



V3S105-1AAAAAD

Visionary-T Mini

3D MACHINE VISION

SICK
Sensor Intelligence.



Ordering information

Type	part no.
V3S105-1AAAAAD	1132065

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

Illustration may differ



Detailed technical data

Features

Technology	3D snapshot time-of-flight
Streaming	✓
Configurable	✓
Pre-calibrated	✓
Working range	≤ 16 m ¹⁾
Field of view	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) ²⁾ EN 60825-1:2014+A11:2021
Task	Detecting - Standard objects Measuring - Dimension, contour and volume Localizing, navigating and guiding - Guiding Determining position - 3D position determination

¹⁾ 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.

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	Plug, M12, 8-pin, A-coded 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

¹⁾ -30% ... +25%.

	IP67 IP69
Protection class	III
Housing color	Blue, black
Window material	Glass
Weight	520 g
Dimensions (L x W x H)	80 mm x 70 mm x 77 mm

¹⁾ -30% ... +25%.

Functions

Integrated application	2D and 3D data flow with the option of filtering data in the device
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Performance

Sensor properties	
Sensor resolution	512 px x 424 px
Scan/frame rate	≤ 30 fps
Exposure time	
	≤ 10 ms
Repeatability	Approx. 0.8 mm, at 1 m working distance ¹⁾ Approx. 5 mm, at 7 m working distance ¹⁾
Switch-on delay	Approx. 20 s The switch-on delay can increase considerably at ambient temperatures below 0 °C.
Response time	Approx. 50 ms
Camera coexistence mode	Automatic

¹⁾ Individual values in the "Field of view absolute measurement accuracy and repeatability, working distance: radial" graphic. (can be found under "Technical drawings").

Interfaces

Ethernet	✓ , TCP/IP, UDP/IP
Remark	Gigabit-Ethernet (100/1000 Mbit/s)
Data transmission rate	≤ 310 Mbit/s
Configuration software	SOPAS Engineering Tool, Telegram interface, API (C++)
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)
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

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.

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.

