



# V3DR3-40NE31111

Ranger3

3D MACHINE VISION

**SICK**  
Sensor Intelligence.



### Ordering information

Type	Part no.
V3DR3-40NE31111	1105757

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



### Detailed technical data

#### Features

<b>Task</b>	Quality inspection, high-speed Measuring, 3D
<b>Technology</b>	3D line scanning
<b>Product category</b>	Streaming, flexible
<b>Shutter technology</b>	Global-Shutter
<b>Example field of view</b>	Free of choice by lens selection
<b>Exposure mode</b>	Linear / HDR
<b>Illumination</b>	To be ordered separately as accessories
<b>Data synchronization</b>	Free running, encoder triggered, external triggering
<b>3D measurement</b>	✓
<b>Scatter measurement</b>	✓
<b>Reflectance measurement</b>	✓
<b>Spectral range</b>	400 nm ... 950 nm
<b>Lens</b>	C-mount
<b>Optical format</b>	1"
<b>Note</b>	To be ordered separately as accessories

#### Mechanics/electronics

<b>Connection type</b>	Voltage – I/O: M12, 17-pin male connector Gigabit Ethernet: M12, 8-pin female connector, X-coded
<b>Connector material</b>	M12: Nickel-coated brass
<b>Supply voltage</b>	24 V DC, ± 20 %
<b>Power consumption</b>	12 W
<b>Current consumption</b>	≤ 1.5 A
<b>Enclosure rating</b>	IP20 IP65, by ProFlex protection hood IP67, by ProFlex protection hood

<b>Housing material</b>	Aluminum
<b>Housing color</b>	Blue, powder-coated
<b>Weight</b>	330 g
<b>Dimensions (L x W x H)</b>	77 mm x 55 mm x 55 mm

## Performance

<b>Image sensor</b>	CMOS sensor from SICK with ROCC technology, M30
<b>Sensor resolution</b>	2,560 px x 832 px
<b>Scan/frame rate</b>	20,000 3D profiles/s, in AOI 2,500 3D profiles/s, full format
<b>Pixel size</b>	6 µm x 6 µm
<b>Maximum 3D height resolution</b>	16 bits, 1/16 subpixel

## Interfaces

<b>Ethernet</b>	✓, UDP/IP
Data transmission rate	1,000 Mbit/s
<b>Configuration software</b>	Ranger3 Studio
<b>Operating system</b>	Windows 7, Windows 10
<b>Programming interface</b>	GenAPI
<b>Digital input</b>	4 x HIGH = 10 V ... 28.8 V
<b>Digital output</b>	2 x TTL
<b>Encoder interface</b>	RS-422

## Ambient data

<b>Shock load</b>	15 g, 3 x 6 directions
<b>Vibration load</b>	5 g, 58 Hz ... 150 Hz
<b>Ambient operating temperature</b>	0 °C ... +50 °C <sup>1)</sup>
<b>Storage temperature</b>	-20 °C ... +70 °C <sup>1)</sup>

