# V3S142-1AABAAB

Visionary-S

**3D MACHINE VISION**

**SICK**
Sensor Intelligence.

# V3S142-1AABAAB | Visionary-S

3D MACHINE VISION



Illustration may differ

## Ordering information

| Type | Part no. |
|------|----------|
| V3S142-1AABAAB | 1114320 |

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

## Detailed technical data

### Features

| Task | Classification<br>Position determination<br>Color inspection<br>Navigation<br>Presence inspection<br>Robot guidance<br>Measuring, 2D<br>Measuring, 3D |
|------|------|
| Technology | 3D snapshot stereoscopy |
| Product category | Configurable, programmable, Streaming, pre-calibrated |
| SensorApp | Nova Visionary-S<br>Static Package Dimensioning<br>EventCam App |
| 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<br>Gigabit Ethernet: M12, 8-pin, X-coded |
|------|------|
| Supply voltage | 24 V DC, ± 15 % |
| Power consumption | 19 W, Typical (without digital I/Os) |
| Peak current | 3 A |

[1] Without cooling fins.

| Enclosure rating | IP67 |
|---|---|
| Protection class | III |
| Housing color | Blue, black |
| Weight | 1.7 kg, without cooling fins |
| Dimensions (L x W x H) | 162 mm x 93 mm x 78 mm [1] |
| Mounting | Any |

[1] Without 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 |
| On delay | < 20 s (typical) |
| Response time | < 66 ms |
| 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. |

[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

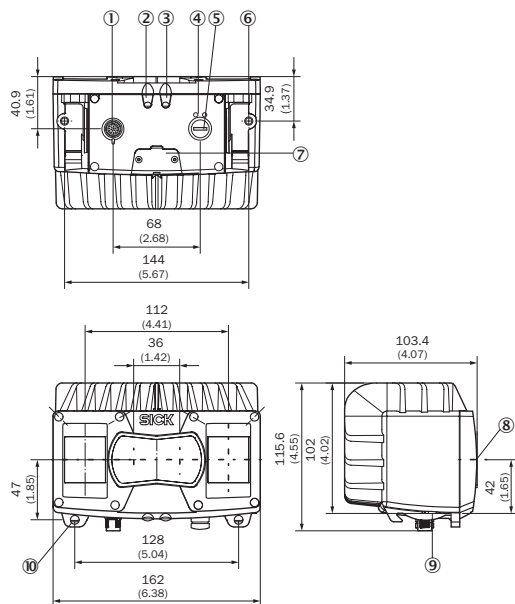| Ethernet | ✓ |
|---|---|
| Function | Data is application-specific or can be defined in independently-developed applications. |
| Data transmission rate | Communication interface Gigabit Ethernet (TCP/IP) |
| Configuration software | SICK AppManager, SICK AppStudio, Web-Interface, Telegram interface |
| 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 |
| 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
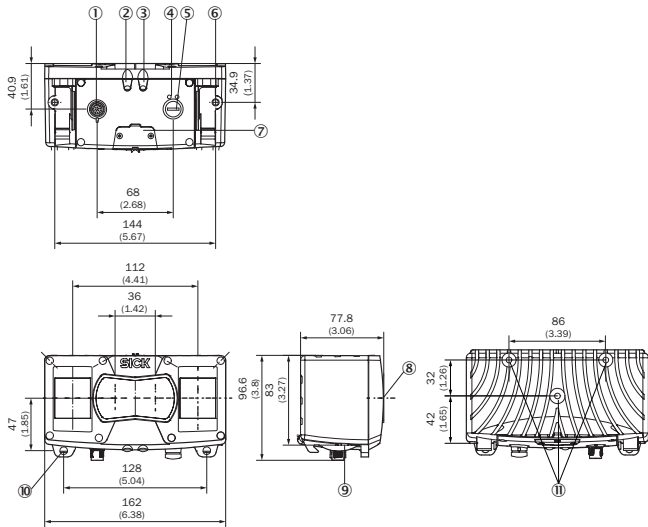
① Power/I/O: M12 17-pin, A-coded
② Device display
③ Application display
④ Ethernet status displays
⑤ Gigabit Ethernet: M12, 8-pin, X-coded
⑥ M6 threaded hole, 7 mm deep (2x), for mounting
⑦ Service interface
⑧ Optical axis
⑨ Bracket interface
⑩ Bracket attachment
⑪ M6 threaded hole, 10 mm deep (3x), for mounting

## Field of view

Detection volume and field of view
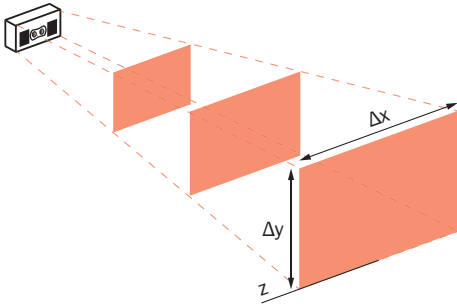


| Working distance absolute (z) | Measuring range (Δx x Δy) | Pixel size | Measurement accuracy Δz (average value) | Repeatability σz (average value) |
|---|---|---|---|---|
| 0.50 m | ~ 45 cm x 45 cm | ~ 1 mm x 1 mm | < 1.5 mm | ± 0.25 mm |
| 1.00 m | ~ 100 cm x 90 cm | ~ 2 mm x 2 mm | < 2.5 mm | ± 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
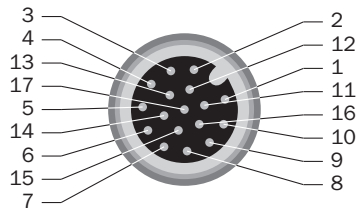


Power/I/O: M12 17-pin, A-coded
① GND – reference mass
② Supply voltage
③ CAN L – reserved, not implemented. Do not connect to VCC!
④ CAN H – reserved, not implemented. Do not connect to VCC!
⑤ TD+ (RS-422/485) Host – reserved, not implemented. Do not connect to VCC!
⑥ TD- (RS-422/485) Host, TxD (RS-232), 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
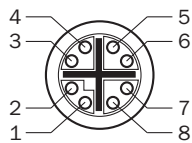


Gigabit Ethernet: M12, 8-pin, X-coded
① TRD0_P
② TRD0_N
③ TRD1_P
④ TRD1_N
⑤ TRD3_P
⑥ TRD3_N
⑦ TRD2_P
⑧ TRD2_N

## 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:** Identification solutions, machine vision, Detection and ranging solutions, safety camera sensors, Safety laser scanners, Safety radar sensors<br>• **Range of services:** The services correspond to the scope of the statutory manufacturer warranty (SICK general terms of delivery).<br>• **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**

SICK AG  |  Waldkirch  |  Germany  |  www.sick.com

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Sensor Intelligence.