



High-end cameras
Ranger, Ranger D, Ranger D40, RS-422

Ranger-D40213



Model Name > [Ranger-D40213](#)
Part No. > [1040383](#)



At a glance

- Cost-optimized 3D shape inspection at up to 1,000 profiles/s
- Contrast and color independent measurements
- In-machine 3D calibration tool
- Up to 1,536 3D coordinates per profile
- Full flexibility in working distance and field of view
- C and C++ APIs for software integration
- Remote operation and easy integration with Gigabit Ethernet
- Direct performance upgrade up by changing to Ranger E

Your benefits

- With speeds of up to 1,000 3D profiles/s and resolutions up to 1,536 pixels, the Ranger D offers you cost-efficient solutions for mid-speed applications
- Accurate size and position measurements in 3D, regardless of an object's height or color, creating robust and reliable solutions
- Full flexibility in the choice of lens and field of view in combination with easy in-machine 3D calibration tool gives you true millimeter dimensions wherever you need it
- Interface compliancy with Ranger E allows you to use Ranger D to adapt your systems' cost and performance with low additional integration effort
- Gigabit Ethernet allows for easy integration and remote operation over long cable distances, which enables you to put your PCs in a safe and convenient place



Features

Task:	Inspection, Measuring, Positioning
Description:	Ranger D40 - 3D, up to 1 k profiles/second. Gigabit Ethernet, 512 x 512 pixels.
Technology:	3D LineScan
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

Image sensor:	CMOS
Maximum performance:	1,000 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
Sensor rows available for 3D:	0 ... 511
Bit depth:	8 bit

Interfaces

Configuration software:	Ranger Studio
Communication interfaces:	RS-422
Operating system:	Windows 7, Windows XP Pro
Development environment:	C++ (VS 2005/2008/2010) or C
Programming interface:	iCon API
Digital inputs:	4 x HIGH = 10 V ... 28.8 V
Digital outputs:	1 x TTL level, 2 x B-type, < 100 mA in total
Encoder interface:	RS-422
Maximum encoder frequency:	2 MHz
Control of external illumination:	5 V TTL

Mechanics/electronics

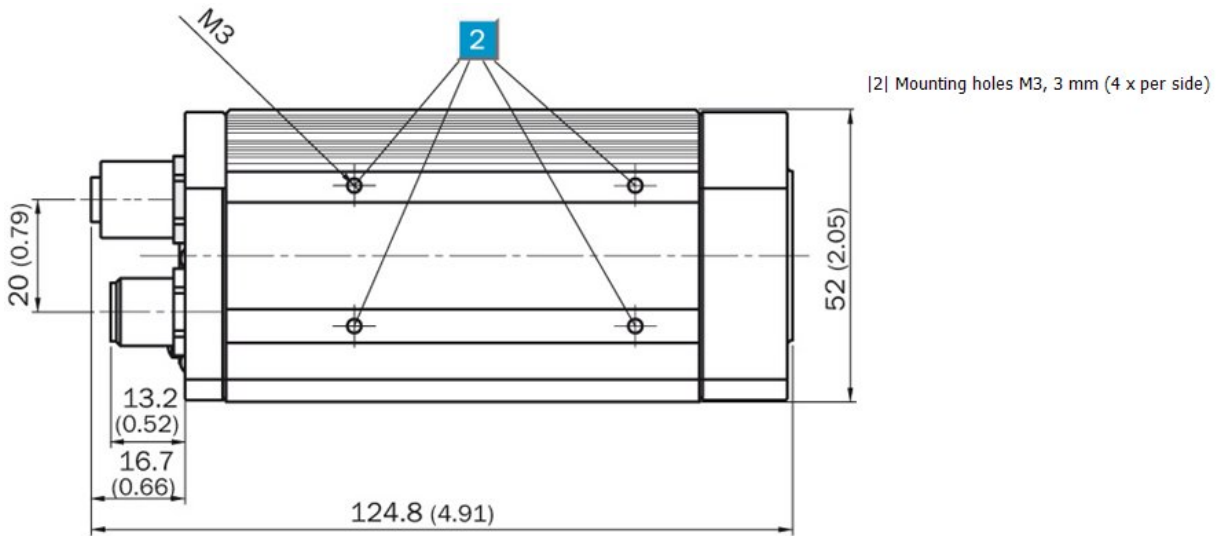
Connectors:	M12, 8-pin female connector (encoder) RJ45 (Ethernet) Power I/O: M12, 8-pin male
Connector material:	M12: nickel-plated brass
Supply voltage:	24 V DC± 20 %
Power consumption:	7 W
Power consumption:	0.8 A
Ripple:	< 5 Vpp
Enclosure rating:	IP 20
Housing material:	Aluminum
Housing color:	Gray, varnished
Weight:	360 g
Dimensions (L x W x H):	125 mm x 52 mm x 52 mm
Optics:	C-Mount, 1/2"
Standards (ROHS):	✓

