High-end cameras
Ruler, Ruler E1200, Ruler E1200 SHB, Gigabit Ethernet

Ruler-E1222

SICK
Sensor Intelligence.

Model Name	**> Ruler-E1222**
Part No.	**> 1029236**
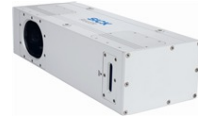
At a glance

- Factory calibrated 3D in millimeters at full production speed
- High accuracy 3D for measurement widths from 100 mm up to 1.5 m
- Capture 3D, grayscale, and scatter at the same time
- Easy to integrate without need for external lights
- Rugged housing for tough environments and operation down to -30 °C
- Remote operation over long cable distances with Gigabit Ethernet

Your benefits

- High-speed measurement allows you to increase production throughput and still ensure product quality
- Accurate size and position measurement in 3D, regardless of an object's height or color, creating reliable solutions
- Simultaneously capturing 3D, scatter, and grayscale, allows for more reliable quality control and inspection
- Factory calibrated 3D with built-in lighting instantly provides results in millimeters, which makes integration easy
- Designed for tough industrial environments to ensure a long and problem-free life time

3D VISION

$C\,\epsilon$

Features

Task:	Inspection, Measuring, Positioning
Description:	Ruler E1200 SHB - 3B Laser, Scatter measurements, Heating elements, up to 10 k profiles∕second. Gigabit Ethernet interface, 1,024 px x 512 px.
Technology:	3D LineScan
Example field of view (H x W):	250 mm x 1,200 mm
Field of view width:	500 mm ... 1,550 mm
Working distance:	280 mm ... 1,280 mm
Maximum height range:	1,000 mm
Data synchronization:	Encoder triggered External enable Free running
Grayscale measurements:	✓
Scatter measurement:	✓
Spectral range:	Ca. 630 nm ... 690 nm
Heating element:	-
Light source:	Visible red light, laser, 660 nm, ± 15 nm

 8/27/2013 8:15:50 AM

Laser class:	3B (IEC 60825-1 : 2008-01)
Factory calibrated:	✓

Performance

Image sensor:	CMOS
Maximum performance:	10,000 3D profiles/s
Sensor resolution:	1,024 px x 512 px
3D profile resolution:	1,024 px
Typical height resolution:	0.4 mm
Gray line resolution:	1,024 px
Scatter resolution:	1,024 px

Interfaces

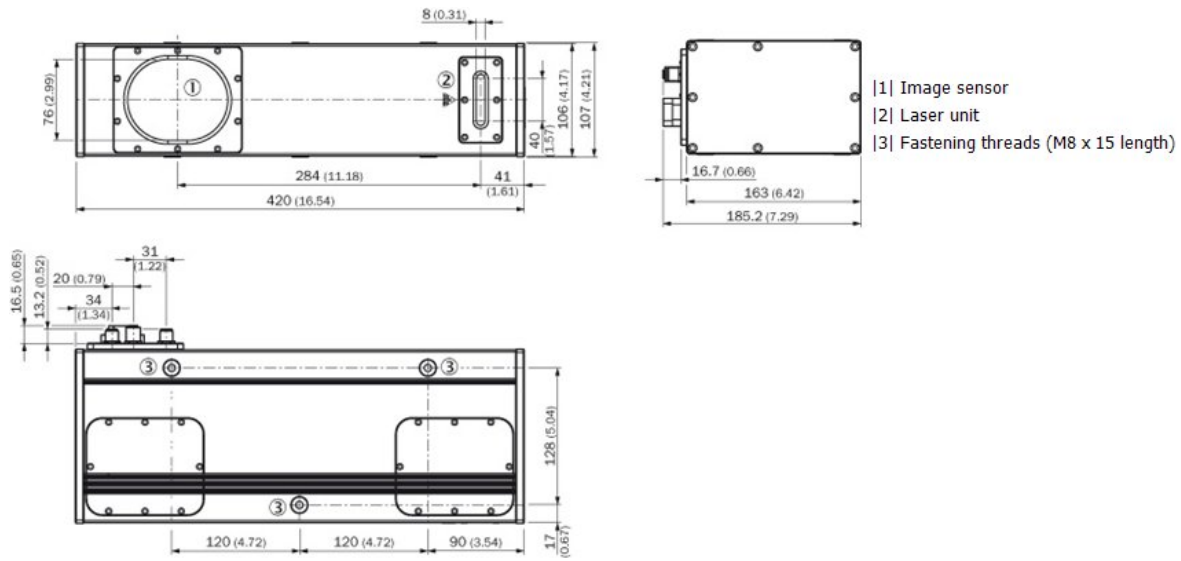|	
Configuration software:	Ranger Studio
Communication interfaces:	Gigabit Ethernet
Operating system:	Windows 7, Windows XP Pro
Development environment:	C++ (VS 2005/2008/2010) or C
Programming interface:	iCon API
Digital inputs:	3 x HIGH = 10 V ... 28.8 V
Digital outputs:	2 x B-type, < 100 mA in total
Encoder interface:	RS-422
Maximum encoder frequency:	2 MHz

