



## Ranger3

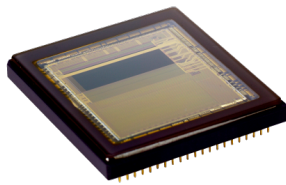
Superior 3D performance in a small package powered by ROCC technology

**SICK**  
Sensor Intelligence.

## Advantages



## Setting a new standard for high-speed 3D



SICK CMOS 3D sensor.



Faster and more precise shape, volume, and position measurements with 3D cameras from SICK.



Superior 3D performance with Rapid On-Chip Calculation technology (ROCC).

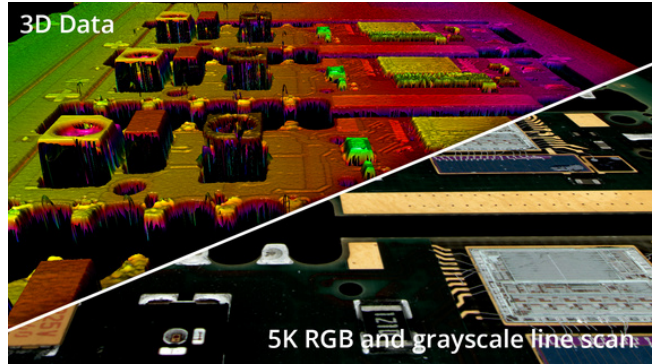


**“Ranger3 is an amazing product that shows how the quantum jump of technology can open new possibilities and markets to 3D vision”, says Jun-Young Lee, Managing Director at Novitec. Co. Ltd., South Korea.**



## Fast just got faster

**The next generation Ranger3 enables even higher speed and RGB high-resolution line scan functionality.**



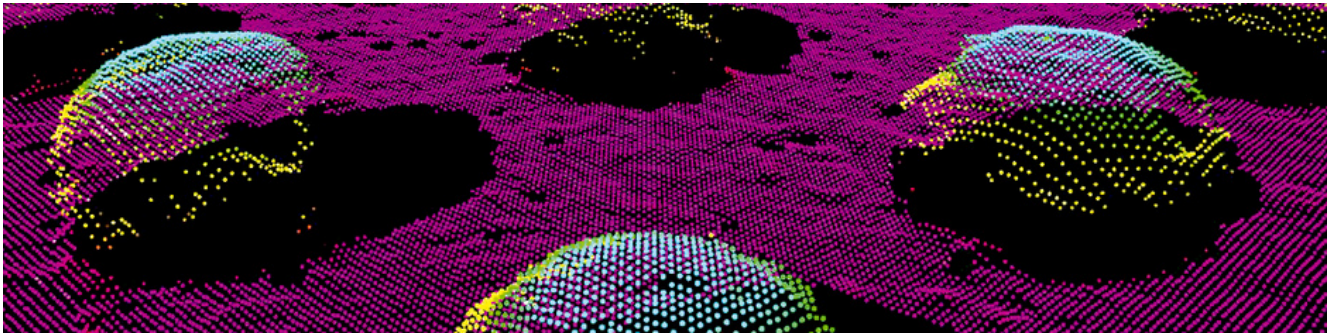
**High-speed network interface**

With the new 2.5 Gbit/s network interface, more data can be streamed from the camera and 3D profile rates of up to 69 kHz can be achieved.

The high-speed interface also allows 3D data in combination with reflectance and scatter data at speeds up to 46 kHz.

**Enabling high resolution color and grayscale imaging**

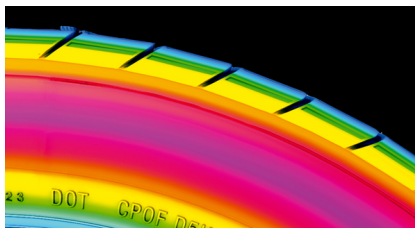
With the unique market leading sensor technology developed by SICK, ultra fine details in RGB and grayscale can be captured in the excellent resolution of 5,120 pixels. The high-resolution 2D data is easily captured concurrently and can be aligned with the high-precision 3D data. All done using only the Ranger3.



