V3S145-1AAAABA OD Core

Visionary-T Mini

3D MACHINE VISION

SICK
Sensor Intelligence.

V3S145-1AAAABA OD Core | Visionary-T Mini

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Illustration may differ

Ordering information

Type	Part no.
V3S145-1AAAABA OD Core	1137062

Included in delivery: 3D Object Detection Core (1), V3S145-1AAAAAA (1)

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

Detailed technical data

Features

Technology	3D snapshot time-of-flight
Programmable	✓
Configurable	✓
Pre-calibrated	✓
Integrated application	The installed 3D Object Detection SICK SensorApp allows flexibly customizable collision avoidance for mobile platforms. The data is processed within the device. The SICK SensorApp can be deinstalled.
SensorApp	3D Object Detection Core, For collision avoidance on mobile platforms. [1]
License included	Activated
License type	The software is provided as a device license. A license is bound to a specific hardware ID.
License period	The license is issued without a time limit.
Working distance	≤ 9 m [2]
Detection angle	70° x 60°
Angular resolution	0.14° x 0.14°
Illumination	Integrated
Illumination color	Infrared, laser, invisible, 855 nm, ± 5 nm
Laser class	1, P0 < 17 mW, t < 25 ns (IEC 60825-1:2014, EN 60825-1:2014+A11:2021) [3]
Task	Detecting - Standard objects Measuring - Dimension, contour and volume Localizing, navigating and guiding - Guiding Determining position - 3D position determination

[1] The SICK SensorApp can, if necessary, be deinstalled again.

[2] Depends on the infrared remission properties of the target object. At distances of 9 m to 16 m, the reliability of the measured values will be lower and individual pixels or pixel groups may exhibit incorrect measured values.

[3] 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	Plug, M12, 8-pin, A-coded

[1] -30% … +25%.

	Gigabit Ethernet: M12, 8-pin, X-coded
Supply voltage	24 V DC [1]
Power consumption	Typ. 12 W, without digital I/Os < 8 W, In energy saving mode
Peak current	2 A
Enclosure rating	IP65 IP67
Protection class	III
Housing color	Blue, black
Window material	PMMA
Weight	520 g
Dimensions (L x W x H)	80 mm x 70 mm x 77 mm

[1] -30% … +25%.

Performance

Pixel count	512 px x 424 px
Processor	1.8 GHz, 4 × ARM Cortex [1]
Scan/frame rate	≤ 30 fps
Exposure time	≤ 10 ms
Repeatability	Approx. 0.8 mm, at 1 m working distance [2] Approx. 5 mm, at 7 m working distance [2]
Switch-on delay	Approx. 20 s From detection to the signal when the sensor is restarted
Response time	For 4 fields, ≥ 100 ms [3]
Camera coexistence mode	Automatic

[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] Individual values in the "Field of view absolute measurement accuracy and repeatability, working distance: radial" graphic. (can be found under "Technical drawings").

[3] For default setting of four simultaneous 3D fields with 2x2 pixel binning.

Interfaces

Ethernet	✓, TCP/IP, UDP/IP
Remark	Data is application-specific or can be defined in independently-developed applications.
Configuration software	SICK AppManager, SICK AppStudio, Web-Interface, Telegram interface
Digital inputs/outputs	6 Maximum current per digital output: 100 mA. Maximum total current for all digital outputs: < 500 mA. Voltage drop at output for 100 mA: < 2 V. Short-circuit protected.
Optical indicators	4 status LEDs

Ambient data

Electromagnetic compatibility (EMC)	IEC 61000-6-4:2018 / EN IEC 61000-6-4:2019, IEC 61000-6-2:2005 / EN 61000-6-2:2005 / IEC 61000-6-2:2016 / EN IEC 61000-6-2:2019
Vibration resistance	5 g, 10 Hz, 500 Hz (IEC 60068-2-6:2008, IEC 60068-2-64:2008)

[1] After a warm-up time of 45 minutes (at ≥ −10 °C) and a frame rate of > 25 fps, the camera can also be operated at ambient temperatures from −20 °C. A frame rate of < 25 fps is also possible with lower heat dissipation.

