



3D vision
Gigabit Ethernet , Ruler, Ruler E600, Ruler E600
HB

Ruler-E2221



Model Name > [Ruler-E2221](#)
Part No. > [1050303](#)



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



Features

Task:	Inspection, Measuring, Positioning
Description:	Ruler E600 HB - 3B Laser, Heating elements, up to 10 k profiles/second. Gigabit Ethernet interface, 1,536 px x 512 px.
Technology:	3D LineScan
Example field of view (H x W):	250 mm x 600 mm
Field of view width:	450 mm ... 820 mm
Sensing distance:	415 mm ... 865 mm
Maximum height range:	450 mm
Data synchronization:	Encoder triggered External trigger 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)

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

Performance

Image sensor:	CMOS
Maximum performance:	10,000 3D profiles/s
Sensor resolution:	1,536 px x 512 px
3D profile resolution:	1,536 px
Typical height resolution:	0.2 mm
Gray line resolution:	1,536 px

Interfaces

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

Mechanics/electronics

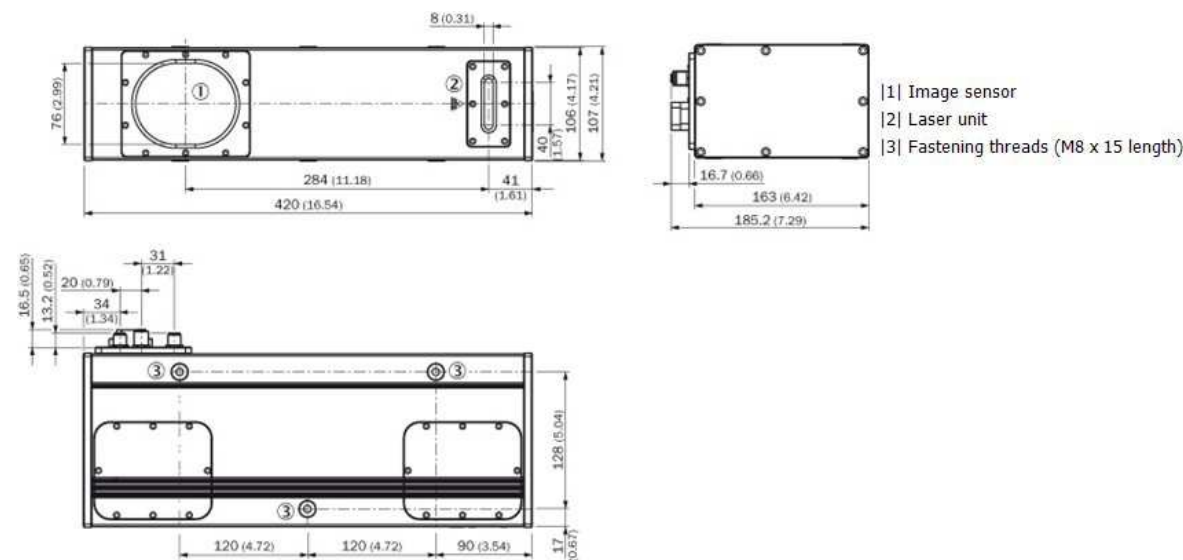
Connectors:	Harting Push Pull (Ethernet) M12, 4-pin male connector (heating) M12, 8-pin socket (encoder) M12, 8-pin male connector (power I/O)
Connector material:	Ethernet: thermoplast/anodized aluminum, M12: nickel-plated brass
Power consumption:	7 W
Power consumption:	< 1 A
Ripple:	< 5 Vpp
Enclosure 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

