



V3S102-1AAAAAA

Visionary-S

3D MACHINE VISION

**SICK**  
Sensor Intelligence.



Illustration may differ



### Ordering information

Type	Part no.
V3S102-1AAAAAA	1090184

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

### Detailed technical data

#### Features

<b>Task</b>	Classification Position determination Color inspection Navigation Presence inspection Robot guidance Measuring, 2D Measuring, 3D
<b>Technology</b>	3D snapshot stereoscopy
<b>Product category</b>	Configurable, programmable, Streaming, pre-calibrated
<b>Working distance</b>	0.5 m ... 6.5 m 0.5 m ... 65 m <sup>1)</sup>
<b>Example field of view</b>	1.6 m x 1.3 m <sup>2)</sup>
<b>Detection angle</b>	60° x 50°
<b>Angular resolution</b>	0.094° x 0.098°
<b>Illumination</b>	Integrated
<b>Illumination color</b>	Infrared, laser, invisible, 808 nm
<b>Laser class</b>	1 (IEC 60825-1:2014, EN 60825-1:2014+A11:2021, EN/IEC 60825-1:2007) <sup>3)</sup>
<b>Factory calibrated</b>	✓

<sup>1)</sup> The "remote scanning range" can be selected with the distance mode in the user interface.

<sup>2)</sup> See "Detection zone and field of view" table for individual values.

<sup>3)</sup> Conforms to 21 CFR 1040.10 except for deviations per Laser Notice No. 56 of May 8, 2019, and subsequent versions.

#### Mechanics/electronics

<b>Connection type</b>	Power/I/O: M12 17-pin, A-coded Gigabit Ethernet: M12, 8-pin, X-coded
<b>Supply voltage</b>	24 V DC, ± 15 %
<b>Power consumption</b>	19 W, Typical (without digital I/Os)
<b>Peak current</b>	3 A

<sup>1)</sup> With cooling fins.

<b>Enclosure rating</b>	IP67
<b>Protection class</b>	III
<b>Housing color</b>	Blue, black
<b>Weight</b>	2.2 kg, with cooling fins
<b>Dimensions (L x W x H)</b>	162 mm x 116 mm x 104 mm <sup>1)</sup>
<b>Mounting</b>	Any

<sup>1)</sup> With cooling fins.

## Performance

<b>Pixel count</b>	640 px x 512 px
<b>Scan/frame rate</b>	30 fps, Up to 9,850,000 3D data points/s <sup>1)</sup>
<b>Repeatability</b>	≤ 0.25 mm, at 0.5 m scanning range
<b>On delay</b>	< 20 s (typical)
<b>Response time</b>	< 66 ms
<b>Integrated application</b>	2D and 3D data flow with the option of filtering data in the device

<sup>1)</sup> 0.03 s per 3D image.

## Interfaces

<b>Ethernet</b>	✓
Function	Complete data stream combining distance and RGB values in one snapshot plus device control
Data transmission rate	700 Mbit/s, communication interface Gigabit Ethernet (TCP/IP)
<b>Configuration software</b>	SOPAS ET, Telegram interface
<b>Digital input</b>	2
<b>Digital output</b>	4
<b>Optical indicators</b>	2 status LEDs