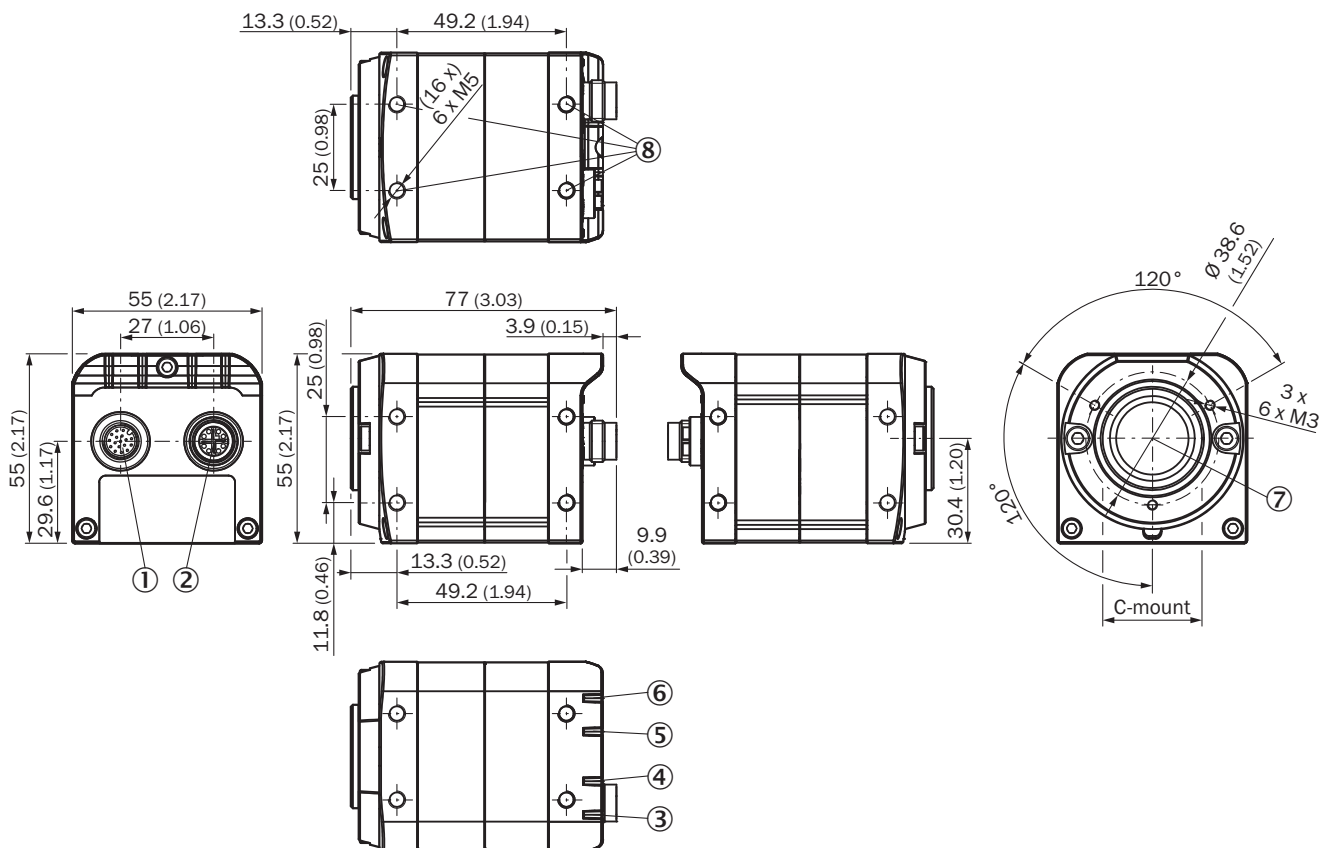
<sup>1)</sup> Non-condensing.

## Classifications

<b>ECI@ss 5.0</b>	27310205
<b>ECI@ss 5.1.4</b>	27310205
<b>ECI@ss 6.0</b>	27310205
<b>ECI@ss 6.2</b>	27310205
<b>ECI@ss 7.0</b>	27310205
<b>ECI@ss 8.0</b>	27310205
<b>ECI@ss 8.1</b>	27310205
<b>ECI@ss 9.0</b>	27310205
<b>ECI@ss 10.0</b>	27310205
<b>ECI@ss 11.0</b>	27310205
<b>ECI@ss 12.0</b>	27310205
<b>ETIM 5.0</b>	EC001820
<b>ETIM 6.0</b>	EC001820

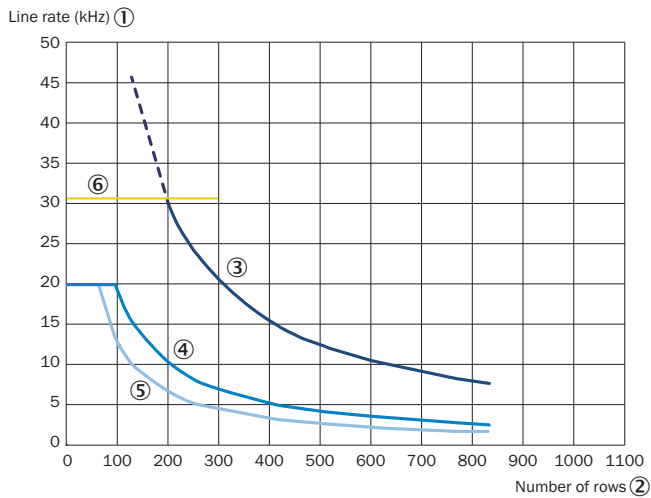
<b>ETIM 7.0</b>	EC001820
<b>ETIM 8.0</b>	EC001820
<b>UNSPSC 16.0901</b>	43211731

### Dimensional drawing (Dimensions in mm (inch))



- ① Power I/O connector
- ② Connector Gigabit Ethernet (Gig E)
- ③ LED; On
- ④ LED; State
- ⑤ LED; Link/Data
- ⑥ LED; Laser
- ⑦ Optical axis, receiver
- ⑧ Mounting holes, 4 x M5

