ONLINE DATA SHEET
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3D vision
RS-422 , Ranger, ColorRanger E, ColorRanger E50

Ranger-E50434

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Sensor Intelligence.

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Model Name > Ranger-E50434
Part No. > 1050267

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 - 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.
Technology:	3D Color LineScan MultiScan
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:	-
Color measurements:	Red Green Blue Monochrome (without IR content)

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:	No IR pass filter
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:	35 ... 511
Standard color row pitch:	38 µm
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:	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

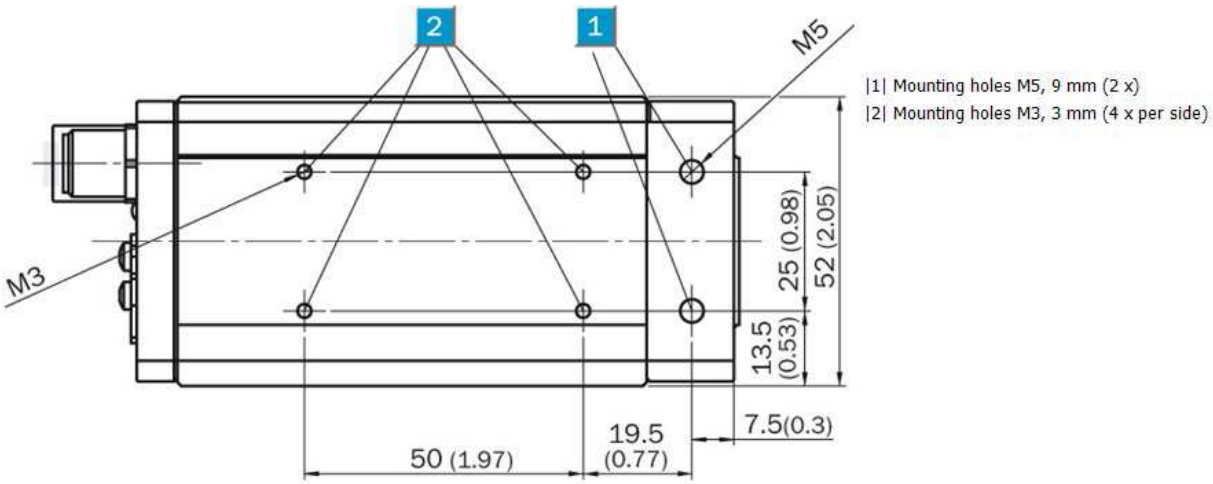
Optics:	C-Mount, 1"
Standards (ROHS):	✓

Ambient data

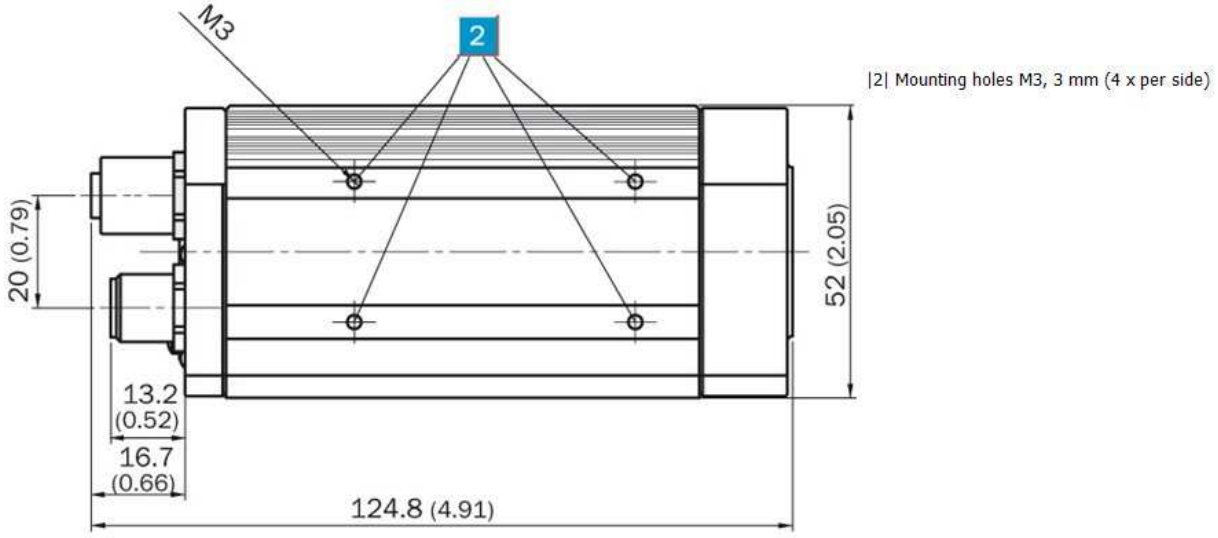
Shock load:	15 g, 3 x 6 directions
Vibration load:	5 g, 58 Hz ... 150 Hz
Ambient operating temperature:	0 °C ... +45 °C [1]
Ambient storage temperature:	-20 °C ... +70 °C [2]

