SURFACE+

DISCOVER ADDITIONAL IMAGE DIMENSIONS

3D MACHINE VISION

SICK
Sensor Intelligence.

MORE THAN MEETS THE EYE

Surface+ is a new patented technology that provides an additional image dimension to reveal even a very tiny scratch on a smooth surface. It can also be used for measuring the glossiness of surfaces to detect paint or coating defects, for example.

In most industries, standard surface inspection applications typically require both 3D and 2D data. The 3D data is used to measure the dimensions, finding dents and similar irregularities, while the 2D data is used to detect tiny scratches or gloss defects that are visible under specific illumination.

With Surface+, a new technology from SICK, both tasks are now completed with a single camera! Multiple images are acquired in both 2D and 3D in a single image capture. Not only that: The 2D and 3D data are even aligned along the same coordinate system.

This makes Surface+ suitable for a wide range of applications, such as in consumer goods, the automotive sector, the electronics industry, and processes dealing with wood, metal or steel.
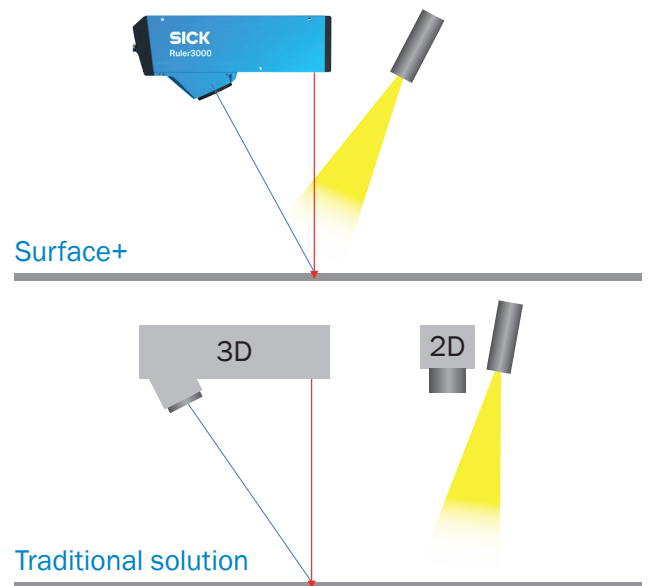
How it works

By adding external illumination during the 3D scanning that Ruler3000 or Ranger3 perform, it is possible to acquire 2D data using a technology similar to line scanning. This data reveals an additional image dimension – without the need for separate 2D vision sensors.
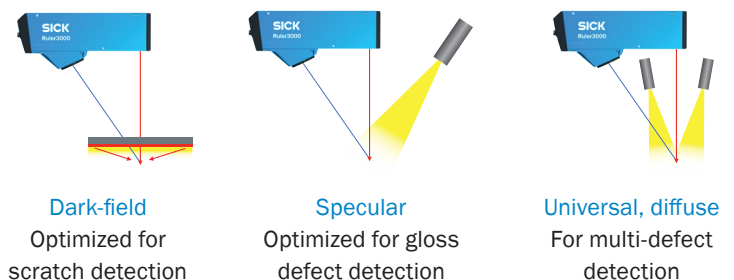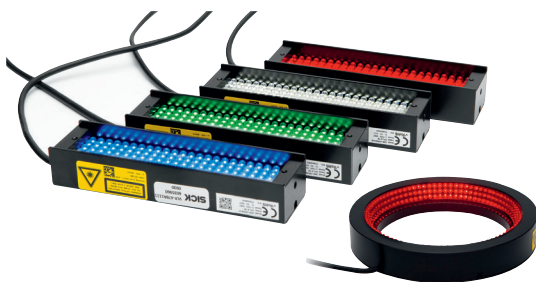
Benefits with Surface+

Surface+ includes 3D, 2D and reflectance – all in one scan, in one single camera from SICK

- Easy to use
- Multiple images from a single camera setup
- 2D and 3D images precisely aligned
- No alignment procedure needed
- Full focus for both 2D and 3D in the whole Z range
- Robust and stable
- Less space demanded in tight applications
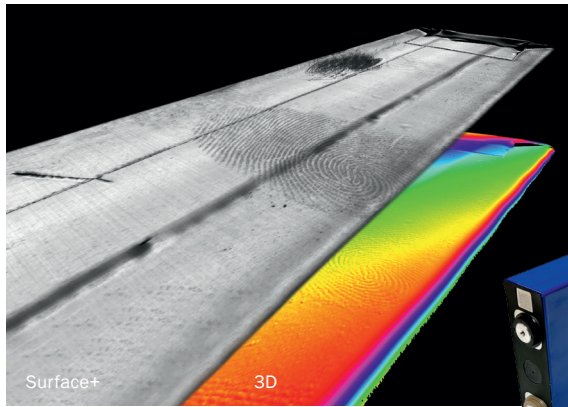
Surface+

Traditional solution

Unlock the feature with external illumination

Different light setups allow for a wider range of defect detections. A dark-field light is better suited to scratch detection, while specular illumination is preferable for gloss defect detection and a universal/diffuse illumination setup is suitable for multi-defect detection. All are compatible with the Ruler3000 and Ranger3.
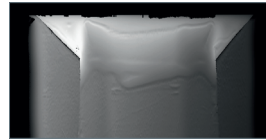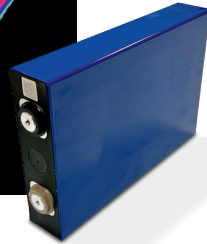
Dark-field
Optimized for scratch detection

