



V3S130-2AABAAB

Visionary-T

3D MACHINE VISION

**SICK**  
Sensor Intelligence.

### Ordering information



Type	Part no.
V3S130-2AABAAB	1088890

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

Illustration may differ



### Detailed technical data

#### Features

<b>Task</b>	Collision awareness
<b>Technology</b>	3D snapshot, image analysis
<b>Product category</b>	Configurable, programmable, Streaming, pre-calibrated
<b>Working distance</b>	0.5 m ... 60 m <sup>1)</sup>
<b>Example field of view</b>	7 m x 5.3 m <sup>2)</sup>
<b>Detection angle</b>	69° x 56°
<b>Angular resolution</b>	0.39° x 0.38°
<b>Illumination</b>	Integrated
<b>Illumination color</b>	Infrared, LED, invisible, 850 nm
<b>LED class</b>	Risk group 0 in accordance with EN 62471
<b>Factory calibrated</b>	✓
<b>Grayscale measurements</b>	✓

<sup>1)</sup> Radial distance for targets having 100% remission.

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

#### Mechanics/electronics

<b>Connection type</b>	M12 8-pin Gigabit Ethernet, X-coded M12 17-pin (voltage supply/data), system plug, digital IOs (24 V)
<b>Supply voltage</b>	24 V DC <sup>1)</sup>
<b>Power consumption</b>	≤ 22 W, Typical (without digital I/Os)
<b>Peak current</b>	3 A
<b>Enclosure rating</b>	IP67
<b>Protection class</b>	III
<b>Housing color</b>	Blue, black

<sup>1)</sup> (+/-20 %), < 2,5 ms integration time  
(+/-15 %), > 2,5 ms integration time.

<sup>2)</sup> Without cooling fins.

<b>Weight</b>	1.4 kg, without cooling fins
<b>Dimensions (L x W x H)</b>	162 mm x 93 mm x 78 mm <sup>2)</sup>
<b>Mounting</b>	Any or can be determined by raster

<sup>1)</sup> (+/-20 %), < 2,5 ms integration time  
(+/-15 %), > 2,5 ms integration time.

<sup>2)</sup> Without cooling fins.

## Performance

<b>Pixel count</b>	176 px x 144 px
<b>Repeatability</b>	≥ 2 mm, At 1 m distance <sup>1)</sup> ≥ 7 mm, At 7 m distance <sup>2)</sup>
<b>On delay</b>	< 15 s
<b>Response time</b>	< 100 ms <sup>3)</sup>
<b>Integrated application</b>	3D detection e. g., collision warning, emptiness check, layer check, Intrusion controll, object security

<sup>1)</sup> Typical values for common applications see tables below.

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

<sup>3)</sup> Typical.

## Interfaces

<b>Ethernet</b>	✓
Function	Device control, position and detection status of each cuboid and group
Data transmission rate	≤ 36 Mbit/s
<b>Configuration software</b>	SOPAS ET, Telegram interface, API (Java), Web-Interface
<b>Digital input</b>	2, allowing to access 32 configurations
<b>Digital output</b>	4
<b>Optical indicators</b>	2 status LEDs

## Ambient data

<b>Electromagnetic compatibility (EMC)</b>	EN 61000-6-2:2005-08, EN 61000-6-3:2007-01
<b>Shock load</b>	EN 60068-2-27:2009
<b>Vibration load</b>	EN 60068-2-6, EN 60068-2-64
<b>Ambient operating temperature</b>	0 °C ... +45 °C, without cooling fins
<b>Storage temperature</b>	-20 °C ... +70 °C
<b>Ambient light immunity</b>	< 50 klx, Sunlight

