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DATA SHEET

V3S105-1AAAAAD

Visionary-T Mini
3D machine vision

SICK Sensor Intelligence



Illustration may differ

3D MACHINE VISION

V3S105-1AAAAAD

ORDERING INFORMATION

Type	part no.
V3S105-1AAAAAD	1132065

Further device versions and accessories at www.sick.com/Visionary-T_Mini

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

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

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
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]

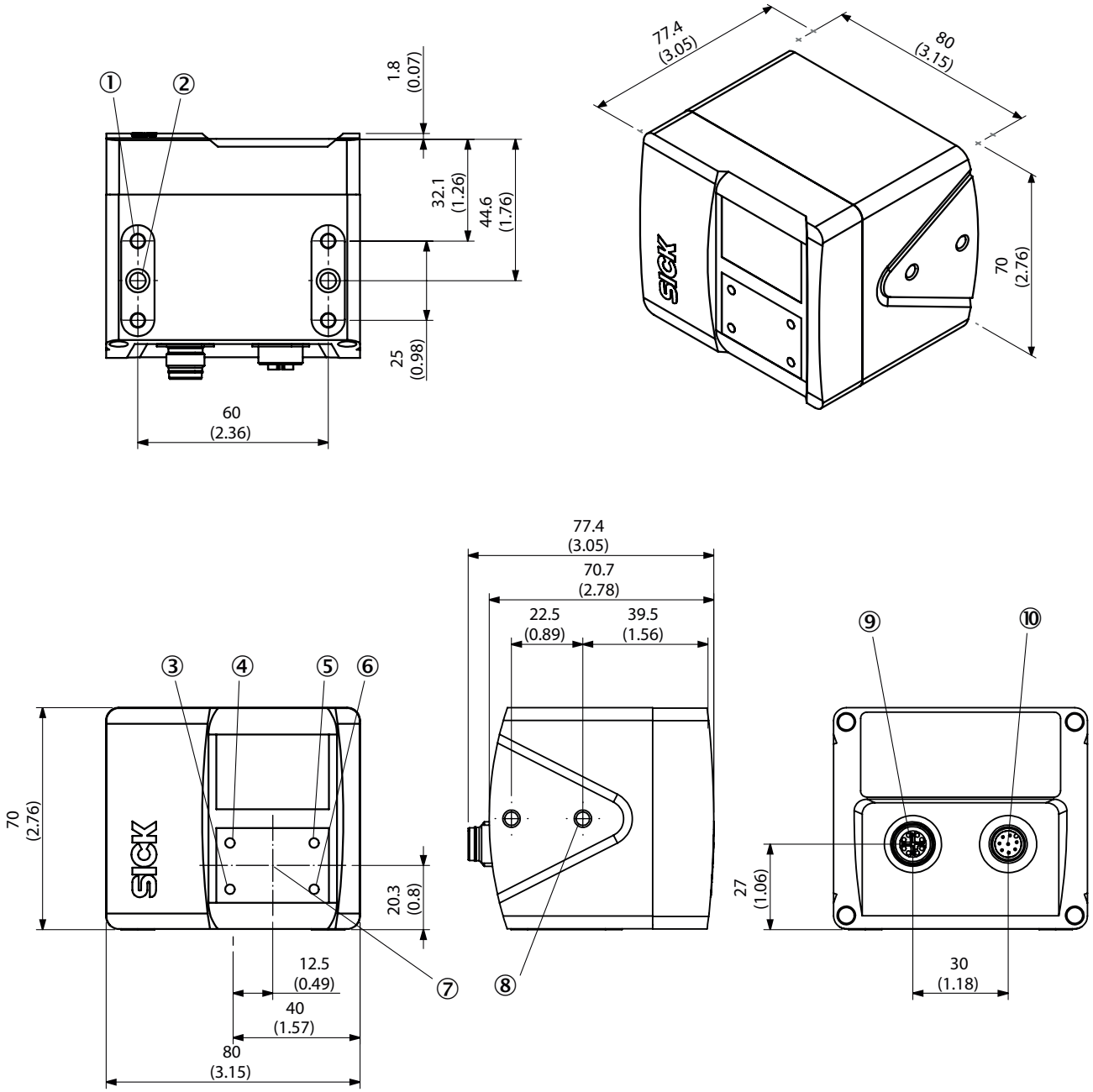
[1] After a warm-up time of 45 minutes (at ≥ –10 °C) and a frame rate of > 25 fps, the camera can also be operated at ambient temperatures from –20 °C. A frame rate of < 25 fps is also possible with lower heat dissipation.