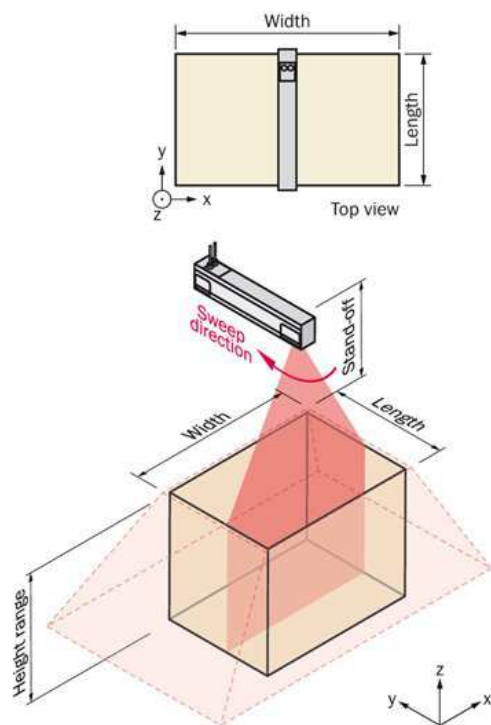
Shock load:	15 g, 3 x 6 directions
Vibration load:	5 g, 58 Hz ... 150 Hz
Ambient operating temperature:	-30 °C ... +40 °C ¹⁾
Ambient storage temperature:	-30 °C ... +70 °C ²⁾

1) 2)
Non-condensing

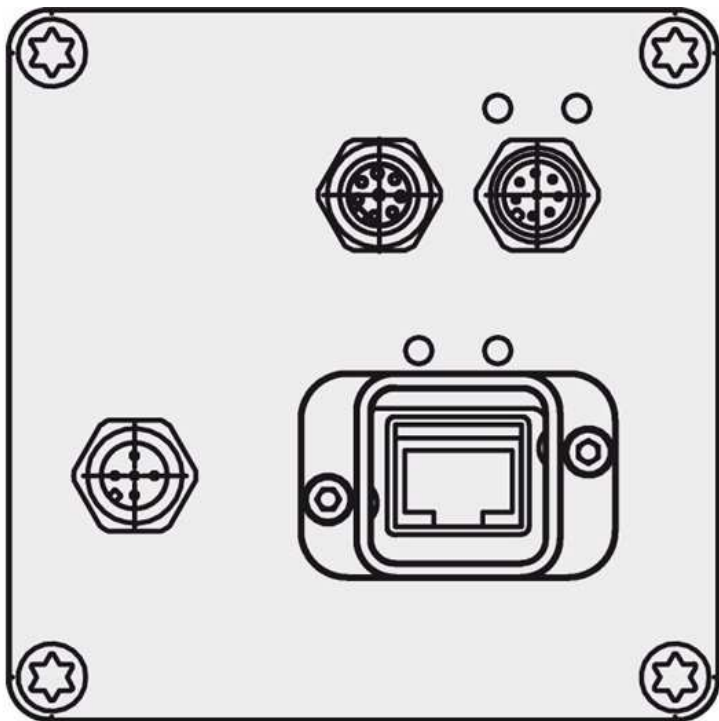
Dimensional drawing



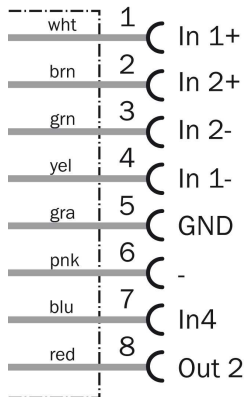
Measuring details



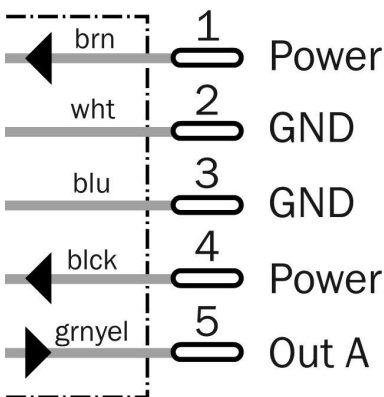
Connection type



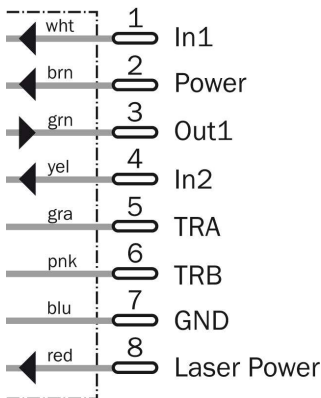
Connection diagram, Encoder connection



Connection diagram, Heating connection



Connection diagram Power I/O



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