



V3S105-1AAAAAA

Visionary-T Mini

3D MACHINE VISION

**SICK**  
Sensor Intelligence.



Illustration may differ



### Ordering information

Type	Part no.
V3S105-1AAAAAA	1112649

Other models and accessories → [www.sick.com/Visionary-T\\_Mini](http://www.sick.com/Visionary-T_Mini)

### Detailed technical data

#### Features

<b>Task</b>	Position determination Collision awareness Navigation Presence inspection Robot guidance Measuring, 2D Measuring, 3D
<b>Technology</b>	3D snapshot time-of-flight
<b>Product category</b>	Configurable, Streaming, pre-calibrated
<b>Working distance</b>	≤ 16 m <sup>1)</sup>
<b>Detection angle</b>	70° x 60°
<b>Angular resolution</b>	0.14° x 0.14°
<b>Illumination</b>	Integrated
<b>Illumination color</b>	Infrared, laser, invisible, 855 nm, ± 5 nm
<b>Laser class</b>	1, P0 < 17 mW, t < 25 ns (EN/IEC 60825-1:2007, IEC 60825-1:2014, EN 60825-1:2014+A11:2021) <sup>2)</sup>
<b>Grayscale measurements</b>	✓

<sup>1)</sup> Depends on the infrared remission properties of the target object.

<sup>2)</sup> Complies with 21 CFR 1040.10 except for conformance according to Laser Notice no. 50 from June 24, 2007 and the following versions.

#### Mechanics/electronics

<b>Connection type</b>	Power/I/O: M12 8-pin, A-coded Gigabit Ethernet: M12, 8-pin, X-coded
<b>Supply voltage</b>	24 V DC <sup>1)</sup>
<b>Power consumption</b>	< 12 W, Typical (without digital I/Os)
<b>Peak current</b>	2 A
<b>Enclosure rating</b>	IP65 IP67

<sup>1)</sup> -30% ... +25%.

<b>Protection class</b>	III
<b>Housing color</b>	Blue, black
<b>Weight</b>	520 g
<b>Dimensions (L x W x H)</b>	80 mm x 70 mm x 77 mm

<sup>1)</sup> -30% ... +25%.

## Performance

<b>Pixel count</b>	512 px x 424 px
<b>Scan/frame rate</b>	≤ 30 fps
<b>Exposure time</b>	≤ 10 ms
<b>Repeatability</b>	Approx. 0.8 mm, at 1 m working distance <sup>1)</sup> Approx. 5 mm, at 7 m working distance <sup>1)</sup>
<b>On delay</b>	Approx. 20 s The switch-on delay can increase considerably at ambient temperatures of 0 °C.
<b>Response time</b>	Approx. 50 ms
<b>Integrated application</b>	2D and 3D data flow with the option of filtering data in the device
<b>Camera coexistence mode</b>	Automatic

<sup>1)</sup> See table for individual values.

## Interfaces

<b>Ethernet</b>	✓, TCP/IP, UDP/IP
Remark	Gigabit-Ethernet (100/1000 Mbit/s)
Data transmission rate	≤ 310 Mbit/s
<b>Configuration software</b>	SOPAS Engineering Tool, Telegram interface, API (C++)
<b>Digital inputs/outputs</b>	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.
<b>Optical indicators</b>	4 status LEDs

## Ambient data

<b>Electromagnetic compatibility (EMC)</b>	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
<b>Vibration resistance</b>	5 g 10 Hz 500 Hz (IEC 60068-2-6:2008, IEC 60068-2-64:2008)
<b>Shock resistance</b>	30 g, 11 ms (IEC 60068-2-27:2008)
<b>Ambient operating temperature</b>	-10 °C ... +50 °C <sup>1)</sup>
<b>Storage temperature</b>	-20 °C ... +80 °C
<b>Camera housing temperature</b>	-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.
<b>Ambient light immunity</b>	≥ 50 klx <sup>2)</sup>
<b>Depth precision</b>	Approx. 0.8 mm, at 1 m working distance <sup>3)</sup> Approx. 5 mm, at 7 m working distance <sup>3)</sup>

<sup>1)</sup> 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.

