



V3S142-1AAAAAA

Visionary-S

3D MACHINE VISION

SICK
Sensor Intelligence.



Illustration may differ



Ordering information

Type	Part no.
V3S142-1AAAAAA	1114319

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

Detailed technical data

Features

Task	Detecting - Standard objects Measuring - Dimension, contour and volume Identifying - Classifying Localizing, navigating and guiding - Guiding Determining position - 3D position determination
Technology	3D snapshot stereoscopy
Product category	Configurable, programmable, pre-calibrated
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.
Working distance	0.5 m ... 65 m
Example field of view	1.6 m x 1.3 m ¹⁾
Detection angle	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, EN 60825-1:2014+A11:2021, EN/IEC 60825-1:2007) ²⁾
Factory calibrated	✓

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

²⁾ Conforms to 21 CFR 1040.10 except for deviations per Laser Notice No. 56 of May 8, 2019, and subsequent versions.

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
Protection class	III

¹⁾ With cooling fins.

Housing color	Blue, black
Weight	2.2 kg, with cooling fins
Dimensions (L x W x H)	162 mm x 116 mm x 104 mm ¹⁾
Mounting	Any

¹⁾ With cooling fins.

Performance

Pixel count	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	< 20 s (typical)
Response time	< 66 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

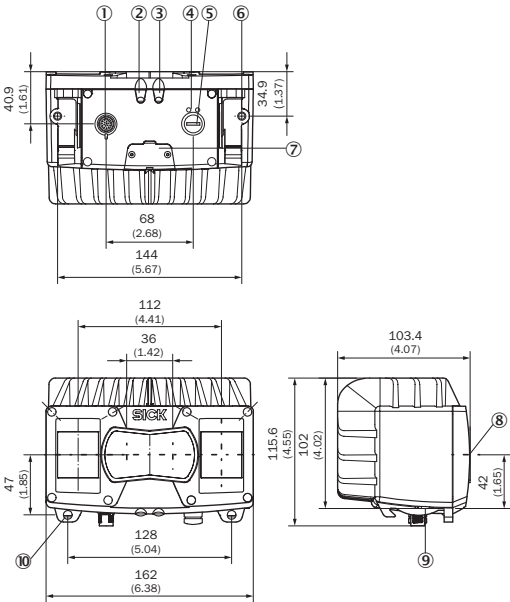
Electromagnetic compatibility (EMC)	EN 61000-6-2:2005-08, EN 61000-6-3:2007-01
Vibration resistance	EN 60068-2-6, EN 60068-2-64
Shock resistance	EN 60068-2-27
Ambient operating temperature	0 °C ... +50 °C, with cooling fins
Storage temperature	-20 °C ... +70 °C
Ambient light immunity	< 40 klx, Sunlight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

Classifications

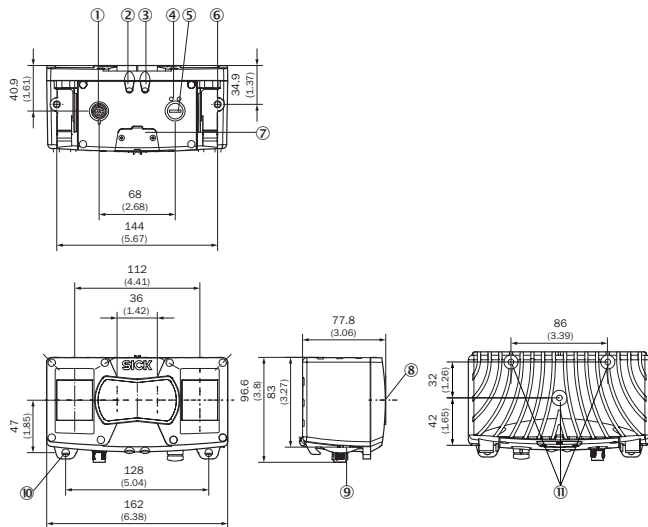
ECLASS 5.0	27310205
ECLASS 5.1.4	27310205
ECLASS 6.0	27310205
ECLASS 6.2	27310205
ECLASS 7.0	27310205
ECLASS 8.0	27310205
ECLASS 8.1	27310205
ECLASS 9.0	27310205
ECLASS 10.0	27310205

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))



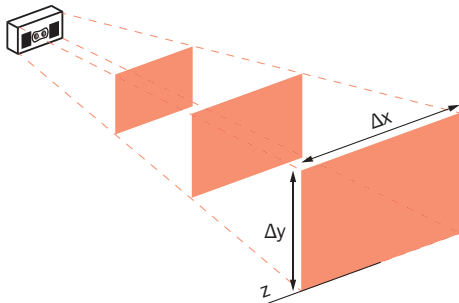
- ① Power/I/O: M12 17-pin, A-coded
- ② Device display
- ③ Application display
- ④ Ethernet status displays
- ⑤ Gigabit Ethernet: M12, 8-pin, X-coded
- ⑥ M6 threaded hole, 7 mm deep (2x), for mounting
- ⑦ Service interface
- ⑧ Optical axis
- ⑨ Bracket interface
- ⑩ Bracket attachment



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- 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

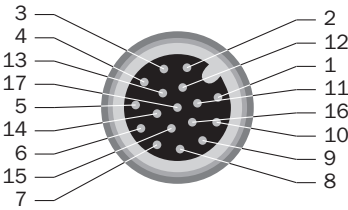
Detection volume and field of view



Working distance absolute (z)	Measuring range ($\Delta x \times \Delta y$)	Pixel size	Measurement accuracy 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 type

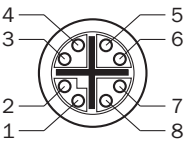
Connection: Power/I/O



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

	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

	Type	Part no.
Extended warranty		
• Product area: Machine vision, LiDAR sensors, safety camera sensors, Safety laser scanners, Safety radar sensors, Radar sensors, Fixed mount barcode scanners, Image-based code readers, RFID, Mobile handheld scanners • Range of services: The services correspond to the scope of the statutory manufacturer warranty (SICK general terms of delivery). • Duration: Five-year warranty from delivery date.	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