



Ordering information

Type	part no.
Ranger-E40414	1040378

Other models and accessories → 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
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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

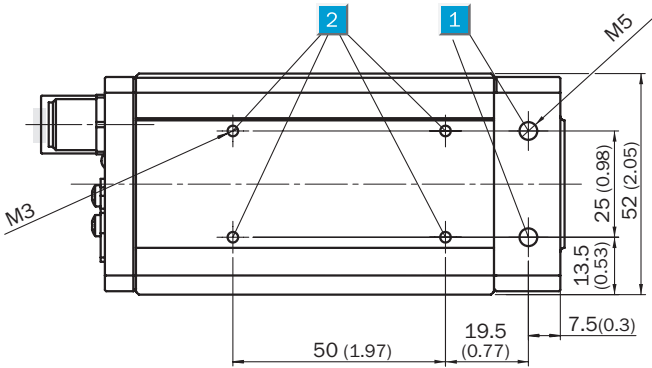
EU declaration of conformity	✓
ACMA declaration of conformity	✓
China RoHS	✓

Classifications

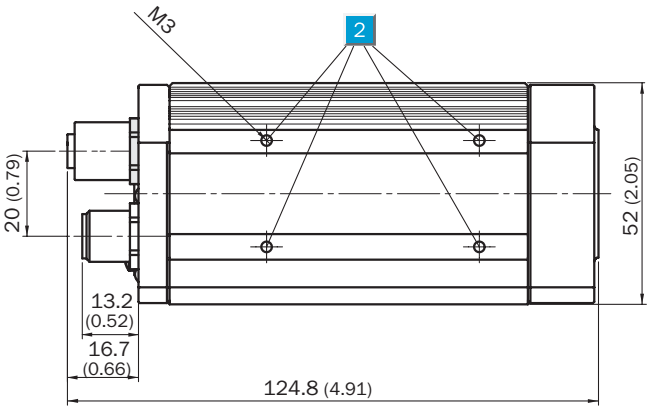
ECLASS 5.0	27310205
ECLASS 5.1.4	27310205

ECLASS 6.0	27310205
ECLASS 6.2	27310205
ECLASS 7.0	27310205
ECLASS 8.0	27310205
ECLASS 8.1	27310205
ECLASS 9.0	27310205
ECLASS 10.0	27310205
ECLASS 11.0	27310205
ECLASS 12.0	27310205
ETIM 5.0	EC001820
ETIM 6.0	EC001820
ETIM 7.0	EC001820
ETIM 8.0	EC001820
UNSPSC 16.0901	43211731

dimensional drawing, view from below

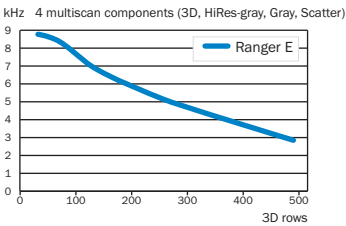
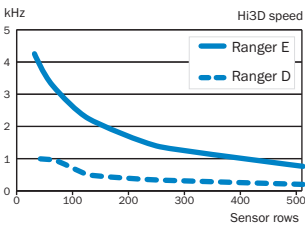
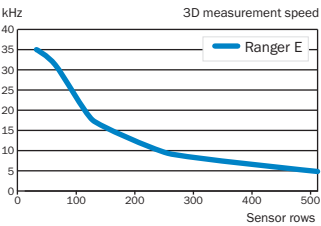


dimensional drawing, view from the side

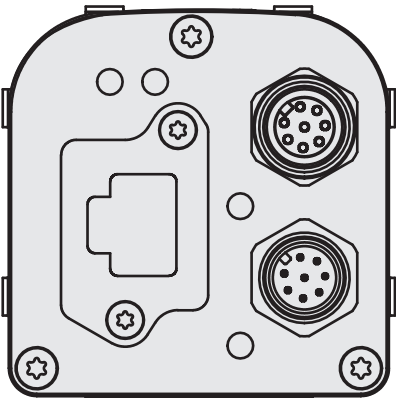


Dimensions in mm (inch)
② Mounting holes M3, 3 mm (4 x per side)

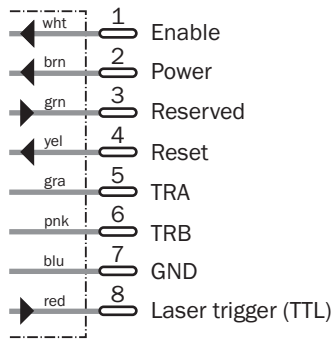
Characteristic curve



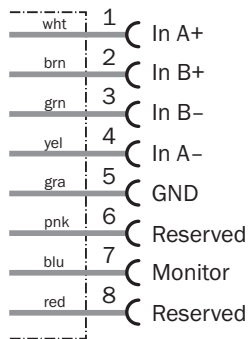
Connection type



Connection diagram, voltage I/O



Connection diagram, encoder connection



Recommended accessories

Other models and accessories → www.sick.com/Ranger

	Brief description	Type	part no.
reflectors and optics			
	Description: Laser module with line projecting lens (red, 35 mW, refocusable), with open wires Light source: Laser, red Connection types: Cable, 1,000 mm, open wires	Ranger accessories, laser	6033005
integration modules and adapters			
	Description: Ranger E/D accessory kit with 24 V power supply, power I/O terminal, Y-cable (2 m), Gigabit Ethernet cable (5 m), lens and camera mounting parts	Ranger E/D accessories set	2040857

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Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

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