Ruler-E1121

Ruler

3D MACHINE VISION

SICK
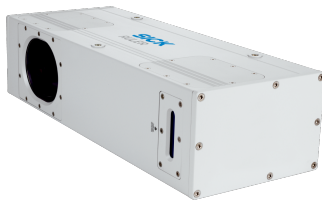Sensor Intelligence.

Ruler-E1121 | Ruler
3D MACHINE VISION

Ordering information

Type	part no.
Ruler-E1121	1029233

Other models and accessories ➜ www.sick.com/Ruler

Illustration may differ

CE ✓

Detailed technical data

Features

Technology	3D triangulation
Pre-calibrated	✓
Product category	Streaming, pre-calibrated
Working distance	280 mm ... 1,280 mm
Example field of view	250 mm x 1,200 mm
Field of view width	500 mm ... 1,550 mm
Illumination	Integrated
Illumination color	Red, laser, Visible, 660 nm, ± 15 nm
Laser class	3B (EN 60825-1:2014+A11:2021; IEC 60825-1:2014, Complies with the FDA performance requirements for laser products except for conformance with IEC 60825-1 Ed.3., as described in Laser Notice 56 dated May 8, 2019.)
Data synchronization	Free running, encoder triggered, external triggering
Grayscale measurements	✓
Spectral range	Approx. 630 nm ... 690 nm
Maximum height range	1,000 mm
Heating element	Without heating
Description	Ruler E1200 B - 3B laser, up to 10 k profiles/second. Gigabit Ethernet interface 1,024 px x 512 px.

Mechanics/electronics

Connection type	Harting Push Pull (Ethernet) M12, 8-pin male connector, A-coded (voltage supply, I/O) M12, 8-pin socket (encoder)
Connector material	M12: nickel-plated brass, Ethernet: thermoplast/anodized aluminum
Ripple	< 5 V_{pp}
Power consumption	7 W
Current consumption	< 1 A
Enclosure rating	IP65
Housing material	Aluminum
Housing color	Gray, varnished
Window material	Float glass, anti-reflective coated
Weight	7 kg

Dimensions (L x W x H)	420 mm x 107 mm x 163 mm

Performance

Sensor properties	
Sensor resolution	1,024 px x 512 px
Image sensor	CMOS
Scan/frame rate	10,000 3D profiles/s
Typical height resolution	0.4 mm [1]
Sensor resolution	1,024 px x 512 px
3D profile resolution	1,024 px
Gray-scale resolution	1,024 px

[1] Object distance.

Interfaces

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

Ambient data

Shock load	15 g, 3 x 6 directions
Vibration load	5 g, 58 Hz ... 150 Hz
Ambient operating temperature	0 °C ... +40 °C [1]
Storage temperature	–30 °C ... +70 °C [1]

[1] Non-condensing.

Certificates

EU declaration of conformity	✓
ACMA declaration of conformity	✓
China RoHS	✓

Classifications

ECLASS 5.0	27310205
ECLASS 5.1.4	27310205
ECLASS 6.0	27310205
ECLASS 6.2	27310205

ECLASS 7.0	27310205
ECLASS 8.0	27310205
ECLASS 8.1	27310205
ECLASS 9.0	27310205
ECLASS 10.0	27310205
ECLASS 11.0	27310205
ECLASS 12.0	27310205
ETIM 5.0	EC001820
ETIM 6.0	EC001820
ETIM 7.0	EC001820
ETIM 8.0	EC001820
UNSPSC 16.0901	43211731

