



# 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>Technology</b>	3D snapshot stereoscopy
<b>Streaming</b>	✓
<b>Configurable</b>	✓
<b>Pre-calibrated</b>	✓
<b>Working range</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>Field of view</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) <sup>3)</sup> EN 60825-1:2014+A11:2021
<b>Task</b>	Detecting - Standard objects Measuring - Dimension, contour and volume Identifying - Classifying Localizing, navigating and guiding - Guiding Determining position - 3D position determination

<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> Complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to IEC 60825-1 Ed. 3. according to Laser Notice No. 56 dated May 08, 2019.

#### 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, without digital I/Os

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

<b>Peak current</b>	3 A
<b>Enclosure rating</b>	IP67
<b>Protection class</b>	III
<b>Housing color</b>	Blue, black
<b>Window material</b>	PMMA
<b>Weight</b>	2.2 kg, with cooling fins
<b>Base distance</b>	112 mm
<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.

## Functions

<b>Integrated application</b>	2D and 3D data flow with the option of filtering data in the device
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## Performance

<b>Sensor properties</b>	
Sensor resolution	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>Switch-on delay</b>	< 25 s (typical)
<b>Response time</b>	< 70 ms

<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

## Certificates

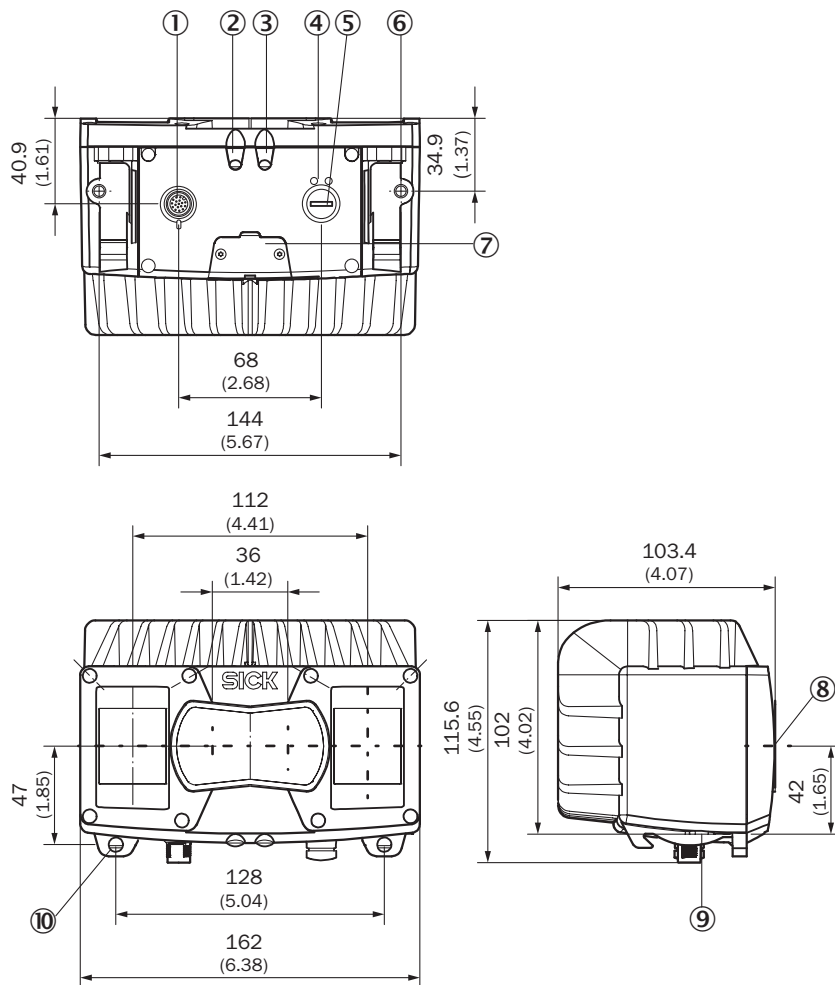
<b>EU declaration of conformity</b>	✓
<b>UK declaration of conformity</b>	✓
<b>ACMA declaration of conformity</b>	✓
<b>China RoHS</b>	✓

cULus certificate	✓
Information according to Art. 3 of Data Act (Regulation EU 2023/2854)	✓