[1] [2] Non-condensing

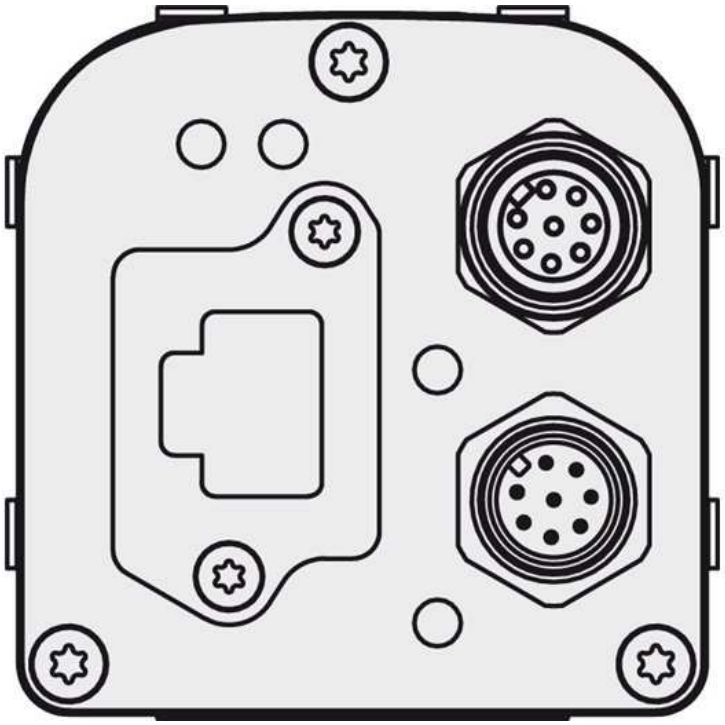
Dimensional drawing, bottom view



Dimensional drawing, side view



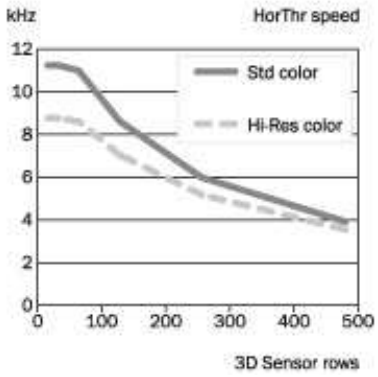
Connection type



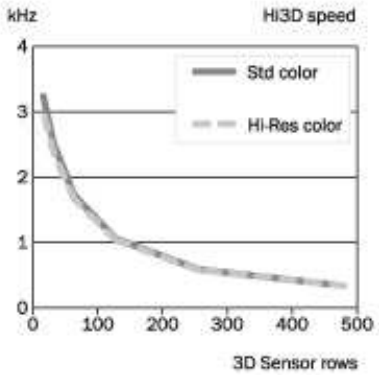
Characteristic curves, speed characteristics

