ONLINE DATA SHEET
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3D vision
RS-422 , Ranger, Ranger D, Ranger D40

Ranger-D40213

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Sensor Intelligence.

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RS-422 , Ranger, Ranger D, Ranger D40

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 trigger Free running
Grayscale measurements:	-
Scatter measurement:	-
Spectral range:	400 nm ... 950 nm
Factory calibrated:	-

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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, C++ (VS 2005/2008/2010)
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
Maximum encoder frequency:	2 MHz
Control of external illumination:	5 V TTL
Encoder interface:	RS-422

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

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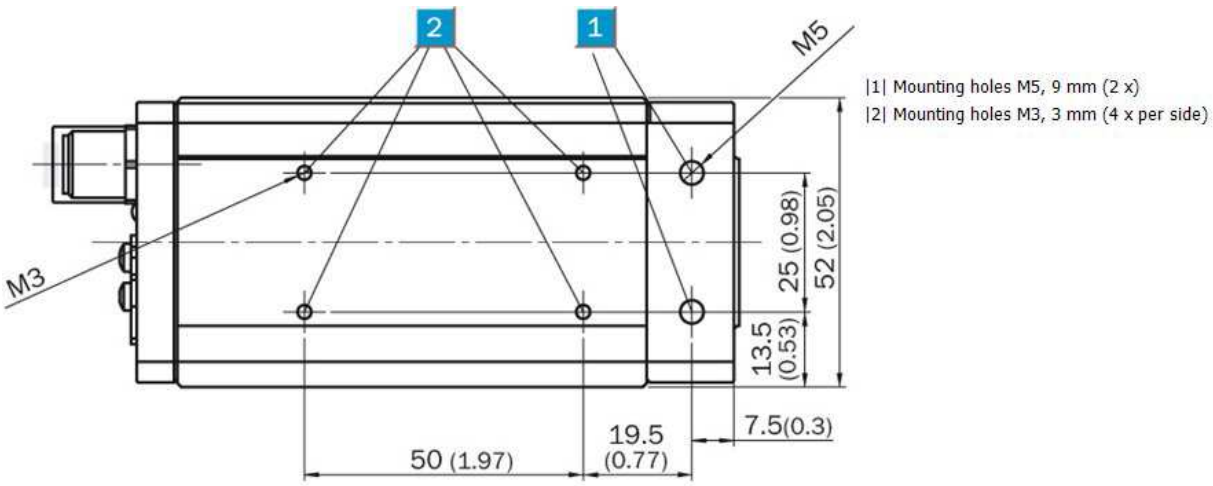
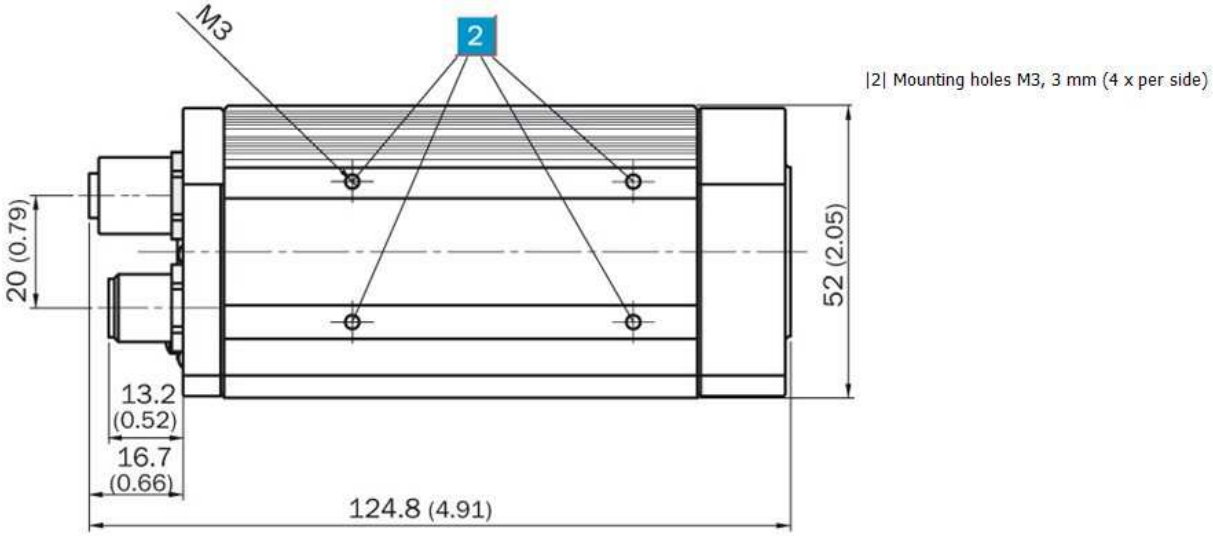
Dimensional drawing, bottom view



