



High-end cameras
Ranger, ColorRanger E, ColorRanger E50 IR, RS-422

Ranger-E50444



Model Name > [Ranger-E50444](#)
Part No. > [1050269](#)



At a glance

- High-speed 3D with color up to 11kHz
- Up to 3,072 pixels resolution in color and 1,536 pixels in 3D
- Multi-linear: RGB + NIR + Monochrome (w / + w/o IR)
- On-chip color channel white balancing
- Spatially corrected color output
- Easy in-machine 3D calibration tool
- High flexibility in configuration, including MultiScan, data triggering, and field-of-view
- Gigabit Ethernet interface

Your benefits

- Using 3D and color imaging in part inspection allows for more reliable results and will improve your system's up-time and quality
- ColorRanger with MultiScan technology replaces the need for several different cameras, which reduces the solution cost and complexity
- Getting all the measurements you need from one camera allows for concise solutions to reduce system size and allow for retrofit
- Contrast-independent 3D and high quality color gives you reliable measurements to ensure product quality
- Full flexibility in the field-of-view in combination with an easy in-machine 3D calibration tool gives you dimensions in millimeters wherever you need it
- Gigabit Ethernet for remote sensing over long cable distances allows you to put your PCs in a safe and convenient place



Features

Task:	Inspection, Measuring, Positioning
Description:	ColorRanger E50 IR - 3D- and RGB-color with MultiScan at up to 11 kHz (3D and color data). Gigabit Ethernet interface, 1,536 px 3D resolution, 3 px x 1,536 px RGB-color resolution. 3D sensor with IR pass filter.
Technology:	3D Color 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:	-
Color measurements:	Red Green Blue Monochrome (without IR content) Near infrared (approx. 750 nm ... 950 nm)

Performance

Image sensor:	CMOS
Maximum performance:	35,000 3D profiles/s
Sensor resolution:	1,536 px x 512 px
3D profile resolution:	1,536 px
Gray line resolution:	1,536 px
Standard color resolution:	3 x 1.536 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, 768)
IR filter:	IR pass filter ¹⁾
Scatter resolution:	1,536 px
Maximum color performance:	13,000 RGB lines/s
Maximum 3D and color rate:	11,000 Scans/s
Sensor rows available for 3D:	100 ... 511
Standard color row pitch:	38 µm
Bit depth:	8 bit

¹⁾ Pass filter, cutoff at 740 nm; on rows 100-511.

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:	12 V DC ... 24 V DC
Power consumption:	7 W
Power consumption:	0.8 A
Ripple:	< 5 Vpp
Enclosure rating:	IP 20
Housing material:	Aluminum

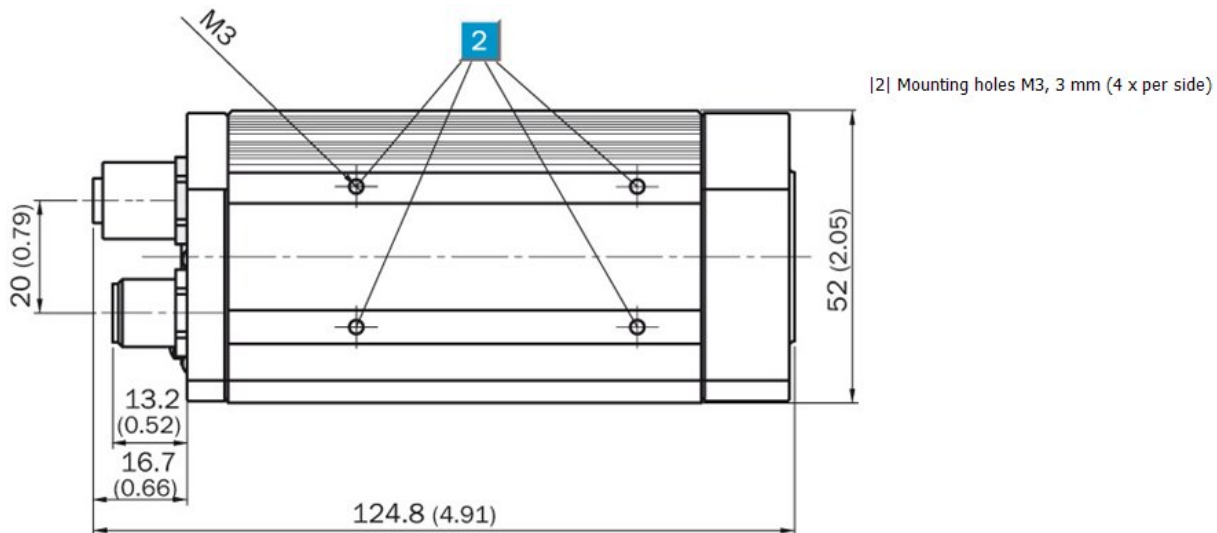
Housing color:	Gray, varnished
Weight:	360 g
Dimensions (L x W x H):	125 mm x 52 mm x 52 mm
Optics:	C-Mount, 1"
Standards (ROHS):	✓

