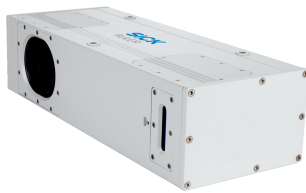


# Ruler-E2111

Ruler

3D VISION

**SICK**  
Sensor Intelligence.



## Ordering information

Type	Part no.
Ruler-E2111	1029237

Other models and accessories → [www.sick.com/Ruler](http://www.sick.com/Ruler)



## Detailed technical data

### Features

<b>Task</b>	Positioning Inspection Measuring
<b>Technology</b>	3D, LineScan
<b>Product category</b>	Streaming devices
<b>Working distance</b>	415 mm ... 865 mm
<b>Example field of view</b>	250 mm x 600 mm
<b>Field of view width</b>	450 mm ... 820 mm
<b>Light source</b>	Visible red light (laser, 660 nm, ± 15 nm)
<b>Laser class</b>	2 (IEC 60825-1:2014, EN 60825-1:2014)
<b>Data synchronization</b>	Free running, encoder triggered, external triggering
<b>Grayscale measurements</b>	✓
<b>Spectral range</b>	Approx. 630 nm ... 690 nm
<b>Maximum height range</b>	450 mm
<b>Heating element</b>	Without heating
<b>Factory calibrated</b>	✓
<b>Description</b>	Ruler E600 - 2M laser, up to 10 k profiles/second. Gigabit Ethernet interface 1,536 px x 512 px.

### Mechanics/electronics

<b>Connections</b>	Harting Push Pull (Ethernet) M12, 8-pin male connector, A-coded (voltage supply, I/O) M12, 8-pin socket (encoder)
<b>Connector material</b>	M12: nickel-plated brass, Ethernet: thermoplast/anodized aluminum
<b>Ripple</b>	< 5 V <sub>pp</sub>
<b>Power consumption</b>	7 W
<b>Current consumption</b>	< 1 A
<b>Enclosure rating</b>	IP65
<b>Housing material</b>	Aluminum
<b>Housing color</b>	Gray, varnished
<b>Window material</b>	Float glass, anti-reflective coated
<b>Weight</b>	7 kg
<b>Dimensions (L x W x H)</b>	420 mm x 107 mm x 163 mm

## Performance

<b>Image sensor</b>	CMOS
<b>Sensor resolution</b>	1,536 px x 512 px
<b>Scan/frame rate</b>	10,000 3D profiles/s
<b>Typical height resolution</b>	0.2 mm <sup>1)</sup>
<b>3D profile resolution</b>	1,536 px
<b>Gray-scale resolution</b>	1,536 px

<sup>1)</sup> The given height resolution is relevant for relative measurements and depends on the object distance from the camera and on the 3D algorithm used.

## Interfaces

<b>Ethernet</b>	✓, UDP/IP
Data transmission rate	1,000 Mbit/s
<b>Serial</b>	✓, RS-422
Function	Encoder
Data transmission rate	Maximum encoder frequency: 2 MHz
<b>Configuration software</b>	Ranger Studio
<b>Operating system</b>	Windows 7, Windows XP Pro, Windows 10
<b>Development environment</b>	C++ (VS 2005/2008/2010) / C
<b>Programming interface</b>	iCon API
<b>Digital input</b>	3 x HIGH = 10 V ... 28.8 V
<b>Encoder interface</b>	RS-422
<b>Maximum encoder frequency</b>	2 MHz

## Ambient data

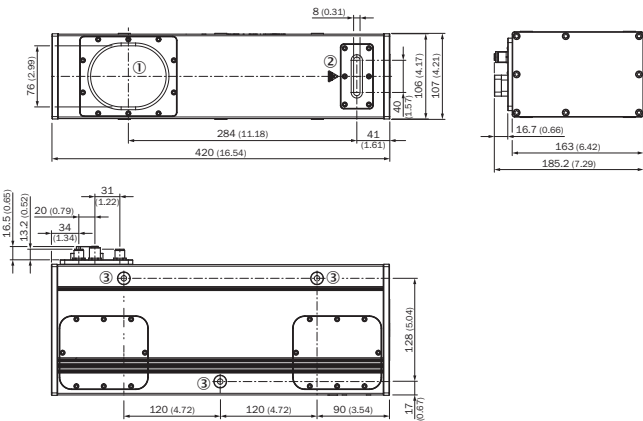
<b>Shock load</b>	15 g, 3 x 6 directions
<b>Vibration load</b>	5 g, 58 Hz ... 150 Hz
<b>Ambient operating temperature</b>	0 °C ... +40 °C <sup>1)</sup>
<b>Ambient storage temperature</b>	-30 °C ... +70 °C <sup>1)</sup>

<sup>1)</sup> Non-condensing.