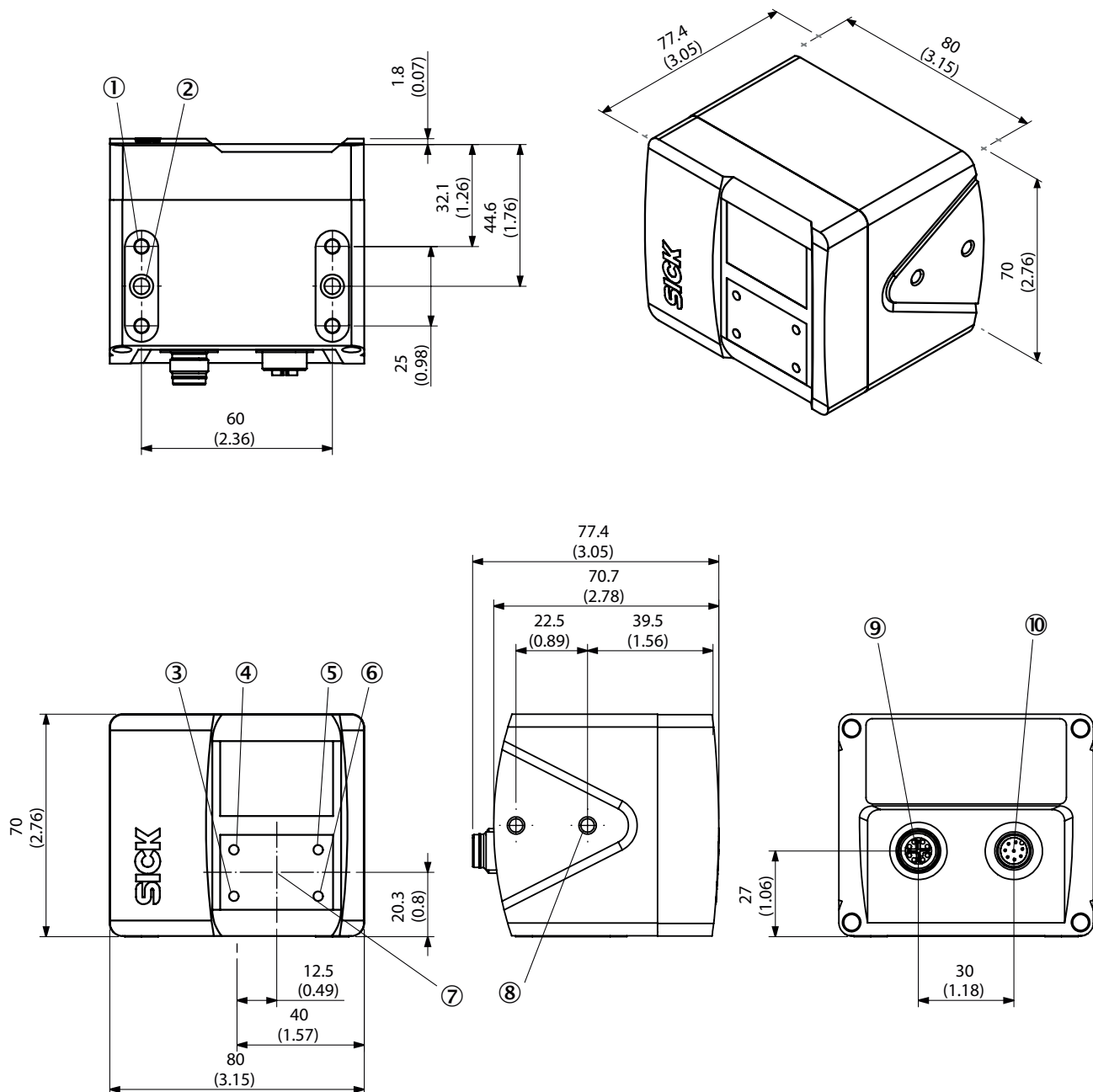
Classifications

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

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)	✓

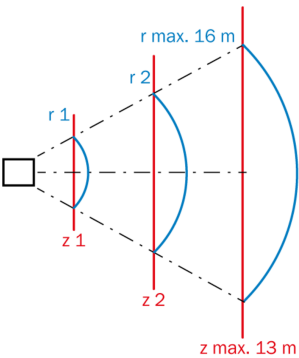
Dimensional drawing



Dimensions in mm (inch)

- ① M5 threaded mounting hole, 7.5 mm deep (4x)
- ② Fit \varnothing 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 repeatabilityworking distance: radial



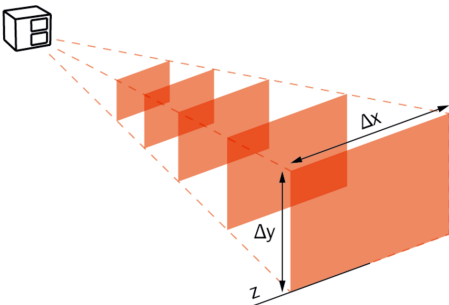
The specified numerical values are typical values and apply in the central 80% of the detection area, at room temperature, without ambient light, and at a frame rate of 25 fps.

At distances > 9 m, the reliability of the measured values will be lower and individual pixels or pixel groups may exhibit erroneous 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 (1 σ - 90% remission)	Measurement accuracy (10% remission)	Repeatability (1 σ - 10% remission)
0.2 m	-	-	± 3 mm	± 0.8 mm
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	-	-