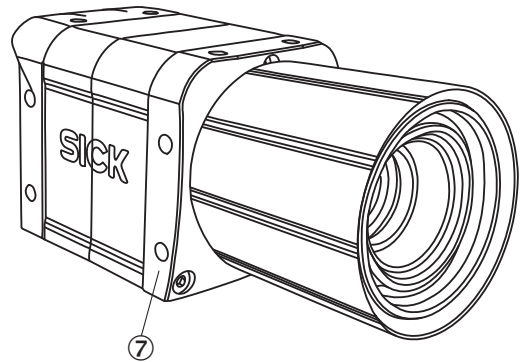
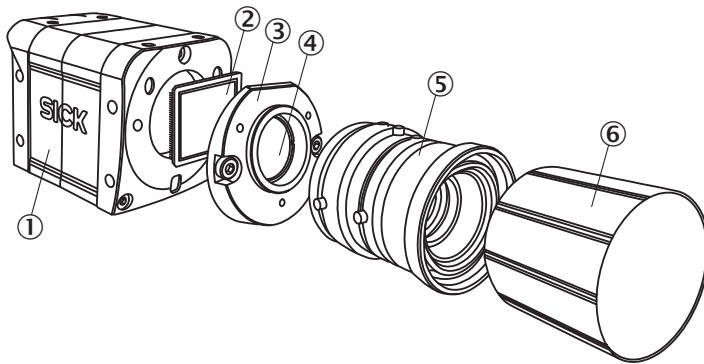
## Characteristic curve



The maximum line rate is based on the number of sensor lines used

- ① Line rate (kHz)
- ② Number of lines
- ③ Ranger3-60, 2,560 columns
- ④ Ranger3-40, 2,560 columns
- ⑤ Ranger3-30, 1,536 columns
- ⑥ Bandwidth limitation for 2,560 columns





## Exploded view



- ① Ranger3 (housing)
- ② CMOS sensor M30
- ③ Scheimpflug adapter, replaceable
- ④ Optical filter, replaceable
- ⑤ C-mount lens, replaceable
- ⑥ Protective hood, replaceable
- ⑦ Installed device with all listed parts

### Recommended accessories

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

	Brief description	Type	Part no.
Lenses and accessories			
	C-Mount lens 1", focal length 25 mm, lens aperture 1.4 – 16	C-mount lens	5327524
Mounting brackets and plates			
	Mounting bracket with camera adapter plate, including screws	Mounting bracket	2091431
Plug connectors and cables			
	Head A: female connector, M12, 17-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, serial, CANopen, digital I/Os, twisted pair, PUR, shielded, 3 m	YF2A2D-030UV1XLEAX	6042772
	Head A: male connector, M12, 8-pin, straight, X-coded Head B: male connector, RJ45, 8-pin, straight Cable: Ethernet, Gigabit Ethernet, PUR, halogen-free, shielded, 2 m	YM2X18-020EG1MRJA8	2106258

### Recommended services

Additional services → [www.sick.com/Ranger3](http://www.sick.com/Ranger3)

	Type	Part no.
Warranty extensions		
<ul style="list-style-type: none"> <li>• <b>Product area:</b> Identification solutions, machine vision, Distance sensors, Detection and ranging solutions</li> <li>• <b>Range of services:</b> The services correspond to the scope of the statutory manufacturer warranty (SICK general terms and conditions of purchase)</li> <li>• <b>Duration:</b> Five-year warranty from delivery date.</li> </ul>	Extended warranty for a total of five years from delivery date	1680671
Feasibility study		
<ul style="list-style-type: none"> <li>• <b>Product area:</b> 2D machine vision, 3D machine vision</li> <li>• <b>Range of services:</b> Recommendations based on tests at SICK, description of the field of application, consideration of specifications of SICK products, identification of performance factors, temporary analysis of influencing factors, acceptance tests, adjustments to application-specific parameters, test scans for initial verification at SICK, documentation and archiving</li> <li>• <b>Documentation:</b> Description of the application, suggestion for a solution, proof of concept, mounting instructions, results and summary</li> <li>• <b>Duration:</b> Additional work will be invoiced separately</li> <li>• <b>Travel expenses:</b> The prices do not include expenses or costs for the travel time, travel costs, such as flight or hotel expenses, are not included</li> </ul>	Vision Gold feasibility study	1612805

## 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)