



# Ranger

Fast 3D measurement and MultiScan for advanced industrial solutions

3D MACHINE VISION

**SICK**  
Sensor Intelligence.



### Technical data overview

<b>Technology</b>	3D line scanning / MultiScan / 3D line scanning / Multi-Scan / color (depending on type)
<b>Scan/frame rate</b>	1,000 3D profiles/s ... 35,000 3D profiles/s (depending on type)
<b>Grayscale measurements</b>	- / ✓ (depending on type)
<b>Color measurements</b>	Red / Green / blue / monochrome (without IR content) / Red / Green / blue / monochrome (without IR content) / near infrared (approx. 750 nm ... 950 nm) (depending on type)
<b>Scatter measurement</b>	- / ✓ (depending on type)
<b>Light source</b>	Internal lighting To be ordered separately as accessories
<b>Enclosure rating</b>	IP20
<b>Configuration software</b>	Ranger Studio
<b>Ethernet</b>	✓, UDP/IP
<b>Serial</b>	✓, RS-422, Encoder

### Product description

Ranger cameras offer high levels of flexibility and can be configured for a wide range of needs. With its fast 3D measurement speed, data quality, and flexible MultiScan functionality, it serves as a key image processing component in inspection systems worldwide. Ranger cameras extract the true 3D shape of an object, regardless of its contrast or color. It is used to measure object height and volume, to detect shape defects, and for quality grading and size sorting. With its unique MultiScan tool, a multitude of object features, such as contrast, gloss, and scatter can be measured at the same time! This enables reliable inspection results and more cost-efficient solutions since it only takes one Ranger to perform it all.

### At a glance

- Fast 3D measurement at high speed and quality
- MultiScan function for simultaneously measuring the 3D shape, contrast, color, and scatter
- Sensor resolutions of up to 1,536 pixels in 3D and 3,072 pixels in grayscale and color
- High levels of flexibility in configuration, working distance, and field of view
- In-machine 3D calibration
- Gigabit Ethernet and CameraLink interfaces

### Your benefits

- High-speed and high-resolution measurements allow you to increase production throughput, and still see fine details, thus ensuring production quality.
- Get accurate size and position measurements in 3D regardless of an object's height or color, ensuring reliable solutions
- High levels of flexibility in the field of view combined with the in-machine 3D calibration concept provides true millimeter dimensions
- Unique MultiScan technology enables one camera to do the work of many, reducing costs for integration, maintenance, and accessories, and creating cost-efficient solutions.
- The high level of flexibility and versatility of the Ranger makes it the ideal choice for challenging tasks

## Ordering information

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

- **Sub product family:** Ranger D
- **3D profile resolution:** 512 px
- **Gray-scale resolution:** 512 px
- **Scan/frame rate:** 1,000 3D profiles/s
- **IR filter:** No IR pass filter
- **Lens:** C-Mount, 1/2"
- **Product group:** Ranger series
- **Product family:** Ranger
- **Communication interface:** Ethernet, Serial

Enclosure rating	Internal lighting	Configura- tion software	Ambient op- erating tem- perature min.	Ambient op- erating tem- perature max.	Type	Part no.
IP20	1)	Ranger Studio	≥ 0 °C	≤ +45 °C	Ranger-D40213	1040383

1) To be ordered separately as accessories.

- **Sub product family:** Ranger D
- **3D profile resolution:** 1,536 px
- **Gray-scale resolution:** 1,536 px
- **Scan/frame rate:** 1,000 3D profiles/s
- **IR filter:** No IR pass filter
- **Lens:** C-Mount, 1"
- **Product group:** Ranger series
- **Product family:** Ranger
- **Communication interface:** Ethernet, Serial

Enclosure rating	Internal lighting	Configura- tion software	Ambient op- erating tem- perature min.	Ambient op- erating tem- perature max.	Type	Part no.
IP20	1)	Ranger Studio	≥ 0 °C	≤ +45 °C	Ranger-D50213	1040384

1) To be ordered separately as accessories.

