High-end cameras
Ranger, Ranger E, Ranger E55 IR, RS-422

Ranger-E55424

SICK
Sensor Intelligence.

Model Name	**> Ranger-E55424**
Part No.	**> 1040382**

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
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- 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

3D VISION EASY 3D CALIBRATION

CE RoHS 2011/65/EU

Features

Task:	Inspection, Measuring, Positioning
Description:	Ranger E55 IR - 3D and MultiScan, up to 35 k profiles∕second. Gigabit Ethernet interface, 1,536 x 512 pixels, sensor with IR high pass filter, high resolution line of 3,072 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:	1,536 px x 512 px
3D profile resolution:	1,536 px
Gray line 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 pixel
Optical center (row, column):	(227, 768)
IR filter:	IR pass filter [1]
Scatter resolution:	1,536 px
Hi-Res Gray resolution:	3,072 px
Hi-Res pixel size (H x V):	4.75 µm x 9.5 µm
Hi-Res pixel fill factor:	80 %
Sensor rows available for 3D:	100 ... 511
Bit depth:	8 bit

[1] Pass filter, cutoff at 740 nm; on rows 100-511.

Interfaces

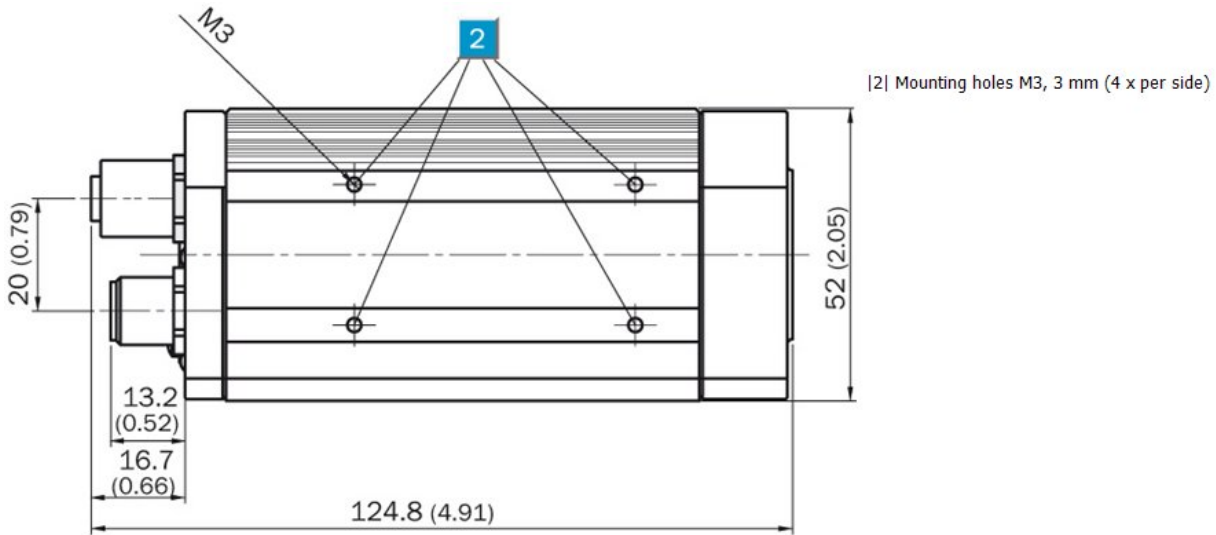|	
Configuration software:	Ranger Studio
Communication interfaces:	RS-422
Operating system:	Windows 7, Windows XP Pro
Development environment:	C++ (VS 2005/2008/2010) or C
Programming interface:	iCon API
Digital inputs:	4 x HIGH = 10 V ... 28.8 V
Digital outputs:	1 x TTL level, 2 x B-type, < 100 mA in 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"
Standards (ROHS):	✓