## General notes

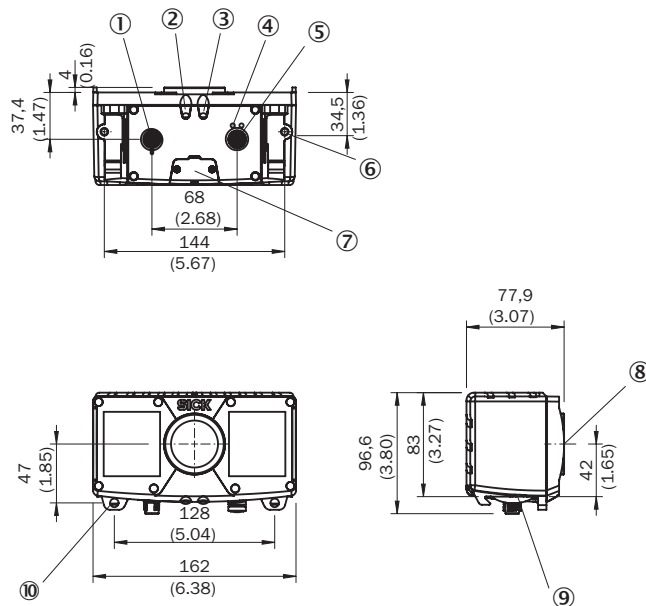
<b>Note</b>	All relevant materials for commissioning (instructions, drivers, examples, software, API) can be found in the Downloads tab under "Other downloads".
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## Classifications

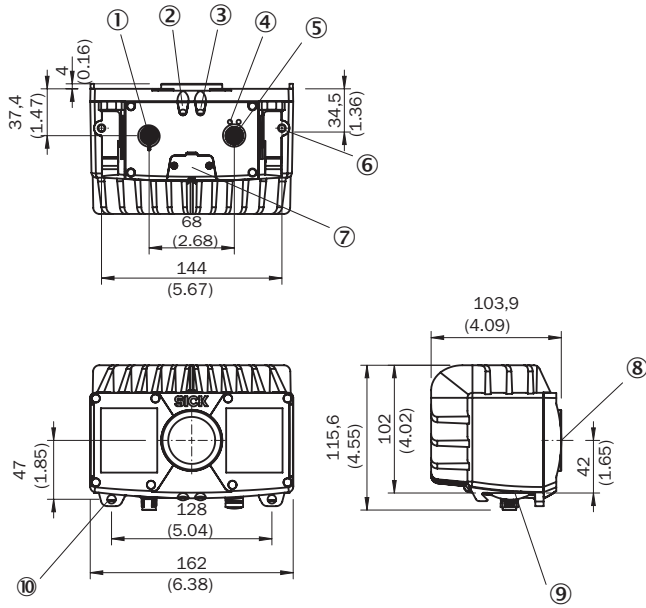
<b>eCl@ss 5.0</b>	27310205
<b>eCl@ss 5.1.4</b>	27310205
<b>eCl@ss 6.0</b>	27310205
<b>eCl@ss 6.2</b>	27310205
<b>eCl@ss 7.0</b>	27310205
<b>eCl@ss 8.0</b>	27310205

<b>eCl@ss 8.1</b>	27310205
<b>eCl@ss 9.0</b>	27310205
<b>eCl@ss 10.0</b>	27310205
<b>eCl@ss 11.0</b>	27310205
<b>eCl@ss 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))



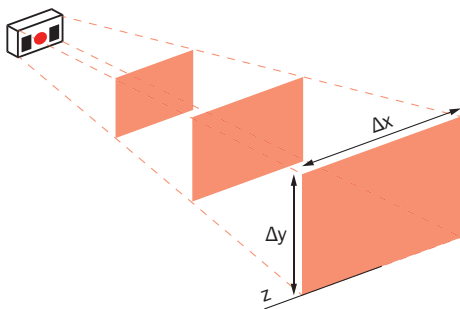
- ① Power connection / digital inputs and outputs / service
- ② Device display
- ③ Application status display
- ④ Ethernet status display
- ⑤ Ethernet connection
- ⑥ M6 blind tapped holes, 7 mm deep (2 x), for mounting
- ⑦ Service interface
- ⑧ Optical axis
- ⑨ Interface bracket
- ⑩ Bracket mounting (accessories)