Ambient data

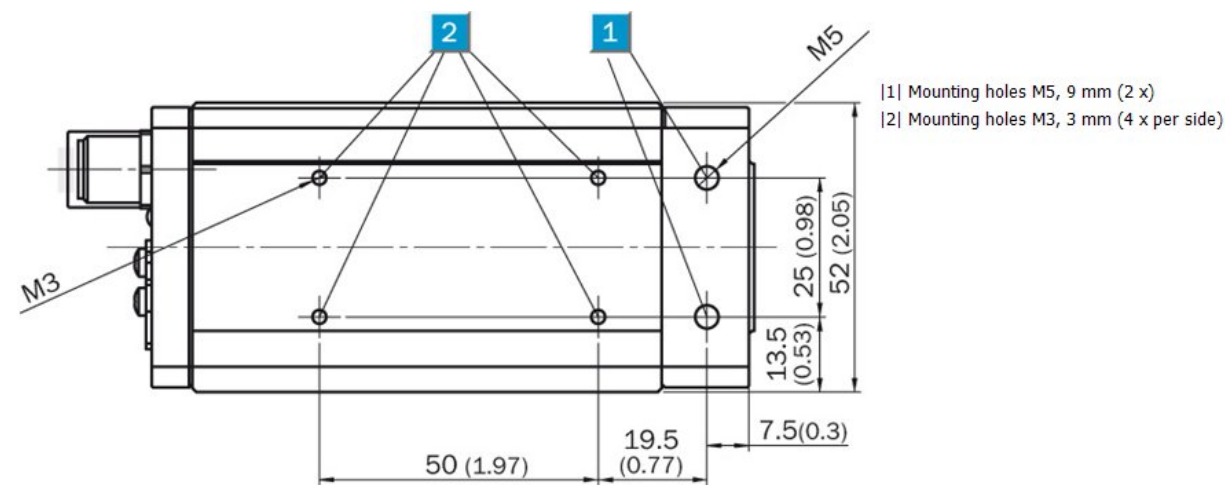
Shock load:	15 g, 3 x 6 directions
Vibration load:	5 g, 58 Hz ... 150 Hz
Ambient operating temperature:	0 °C ... 45 °C ¹⁾
Ambient storage temperature:	-20 °C ... 70 °C ²⁾