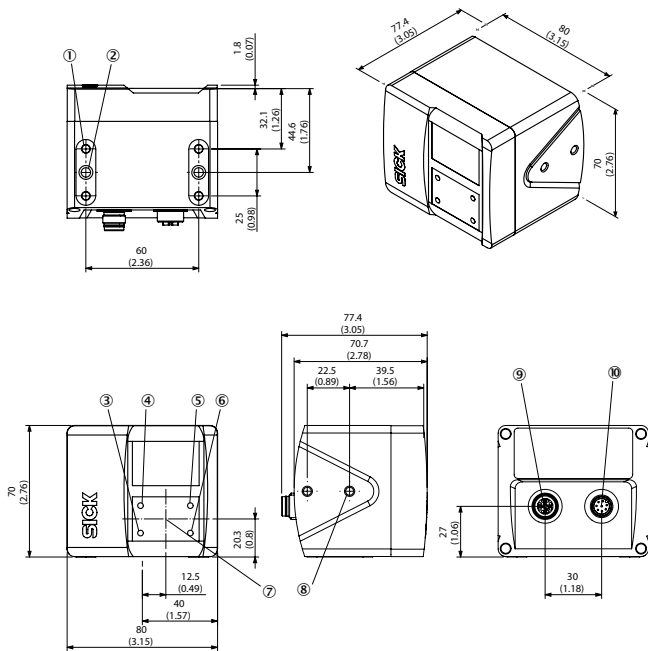
<sup>2)</sup> Sunlight at a measuring distance of 2.0 m.

<sup>3)</sup> See table for individual values.

### Classifications

<b>ECLASS 5.0</b>	27310205
<b>ECLASS 5.1.4</b>	27310205
<b>ECLASS 6.0</b>	27310205
<b>ECLASS 6.2</b>	27310205
<b>ECLASS 7.0</b>	27310205
<b>ECLASS 8.0</b>	27310205
<b>ECLASS 8.1</b>	27310205
<b>ECLASS 9.0</b>	27310205
<b>ECLASS 10.0</b>	27310205
<b>ECLASS 11.0</b>	27310205
<b>ECLASS 12.0</b>	27310205
<b>ETIM 5.0</b>	EC001820
<b>ETIM 6.0</b>	EC001820
<b>ETIM 7.0</b>	EC001820
<b>ETIM 8.0</b>	EC001820
<b>UNSPSC 16.0901</b>	43211731

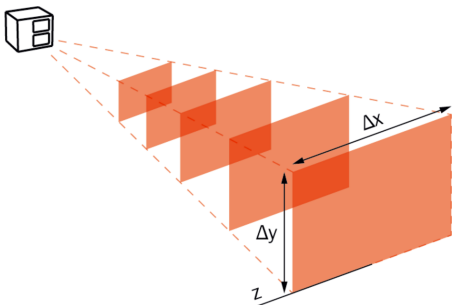
Dimensional drawing (Dimensions in mm (inch))



- ① Threaded mounting hole, M5, 7.5 mm depth (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

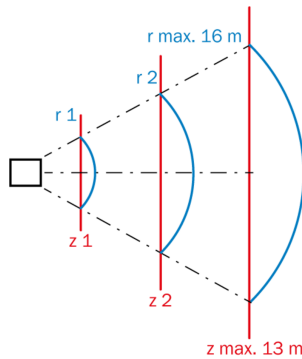
Detection volume and field of view



Axial working distance (z)	Range ( $\Delta x$ )	Range ( $\Delta y$ )
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 ( $\Delta x$ )	Range ( $\Delta y$ )
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

Absolute measurement accuracy and repeatability, working distance: radial

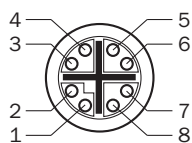


The specified numerical values are typical values and apply in the central 80% of the detection area, at room temperature, without ambient light, and at a frame rate of 25 fps. At distances > 9 m, the reliability of the measured values will be lower and individual pixels or pixel groups may exhibit defective 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 $\sigma$ - 90% remission)	Measurement accuracy (10% remission)	Repeatability (1 $\sigma$ - 10% remission)
0.2 m			$\pm 3$ mm	$\pm 0.8$ mm
0.5 m	$\pm 3$ mm	$\pm 0.8$ mm	$\pm 3$ mm	$\pm 0.8$ mm
1.0 m	$\pm 3$ mm	$\pm 0.8$ mm	$\pm 3$ mm	$\pm 1.5$ mm
2.0 m	$\pm 3$ mm	$\pm 1$ mm	$\pm 3$ mm	$\pm 4$ mm
4.0 m	$\pm 7$ mm	$\pm 2$ mm	$\pm 10$ mm	$\pm 12$ mm
7.0 m	$\pm 10$ mm	$\pm 5$ mm	$\pm 20$ mm	$\pm 50$ mm
8.0 m	$\pm 13$ mm	$\pm 7$ mm	-	-
10.0 m	$\pm 20$ mm	$\pm 15$ mm	-	-
13.0 m	$\pm 50$ mm	$\pm 48$ mm	-	-