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

CERTIFICATES

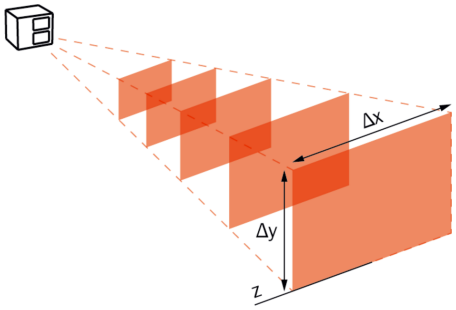
EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
China RoHS	✓
cULus certificate	✓
Information according to Art. 3 of Data Act (Regulation EU 2023/2854)	✓

DIMENSIONAL DRAWING



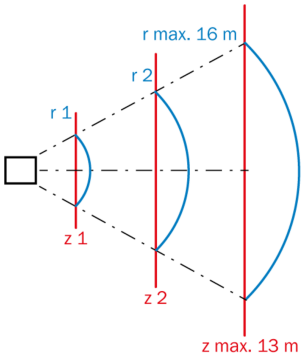
Dimensions in mm (inch)
① M5 threaded mounting hole, 7.5 mm deep (4x)
② Fit ø 5H7, 7 mm depth (2x)
③ Device status display
④ Application status display
⑤ Ethernet status display
⑥ Application status display
⑦ Sensor coordinate origin
⑧ Threaded mounting hole M5, 5.5 mm depth (4x)
⑨ “Ethernet” connection,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

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

FIELD OF VIEW ABSOLUTE MEASUREMENT ACCURACY AND REPEATABILITYWORKING DISTANCE: RADIAL

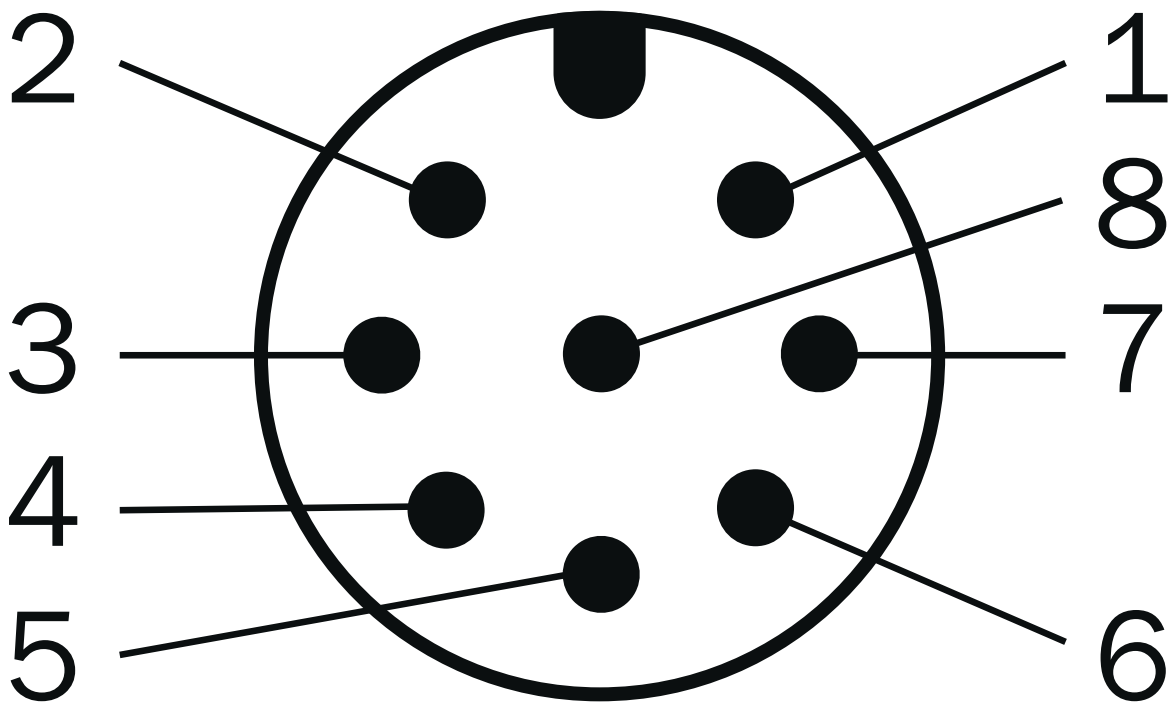


The specified numerical values are typical values and apply in the central 80% of the detection area, at room temperature, without ambient light, and at a frame rate of 25 fps.
At distances > 9 m, the reliability of the measured values will be lower and individual pixels or pixel groups may exhibit erroneous 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 factor)	Repeatability (1σ - 90% remission factor)	Measurement accuracy (10% remission factor)	Repeatability (1σ - 10% remission factor)
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	-	-

