



High-end cameras Ranger, Ranger E, Ranger E40, RS-422

Ranger-E40414



Model Name > [Ranger-E40414](#)
Part No. > [1040378](#)



At a glance

- 3D shape inspection at up to 35,000 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 integration
- Remote operation and easy integration with Gigabit Ethernet

Your benefits

- With speeds of up to 35,000 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
- Contrast-independent 3D provides more reliable size and position measurements, regardless of an object's color or height
- Unique MultiScan technology lets one camera do the job of many, reducing costs for integration, maintenance, and accessories, creating cost-efficient solutions
- Ranger E's high level of flexibility makes it the best choice for the most challenging tasks
- Gigabit Ethernet for remote operation over long cable distances, allowing you to put your PCs in a safe and convenient place



Features

Task:	Inspection, Measuring, Positioning
Description:	Ranger E40 - 3D and MultiScan, up to 35 k profiles/second. Gigabit Ethernet 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

Image sensor:	CMOS
Maximum performance:	35,000 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

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

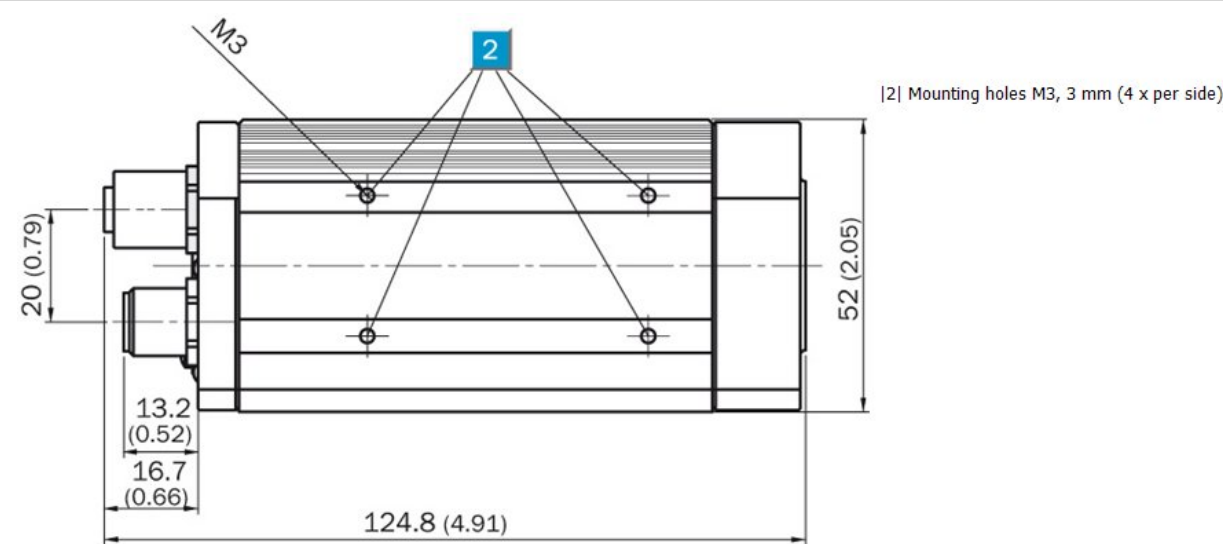
Connectors:	M12, 8-pin female connector (encoder) RJ45 (Ethernet) Power I/O: M12, 8-pin male
Connector material:	M12: nickel-plated brass
Supply voltage:	12 V DC ... 24 V DC
Power consumption:	7 W
Power consumption:	0.8 A
Ripple:	< 5 Vpp
Enclosure rating:	IP 20
Housing material:	Aluminum
Housing color:	Gray, varnished
Weight:	360 g
Dimensions (L x W x H):	125 mm x 52 mm x 52 mm
Optics:	C-Mount, 1/2"
Standards (ROHS):	✓

Ambient data

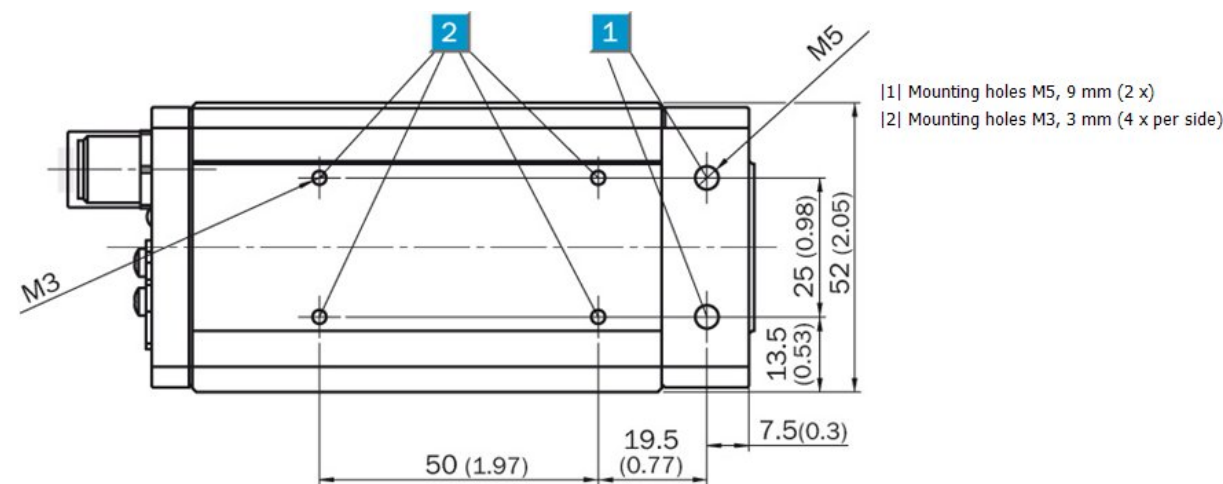
Shock load:	15 g, 3 x 6 directions
Vibration load:	5 g, 58 Hz ... 150 Hz
Ambient operating temperature:	0 °C ... 45 °C ¹⁾
Ambient storage temperature:	-20 °C ... 70 °C ²⁾

