



High-end cameras  
Ranger, Ranger C, Ranger C40, CameraLink

Ranger-C40412



**Model Name** > [Ranger-C40412](#)  
**Part No.** > [1014218](#)



**At a glance**

- 3D shape inspection at up to 30,000 profiles / s
- In-machine 3D calibration tool
- MultiScan technology to measure 3D, contrast, and scatter at the same time
- Sensor resolutions of up to 1,536 pixels in 3D and 3,072 pixels in gray scale
- Full flexibility in configuration, working distance, and field of view
- C and C++ APIs for software integration
- Easy to integrate via CameraLink interface

**Your benefits**

- With speeds of up to 30,000 profiles/s and gray scale resolution up to 3,072 pixels, you can increase production throughput and still see the finest details, ensuring product quality
- Contrast-independent 3D provides more reliable size and position measurements, regardless of an object's color or height
- Full flexibility in the choice of lens and field of view in combination with the easy in-machine 3D calibration tool gives you true millimeter dimensions wherever you need it
- Unique MultiScan technology enables one camera do the job of many, reducing the cost for integration, maintenance, and accessories
- The high level of flexibility and versatility of Ranger C makes it a the best choice for the most challenging tasks
- Standard CameraLink interface for easy integration



**Features**

Task:	Inspection, Measuring, Positioning
Description:	Ranger C40 - 3D and MultiScan, up to 30 k profiles/second. CameraLink interface, 512 x 512 pixels.
Technology:	3D LineScan MultiScan
Example field of view (H x W):	Free of choice by lens selection
Data synchronization:	Encoder triggered External enable Free running
Grayscale measurements:	✓
Scatter measurement:	✓
Spectral range:	400 nm ... 950 nm
Factory calibrated:	-

## Performance

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Image sensor:	CMOS
Maximum performance:	30,000 3D profiles/s
Sensor resolution:	512 px x 512 px
3D profile resolution:	512 px
Gray line resolution:	512 px
Pixel size:	9.5 µm x 9.5 µm
Pixel matrix fill factor:	60 %
Maximum 3D height resolution:	13 bits 1/16 pixel
Optical center (row, column):	(227, 256)
IR filter:	No IR pass filter
Scatter resolution:	512 px
Sensor rows available for 3D:	0 ... 511
Bit depth:	8 bit

## Interfaces

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Configuration software:	Ranger Studio
Communication interfaces:	CameraLink
Operating system:	Windows XP Pro
Development environment:	C++ (VS 2005/2008/2010) or C
Programming interface:	iCon API
Digital inputs:	5 x TTL
Digital outputs:	1 x TTL
Encoder interface:	5 V TTL
Maximum encoder frequency:	2 MHz
Control of external illumination:	5 V TTL

## Mechanics/electronics

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Connectors:	Lemo 14-pin female connector (power, I/O) Mini D Ribbon, MDR, 26 pin female connector (CameraLink)
Supply voltage:	12 V DC ... 24 V DC
Power consumption:	8 W
Power consumption:	1.25 A
Ripple:	< 5 Vpp
Enclosure rating:	IP 20
Housing material:	Aluminum
Housing color:	Gray, varnished
Weight:	390 g
Dimensions (L x W x H):	109 mm x 50 mm x 50 mm
Optics:	C-Mount, 1/2"

