



# Ranger-D40213

Ranger

3D VISION

**SICK**  
Sensor Intelligence.



### Ordering information

Type	Part no.
Ranger-D40213	1040383

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



### Detailed technical data

#### Features

<b>Task</b>	Positioning Inspection Measuring
<b>Technology</b>	3D, LineScan
<b>Product category</b>	Streaming devices
<b>Example field of view</b>	Free of choice by lens selection
<b>Data synchronization</b>	Free running, encoder triggered, external triggering
<b>Spectral range</b>	400 nm ... 950 nm
<b>Description</b>	Ranger D40 - 3D, up to 1 k profiles/second. Gigabit Ethernet interface, 512 x 512 pixels.
<b>Lens</b>	C-Mount, 1/2"

#### Mechanics/electronics

<b>Connections</b>	Power I/O: M12, 8-pin male M12, 8-pin female connector (encoder) RJ45 (Ethernet)
<b>Connector material</b>	M12: nickel-plated brass
<b>Supply voltage</b>	24 V DC, ± 20 %
<b>Ripple</b>	< 5 V <sub>pp</sub>
<b>Power consumption</b>	7 W
<b>Current consumption</b>	0.8 A
<b>Standards (ROHS)</b>	✓
<b>Enclosure rating</b>	IP20
<b>Housing material</b>	Aluminum
<b>Housing color</b>	Gray, varnished
<b>Weight</b>	360 g
<b>Dimensions (L x W x H)</b>	125 mm x 52 mm x 52 mm

#### Performance

<b>Bit depth</b>	8 bit
<b>Image sensor</b>	CMOS
<b>Sensor resolution</b>	512 px x 512 px
<b>Scan/frame rate</b>	1,000 3D profiles/s
<b>Sensor rows available for 3D</b>	0 ... 511

<b>3D profile resolution</b>	512 px
<b>Pixel size</b>	9.5 µm x 9.5 µm
<b>Pixel matrix fill factor</b>	60 %
<b>Maximum 3D height resolution</b>	13 bits 1/16 pixels
<b>Optical center (row, column)</b>	(227, 256)
<b>Gray-scale resolution</b>	512 px
<b>IR filter</b>	No IR pass filter

## Interfaces

<b>Ethernet</b>	✓, UDP/IP
Data transmission rate	1,000 Mbit/s
<b>Serial</b>	✓, RS-422
Function	Encoder
Data transmission rate	Maximum encoder frequency: 2 MHz
<b>Configuration software</b>	Ranger Studio
<b>Operating system</b>	Windows XP Pro, Windows 7, Windows 10
<b>Development environment</b>	C++ (VS 2005/2008/2010) / C
<b>Programming interface</b>	iCon API
<b>Digital input</b>	4 x HIGH = 10 V ... 28.8 V
<b>Digital output</b>	1 x TTL level, 2 x B-type, < 100 mA in total
<b>Encoder interface</b>	RS-422
<b>Maximum encoder frequency</b>	2 MHz
<b>External illumination control</b>	5 V TTL

## 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 ... +45 °C <sup>1)</sup>
<b>Ambient storage temperature</b>	-20 °C ... +70 °C <sup>1)</sup>

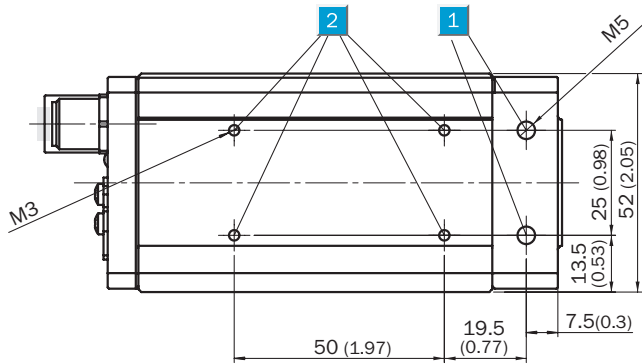
<sup>1)</sup> Non-condensing.

