A New Dimension of Quality Control

Innovative imaging components solving challenges in surface inspection
trevista® is a patented system designed to handle challenging inspection tasks in industrial imaging. The system is tailored for optimum integration into production environments.
As surface quality requirements become stricter, innovative inspection concepts are called for. trevista® meets the highest standards in wide-ranging applications.

Discoloration caused by a water stain? Or actual surface damage? If the inspection system makes the wrong decision, inspected parts with good surfaces may be scrapped – or manufacturers may face unpleasant consequences if defective parts slip through and customers do not receive the agreed parts quality.

trevista® prevents these scenarios from ever happening. trevista® is a patented imaging process for automated inspection of technical and decorative surfaces. trevista® ‘sees’ more than classic imaging inspection systems by generating topographic images of the inspected parts that reveal defects of even a few micrometers.

trevista® uses SAC’s advanced ‘shape from shading’ technology, which gathers information on the three-dimensional shape of an object from its surface shading and visualizes this information according to various criteria (slope, curvature, texture). The images generated can be used singly or combined for evaluation purposes. trevista® features a standardized illumination system that enables it to be used flexibly as a plug-and-play system for a wide range of applications. No need for complicated illumination setup tests – the system’s advanced algorithm delivers result images in a fraction of a second, ensuring rapid and reliable inspection of even the largest batches.

trevista® is available in a range of versions and models: a core component, a complete system including lens, camera and PC, or a unit integrated into a custom automatic inspection system tailored to specific applications.

Expand what you see in a new dimension – rely on trevista® for your quality control process!
trevista® is based on patented ‘shape from shading’ technology, which uses surface shading to collect information about the three-dimensional shape of an object.

On a cloudy day, a snow-covered mountain looks like a single smooth surface, without contours or folds. Yet when the sun shines, shading effects are created that provide information about the mountain’s topography and give a precise impression of its elevations and depressions. trevista® has captured this light and shading effect and transformed it into an industrial imaging system. Four input images are used to calculate a range of result images: two topographic slope images in x and y direction, a curvature image invariant to the orientation of the defect (produced by combining the two slope images), and a texture image for evaluating surface reflectance.

The result images delivered by trevista® can be combined in various ways to ensure reliable, flexible detection of a wide range of defects.
Images – The Basis for All Successful Imaging Solutions

trevista® generates image information that enhances your inspection processes by adding substance and efficiency.

The result images supply the image information – here based on the example of a coin – as topographic and reflectance information. Depending on the defect category, the channels can be examined singly or in combination during evaluation.

**Topographic Information:**
**Slope Images in x and y Direction**
These two slope images in x and y direction are ideally suited for detecting defects with a specific orientation, and shape deviations such as dents. Further slope images are optionally available, primarily designed to enable efficient inspection of all components with rotational symmetry.

**Curvature Image**
The curvature image is invariant in orientation and combines topographic information from the two slope images.

The information it delivers is ideally suited for reliable detection and classification of even the smallest local defects of a few µm, such as scratches, impact marks etc. The algorithm features an integration function, used to generate a local depth image which enables local elevations and depressions to be detected in fractions of a second.

**trevista® delivers informative result images that can be used in evaluation singly or in combination.**

**Reflectance Information:**
**Texture Image**
The texture image delivers an evaluation of the brightness characteristics (reflectance) of the surface, allowing defects such as discoloration and rust to be identified if required.

The trevista® model SURFACE HYBRID distinguishes between shiny and diffusely reflecting areas in one and the same surface by means of the light scattering coefficient.
trevista® Product Range

Complex tasks – simple solution. The trevista® product range offers the ideal system for your application.

trevista® Processes and Field of Views:

trevista® is available in three sizes covering a field of view diameter of up to 200 mm.

Depending on the application, the illumination unit can be used in both pulsed and continuous mode for inspection tasks.

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<th>trevista® Versions</th>
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Each illumination unit is driven by a controller unit custom-designed for trevista®, to ensure flawless coordination of the individual components and utmost reliability. If required, the ultra-high-performance illumination control unit in 19” format provides additional functions such as digital I/Os, high-powered LED drivers for up to two further illumination units, sequencer mode, and many more. The system thus offers supreme flexibility for implementing complex image processing solutions, coupled with outstanding user-friendliness and rugged industrial design – made in Germany.

trevista® is available in 3 different models:

trevista® COMPONENT
Includes trevista® core unit hardware and software
- Patented domed illumination unit
- Mechanical camera connection
- LED controller unit
- trevista® algorithm supplied as DLL with dongle

trevista® SYSTEM
trevista® core unit plus camera, illumination, PC and imaging software. Ready-to-use plug-and-play system – no need for coordination of the various components.
- trevista® COMPONENT
- Lens and camera (matrix or line scan camera)
- Industrial PC
- Coake® imaging software
- Custom inspection program

trevista® AUTOMATION
A complete single-source solution
- trevista® SYSTEM
- Design of complete inspection systems
- Integration of all relevant inspection technology
- Construction and production of inspection system including mechanical automation
- Commissioning, training and production support
- Comprehensive after-sales service
trevista®
Mature technology, proven since 2006 in many implementations in a range of industry sectors.
Machine Vision for Industry

Our expertise, enthusiasm, and experience generate genuine competitive edge for our customers.

Our extensive consultancy, training, and support services ensure smooth, professional implementation of your project – from initial inquiry to comprehensive after-sales service.

Always close to the customer – always flexible.