

SICK.COM



DATA SHEET

V3S142-1AABAAB

Visionary-S
3D machine vision

SICK Sensor Intelligence



Illustration may differ

3D MACHINE VISION

V3S142-1AABAAB

ORDERING INFORMATION

Type	part no.
V3S142-1AABAAB	1114320

Further device versions and accessories at www.sick.com/Visionary-S



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

Supply voltage	24 V DC, ± 15 %
Power consumption	19 W, without digital I/Os
Peak current	3 A

³⁾ Without cooling fins.

Enclosure rating	IP67
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.
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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

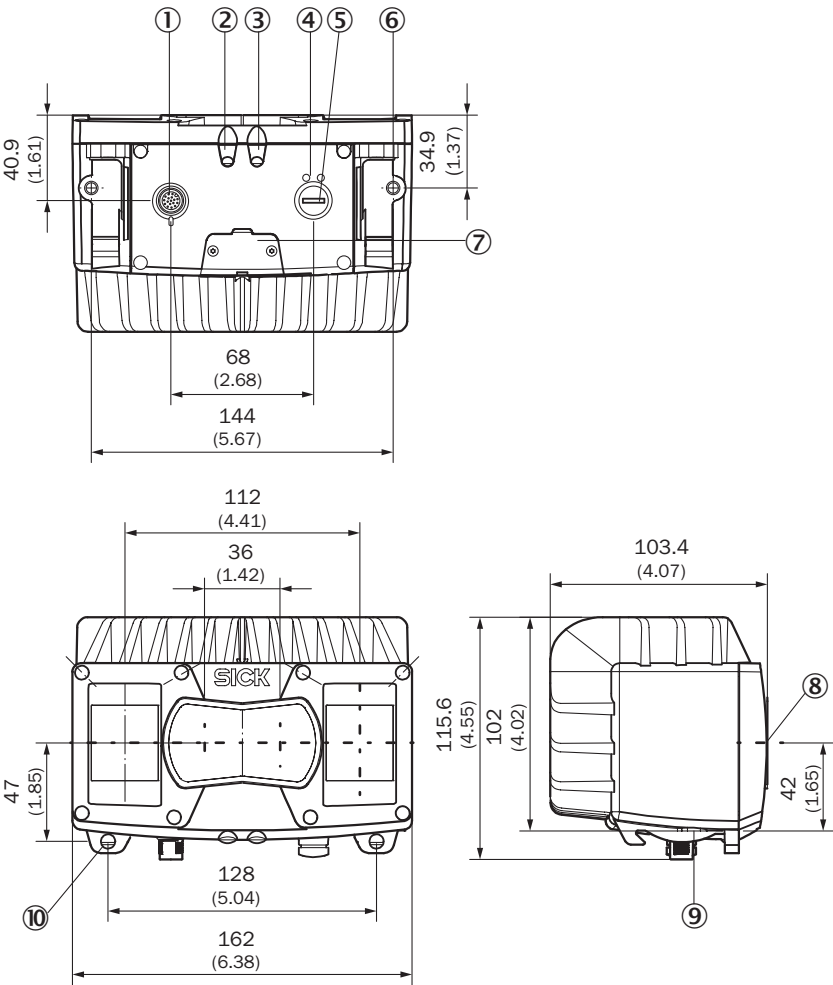
Electromagnetic compatibility (EMC)	EN 61000-6-2:2005-08 / EN 61000-6-3:2007-01
Vibration resistance	EN 60068-2-6, EN 60068-2-64
Shock resistance	EN 60068-2-27
Ambient operating temperature	0 °C ... +40 °C, without cooling fins
Storage temperature	-20 °C ... +70 °C
Ambient light immunity	< 40 klx, Sunlight

