Ranger-E50414

Ranger

3D VISION

SICK
Sensor Intelligence.

Ranger-E50414 | Ranger
3D VISION

Ordering information

Type	Part no.
Ranger-E50414	1040379

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

Detailed technical data

Features

Task	Positioning Inspection Measuring
Technology	3D, LineScan, MultiScan
Product category	Streaming devices
Example field of view	Free of choice by lens selection
Data synchronization	Free running, encoder triggered, external triggering
Grayscale measurements	✓
Scatter measurement	✓
Spectral range	400 nm ... 950 nm
Description	Ranger E50 - 3D and MultiScan, up to 35 k profiles/second. Gigabit Ethernet interface, 1,536 x 512 pixels.
Lens	C-Mount, 1"

Mechanics/electronics

Connections	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	0 ... 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	1,536 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 control	5 V TTL

Ambient data

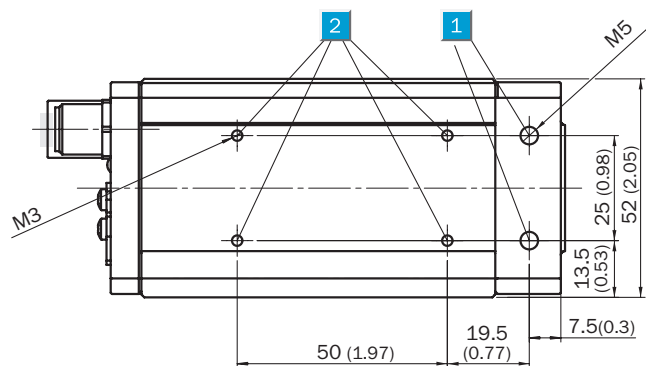| Shock load	15 g, 3 x 6 directions
Vibration load	5 g, 58 Hz ... 150 Hz
Ambient operating temperature	0 °C ... +45 °C [1]
Ambient storage temperature	–20 °C ... +70 °C [1]

[1] Non-condensing.

Classifications

ECl@ss 5.0	27310205
ECl@ss 5.1.4	27310205
ECl@ss 6.0	27310205
ECl@ss 6.2	27310205
ECl@ss 7.0	27310205
ECl@ss 8.0	27310205
ECl@ss 8.1	27310205

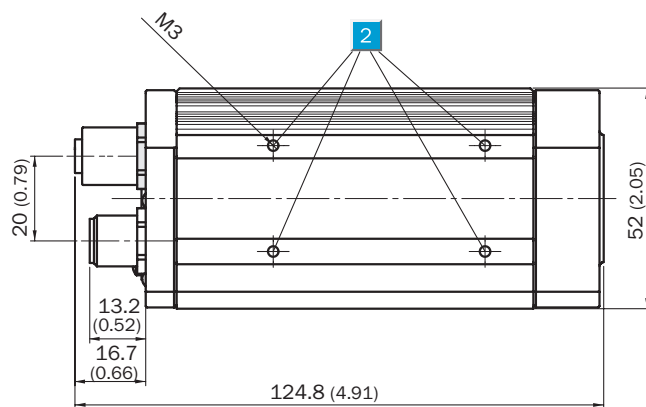| ECl@ss 9.0	27310205
ETIM 5.0	EC001820
ETIM 6.0	EC001820
UNSPSC 16.0901	43211731

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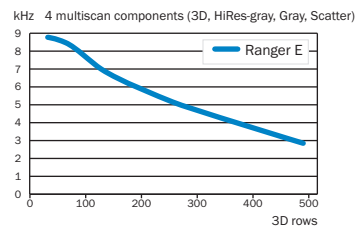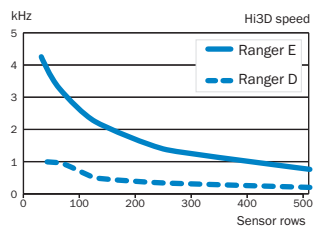
Dimensional drawing, view from below
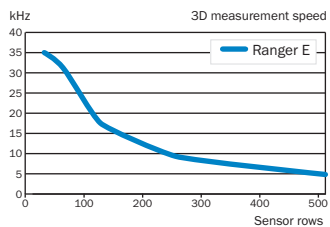
① Mounting holes M5, 9 mm (2 x)
② Mounting holes M3, 3 mm (4 x per side)

Dimensional drawing, view from the side
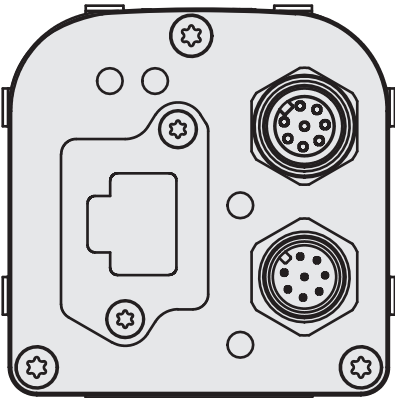
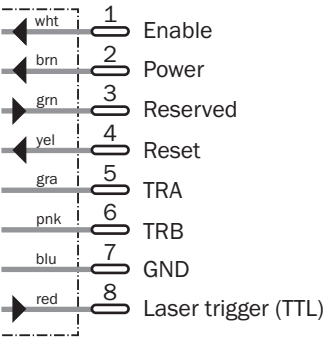② Mounting holes M3, 3 mm (4 x per side)
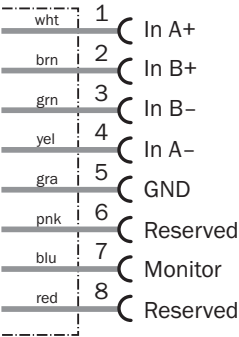
Characteristic curve

Connection type

Connection diagram

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.
Illuminations		
Laser module with line projecting lens (red, 660 nm, 35 mW, refocusable), with open wires, 30° fan angle	Ranger accessories, laser	6033005
Sets and kits		
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

Recommended services

Additional services ➜ www.sick.com/Ranger

	Type	Part no.
Warranty extensions		
• **Product area:** Identification solutions, Vision, Distance sensors, Detection and ranging solutions • **Range of services:** The services correspond to the scope of the statutory manufacturer warranty (SICK general terms and conditions of purchase), Long-term protection for calculable lump sum. • **Duration:** Five-year warranty from date of purchase.	Five-year extended warranty	1680671

SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

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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