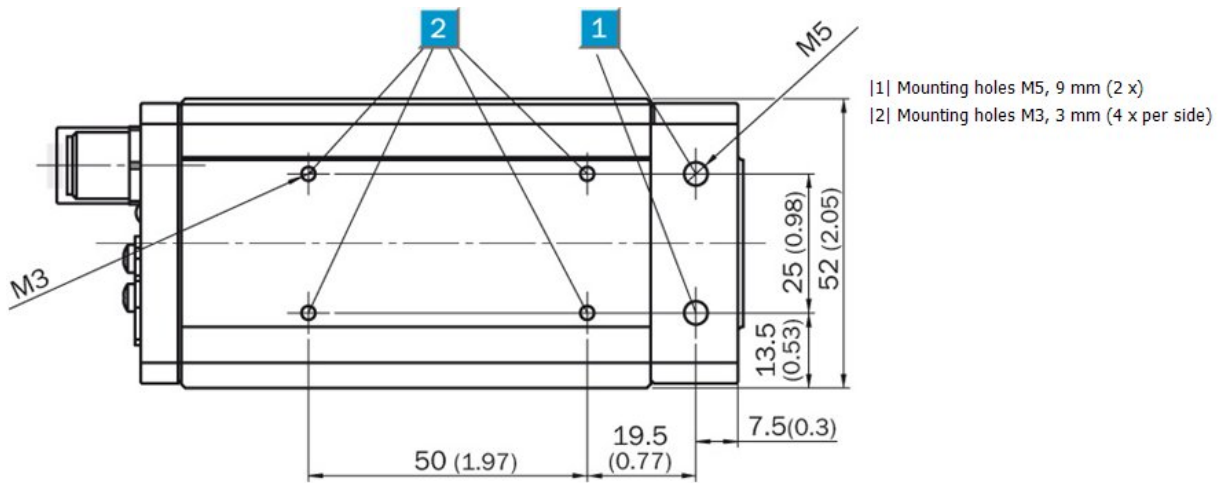## Ambient data

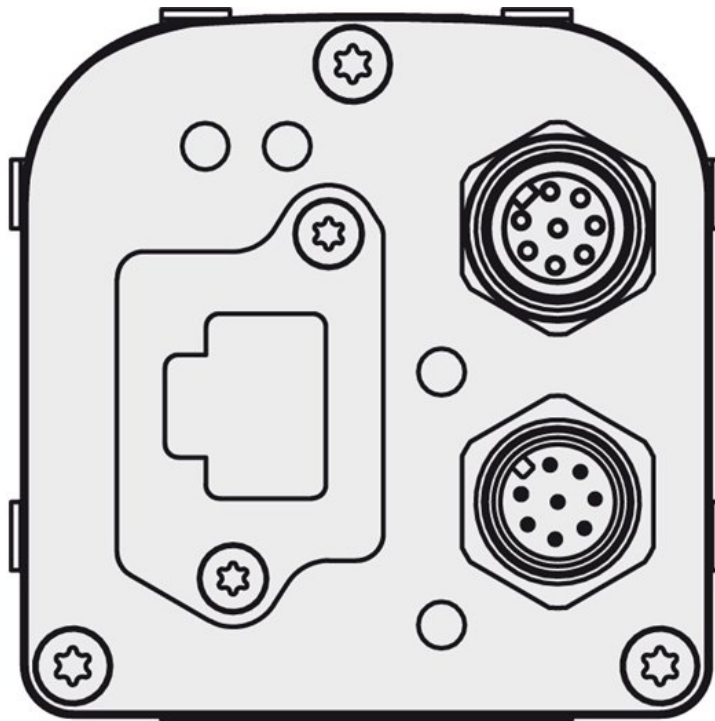|	
Shock load:	15 g, 3 x 6 directions
Vibration load:	5 g, 58 Hz ... 150 Hz
Ambient operating temperature:	0 °C ... 45 °C [1]
Ambient storage temperature:	-20 °C ... 70 °C [2]