## 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>ETIM 5.0</b>	EC001820
<b>ETIM 6.0</b>	EC001820
<b>UNSPSC 16.0901</b>	43211731

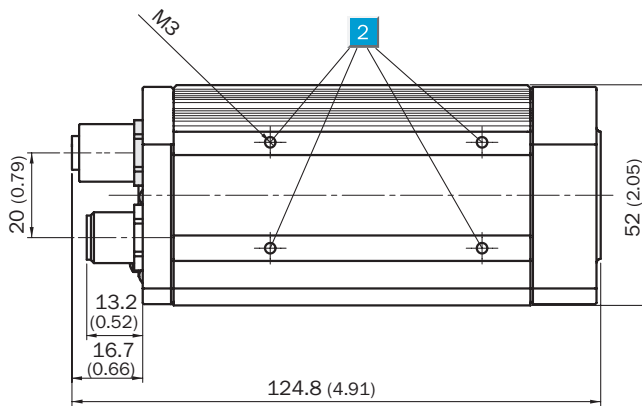
## Dimensional drawing (Dimensions in mm (inch))

Dimensional drawing, view from below



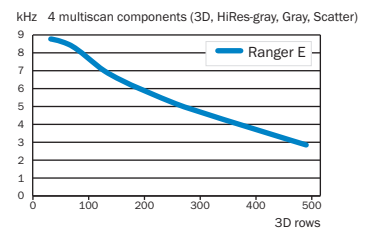
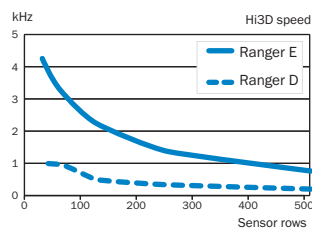
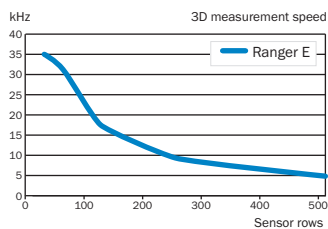
- ① Mounting holes M5, 9 mm (2 x)
- ② Mounting holes M3, 3 mm (4 x per side)

Dimensional drawing, view from the side

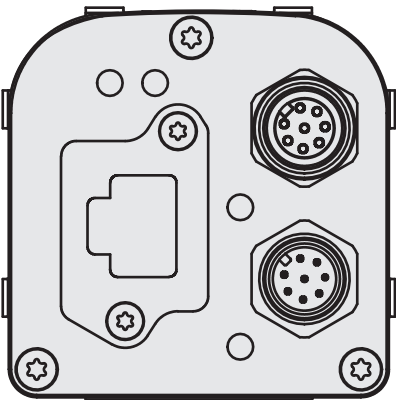


- ② Mounting holes M3, 3 mm (4 x per side)

## Characteristic curve

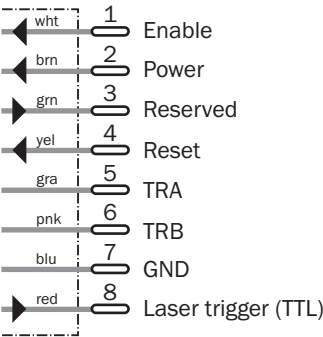


Connection type

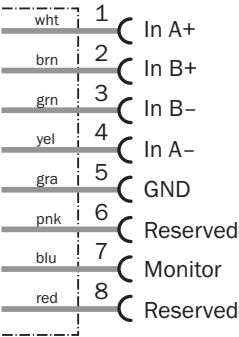


Connection diagram

Connection diagram, voltage I/O



Connection diagram, encoder connection



## Recommended accessories

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

Brief description	Type	Part no.
Illuminations		
Laser module with line projecting lens (red, 660 nm, 35 mW, refocusable), with open wires, 30° fan angle	Ranger accessories, laser	6033005
Sets and kits		
Ranger E/D accessory kit with 24 V power supply, power I/O terminal, Y-cable (2 m), Gigabit Ethernet cable (5 m), lens and camera mounting parts	Ranger E/D accessories set	2040857

## Recommended services

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

	Type	Part no.
Warranty extensions		
<ul style="list-style-type: none"> <li>• <b>Product area:</b> Identification solutions, 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), Long-term protection for calculable lump sum.</li> <li>• <b>Duration:</b> Five-year warranty from date of purchase.</li> </ul>	Five-year extended warranty	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)