[2] Sunlight at a measuring distance of 2.0 m.

Shock resistance	30 g, 11 ms (IEC 60068-2-27:2008)
Ambient operating temperature	−10 °C ... +50 °C [1]
Storage temperature	−20 °C ... +80 °C
Camera housing temperature	−10 °C ... +65 °C, If no adequate heat dissipation (mechanical connection, ventilation etc.) is present, heat sinks (see accessories) can keep the housing temperature below the maximum of 65 °C.
Damp heat	+25 °C ... +55 °C, 95 % RH, (EN 60068-2-30:2005)
Relative humidity	≤ 95 % RH, Non-condensing
Ambient light immunity	≤ 50 klx [2]

[1] After a warm-up time of 45 minutes (at ≥ −10 °C) and a frame rate of > 25 fps, the camera can also be operated at ambient temperatures from −20 °C. A frame rate of < 25 fps is also possible with lower heat dissipation.

[2] Sunlight at a measuring distance of 2.0 m.

General notes

Items supplied	Hardware, software, Software license (Core)
Minimum detectable object	40 mm x 40 mm graues Objekt, bei ≥ 6 m Arbeitsabstand, bei ≥ 30 % Remissionsgrad

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))
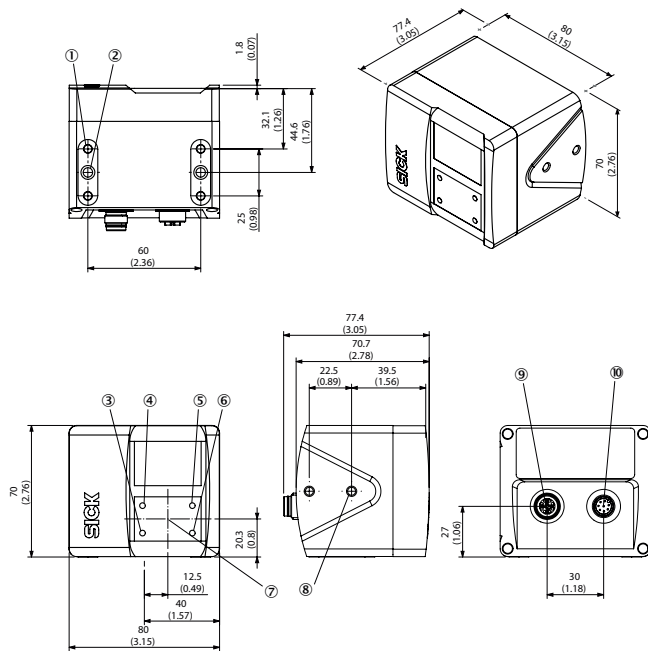
① M5 threaded mounting hole, 7.5 mm deep (4x)
② Fit ø 5H7, 7 mm depth (2x)
③ Device status display
④ Application status display
⑤ Ethernet status display
⑥ Application status display
⑦ Sensor coordinate origin
⑧ Threaded mounting hole M5, 5.5 mm depth (4x)
⑨ "Ethernet" connection, 8-pin M12 female connector, X-coded
⑩ "Power/I/O" connection, 8-pin M12 male connector, A-coded

Field of view

Absolute measurement accuracy and repeatability, working distance: radial
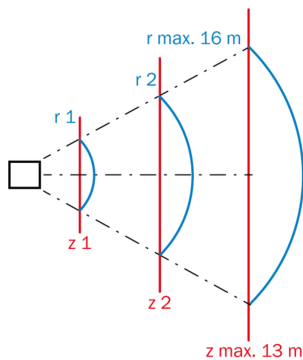
The specified numerical values are typical values and apply in the central 80% of the detection area, at room temperature, without ambient light, and at a frame rate of 25 fps. At distances > 9 m, the reliability of the measured values will be lower and individual pixels or pixel groups may exhibit faulty measured values. The measurement accuracy may degrade by up to ± 10 mm (typically ± 5 mm) over the entire ambient operating temperature.

