

3D Cameras

Ruler E: Gigabit 3D for Tough Environments!



Ruler E is a camera with in-built laser and optics for a predefined field of view, which makes it very easy to install. The data output from the Ruler is calibrated world coordinates (x, y, z) in millimetres which are delivered on a high speed Gigabit Ethernet interface to a hosting PC. Application development is made in a high level VB .Net or C/C++ programming environment.

Benefits with Ruler E:

- High speed 3D data
- Factory calibrated
- Easy to install and integrate
- Data from several Rulers can be combined
- Free choice of image analysis routines
- Standard interface, Gigabit Ethernet
- Robust housing
- Operates in low temperatures
- Best market price/performance

Ruler E is a perfect tool for in-line 3D-scanning applications. Our OEM customers and Vision Integrators use the Ruler E to build 3D scanners with the highest performance and accuracy on the market. It can be used to measure object height, shape and volume, to detect and locate shape defects, to make quality grading, etc. It is designed for tough environment of wood, steel and automotive industries and with the heating option it can operate at temperatures down to -30°C .

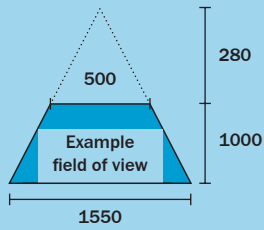
Examples:

- Log sorting
- Board optimization
- Pallet quality grading
- Bulk volume measurement
- Meat cut-up optimization

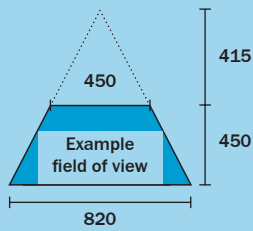
► Ruler E for the toughest environments



Field of view (mm)

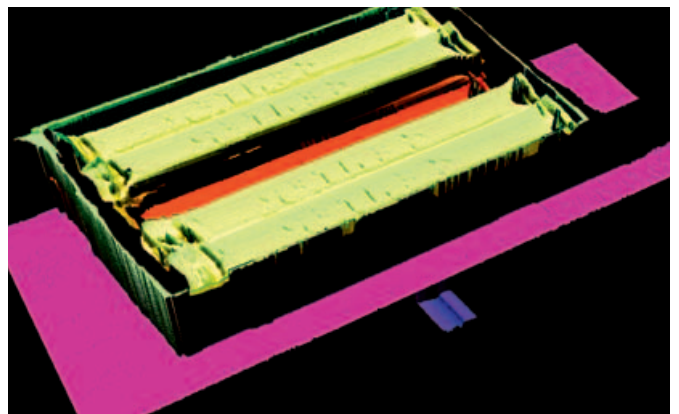


Ruler E 1200



Ruler E 600

► High quality 3D in production speed

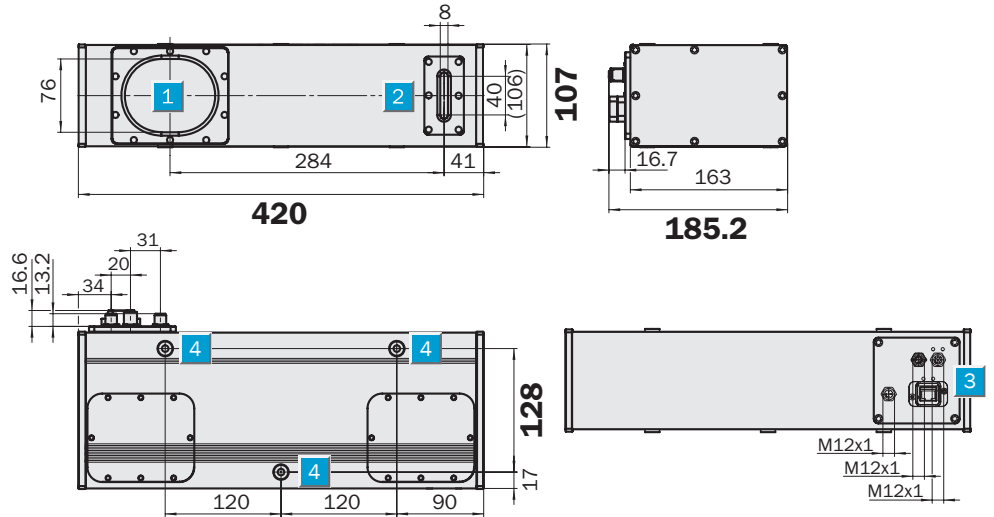


3D Cameras: Ruler E

	Field of view (HxW)
	250x1200 mm
	250x600 mm
3D Cameras	

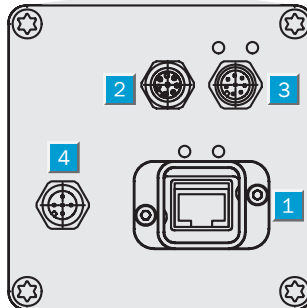
- Easy to integrate
- Data as world coordinates
- Robust housing
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Dimensional drawing