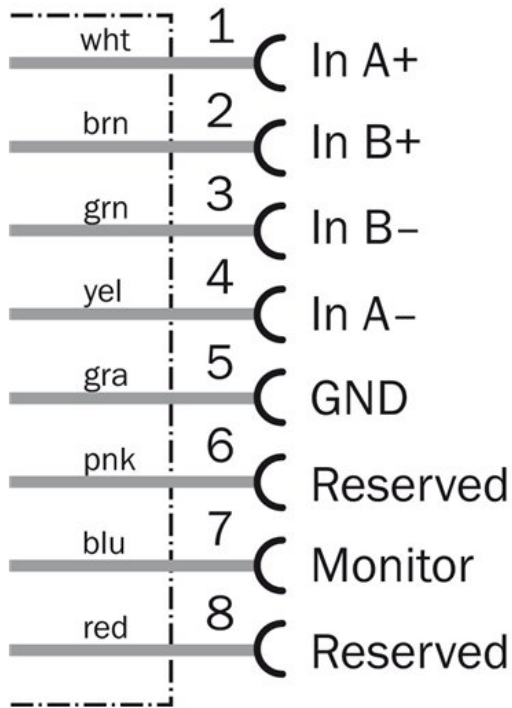[1] [2] Non-condensing

Dimensional drawing, side view

|2| Mounting holes M3, 3 mm (4 x per side)

Dimensional drawing, bottom view

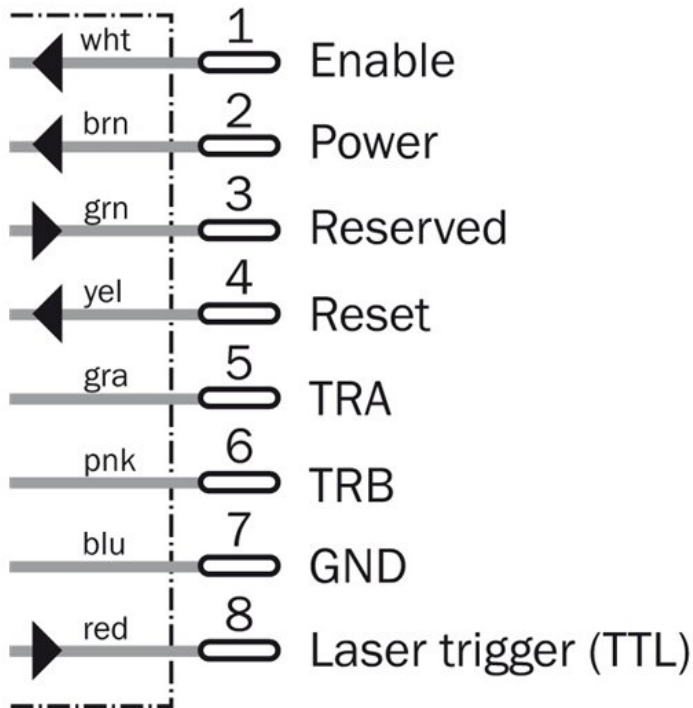|1| Mounting holes M5, 9 mm (2 x)
|2| Mounting holes M3, 3 mm (4 x per side)

Connection type

Connection diagram, Encoder connection

Wire	Pin	Signal
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

Connection diagram Power I/O

Wire	Pin	Signal
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)

Characteristic curves
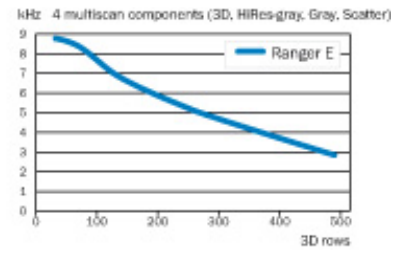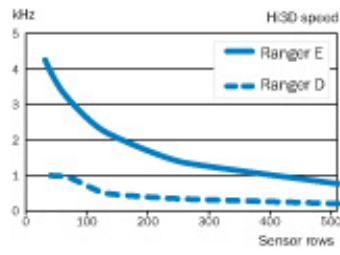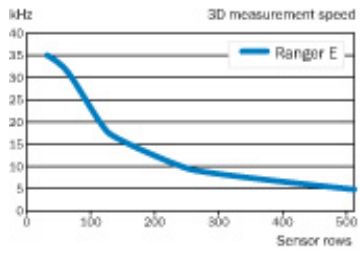
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