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### Field of view

Detection volume and field of view



Axial working distance (z)	Range ( $\Delta x$ )	Range ( $\Delta y$ )	Minimal object size ( $\Delta x$ )	Minimal object size ( $\Delta y$ )
0,5 m	0,7 m	0,5 m	8 mm	8 mm
1,0 m	1,4 m	1,0 m	16 mm	14 mm
1,5 m	2,1 m	1,6 m	24 mm	22 mm
2,0 m	2,8 m	2,1 m	32 mm	30 mm
3,0 m	4,2 m	3,1 m	46 mm	44 mm
4,0 m	5,5 m	4,2 m	62 mm	60 mm
5,0 m	6,8 m	5,3 m	78 mm	74 mm
10,0 m	13,7 m	10,6 m	156 mm	148 mm

Axial working distance (z)	Range ( $\Delta x$ )	Range ( $\Delta y$ )	Minimal object size ( $\Delta x$ )	Minimal object size ( $\Delta y$ )
15,0 m	20,6 m	15,9 m	234 mm	222 mm
20,0 m	27,4 m	21,2 m	312 mm	296 mm
40,0 m	54,9 m	42,5 m	624 mm	590 mm

Accuracy/repeatability (under laboratory conditions)

Working distance radial (r)	Accuracy (100 % remission)	Repeatability (1 $\sigma$ - 100 % remission)	Accuracy (10 % remission)	Repeatability (1 $\sigma$ - 10 % remission)
0,50 m	± 15 mm	± 2 mm	± 15 mm	± 2 mm
1,00 m	± 15 mm	± 2 mm	± 15 mm	± 3 mm
2,00 m	± 15 mm	± 2 mm	± 20 mm	± 6 mm
3,00 m	± 15 mm	± 3 mm	± 35 mm	± 10 mm
4,00 m	± 20 mm	± 3 mm	± 50 mm	± 20 mm
5,00 m	± 25 mm	± 4 mm	± 50 mm	± 25 mm
7,00 m	± 35 mm	± 7 mm	-	-
10,00 m	± 50 mm	± 15 mm	-	-
15,00 m	± 50 mm	± 30 mm	-	-
20,00 m	± 50 mm	± 50 mm	-	-

Absolute measurement accuracy (z-axis) and repeatability (central detection volume) at 100% and 10% remission and without background light for integration times of 1 ms (0.5 m and 1 m distance) and 4 ms (all other distances).

Working distance radial (r)	Measurement accuracy (100% remission)	Repeatability (1 $\sigma$ - 100% remission)	Measurement accuracy (10% remission)	Repeatability (1 $\sigma$ - 10% remission)
0,5 m	± 15 mm	± 2 mm	± 15 mm	± 2 mm
1,0 m	± 15 mm	± 2 mm	± 15 mm	± 3 mm
2,0 m	± 15 mm	± 2 mm	± 20 mm	± 6 mm
3,0 m	± 15 mm	± 3 mm	± 35 mm	± 10 mm
4,0 m	± 20 mm	± 3 mm	± 50 mm	± 20 mm
5,0 m	± 25 mm	± 4 mm	± 50 mm	± 25 mm
7,0 m	± 35 mm	± 7 mm	-	-
10,0 m	± 50 mm	± 15 mm	-	-
15,0 m	± 50 mm	± 30 mm	-	-
20,0 m	± 50 mm	± 50 mm	-	-

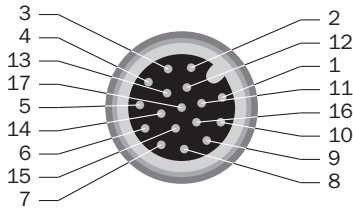
Recognizable object size and measurement accuracy. Actual detection accuracy and repeatability depend on your specific environment and setup. In the table you find typical values for a few common applications.

