SICK.COM



DATA SHEET

Ranger-E40414

Ranger
3D machine vision

SICK Sensor Intelligence



3D MACHINE VISION

Ranger-E40414

ORDERING INFORMATION

Type	part no.
Ranger-E40414	1040378

Further device versions and accessories at www.sick.com/Ranger

DETAILED TECHNICAL DATA

FEATURES

Task	Quality inspection, high-speed Measuring, 3D
Technology	3D line scanning, MultiScan
Product category	Streaming, flexible
Example field of view	Free of choice by lens selection
Illumination	To be ordered separately as accessories
Data synchronization	Free running, encoder triggered, external triggering
Grayscale measurements	✓
Scatter measurement	✓
Spectral range	400 nm ... 950 nm
Description	Ranger E40 - 3D and MultiScan, up to 35 k profiles/second. Gigabit Ethernet interface, 512 x 512 pixels.
Lens	C-mount
Optical format	1/2"

MECHANICS/ELECTRONICS

Connection type	Power I/O: M12, 8-pin male M12, 8-pin female connector (encoder) RJ45 (Ethernet)
Connector material	M12: nickel-plated brass
Supply voltage	12 V DC ... 24 V DC
Ripple	< 5 V_{pp}
Power consumption	7 W
Current consumption	0.8 A
Standards (ROHS)	✓
Enclosure rating	IP20
Housing material	Aluminum
Housing color	Gray, varnished

Weight	360 g
Dimensions (L x W x H)	125 mm x 52 mm x 52 mm

PERFORMANCE

Bit depth	8 bit
Image sensor	CMOS
Sensor resolution	512 px x 512 px
Scan/frame rate	35,000 3D profiles/s
Sensor rows available for 3D	0 ... 511
3D profile resolution	512 px
Scatter 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 pixels
Optical center (row, column)	(227, 256)
Gray-scale resolution	512 px
IR filter	No IR pass filter

INTERFACES

Ethernet	✓, UDP/IP
Data transmission rate	1,000 Mbit/s
Serial	✓, RS-422
Function	Encoder
Data transmission rate	Maximum encoder frequency: 2 MHz
Configuration software	Ranger Studio
Operating system	Windows XP Pro, Windows 7, Windows 10
Development environment	C++ (VS 2005/2008/2010) / C
Programming interface	iCon API
Digital input	4 x HIGH = 10 V ... 28.8 V
Digital output	1 x TTL level, 2 x B-type, < 100 mA in total
Encoder interface	RS-422
Maximum encoder frequency	2 MHz
External illumination	5 V TTL

AMBIENT DATA

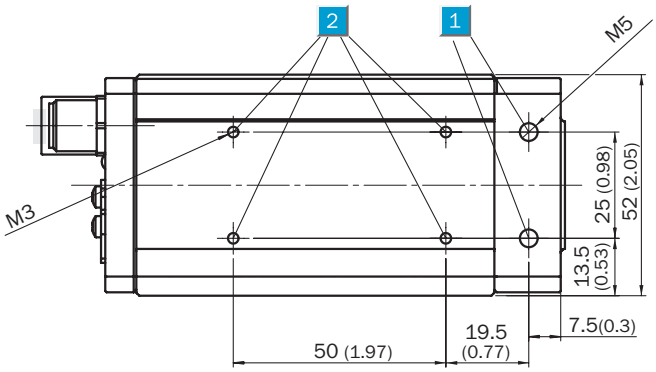
Shock load	15 g, 3 x 6 directions
Vibration load	5 g, 58 Hz ... 150 Hz
Ambient operating temperature	0 °C ... +45 °C [1]
Storage temperature	–20 °C ... +70 °C [1]

[1] Non-condensing.