^{1) 2)} Non-condensing

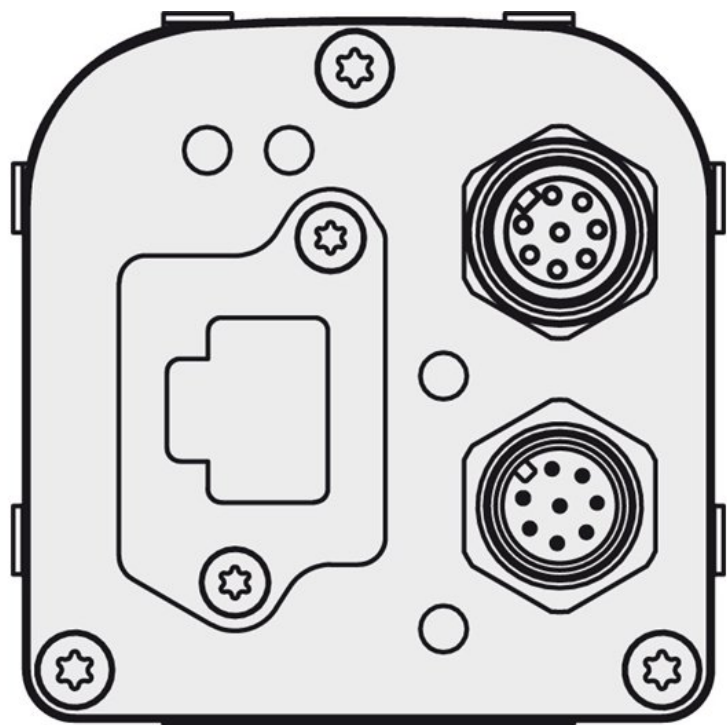
Dimensional drawing, side view



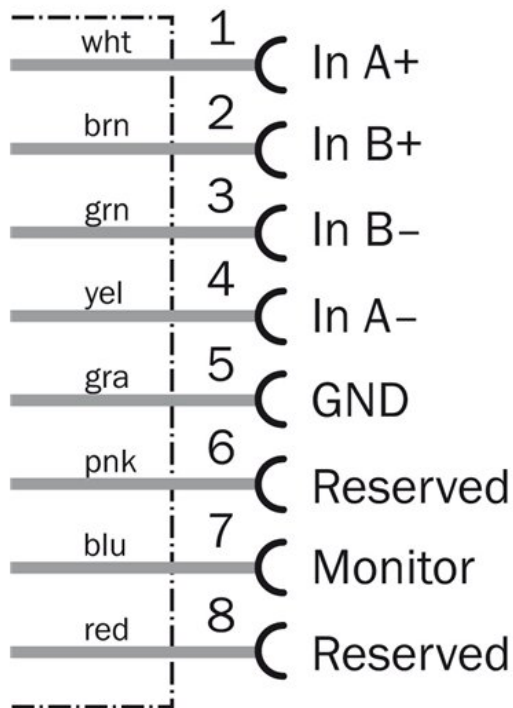
Dimensional drawing, bottom view



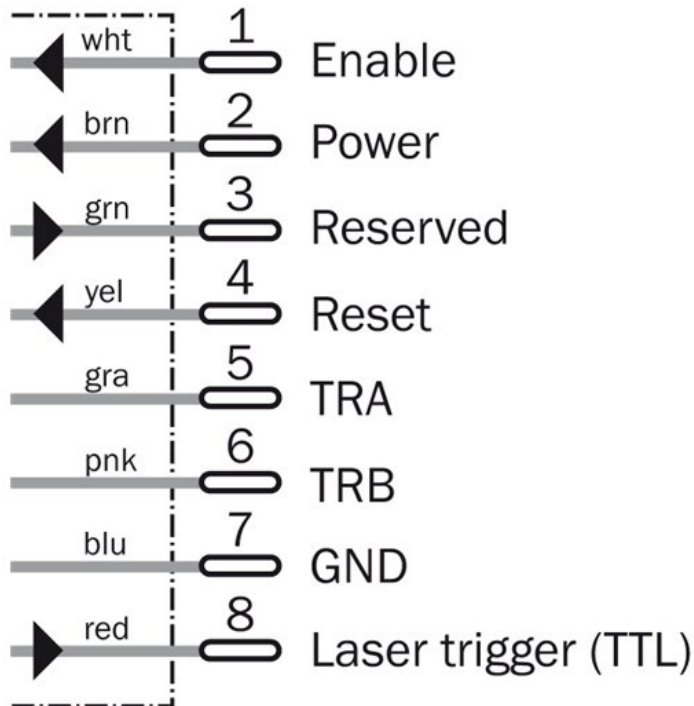
Connection type



Connection diagram, Encoder connection

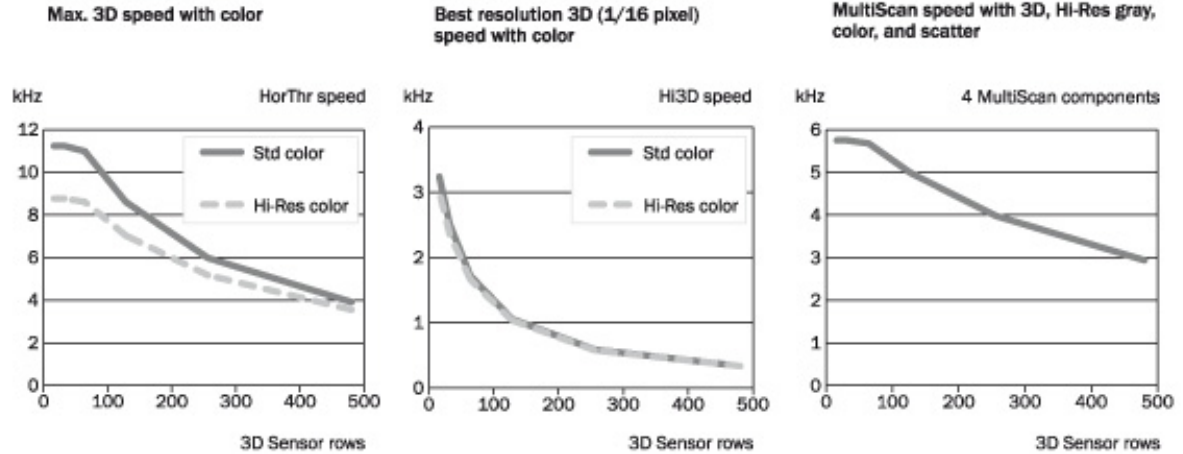


Connection diagram Power I/O

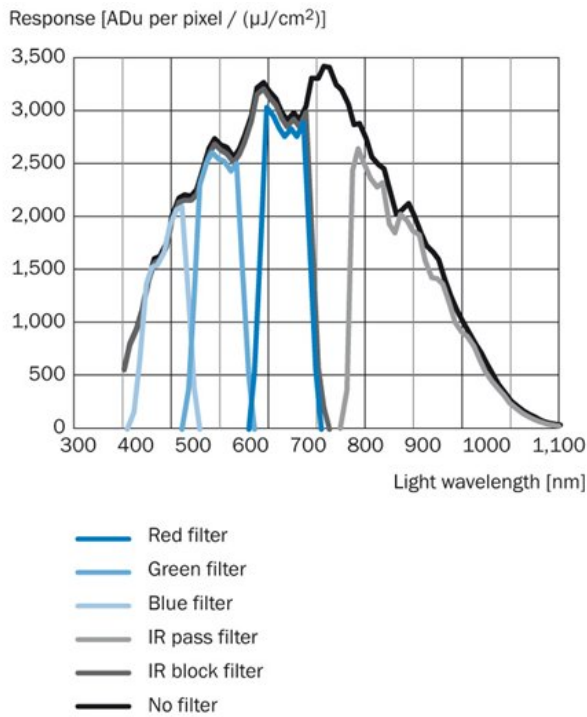


Characteristic curves

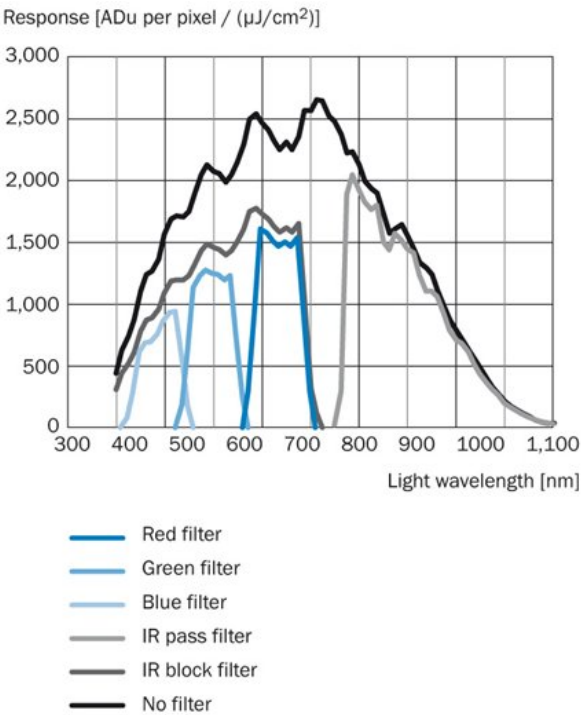
Measurement speed diagrams



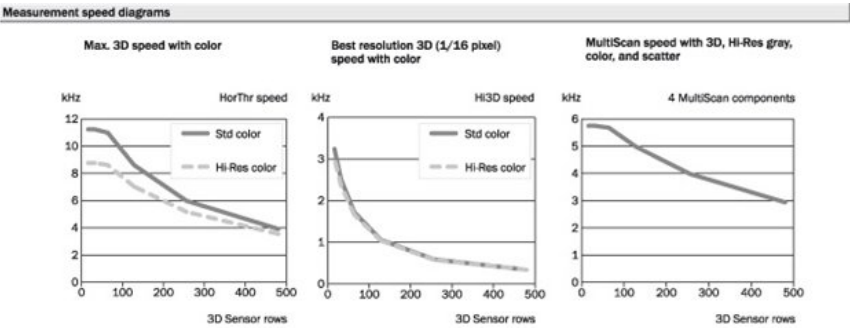
Hi-Res color response



Standard color response



Characteristic curves, speed characteristics



Australia

Phone +61 3 9457 0600
1800 334 802 – 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 sac@sick.com.br

Canada

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

Ceská 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 kundenservice@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 +972-4-6801000
E-Mail info@sick-sensors.com

Italia

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

Japan

Phone +81 (0)3 3358 1341
E-Mail support@sick.jp

Magyarország

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

Nederlands

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

Norge

Phone +47 67 81 50 00
E-Mail austefjord@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 admin@sicksgp.com.sg

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 8865 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