## Classifications

<b>ECI@ss 5.0</b>	27310205
<b>ECI@ss 5.1.4</b>	27310205
<b>ECI@ss 6.0</b>	27310205
<b>ECI@ss 6.2</b>	27310205
<b>ECI@ss 7.0</b>	27310205
<b>ECI@ss 8.0</b>	27310205
<b>ECI@ss 8.1</b>	27310205
<b>ECI@ss 9.0</b>	27310205
<b>ETIM 5.0</b>	EC001820
<b>ETIM 6.0</b>	EC001820
<b>UNSPSC 16.0901</b>	43211731

Dimensional drawing (Dimensions in mm (inch))

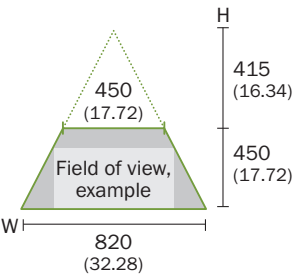


- ① Image sensor
- ② Laser unit
- ③ Fastening threads (M8 x 15 mm)

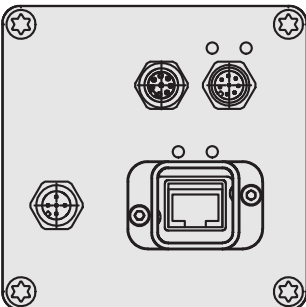
Field of view

Ruler E600

Typ. field of view in mm (inch)

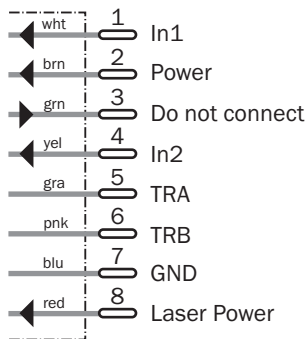


Connection type

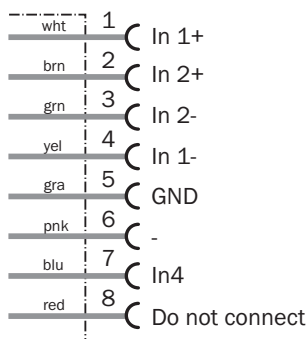


## Connection diagram

Connection diagram, voltage I/O









Connection diagram, encoder connection



## Recommended accessories

Other models and accessories → [www.sick.com/Ruler](http://www.sick.com/Ruler)

	Brief description	Type	Part no.
Power supply units and power supply cables			
	24 V DC power supply with 8-pin M 12 connector, 90 ... 264 V AC, 1.14 A / 24 W, including two line cords (European and US)	Power supply (Ruler E/S)	1014242
Adapters and distributors			
	T-junction	SBO-02F12-SF	6026503
Modules and gateways			
	Single port PCI board for connection to Gigabit Ethernet high-end camera	Gigabit Ethernet Board Single	6032329
Plug connectors and cables			
	Head A: male connector, M12, 8-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, shielded, 2 m	YM2A28-020VA6XLEAX	2096232

	Brief description	Type	Part no.
	Head A: male connector, PushPull Head B: male connector, RJ45 Cable: Gigabit Ethernet, unshielded, 10 m	SSL-0J08-G10ME	6032322
	Head A: female connector, M12, 8-pin, straight, A-coded Head B: male connector, M12, 8-pin, straight, A-coded Cable: Sensor/actuator cable, PUR, halogen-free, shielded, 2 m	YF2A28-020UA6M2A28	2096105
Illuminations			
	The ICT-R terminal box with key-operated pushbutton is used to switch the power to the internal laser on and off. The ICT-R is intended for devices with class IIb/3B lasers to achieve compliance with laser safety regulations. The ICT-R has a removable key, switch-on delay (< 5 s), M12 plug connectors, and LEDs to indicate the operational status.	ICT-R	1029242

## Recommended services

Additional services → [www.sick.com/Ruler](http://www.sick.com/Ruler)

	Type	Part no.
Warranty extensions		
<ul style="list-style-type: none"> <li>• <b>Product area:</b> Identification solutions, Vision, Distance sensors, Detection and ranging solutions</li> <li>• <b>Range of services:</b> 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.</li> <li>• <b>Duration:</b> Five-year warranty from date of purchase.</li> </ul>	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.”**

## WORLDWIDE PRESENCE:

Contacts and other locations –[www.sick.com](http://www.sick.com)