Working distance radial (r)	Measurement accuracy (90% remission)	Repeatability (1σ - 90% remission)	Measurement accuracy (10% remission)	Repeatability (1σ - 10% remission)
0.2 m			± 3 mm	± 0.8 mm

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Working distance radial (r)	Measurement accuracy (90% remission)	Repeatability (1σ - 90% remission)	Measurement accuracy (10% remission)	Repeatability (1σ - 10% remission)
0.5 m	± 3 mm	± 0.8 mm	± 3 mm	± 0.8 mm
1.0 m	± 3 mm	± 0.8 mm	± 3 mm	± 1.5 mm
2.0 m	± 3 mm	± 1 mm	± 3 mm	± 4 mm
4.0 m	± 7 mm	± 2 mm	± 10 mm	± 12 mm
7.0 m	± 10 mm	± 5 mm	± 20 mm	± 50 mm
8.0 m	± 13 mm	± 7 mm	-	-
10.0 m	± 20 mm	± 15 mm	-	-
13.0 m	± 50 mm	± 48 mm	-	-

Detection volume and field of view
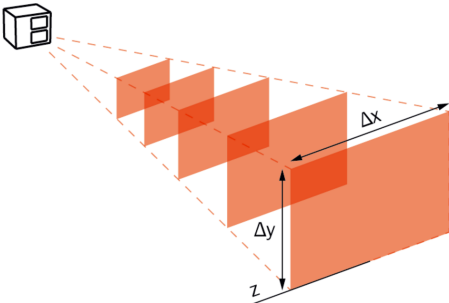
| Axial working distance (z)	Range (Δx)	Range (Δy)
0.2 m	0.3 m	0.2 m
0.5 m	0.7 m	0.6 m
1.0 m	1.4 m	1.2 m
1.5 m	2.1 m	1.7 m
2.0 m	2.8 m	2.3 m
3.0 m	4.2 m	3.5 m
4.0 m	5.6 m	4.6 m
5.0 m	7.0 m	5.8 m
6.0 m	8.4 m	6.9 m
8.0 m	11.2 m	9.2 m
10.0 m	14.0 m	11.5 m
13.0 m	18.2 m	15.0 m

Connection type

Voltage/digital I/O
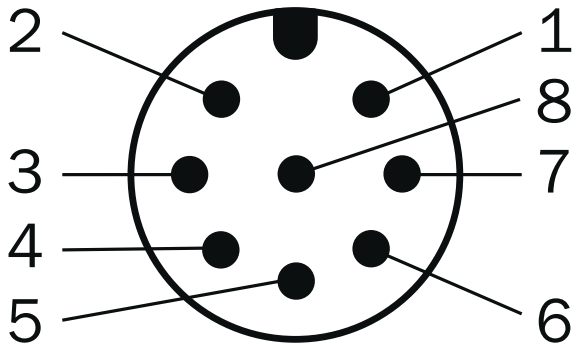
Plug, M12, 8-pin, A-coded
① UV (supply voltage: 24 V DC –30 % ... +25 %)
② DIO 3 (configurable digital input and output 3, short-circuit protected)
③ GND (zero potential)
④ DIO 4 (configurable digital input and output 4, short-circuit protected)
⑤ DIO 1 (configurable digital input and output 1, short-circuit protected)
⑥ DIO 5 (configurable digital input and output 5, short-circuit protected)
⑦ DIO 6 (configurable digital input and output 6, short-circuit protected)
⑧ DIO 2 (configurable digital input and output 2, short-circuit protected)

