



V3S142-1AABAAB

Visionary-S

3D MACHINE VISION

SICK
Sensor Intelligence.



Illustration may differ



Ordering information

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

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

Detailed technical data

Features

| | |
|-------------------------------|--|
| Technology | 3D snapshot stereoscopy |
| Pre-calibrated | ✓ |
| 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) ²⁾ |
| 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 |
| Protection class | III |

¹⁾ Without cooling fins.

| | |
|-------------------------------|--------------------------------------|
| 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 |
| 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

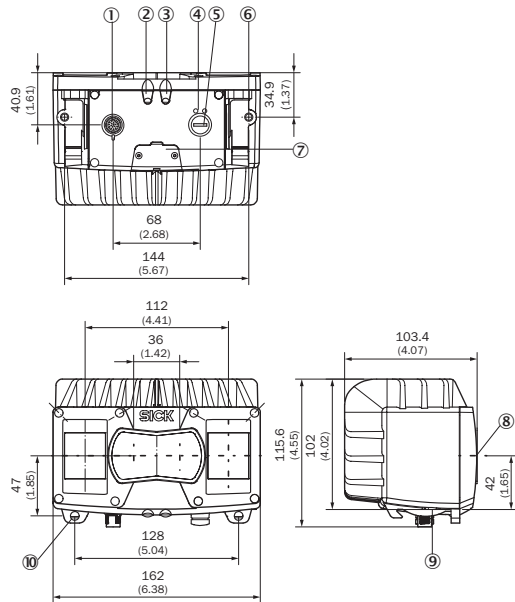
| | |
|--|--|
| Electromagnetic compatibility (EMC) | EN 61000-6-2:2005-08, EN 61000-6-3:2007-01 |
| Vibration resistance | EN 60068-2-6, EN 60068-2-64 |
| Shock resistance | EN 60068-2-27 |
| Ambient operating temperature | 0 °C ... +40 °C, without cooling fins |
| Storage temperature | -20 °C ... +70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

Classifications

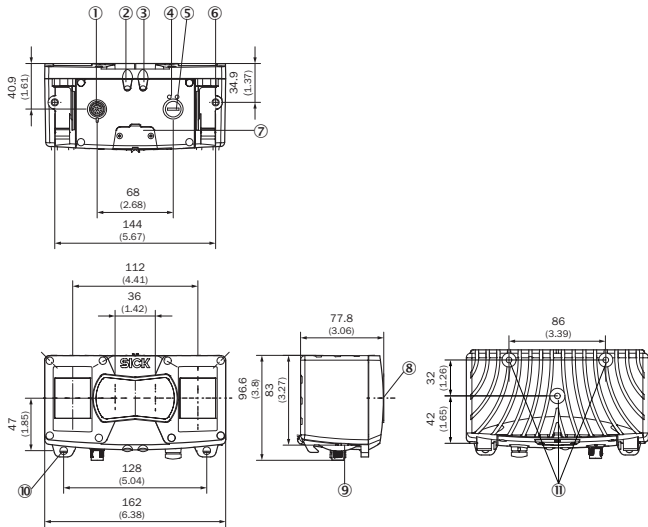
| | |
|---------------------|----------|
| ECLASS 5.0 | 27310205 |
| ECLASS 5.1.4 | 27310205 |
| ECLASS 6.0 | 27310205 |
| ECLASS 6.2 | 27310205 |
| ECLASS 7.0 | 27310205 |
| ECLASS 8.0 | 27310205 |
| ECLASS 8.1 | 27310205 |
| ECLASS 9.0 | 27310205 |
| ECLASS 10.0 | 27310205 |
| ECLASS 11.0 | 27310205 |

| | |
|-----------------------|----------|
| 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))



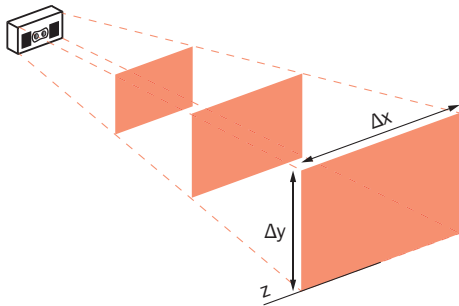
- ① Power/I/O: M12 17-pin, A-coded
- ② Device display
- ③ Application display
- ④ Ethernet status displays
- ⑤ Gigabit Ethernet: M12, 8-pin, X-coded
- ⑥ M6 threaded hole, 7 mm deep (2x), for mounting
- ⑦ Service interface
- ⑧ Optical axis
- ⑨ Bracket interface
- ⑩ Bracket attachment



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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

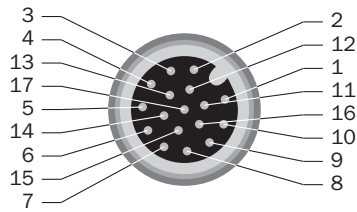
Detection volume and field of view



| Absolute working distance (z) | Measuring range ($\Delta x \times \Delta y$) | | 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

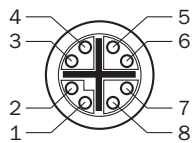
Connection: Power/I/O



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 | | |
| <ul style="list-style-type: none">• 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 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