Specular
Optimized for gloss defect detection

Universal, diffuse
For multi-defect detection

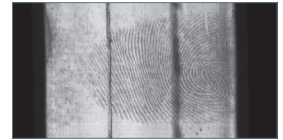# EXAMPLES OF APPLICATIONS USING SURFACE+

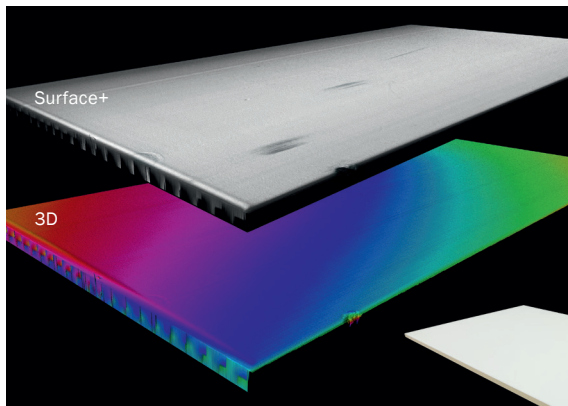Surface+   3D

Battery foil inspection

Battery production requires high-precision inspection for quality control. The Surface+ technology reveals unacceptable defects such as small scratches and dents that are not visible to the human eye. Even a light fingerprint becomes visible!
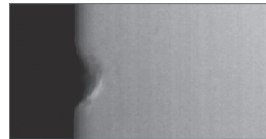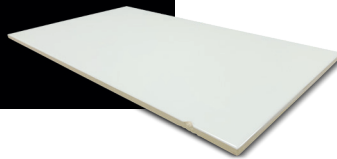

Foil wrapping in height map

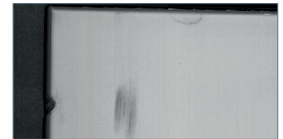Fingerprint detected in Surface+

Surface+
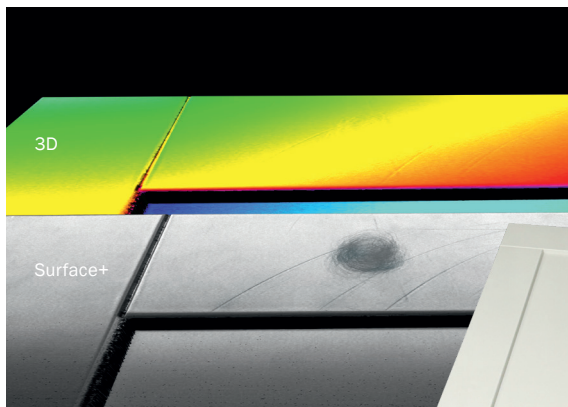
3D

Ceramic tile inspection

Visual inspection of ceramic tiles is a critical process to ensure quality in every piece. The inspection must guarantee that each tile meets exact standards while detecting and rectifying any imperfections. With the Surface+ technology, defects like light scratches are reliably detected along with other imperfections on glossy surfaces, like dents.
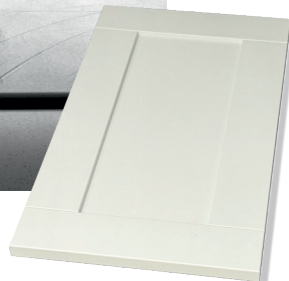

Dent detected in height map

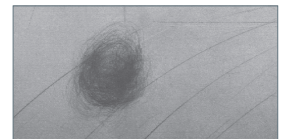Scratches detected in Surface+

3D

Surface+

Wooden board inspection

Delicate wooden boards used in furniture or flooring production not only require high production speeds, the quality must also meet end-user standards. Tiny scratches or dents are easily discovered by the Surface+ technology, even on glossy surfaces and varnishes.

Kitchen door in height map

Scratches detected in Surface+

INCLUDED AND READY TO USE

Surface+ is included right out of the box with Ranger3 and Ruler3000 – resulting in a harmonious duo of great 3D data and Surface+ alignment.

➔ **www.sick.com/Ruler3000 | www.sick.com/Ranger3**

SICK AT A GLANCE

SICK is a leading manufacturer of intelligent sensors and sensor solutions for industrial applications. With more than 11,900 employees and over 50 subsidiaries and equity investments, as well as numerous international agencies, SICK is always close to its customers. An extensive range of products and services creates the ideal basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

SICK has extensive experience in various industries and understands their processes and requirements. With intelligent sensors, SICK delivers exactly what the customers need. In application centers in Europe, Asia, and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes SICK a reliable supplier and development partner.

Comprehensive services round out the offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

That is "Sensor Intelligence."

Worldwide presence:

Australia, Austria, Belgium, Brazil, Canada, Chile, China, Czech Republic, Denmark, Finland, France, Germany, Great Britain, Hungary, Hong Kong, India, Israel, Italy, Japan, Malaysia, Mexico, Netherlands, New Zealand, Norway, Poland, Romania, Singapore, Slovakia, Slovenia, South Africa, South Korea, Spain, Sweden, Switzerland, Taiwan, Thailand, Turkey, United Arab Emirates, USA, Vietnam.

Detailed addresses and further locations ➔ **www.sick.com**

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