Ranger-E55424

Ranger

3D MACHINE VISION

SICK
Sensor Intelligence.

Ranger-E55424 | Ranger

3D MACHINE VISION

Ordering information

Type	part no.
Ranger-E55424	1040382

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 E55 IR – 3D and MultiScan, up to 35 k profiles/second. Gigabit Ethernet interface, 1,536 x 512 pixels, sensor with IR bandpass filter, high-resolution line of 3,072 pixels.
Lens	C-mount
Optical format	1″

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	1,536 px x 512 px
Scan/frame rate	35,000 3D profiles/s
Sensor rows available for 3D	100 ... 511
3D profile resolution	1,536 px
Scatter resolution	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 pixels
Optical center (row, column)	(227, 768)
Gray-scale resolution	3,072 px
IR filter	IR pass filter [1]
Hi-res pixel size (H x V)	4.75 μm x 9.5 μm
Hi-res pixel fill factor	80 %

[1] Pass filter, limit at 740 nm.

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

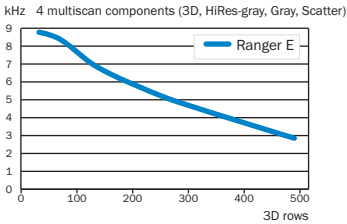|	
ECLASS 5.0	27310205
ECLASS 5.1.4	27310205
ECLASS 6.0	27310205
ECLASS 6.2	27310205
ECLASS 7.0	27310205
ECLASS 8.0	27310205
ECLASS 8.1	27310205
ECLASS 9.0	27310205
ECLASS 10.0	27310205
ECLASS 11.0	27310205
ECLASS 12.0	27310205
ETIM 5.0	EC001820
ETIM 6.0	EC001820
ETIM 7.0	EC001820
ETIM 8.0	EC001820
UNSPSC 16.0901	43211731

dimensional drawing, view from below

Dimensions in mm (inch)
① Mounting holes M5, 9 mm (2 x)
② Mounting holes M3, 3 mm (4 x per side)
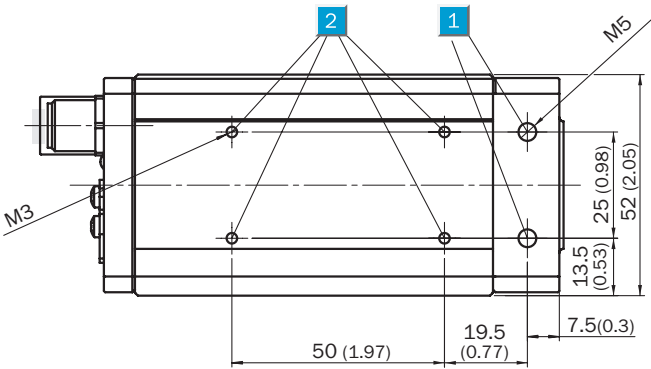
dimensional drawing, view from the side

M3

2

20 (0.79)

52 (2.05)

13.2 (0.52)

16.7 (0.66)

124.8 (4.91)
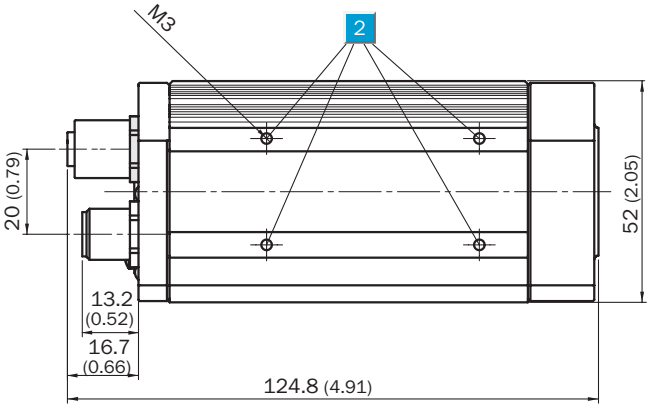
Dimensions in mm (inch)
② Mounting holes M3, 3 mm (4 x per side)

Characteristic curve

kHz — 3D measurement speed

Ranger E

Sensor rows

kHz — Hi3D speed

Ranger E
Ranger D

Sensor rows

kHz — 4 multiscan components (3D, HiRes-gray, Gray, Scatter)

Ranger E

3D rows
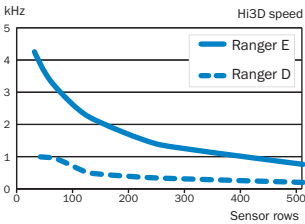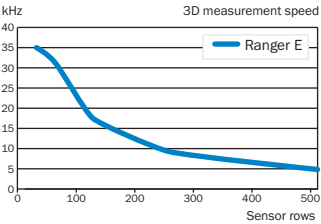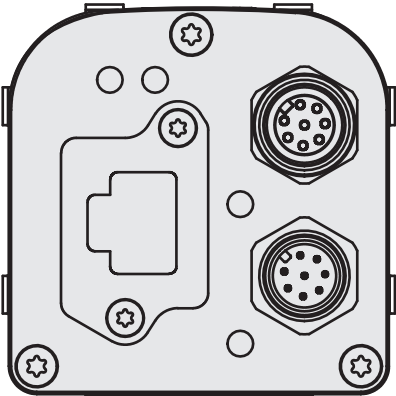
Connection type

Connection diagram, voltage I/O

wht	1		Enable
brn	2		Power
grn	3		Reserved
yel	4		Reset
gra	5		TRA
pnk	6		TRB
blu	7		GND
red	8		Laser trigger (TTL)
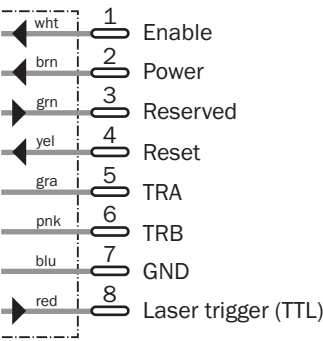
Connection diagram, encoder connection

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
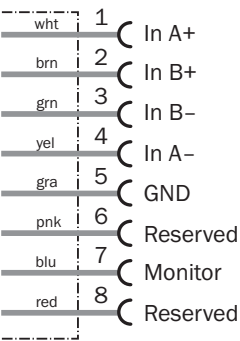
Recommended accessories

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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We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

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

For us, that is "Sensor Intelligence."

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