V3S142-1AABAAB

Visionary-S

3D MACHINE VISION

SICK
Sensor Intelligence.

V3S142-1AABAAB | Visionary-S
3D MACHINE VISION

Ordering information

Type	part no.
V3S142-1AABAAB	1114320

Other models and accessories ➜ www.sick.com/Visionary-S

Illustration may differ

Detailed technical data

Features

Technology	3D snapshot stereoscopy
Programmable	✓
Configurable	✓
Pre-calibrated	✓
Working range	0.5 m ... 65 m
Example field of view	1.6 m x 1.3 m [1]
Field of view	60° x 50°
Angular resolution	0.094° x 0.098°
Illumination	Integrated
Illumination color	Infrared, laser, invisible, 808 nm
Laser class	1 (IEC 60825-1:2014) [2] EN 60825-1:2014+A11:2021
Task	Detecting - Standard objects Measuring - Dimension, contour and volume Identifying - Classifying Localizing, navigating and guiding - Guiding Determining position - 3D position determination

[1] See "Detection zone and field of view" table for individual values.

[2] 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

Connection type	Power/I/O: M12 17-pin, A-coded Gigabit Ethernet: M12, 8-pin, X-coded
Supply voltage	24 V DC, ± 15 %
Power consumption	19 W, without digital I/Os
Peak current	3 A
Enclosure rating	IP67

[1] Without cooling fins.

Protection class	III
Housing color	Blue, black
Window material	PMMA
Weight	1.7 kg, without cooling fins
Base distance	112 mm
Dimensions (L x W x H)	162 mm x 93 mm x 78 mm [1]
Mounting	Any

[1] Without cooling fins.

Functions

Integrated application	Data flow with the ability to process data in the device. Already-finished Key Apps can be loaded onto the device and independent applications can be created.

Performance

Sensor properties	
Sensor resolution	640 px x 512 px
Processor	1.2 GHz, 4 × ARM Cortex A72 [1]
Scan/frame rate	30 fps, Up to 9,850,000 3D data points/s [2]
Repeatability	≤ 0.25 mm, at 0.5 m scanning range
Switch-on delay	< 25 s (typical)
Response time	< 70 ms

[1] Part of the processor resources are required for internal processing. The current processor load is displayed in the CPU monitor in SICK AppStudio.
[2] 0.03 s per 3D image.

Interfaces

Ethernet	✓
Function	Data is application-specific or can be defined in independently-developed applications.
Data transmission rate	Communication interface Gigabit Ethernet (TCP/IP)
Configuration software	SICK AppManager, SICK AppStudio, Web-Interface, Telegram interface
Digital input	2
Digital output	4
Optical indicators	2 status LEDs

Ambient data

Electromagnetic compatibility (EMC)	EN 61000-6-2:2005-08 / EN 61000-6-3:2007-01
Vibration resistance	EN 60068-2-6, EN 60068-2-64
Shock resistance	EN 60068-2-27
Ambient operating temperature	0 °C ... +40 °C, without cooling fins
Storage temperature	−20 °C ... +70 °C
Ambient light immunity	< 40 klx, Sunlight