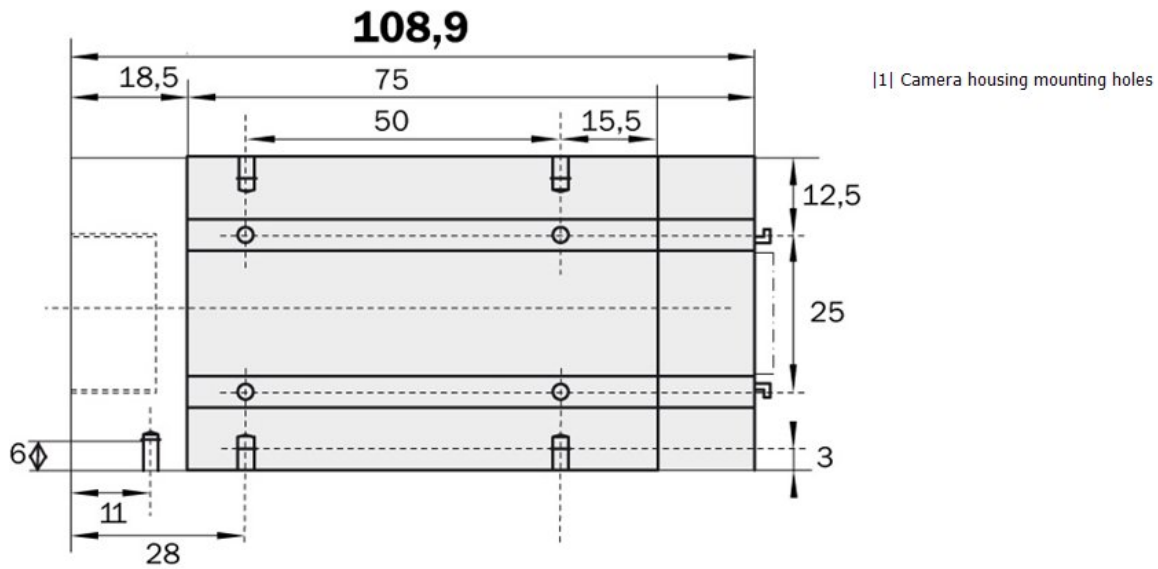
## Ambient data

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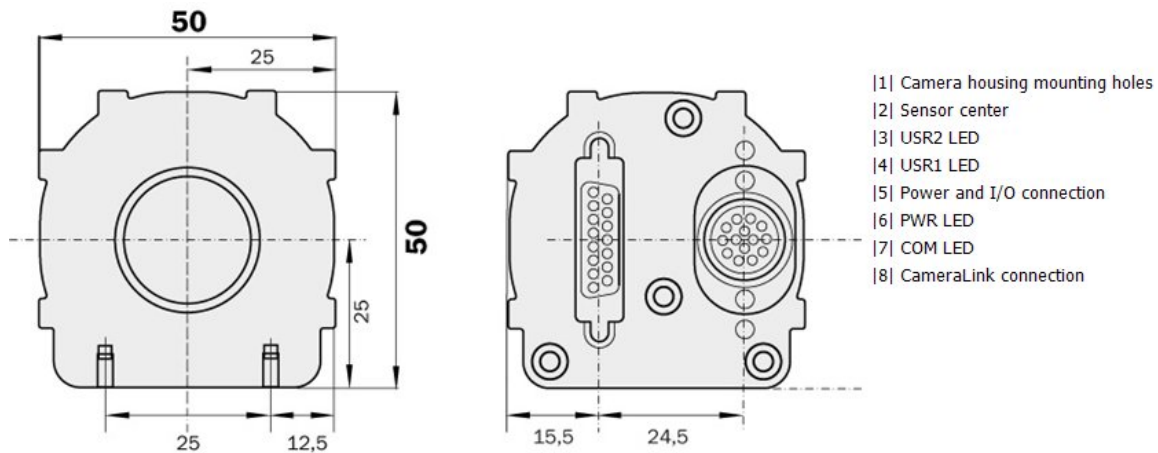
Shock load:	15 g, 3 x 6 directions
Vibration load:	5 g, 58 Hz ... 150 Hz
Ambient operating temperature::	5 °C ... 50 °C <sup>1) 2)</sup>
Ambient storage temperature:	-20 °C ... 70 °C <sup>3)</sup>

<sup>1) 3)</sup> Non-condensing <sup>2)</sup> Camera housing temperature

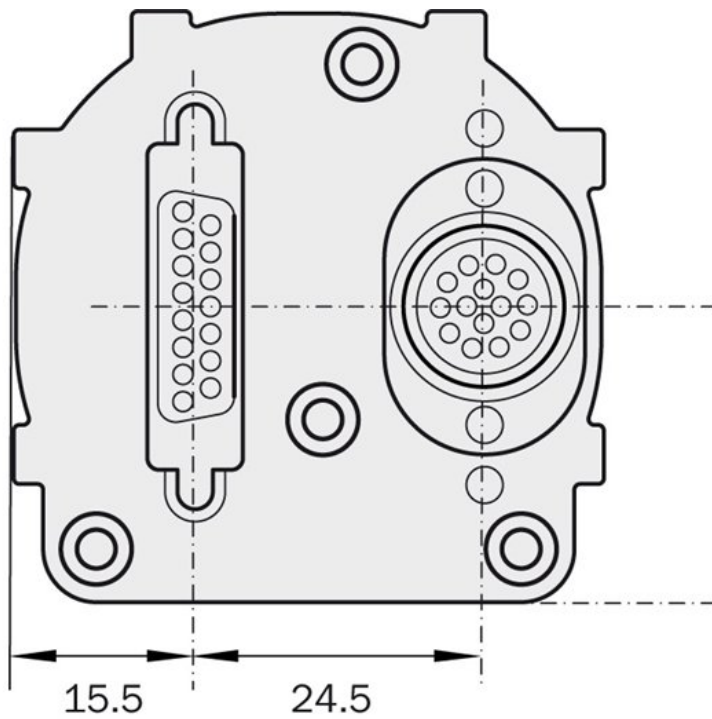
Dimensional drawing, side view



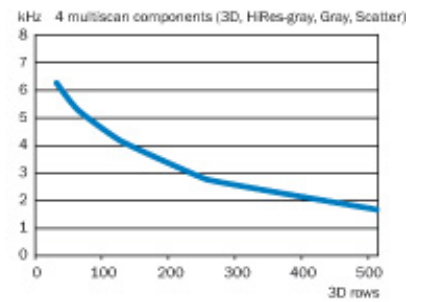
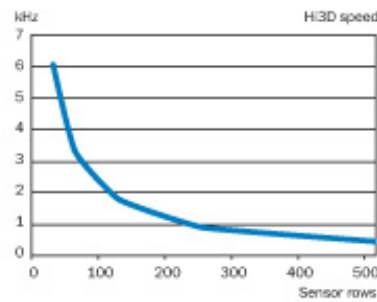
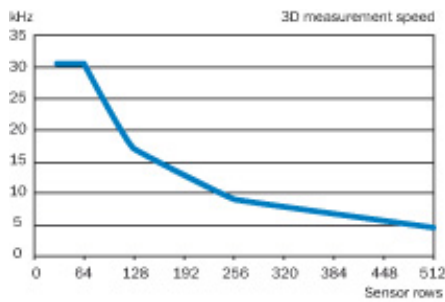
Dimensional drawing, front / back view



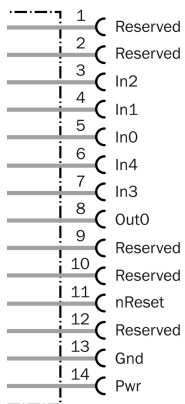
Connection type



Characteristic curves



Connection diagram



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