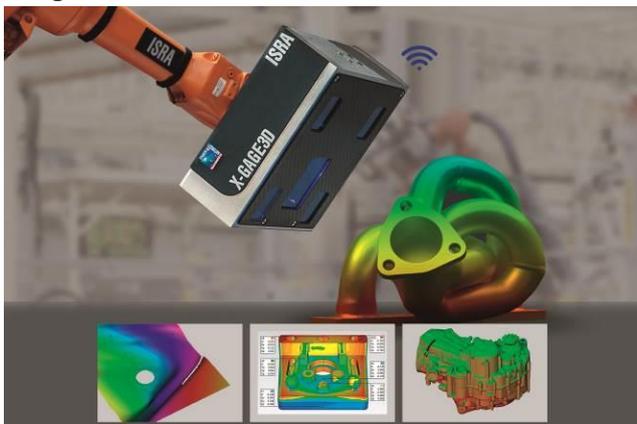
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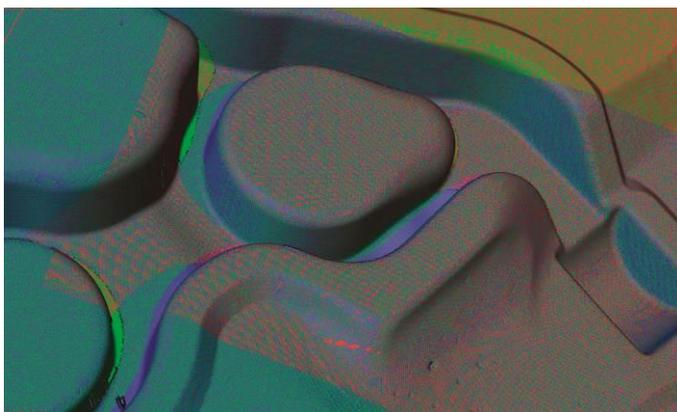
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Images



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X-GAGE3D impresses with 3D measurement technology for the tiniest details thanks to the ideal balance between distance and measurement volume.



757_2.jpg

With four integrated cameras and powerful LED lighting, X-GAGE3D detects even the tiniest details.

PRESS NEWS

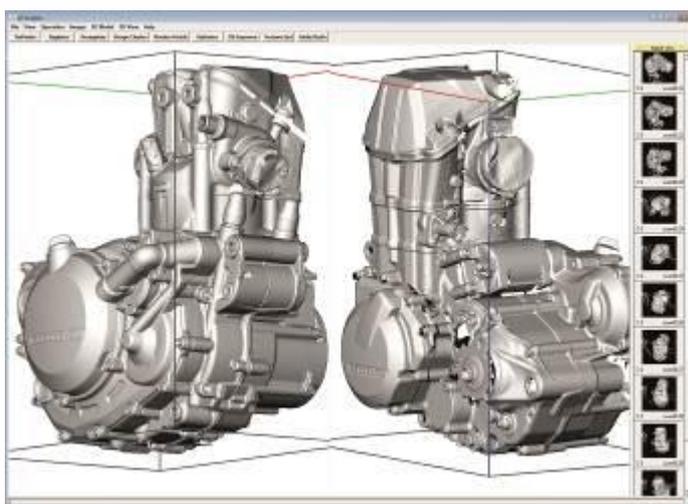
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757_3.jpg

The minimal distance from the object allows X-GAGE3D to achieve optimum feature accessibility.

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