- **Sub product family:** Ranger E
- **3D profile resolution:** 512 px
- **Scatter resolution:** 512 px
- **Gray-scale resolution:** 512 px
- **Scan/frame rate:** 35,000 3D profiles/s
- **IR filter:** No IR pass filter
- **Lens:** C-Mount, 1/2"
- **Product group:** Ranger series
- **Product family:** Ranger
- **Communication interface:** Ethernet, Serial

Enclosure rating	Internal lighting	Configura- tion software	Ambient op- erating tem- perature min.	Ambient op- erating tem- perature max.	Type	Part no.
IP20	1)	Ranger Studio	≥ 0 °C	≤ +45 °C	Ranger-E40414	1040378

1) To be ordered separately as accessories.

- **Sub product family:** Ranger E
- **3D profile resolution:** 1,536 px
- **Scatter resolution:** 1,536 px
- **Gray-scale resolution:** 1,536 px
- **Scan/frame rate:** 35,000 3D profiles/s
- **IR filter:** No IR pass filter
- **Lens:** C-Mount, 1"
- **Product group:** Ranger series
- **Product family:** Ranger
- **Communication interface:** Ethernet, Serial

Enclosure rating	Internal lighting	Configura- tion software	Ambient op- erating tem- perature min.	Ambient op- erating tem- perature max.	Type	Part no.
IP20	1)	Ranger Studio	≥ 0 °C	≤ +45 °C	Ranger-E50414	1040379

<sup>1)</sup> To be ordered separately as accessories.

- **Sub product family:** Ranger E
- **3D profile resolution:** 1,536 px
- **Scatter resolution:** 1,536 px
- **Gray-scale resolution:** 1,536 px
- **Scan/frame rate:** 35,000 3D profiles/s
- **IR filter:** IR pass filter
- **Lens:** C-Mount, 1"
- **Product group:** Ranger series
- **Product family:** Ranger
- **Communication interface:** Ethernet, Serial

Enclosure rating	Internal lighting	Configura- tion software	Ambient op- erating tem- perature min.	Ambient op- erating tem- perature max.	Type	Part no.
IP20	1)	Ranger Studio	≥ 0 °C	≤ +45 °C	Ranger-E50424	1040381

<sup>1)</sup> To be ordered separately as accessories.

- **Sub product family:** Ranger E
- **3D profile resolution:** 1,536 px
- **Scatter resolution:** 1,536 px
- **Gray-scale resolution:** 3,072 px
- **Scan/frame rate:** 35,000 3D profiles/s
- **IR filter:** No IR pass filter
- **Lens:** C-Mount, 1"
- **Product group:** Ranger series
- **Product family:** Ranger
- **Communication interface:** Ethernet, Serial

Enclosure rating	Internal lighting	Configura- tion software	Ambient op- erating tem- perature min.	Ambient op- erating tem- perature max.	Type	Part no.
IP20	1)	Ranger Studio	≥ 0 °C	≤ +45 °C	Ranger-E55414	1040380

<sup>1)</sup> To be ordered separately as accessories.

- **Sub product family:** Ranger E
- **3D profile resolution:** 1,536 px
- **Scatter resolution:** 1,536 px
- **Gray-scale resolution:** 3,072 px
- **Scan/frame rate:** 35,000 3D profiles/s
- **IR filter:** IR pass filter
- **Lens:** C-Mount, 1"
- **Product group:** Ranger series
- **Product family:** Ranger
- **Communication interface:** Ethernet, Serial

Enclosure rating	Internal lighting	Configura- tion software	Ambient op- erating tem- perature min.	Ambient op- erating tem- perature max.	Type	Part no.
IP20	1)	Ranger Studio	≥ 0 °C	≤ +45 °C	Ranger-E55424	1040382

1) To be ordered separately as accessories.

- **Sub product family:** Ranger E
- **3D profile resolution:** 1,536 px
- **Scatter resolution:** 1,536 px
- **Gray-scale resolution:** 1,536 px
- **Scan/frame rate:** 35,000 3D profiles/s
- **IR filter:** No IR pass filter
- **Lens:** C-Mount, 1", with the lens mounted at a 90° angle
- **Product group:** Ranger series
- **Product family:** Ranger
- **Communication interface:** Ethernet, Serial

Enclosure rating	Internal lighting	Configura- tion software	Ambient op- erating tem- perature min.	Ambient op- erating tem- perature max.	Type	Part no.
IP20	1)	Ranger Studio	≥ 0 °C	≤ +45 °C	Ranger-E50410	1085082

1) To be ordered separately as accessories.