## Ambient data

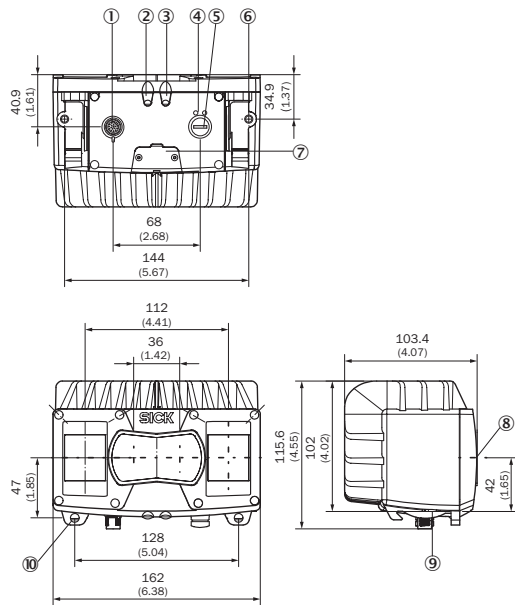
<b>Electromagnetic compatibility (EMC)</b>	EN 61000-6-2:2005-08, EN 61000-6-3:2007-01
<b>Vibration resistance</b>	EN 60068-2-6, EN 60068-2-64
<b>Shock resistance</b>	EN 60068-2-27
<b>Ambient operating temperature</b>	0 °C ... +50 °C, with cooling fins
<b>Storage temperature</b>	-20 °C ... +70 °C
<b>Ambient light immunity</b>	< 40 klx, Sunlight
<b>Depth precision</b>	≤ 0.25 mm, at 0.5 m scanning range

## Classifications

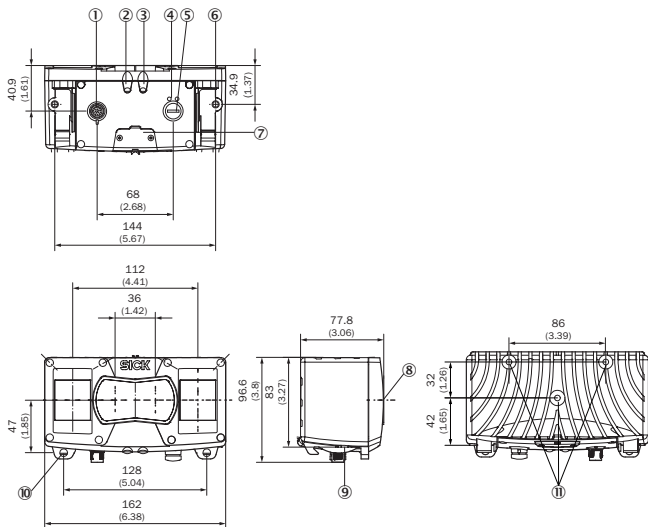
<b>ECLASS 5.0</b>	27310205
<b>ECLASS 5.1.4</b>	27310205
<b>ECLASS 6.0</b>	27310205
<b>ECLASS 6.2</b>	27310205
<b>ECLASS 7.0</b>	27310205
<b>ECLASS 8.0</b>	27310205
<b>ECLASS 8.1</b>	27310205
<b>ECLASS 9.0</b>	27310205

<b>ECLASS 10.0</b>	27310205
<b>ECLASS 11.0</b>	27310205
<b>ECLASS 12.0</b>	27310205
<b>ETIM 5.0</b>	EC001820
<b>ETIM 6.0</b>	EC001820
<b>ETIM 7.0</b>	EC001820
<b>ETIM 8.0</b>	EC001820
<b>UNSPSC 16.0901</b>	43211731

### Dimensional drawing (Dimensions in mm (inch))



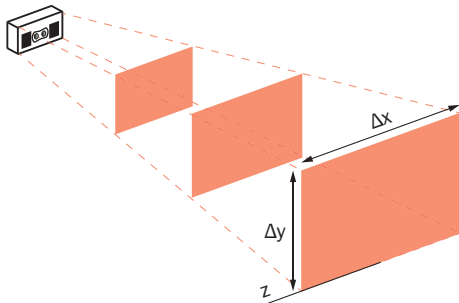
- ① Power/I/O: M12 17-pin, A-coded
- ② Device display
- ③ Application display
- ④ Ethernet status displays
- ⑤ Gigabit Ethernet: M12, 8-pin, X-coded
- ⑥ M6 threaded hole, 7 mm deep (2x), for mounting
- ⑦ Service interface
- ⑧ Optical axis
- ⑨ Bracket interface
- ⑩ Bracket attachment



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- ② Device display
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- ④ Ethernet status displays
- ⑤ Gigabit Ethernet: M12, 8-pin, X-coded
- ⑥ M6 threaded hole, 7 mm deep (2x), for mounting
- ⑦ Service interface
- ⑧ Optical axis
- ⑨ Bracket interface
- ⑩ Bracket attachment
- ⑪ M6 threaded hole, 10 mm deep (3x), for mounting