Application <sup>1)</sup>	Detectable object size	Measurement accuracy
Intrusion of observed scene at 1.5 m distance	30 mm	± 15 mm
Goods protection at 2 m distance	30 mm	± 15 mm
Empty box detection at 1.5 m distance	30 mm	± 15 mm
Collision warning at 2.5 m	50 mm	± 30 mm

Application	Detectable object size	Measurement accuracy
Intrusion of observed scene at 1.5 m distance	30 mm	± 15 mm
Goods protection at 2 m distance	30 mm	± 15 mm
Empty container detection at 1.5 m distance	30 mm	± 15 mm
Collision warning at 2.5 m	50 mm	± 30 mm

## Connection type

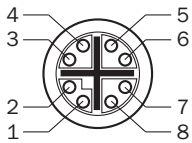
### Digital I/O



#### M12, 17-pin male connector

- ① GND – reference mass
- ② Supply voltage
- ③ CAN L – reserved, not implemented. Do not connect to VCC!
- ④ CAN H – reserved, not implemented. Do not connect to VCC!
- ⑤ TD+ (RS-422/485) Host – reserved, not implemented. Do not connect to VCC!
- ⑥ TD- (RS-422/485) Host, TxD (RS-232), Host – reserved, not implemented. Do not connect to VCC!
- ⑦ TxD (RS-232), Aux – service only
- ⑧ RxD (RS-232), Aux – service only
- ⑨ SENS GND – GND for electrically decoupled inputs
- ⑩ SENS IN1 – switch input, electrically decoupled
- ⑪ RD+ (RS-422) Host – reserved, not implemented. Do not connect to VCC!
- ⑫ RD- (RS-422/485) Host, RxD (RS-232), Host – reserved, not implemented. Do not connect to VCC!
- ⑬ INOUT 1 - Programmable digital I/O
- ⑭ INOUT 2 - Programmable digital I/O
- ⑮ SENS IN2 – switch input, electrically decoupled
- ⑯ INOUT 3 - Programmable digital I/O
- ⑰ INOUT 4 - Programmable digital I/O

### Gigabit Ethernet








#### M12, 8-pin female connector, X-coded (Gigabit Ethernet)

- ① TRD0\_P
- ② TRD0\_N
- ③ TRD1\_P
- ④ TRD1\_N
- ⑤ TRD3\_P
- ⑥ TRD3\_N
- ⑦ TRD2\_P
- ⑧ TRD2\_N

## Recommended accessories

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

	Brief description	Type	Part no.
Plug connectors and cables			
	Head A: female connector, M12, 17-pin, straight, A-coded Head B: Flying leads Cable: Power, serial, CAN, digital I/Os, suitable for 2 A, Changed color coding of the flying leads, PE-X, shielded, 3 m	YF2ASD-030XXXLECX	2070425

	Brief description	Type	Part no.
	Head A: female connector, M12, 17-pin, straight, A-coded Head B: Flying leads Cable: Power, serial, CAN, digital I/Os, suitable for 2 A, Changed color coding of the flying leads, PE-X, shielded, 5 m	YF2ASD-050XXXLECX	2070426
	Head A: female connector, M12, 17-pin, straight, A-coded Head B: male connector, M12, 17-pin, straight, A-coded Cable: Power, serial, CAN, digital I/Os, suitable for 2 A, shielded, 3 m	YM2A8D-030XXF2A8D	6051194
	Head A: male connector, M12, 8-pin, straight, X-coded Head B: male connector, RJ45, 8-pin, straight Cable: Ethernet, Gigabit Ethernet, PUR, halogen-free, shielded, 2 m	YM2X18-020EG1MRJA8	2106258
	Head A: male connector, M12, 8-pin, straight, X-coded Head B: male connector, RJ45, 8-pin, straight Cable: Ethernet, Gigabit Ethernet, PUR, halogen-free, shielded, 5 m	YM2X18-050EG1MRJA8	2106259
Terminal and alignment brackets			
	1 piece, Bracket including clamps and screws, metal, Bracket including clamps and screws	Mounting set (2-part) incl. clamps and screws	2077710
	1 piece, 2x clamps and 2x screws, metal, 2 clamps and 2 screws	2x clamps, 2x screws	2077709

### Recommended services

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

	Type	Part no.
Extended warranty		
<ul style="list-style-type: none"> <li>• <b>Product area:</b> Identification solutions, machine vision, Distance sensors, Detection and ranging solutions</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)