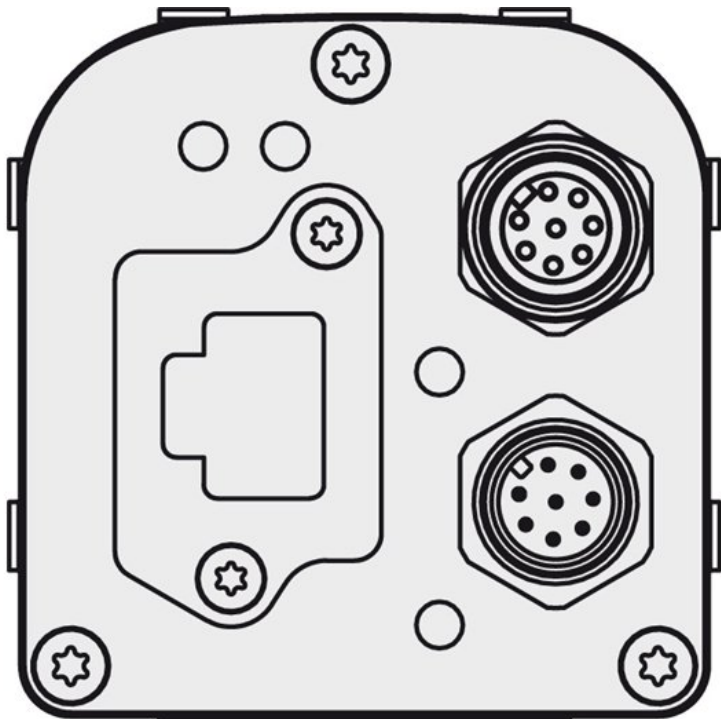
1) 2)
Non-condensing

Dimensional drawing, side view



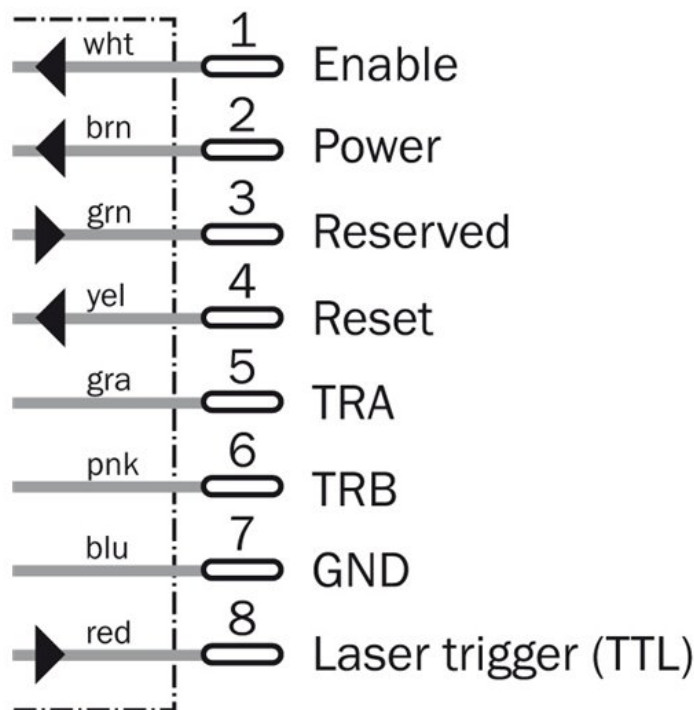
Dimensional drawing, bottom view



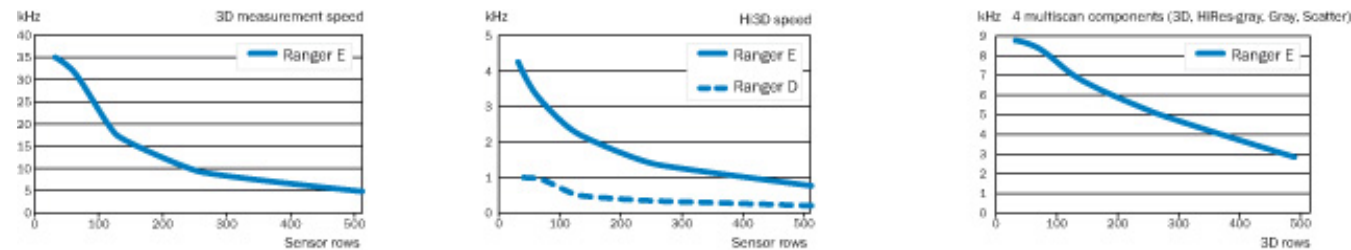


Connection diagram, Encoder connection

wht	1	In A+
brn	2	In B+
grn	3	In B-
yel	4	In A-
gra	5	GND
pnk	6	Reserved
blu	7	Monitor
red	8	Reserved



Characteristic curves



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