# 3D Belt Pick Ruler3000 Bundle

Ruler3000

**3D MACHINE VISION**

**SICK**
Sensor Intelligence.

# 3D Belt Pick Ruler3000 Bundle | Ruler3000

3D MACHINE VISION

## Ordering information

| Type | Part no. |
|---|---|
| 3D Belt Pick Ruler3000 Bundle | 1128736 |

**Included in delivery:** SIM1012-0AXG200 3D Belt Pick (1), V3DU3-120RM21A (1), 3D Belt Pick Licence (1)

Bundle comprising Ruler3120 and SIM1012 with preinstalled 3D Belt Pick SensorApp and pre-activated 3D Belt Pick license. The technical data apply to the Ruler3120 3D camera only, the technical data of the other components can be found separately.

Other models and accessories ➜ www.sick.com/Ruler3000

## Detailed technical data

### Features

| | |
|---|---|
| **Technology** | 3D triangulation |
| **Pre-calibrated** | ✓ |
| **Product category** | Streaming, pre-calibrated |
| **Shutter technology** | Global-Shutter |
| **Working distance** | 430 mm ... 1,445 mm |
| **Example field of view** | 1,200 mm x 345 mm |
| **Exposure mode** | Linear<br>HDR |
| **Illumination** | Integrated |
| **Illumination color** | Red, laser, Visible, 660 nm, ± 15 nm |
| **Laser class** | 2 (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 |
| **Factory calibrated** | ✓ |
| **3D measurement** | ✓ |
| **Scatter measurement** | ✓ |
| **Reflectance measurement** | ✓ |
| **Ambient light suppression** | ✓ [1] |
| **Scheimpflug adapter, integrated** | ✓ |

[1] Red bandpass filter.

| | |
|---|---|
| **Width at minimum operating distance** | 540 mm |
| **Width at maximum operating distance** | 1,680 mm |
| **Maximum height range** | 1,015 mm |
| **Task** | Detecting - Standard objects<br>Detecting - Level<br>Measuring - Dimension, contour and volume<br>Monitoring and controlling - Quality<br>Determining position - 3D position determination |

[1] Red bandpass filter.

## Mechanics/electronics

| | |
|---|---|
| **Connection type** | Voltage – I/O: M12, 17-pin male connector<br>Gigabit Ethernet: M12, 8-pin socket, X-coded |
| **Connector material** | M12: Nickel-coated brass |
| **Supply voltage** | 24 V DC, ± 10 % |
| **Ripple** | < 5 $V_{pp}$ |
| **Power consumption** | ≤ 12 W |
| **Current consumption** | ≤ 1.5 A |
| **Enclosure rating** | IP65<br>IP67 |
| **Protection class** | III |
| **Housing material** | Aluminum |
| **Housing color** | Blue |
| **Window material** | Float glass, anti-reflective coated |
| **Weight** | 2.3 kg |
| **Dimensions (L x W x H)** | 336 mm x 77 mm x 138 mm |

## Performance

| | |
|---|---|
| **Image sensor** | CMOS sensor from SICK with ROCC technology, M30 |
| **Scan/frame rate** | 46,000 3D profiles/s, In reduced ROI<br>7,000 3D profiles/s, full format |
| **Data points/profile** | 3,200 |
| **Repeatability** | 8 µm [1] |
| **Typical resolution** | Z resolution (height): 33 µm ... 265 µm, X resolution (width): 246 µm ... 710 µm |

[1] Height values measured for different positions in the field of view. 20 measurements are performed at each position. The repeatability value is the 3-fold of the standard deviation (3 σ) for all measurements at all positions.

## Interfaces

| | |
|---|---|
| **Ethernet** | ✓, UDP/IP |
| Data transmission rate | ≤ 1 Gbit/s |
| **Configuration software** | Stream Setup |
| **Operating system** | Windows 10 |
| **Programming interface** | GenAPI, GenTL, Proprietary SICK GenlStream |
| **Inputs/outputs** | 4 x HIGH = 10 V ... 28.8 V, configurable |
| **Encoder interface** | RS-422 5 V, 2 x HTL single-ended |