Dimensional drawing

Dimensions in mm (inch)
① Image sensor
② Laser unit
③ Fastening threads (M8 x 15 mm)
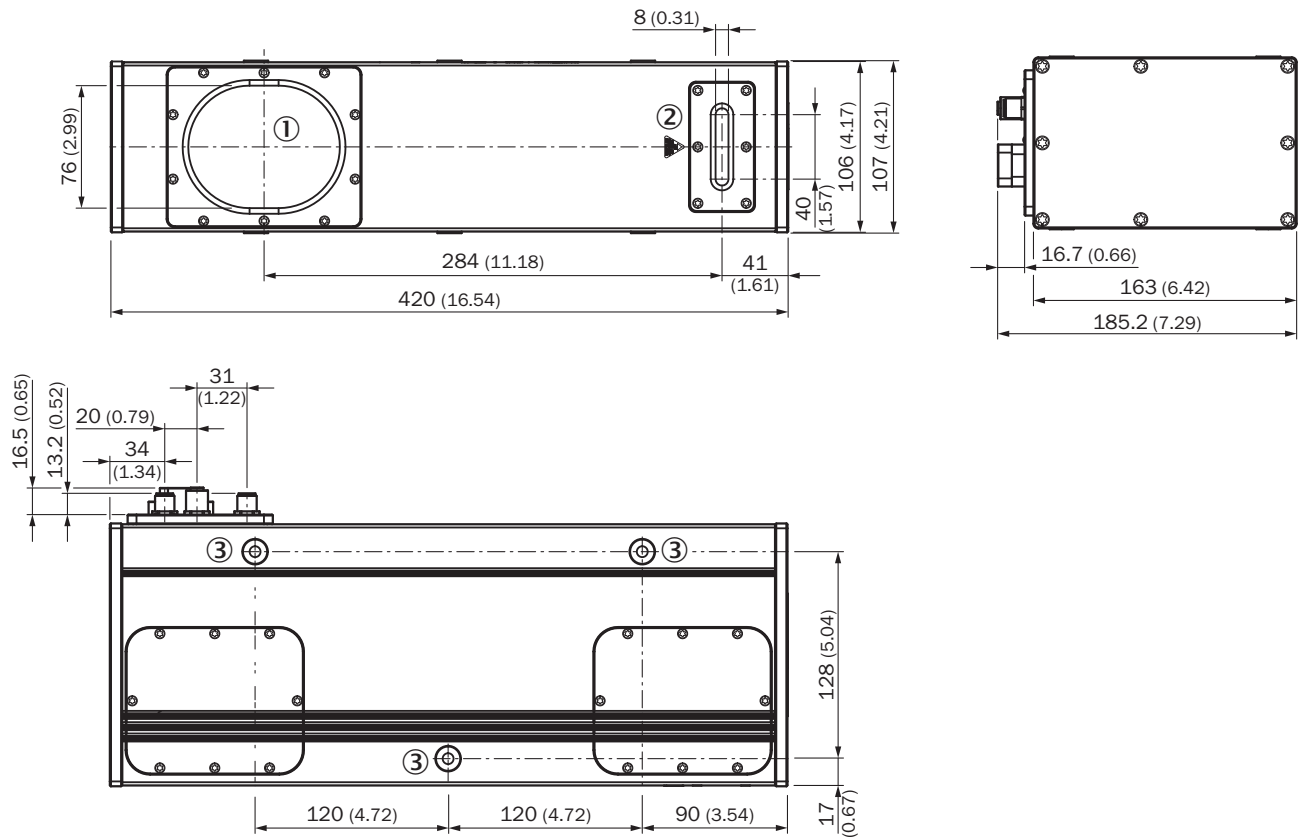
Field of view

Ruler E1200
Typ. field of view in mm (inch)


```
                    H
            500        280
          (19.69)     (11.02)

        Field of view,    1,000
          example        (39.37)

    W
          1,550
         (61.02)
```
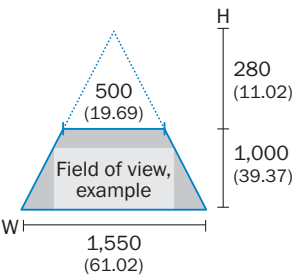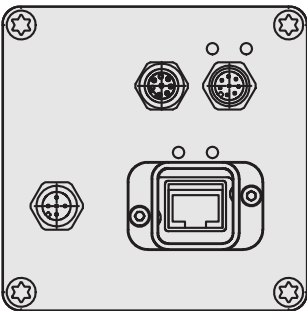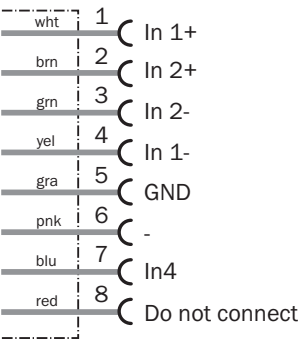
Connection type