Ambient data

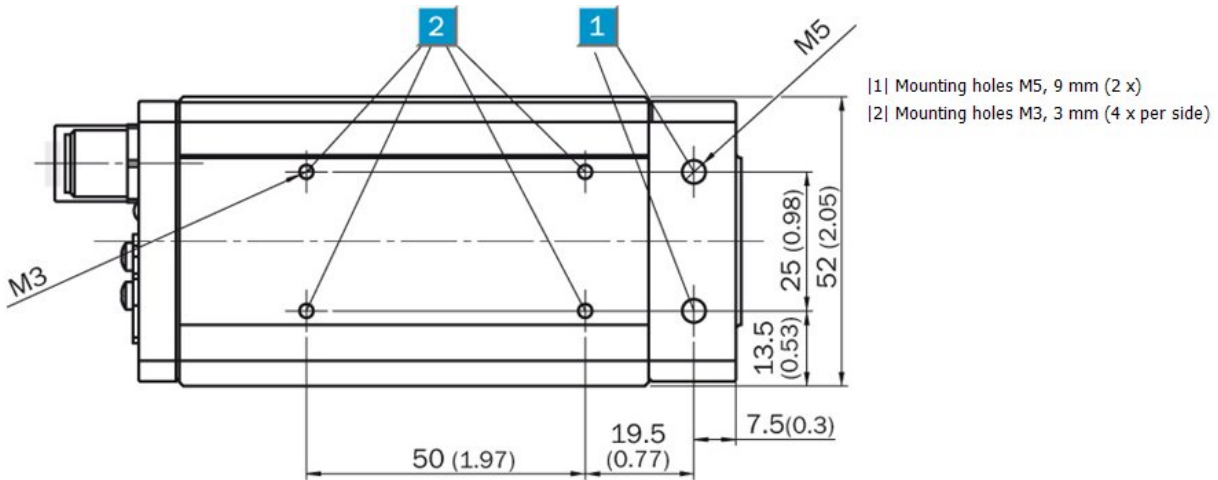
Shock load:	15 g, 3 x 6 directions
Vibration load:	5 g, 58 Hz ... 150 Hz
Ambient operating temperature:	0 °C ... 45 °C ¹⁾
Ambient storage temperature:	-20 °C ... 70 °C ²⁾

