



# V3S142-1AAAABA NOVA PI

Visionary-S

3D MACHINE VISION

**SICK**  
Sensor Intelligence.



Illustration may differ



### Ordering information

Type	part no.
V3S142-1AAAABA NOVA PI	1138475

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>Programmable</b>	✓
<b>Configurable</b>	✓
<b>Pre-calibrated</b>	✓
<b>Application software</b>	Nova Visionary-S, installed <sup>1)</sup>
<b>License included</b>	Presence Inspection License Quality Inspection Upgrade License Optional upgrade with the Quality Inspection Upgrade License for expanding the toolset.
<b>License type</b>	The software is provided as a device license. A license is bound to a specific hardware ID.
<b>License period</b>	The license is issued without a time limit.
<b>Working range</b>	0.5 m ... 65 m
<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 Measuring - Level Measuring - Number Determining position - 3D position determination

<sup>1)</sup> The SICK SensorApp can, if necessary, be deinstalled again.

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

<b>Supply voltage</b>	24 V DC, $\pm 15\%$
<b>Power consumption</b>	19 W, without digital I/Os
<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>	The installed SICK Nova Visionary-S SensorApp with Presence Inspection license allows easy presence checks using 3D machine vision. The data is processed within the device. The SICK SensorApp can be deinstalled.
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## Performance

<b>Sensor properties</b>	
Sensor resolution	640 px x 512 px
<b>Processor</b>	1.2 GHz, 4 × ARM Cortex A72 <sup>1)</sup>
<b>Scan/frame rate</b>	30 fps, Up to 9,850,000 3D data points/s <sup>2)</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> Part of the processor resources are required for internal processing. The current processor load is displayed in the CPU monitor in SICK AppStudio.

<sup>2)</sup> 0.03 s per 3D image.

## Interfaces

<b>Ethernet</b>	✓
Function	Data is application-specific or can be defined in independently-developed applications.
Data transmission rate	Communication interface Gigabit Ethernet (TCP/IP)
<b>Configuration software</b>	Nova Visionary-S, SICK AppManager, SICK AppStudio, Web-Interface, 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

### Licenses

<b>License included</b>	Presence Inspection License Quality Inspection Upgrade License Optional upgrade with the Quality Inspection Upgrade License for expanding the toolset.
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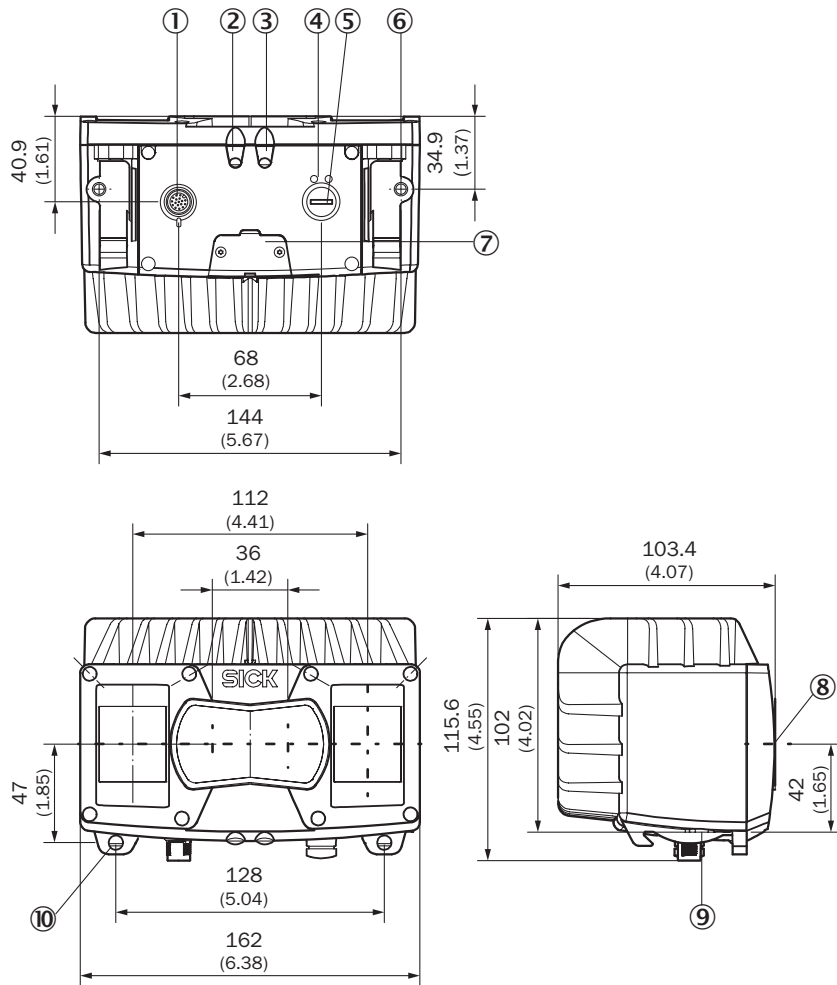
### Certificates

<b>EU declaration of conformity</b>	✓
<b>UK declaration of conformity</b>	✓
<b>ACMA declaration of conformity</b>	✓
<b>China RoHS</b>	✓
<b>cULus certificate</b>	✓
<b>Information according to Art. 3 of Data Act (Regulation EU 2023/2854)</b>	✓