CERTIFICATES

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

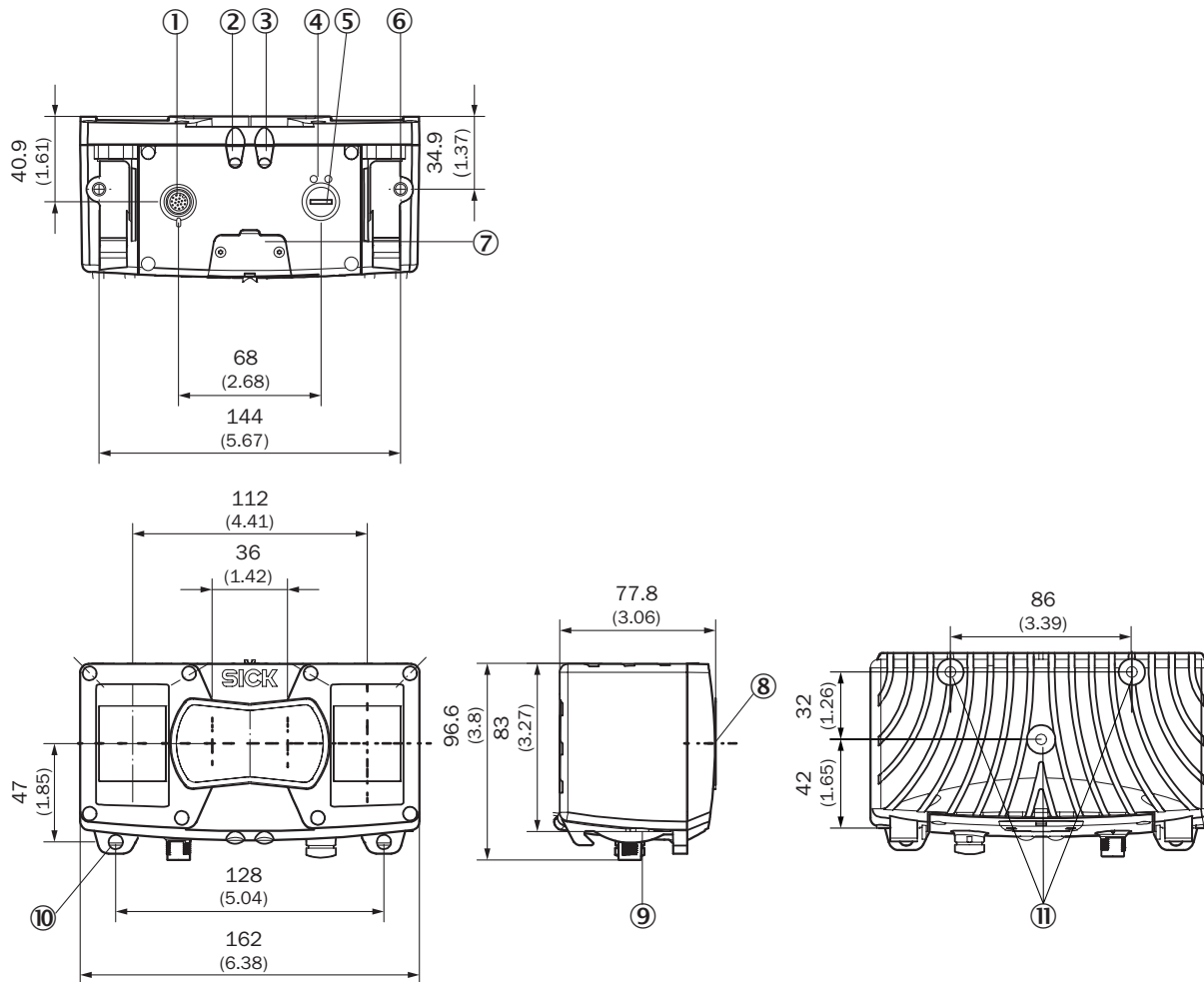
China RoHS	✓
cULus certificate	✓
Information according to Art. 3 of Data Act (Regulation EU 2023/2854)	✓

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

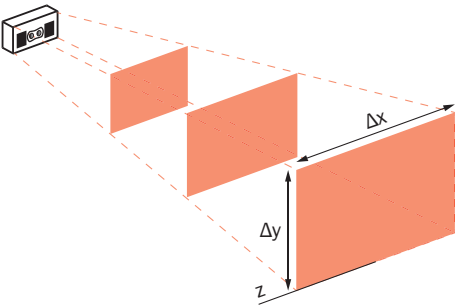
DIMENSIONAL DRAWING



Dimensions in mm (inch)

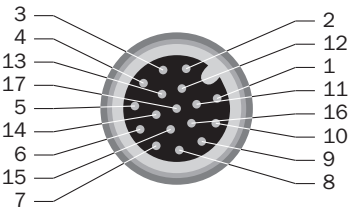
- ① Power/I/O: M12 17-pin, A-coded
- ② device display
- ③ application display
- ④ ethernet status displays
- ⑤ Gigabit Ethernet: M12, 8-pin, X-coded
- ⑥ M6 threaded hole, 7 mm deep (2x), for mounting
- ⑦ service interface
- ⑧ Optical axis
- ⑨ bracket interface
- ⑩ bracket attachment
- ⑪ M6 threaded hole,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

DETECTION VOLUME AND FIELD OF VIEW



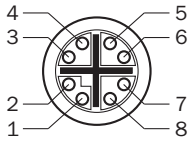
Absolute working distance (z)	Measuring range (Δx x Δy)		Measurement accuracy Δz (average value)	Repeatability σz (average value)
0.50 m	~ 45 cm x 45 cm	~ 1 mm x 1 mm	< 1.5 mm	± 0.25 mm
1.00 m	~ 100 cm x 90 cm	~ 2 mm x 2 mm	< 2.5 mm	± 0.60 mm
1.50 m	~ 160 cm x 130 cm	~ 3 mm x 3 mm	< 3.0 mm	± 1.50 mm
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

Further information as well as suitable accessories, example applications and downloads such as CAD dimensional models, operating instructions and software can be found at www.sick.com/1114320



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SICK AT A GLANCE

SICK is a leading global technology company for intelligent sensors and integrated solutions in industrial automation. Our technologies set benchmarks, making your industrial processes more efficient, safer and more sustainable – both in logistics and manufacturing operations.

SICK combines sensor intelligence with industry expertise and certified consulting services. We provide the ideal foundation for scalable as well as tailor-made automation solutions and create added value along the entire value chain. Our close partnerships with our customers are more than just a promise: Together, we optimize productivity, improve quality, protect health and safety, and help build a sustainable future. All with empathy and trust.

Since 1946, we have been developing innovative technologies with passion and a pioneering spirit. With a global network in around 40 countries, SICK has a global presence and is always close by. The company's headquarters are located in Waldkirch near Freiburg, Germany. Our customers benefit from our understanding of both local and global requirements, which enables us to deliver tailor-made solutions

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