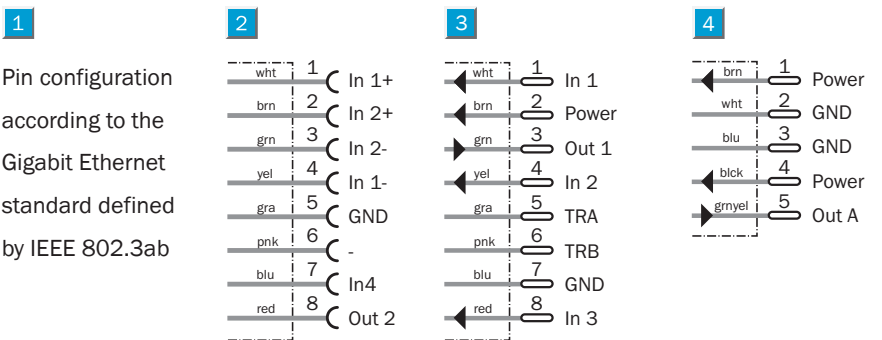


- 1 Image sensor
- 2 Laser unit
- 3 Connectors
- 4 Fastening threads (M8 x 15 length)

Connection type



- 1 Ethernet
- 2 Encoder
- 3 Power I/O
- 4 Heating



Gigabit Ethernet cable		Encoder cable open		Power I/O cable open		Heating cable	
Type	Order no.	Type	Order no.	Type	Order no.	Type	Order no.
5 m	6032321	2 m	6029330	2 m	6020633	2 m	6032485
10 m	6032322	5 m	6029331	5 m	6020993	5 m	6032486
20 m	6032323	10 m	6032324	10 m	6022152		
70 m	6033028			15 m	6022153		



Laser class 2M/3B

Technical data		Ruler E	2111	2112	2121	2122	1111	1112	1211	1121	1212	1122	1221	1222
Performance	10.000 3D profiles /second													
Interface	Gigabit Ethernet													
Host platform ¹⁾	PC, Windows XP													
Development environment	.Net Assembly, C, or C++ (VS .NET 2003)													
Synchronisation of data	Free running, light switch enable, rotary encoder trig													
Encoder interface	RS 422													
Max. encoder frequency	2 MHz													
Digital inputs	3 x HIGH = 10 V ... 28.8 V													
Digital outputs	1 x B - type; < 100 mA													
Power supply	24 VDC													
Current consumption	< 1 A													
Ripple	< 5 Vpp													
Dimensions (L x H x D)	420 x 163 x 105 mm													
Weight	7.0 kg													
Enclosure rating	IP 65													
Housing material	Aluminium, surface grey varnished													
	Connectors: nickel-plated brass													
	Windows: float glass, AR coated													
Shock load	15 g, 3 x 6 directions													
Vibration load	5 g, 58 ... 150 Hz													
Laser class	2M													
	3B													
Laser wavelength	660 ±15 nm													
Laser filter	60 nm FWHM													
Imager	CMOS													
Max. profile width	1024													
	1536													
Typical height resolution	0.4 mm													
	0.2 mm													
Example field of view (H x W)	250 x 1200 mm													
	250 x 600 mm													
Scatter measurement														
Heating elements														
Ambient temperature	Operation: 0 ... +40 °C													
	Operation: -30 ... +40 °C													
	Storage: -30 ... +70 °C													

¹⁾ Recommended PC for Vision System: 3.0 GHz CPU, 800 MHz bus speed, 512 MB RAM (For evaluation purposes, a PC with lower performance may be sufficient)

Order information

3D cameras						Ruler E accessories		Opto fibre accessories	
Version	Type	Order no.	Scatter	Heating	3B Laser	Type	Order no.	Type	Order no.
Ruler E600	Ruler-E2111	1029237				Ruler E	1014241	Opto adapter	6032331
Ruler E600S	Ruler-E2112	1029238				accessory kit		Opto fibre, 100m	1014338
Ruler E600B	Ruler-E2121	1028042				Gigabit Ethernet board	6032329	Content of Ruler E accessory kit (1014241)	
Ruler E600SB	Ruler-E2122	1029239				Ruler development SW	2038800	Type	Order no.
Ruler E1200	Ruler-E1111	1028041				Gigabit network switch x5	6032330	T-junction connector	6026503
Ruler E1200S	Ruler-E1112	1029230				Ruler E key box	1029242	Power supply	1014242
Ruler E1200H	Ruler-E1211	1029231				T-junction connector	6026503	Gigabit Ethernet cable, 10 m	6032322
Ruler E1200B	Ruler-E1121	1029233				Power supply	1014242	Power and I/O cable, M12 to M12, 2 m	6030121
Ruler E1200SH	Ruler-E1212	1029232						I/O cable, M12 to open, 2 m	6029330
Ruler E1200SB	Ruler-E1122	1029234						Encoder cable, M12 to open, 2 m	6029330
Ruler E1200HB	Ruler-E1221	1029235							
Ruler E1200SHB	Ruler-E1222	1029236							