### Connection type

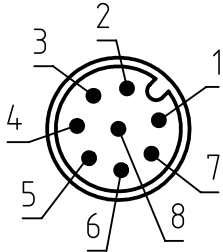
Gigabit Ethernet



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

Voltage / digital I/O / service







Power/I/O: M12 8-pin, A-coded

- ① Supply voltage
- ② INOUT 3 - Programmable digital I/O
- ③ GND - reference mass
- ④ INOUT 4 - Programmable digital I/O
- ⑤ INOUT 1 - Programmable digital I/O
- ⑥ INOUT 5 - Programmable digital I/O
- ⑦ INOUT 6 - Programmable digital I/O
- ⑧ INOUT 2 - Programmable digital I/O

### Recommended accessories

Other models and accessories → [www.sick.com/Visionary-T\\_Mini](http://www.sick.com/Visionary-T_Mini)

	Brief description	Type	Part no.
Heating and cooling devices			
	Heat sink (2-part) including screws	Visionary heat sink	2127749
Plug connectors and cables			
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Male connector, M12, 8-pin, straight, X-coded</li> <li>• <b>Connection type head B:</b> Male connector, RJ45, 8-pin, straight</li> <li>• <b>Signal type:</b> Ethernet, Gigabit Ethernet</li> <li>• <b>Cable:</b> 2 m, 8-wire, PUR, halogen-free</li> <li>• <b>Description:</b> Ethernet, Gigabit Ethernet, shielded</li> <li>• <b>Application:</b> Zones with oils and lubricants</li> </ul>	YM2X18-020EG1MRJA8	2106258
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Male connector, M12, 8-pin, straight, X-coded</li> <li>• <b>Connection type head B:</b> Male connector, RJ45, 8-pin, straight</li> <li>• <b>Signal type:</b> Ethernet, Gigabit Ethernet</li> <li>• <b>Cable:</b> 5 m, 8-wire, PUR, halogen-free</li> <li>• <b>Description:</b> Ethernet, Gigabit Ethernet, shielded</li> <li>• <b>Application:</b> Zones with oils and lubricants</li> </ul>	YM2X18-050EG1MRJA8	2106259
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Male connector, M12, 8-pin, straight, X-coded</li> <li>• <b>Connection type head B:</b> Male connector, RJ45, 8-pin, straight</li> <li>• <b>Signal type:</b> Ethernet, Gigabit Ethernet</li> <li>• <b>Cable:</b> 10 m, 8-wire, PUR, halogen-free</li> <li>• <b>Description:</b> Ethernet, Gigabit Ethernet, shielded</li> <li>• <b>Application:</b> Zones with oils and lubricants</li> </ul>	YM2X18-100EG1MRJA8	2106260

	Brief description	Type	Part no.
Terminal and alignment brackets			
	1 piece, Alignment brackets, Mounting set (2-part) incl. screws, Aluminum	Visionary mounting kit	2124497
Others			
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 8-pin, straight</li> <li>• <b>Connection type head B:</b> Flying leads</li> <li>• <b>Signal type:</b> Sensor/actuator cable</li> <li>• <b>Cable:</b> 2 m, 8-wire, PVC</li> <li>• <b>Description:</b> Sensor/actuator cable, special color code, shielded</li> <li>• <b>Connection systems:</b> Flying leads</li> </ul>	DOL-1208-G02MF	6020663
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 8-pin, straight</li> <li>• <b>Connection type head B:</b> Flying leads</li> <li>• <b>Signal type:</b> Sensor/actuator cable</li> <li>• <b>Cable:</b> 5 m, 8-wire, PVC</li> <li>• <b>Description:</b> Sensor/actuator cable, special color code, shielded</li> <li>• <b>Connection systems:</b> Flying leads</li> </ul>	DOL-1208-G05MF	6020664
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 8-pin, straight</li> <li>• <b>Connection type head B:</b> Flying leads</li> <li>• <b>Signal type:</b> Sensor/actuator cable</li> <li>• <b>Cable:</b> 10 m, 8-wire, PVC</li> <li>• <b>Description:</b> Sensor/actuator cable, special color code, shielded</li> <li>• <b>Connection systems:</b> Flying leads</li> </ul>	DOL-1208-G10MF	6048434

### Recommended services

Additional services → [www.sick.com/Visionary-T\\_Mini](http://www.sick.com/Visionary-T_Mini)

	Type	Part no.
Extended warranty		
<ul style="list-style-type: none"> <li>• <b>Product area:</b> Identification solutions, machine vision, Detection and ranging solutions, safety camera sensors, Safety laser scanners, Safety radar sensors</li> <li>• <b>Range of services:</b> The services correspond to the scope of the statutory manufacturer warranty (SICK general terms of delivery).</li> <li>• <b>Duration:</b> Five-year warranty from delivery date.</li> </ul>	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](http://www.sick.com)