CERTIFICATES

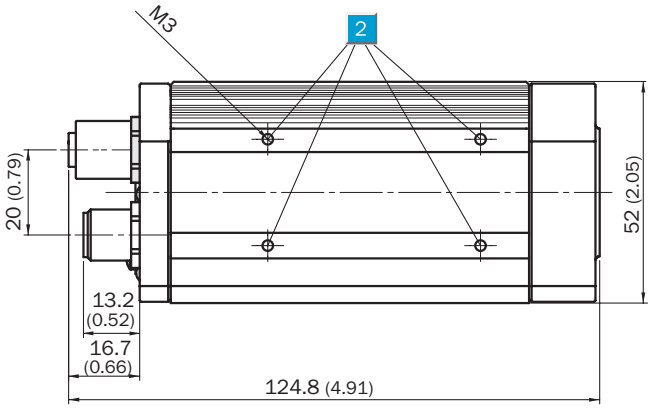
EU declaration of conformity	✓
ACMA declaration of conformity	✓
China RoHS	✓

DIMENSIONAL DRAWING, VIEW FROM BELOW



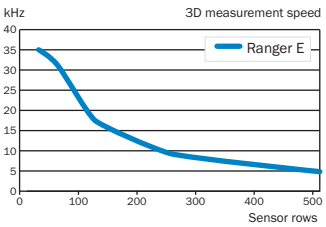
Dimensions in mm (inch)
① Mounting holes M5, 9 mm (2 x)
② Mounting holes M3, 3 mm (4 x per side)

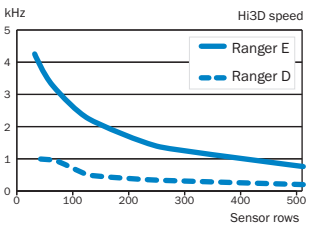
DIMENSIONAL DRAWING, VIEW FROM THE SIDE

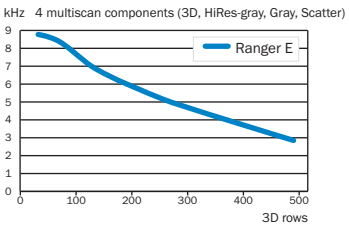


Dimensions in mm (inch)
② Mounting holes M3, 3 mm (4 x per side)

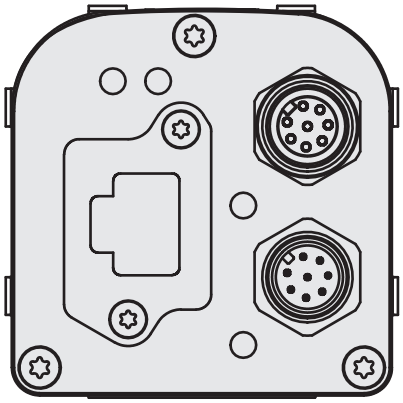
CHARACTERISTIC CURVE



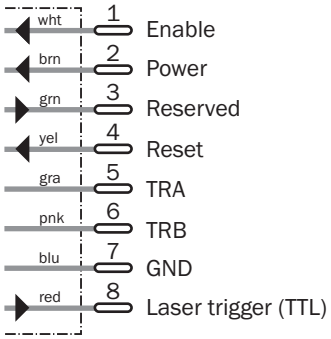




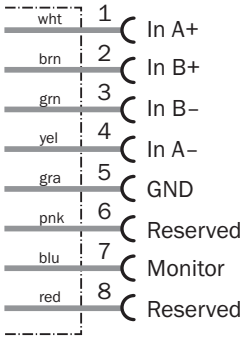
CONNECTION TYPE



CONNECTION DIAGRAM, VOLTAGE I/O



CONNECTION DIAGRAM, ENCODER CONNECTION



Further information as well as suitable accessories, example applications and downloads such as CAD dimensional models, operating instructions and software can be found at www.sick.com/1040378

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SICK AT A GLANCE

SICK is a leading global technology company for intelligent sensors and integrated solutions in industrial automation. Our technologies set benchmarks, making your industrial processes more efficient, safer and more sustainable – both in logistics and manufacturing operations.

SICK combines sensor intelligence with industry expertise and certified consulting services. We provide the ideal foundation for scalable as well as tailor-made automation solutions and create added value along the entire value chain. Our close partnerships with our customers are more than just a promise: Together, we optimize productivity, improve quality, protect health and safety, and help build a sustainable future. All with empathy and trust.

Since 1946, we have been developing innovative technologies with passion and a pioneering spirit. With a global network in around 40 countries, SICK has a global presence and is always close by. The company's headquarters are located in Waldkirch near Freiburg, Germany. Our customers benefit from our understanding of both local and global requirements, which enables us to deliver tailor-made solutions

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