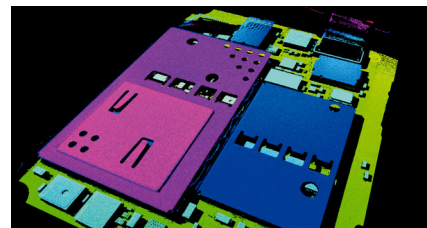
**Creating values in a wide range of industries**



3D inspection, faster than a moving train – a reality with the Ranger3.



The high light sensitivity of the Ranger3 makes it possible to accurately and rapidly inspect very dark materials, such as tires.



Substantially increased throughput in electronics with the new 3D streaming camera from SICK.



**Ranger3 not only keeps up, it exceeds the pace – creating new opportunities for vision machine builders and vision system integrators in a wide range of industrial applications.**



## Surface+: 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.

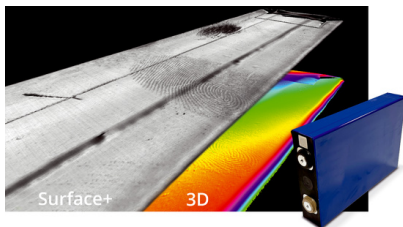
In most industries, standard surface inspection applications typically require both 3D and 2D data. The 3D data is used to measure the dimensions, finding dents and similar irregularities, while the 2D data is used to detect tiny scratches or gloss defects that are visible under specific illumination.

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 the processing of moving wood, metal or steel.

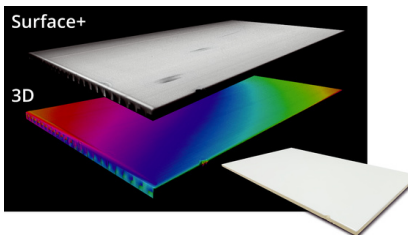
Surface+ is included in the scope of delivery of the Ranger3 and Ruler3000 – the result is a harmonious duo of great 3D data and Surface+ alignment.

Find out more about Surface+ here



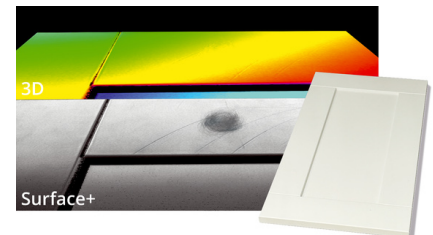
### Inspection of battery foils

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!



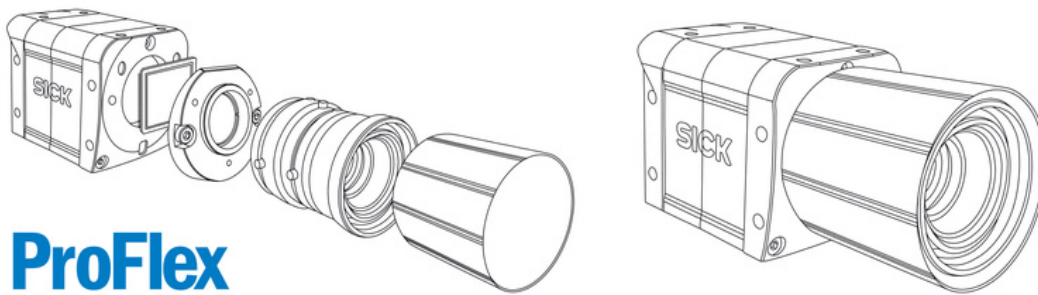
### Inspection of ceramic tiles

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.



### Inspection of boards

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.



## ProFlex

### ProFlex – the clever lens and filter mounting system

The ProFlex concept features exchangeable modules including a wide range of lenses, an optics protection hood with protection class IP65 or IP67, replaceable threaded filters, and multiple Scheimpflug adapters. This allows Ranger3 to adjust and optimize the focal length for each specific setup to ensure that the entire object height is always perfectly in focus.



The ProFlex concept of Ranger3 makes it easy to install the compact camera and to adapt it for specific needs.