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

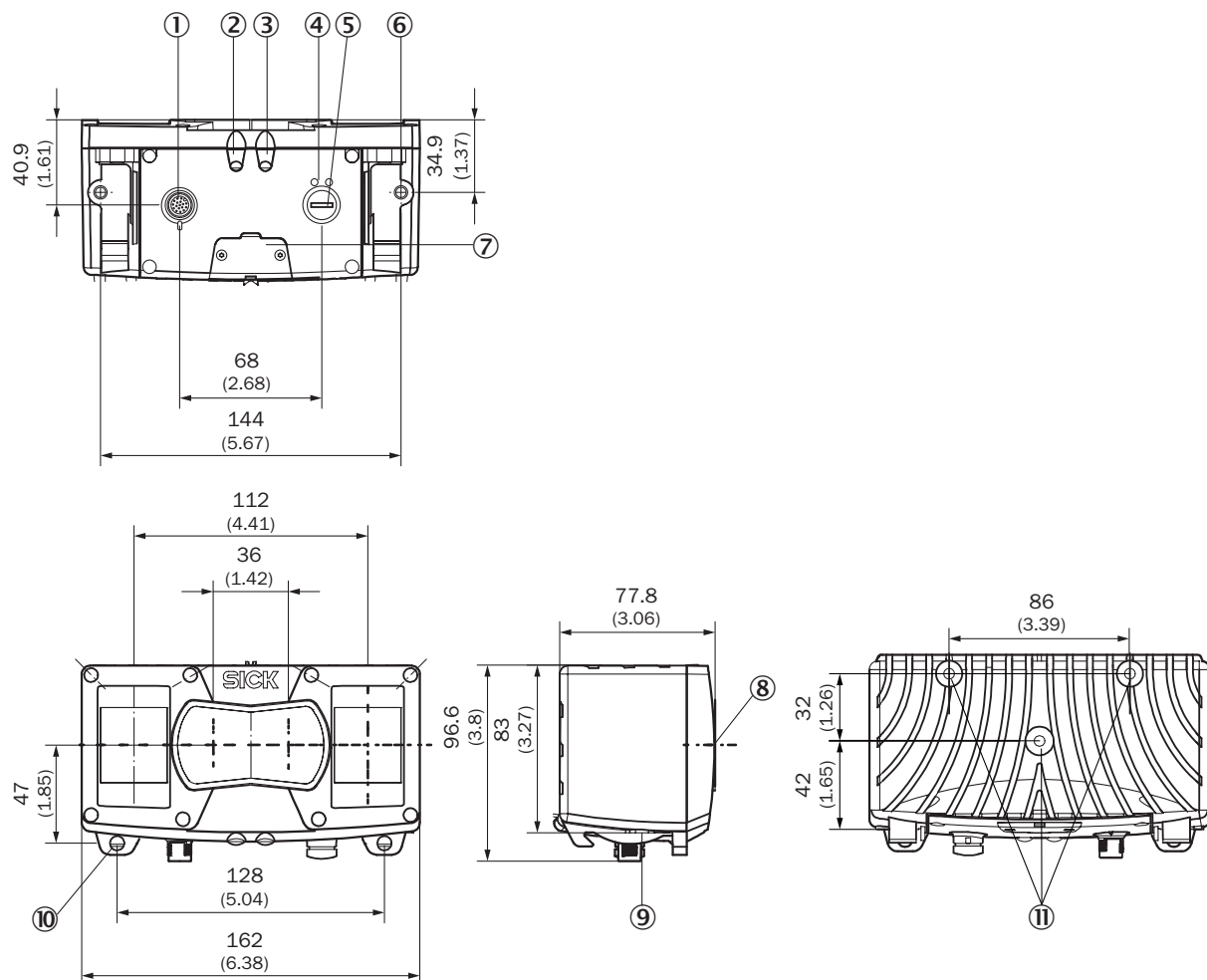
## Dimensional drawing



Dimensions in mm (inch)