Field of view

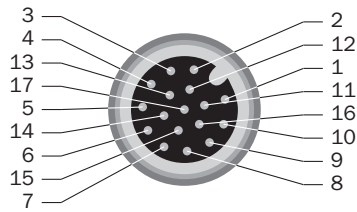
Detection volume and field of view



Working distance absolute (z)	Measuring range ( $\Delta x \times \Delta y$ )	Pixel size	Measurement accuracy $\Delta z$ (average value)	Repeatability $\sigma z$ (average value)
0.50 m	~ 45 cm x 45 cm	~ 1 mm x 1 mm	< 1.5 mm	± 0.25 mm
1.00 m	~ 100 cm x 90 cm	~ 2 mm x 2 mm	< 2.5 mm	± 0.60 mm
1.50 m	~ 160 cm x 130 cm	~ 3 mm x 3 mm	< 3.0 mm	± 1.50 mm
2.00 m	~ 220 cm x 180 cm	~ 4 mm x 4 mm	< 4.5 mm	± 2.00 mm
2.50 m	~ 280 cm x 230 cm	~ 5 mm x 5 mm	< 6.0 mm	± 4.00 mm

### Connection type

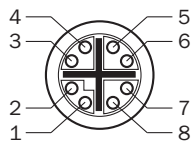
Connection: Power/I/O



Power/I/O: M12 17-pin, A-coded

- ① GND – reference mass
- ② Supply voltage
- ③ CAN L – reserved, not implemented. Do not connect to VCC!
- ④ CAN H – reserved, not implemented. Do not connect to VCC!
- ⑤ TD+ (RS-422/485) Host – reserved, not implemented. Do not connect to VCC!
- ⑥ TD- (RS-422/485) Host, TxD (RS-232), Host – reserved, not implemented. Do not connect to VCC!
- ⑦ TxD (RS-232), Aux – service only
- ⑧ RxD (RS-232), Aux – service only
- ⑨ SENS GND – GND for electrically decoupled inputs
- ⑩ SENS IN1 – switch input, electrically decoupled
- ⑪ RD+ (RS-422) Host – reserved, not implemented. Do not connect to VCC!
- ⑫ RD- (RS-422/485) Host, RxD (RS-232), Host – reserved, not implemented. Do not connect to VCC!
- ⑬ INOUT 1 - Programmable digital I/O
- ⑭ INOUT 2 - Programmable digital I/O
- ⑮ SENS IN2 – switch input, electrically decoupled
- ⑯ INOUT 3 - Programmable digital I/O
- ⑰ INOUT 4 - Programmable digital I/O

Gigabit Ethernet





Gigabit Ethernet: M12, 8-pin, X-coded

- ① TRD0\_P
- ② TRD0\_N
- ③ TRD1\_P
- ④ TRD1\_N
- ⑤ TRD3\_P
- ⑥ TRD3\_N
- ⑦ TRD2\_P
- ⑧ TRD2\_N

### Recommended accessories

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

	Brief description	Type	Part no.
Terminal and alignment brackets			
	1 piece, Bracket including clamps and screws, metal, Bracket including clamps and screws	Mounting set (2-part) incl. clamps and screws	2077710
	1 piece, 2x clamps and 2x screws, metal, 2 clamps and 2 screws	2x clamps, 2x screws	2077709

## Recommended services

Additional services → [www.sick.com/Visionary-S](http://www.sick.com/Visionary-S)

	Type	Part no.
Extended warranty		
<ul style="list-style-type: none"><li>• <b>Product area:</b> Identification solutions, machine vision, Detection and ranging solutions, safety camera sensors, Safety laser scanners, Safety radar sensors</li><li>• <b>Range of services:</b> The services correspond to the scope of the statutory manufacturer warranty (SICK general terms of delivery).</li><li>• <b>Duration:</b> Five-year warranty from delivery date.</li></ul>	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](http://www.sick.com)