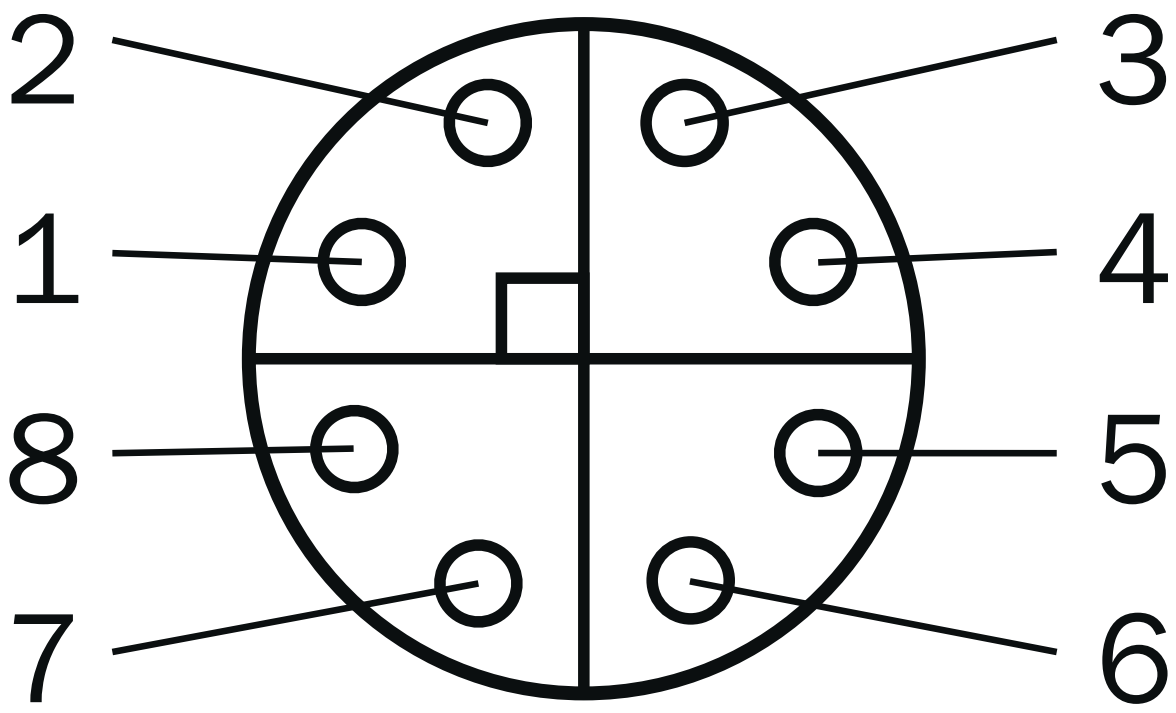
Working distance radial (r)	Measurement accuracy (90% remission factor)	Repeatability (1σ - 90% remission factor)	Measurement accuracy (10% remission factor)	Repeatability (1σ - 10% remission factor)
13.0 m	± 50 mm	± 48 mm	-	-

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)

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 +)

Further information as well as suitable accessories, example applications and downloads such as CAD dimensional models, operating instructions and software can be found at www.sick.com/1132065

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SICK AT A GLANCE

SICK is a leading global technology company for intelligent sensors and integrated solutions in industrial automation. Our technologies set benchmarks, making your industrial processes more efficient, safer and more sustainable – both in logistics and manufacturing operations.

SICK combines sensor intelligence with industry expertise and certified consulting services. We provide the ideal foundation for scalable as well as tailor-made automation solutions and create added value along the entire value chain. Our close partnerships with our customers are more than just a promise: Together, we optimize productivity, improve quality, protect health and safety, and help build a sustainable future. All with empathy and trust.

Since 1946, we have been developing innovative technologies with passion and a pioneering spirit. With a global network in around 40 countries, SICK has a global presence and is always close by. The company's headquarters are located in Waldkirch near Freiburg, Germany. Our customers benefit from our understanding of both local and global requirements, which enables us to deliver tailor-made solutions

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