### 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

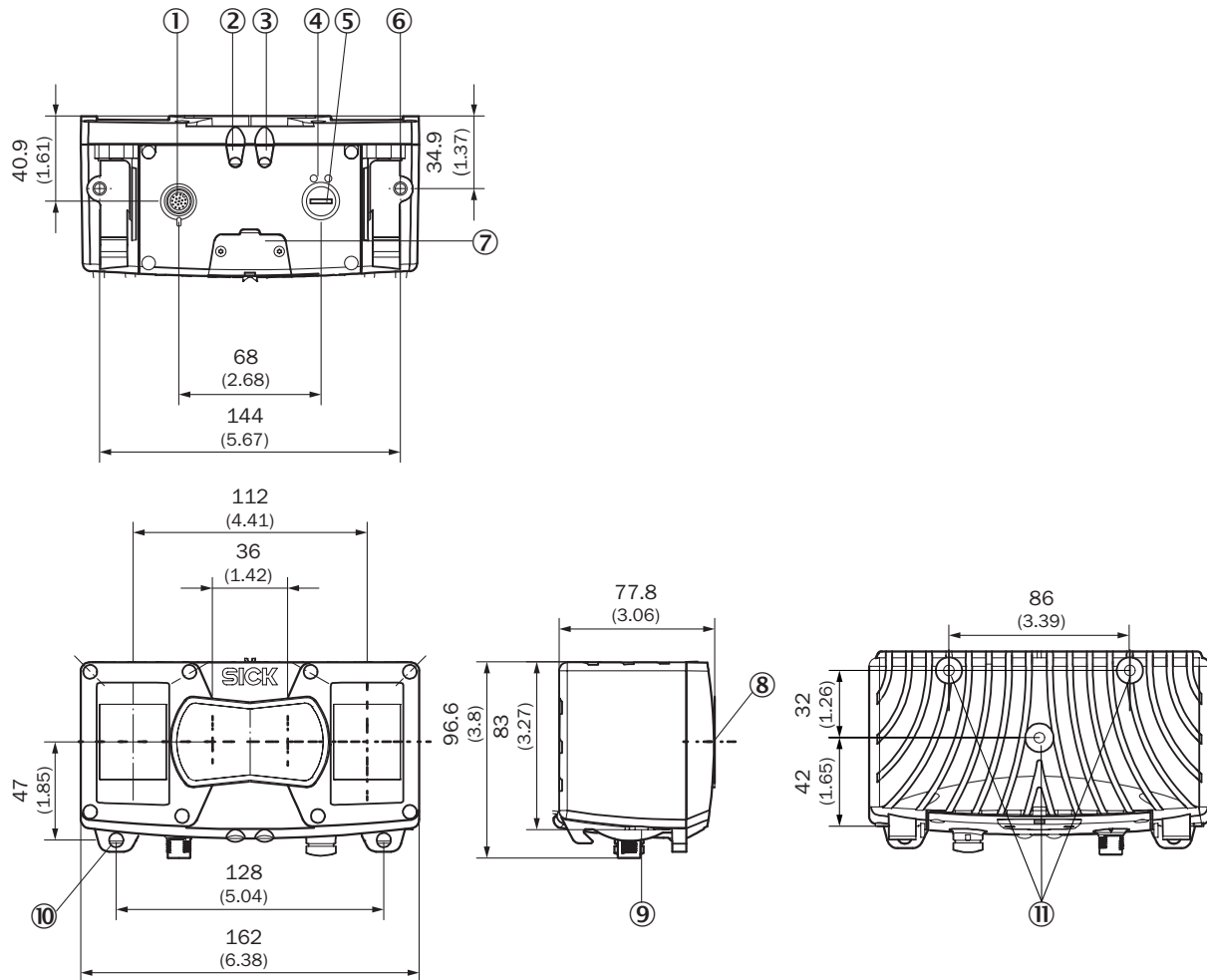
Dimensional drawing



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

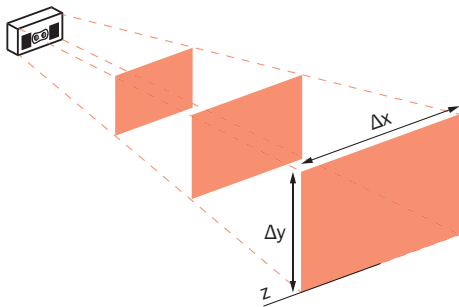
### Dimensional drawing



Dimensions in mm (inch)

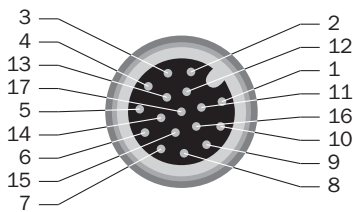
- ① Power/I/O: M12 17-pin, A-coded
- ② device display
- ③ application display
- ④ ethernet status displays
- ⑤ Gigabit Ethernet: M12, 8-pin, X-coded
- ⑥ M6 threaded hole, 7 mm deep (2x), for mounting
- ⑦ service interface
- ⑧ Optical axis
- ⑨ bracket interface
- ⑩ bracket attachment
- ⑪ M6 threaded hole,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

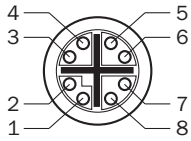
Connection: Power/I/O



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.
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 mounting kit Pro	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)