Mechanics/electronics

Connectors:	Harting Push Pull (Ethernet) M12, 4-pin male connector (heating) M12, 8-pin socket (encoder) M12, 8-pin male connector (power I/O)
Connector material:	Ethernet: thermoplast/anodized aluminum, M12: nickel-plated brass
Power consumption:	7 W
Power consumption:	< 1 A
Ripple:	< 5 Vpp
Enclosure rating:	IP 65
Housing material:	Aluminum
Housing color:	Gray, varnished
Window material:	Float glass, AR-coated
Weight:	7 kg
Dimensions (L x W x H):	420 mm x 107 mm x 163 mm

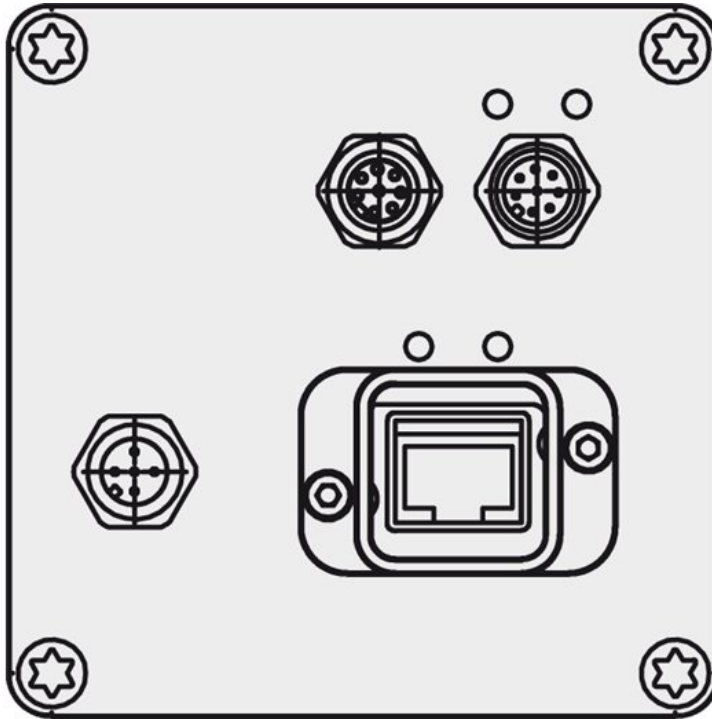## Ambient data

Shock load:	15 g, 3 x 6 directions
Vibration load:	5 g, 58 Hz ... 150 Hz
Ambient operating temperature:	-30 °C ... 40 °C [1]
Ambient storage temperature:	-30 °C ... 70 °C [2]

[1] [2] Non-condensing

Dimensional drawing
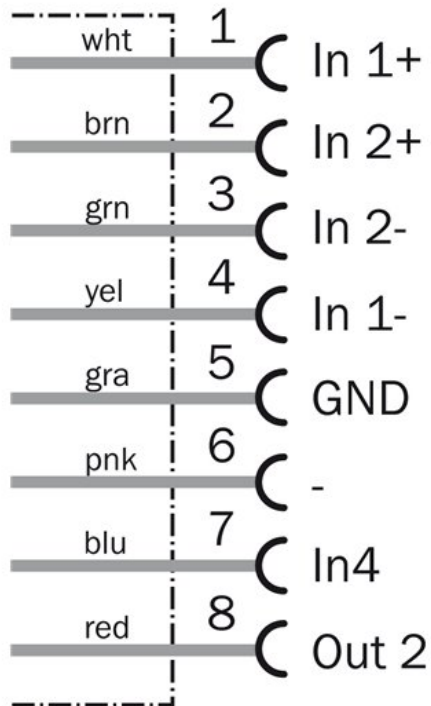

|1| Image sensor
|2| Laser unit
|3| Fastening threads (M8 x 15 length)

