



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>Technology</b>	3D triangulation
<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
<b>Task</b>	Detecting - Standard objects Measuring - Dimension, contour and volume Monitoring and controlling - Quality Determining position - 3D position determination

#### Mechanics/electronics

<b>Connection type</b>	Voltage – I/O: M12, 17-pin male connector Gigabit Ethernet: M12, 8-pin socket, 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>

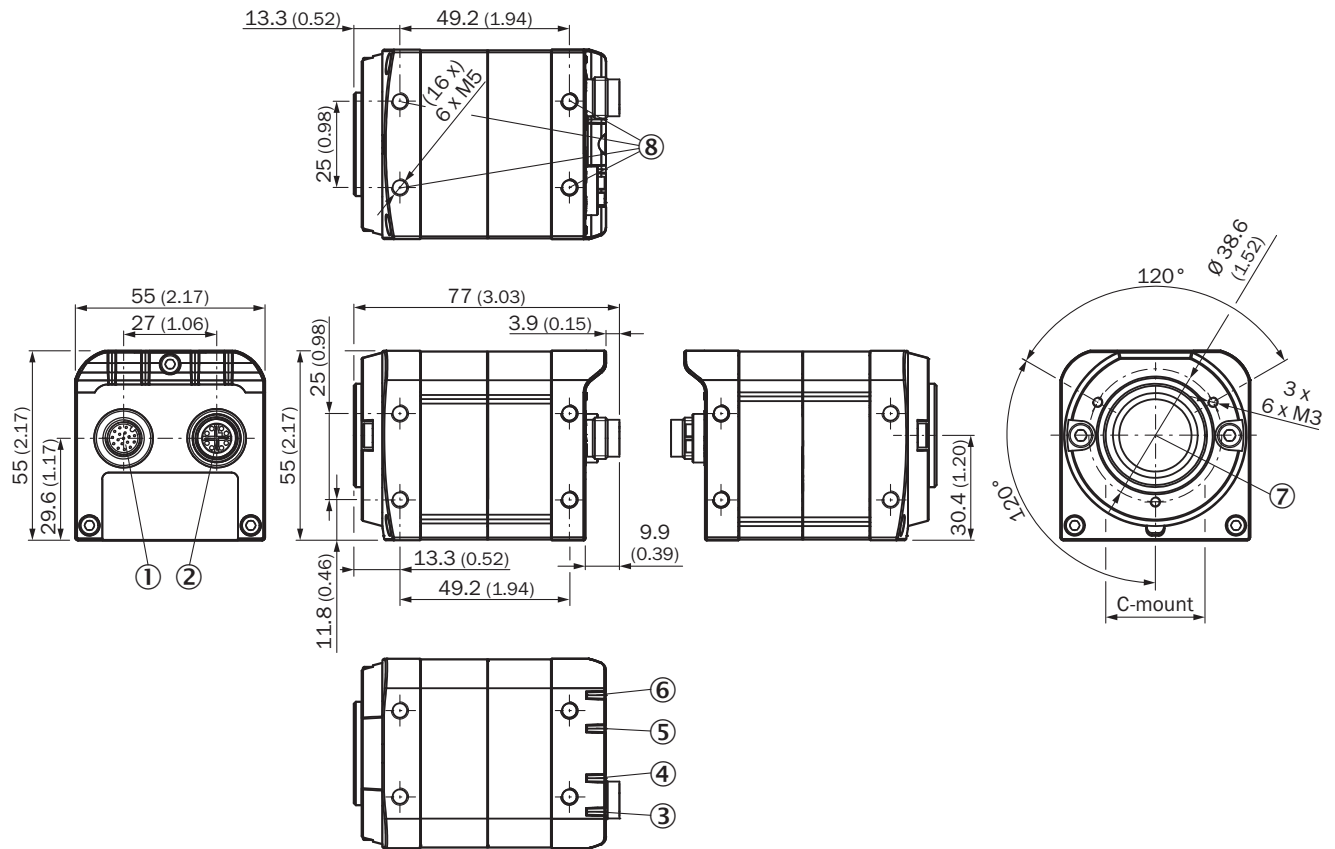
<sup>1)</sup> Non-condensing.

## Classifications

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

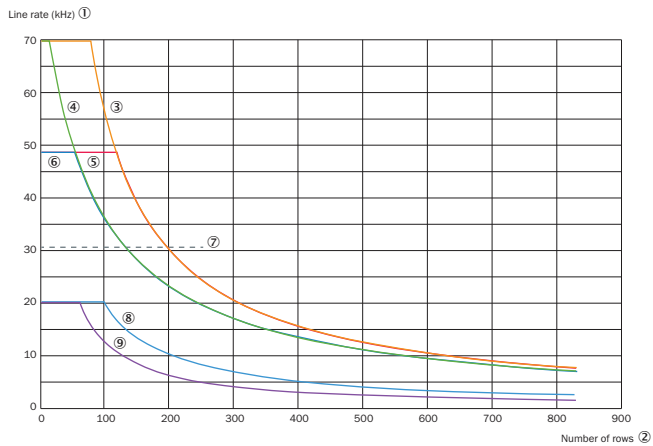
<b>ETIM 6.0</b>	EC001820
<b>ETIM 7.0</b>	EC001820
<b>ETIM 8.0</b>	EC001820
<b>UNSPSC 16.0901</b>	43211731