- ① 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

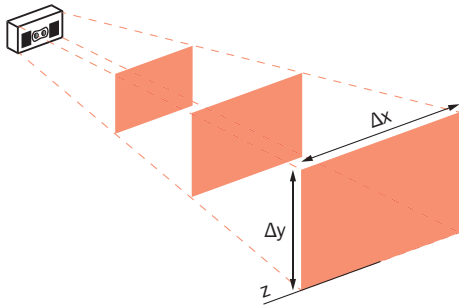
### Dimensional drawing



Dimensions in mm (inch)

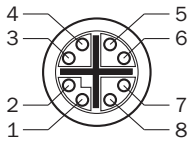
- ① Power/I/O: M12 17-pin, A-coded
- ② device display
- ③ application display
- ④ ethernet status displays
- ⑤ Gigabit Ethernet: M12, 8-pin, X-coded
- ⑥ M6 threaded hole, 7 mm deep (2x), for mounting
- ⑦ service interface
- ⑧ Optical axis
- ⑨ bracket interface
- ⑩ bracket attachment
- ⑪ M6 threaded hole, 10 mm deep (3x), for mounting

## Detection volume and field of view



Absolute working distance (z)	Measuring range ( $\Delta x \times \Delta y$ )		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

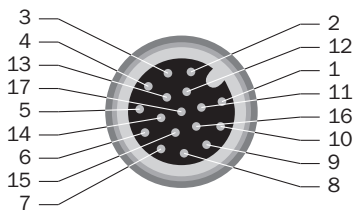
## Gigabit Ethernet



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

## Connection: Power/I/O






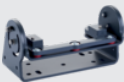
Power/I/O: M12 17-pin, A-coded

- 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

### Recommended accessories

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

	Brief description	Type	part no.
Mounting systems			
	<ul style="list-style-type: none"> <li><b>Description:</b> Bracket with low weight for stationary applications, screws included.</li> <li><b>Dimensions (W x H x L):</b> 204 mm x 166 mm x 100.5 mm</li> <li><b>Details:</b> Aluminum</li> <li><b>Color:</b> Anthracite</li> <li><b>Packing unit:</b> 1 piece</li> <li><b>Items supplied:</b> Bracket including clamps and screws</li> <li><b>Suitable for:</b> Visionary-S, Visionary-B Two, PALLOC, PLB-510, Visionary AI-Assist</li> </ul>	Mounting kit	2077710
	<ul style="list-style-type: none"> <li><b>Description:</b> 2x clamps and 2x screws</li> <li><b>Details:</b> Metal</li> <li><b>Packing unit:</b> 1 piece</li> <li><b>Items supplied:</b> 2 clamps and 2 screws</li> <li><b>Suitable for:</b> Visionary-S, Visionary-B Two, PALLOC, Visionary-S, Visionary-B Two, PALLOC, Visionary-S, Visionary-B Two, PALLOC</li> </ul>	2x clamps, 2x screws	2077709
	<ul style="list-style-type: none"> <li><b>Description:</b> Rugged bracket made from steel with low installation height, screws included. Can only be used with angled cables.</li> <li><b>Dimensions (W x H x L):</b> 227 mm x 113 mm x 113.5 mm</li> <li><b>Details:</b> Stainless steel, Aluminum</li> <li><b>Color:</b> Anthracite</li> <li><b>Packing unit:</b> 1 piece</li> <li><b>Items supplied:</b> Bracket, Screws</li> <li><b>Suitable for:</b> Visionary-S, Visionary-B Two, PALLOC, PLB-510, Visionary AI-Assist</li> </ul>	Mounting kit Pro	2143654
	<ul style="list-style-type: none"> <li><b>Description:</b> Rugged bracket made from steel with anti-vibration kit and low installation height, screws included. Can only be used with angled cables.</li> <li><b>Dimensions (W x H x L):</b> 227 mm x 113 mm x 113.5 mm</li> <li><b>Details:</b> Stainless steel, Aluminum</li> <li><b>Color:</b> Anthracite</li> <li><b>Packing unit:</b> 1 piece</li> <li><b>Items supplied:</b> Bracket (1x), Anti-vibration mount (1x), Damper (5x), Screws (11x)</li> <li><b>Suitable for:</b> Visionary-B Two, Visionary AI-Assist</li> </ul>	Anti-vibration Pro mounting kit	2145161



## 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)