The Scheimpflug adapter puts the lens in an optimized angle, creating sharp images.



The optics protection hood provides IP65 or IP67 protection for demanding environments.



**The innovative SICK ProFlex concept is an intelligent solution for easy system installation.**



### SICK LifeTime Services

**From consulting to modernization: SICK LifeTime Services increase the productivity of plants and machines, improve the safety of your employees, and provide a solid foundation for sustainable business operations. As a solution provider, SICK works with you to manage the holistic implementation of projects relating to industrial automation, safety and digitalization.**



**Comprehensive industry know-how and more than 75 years of practical experience create ideas and provide knowledge for your solutions. Find out more**



## Technical data overview

<b>Technology</b>	3D laser triangulation / 3D laser triangulation / 2D line scanning, color (depends on variant)
<b>Scan/frame rate</b>	1,500 3D profiles/s ... 69,000 3D profiles/s, in AOI, full format (depends on variant)
<b>Scatter measurement</b>	✓
<b>Reflectance measurement</b>	✓
<b>3D measurement</b>	✓
<b>Enclosure rating</b>	IP20, IP65, IP67
<b>Configuration software</b>	Ranger3 Studio / Stream Setup (depends on variant)
<b>Ethernet</b>	✓, UDP/IP

## Product description

Fast got faster. Highly accurate and with an unmatched measurement speed, the Ranger3 streaming cameras can be configured for a wide range of needs. Powered by our unique 3D sensor tailored for demanding vision applications, Ranger3 serves as a key component in inspection systems worldwide. The camera extracts the true 3D shape of an object, regardless of its contrast or color and as a result, improves quality for a multitude of products. The next generation Ranger3 enables even higher speed and RGB high-resolution line scan functionality. Cost-effective integration is guaranteed through GigE Vision and GenICam compliance. Ranger3 offers big 3D performance in a small housing.

## At a glance

- 2.5 Gbit/s network interface option
- RGB and grayscale in 5120 pixels on selected variants
- ROCC technology for superior 3D performance
- 3D profiles at up to 69 kHz in reduced ROI
- GigE Vision and GenICam compliant
- 3D, reflectance, and scattered light measurement in one device
- Industrial housing, optional IP65/67 enclosure rating

## Your benefits

- Ultra-fine measurements enabled by the RGB high-resolution line scan functionality
- Unique CMOS sensor enables fast 3D measurement speed for increased throughput
- Reliable and accurate measurements on dark and bright surfaces enable flexible production
- High light sensitivity allows 3D inspection without higher laser power
- Accurate shape, volume and position measurements for a wide range of objects improving product quality
- Standardized software integration with GigE Vision and GenICam
- Easy mechanical integration thanks to a compact housing, the ProFlex-Front, industrial connectors and 4Dpro accessories

## Fields of application

- Electronic component and PCB inspection
- Tire quality control
- High-speed railway and road surface inspection
- Inspection and dimensioning in the metal industry
- Packaging and in-line food quality control
- Quality inspection and classification in the wood and furniture industry
- Quality control of battery modules

## Ordering information

Other models and accessories → [www.sick.com/Ranger3](http://www.sick.com/Ranger3)

- **Lens:** C-mount

Product version	Grayscale resolution	Scan/frame rate	Type	Part no.
Ranger3-30	-	20,000 3D profiles/s, in AOI 1,500 3D profiles/s, full format	V3DR3-30NE31111	1109564
Ranger3-40	-	20,000 3D profiles/s, in AOI 2,500 3D profiles/s, full format	V3DR3-40NE31111	1105757
Ranger3-60	-	46,000 3D profiles/s, in AOI 7,000 3D profiles/s, full format	V3DR3-60NE31111	1091560
Ranger3-80	5,120 px	69,000 3D profiles/s, in AOI 7,000 3D profiles/s, full format	V3DR3-80CT31111	1141150

## SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our 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 us a reliable supplier and development partner.

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

For us, that is “Sensor Intelligence.”

## WORLDWIDE PRESENCE:

Contacts and other locations –[www.sick.com](http://www.sick.com)