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



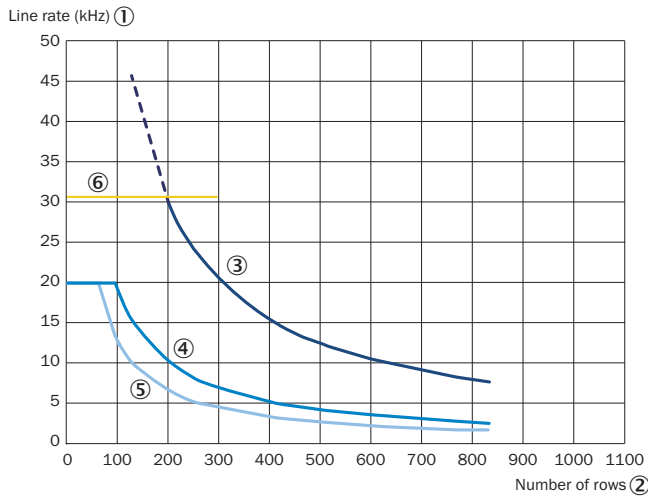
- ① Power I/O connector
- ② Gigabit Ethernet connection (GbE)
- ③ LED; On
- ④ LED; State
- ⑤ LED; Link/Data
- ⑥ LED; Laser
- ⑦ Optical axis, receiver
- ⑧ Mounting holes, 4 x M5

### Characteristic curve



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

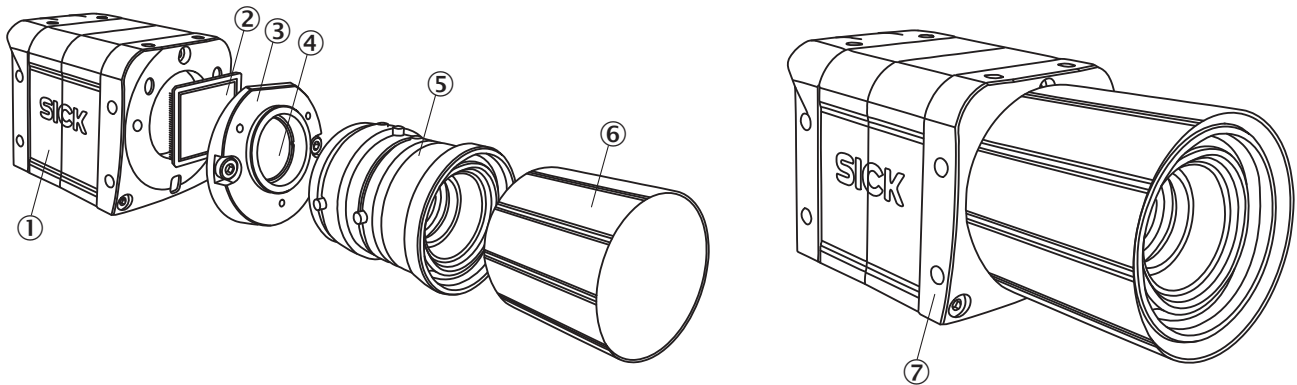
- ① Line rate (kHz)
- ② Number of lines
- ③ Ranger3-80, Linear
- ④ Ranger3-80, HDR
- ⑤ Ranger3-60, Linear
- ⑥ Ranger3-60, HDR
- ⑦ Bandwidth limitation for Ranger3-60, 2,560 columns
- ⑧ Ranger3-40
- ⑨ Ranger3-30



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.
<b>Lenses and accessories</b>			
	C-Mount lens 1", focal length 25 mm, lens aperture 1.4 - 16	C-mount lens	5327524
<b>Mounting brackets and plates</b>			
	Mounting bracket with camera adapter plate, including screws	Mounting bracket	2091431
<b>Others</b>			
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 17-pin, straight, A-coded</li> <li>• <b>Connection type head B:</b> Flying leads</li> <li>• <b>Signal type:</b> Sensor/actuator cable</li> <li>• <b>Cable:</b> 3 m, 17-wire, PUR</li> <li>• <b>Description:</b> Sensor/actuator cable, twisted pair, shielded</li> <li>• <b>Application:</b> Drag chain operation</li> </ul>	YF2A2D-030UV1XLEAX	6042772
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Male connector, M12, 8-pin, straight, X-coded</li> <li>• <b>Connection type head B:</b> Male connector, RJ45, 8-pin, straight</li> <li>• <b>Signal type:</b> Ethernet, Gigabit Ethernet</li> <li>• <b>Cable:</b> 2 m, 8-wire, PUR, halogen-free</li> <li>• <b>Description:</b> Ethernet, Gigabit Ethernet, shielded</li> <li>• <b>Application:</b> Zones with oils and lubricants</li> </ul>	YM2X18-020EG1MRJA8	2106258
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Male connector, M12, 8-pin, straight, X-coded</li> <li>• <b>Connection type head B:</b> Male connector, RJ45, 8-pin, straight</li> <li>• <b>Signal type:</b> Ethernet, Gigabit Ethernet</li> <li>• <b>Cable:</b> 3 m, 8-wire, PUR, halogen-free</li> <li>• <b>Description:</b> Ethernet, Gigabit Ethernet, shielded</li> <li>• <b>Application:</b> Zones with oils and lubricants</li> </ul>	YM2X18-030EG1MRJA8	2145693

## Recommended services

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

	Type	Part no.
Extended warranty		
<ul style="list-style-type: none"><li>• <b>Product area:</b> Machine vision, LiDAR sensors, safety camera sensors, Safety laser scanners, Safety radar sensors, Radar sensors, Fixed mount barcode scanners, Image-based code readers, RFID, Mobile handheld scanners</li><li>• <b>Range of services:</b> The services correspond to the scope of the statutory manufacturer warranty (SICK general terms of delivery).</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

## 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)