## Ambient data

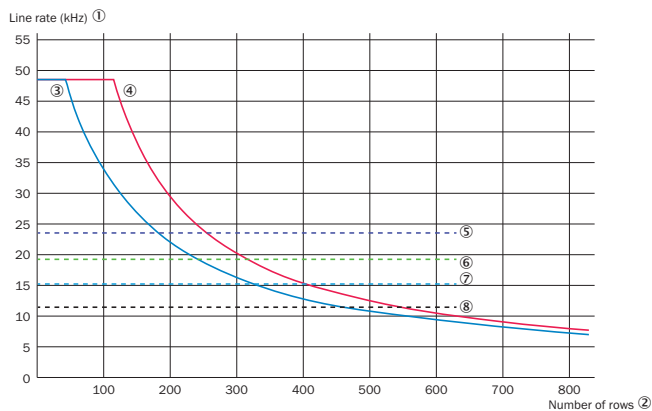| | |
|---|---|
| **Shock load** | 15 g, 3 cycles per axis |
| **Vibration load** | 5 g, 10 Hz ... 150 Hz (EN 60068-2-6) |
| **Ambient operating temperature** | 0 °C ... +50 °C [1] |
| **Storage temperature** | –30 °C ... +70 °C [1] |
| **Depth precision** | 8 µm [2] |

[1] Non-condensing.

[2] Height values measured for different positions in the field of view. 20 measurements are performed at each position. The repeatability value is the 3-fold of the standard deviation (3 σ) for all measurements at all positions.

## 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 |

## Characteristic curve



The maximum line rate is based on the number of sensor lines used

① Line rate (kHz)
② Number of lines
③ Ruler3000 with activated HDR
④ Ruler3000 without activated HDR
⑤ Bandwidth limit for image width 2,560, height range only
⑥ Bandwidth limit for image width 3,072, height range only
⑦ Bandwidth limit for image width 2,560, height range and reflectance
⑧ Bandwidth limit for image width 3,072, height range and reflectance

## Recommended accessories

Other models and accessories ➔ www.sick.com/Ruler3000

| | Brief description | Type | Part no. |
|---|---|---|---|
| **Sets and kits** | | | |
| | The 3D Belt Pick Ruler3000 Bundle Accessory Kit includes a power I/O cable, a power module, a Gigabit Ethernet cable, a sensor/actuator cable, an encoder terminal, a 4Dpro connection module and a mounting bracket. | 3D Belt Pick Ruler3000 Bundle Accessory Kit | 1130201 |
| **Mounting brackets and plates** | | | |
| | Mounting bracket set consisting of mounting bracket, cooling plate, includes angle display for setting the tilt angle | Mounting bracket | 2076735 |
| **Others** | | | |
| | • **Connection type head A:** Female connector, M12, 17-pin, straight, A-coded<br>• **Connection type head B:** Flying leads<br>• **Signal type:** Sensor/actuator cable<br>• **Cable:** 3 m, 17-wire, PUR<br>• **Description:** Sensor/actuator cable, twisted pair, shielded<br>• **Application:** Drag chain operation | YF2A2D-030UV1XLEAX | 6042772 |
| | • **Connection type head A:** Male connector, M12, 8-pin, straight, X-coded<br>• **Connection type head B:** Male connector, RJ45, 8-pin, straight<br>• **Signal type:** Ethernet, Gigabit Ethernet<br>• **Cable:** 2 m, 8-wire, PUR, halogen-free<br>• **Description:** Ethernet, Gigabit Ethernet, shielded<br>• **Application:** Zones with oils and lubricants | YM2X18-020EG1MRJA8 | 2106258 |
| | • **Connection type head A:** Male connector, M12, 8-pin, straight, X-coded<br>• **Connection type head B:** Male connector, RJ45, 8-pin, straight<br>• **Signal type:** Ethernet, Gigabit Ethernet<br>• **Cable:** 3 m, 8-wire, PUR, halogen-free<br>• **Description:** Ethernet, Gigabit Ethernet, shielded<br>• **Application:** Zones with oils and lubricants | YM2X18-030EG1MRJA8 | 2145693 |

## Recommended services

Additional services ➜ www.sick.com/Ruler3000

| | Type | Part no. |
|---|---|---|
| **Extended warranty** | | |
| • **Product area:** Machine vision, LiDAR sensors, safety camera sensors, Safety laser scanners, Safety radar sensors, Radar sensors, Fixed mount barcode scanners, Image-based code readers, RFID, Mobile handheld scanners<br>• **Range of services:** The services correspond to the scope of the statutory manufacturer warranty (SICK general terms of delivery).<br>• **Duration:** Five-year warranty from delivery date. | Extended warranty for a total of five years from delivery date | 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**

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

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