- **Sub product family:** ColorRanger E
- **3D profile resolution:** 1,536 px
- **Scatter resolution:** 1,536 px
- **Color resolution:** 3 x 1,536 px
- **Gray-scale resolution:** 1,536 px
- **Scan/frame rate:** 35,000 3D profiles/s
- **IR filter:** No IR pass filter
- **Lens:** C-Mount, 1"
- **Product group:** Ranger series
- **Product family:** Ranger
- **Communication interface:** Ethernet, Serial

Enclosure rating	Internal lighting	Configura- tion software	Ambient op- erating tem- perature min.	Ambient op- erating tem- perature max.	Type	Part no.
IP20	1)	Ranger Studio	≥ 0 °C	≤ +45 °C	Ranger-E50434	1050267

1) To be ordered separately as accessories.

- **Sub product family:** ColorRanger E
- **3D profile resolution:** 1,536 px
- **Scatter resolution:** 1,536 px
- **Color resolution:** 3 x 1.536 px
- **Gray-scale resolution:** 1,536 px
- **Scan/frame rate:** 35,000 3D profiles/s
- **IR filter:** IR pass filter
- **Lens:** C-Mount, 1"
- **Product group:** Ranger series
- **Product family:** Ranger
- **Communication interface:** Ethernet, Serial

Enclosure rating	Internal lighting	Configura- tion software	Ambient op- erating tem- perature min.	Ambient op- erating tem- perature max.	Type	Part no.
IP20	1)	Ranger Studio	≥ 0 °C	≤ +45 °C	Ranger-E50444	1050269

<sup>1)</sup> To be ordered separately as accessories.

- **Sub product family:** ColorRanger E
- **3D profile resolution:** 1,536 px
- **Scatter resolution:** 1,536 px
- **Color resolution:** 3 x 3,072 px
- **Gray-scale resolution:** 3,072 px
- **Scan/frame rate:** 35,000 3D profiles/s
- **IR filter:** No IR pass filter
- **Lens:** C-Mount, 1"
- **Product group:** Ranger series
- **Product family:** Ranger
- **Communication interface:** Ethernet, Serial

Enclosure rating	Internal lighting	Configura- tion software	Ambient op- erating tem- perature min.	Ambient op- erating tem- perature max.	Type	Part no.
IP20	1)	Ranger Studio	≥ 0 °C	≤ +45 °C	Ranger-E55434	1050268

<sup>1)</sup> To be ordered separately as accessories.

- **Sub product family:** ColorRanger E
- **3D profile resolution:** 1,536 px
- **Scatter resolution:** 1,536 px
- **Color resolution:** 3 x 3,072 px
- **Gray-scale resolution:** 3,072 px
- **Scan/frame rate:** 35,000 3D profiles/s
- **IR filter:** IR pass filter
- **Lens:** C-Mount, 1"
- **Product group:** Ranger series
- **Product family:** Ranger
- **Communication interface:** Ethernet, Serial

Enclosure rating	Internal lighting	Configura- tion software	Ambient op- erating tem- perature min.	Ambient op- erating tem- perature max.	Type	Part no.
IP20	1)	Ranger Studio	≥ 0 °C	≤ +45 °C	Ranger-E55444	1050270

<sup>1)</sup> To be ordered separately as accessories.

- **Sub product family:** ColorRanger E
- **3D profile resolution:** 512 px
- **Scatter resolution:** 512 px
- **Color resolution:** 3 x 512 px
- **Gray-scale resolution:** 512 px
- **Scan/frame rate:** 35,000 3D profiles/s
- **IR filter:** No IR pass filter
- **Lens:** C-Mount, 1/2"
- **Product group:** Ranger series
- **Product family:** Ranger
- **Communication interface:** Ethernet, Serial

Enclosure rating	Internal lighting	Configura- tion software	Ambient op- erating tem- perature min.	Ambient op- erating tem- perature max.	Type	Part no.
IP20	1)	Ranger Studio	≥ 0 °C	≤ +45 °C	Ranger-E40434	1050266

1) To be ordered separately as accessories.

## 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)