Certificates

EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓

China RoHS	✓
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

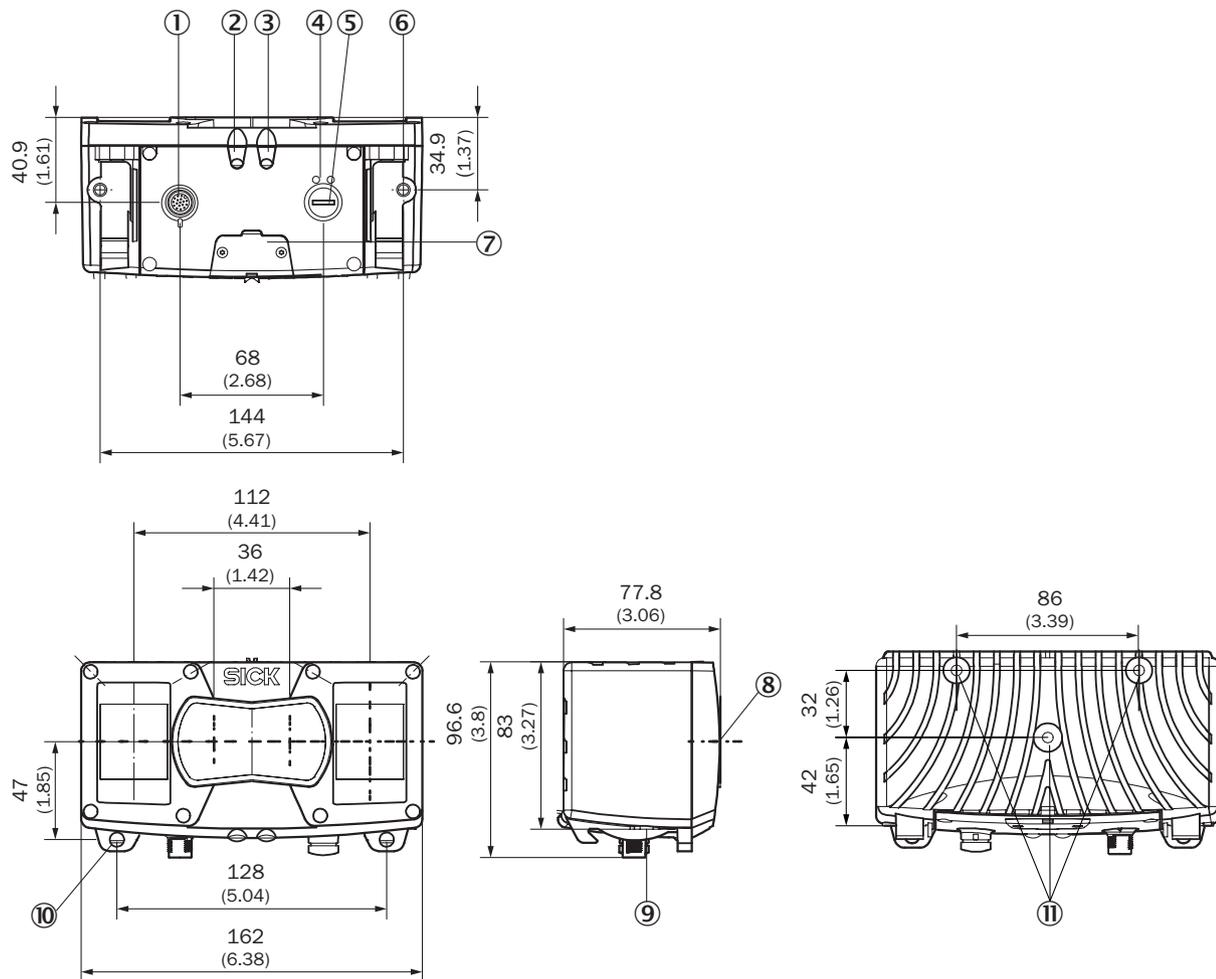## Dimensional drawing
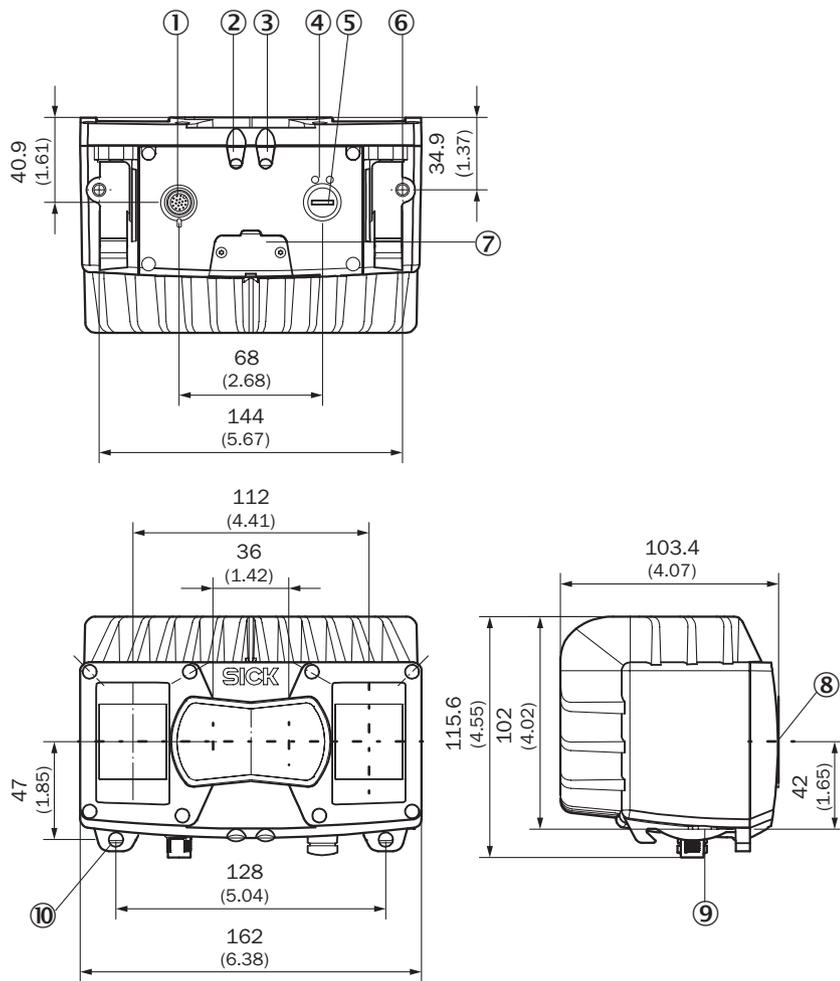
Dimensions in mm (inch)
① Power/I/O: M12 17-pin, A-coded
② device display
③ application display
④ ethernet status displays
⑤ Gigabit Ethernet: M12, 8-pin, X-coded
⑥ M6 threaded hole, 7 mm deep (2x), for mounting
⑦ service interface
⑧ Optical axis
⑨ bracket interface
⑩ bracket attachment