Connection diagram, voltage I/O

wht	1	In1
brn	2	Power
grn	3	Do not connect
yel	4	In2
gra	5	TRA
pnk	6	TRB
blu	7	GND
red	8	Laser Power
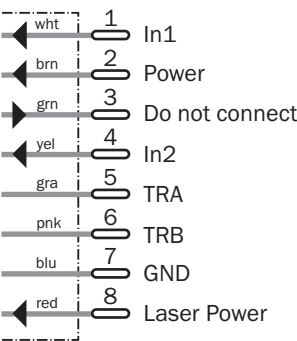
Connection diagram, encoder connection

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	Do not connect

Recommended accessories

Other models and accessories ➜ www.sick.com/Ruler

	Brief description	Type	part no.
integration modules and adapters			
	• **Description:** Single port PCI board for connection to Gigabit Ethernet high-end camera	Gigabit Ethernet Board Single	6032329
Power supply units and power supply cables			
	• **Input voltage:** 90 V AC ... 264 V AC • **Output voltage:** 24 V DC • **Output current:** 1.14 A • **Description:** 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
reflectors and optics			
	• **Description:** 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 IIIb/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. • **Connection types:** Plug, M12, 8-pin for camera, connection cable glands and terminals for laser connection • **Ambient operating temperature:** −10 °C ... +48 °C	ICT-R	1029242

Brief description	Type	part no.
connao		

(connectors and cables)

Brief description	Type	part no.
connectors and cables		
• **Connection type head A:** Male connector, RJ45, 8-pin, straight • **Connection type head B:** Male connector, RJ45, 8-pin, straight • **Signal type:** Ethernet, Gigabit Ethernet • **Cable:** 10 m, PVC • **Description:** Ethernet, Push-pull male connector, unshielded, Gigabit Ethernet	SSL-0J08-G10ME	6032322
• **Connection type head A:** Male connector, M12, 8-pin, A-coded • **Connection type head B:** Female connector, M12, 8-pin, A-coded • **Connection type head C:** Male connector, M12, 8-pin, A-coded • **Note:** Parallel connected	SBO-02F12-SF	6026503
• **Connection type head A:** Female connector, M12, 8-pin, straight, A-coded • **Connection type head B:** Male connector, M12, 8-pin, straight, A-coded • **Signal type:** Sensor/actuator cable • **Cable:** 2 m, 8-wire, PUR, halogen-free • **Description:** Sensor/actuator cable, shielded • **Application:** Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation	YF2A28-020UA6M2A28	2096105
• **Connection type head A:** Male connector, M12, 8-pin, straight, A-coded • **Connection type head B:** Flying leads • **Signal type:** Sensor/actuator cable • **Cable:** 2 m, 8-wire, PVC • **Description:** Sensor/actuator cable, shielded • **Application:** Zones with chemicals, Uncontaminated zones	YM2A28-020VA6XLEAX	2096232
• **Connection type head A:** Male connector, M12, 8-pin, straight, A-coded • **Connection type head B:** Flying leads • **Signal type:** Sensor/actuator cable • **Cable:** 0.6 m, 8-wire, PVC • **Description:** Sensor/actuator cable, shielded • **Application:** Zones with chemicals, Uncontaminated zones	YM2A28-C60VA6XLEAX	2145392
• **Connection type head A:** Male connector, M12, 8-pin, straight, A-coded • **Connection type head B:** Flying leads • **Signal type:** Sensor/actuator cable • **Cable:** 1 m, 8-wire, PVC • **Description:** Sensor/actuator cable, shielded • **Application:** Zones with chemicals, Uncontaminated zones	YM2A28-010VA6XLEAX	2145393
• **Connection type head A:** Male connector, M12, 8-pin, straight, A-coded • **Connection type head B:** Flying leads • **Signal type:** Sensor/actuator cable • **Cable:** 3 m, 8-wire, PVC • **Description:** Sensor/actuator cable, shielded • **Application:** Zones with chemicals, Uncontaminated zones	YM2A28-030VA6XLEAX	2145394

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**

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

SICK
Sensor Intelligence.