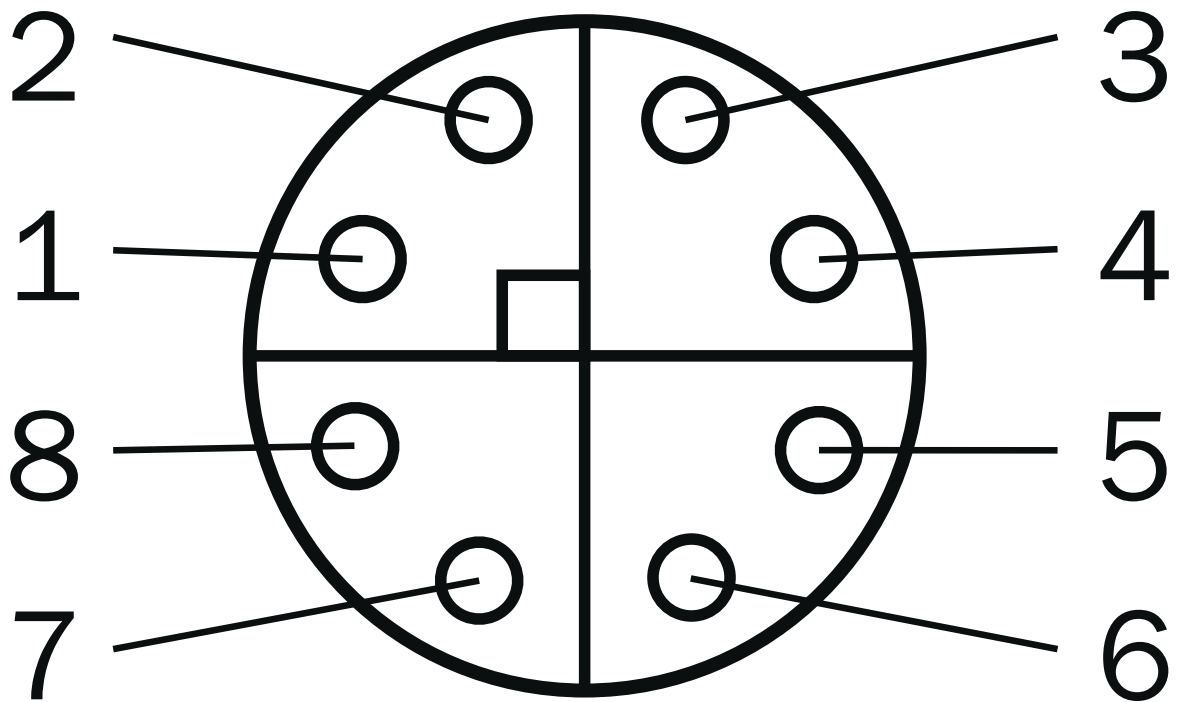
Detection volume and field of view



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

Axial working distance (z)	Range (Δx)	Range (Δy)
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

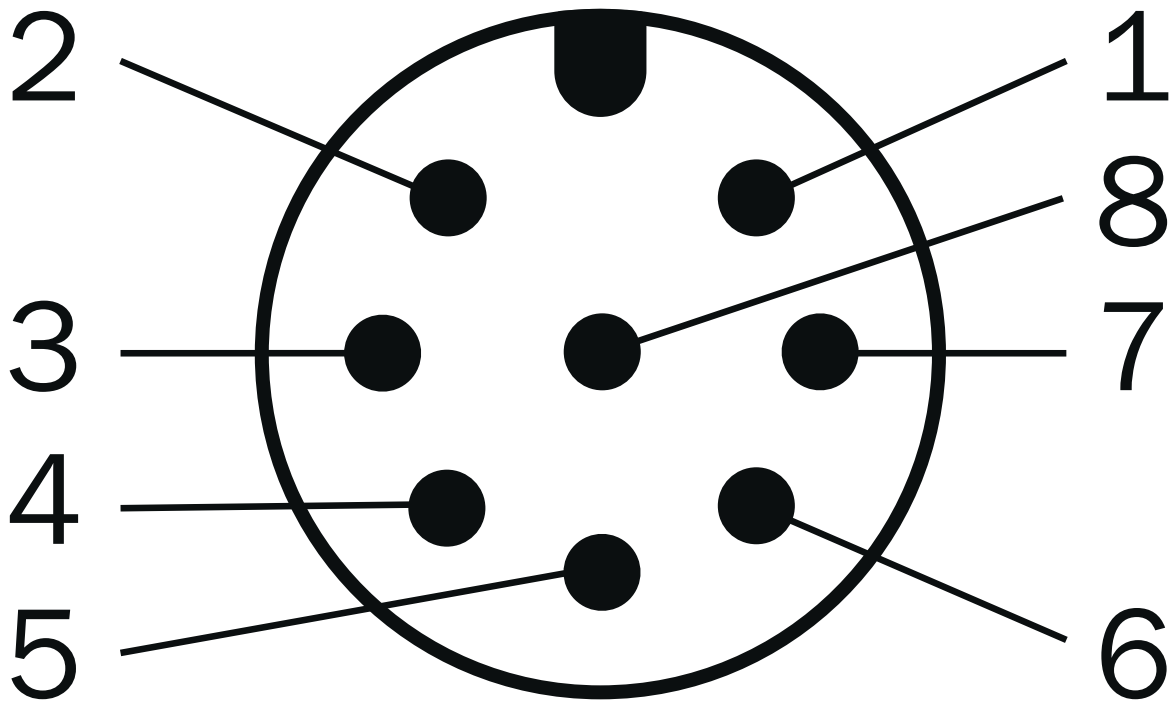
Connection type Gigabit Ethernet



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+)

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)

Recommended accessories

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

	Brief description	Type	part no.
connectors and cables			
	<ul style="list-style-type: none"> 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
	<ul style="list-style-type: none"> 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
	<ul style="list-style-type: none"> 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
	<ul style="list-style-type: none"> 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, shielded, Gigabit Ethernet Application: Zones with oils and lubricants 	YM2X18-020EG1M-RJA8	2106258
	<ul style="list-style-type: none"> 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, shielded, Gigabit Ethernet Application: Zones with oils and lubricants 	YM2X18-050EG1M-RJA8	2106259
	<ul style="list-style-type: none"> 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, shielded, Gigabit Ethernet Application: Zones with oils and lubricants 	YM2X18-100EG1M-RJA8	2106260
	<ul style="list-style-type: none"> 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, shielded, Gigabit Ethernet Application: Zones with oils and lubricants 	YM2X18-030EG1M-RJA8	2145693
Mounting systems			
	<ul style="list-style-type: none"> 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 Suitable for: Visionary-T Mini, safeVisionary2, Visionary-T Mini, safeVisionary2 	Visionary mounting kit	2124497
device protection and care			
	<ul style="list-style-type: none"> Description: Heat sink (2-part) including screws 	Visionary heat sink	2127749

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