



V3S145-1AAAAAA

Visionary-T Mini

3D MACHINE VISION

**SICK**  
Sensor Intelligence.



Illustration may differ



### Ordering information

Type	Part no.
V3S145-1AAAAAA	1127086

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

### Detailed technical data

#### Features

<b>Technology</b>	3D snapshot time-of-flight
<b>Programmable</b>	✓
<b>Pre-calibrated</b>	✓
<b>Integrated application</b>	Ability to process data within the device. Already-finished Key Apps can be loaded onto the device and independent applications can be created.
<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 (IEC 60825-1:2014, EN 60825-1:2014+A11:2021) <sup>2)</sup>
<b>Task</b>	Detecting - Standard objects Measuring - Dimension, contour and volume Localizing, navigating and guiding - Guiding Determining position - 3D position determination

<sup>1)</sup> 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.

<sup>2)</sup> 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

<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>	Typ. 12 W, without digital I/Os < 8 W, In energy saving mode
<b>Peak current</b>	2 A

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

<b>Enclosure rating</b>	IP65 IP67
<b>Protection class</b>	III
<b>Housing color</b>	Blue, black
<b>Window material</b>	PMMA
<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>Processor</b>	1.8 GHz, 4 × ARM Cortex <sup>1)</sup>
<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>2)</sup> Approx. 5 mm, at 7 m working distance <sup>2)</sup>
<b>Switch-on delay</b>	Approx. 20 s The switch-on delay can increase considerably at ambient temperatures below 0 °C.
<b>Response time</b>	Approx. 50 ms
<b>Camera coexistence mode</b>	Automatic

<sup>1)</sup> Part of the processor resources are required for internal processing. The current processor load is displayed in the CPU monitor in SICK AppStudio.

<sup>2)</sup> See table for individual values.

## Interfaces

<b>Ethernet</b>	✓, TCP/IP, UDP/IP
<b>Remark</b>	Data is application-specific or can be defined in independently-developed applications.
<b>Configuration software</b>	SICK AppManager, SICK AppStudio, Web-Interface, Telegram interface
<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>Damp heat</b>	+25 °C ... +55 °C, 95 % RH, Non-condensing, 6 cycles, (EN 60068-2-30:2005)

<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.

### Ambient light immunity

≥ 50 klx <sup>2)</sup>

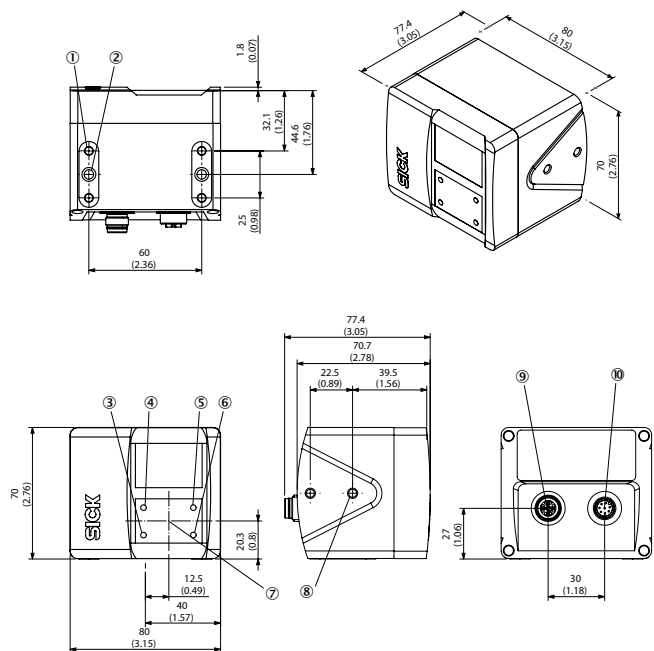
<sup>1)</sup> After a warm-up time of 45 minutes (at ≥ -10 °C) and a frame rate of > 25 fps, the camera can also be operated at ambient temperatures from -20 °C. A frame rate of < 25 fps is also possible with lower heat dissipation.

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

### 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

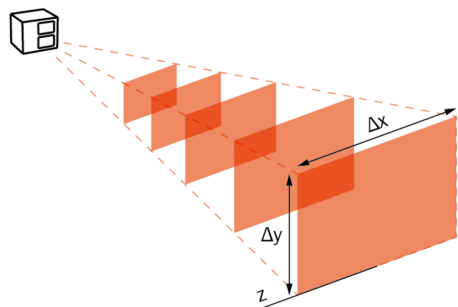
Dimensional drawing (Dimensions in mm (inch))



- 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

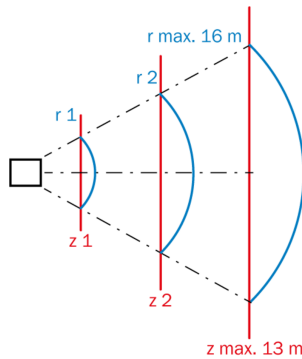
Detection volume and field of view



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

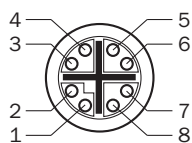


The specified numerical values are typical values and apply in the central 80% of the detection area, at room temperature, without ambient light, and at a frame rate of 25 fps. At distances > 9 m, the reliability of the measured values will be lower and individual pixels or pixel groups may exhibit defective 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

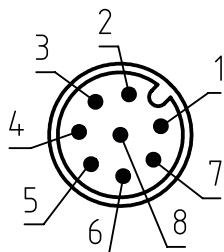
Gigabit Ethernet



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.
<b>Heating and cooling devices</b>			
	Heat sink (2-part) including screws	Visionary heat sink	2127749
<b>Terminal and alignment brackets</b>			
	1 piece, Alignment brackets, Mounting set (2-part) incl. screws, Aluminum	Visionary mounting kit	2124497
<b>Others</b>			
	<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

	Brief description	Type	Part no.
	<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
	<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
	<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> 3 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>	YM2X18-030EG1MRJA8	2145693

### 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> 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</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)