Connection type

Connection diagram, Heating connection

Wire	Pin	Signal
brn	1	Power
wht	2	GND
blu	3	GND
blck	4	Power
grnyel	5	Out A
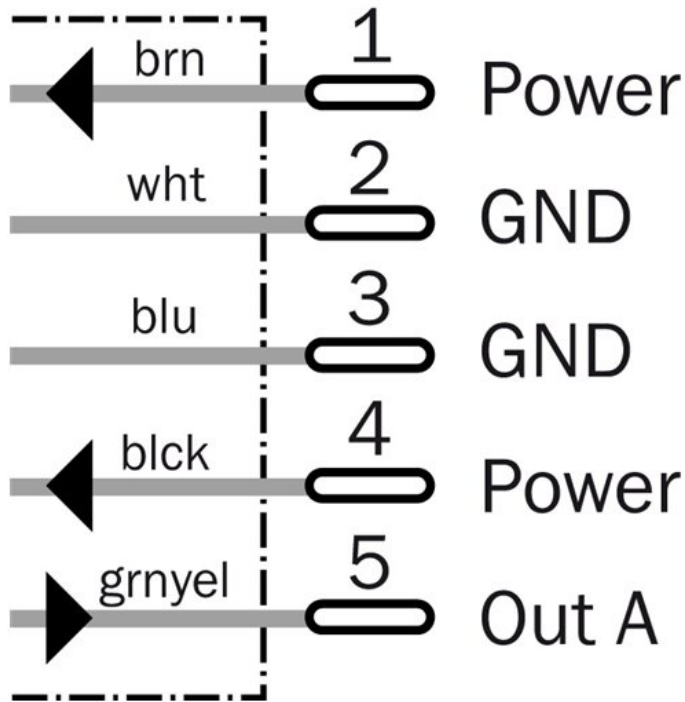
Connection diagram, Encoder connection

Wire	Pin	Signal
wht	1	In 1+
brn	2	In 2+
grn	3	In 2-
yel	4	In 1-
gra	5	GND
pnk	6	-
blu	7	In4
red	8	Out 2

Connection diagram Power I/O

Pin	Color	Signal
1	wht	In1
2	brn	Power
3	grn	Out1
4	yel	In2
5	gra	TRA
6	pnk	TRB
7	blu	GND
8	red	Laser Power
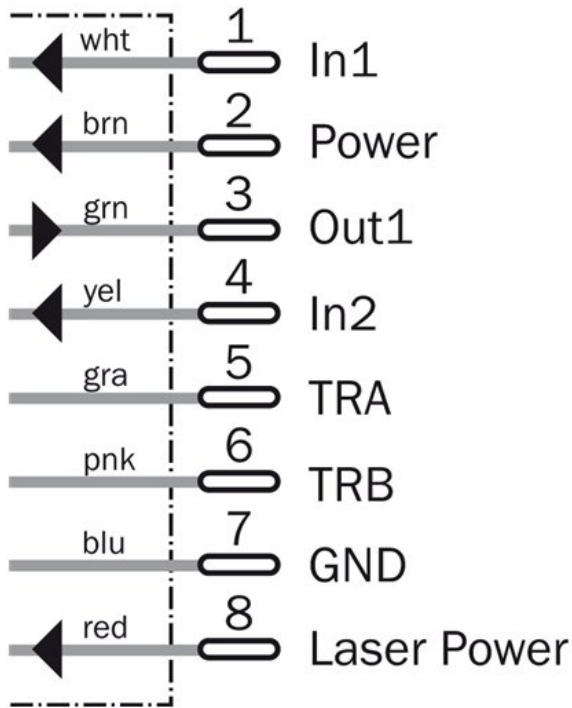
Measuring details