Dimensional drawing, side view



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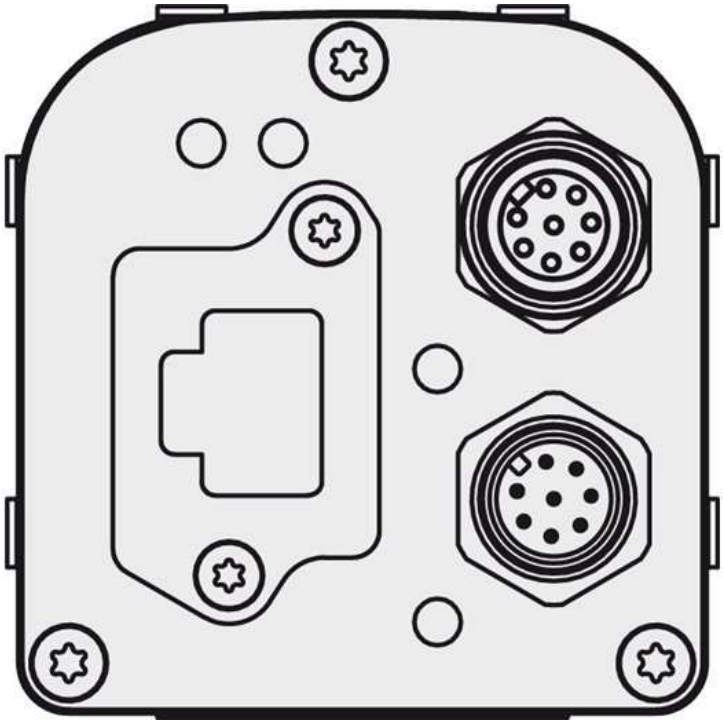
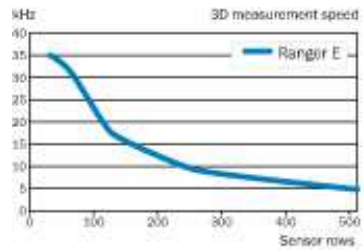
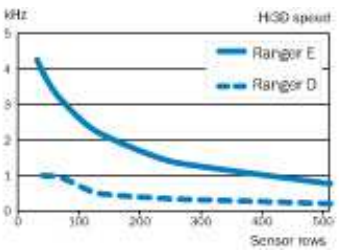
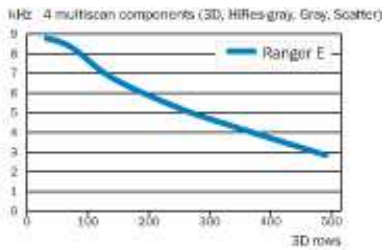
Connection type



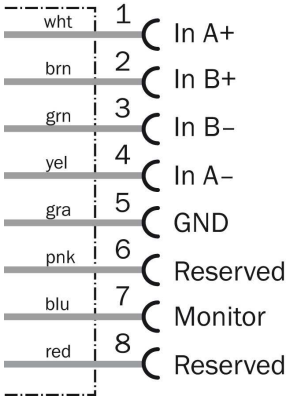
Characteristic curves



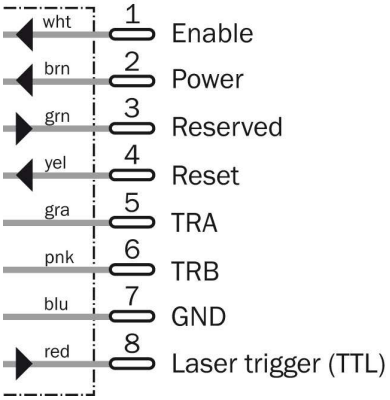




Connection diagram, Encoder connection



Connection diagram Power I/O



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Australia
Phone +61 3 9457 0600
1800 33 48 02 – tollfree
E-Mail sales@sick.com.au

Belgium/Luxembourg
Phone +32 (0)2 466 55 66
E-Mail info@sick.be

Brasil
Phone +55 11 3215-4900
E-Mail marketing@sick.com.br

Canada
Phone +1 905 771 14 44
E-Mail information@sick.com

Česká republika
Phone +420 2 57 91 18 50
E-Mail sick@sick.cz

China
Phone +86 4000 121 000
E-Mail info.china@sick.net.cn
Phone +852-2153 6300
E-Mail ghk@sick.com.hk

Danmark
Phone +45 45 82 64 00
E-Mail sick@sick.dk

Deutschland
Phone +49 211 5301-301
E-Mail info@sick.de

España
Phone +34 93 480 31 00
E-Mail info@sick.es

France
Phone +33 1 64 62 35 00
E-Mail info@sick.fr

Great Britain
Phone +44 (0)1727 831121
E-Mail info@sick.co.uk

India
Phone +91–22–4033 8333
E-Mail info@sick-india.com

Israel
Phone +972-4-6881000
E-Mail info@sick-sensors.com

Italia
Phone +39 02 27 43 41
E-Mail info@sick.it

Japan
Phone +81 (0)3 5309 2112
E-Mail support@sick.jp

Magyarország
Phone +36 1 371 2680
E-Mail office@sick.hu

Nederland
Phone +31 (0)30 229 25 44
E-Mail info@sick.nl

Norge
Phone +47 67 81 50 00
E-Mail sick@sick.no

Österreich
Phone +43 (0)22 36 62 28 8-0
E-Mail office@sick.at

Polska
Phone +48 22 837 40 50
E-Mail info@sick.pl

România
Phone +40 356 171 120
E-Mail office@sick.ro

Russia
Phone +7-495-775-05-30
E-Mail info@sick.ru

Schweiz
Phone +41 41 619 29 39
E-Mail contact@sick.ch

Singapore
Phone +65 6744 3732
E-Mail sales.gsg@sick.com

Slovenija
Phone +386 (0)1-47 69 990
E-Mail office@sick.si

South Africa
Phone +27 11 472 3733
E-Mail info@sickautomation.co.za

South Korea
Phone +82 2 786 6321/4
E-Mail info@sickkorea.net

Suomi
Phone +358-9-25 15 800
E-Mail sick@sick.fi

Sverige
Phone +46 10 110 10 00
E-Mail info@sick.se

Taiwan
Phone +886 2 2375-6288
E-Mail sales@sick.com.tw

Türkiye
Phone +90 (216) 528 50 00
E-Mail info@sick.com.tr

United Arab Emirates
Phone +971 (0) 4 88 65 878
E-Mail info@sick.ae

USA/México
Phone +1(952) 941-6780
1 (800) 325-7425 – tollfree
E-Mail info@sickusa.com

More representatives and agencies
at **www.sick.com**

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