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
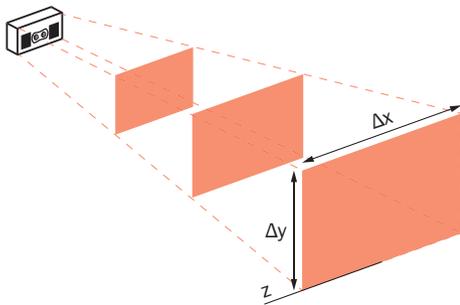
| Absolute work-ing distance (z)	Measuring range (Δx x Δy)		Measurement accura-cy Δz (average value)	Repeatability σz (average value)
0.50 m	~ 45 cm x 45 cm	~ 1 mm x 1 mm	< 1.5 mm	± 0.25 mm
1.00 m	~ 100 cm x 90 cm	~ 2 mm x 2 mm	< 2.5 mm	± 0.60 mm
1.50 m	~ 160 cm x 130 cm	~ 3 mm x 3 mm	< 3.0 mm	± 1.50 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
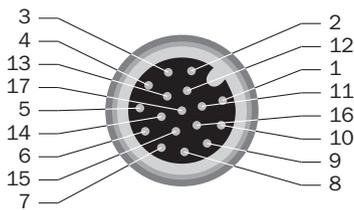
Power/I/O: M12 17-pin, A-coded

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
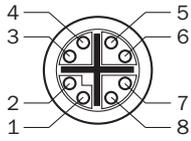
Gigabit Ethernet: M12, 8-pin, X-coded
① TRD0_P
② TRD0_N
③ TRD1_P
④ TRD1_N
⑤ TRD3_P
⑥ TRD3_N
⑦ TRD2_P
⑧ TRD2_N

Recommended accessories

Other models and accessories ➜ www.sick.com/Visionary-S

Brief description	Type	part no.
Mounting systems		
• **Description:** Bracket with low weight for stationary applications, screws included. • **Dimensions (W x H x L):** 204 mm x 166 mm x 100.5 mm • **Details:** Aluminum • **Color:** Anthracite • **Packing unit:** 1 piece • **Items supplied:** Bracket including clamps and screws • **Suitable for:** Visionary-S, Visionary-B Two, PALLOC, PLB-510, Visionary AI-Assist	Mounting kit	2077710
• **Description:** 2x clamps and 2x screws • **Details:** Metal • **Packing unit:** 1 piece • **Items supplied:** 2 clamps and 2 screws • **Suitable for:** Visionary-S, Visionary-B Two, PALLOC, Visionary-S, Visionary-B Two, PALLOC, Visionary-S, Visionary-B Two, PALLOC	2x clamps, 2x screws	2077709
• **Description:** Rugged bracket made from steel with low installation height, screws included. Can only be used with angled cables. • **Dimensions (W x H x L):** 227 mm x 113 mm x 113.5 mm • **Details:** Stainless steel, Aluminum • **Color:** Anthracite • **Packing unit:** 1 piece • **Items supplied:** Bracket, Screws • **Suitable for:** Visionary-S, Visionary-B Two, PALLOC, PLB-510, Visionary AI-Assist	Mounting kit Pro	2143654
• **Description:** Rugged bracket made from steel with anti-vibration kit and low installation height, screws included. Can only be used with angled cables. • **Dimensions (W x H x L):** 227 mm x 113 mm x 113.5 mm • **Details:** Stainless steel, Aluminum • **Color:** Anthracite • **Packing unit:** 1 piece • **Items supplied:** Bracket (1x), Anti-vibration mount (1x), Damper (5x), Screws (11x) • **Suitable for:** Visionary-B Two, Visionary AI-Assist	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."

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