Ruler E150 (Ruler E4xxx)
160 mm
140 mm — 88 mm
Example field-of-view
185 mm

Ruler E1200 (Ruler E1xxx)
280 mm
500 mm — 1000 mm
Example field-of-view
1550 mm

Ruler E600 (Ruler E2xxx)
415 mm
450 mm — 450 mm
Example field-of-view
820 mm
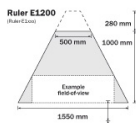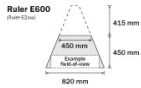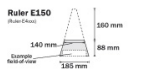
	Ruler E150	Ruler E600	Ruler E1200
Example FOV[1]	50 x 150 mm	250 x 600 mm	250 x 1200 mm
Total height range	88 mm	450 mm	1000 mm
Stand-off	160 mm	415 mm	280 mm
Max. distance	248 mm	865 mm	1280 mm
Width at stand-off level	140 mm	450 mm	500 mm
Width at max. distance	185 mm	820 mm	1550 mm
Height resolution[2]	0.05 mm	0.2 mm	0.4 mm
Max. profile rate	10 000 profiles/s	10 000 profiles/s	10 000 profiles/s

[1] Height x Width
[2] Typical - the height resolution depends on the object distance from Ruler and on the 3D algorithm used

Australia
Phone +61 3 9457 0600
        1800 334 802 – tollfree
E-Mail sales@sick.com.au

Belgium/Luxembourg
Phone +32 (0)2 466 55 66
E-Mail info@sick.be

Brasil
Phone +55 11 3215-4900
E-Mail sac@sick.com.br

Canada
Phone +1 905 771 14 44
E-Mail information@sick.com

Ceská Republika
Phone +420 2 57 91 18 50
E-Mail sick@sick.cz

China
Phone +86 4000 121 000
E-Mail info.china@sick.net.cn
Phone +852-2153 6300
E-Mail ghk@sick.com.hk

Danmark
Phone +45 45 82 64 00
E-Mail sick@sick.dk

Deutschland
Phone +49 211 5301-301
E-Mail kundenservice@sick.de

España
Phone +34 93 480 31 00
E-Mail info@sick.es

France
Phone +33 1 64 62 35 00
E-Mail info@sick.fr

Great Britain
Phone +44 (0)1727 831121
E-Mail info@sick.co.uk

India
Phone +91–22–4033 8333
E-Mail info@sick-india.com

Israel
Phone +972-4-6801000
E-Mail info@sick-sensors.com

Italia
Phone +39 02 27 43 41
E-Mail info@sick.it

Japan
Phone +81 (0)3 3358 1341
E-Mail support@sick.jp

Magyarország
Phone +36 1 371 2680
E-Mail office@sick.hu

Nederlands
Phone +31 (0)30 229 25 44
E-Mail info@sick.nl

Norge
Phone +47 67 81 50 00
E-Mail austefjord@sick.no

Österreich
Phone +43 (0)22 36 62 28 8-0
E-Mail office@sick.at

Polska
Phone +48 22 837 40 50
E-Mail info@sick.pl

România
Phone +40 356 171 120
E-Mail office@sick.ro

Russia
Phone +7-495-775-05-30
E-Mail info@sick.ru

Schweiz
Phone +41 41 619 29 39
E-Mail contact@sick.ch

Singapore
Phone +65 6744 3732
E-Mail admin@sicksgp.com.sg

Slovenija
Phone +386 (0)1-47 69 990
E-Mail office@sick.si

South Africa
Phone +27 11 472 3733
E-Mail info@sickautomation.co.za

South Korea
Phone +82 2 786 6321/4
E-Mail info@sickkorea.net

Suomi
Phone +358-9-25 15 800
E-Mail sick@sick.fi

Sverige
Phone +46 10 110 10 00
E-Mail info@sick.se

Taiwan
Phone +886-2-2375-6288
E-Mail sales@sick.com.tw

Türkiye
Phone +90 (216) 528 50 00
E-Mail info@sick.com.tr

United Arab Emirates
Phone +971 (0) 4 8865 878
E-Mail info@sick.ae

USA/México
Phone +1(952) 941-6780
        1 800-325-7425 – tollfree
E-Mail info@sickusa.com

More representatives and agencies
at **www.sick.com**

SICK AG | Waldkirch | Germany | www.sick.com

SICK
Sensor Intelligence.