1) 2)
Non-condensing

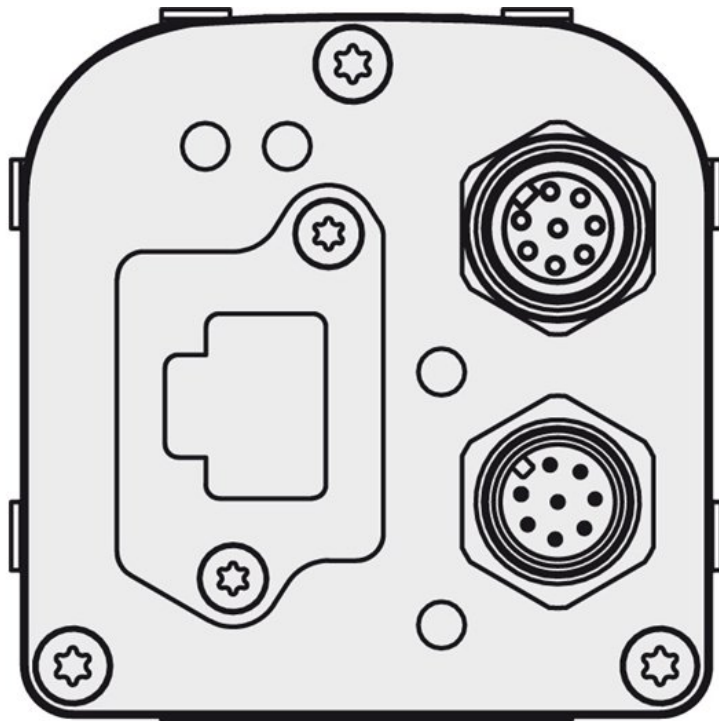
Dimensional drawing, side view



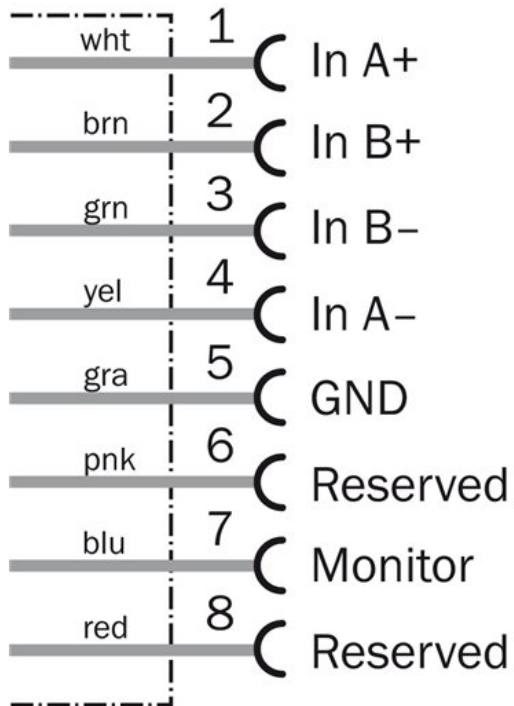
Dimensional drawing, bottom view



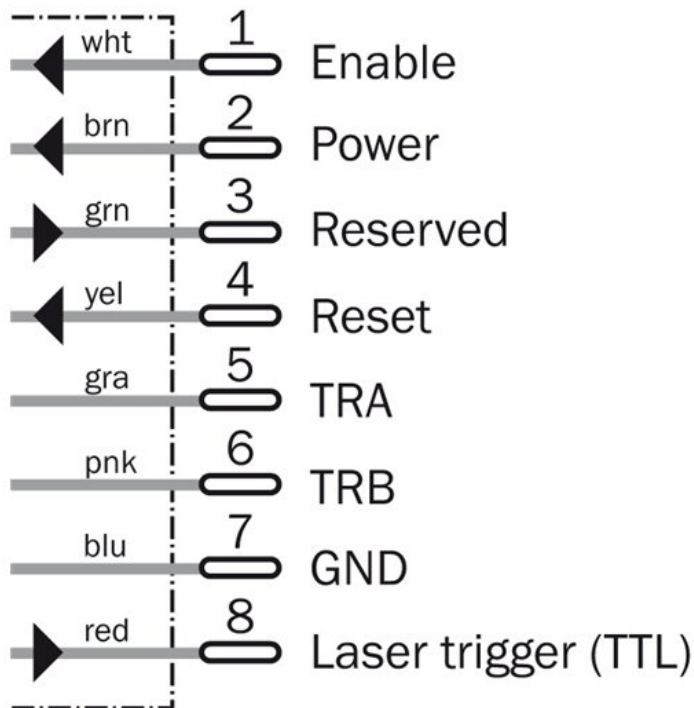
Connection type



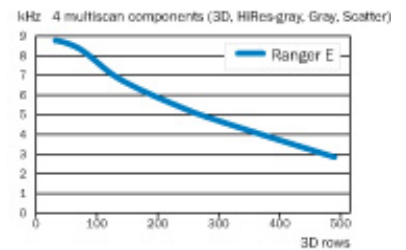
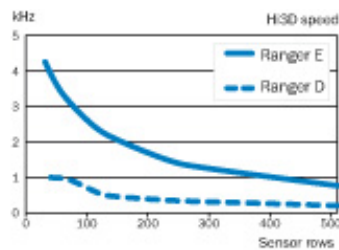
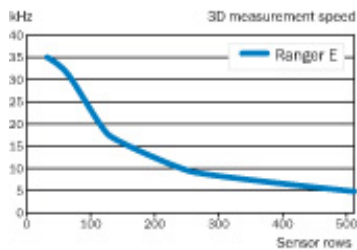
Connection diagram, Encoder connection



Connection diagram Power I/O



Characteristic curves



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