Measurement speed diagrams

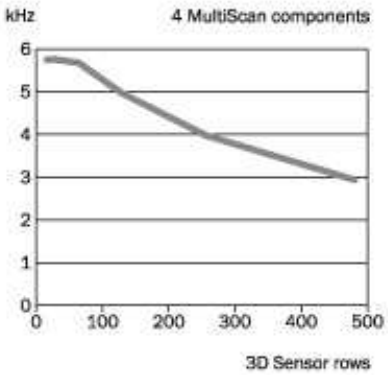
Max. 3D speed with color



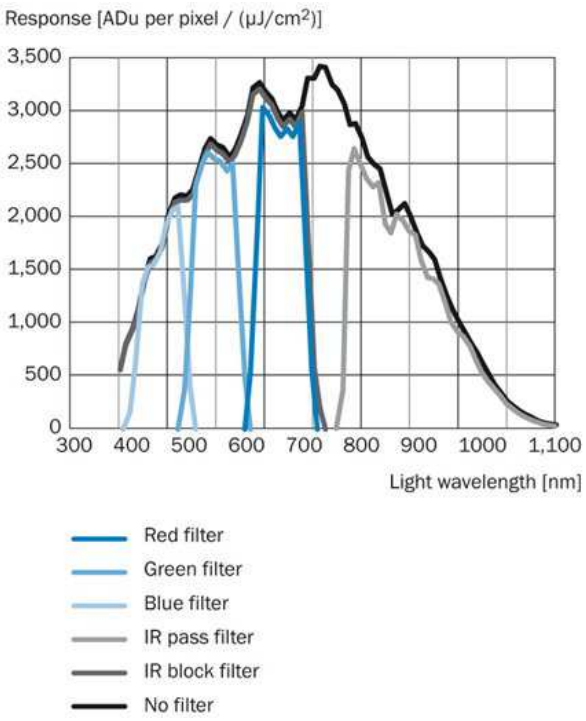
Best resolution 3D (1/16 pixel) speed with color



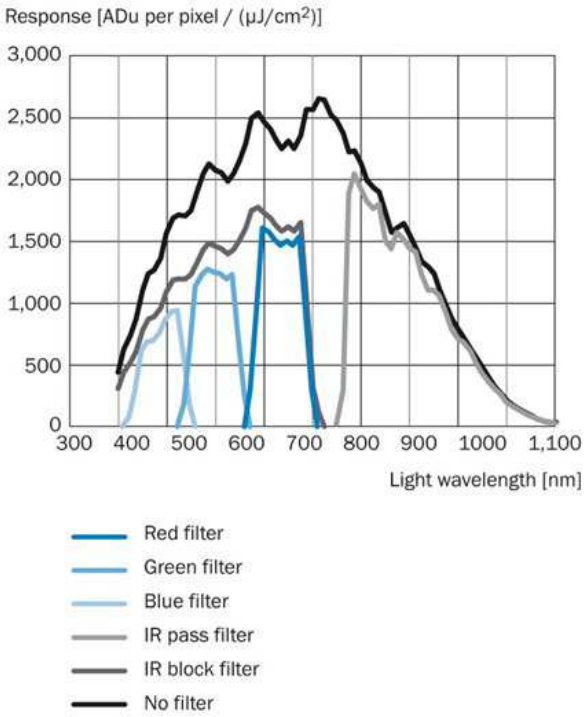
MultiScan speed with 3D, Hi-Res gray, color, and scatter



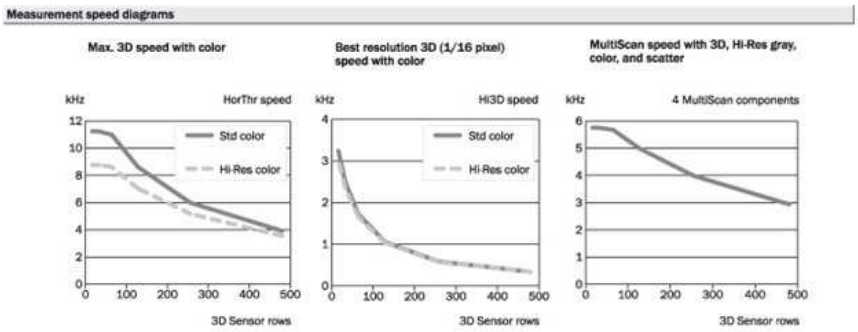
Hi-Res color response



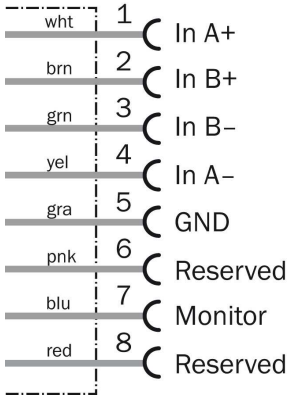
Standard color response



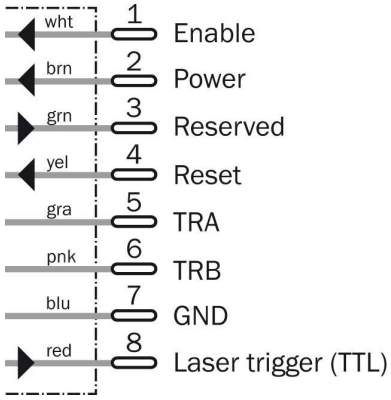
Characteristic curves, speed characteristics



Connection diagram, Encoder connection



Connection diagram Power I/O



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