Gigabit Ethernet
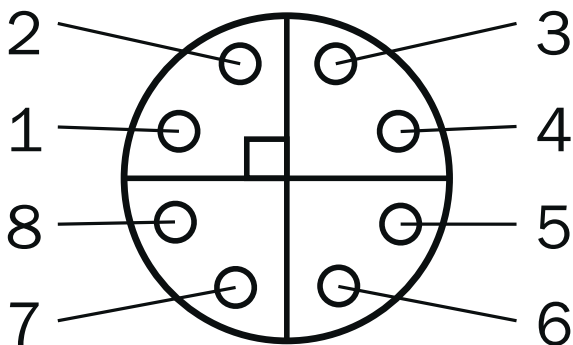
Socket: M12, 8-pin, X-coded
① DA+ (data A+)
② DA- (data A -)
③ DB+ (data B +)
④ DB- (data B -)
⑤ DD+ (data D +)
⑥ DD- (data D -)
⑦ DC- (data C -)
⑧ DC+ (data C +)

Recommended accessories

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

Brief description	Type	Part no.
Terminal and alignment brackets		
• **Description:** Alignment brackets, Mounting set (2-part) incl. screws • **Dimensions (W x H x L):** 100 mm x 120 mm x 45 mm • **Material:** Aluminum • **Details:** Aluminum • **Color:** Black • **Packing unit:** 1 piece • **Usable for:** Visionary-T Mini, safeVisionary2	Visionary mounting kit	2124497
Others		
• **Connection type head A:** Female connector, M12, 8-pin, straight • **Connection type head B:** Flying leads • **Signal type:** Sensor/actuator cable • **Cable:** 2 m, 8-wire, PVC • **Description:** Sensor/actuator cable, special color code, shielded • **Connection systems:** Flying leads	DOL-1208-G02MF	6020663
• **Connection type head A:** Female connector, M12, 8-pin, straight • **Connection type head B:** Flying leads • **Signal type:** Sensor/actuator cable • **Cable:** 5 m, 8-wire, PVC • **Description:** Sensor/actuator cable, special color code, shielded • **Connection systems:** Flying leads	DOL-1208-G05MF	6020664
• **Connection type head A:** Female connector, M12, 8-pin, straight • **Connection type head B:** Flying leads • **Signal type:** Sensor/actuator cable • **Cable:** 10 m, 8-wire, PVC • **Description:** Sensor/actuator cable, special color code, shielded • **Connection systems:** Flying leads	DOL-1208-G10MF	6048434
• **Connection type head A:** Male connector, M12, 8-pin, straight, X-coded • **Connection type head B:** Male connector, RJ45, 8-pin, straight • **Signal type:** Ethernet, Gigabit Ethernet • **Cable:** 2 m, 8-wire, PUR, halogen-free • **Description:** Ethernet, Gigabit Ethernet, shielded • **Application:** Zones with oils and lubricants	YM2X18-020EG1MRJA8	2106258
• **Connection type head A:** Male connector, M12, 8-pin, straight, X-coded • **Connection type head B:** Male connector, RJ45, 8-pin, straight • **Signal type:** Ethernet, Gigabit Ethernet • **Cable:** 5 m, 8-wire, PUR, halogen-free • **Description:** Ethernet, Gigabit Ethernet, shielded • **Application:** Zones with oils and lubricants	YM2X18-050EG1MRJA8	2106259
• **Connection type head A:** Male connector, M12, 8-pin, straight, X-coded • **Connection type head B:** Male connector, RJ45, 8-pin, straight • **Signal type:** Ethernet, Gigabit Ethernet • **Cable:** 10 m, 8-wire, PUR, halogen-free • **Description:** Ethernet, Gigabit Ethernet, shielded • **Application:** Zones with oils and lubricants	YM2X18-100EG1MRJA8	2106260
• **Product family:** Cooling devices • **Description:** Heat sink (2-part) including screws • **Usable for:** Visionary-T Mini, safeVisionary2	Visionary heat sink	2127749
• **Connection type head A:** Male connector, M12, 8-pin, straight, X-coded • **Connection type head B:** Male connector, RJ45, 8-pin, straight • **Signal type:** Ethernet, Gigabit Ethernet • **Cable:** 3 m, 8-wire, PUR, halogen-free • **Description:** Ethernet, Gigabit Ethernet, shielded • **Application:** Zones with oils and lubricants	YM2X18-030EG1MRJA8	2145693

Recommended services

Additional services ➜ www.sick.com/Visionary-T_Mini

	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 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."

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