



# Ranger-C50412

Ranger

3D MACHINE VISION

**SICK**  
Sensor Intelligence.



### Ordering information

Type	Part no.
Ranger-C50412	1014216

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



### Detailed technical data

#### Features

<b>Product category</b>	Streaming, flexible
<b>Example field of view</b>	Free of choice by lens selection
<b>Illumination</b>	To be ordered separately as accessories
<b>Data synchronization</b>	Free running, encoder triggered, external triggering
<b>Grayscale measurements</b>	✓
<b>Scatter measurement</b>	✓
<b>Spectral range</b>	400 nm ... 950 nm
<b>Description</b>	Ranger C50 - 3D and MultiScan, up to 30 k profiles/second. CameraLink interface, 1,536 x 512 pixels.
<b>Lens</b>	C-mount
<b>Optical format</b>	1"

#### Mechanics/electronics

<b>Connection type</b>	Lemo 14-pin female connector (power, I/O) Mini D Ribbon, MDR, 26 pin female connector (CameraLink)
<b>Supply voltage</b>	12 V DC ... 24 V DC
<b>Ripple</b>	< 5 V <sub>pp</sub>
<b>Power consumption</b>	8 W
<b>Current consumption</b>	1.25 A
<b>Enclosure rating</b>	IP20
<b>Housing material</b>	Aluminum
<b>Housing color</b>	Gray, varnished
<b>Weight</b>	390 g
<b>Dimensions (L x W x H)</b>	109 mm x 50 mm x 50 mm

#### Performance

<b>Bit depth</b>	8 bit
<b>Image sensor</b>	CMOS
<b>Sensor resolution</b>	1,536 px x 512 px
<b>Scan/frame rate</b>	30,000 3D profiles/s
<b>Sensor rows available for 3D</b>	0 ... 511
<b>3D profile resolution</b>	1,536 px

<b>Scatter resolution</b>	1,536 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, 768)
<b>Gray-scale resolution</b>	1,536 px
<b>IR filter</b>	No IR pass filter

## Interfaces

<b>CameraLink</b>	✓
<b>Configuration software</b>	Ranger Studio
<b>Operating system</b>	Windows XP Pro
<b>Development environment</b>	C++ (VS 2005/2008/2010) / C
<b>Programming interface</b>	iCon API
<b>Digital input</b>	5 x TTL
<b>Digital output</b>	1 x TTL
<b>Encoder interface</b>	5 V TTL
<b>Maximum encoder frequency</b>	2 MHz
<b>External illumination</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>	+5 °C ... +50 °C <sup>1) 2)</sup>
<b>Storage temperature</b>	-20 °C ... +70 °C <sup>1)</sup>

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

<sup>2)</sup> Camera housing temperature.

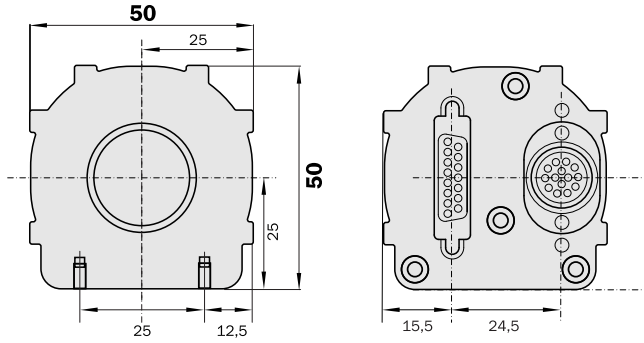
## Classifications

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

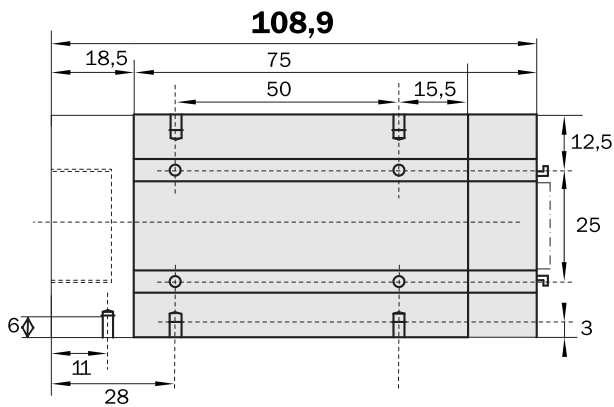
<b>ETIM 8.0</b>	EC001820
<b>UNSPSC 16.0901</b>	43211731

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

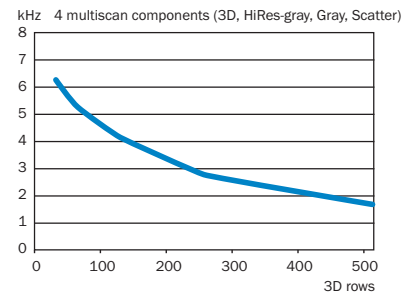
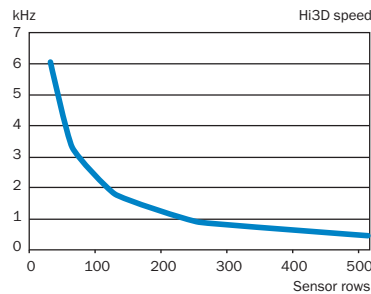
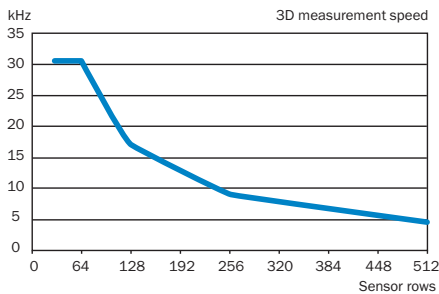
Dimensional drawing, front / back view



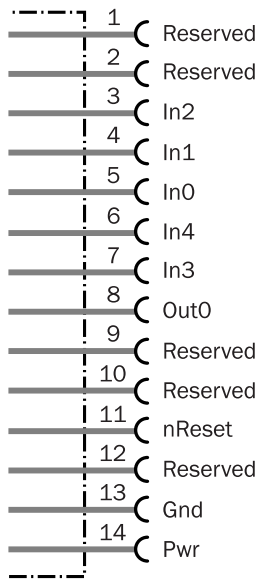
Dimensional drawing, view from the side



### Characteristic curve



## Connection diagram



## Recommended accessories

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

Brief description	Type	Part no.
<b>Sets and kits</b>		
Ranger C accessory kit with 24 V power supply, power I/O terminal, cables 3 m, lens and camera mounting parts	Ranger C accessories set	1014313
<b>Illuminations</b>		
Laser module with line projecting lens (red, 35 mW, refocusable), with open wires	Ranger accessories, laser	6033005

## Recommended services

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

	Type	Part no.
<b>Extended warranty</b>		
<ul style="list-style-type: none"> <li><b>Product area:</b> Identification solutions, machine vision, Detection and ranging solutions, safety camera sensors, Safety laser scanners, Safety radar sensors</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)